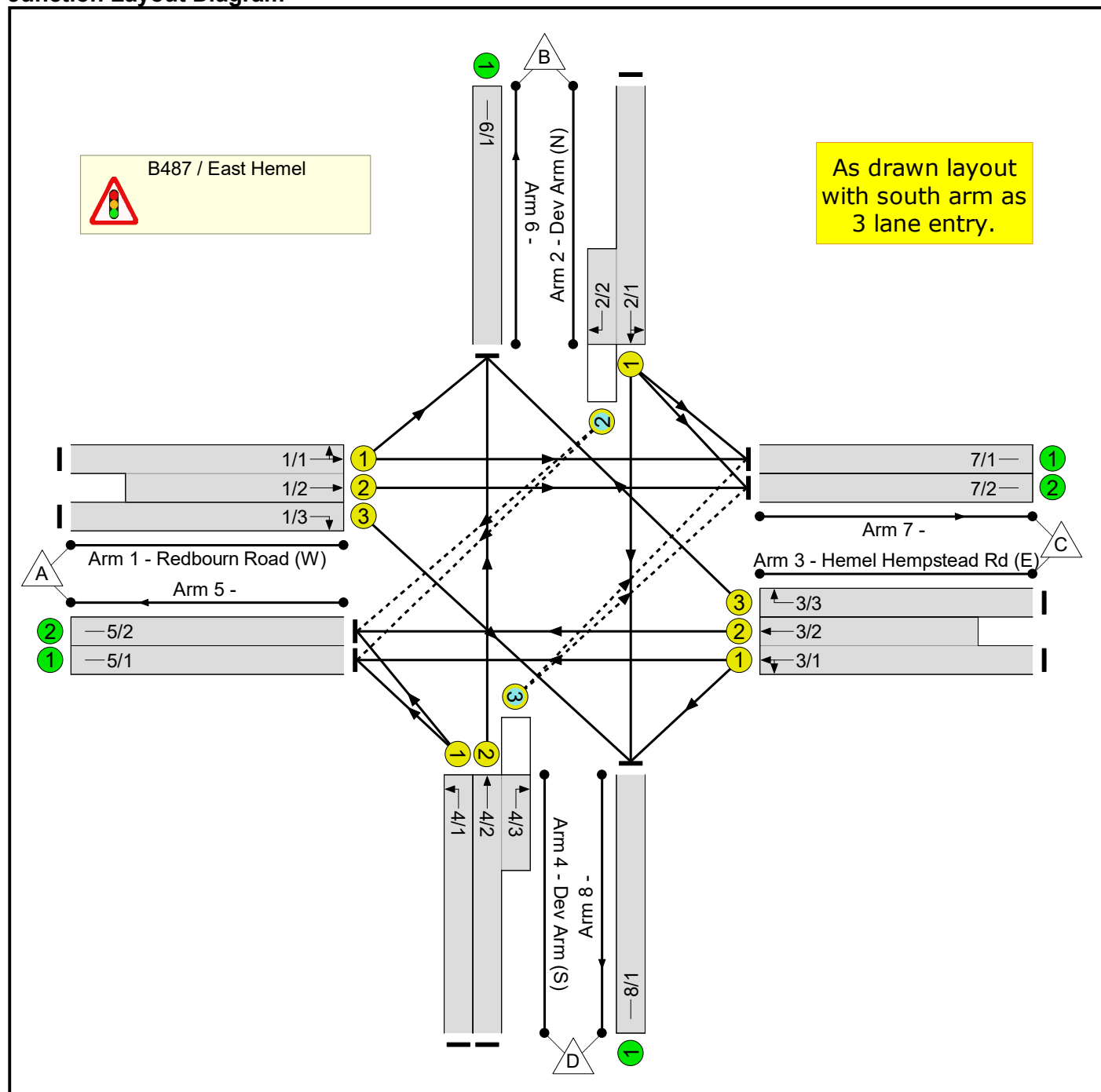
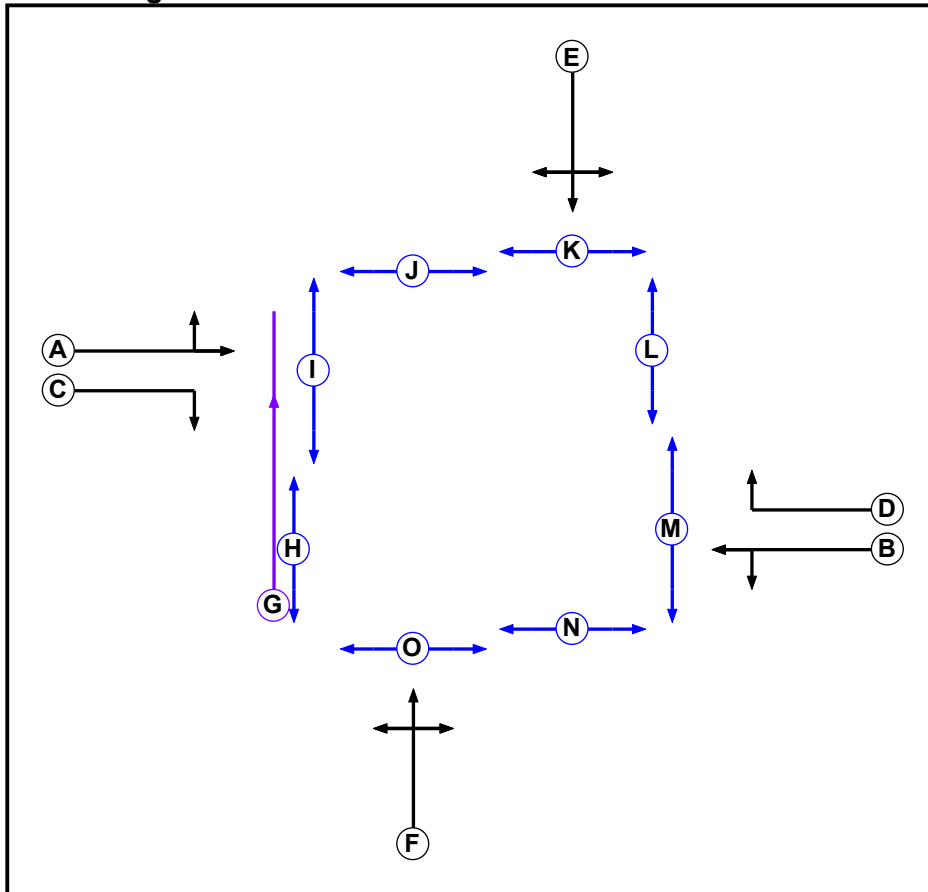


User and Project Details

Project:	Gorhambury Estate, Hemel Hempstead
Title:	B487 Redbourn Road Junction
Design Layout Ref:	Based on layout on Drg. No: EHUK-VEC-ZZZ-XXX-DR-CR-00084 Rev P2
File name:	Redbourne (CR-00084 Rev P2) v1.0.lsg3x
Author:	David Noyce
Company:	SLR
Address:	Summit House, 12 Red Lion Square, London WC1R 4QH

Junction Layout Diagram



Phase Diagram**Phase Input Data**

Phase Name	Phase Type	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic		-9999	7
B	Traffic		-9999	7
C	Traffic		-9999	7
D	Traffic		-9999	7
E	Traffic		-9999	7
F	Traffic		-9999	7
G	Cycle		-9999	5
H	Pedestrian		-9999	5
I	Pedestrian		-9999	5
J	Pedestrian		-9999	5
K	Pedestrian		-9999	5
L	Pedestrian		-9999	5
M	Pedestrian		-9999	5
N	Pedestrian		-9999	5
O	Pedestrian		-9999	5

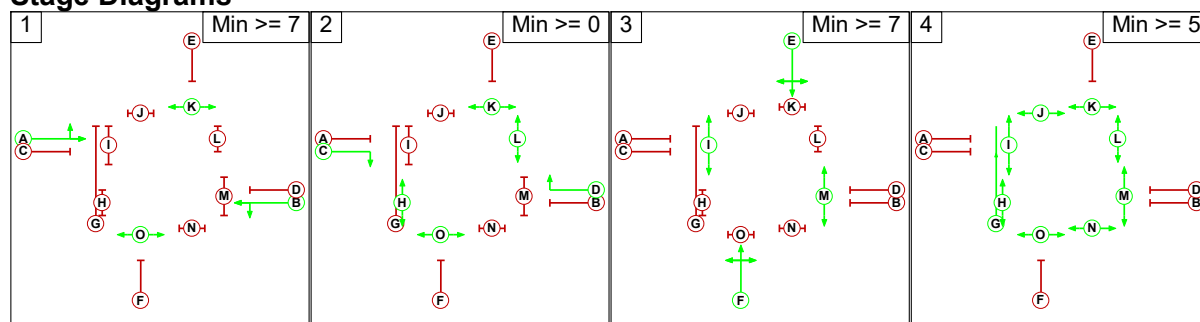
Intergreens

		Starting Phase															
Terminating Phase		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	A		-	-	5	8	6	5	-	6	10	-	11	-	-	-	
	B	-		5	-	5	6	12	11	-	-	-	-	5	8	-	
	C	-	10		-	6	7	5	-	6	-	-	-	-	15	-	
	D	6	-	-		6	5	-	-	-	12	-	-	5	-	-	
	E	5	7	5	6		-	16	13	-	-	5	9	-	10	-	
	F	6	5	5	6	-		14	12	-	10	-	13	-	-	5	
	G	8	8	8	-	8	8		-	-	-	-	-	-	-	-	
	H	-	5	-	-	5	5	-		-	-	-	-	-	-	-	
	I	5	-	5	-	-	-	-	-		-	-	-	-	-	-	
	J	5	-	-	5	-	5	-	-	-		-	-	-	-	-	
	K	-	-	-	-	5	-	-	-	-	-		-	-	-	-	
	L	5	-	-	-	5	5	-	-	-	-	-		-	-	-	
	M	-	5	-	5	-	-	-	-	-	-	-	-		-	-	
	N	-	5	5	-	5	-	-	-	-	-	-	-	-		-	
	O	-	-	-	-	-	5	-	-	-	-	-	-	-	-		

Stage Data

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

Stage Diagrams



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	3	3
1	3	K	Losing	3	3
1	3	O	Losing	3	3
2	1	H	Losing	5	5
2	1	L	Losing	1	1
2	3	D	Losing	1	1
3	1	I	Losing	1	1
3	1	M	Losing	2	2
3	2	I	Losing	1	1
3	2	M	Losing	1	1
4	1	H	Losing	3	3
4	1	I	Losing	3	3
4	1	J	Losing	3	3
4	1	L	Losing	3	3
4	1	M	Losing	3	3
4	1	N	Losing	3	3
4	2	I	Losing	3	3
4	2	J	Losing	3	3
4	2	M	Losing	3	3
4	2	N	Losing	3	3
4	3	H	Losing	3	3
4	3	J	Losing	3	3
4	3	K	Losing	3	3
4	3	L	Losing	3	3
4	3	N	Losing	3	3
4	3	O	Losing	3	3

Lane Input Data

Junction: B487 / East Hemel												
Lane	Lane Type	Phases	Start Disp. (s)	End Disp. (s)	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient (%)	Nearside Lane	Turns	Turning Radius (m)
1/1 (Redbourn Road (W))	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	11.50
											Arm 7 Ahead	Inf
1/2 (Redbourn Road (W))	U	A	2	3	16.1	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
1/3 (Redbourn Road (W))	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 8 Right	20.00
2/1 (Dev Arm (N))	U	E	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Left	13.50
											Arm 8 Ahead	Inf
2/2 (Dev Arm (N))	O	E	2	3	5.0	Geom	-	3.25	0.00	Y	Arm 5 Right	20.00
3/1 (Hemel Hempstead Rd (E))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	13.50
3/2 (Hemel Hempstead Rd (E))	U	B	2	3	18.6	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
3/3 (Hemel Hempstead Rd (E))	U	D	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 6 Right	22.50
4/1 (Dev Arm (S))	U	F	2	3	60.0	Geom	-	3.15	0.00	Y	Arm 5 Left	11.50
4/2 (Dev Arm (S))	U	F	2	3	60.0	Geom	-	3.15	0.00	Y	Arm 6 Ahead	Inf
4/3 (Dev Arm (S))	O	F	2	3	5.0	Geom	-	3.20	0.00	Y	Arm 7 Right	15.00

Give-Way Lane Input Data

Junction: B487 / East Hemel											
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)
2/2 (Dev Arm (N))	5/1 (Right)	1439	0	4/2	1.09	All	3.00	-	0.50	3	3.00
	5/2 (Right)	1439	0	4/2	1.09	All					
4/3 (Dev Arm (S))	7/1 (Right)	1439	0	2/1	1.09	All	3.00	-	0.50	3	3.00
	7/2 (Right)	1439	0	2/1	1.09	All					

Scenario 2: '2041 Local Plan Dev Case, AM (0700-0800)'

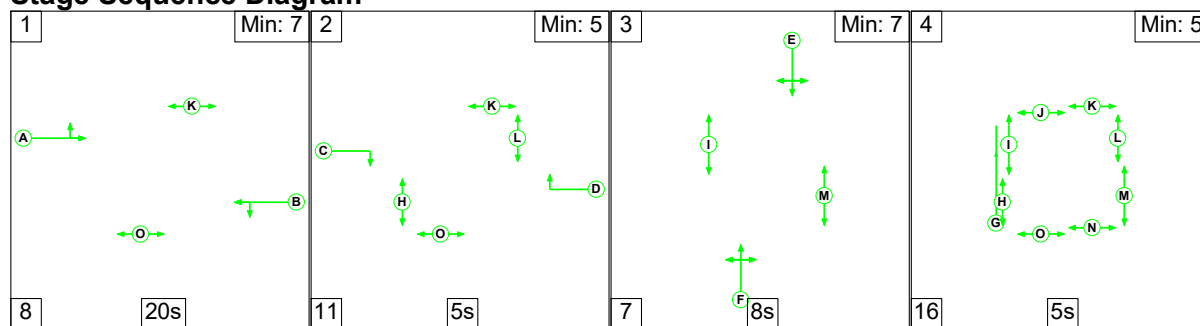
(FG2: '2041 Local Plan Dev Case, AM (0700-0800)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	21	878	49	948
	B	94	0	101	71	266
	C	549	25	0	50	624
	D	60	20	101	0	181
	Tot.	703	66	1080	170	2019

Stage Timings

Stage	1	2	3	4
Duration	20	5	8	5
Change Point	0	28	44	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	89.7%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	89.7%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	20	8	28	899	1903:1915	500+503	89.7 : 89.7%	44.6 (44.6:44.6)	13.7
1/3	Redbourn Road (W) Right	C	11	33	44	49	1781	267	18.3%	38.0	1.1
2/1+2/2	Dev Arm (N) Right Left Ahead	E	8	51	59	266	1821:1805	205+112	84.0 : 84.0%	66.8 (67.2:66.1)	6.1
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	20	8	28	599	1880:1915	493+503	60.2 : 60.1%	30.4 (30.4:30.3)	6.6
3/3	Hemel Hempstead Rd (E) Right	D	12	33	45	25	1814	295	8.5%	35.1	0.5
4/1	Dev Arm (S) Left	F	8	51	59	60	1707	192	31.2%	46.3	1.4
4/2+4/3	Dev Arm (S) Ahead Right	F	8	51	59	121	1930:1759	27+135	74.8 : 74.8%	80.2 (73.3:81.6)	3.5
C1 PRC for Signalled Lanes (%): 0.3 Total Delay for Signalled Lanes (pcuHr): 25.36 Cycle Time (s): 80											
PRC Over All Lanes (%): 0.3 Total Delay Over All Lanes(pcuHr): 25.36											

Scenario 3: '2041 Local Plan Dev Case, AM (0800-0900)'

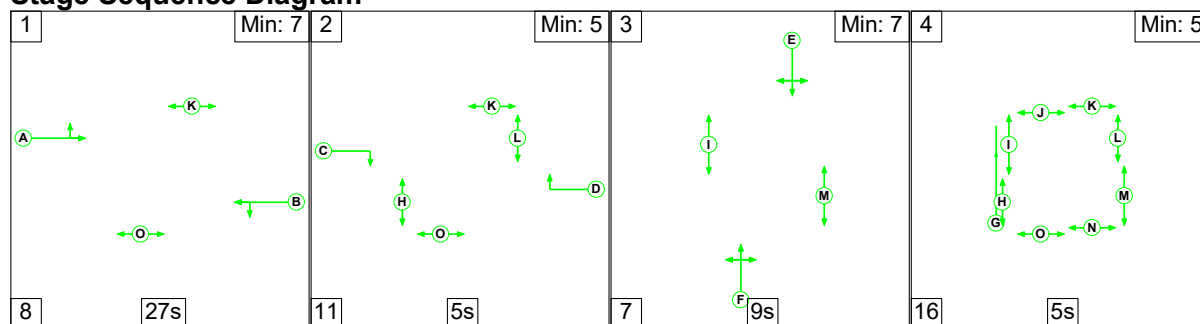
(FG3: '2041 Local Plan Dev Case, AM (0800-0900)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	32	983	37	1052
	B	85	0	100	76	261
	C	594	24	0	77	695
	D	72	20	103	0	195
	Tot.	751	76	1186	190	2203

Stage Timings

Stage	1	2	3	4
Duration	27	5	9	5
Change Point	0	35	51	67

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	86.0%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	86.0%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	27	8	35	1015	1899:1915	604+609	83.6 : 83.7%	36.7 (36.7:36.7)	14.0
1/3	Redbourn Road (W) Right	C	11	40	51	37	1781	243	15.2%	42.3	0.9
2/1+2/2	Dev Arm (N) Right Left Ahead	E	9	58	67	261	1825:1805	205+99	86.0 : 86.0%	75.4 (75.9:74.4)	6.9
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	27	8	35	671	1867:1915	594+609	55.7 : 55.8%	28.2 (28.2:28.2)	7.4
3/3	Hemel Hempstead Rd (E) Right	D	12	40	52	24	1814	268	9.0%	39.8	0.6
4/1	Dev Arm (S) Left	F	9	58	67	72	1707	194	37.1%	50.8	1.9
4/2+4/3	Dev Arm (S) Ahead Right	F	9	58	67	123	1930:1759	24+123	83.9 : 83.9%	107.3 (99.4:108.8)	4.5
C1 PRC for Signalled Lanes (%): 4.6 Total Delay for Signalled Lanes (pcuHr): 26.47 Cycle Time (s): 88											
PRC Over All Lanes (%): 4.6 Total Delay Over All Lanes(pcuHr): 26.47											

Scenario 4: '2041 Local Plan Dev Case, AM (0900-1000)'

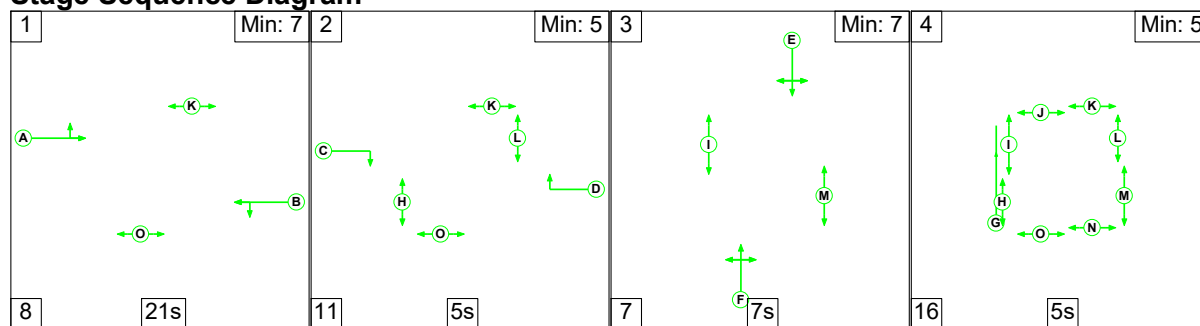
(FG4: '2041 Local Plan Dev Case, AM (0900-1000)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	18	703	29	750
	B	43	0	50	47	140
	C	475	13	0	46	534
	D	33	12	61	0	106
	Tot.	551	43	814	122	1530

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	68.7%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	68.7%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	721	1903:1915	523+527	68.6 : 68.7%	31.4 (31.4:31.4)	8.2
1/3	Redbourn Road (W) Right	C	11	34	45	29	1781	267	10.9%	37.0	0.6
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	140	1835:1805	183+81	52.9 : 52.9%	48.3 (48.5:47.7)	2.6
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	521	1878:1915	516+527	50.0 : 49.9%	27.8 (27.8:27.8)	5.4
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	13	1814	295	4.4%	34.9	0.3
4/1	Dev Arm (S) Left	F	7	52	59	33	1707	171	19.3%	46.2	0.8
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	73	1930:1759	27+135	45.2 : 45.2%	56.4 (53.0:57.0)	1.7
C1			PRC for Signalled Lanes (%):	30.9	Total Delay for Signalled Lanes (pcuHr):		14.17	Cycle Time (s):		80	
			PRC Over All Lanes (%):	30.9	Total Delay Over All Lanes(pcuHr):		14.17				

Scenario 5: '2041 Local Plan Dev Case, PM (1600-1700)'
(FG5: '2041 Local Plan Dev Case, PM (1600-1700)', Plan 1: 'Peds Every Cycle')

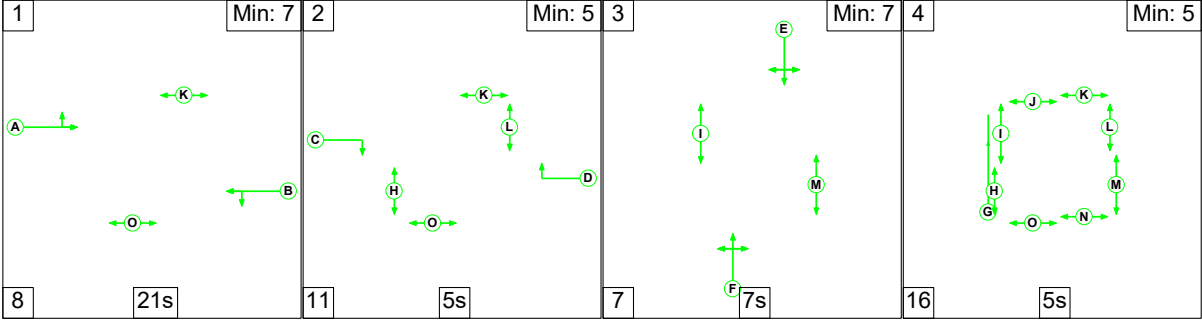
Traffic Flows, Desired
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	78	662	35	775
	B	32	0	46	19	97
	C	770	71	0	91	932
	D	37	53	62	0	152
	Tot.	839	202	770	145	1956

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	82.8%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	82.8%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	740	1863:1915	512+527	71.2 : 71.2%	32.1 (32.1:32.1)	8.7
1/3	Redbourn Road (W) Right	C	11	34	45	35	1781	267	13.1%	37.3	0.7
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	97	1799:1805	180+89	36.1 : 36.1%	44.3 (44.1:44.6)	1.6
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	861	1870:1915	514+527	82.6 : 82.8%	37.0 (37.0:37.0)	11.4
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	71	1814	295	24.1%	37.3	1.5
4/1	Dev Arm (S) Left	F	7	52	59	37	1707	171	21.7%	46.6	0.9
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	115	1930:1759	150+176	35.2 : 35.2%	43.2 (41.8:44.3)	1.5
C1 PRC for Signalled Lanes (%): 8.7 PRC Over All Lanes (%): 8.7 Total Delay for Signalled Lanes (pcuHr): 19.59 Total Delay Over All Lanes(pcuHr): 19.59 Cycle Time (s): 80											

Scenario 6: '2041 Local Plan Dev Case, PM (1700-1800)'

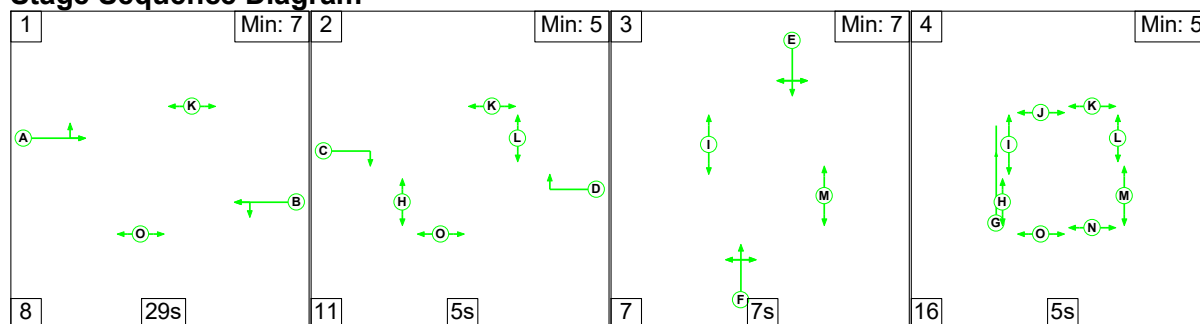
(FG6: '2041 Local Plan Dev Case, PM (1700-1800)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	88	824	58	970
	B	55	0	59	27	141
	C	860	72	0	117	1049
	D	40	61	93	0	194
	Tot.	955	221	976	202	2354

Stage Timings

Stage	1	2	3	4
Duration	29	5	7	5
Change Point	0	37	53	67

Stage Sequence Diagram

Link Results

[illegible]

Scenario 7: '2041 Local Plan Dev Case, PM (1800-1900)'

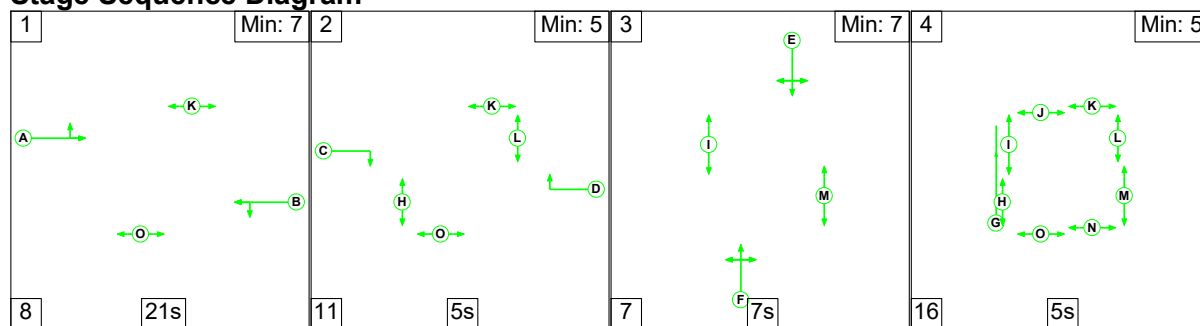
(FG7: '2041 Local Plan Dev Case, PM (1800-1900)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	72	654	37	763
	B	27	0	39	19	85
	C	675	55	0	75	805
	D	26	58	55	0	139
	Tot.	728	185	748	131	1792

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	72.0%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	72.0%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	726	1866:1915	513+527	69.8 : 69.9%	31.7 (31.7:31.7)	8.4
1/3	Redbourn Road (W) Right	C	11	34	45	37	1781	267	13.8%	37.4	0.8
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	85	1805:1805	181+84	32.1 : 32.1%	43.8 (43.5:44.3)	1.4
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	750	1873:1915	515+527	72.0 : 72.0%	32.3 (32.3:32.3)	8.9
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	55	1814	295	18.7%	36.5	1.2
4/1	Dev Arm (S) Left	F	7	52	59	26	1707	171	15.2%	45.4	0.6
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	113	1930:1759	193+176	30.1 : 31.3%	41.3 (40.5:42.2)	1.4
C1			PRC for Signalled Lanes (%):	25.0	Total Delay for Signalled Lanes (pcuHr):		16.73	Cycle Time (s):		80	
			PRC Over All Lanes (%):	25.0	Total Delay Over All Lanes(pcuHr):		16.73				

Scenario 10: '2041 Local Plan Dev Case, AM (0700-0800)'

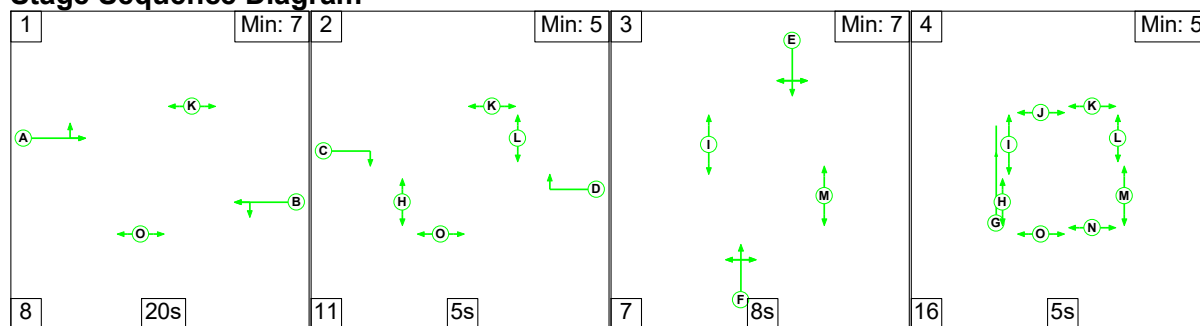
(FG10: '2041 Local Plan Dev Case, AM (0700-0800)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	32	831	64	927
	B	88	0	101	73	262
	C	542	25	0	53	620
	D	71	12	86	0	169
	Tot.	701	69	1018	190	1978

Stage Timings

Stage	1	2	3	4
Duration	20	5	8	5
Change Point	0	28	44	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	86.3%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	86.3%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	20	8	28	863	1897:1915	498+503	86.2 : 86.3%	40.7 (40.6:40.7)	12.2
1/3	Redbourn Road (W) Right	C	11	33	44	64	1781	267	24.0%	38.9	1.4
2/1+2/2	Dev Arm (N) Right Left Ahead	E	8	51	59	262	1822:1805	205+104	84.9 : 84.9%	69.2 (69.7:68.4)	6.3
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	20	8	28	595	1878:1915	493+503	59.8 : 59.7%	30.3 (30.3:30.3)	6.5
3/3	Hemel Hempstead Rd (E) Right	D	12	33	45	25	1814	295	8.5%	35.1	0.5
4/1	Dev Arm (S) Left	F	8	51	59	71	1707	192	37.0%	47.7	1.8
4/2+4/3	Dev Arm (S) Ahead Right	F	8	51	59	98	1930:1759	19+135	63.7 : 63.7%	70.3 (63.2:71.3)	2.6
C1			PRC for Signalled Lanes (%):		4.2	Total Delay for Signalled Lanes (pcuHr):		23.58	Cycle Time (s): 80		
			PRC Over All Lanes (%):		4.2	Total Delay Over All Lanes(pcuHr):		23.58			

Scenario 11: '2041 Local Plan Dev Case, AM (0800-0900)'
(FG11: '2041 Local Plan Dev Case, AM (0800-0900)', Plan 1: 'Peds Every Cycle')

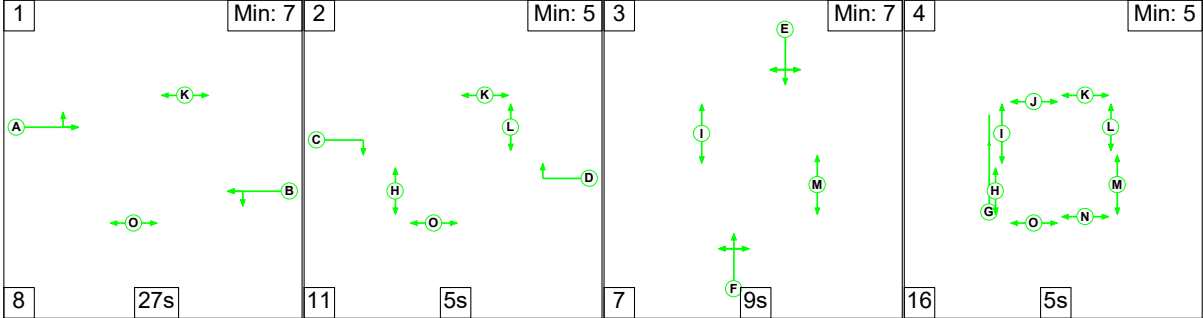
Traffic Flows, Desired
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	37	994	79	1110
	B	83	0	99	73	255
	C	589	24	0	80	693
	D	67	14	95	0	176
	Tot.	739	75	1188	232	2234

Stage Timings

Stage	1	2	3	4
Duration	27	5	9	5
Change Point	0	35	51	67

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	85.0%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	85.0%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	27	8	35	1031	1897:1915	604+609	85.0 : 85.0%	37.6 (37.6:37.6)	14.5
1/3	Redbourn Road (W) Right	C	11	40	51	79	1781	243	32.5%	45.3	2.0
2/1+2/2	Dev Arm (N) Right Left Ahead	E	9	58	67	255	1823:1805	205+99	84.1 : 84.1%	71.6 (72.1:70.6)	6.5
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	27	8	35	669	1865:1915	593+609	55.6 : 55.6%	28.2 (28.2:28.2)	7.4
3/3	Hemel Hempstead Rd (E) Right	D	12	40	52	24	1814	268	9.0%	39.8	0.6
4/1	Dev Arm (S) Left	F	9	58	67	67	1707	194	34.5%	50.1	1.8
4/2+4/3	Dev Arm (S) Ahead Right	F	9	58	67	109	1930:1759	18+123	77.4 : 77.4%	94.4 (86.5:95.6)	3.7
C1			PRC for Signalled Lanes (%):		5.9	Total Delay for Signalled Lanes (pcuHr):		26.15	Cycle Time (s): 88		
			PRC Over All Lanes (%):		5.9	Total Delay Over All Lanes(pcuHr):		26.15			

Scenario 12: '2041 Local Plan Dev Case, AM (0900-1000)'
(FG12: '2041 Local Plan Dev Case, AM (0900-1000)', Plan 1: 'Peds Every Cycle')

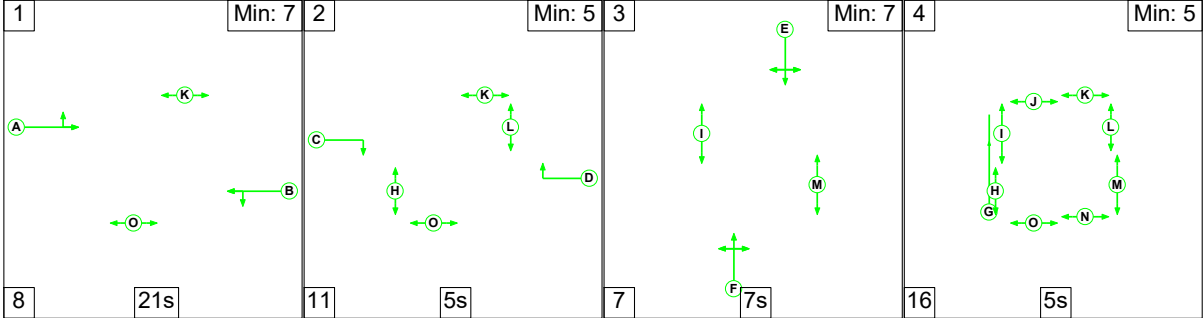
Traffic Flows, Desired
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	26	761	48	835
	B	50	0	51	41	142
	C	471	13	0	47	531
	D	39	12	58	0	109
	Tot.	560	51	870	136	1617

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	75.1%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	75.1%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	787	1899:1915	522+527	75.1 : 75.0%	33.3 (33.3:33.3)	9.5
1/3	Redbourn Road (W) Right	C	11	34	45	48	1781	267	18.0%	37.9	1.0
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	142	1827:1805	183+99	50.4 : 50.4%	46.7 (46.9:46.4)	2.4
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	518	1877:1915	516+527	49.6 : 49.8%	27.8 (27.8:27.8)	5.4
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	13	1814	295	4.4%	34.9	0.3
4/1	Dev Arm (S) Left	F	7	52	59	39	1707	171	22.8%	46.9	0.9
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	70	1930:1759	28+135	43.0 : 43.0%	55.3 (52.1:56.0)	1.6
C1			PRC for Signalled Lanes (%):		19.9	Total Delay for Signalled Lanes (pcuHr):		15.33	Cycle Time (s): 80		
			PRC Over All Lanes (%):		19.9	Total Delay Over All Lanes(pcuHr):		15.33			

Scenario 13: '2041 Local Plan Dev Case, PM (1600-1700)'

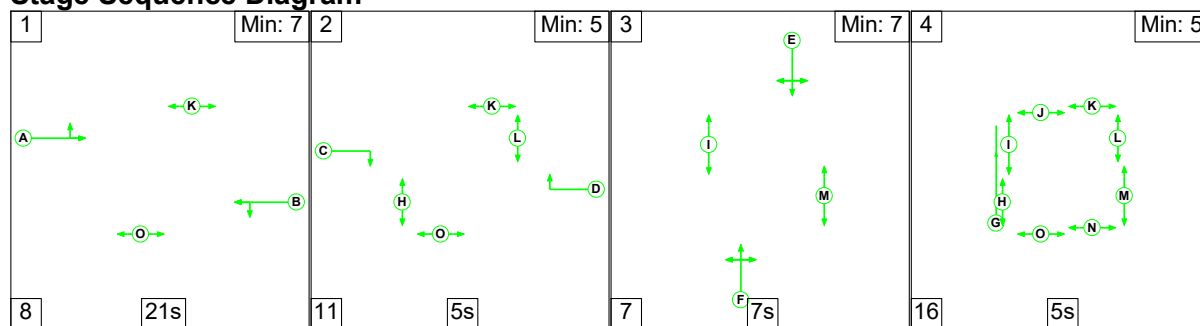
(FG13: '2041 Local Plan Dev Case, PM (1600-1700)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	73	636	37	746
	B	35	0	46	20	101
	C	766	69	0	92	927
	D	30	53	65	0	148
	Tot.	831	195	747	149	1922

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	82.5%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	82.5%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	709	1864:1915	513+527	68.3 : 68.2%	31.3 (31.3:31.3)	8.1
1/3	Redbourn Road (W) Right	C	11	34	45	37	1781	267	13.8%	37.4	0.8
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	101	1801:1805	180+96	36.6 : 36.6%	44.1 (43.9:44.5)	1.6
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	858	1870:1915	514+527	82.5 : 82.4%	36.8 (36.8:36.8)	11.2
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	69	1814	295	23.4%	37.2	1.5
4/1	Dev Arm (S) Left	F	7	52	59	30	1707	171	17.6%	45.8	0.7
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	118	1930:1759	110+135	48.1 : 48.1%	48.8 (47.4:50.0)	1.8
C1			PRC for Signalled Lanes (%):		9.2	Total Delay for Signalled Lanes (pcuHr):		19.25	Cycle Time (s): 80		
			PRC Over All Lanes (%):		9.2	Total Delay Over All Lanes(pcuHr):		19.25			

Scenario 14: '2041 Local Plan Dev Case, PM (1700-1800)'

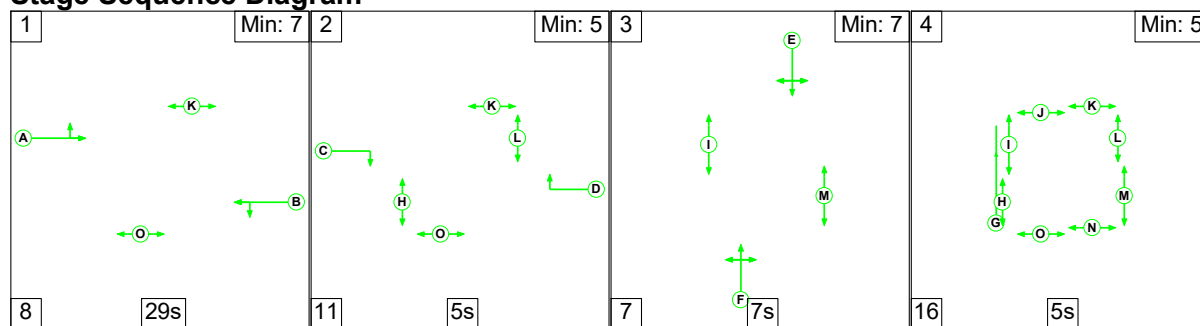
(FG14: '2041 Local Plan Dev Case, PM (1700-1800)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	89	777	47	913
	B	56	0	61	17	134
	C	872	73	0	109	1054
	D	43	61	93	0	197
	Tot.	971	223	931	173	2298

Stage Timings

Stage	1	2	3	4
Duration	29	5	7	5
Change Point	0	37	53	67

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	76.1%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	76.1%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	29	8	37	866	1864:1915	635+653	67.2 : 67.2%	29.0 (29.0:29.0)	10.2
1/3	Redbourn Road (W) Right	C	11	42	53	47	1781	243	19.4%	42.9	1.1
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	60	67	134	1785:1805	162+117	48.1 : 48.1%	51.1 (50.4:52.1)	2.3
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	29	8	37	981	1868:1915	637+653	76.0 : 76.1%	31.6 (31.6:31.6)	12.3
3/3	Hemel Hempstead Rd (E) Right	D	12	42	54	73	1814	268	27.2%	42.5	1.8
4/1	Dev Arm (S) Left	F	7	60	67	43	1707	155	27.7%	53.3	1.2
4/2+4/3	Dev Arm (S) Ahead Right	F	7	60	67	154	1930:1759	80+123	75.8 : 75.8%	74.7 (72.1:76.4)	3.6
C1			PRC for Signalled Lanes (%):		18.2	Total Delay for Signalled Lanes (pcuHr):		22.75	Cycle Time (s): 88		
			PRC Over All Lanes (%):		18.2	Total Delay Over All Lanes(pcuHr):		22.75			

(FG15: '2041 Local Plan Dev Case, PM (1800-1900)', Plan 1: 'Peds Every Cycle')

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	84	669	36	789
	B	41	0	37	7	85
	C	696	58	0	64	818
	D	28	55	77	0	160
	Tot.	765	197	783	107	1852

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence 1		Stage Sequence 2		Stage Sequence 3		Stage Sequence 4	
1	Min: 7	2	Min: 5	3	Min: 7	4	Min: 5
8	21s	11	5s	7	7s	16	5s

Link Results

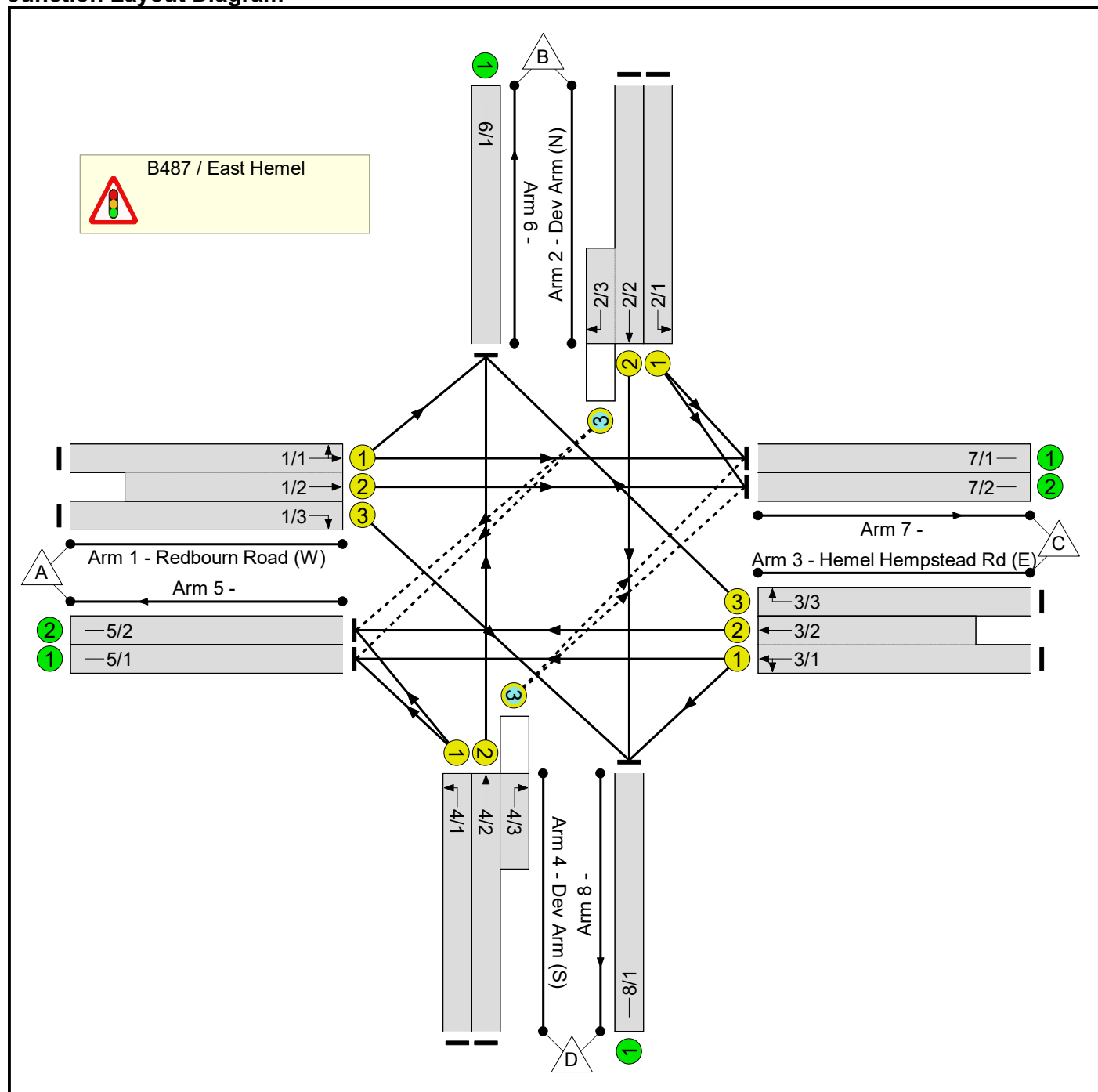
Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	72.9%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	72.9%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	753	1860:1915	511+527	72.5 : 72.5%	32.5 (32.5:32.5)	8.9
1/3	Redbourn Road (W) Right	C	11	34	45	36	1781	267	13.5%	37.4	0.8
2/1+2/2	Dev Arm (N) Right Left Ahead	E	7	52	59	85	1774:1805	177+179	24.8 : 22.9%	40.5 (39.9:41.1)	1.0
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	760	1879:1915	517+527	72.8 : 72.9%	32.6 (32.6:32.6)	9.0
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	58	1814	295	19.7%	36.6	1.2
4/1	Dev Arm (S) Left	F	7	52	59	28	1707	171	16.4%	45.6	0.7
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	132	1930:1759	126+176	43.8 : 43.8%	45.1 (43.9:45.8)	2.0
C1			PRC for Signalled Lanes (%):	23.4	Total Delay for Signalled Lanes (pcuHr):		17.61	Cycle Time (s):		80	
			PRC Over All Lanes (%):	23.4	Total Delay Over All Lanes(pcuHr):		17.61				

APPENDIX I. Eastern Access Junction Sensitivity Test Model Output

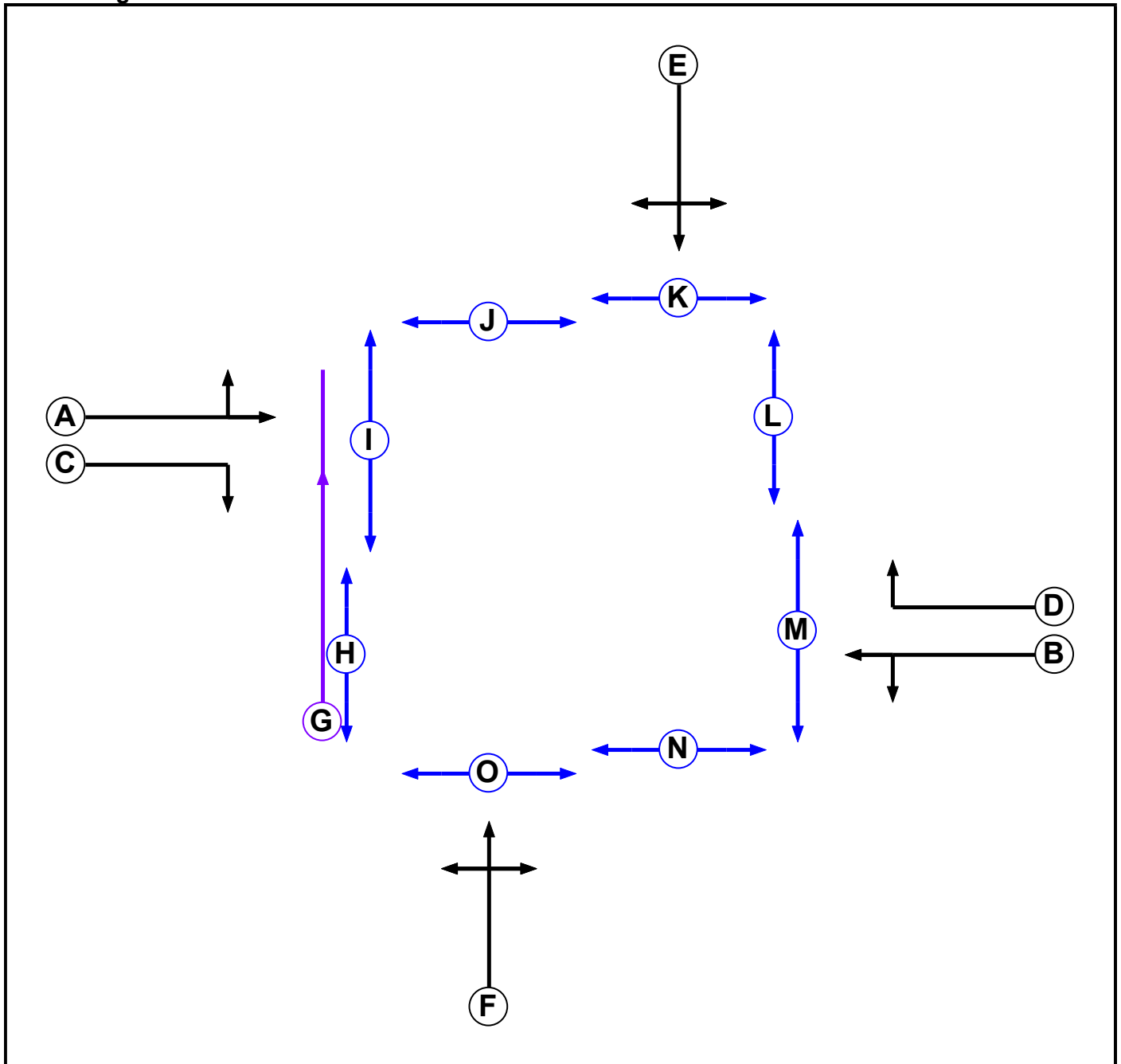
B487 Redbourn Road Junction**User and Project Details**

Project:	Gorhambury Estate, Hemel Hempstead
Title:	B487 Redbourn Road Junction
Location:	
Design Layout Ref:	Based on layout on Drg. No: EHUK-VEC-ZZZ-XXX-DR-CR-00084 Rev P2
Additional detail:	
File name:	Redbourne (CR-00084 Rev P2) v1.0 (test 2).lsg3x
Author:	David Noyce
Company:	SLR
Address:	Summit House, 12 Red Lion Square, London WC1R 4QH

Junction Layout Diagram



Phase Diagram



Phase Input Data

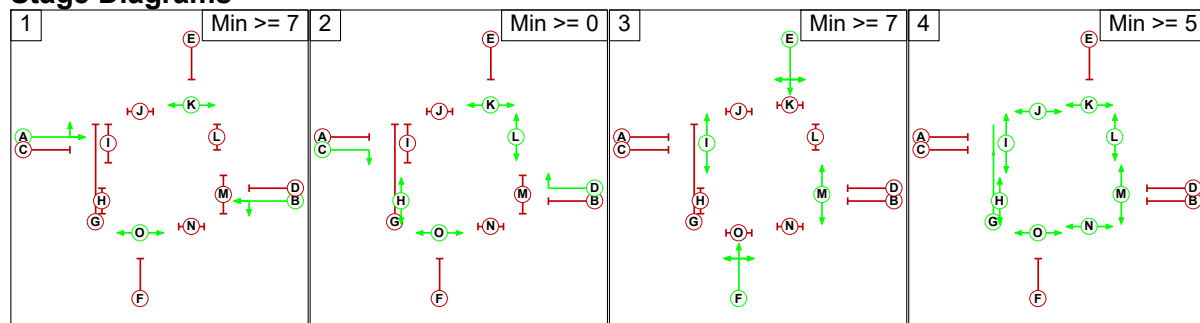
Phase Name	Phase Type	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic		-9999	7
B	Traffic		-9999	7
C	Traffic		-9999	7
D	Traffic		-9999	7
E	Traffic		-9999	7
F	Traffic		-9999	7
G	Cycle		-9999	5
H	Pedestrian		-9999	5
I	Pedestrian		-9999	5
J	Pedestrian		-9999	5
K	Pedestrian		-9999	5
L	Pedestrian		-9999	5
M	Pedestrian		-9999	5
N	Pedestrian		-9999	5
O	Pedestrian		-9999	5

Intergreens

		Starting Phase															
Terminating Phase		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	A		-	-	5	8	6	5	-	6	10	-	11	-	-	-	
	B	-		5	-	5	6	12	11	-	-	-	-	5	8	-	
	C	-	10		-	6	7	5	-	6	-	-	-	-	15	-	
	D	6	-	-		6	5	-	-	-	12	-	-	5	-	-	
	E	5	7	5	6		-	16	13	-	-	5	9	-	10	-	
	F	6	5	5	6	-		14	12	-	10	-	13	-	-	5	
	G	8	8	8	-	8	8		-	-	-	-	-	-	-	-	
	H	-	5	-	-	5	5	-		-	-	-	-	-	-	-	
	I	5	-	5	-	-	-	-	-		-	-	-	-	-	-	
	J	5	-	-	5	-	5	-	-	-		-	-	-	-	-	
	K	-	-	-	-	5	-	-	-	-	-		-	-	-	-	
	L	5	-	-	-	5	5	-	-	-	-	-		-	-	-	
	M	-	5	-	5	-	-	-	-	-	-	-	-		-	-	
	N	-	5	5	-	5	-	-	-	-	-	-	-	-		-	
	O	-	-	-	-	-	5	-	-	-	-	-	-	-	-		

Stage Data

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

Stage Diagrams

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	3	3
1	3	K	Losing	3	3
1	3	O	Losing	3	3
2	1	H	Losing	5	5
2	1	L	Losing	1	1
2	3	D	Losing	1	1
3	1	I	Losing	1	1
3	1	M	Losing	2	2
3	2	I	Losing	1	1
3	2	M	Losing	1	1
4	1	H	Losing	3	3
4	1	I	Losing	3	3
4	1	J	Losing	3	3
4	1	L	Losing	3	3
4	1	M	Losing	3	3
4	1	N	Losing	3	3
4	2	I	Losing	3	3
4	2	J	Losing	3	3
4	2	M	Losing	3	3
4	2	N	Losing	3	3
4	3	H	Losing	3	3
4	3	J	Losing	3	3
4	3	K	Losing	3	3
4	3	L	Losing	3	3
4	3	N	Losing	3	3
4	3	O	Losing	3	3

Lane Input Data

Junction: B487 / East Hemel												
Lane	Lane Type	Phases	Start Disp. (s)	End Disp. (s)	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient (%)	Nearside Lane	Turns	Turning Radius (m)
1/1 (Redbourn Road (W))	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	Inf
											Arm 7 Ahead	Inf
1/2 (Redbourn Road (W))	U	A	2	3	16.1	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
1/3 (Redbourn Road (W))	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 8 Right	20.00
2/1 (Dev Arm (N))	U	E	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Left	Inf
2/2 (Dev Arm (N))	U	E	2	3	60.0	Geom	-	3.25	0.00	N	Arm 8 Ahead	Inf
2/3 (Dev Arm (N))	O	E	2	3	5.0	Geom	-	3.25	0.00	Y	Arm 5 Right	20.00
3/1 (Hemel Hempstead Rd (E))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	Inf
3/2 (Hemel Hempstead Rd (E))	U	B	2	3	18.6	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
3/3 (Hemel Hempstead Rd (E))	U	D	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 6 Right	22.50
4/1 (Dev Arm (S))	U	F	2	3	60.0	Geom	-	3.15	0.00	Y	Arm 5 Left	11.50
4/2 (Dev Arm (S))	U	F	2	3	60.0	Geom	-	3.15	0.00	N	Arm 6 Ahead	Inf
4/3 (Dev Arm (S))	O	F	2	3	5.0	Geom	-	3.20	0.00	Y	Arm 7 Right	15.00

Give-Way Lane Input Data

Junction: B487 / East Hemel											
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)
2/3 (Dev Arm (N))	5/1 (Right)	1439	0	4/2	1.09	All	3.00	-	0.50	3	3.00
	5/2 (Right)	1439	0	4/2	1.09	All					
4/3 (Dev Arm (S))	7/1 (Right)	1439	0	2/2	1.09	All	3.00	-	0.50	3	3.00
	7/2 (Right)	1439	0	2/2	1.09	All					

Scenario 2: '2041 Local Plan Dev Case, AM (0700-0800)' (FG2: '2041 Local Plan Dev Case, AM (0700-0800)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired

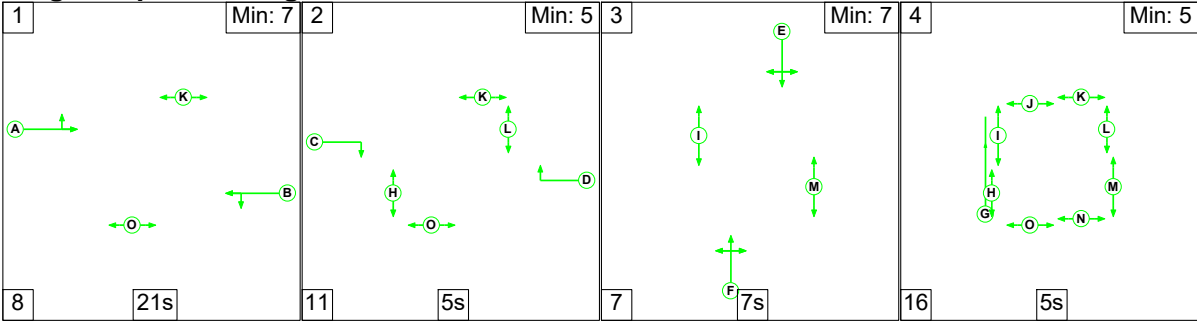
Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	21	878	49	948
	B	94	0	101	71	266
	C	549	25	0	50	624
	D	60	20	101	0	181
	Tot.	703	66	1080	170	2019

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	85.4%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	85.4%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	899	1915:1915	527+527	85.3 : 85.4%	38.7 (38.7:38.7)	12.2
1/3	Redbourn Road (W) Right	C	11	34	45	49	1781	267	18.3%	38.0	1.1
2/1	Dev Arm (N) Left	E	7	52	59	101	1940	194	52.1%	53.3	2.6
2/2+2/3	Dev Arm (N) Right Ahead	E	7	52	59	165	2080:1805	136+181	52.1 : 52.1%	46.0 (45.4:46.5)	2.5
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	599	1915:1915	527+527	56.8 : 57.0%	28.9 (28.9:28.9)	6.3
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	25	1814	295	8.5%	35.1	0.5
4/1	Dev Arm (S) Left	F	7	52	59	60	1707	171	35.1%	49.8	1.5
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	121	2070:1759	35+176	57.4 : 57.4%	56.0 (52.6:56.6)	2.8
C1		PRC for Signalled Lanes (%):		5.3	Total Delay for Signalled Lanes (pcuHr):		21.55	Cycle Time (s): 80			
		PRC Over All Lanes (%):		5.3	Total Delay Over All Lanes(pcuHr):		21.55				

Scenario 3: '2041 Local Plan Dev Case, AM (0800-0900)' (FG3: '2041 Local Plan Dev Case, AM (0800-0900)', Plan

1: 'Peds Every Cycle')

Traffic Flows, Desired

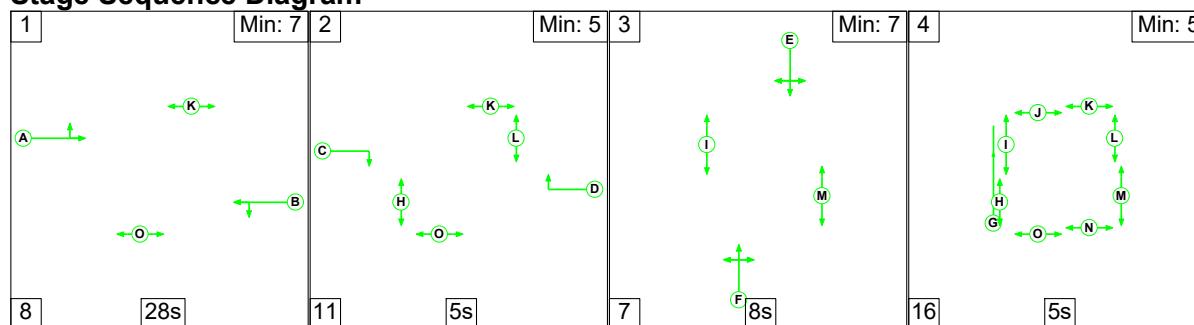
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	32	983	37	1052
	B	85	0	100	76	261
	C	594	24	0	77	695
	D	72	20	103	0	195
	Tot.	751	76	1186	190	2203

Stage Timings

Stage	1	2	3	4
Duration	28	5	8	5
Change Point	0	36	52	67

Stage Sequence Diagram



Link Results

[illegible]

Scenario 4: '2041 Local Plan Dev Case, AM (0900-1000)' (FG4: '2041 Local Plan Dev Case, AM (0900-1000)', Plan

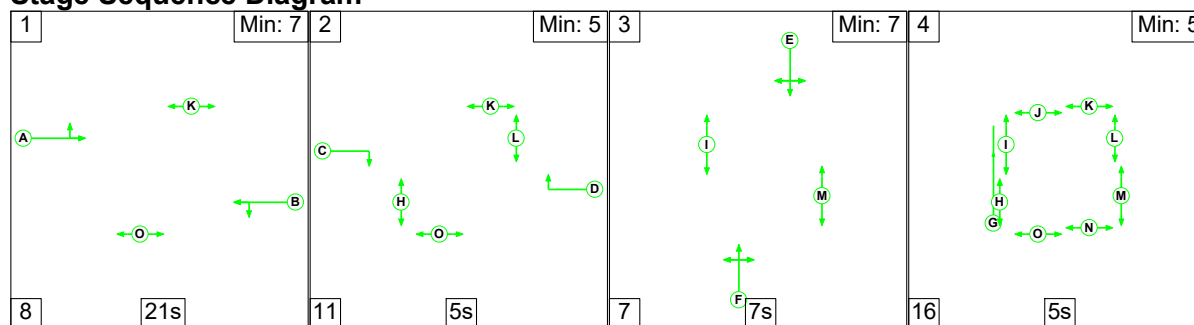
1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	18	703	29	750
	B	43	0	50	47	140
	C	475	13	0	46	534
	D	33	12	61	0	106
	Tot.	551	43	814	122	1530

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	68.5%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	68.5%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	721	1915:1915	527+527	68.4 : 68.5%	31.3 (31.3:31.3)	8.2
1/3	Redbourn Road (W) Right	C	11	34	45	29	1781	267	10.9%	37.0	0.6
2/1	Dev Arm (N) Left	E	7	52	59	50	1940	194	25.8%	45.7	1.2
2/2+2/3	Dev Arm (N) Right Ahead	E	7	52	59	90	2080:1805	208+181	22.6 : 23.8%	39.3 (39.2:39.5)	1.1
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	521	1915:1915	527+527	49.6 : 49.4%	27.7 (27.7:27.7)	5.3
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	13	1814	295	4.4%	34.9	0.3
4/1	Dev Arm (S) Left	F	7	52	59	33	1707	171	19.3%	46.2	0.8
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	73	2070:1759	35+176	34.7 : 34.7%	47.6 (45.9:47.9)	1.5
C1 PRC for Signalled Lanes (%): 31.3 Total Delay for Signalled Lanes (pcuHr): 13.71 Cycle Time (s): 80 PRC Over All Lanes (%): 31.3 Total Delay Over All Lanes(pcuHr): 13.71											

Scenario 5: '2041 Local Plan Dev Case, PM (1600-1700)' (FG5: '2041 Local Plan Dev Case, PM (1600-1700)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired

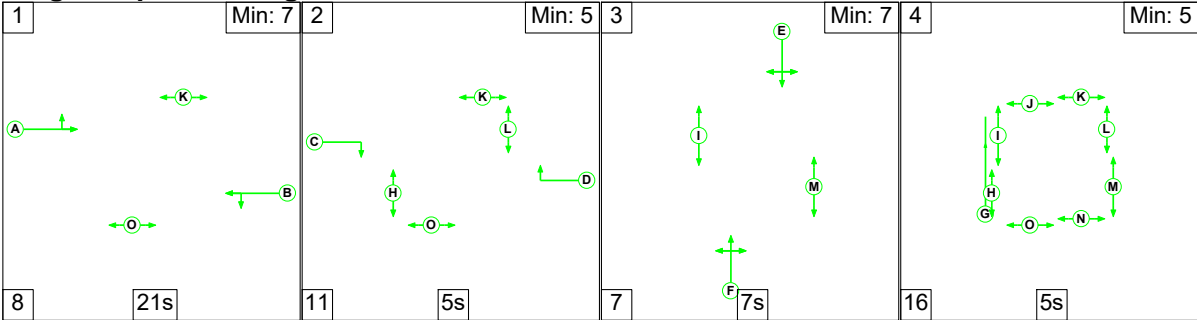
Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	78	662	35	775
	B	32	0	46	19	97
	C	770	71	0	91	932
	D	37	53	62	0	152
	Tot.	839	202	770	145	1956

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	81.8%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	81.8%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	740	1915:1915	527+527	70.3 : 70.3%	31.8 (31.8:31.8)	8.5
1/3	Redbourn Road (W) Right	C	11	34	45	35	1781	267	13.1%	37.3	0.7
2/1	Dev Arm (N) Left	E	7	52	59	46	1940	194	23.7%	45.4	1.1
2/2+2/3	Dev Arm (N) Right Ahead	E	7	52	59	51	2080:1805	107+181	17.7 : 17.7%	41.3 (40.4:41.7)	0.8
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	861	1915:1915	527+527	81.8 : 81.7%	36.3 (36.3:36.3)	11.0
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	71	1814	295	24.1%	37.3	1.5
4/1	Dev Arm (S) Left	F	7	52	59	37	1707	171	21.7%	46.6	0.9
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	115	2070:1759	150+176	35.2 : 35.2%	42.1 (41.8:42.4)	1.5
C1 PRC for Signalled Lanes (%): 10.0 PRC Over All Lanes (%): 10.0 Total Delay for Signalled Lanes (pcuHr): 19.29 Total Delay Over All Lanes(pcuHr): 19.29 Cycle Time (s): 80											

Scenario 6: '2041 Local Plan Dev Case, PM (1700-1800)' (FG6: '2041 Local Plan Dev Case, PM (1700-1800)', Plan

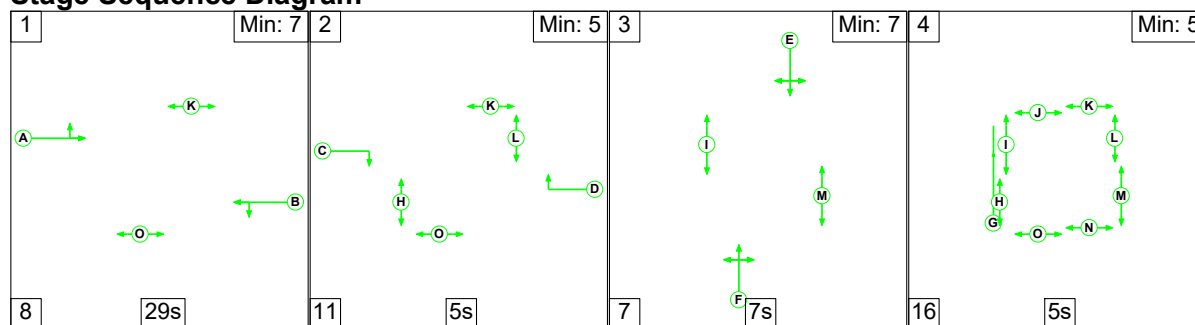
1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

		Destination				
Origin		A	B	C	D	Tot.
	A	0	88	824	58	970
	B	55	0	59	27	141
	C	860	72	0	117	1049
	D	40	61	93	0	194
	Tot.	955	221	976	202	2354

Stage Timings

Stage	1	2	3	4
Duration	29	5	7	5
Change Point	0	37	53	67

Stage Sequence Diagram

Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	74.9%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	74.9%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	29	8	37	912	1915:1915	653+653	69.8 : 69.8%	29.6 (29.6:29.6)	10.8
1/3	Redbourn Road (W) Right	C	11	42	53	58	1781	243	23.9%	43.7	1.4
2/1	Dev Arm (N) Left	E	7	60	67	59	1940	176	33.5%	52.8	1.6
2/2+2/3	Dev Arm (N) Right Ahead	E	7	60	67	82	2080:1805	81+164	33.5 : 33.5%	49.6 (47.9:50.5)	1.5
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	29	8	37	977	1915:1915	653+653	74.9 : 74.8%	31.1 (31.1:31.1)	11.9
3/3	Hemel Hempstead Rd (E) Right	D	12	42	54	72	1814	268	26.9%	42.5	1.7
4/1	Dev Arm (S) Left	F	7	60	67	40	1707	155	25.8%	52.8	1.1
4/2+4/3	Dev Arm (S) Ahead Right	F	7	60	67	154	2070:1759	105+160	58.2 : 58.2%	54.5 (53.6:55.1)	2.9
C1 PRC for Signalised Lanes (%): PRC Over All Lanes (%):			20.2 20.2	Total Delay for Signalised Lanes (pcuHr): Total Delay Over All Lanes(pcuHr):			22.41 22.41	Cycle Time (s): 88			

Scenario 7: '2041 Local Plan Dev Case, PM (1800-1900)' (FG7: '2041 Local Plan Dev Case, PM (1800-1900)', Plan

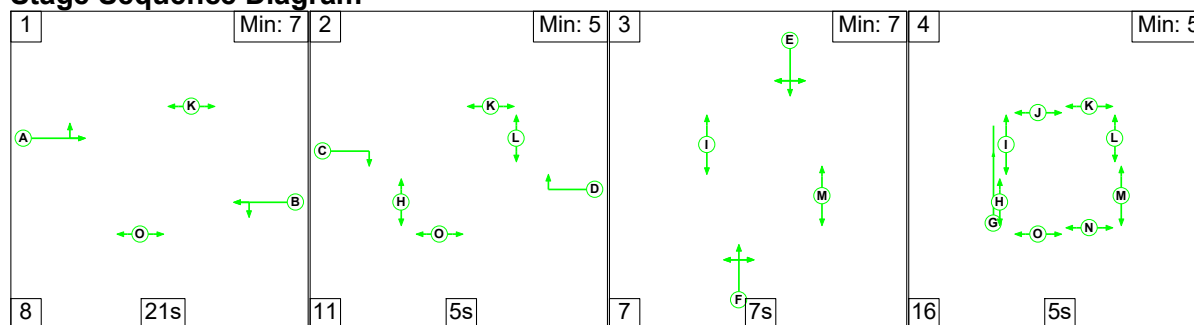
1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	72	654	37	763
	B	27	0	39	19	85
	C	675	55	0	75	805
	D	26	58	55	0	139
	Tot.	728	185	748	131	1792

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

[illegible]

Scenario 10: '2041 Local Plan Dev Case, AM (0700-0800)' (FG10: '2041 Local Plan Dev Case, AM (0700-0800)',

Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired

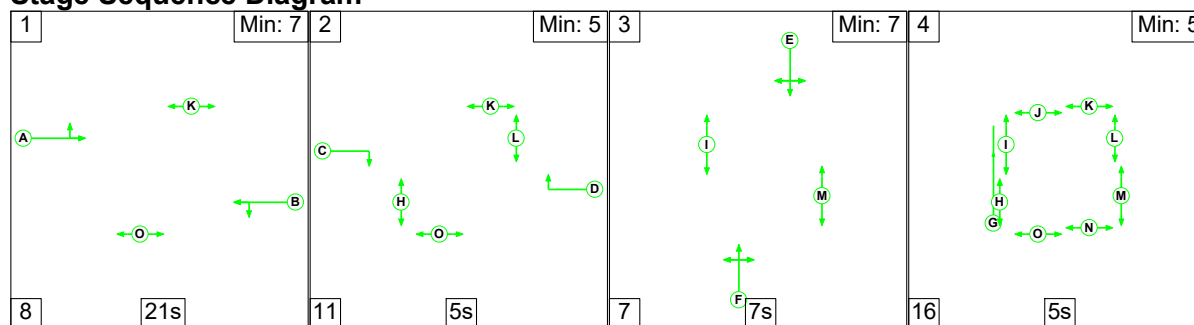
Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	32	831	64	927
	B	88	0	101	73	262
	C	542	25	0	53	620
	D	71	12	86	0	169
	Tot.	701	69	1018	190	1978

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	82.0%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	82.0%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	21	8	29	863	1915:1915	527+527	82.0 : 81.8%	36.4 (36.4:36.4)	11.1
1/3	Redbourn Road (W) Right	C	11	34	45	64	1781	267	24.0%	38.9	1.4
2/1	Dev Arm (N) Left	E	7	52	59	101	1940	194	52.1%	53.3	2.6
2/2+2/3	Dev Arm (N) Right Ahead	E	7	52	59	161	2080:1805	150+181	48.8 : 48.8%	44.7 (44.2:45.1)	2.3
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	21	8	29	595	1915:1915	527+527	56.4 : 56.6%	28.8 (28.8:28.8)	6.3
3/3	Hemel Hempstead Rd (E) Right	D	12	34	46	25	1814	295	8.5%	35.1	0.5
4/1	Dev Arm (S) Left	F	7	52	59	71	1707	171	41.6%	51.7	1.8
4/2+4/3	Dev Arm (S) Ahead Right	F	7	52	59	98	2070:1759	25+176	48.9 : 48.9%	53.5 (50.3:53.9)	2.3
C1 PRC for Signalised Lanes (%): PRC Over All Lanes (%):			9.7 9.7	Total Delay for Signalised Lanes (pcuHr): Total Delay Over All Lanes(pcuHr):			20.39 20.39	Cycle Time (s): 80			

Scenario 11: '2041 Local Plan Dev Case, AM (0800-0900)' (FG11: '2041 Local Plan Dev Case, AM (0800-0900)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired

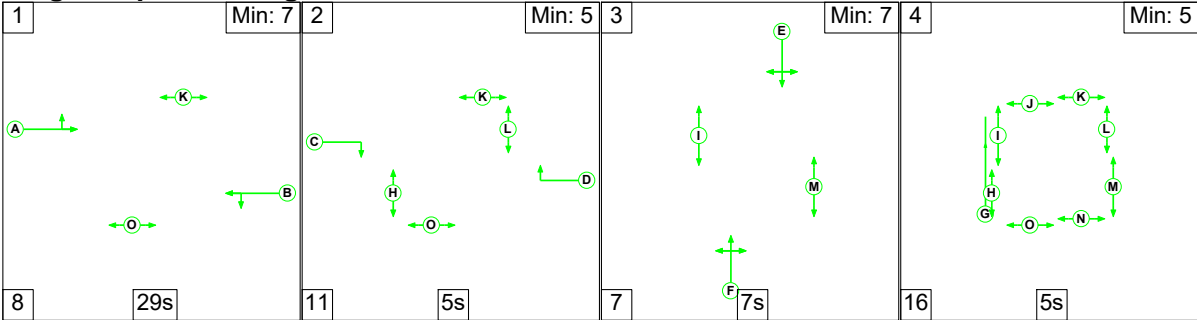
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	37	994	79	1110
	B	83	0	99	73	255
	C	589	24	0	80	693
	D	67	14	95	0	176
	Tot.	739	75	1188	232	2234

Stage Timings

Stage	1	2	3	4
Duration	29	5	7	5
Change Point	0	37	53	67

Stage Sequence Diagram



Link Results

Item	Lane Description	Full Phase	Total Green (s)	Start Green (s)	End Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: B487 Redbourn Road Junction	-	-	-	-	-	-	-	-	79.0%	-	-
B487 / East Hemel	-	-	-	-	-	-	-	-	79.0%	-	-
1/1+1/2	Redbourn Road (W) Left Ahead	A	29	8	37	1031	1915:1915	653+653	78.9 : 79.0%	32.6 (32.6:32.6)	13.2
1/3	Redbourn Road (W) Right	C	11	42	53	79	1781	243	32.5%	45.3	2.0
2/1	Dev Arm (N) Left	E	7	60	67	99	1940	176	56.1%	61.2	2.9
2/2+2/3	Dev Arm (N) Right Ahead	E	7	60	67	156	2080:1805	144+164	50.6 : 50.6%	49.9 (49.4:50.4)	2.4
3/1+3/2	Hemel Hempstead Rd (E) Ahead Left	B	29	8	37	669	1915:1915	653+653	51.2 : 51.3%	26.0 (26.0:26.0)	7.0
3/3	Hemel Hempstead Rd (E) Right	D	12	42	54	24	1814	268	9.0%	39.8	0.6
4/1	Dev Arm (S) Left	F	7	60	67	67	1707	155	43.2%	58.1	1.9
4/2+4/3	Dev Arm (S) Ahead Right	F	7	60	67	109	2070:1759	18+123	77.4 : 77.4%	92.0 (88.3:92.6)	3.8

C1 PRC for Signalised Lanes (%): 13.9 Total Delay for Signalised Lanes (pcuHr): 23.15 Cycle Time (s): 88
 PRC Over All Lanes (%): 13.9 Total Delay Over All Lanes(pcuHr): 23.15

Scenario 12: '2041 Local Plan Dev Case, AM (0900-1000)' (FG12: '2041 Local Plan Dev Case, AM (0900-1000)', Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired

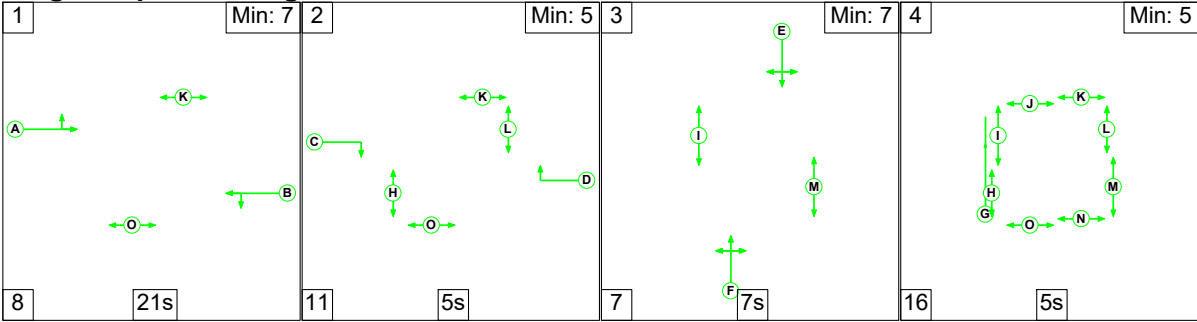
Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	26	761	48	835
	B	50	0	51	41	142
	C	471	13	0	47	531
	D	39	12	58	0	109
	Tot.	560	51	870	136	1617

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram



Link Results

[illegible]

Scenario 13: '2041 Local Plan Dev Case, PM (1600-1700)' (FG13: '2041 Local Plan Dev Case, PM (1600-1700)',

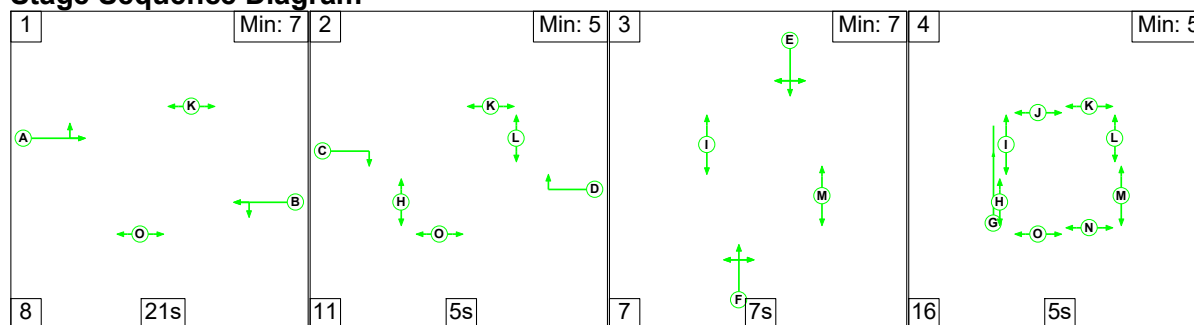
Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	73	636	37	746
	B	35	0	46	20	101
	C	766	69	0	92	927
	D	30	53	65	0	148
	Tot.	831	195	747	149	1922

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

[illegible]

Scenario 14: '2041 Local Plan Dev Case, PM (1700-1800)' (FG14: '2041 Local Plan Dev Case, PM (1700-1800)',

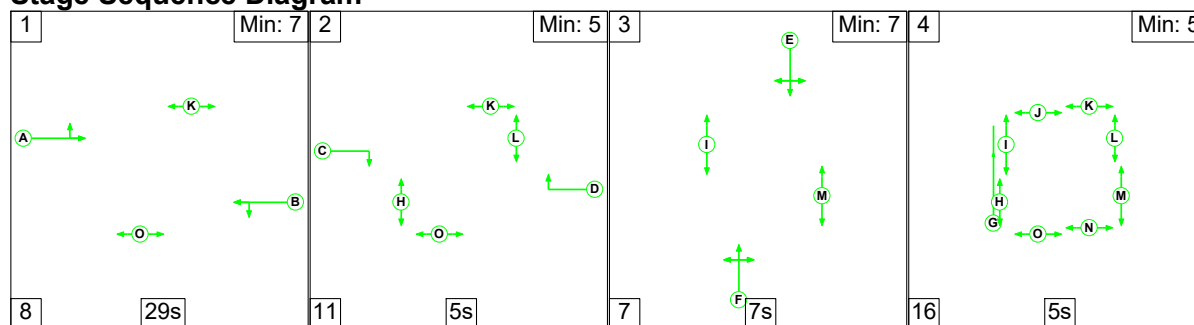
Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	89	777	47	913
	B	56	0	61	17	134
	C	872	73	0	109	1054
	D	43	61	93	0	197
	Tot.	971	223	931	173	2298

Stage Timings

Stage	1	2	3	4
Duration	29	5	7	5
Change Point	0	37	53	67

Stage Sequence Diagram

Link Results

[illegible]

Scenario 15: '2041 Local Plan Dev Case, PM (1800-1900)' (FG15: '2041 Local Plan Dev Case, PM (1800-1900)',

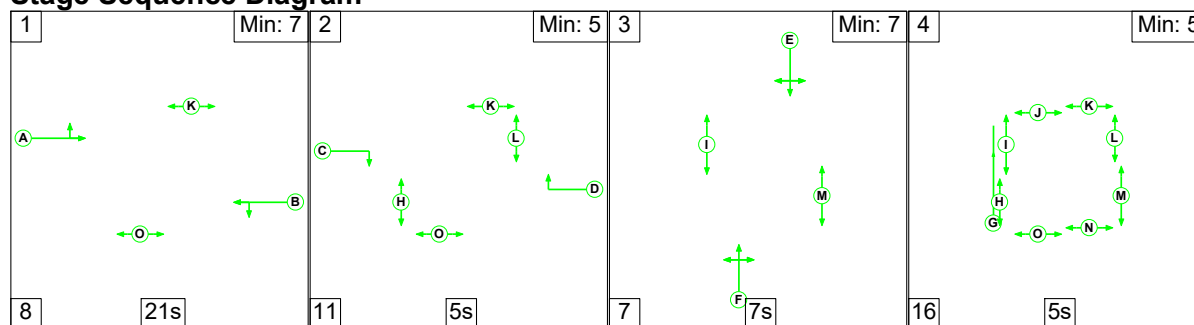
Plan 1: 'Peds Every Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	84	669	36	789
	B	41	0	37	7	85
	C	696	58	0	64	818
	D	28	55	77	0	160
	Tot.	765	197	783	107	1852

Stage Timings

Stage	1	2	3	4
Duration	21	5	7	5
Change Point	0	29	45	59

Stage Sequence Diagram

Link Results

[illegible]

APPENDIX J. M1 Junction 9 Model Output

Junctions 11		
ARCADY 11 - Roundabout Module		
Version: 11.1.0.2307		
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Filename: 6. M1 J9.j11

Path: L:\PROJECTS\16000 SERIES\16207 - North Hemel Hempstead\Tech\Junction Assessments\Arcady

Report generation date: 03/12/2025 19:27:28

-
- »D1 - 2025 | Observed | AM
 - »D2 - 2025 | Observed | PM
 - »D3 - 2041 | Reference | AM
 - »D4 - 2041 | Reference | PM
 - »D5 - 2041 | Local Plan | AM
 - »D6 - 2041 | Local Plan | PM
 - »D7 - 2041 | Reference with Development | AM
 - »D8 - 2041 | Reference with Development | PM
 - »D9 - 2041 | Local Plan with Development | AM
 - »D10 - 2041 | Local Plan with Development | PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 - Observed											
1 - Western Roundabout - 1 - Dunstable Road	D1	0.7	2.72	0.40	A	26 % [1 - Western Roundabout - 4 - Warley Road]	D2	1.8	4.60	0.65	A	13 % [2 - Eastern Roundabout - 1 - Dunstable Road]
1 - Western Roundabout - 2 - M1 Northbound		0.4	2.20	0.27	A			0.6	2.95	0.39	A	
1 - Western Roundabout - 3 - A5183		1.5	3.70	0.61	A			0.4	1.99	0.29	A	
1 - Western Roundabout - 4 - Warley Road		0.8	10.83	0.46	B			0.1	4.41	0.12	A	
2 - Eastern Roundabout - 1 - Dunstable Road		1.6	5.34	0.62	A			5.0	12.90	0.84	B	
2 - Eastern Roundabout - 3 - A5183		0.4	2.12	0.27	A			0.2	1.71	0.14	A	
2 - Eastern Roundabout - 4 - M1 Northbound		0.4	2.49	0.31	A			0.5	2.36	0.34	A	
	2041 - Reference											
1 - Western Roundabout - 1 - Dunstable Road	D3	1.0	3.28	0.49	A	2 % [1 - Western Roundabout - 4 - Warley Road]	D4	3.1	6.84	0.76	A	-7 % [2 - Eastern Roundabout - 1 - Dunstable Road]
1 - Western Roundabout - 2 - M1 Northbound		0.5	2.49	0.34	A			1.0	3.66	0.49	A	
1 - Western Roundabout - 3 - A5183		3.1	6.19	0.76	A			0.5	2.20	0.35	A	
1 - Western Roundabout - 4 - Warley Road		2.6	28.97	0.74	D			0.2	4.92	0.15	A	
2 - Eastern Roundabout - 1 - Dunstable Road		3.3	8.87	0.77	A			44.1	85.06	1.03	F	
2 - Eastern Roundabout - 3 - A5183		0.5	2.41	0.35	A			0.2	1.79	0.17	A	
2 - Eastern Roundabout - 4 - M1 Northbound		0.7	3.08	0.40	A			0.7	2.78	0.43	A	
	2041 - Local Plan											
1 - Western Roundabout - 1 - Dunstable Road	D5	1.2	3.72	0.55	A	-8 % [1 - Western Roundabout - 4 - Warley Road]	D6	3.3	7.10	0.77	A	-12 % [2 - Eastern Roundabout - 1 - Dunstable Road]
1 - Western Roundabout - 2 - M1 Northbound		0.6	2.69	0.39	A			1.1	3.90	0.52	A	
1 - Western Roundabout - 3 - A5183		5.7	10.26	0.86	B			0.6	2.27	0.37	A	
1 - Western Roundabout - 4 - Warley Road		13.2	125.57	1.00	F			0.2	5.11	0.16	A	
2 - Eastern Roundabout - 1 - Dunstable Road		5.9	14.58	0.86	B			88.5	153.34	1.09	F	
2 - Eastern Roundabout - 3 - A5183		0.6	2.62	0.39	A			0.2	1.81	0.18	A	
2 - Eastern Roundabout - 4 - M1 Northbound		0.9	3.57	0.47	A			0.8	2.95	0.46	A	
	2041 - Reference with Development											
1 - Western Roundabout - 1 - Dunstable Road	D7	1.0	3.28	0.49	A	1 % [1 - Western Roundabout - 4 - Warley Road]	D8	3.0	6.57	0.75	A	-9 % [2 - Eastern Roundabout - 1 - Dunstable Road]
1 - Western Roundabout - 2 - M1 Northbound		0.5	2.51	0.34	A			1.0	3.71	0.50	A	
1 - Western Roundabout - 3 - A5183		3.3	6.45	0.77	A			0.6	2.26	0.37	A	
1 - Western Roundabout - 4 - Warley Road		2.8	31.11	0.75	D			0.2	5.05	0.15	A	
2 - Eastern Roundabout - 1 - Dunstable Road		4.0	10.28	0.80	B			56.4	103.92	1.05	F	
2 - Eastern Roundabout - 3 - A5183		0.6	2.50	0.36	A			0.2	1.83	0.18	A	
2 - Eastern Roundabout - 4 - M1 Northbound		0.7	3.15	0.41	A			0.8	2.85	0.44	A	
	2041 - Local Plan with Development											
1 - Western Roundabout - 1 - Dunstable Road	D9	1.2	3.71	0.55	A	-9 % [1 - Western Roundabout - 4 - Warley Road]	D10	2.8	6.21	0.74	A	-16 % [2 - Eastern Roundabout - 1 - Dunstable Road]
1 - Western Roundabout - 2 - M1 Northbound		0.6	2.71	0.39	A			1.1	3.84	0.52	A	
1 - Western Roundabout - 3 - A5183		5.9	10.61	0.86	B			0.6	2.30	0.38	A	
1 - Western Roundabout - 4 - Warley Road		14.4	134.81	1.01	F			0.2	5.16	0.16	A	
2 - Eastern Roundabout - 1 - Dunstable Road		9.1	21.67	0.91	C			136.7	257.16	1.15	F	
2 - Eastern Roundabout - 3 - A5183		0.7	2.77	0.40	A			0.2	1.87	0.19	A	
2 - Eastern Roundabout - 4 - M1 Northbound		0.9	3.68	0.48	A			0.9	3.10	0.48	A	

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. 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	
Location	
Site number	
Date	19/10/2025
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	I-TRANSPORT\basingstoke.hotdesk
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75					✓	Delay	0.85	36.00	20.00		

Demand Set Summary

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025	Observed	AM	ONE HOUR	00:00	01:30	15	✓
D2	2025	Observed	PM	ONE HOUR	00:00	01:30	15	✓
D3	2041	Reference	AM	ONE HOUR	00:00	01:30	15	✓
D4	2041	Reference	PM	ONE HOUR	00:00	01:30	15	✓
D5	2041	Local Plan	AM	ONE HOUR	00:00	01:30	15	✓
D6	2041	Local Plan	PM	ONE HOUR	00:00	01:30	15	✓
D7	2041	Reference with Development	AM	ONE HOUR	00:00	01:30	15	✓
D8	2041	Reference with Development	PM	ONE HOUR	00:00	01:30	15	✓
D9	2041	Local Plan with Development	AM	ONE HOUR	00:00	01:30	15	✓
D10	2041	Local Plan with Development	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

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

D1 - 2025 | Observed | AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	3.77	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	3.22	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	26	1 - Western Roundabout - 4 - Warley Road	3.48	A

Arms

Arms

Junction	Arm	Name	Description	No give-way line
1 - Western Roundabout	1	Dunstable Road		
	2	M1 Northbound		
	3	A5183		
	4	Warley Road		
2 - Eastern Roundabout	1	Dunstable Road		
	3	A5183		
	4	M1 Northbound		

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Western Roundabout	1 - Dunstable Road	6.59	8.06	4.9	26.9	86.6	26.9		
	2 - M1 Northbound	7.40	8.86	2.4	46.6	86.6	33.9		
	3 - A5183	7.40	9.61	10.9	31.0	86.6	36.7		
	4 - Warley Road	2.87	5.97	6.9	26.1	86.6	40.9		
2 - Eastern Roundabout	1 - Dunstable Road	4.63	8.89	6.3	49.8	43.8	37.0		
	3 - A5183	6.16	12.05	9.4	29.6	43.8	19.8		
	4 - M1 Northbound	7.58	8.68	3.1	20.7	43.8	10.9		

Bypass

Junction	Arm	Arm has bypass	Bypass utilisation (%)
1 - Western Roundabout	1 - Dunstable Road		
	2 - M1 Northbound		
	3 - A5183		
	4 - Warley Road		
2 - Eastern Roundabout	1 - Dunstable Road		
	3 - A5183	✓	100
	4 - M1 Northbound		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1 - Western Roundabout	1 - Dunstable Road	0.548	2276
	2 - M1 Northbound	0.567	2427
	3 - A5183	0.592	2633
	4 - Warley Road	0.386	1222
2 - Eastern Roundabout	1 - Dunstable Road	0.657	1820
	3 - A5183	0.821	2587
	4 - M1 Northbound	0.833	2620

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

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025	Observed	AM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	553	100.000
	3 - A5183		ONE HOUR	✓	1357	100.000
	4 - Warley Road		ONE HOUR	✓	252	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1003	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	582	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

From	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
	1 - Dunstable Road	0	730	318	9
	2 - M1 Northbound	162	0	305	86
	3 - A5183	1189	88	1	79
	4 - Warley Road	202	0	49	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	734	268
	3 - A5183	582	0	971
	4 - M1 Northbound	524	56	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.40	2.72	0.7	A	725	1087
	2 - M1 Northbound	0.27	2.20	0.4	A	507	761
	3 - A5183	0.61	3.70	1.5	A	1245	1868
	4 - Warley Road	0.46	10.83	0.8	B	231	347
2 - Eastern Roundabout	1 - Dunstable Road	0.62	5.34	1.6	A	920	1381
	3 - A5183	0.27	2.12	0.4	A	1424	801
	4 - M1 Northbound	0.31	2.49	0.4	A	534	801

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	593		148			104	2219	0.267	591	1166	0.0
	2 - M1 Northbound	416		104			221	2301	0.181	415	474	0.0
	3 - A5183	1022		255			192	2519	0.406	1019	444	0.0
	4 - Warley Road	190		47			1081	804	0.236	188	130	0.0
2 - Eastern Roundabout	1 - Dunstable Road	755	755	189	0	0	44	1792	0.421	752	830	0.0
	3 - A5183	1166	437	109	729	0	203	2420	0.181	436	593	0.0
	4 - M1 Northbound	438	438	110	0	729	437	2256	0.194	437	202	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	709		177			125	2208	0.321	709	1395	0.4
	2 - M1 Northbound	497		124			265	2276	0.218	497	569	0.2
	3 - A5183	1220		305			230	2497	0.489	1219	532	0.7
	4 - Warley Road	227		57			1293	722	0.314	226	155	0.3
2 - Eastern Roundabout	1 - Dunstable Road	902	902	225	0	0	52	1786	0.505	901	994	0.7
	3 - A5183	1395	523	131	872	0	243	2387	0.219	522	709	0.2
	4 - M1 Northbound	523	523	131	0	872	523	2184	0.240	523	242	0.2

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	868		217			153	2192	0.396	867	1707	0.5
	2 - M1 Northbound	609		152			324	2243	0.271	608	696	0.3
	3 - A5183	1494		374			281	2466	0.606	1492	651	0.9
	4 - Warley Road	277		69			1583	611	0.454	276	190	0.5
2 - Eastern Roundabout	1 - Dunstable Road	1104	1104	276	0	0	64	1778	0.621	1102	1217	1.0
	3 - A5183	1707	640	160	1067	0	298	2342	0.273	639	868	0.3
	4 - M1 Northbound	641	641	160	0	1067	640	2086	0.307	640	297	0.3

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	870		217			153	2192	0.397	870	1710	0.7
	2 - M1 Northbound	609		152			325	2242	0.272	609	698	0.4
	3 - A5183	1494		374			282	2466	0.606	1494	653	1.5
	4 - Warley Road	277		69			1585	610	0.455	277	190	0.8
2 - Eastern Roundabout	1 - Dunstable Road	1104	1104	276	0	0	64	1778	0.621	1104	1219	1.6
	3 - A5183	1710	641	160	1069	0	298	2342	0.274	641	870	0.4
	4 - M1 Northbound	641	641	160	0	1069	642	2085	0.307	641	297	0.4

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	712		178			125	2207	0.323	713	1399	0.7
	2 - M1 Northbound	497		124			267	2275	0.218	498	571	0.4
	3 - A5183	1220		305			230	2496	0.489	1222	534	1.5
	4 - Warley Road	227		57			1297	721	0.314	228	155	0.8
2 - Eastern Roundabout	1 - Dunstable Road	902	902	225	0	0	52	1786	0.505	904	997	1.6
	3 - A5183	1399	524	131	875	0	244	2386	0.220	525	712	0.4
	4 - M1 Northbound	523	523	131	0	875	526	2182	0.240	524	243	0.4

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	596		149			105	2218	0.269	596	1171	0.5
	2 - M1 Northbound	416		104			223	2300	0.181	417	478	0.3
	3 - A5183	1022		255			193	2519	0.406	1023	447	1.0
	4 - Warley Road	190		47			1085	803	0.236	190	130	0.5
2 - Eastern Roundabout	1 - Dunstable Road	755	755	189	0	0	44	1792	0.421	756	834	1.0
	3 - A5183	1171	439	110	732	0	204	2419	0.181	439	596	0.3
	4 - M1 Northbound	438	438	110	0	732	440	2253	0.194	438	204	0.3

D2 - 2025 | Observed | PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	3.54	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	7.24	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	13	2 - Eastern Roundabout - 1 - Dunstable Road	5.38	A

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025	Observed	PM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	723	100.000
	3 - A5183		ONE HOUR	✓	668	100.000
	4 - Warley Road		ONE HOUR	✓	97	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1317	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	729	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	749	670	22
	2 - M1 Northbound	59	0	610	54
	3 - A5183	578	64	1	25
	4 - Warley Road	68	1	27	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1178	138
	3 - A5183	318	0	387
	4 - M1 Northbound	599	128	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.65	4.60	1.8	A	1198	1796
	2 - M1 Northbound	0.39	2.95	0.6	A	663	995
	3 - A5183	0.29	1.99	0.4	A	613	919
	4 - Warley Road	0.12	4.41	0.1	A	89	134
2 - Eastern Roundabout	1 - Dunstable Road	0.84	12.90	5.0	B	1209	1813
	3 - A5183	0.14	1.71	0.2	A	647	438
	4 - M1 Northbound	0.34	2.36	0.5	A	669	1003

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	978		245			71	2237	0.437	975	530	0.0
	2 - M1 Northbound	544		136			490	2149	0.253	543	556	0.0
	3 - A5183	503		126			101	2573	0.195	502	933	0.0
	4 - Warley Road	73		18			527	1018	0.072	73	75	0.0
2 - Eastern Roundabout	1 - Dunstable Road	992	992	248	0	0	98	1756	0.565	986	689	0.0
	3 - A5183	530	239	60	291	0	106	2500	0.096	238	978	0.0
	4 - M1 Northbound	549	549	137	0	291	239	2420	0.227	548	105	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1171		293			84	2230	0.525	1170	633	0.8
	2 - M1 Northbound	650		162			588	2093	0.311	650	666	0.3
	3 - A5183	601		150			120	2561	0.234	600	1117	0.2
	4 - Warley Road	87		22			631	978	0.089	87	90	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1184	1184	296	0	0	117	1744	0.679	1181	825	1.3
	3 - A5183	633	286	71	348	0	126	2483	0.115	286	1171	0.1
	4 - M1 Northbound	655	655	164	0	348	287	2381	0.275	655	126	0.3

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1428		357			103	2219	0.643	1425	776	1.1
	2 - M1 Northbound	796		199			716	2020	0.394	795	812	0.4
	3 - A5183	735		184			147	2546	0.289	735	1364	0.3
	4 - Warley Road	107		27			772	924	0.116	107	110	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1450	1450	363	0	0	143	1726	0.840	1439	1010	2.1
	3 - A5183	776	350	87	426	0	154	2460	0.142	350	1428	0.1
	4 - M1 Northbound	803	803	201	0	426	351	2327	0.345	802	153	0.4

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1437		359			103	2219	0.648	1437	776	1.8
	2 - M1 Northbound	796		199			722	2017	0.395	796	819	0.6
	3 - A5183	735		184			147	2545	0.289	735	1371	0.4
	4 - Warley Road	107		27			773	923	0.116	107	110	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1450	1450	363	0	0	143	1726	0.840	1449	1011	4.8
	3 - A5183	776	350	88	426	0	155	2459	0.142	350	1437	0.2
	4 - M1 Northbound	803	803	201	0	426	351	2327	0.345	803	154	0.5

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1184		296			85	2230	0.531	1187	634	1.8
	2 - M1 Northbound	650		162			596	2088	0.311	651	676	0.6
	3 - A5183	601		150			121	2561	0.234	601	1126	0.4
	4 - Warley Road	87		22			632	978	0.089	87	90	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1184	1184	296	0	0	117	1744	0.679	1195	826	5.0
	3 - A5183	634	286	72	348	0	128	2481	0.115	286	1184	0.2
	4 - M1 Northbound	655	655	164	0	348	287	2380	0.275	656	127	0.5

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	986		247			71	2237	0.441	988	531	1.1
	2 - M1 Northbound	544		136			496	2145	0.254	545	562	0.5
	3 - A5183	503		126			101	2573	0.195	503	940	0.3
	4 - Warley Road	73		18			529	1018	0.072	73	75	0.1
2 - Eastern Roundabout	1 - Dunstable Road	992	992	248	0	0	98	1756	0.565	995	692	2.2
	3 - A5183	531	240	60	292	0	107	2499	0.096	240	986	0.1
	4 - M1 Northbound	549	549	137	0	292	240	2419	0.227	549	106	0.4

D3 - 2041 | Reference | AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	6.67	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	4.60	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	1 - Western Roundabout - 4 - Warley Road	5.60	A

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2041	Reference	AM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	683	100.000
	3 - A5183		ONE HOUR	✓	1677	100.000
	4 - Warley Road		ONE HOUR	✓	312	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1239	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	718	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	902	393	11
	2 - M1 Northbound	200	0	377	106
	3 - A5183	1469	109	1	98
	4 - Warley Road	250	0	61	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	907	331
	3 - A5183	719	0	1200
	4 - M1 Northbound	647	69	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.49	3.28	1.0	A	895	1343
	2 - M1 Northbound	0.34	2.49	0.5	A	627	940
	3 - A5183	0.76	6.19	3.1	A	1539	2308
	4 - Warley Road	0.74	28.97	2.6	D	286	429
2 - Eastern Roundabout	1 - Dunstable Road	0.77	8.87	3.3	A	1137	1705
	3 - A5183	0.35	2.41	0.5	A	1760	989
	4 - M1 Northbound	0.40	3.08	0.7	A	659	988

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	731		183			129	2205	0.332	730	1439	0.0
	2 - M1 Northbound	514		129			273	2272	0.226	513	586	0.0
	3 - A5183	1263		316			237	2492	0.507	1258	549	0.0
	4 - Warley Road	235		59			1335	706	0.333	233	160	0.0
2 - Eastern Roundabout	1 - Dunstable Road	933	933	233	0	0	53	1785	0.522	928	1025	0.0
	3 - A5183	1439	539	135	900	0	250	2381	0.226	538	731	0.0
	4 - M1 Northbound	541	541	135	0	900	539	2171	0.249	539	250	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	876		219			154	2191	0.400	875	1722	0.5
	2 - M1 Northbound	614		154			327	2241	0.274	614	702	0.3
	3 - A5183	1508		377			283	2465	0.612	1505	658	1.0
	4 - Warley Road	280		70			1597	605	0.463	279	191	0.5
2 - Eastern Roundabout	1 - Dunstable Road	1114	1114	278	0	0	64	1778	0.626	1112	1227	1.1
	3 - A5183	1722	645	161	1077	0	300	2340	0.276	645	876	0.3
	4 - M1 Northbound	645	645	161	0	1077	646	2082	0.310	645	299	0.3

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1070		267			188	2173	0.492	1069	2102	0.7
	2 - M1 Northbound	752		188			399	2201	0.342	751	858	0.4
	3 - A5183	1846		462			347	2427	0.761	1840	803	1.6
	4 - Warley Road	344		86			1953	468	0.734	337	234	0.8
2 - Eastern Roundabout	1 - Dunstable Road	1364	1364	341	0	0	78	1769	0.771	1358	1500	1.7
	3 - A5183	2102	788	197	1314	0	366	2286	0.345	787	1070	0.4
	4 - M1 Northbound	791	791	198	0	1314	788	1963	0.403	790	365	0.4

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1074		269			189	2172	0.495	1074	2112	1.0
	2 - M1 Northbound	752		188			402	2199	0.342	752	862	0.5
	3 - A5183	1846		462			347	2427	0.761	1846	807	3.1
	4 - Warley Road	344		86			1959	466	0.738	343	235	2.5
2 - Eastern Roundabout	1 - Dunstable Road	1364	1364	341	0	0	78	1769	0.771	1364	1505	3.2
	3 - A5183	2112	791	198	1321	0	368	2285	0.346	791	1074	0.5
	4 - M1 Northbound	791	791	198	0	1321	792	1960	0.403	791	367	0.7

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	882		221			156	2190	0.403	883	1736	1.0
	2 - M1 Northbound	614		154			331	2239	0.274	615	708	0.5
	3 - A5183	1508		377			284	2465	0.612	1514	662	3.1
	4 - Warley Road	280		70			1605	602	0.466	287	192	2.6
2 - Eastern Roundabout	1 - Dunstable Road	1114	1114	278	0	0	64	1778	0.626	1120	1234	3.3
	3 - A5183	1736	651	163	1086	0	302	2339	0.278	651	882	0.5
	4 - M1 Northbound	645	645	161	0	1086	652	2077	0.311	646	301	0.7

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	737		184			130	2205	0.334	737	1448	0.7
	2 - M1 Northbound	514		129			276	2270	0.226	515	591	0.4
	3 - A5183	1263		316			237	2492	0.507	1265	553	1.6
	4 - Warley Road	235		59			1342	704	0.334	236	161	0.9
2 - Eastern Roundabout	1 - Dunstable Road	933	933	233	0	0	53	1785	0.523	935	1031	1.7
	3 - A5183	1448	543	136	905	0	252	2380	0.228	543	737	0.4
	4 - M1 Northbound	541	541	135	0	905	544	2167	0.249	541	251	0.5

D4 - 2041 | Reference | PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	4.84	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	41.93	E

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-7	2 - Eastern Roundabout - 1 - Dunstable Road	23.24	C

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2041	Reference	PM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	875	100.000
	3 - A5183		ONE HOUR	✓	808	100.000
	4 - Warley Road		ONE HOUR	✓	117	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1594	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	882	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	907	811	27
	2 - M1 Northbound	71	0	739	65
	3 - A5183	700	77	1	30
	4 - Warley Road	82	1	33	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1426	167
	3 - A5183	385	0	469
	4 - M1 Northbound	725	155	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.76	6.84	3.1	A	1449	2174
	2 - M1 Northbound	0.49	3.66	1.0	A	803	1204
	3 - A5183	0.35	2.20	0.5	A	741	1112
	4 - Warley Road	0.15	4.92	0.2	A	107	161
2 - Eastern Roundabout	1 - Dunstable Road	1.03	85.06	44.1	F	1463	2194
	3 - A5183	0.17	1.79	0.2	A	782	529
	4 - M1 Northbound	0.43	2.78	0.7	A	809	1214

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1182		296			85	2229	0.530	1178	641	0.0
	2 - M1 Northbound	659		165			592	2091	0.315	657	671	0.0
	3 - A5183	608		152			121	2561	0.238	607	1128	0.0
	4 - Warley Road	88		22			638	976	0.090	88	90	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1200	1200	300	0	0	118	1743	0.689	1191	834	0.0
	3 - A5183	641	289	72	352	0	127	2482	0.116	288	1182	0.0
	4 - M1 Northbound	664	664	166	0	352	289	2379	0.279	662	126	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1413		353			102	2220	0.636	1410	766	1.1
	2 - M1 Northbound	787		197			709	2025	0.389	786	803	0.5
	3 - A5183	726		182			145	2547	0.285	726	1350	0.3
	4 - Warley Road	105		26			763	927	0.113	105	108	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1433	1433	358	0	0	141	1728	0.829	1423	998	2.2
	3 - A5183	766	346	86	421	0	152	2462	0.140	345	1413	0.1
	4 - M1 Northbound	793	793	198	0	421	346	2331	0.340	792	151	0.4

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1656		414			124	2208	0.750	1652	938	1.7
	2 - M1 Northbound	963		241			832	1955	0.493	962	944	0.6
	3 - A5183	890		222			176	2528	0.352	889	1617	0.4
	4 - Warley Road	129		32			934	861	0.150	129	131	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1755	1755	439	0	0	173	1707	1.028	1661	1221	4.5
	3 - A5183	938	423	106	515	0	177	2441	0.173	423	1656	0.2
	4 - M1 Northbound	971	971	243	0	515	424	2267	0.428	970	176	0.5

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1683		421			124	2208	0.762	1682	939	2.9
	2 - M1 Northbound	963		241			847	1946	0.495	963	960	1.0
	3 - A5183	890		222			177	2528	0.352	890	1633	0.5
	4 - Warley Road	129		32			935	861	0.150	129	132	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1755	1755	439	0	0	173	1707	1.028	1691	1223	28.1
	3 - A5183	939	423	106	516	0	180	2438	0.174	423	1683	0.2
	4 - M1 Northbound	971	971	243	0	516	424	2266	0.429	971	179	0.7

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1560		390			102	2220	0.702	1562	768	3.1
	2 - M1 Northbound	787		197			782	1983	0.397	788	882	1.0
	3 - A5183	726		182			148	2545	0.285	727	1422	0.5
	4 - Warley Road	105		26			764	927	0.113	105	111	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1433	1433	358	0	0	141	1728	0.829	1587	1000	44.1
	3 - A5183	768	346	87	422	0	169	2448	0.141	346	1560	0.2
	4 - M1 Northbound	793	793	198	0	422	347	2330	0.340	794	168	0.7

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1202		300			85	2229	0.539	1207	643	2.4
	2 - M1 Northbound	659		165			606	2083	0.316	660	686	0.7
	3 - A5183	608		152			122	2560	0.238	609	1144	0.4
	4 - Warley Road	88		22			640	975	0.090	88	91	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1200	1200	300	0	0	118	1743	0.689	1213	837	5.5
	3 - A5183	643	290	72	353	0	129	2480	0.117	290	1202	0.2
	4 - M1 Northbound	664	664	166	0	353	291	2378	0.279	665	129	0.5

D5 - 2041 | Local Plan | AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	16.92	C
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	6.62	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-8	1 - Western Roundabout - 4 - Warley Road	11.61	B

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2041	Local Plan	AM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	761	100.000
	3 - A5183		ONE HOUR	✓	1867	100.000
	4 - Warley Road		ONE HOUR	✓	346	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1380	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	801	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	1005	438	12
	2 - M1 Northbound	223	0	420	118
	3 - A5183	1636	121	1	109
	4 - Warley Road	278	0	67	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1010	369
	3 - A5183	801	0	1336
	4 - M1 Northbound	721	77	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.55	3.72	1.2	A	997	1495
	2 - M1 Northbound	0.39	2.69	0.6	A	698	1047
	3 - A5183	0.86	10.26	5.7	B	1713	2570
	4 - Warley Road	1.00	125.57	13.2	F	317	476
2 - Eastern Roundabout	1 - Dunstable Road	0.86	14.58	5.9	B	1266	1899
	3 - A5183	0.39	2.62	0.6	A	1960	1102
	4 - M1 Northbound	0.47	3.57	0.9	A	735	1103

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	814		204			142	2198	0.370	812	1602	0.0
	2 - M1 Northbound	573		143			302	2255	0.254	572	651	0.0
	3 - A5183	1406		351			264	2477	0.568	1400	611	0.0
	4 - Warley Road	260		65			1486	648	0.402	258	178	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1039	1039	260	0	0	60	1781	0.583	1033	1141	0.0
	3 - A5183	1602	600	150	1001	0	279	2357	0.255	599	814	0.0
	4 - M1 Northbound	603	603	151	0	1001	600	2120	0.284	601	279	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	975		244			170	2183	0.446	974	1916	0.6
	2 - M1 Northbound	684		171			363	2221	0.308	684	781	0.3
	3 - A5183	1678		420			315	2446	0.686	1675	731	1.3
	4 - Warley Road	311		78			1778	536	0.581	308	213	0.7
2 - Eastern Roundabout	1 - Dunstable Road	1241	1241	310	0	0	72	1773	0.700	1237	1366	1.4
	3 - A5183	1916	718	180	1198	0	334	2312	0.311	718	975	0.3
	4 - M1 Northbound	720	720	180	0	1198	719	2021	0.356	719	333	0.4

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1187		297			202	2165	0.548	1185	2316	0.8
	2 - M1 Northbound	838		209			437	2179	0.385	837	951	0.4
	3 - A5183	2056		514			386	2404	0.855	2042	888	2.2
	4 - Warley Road	381		95			2168	385	0.990	350	260	1.3
2 - Eastern Roundabout	1 - Dunstable Road	1519	1519	380	0	0	88	1763	0.862	1506	1661	2.3
	3 - A5183	2316	868	217	1448	0	407	2252	0.385	868	1187	0.4
	4 - M1 Northbound	882	882	220	0	1448	869	1896	0.465	881	406	0.6

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1196		299			206	2163	0.553	1196	2339	1.2
	2 - M1 Northbound	838		209			442	2176	0.385	838	959	0.6
	3 - A5183	2056		514			386	2404	0.855	2055	894	5.5
	4 - Warley Road	381		95			2180	380	1.002	364	261	9.0
2 - Eastern Roundabout	1 - Dunstable Road	1519	1519	380	0	0	88	1762	0.862	1518	1671	5.6
	3 - A5183	2339	877	219	1462	0	410	2250	0.390	876	1196	0.6
	4 - M1 Northbound	882	882	220	0	1462	878	1889	0.467	882	409	0.9

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	988		247			181	2177	0.454	989	1971	1.2
	2 - M1 Northbound	684		171			377	2213	0.309	685	793	0.6
	3 - A5183	1678		420			316	2445	0.686	1692	746	5.7
	4 - Warley Road	311		78			1794	529	0.588	358	214	13.2
2 - Eastern Roundabout	1 - Dunstable Road	1241	1241	310	0	0	72	1773	0.700	1255	1390	5.9
	3 - A5183	1971	739	185	1232	0	339	2308	0.320	740	988	0.6
	4 - M1 Northbound	720	720	180	0	1232	740	2003	0.359	721	338	0.9

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	821		205			144	2197	0.374	822	1615	0.8
	2 - M1 Northbound	573		143			307	2253	0.254	573	659	0.4
	3 - A5183	1406		351			264	2476	0.568	1409	616	2.2
	4 - Warley Road	260		65			1495	645	0.404	264	179	1.5
2 - Eastern Roundabout	1 - Dunstable Road	1039	1039	260	0	0	60	1781	0.583	1043	1150	2.4
	3 - A5183	1615	605	151	1009	0	282	2355	0.257	606	821	0.5
	4 - M1 Northbound	603	603	151	0	1009	607	2115	0.285	604	281	0.6

D6 - 2041 | Local Plan | PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	5.05	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	74.61	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-12	2 - Eastern Roundabout - 1 - Dunstable Road	39.57	E

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2041	Local Plan	PM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	924	100.000
	3 - A5183		ONE HOUR	✓	854	100.000
	4 - Warley Road		ONE HOUR	✓	124	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1682	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	933	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	957	856	28
	2 - M1 Northbound	75	0	780	69
	3 - A5183	739	82	1	32
	4 - Warley Road	87	1	35	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1505	176
	3 - A5183	406	0	495
	4 - M1 Northbound	766	164	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.77	7.10	3.3	A	1530	2295
	2 - M1 Northbound	0.52	3.90	1.1	A	848	1272
	3 - A5183	0.37	2.27	0.6	A	784	1175
	4 - Warley Road	0.16	5.11	0.2	A	114	171
2 - Eastern Roundabout	1 - Dunstable Road	1.09	153.34	88.5	F	1543	2315
	3 - A5183	0.18	1.81	0.2	A	826	559
	4 - M1 Northbound	0.46	2.95	0.8	A	856	1284

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1247		312			90	2227	0.560	1242	677	0.0
	2 - M1 Northbound	696		174			624	2073	0.336	694	708	0.0
	3 - A5183	643		161			128	2557	0.251	642	1190	0.0
	4 - Warley Road	93		23			674	962	0.097	93	95	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1266	1266	317	0	0	125	1738	0.729	1256	880	0.0
	3 - A5183	677	305	76	372	0	134	2476	0.123	304	1247	0.0
	4 - M1 Northbound	702	702	176	0	372	305	2366	0.297	701	134	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1487		372			108	2217	0.671	1484	809	1.3
	2 - M1 Northbound	831		208			746	2004	0.415	830	846	0.5
	3 - A5183	768		192			153	2542	0.302	767	1423	0.3
	4 - Warley Road	111		28			806	911	0.122	111	114	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1512	1512	378	0	0	150	1722	0.878	1497	1054	2.6
	3 - A5183	809	365	91	445	0	160	2455	0.149	365	1487	0.1
	4 - M1 Northbound	839	839	210	0	445	366	2315	0.362	838	159	0.4

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1683		421			132	2204	0.764	1678	991	2.0
	2 - M1 Northbound	1017		254			847	1946	0.523	1016	964	0.7
	3 - A5183	940		235			185	2523	0.373	940	1677	0.4
	4 - Warley Road	137		34			987	841	0.162	136	138	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1852	1852	463	0	0	184	1700	1.090	1679	1290	6.4
	3 - A5183	991	447	112	545	0	180	2439	0.183	446	1683	0.2
	4 - M1 Northbound	1027	1027	257	0	545	447	2247	0.457	1026	179	0.6

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1698		425			132	2203	0.771	1698	992	3.1
	2 - M1 Northbound	1017		254			856	1941	0.524	1017	974	1.1
	3 - A5183	940		235			185	2523	0.373	940	1688	0.6
	4 - Warley Road	137		34			988	841	0.162	137	138	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1852	1852	463	0	0	184	1700	1.090	1696	1291	49.5
	3 - A5183	992	447	112	545	0	182	2437	0.183	447	1698	0.2
	4 - M1 Northbound	1027	1027	257	0	545	448	2247	0.457	1027	181	0.8

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1671		418			108	2217	0.754	1671	811	3.3
	2 - M1 Northbound	831		208			836	1952	0.425	832	944	1.1
	3 - A5183	768		192			156	2540	0.302	768	1512	0.6
	4 - Warley Road	111		28			807	910	0.122	112	117	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1512	1512	378	0	0	150	1722	0.878	1702	1056	88.5
	3 - A5183	811	365	91	445	0	182	2437	0.150	366	1671	0.2
	4 - M1 Northbound	839	839	210	0	445	367	2314	0.362	840	181	0.8

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1393		348			90	2226	0.626	1399	679	3.1
	2 - M1 Northbound	696		174			700	2030	0.343	697	790	0.7
	3 - A5183	643		161			131	2555	0.252	643	1265	0.4
	4 - Warley Road	93		23			676	961	0.097	93	98	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1266	1266	317	0	0	126	1738	0.729	1419	884	40.9
	3 - A5183	679	306	76	373	0	152	2462	0.124	306	1393	0.2
	4 - M1 Northbound	702	702	176	0	373	307	2364	0.297	703	151	0.6

D7 - 2041 | Reference with Development | AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	6.97	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	5.15	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	1 - Western Roundabout - 4 - Warley Road	6.03	A

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2041	Reference with Development	AM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	683	100.000
	3 - A5183		ONE HOUR	✓	1698	100.000
	4 - Warley Road		ONE HOUR	✓	312	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1290	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	735	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	902	443	11
	2 - M1 Northbound	200	0	377	106
	3 - A5183	1490	109	1	98
	4 - Warley Road	250	0	61	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	907	382
	3 - A5183	719	0	1200
	4 - M1 Northbound	664	69	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.49	3.28	1.0	A	895	1343
	2 - M1 Northbound	0.34	2.51	0.5	A	627	940
	3 - A5183	0.77	6.45	3.3	A	1558	2337
	4 - Warley Road	0.75	31.11	2.8	D	286	429
2 - Eastern Roundabout	1 - Dunstable Road	0.80	10.28	4.0	B	1184	1776
	3 - A5183	0.36	2.50	0.6	A	1779	1000
	4 - M1 Northbound	0.41	3.15	0.7	A	674	1012

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	731		183			129	2205	0.332	729	1455	0.0
	2 - M1 Northbound	514		129			291	2261	0.227	513	567	0.0
	3 - A5183	1278		320			237	2493	0.513	1274	568	0.0
	4 - Warley Road	235		59			1351	700	0.335	233	160	0.0
2 - Eastern Roundabout	1 - Dunstable Road	971	971	243	0	0	53	1785	0.544	966	1043	0.0
	3 - A5183	1455	545	136	910	0	288	2350	0.232	544	731	0.0
	4 - M1 Northbound	553	553	138	0	910	545	2166	0.255	552	288	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	875		219			154	2191	0.400	875	1741	0.5
	2 - M1 Northbound	614		154			349	2229	0.276	614	680	0.3
	3 - A5183	1526		382			283	2465	0.619	1524	680	1.0
	4 - Warley Road	280		70			1616	598	0.469	279	191	0.5
2 - Eastern Roundabout	1 - Dunstable Road	1160	1160	290	0	0	64	1778	0.652	1157	1249	1.2
	3 - A5183	1741	652	163	1089	0	345	2303	0.283	652	875	0.3
	4 - M1 Northbound	661	661	165	0	1089	653	2076	0.318	660	344	0.3

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1069		267			188	2173	0.492	1068	2124	0.7
	2 - M1 Northbound	752		188			425	2185	0.344	751	830	0.4
	3 - A5183	1870		467			346	2427	0.770	1863	830	1.6
	4 - Warley Road	344		86			1975	459	0.748	336	234	0.9
2 - Eastern Roundabout	1 - Dunstable Road	1420	1420	355	0	0	78	1769	0.803	1412	1527	1.8
	3 - A5183	2124	796	199	1328	0	421	2240	0.355	795	1069	0.4
	4 - M1 Northbound	809	809	202	0	1328	796	1957	0.414	808	420	0.5

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1074		269			189	2172	0.495	1074	2135	1.0
	2 - M1 Northbound	752		188			429	2183	0.344	752	835	0.5
	3 - A5183	1870		467			347	2427	0.770	1869	834	3.3
	4 - Warley Road	344		86			1982	457	0.752	343	234	2.6
2 - Eastern Roundabout	1 - Dunstable Road	1420	1420	355	0	0	78	1769	0.803	1420	1532	3.9
	3 - A5183	2135	800	200	1335	0	424	2239	0.357	800	1074	0.5
	4 - M1 Northbound	809	809	202	0	1335	801	1953	0.414	809	423	0.7

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	883		221			157	2190	0.403	884	1756	1.0
	2 - M1 Northbound	614		154			354	2226	0.276	615	687	0.5
	3 - A5183	1526		382			283	2465	0.619	1533	685	3.3
	4 - Warley Road	280		70			1625	595	0.472	288	192	2.8
2 - Eastern Roundabout	1 - Dunstable Road	1160	1160	290	0	0	64	1778	0.652	1168	1257	4.0
	3 - A5183	1756	658	164	1098	0	349	2300	0.286	659	883	0.6
	4 - M1 Northbound	661	661	165	0	1098	659	2070	0.319	662	348	0.7

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	737		184			130	2205	0.334	738	1464	0.7
	2 - M1 Northbound	514		129			295	2260	0.228	515	573	0.4
	3 - A5183	1278		320			237	2492	0.513	1281	572	1.6
	4 - Warley Road	235		59			1357	698	0.337	236	161	0.9
2 - Eastern Roundabout	1 - Dunstable Road	971	971	243	0	0	54	1785	0.544	974	1050	1.9
	3 - A5183	1464	549	137	915	0	291	2348	0.234	549	737	0.4
	4 - M1 Northbound	553	553	138	0	915	550	2162	0.256	554	290	0.5

D8 - 2041 | Reference with Development | PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	4.72	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	50.65	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-9	2 - Eastern Roundabout - 1 - Dunstable Road	27.65	D

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2041	Reference with Development	PM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	875	100.000
	3 - A5183		ONE HOUR	✓	852	100.000
	4 - Warley Road		ONE HOUR	✓	117	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1623	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	893	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	907	881	27
	2 - M1 Northbound	71	0	739	65
	3 - A5183	744	77	1	30
	4 - Warley Road	82	1	33	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1426	196
	3 - A5183	385	0	469
	4 - M1 Northbound	736	155	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.75	6.57	3.0	A	1449	2174
	2 - M1 Northbound	0.50	3.71	1.0	A	803	1204
	3 - A5183	0.37	2.26	0.6	A	782	1173
	4 - Warley Road	0.15	5.05	0.2	A	107	161
2 - Eastern Roundabout	1 - Dunstable Road	1.05	103.92	56.4	F	1489	2234
	3 - A5183	0.18	1.83	0.2	A	823	556
	4 - M1 Northbound	0.44	2.85	0.8	A	819	1229

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1182		295			85	2229	0.530	1177	674	0.0
	2 - M1 Northbound	659		165			615	2078	0.317	657	647	0.0
	3 - A5183	641		160			120	2561	0.250	640	1152	0.0
	4 - Warley Road	88		22			671	963	0.091	88	90	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1222	1222	305	0	0	118	1743	0.701	1213	857	0.0
	3 - A5183	674	304	76	370	0	149	2464	0.123	303	1182	0.0
	4 - M1 Northbound	672	672	168	0	370	304	2367	0.284	671	148	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1412		353			102	2220	0.636	1409	806	1.1
	2 - M1 Northbound	787		197			736	2009	0.392	786	774	0.5
	3 - A5183	766		191			144	2547	0.301	766	1378	0.3
	4 - Warley Road	105		26			802	912	0.115	105	107	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1459	1459	365	0	0	141	1728	0.845	1448	1025	2.3
	3 - A5183	806	363	91	443	0	178	2441	0.149	363	1412	0.1
	4 - M1 Northbound	803	803	201	0	443	364	2316	0.347	802	177	0.4

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1639		410			124	2208	0.742	1634	987	1.7
	2 - M1 Northbound	963		241			856	1941	0.496	962	903	0.6
	3 - A5183	938		235			175	2529	0.371	937	1643	0.4
	4 - Warley Road	129		32			982	842	0.153	129	130	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1787	1787	447	0	0	173	1707	1.047	1671	1255	5.0
	3 - A5183	987	445	111	542	0	205	2418	0.184	445	1639	0.2
	4 - M1 Northbound	983	983	246	0	542	446	2248	0.437	982	204	0.5

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1662		415			124	2208	0.753	1661	988	2.8
	2 - M1 Northbound	963		241			870	1933	0.498	963	916	1.0
	3 - A5183	938		235			176	2529	0.371	938	1657	0.6
	4 - Warley Road	129		32			983	842	0.153	129	130	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1787	1787	447	0	0	173	1707	1.047	1697	1257	34.0
	3 - A5183	988	445	111	542	0	208	2416	0.184	445	1662	0.2
	4 - M1 Northbound	983	983	246	0	542	446	2248	0.437	983	207	0.8

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1596		399			102	2220	0.719	1597	807	3.0
	2 - M1 Northbound	787		197			831	1955	0.402	788	868	1.0
	3 - A5183	766		191			147	2546	0.301	767	1471	0.6
	4 - Warley Road	105		26			803	912	0.115	105	110	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1459	1459	365	0	0	141	1728	0.845	1658	1028	56.4
	3 - A5183	807	364	91	443	0	203	2420	0.150	364	1596	0.2
	4 - M1 Northbound	803	803	201	0	443	365	2316	0.347	804	202	0.8

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1206		301			85	2229	0.541	1211	676	2.6
	2 - M1 Northbound	659		165			632	2068	0.319	660	664	0.7
	3 - A5183	641		160			121	2561	0.250	642	1171	0.4
	4 - Warley Road	88		22			673	962	0.092	88	90	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1222	1222	305	0	0	118	1743	0.701	1239	860	6.8
	3 - A5183	676	305	76	371	0	152	2462	0.124	305	1206	0.2
	4 - M1 Northbound	672	672	168	0	371	306	2365	0.284	673	151	0.5

D9 - 2041 | Local Plan with Development | AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	17.85	C
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	9.16	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-9	1 - Western Roundabout - 4 - Warley Road	13.32	B

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2041	Local Plan with Development	AM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	761	100.000
	3 - A5183		ONE HOUR	✓	1878	100.000
	4 - Warley Road		ONE HOUR	✓	346	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1459	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	825	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	1005	473	12
	2 - M1 Northbound	223	0	420	118
	3 - A5183	1647	121	1	109
	4 - Warley Road	278	0	67	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1010	448
	3 - A5183	801	0	1336
	4 - M1 Northbound	745	77	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.55	3.71	1.2	A	997	1495
	2 - M1 Northbound	0.39	2.71	0.6	A	698	1047
	3 - A5183	0.86	10.61	5.9	B	1723	2585
	4 - Warley Road	1.01	134.81	14.4	F	317	476
2 - Eastern Roundabout	1 - Dunstable Road	0.91	21.67	9.1	C	1339	2008
	3 - A5183	0.40	2.77	0.7	A	1970	1108
	4 - M1 Northbound	0.48	3.68	0.9	A	757	1136

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	814		203			142	2198	0.370	811	1610	0.0
	2 - M1 Northbound	573		143			316	2248	0.255	572	638	0.0
	3 - A5183	1414		353			263	2477	0.571	1409	624	0.0
	4 - Warley Road	260		65			1494	645	0.404	258	178	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1098	1098	275	0	0	60	1781	0.617	1092	1162	0.0
	3 - A5183	1610	603	151	1007	0	338	2309	0.261	602	814	0.0
	4 - M1 Northbound	621	621	155	0	1007	603	2118	0.293	619	338	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	974		243			170	2183	0.446	973	1926	0.6
	2 - M1 Northbound	684		171			378	2212	0.309	684	765	0.3
	3 - A5183	1688		422			315	2446	0.690	1685	747	1.3
	4 - Warley Road	311		78			1787	532	0.585	308	213	0.7
2 - Eastern Roundabout	1 - Dunstable Road	1312	1312	328	0	0	72	1773	0.740	1307	1391	1.6
	3 - A5183	1926	722	180	1204	0	405	2254	0.320	721	974	0.4
	4 - M1 Northbound	742	742	185	0	1204	722	2018	0.367	741	404	0.4

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1181		295			202	2165	0.546	1180	2326	0.8
	2 - M1 Northbound	838		209			454	2169	0.386	837	928	0.4
	3 - A5183	2068		517			386	2404	0.860	2054	905	2.2
	4 - Warley Road	381		95			2180	380	1.002	348	260	1.4
2 - Eastern Roundabout	1 - Dunstable Road	1606	1606	402	0	0	88	1763	0.911	1584	1691	2.8
	3 - A5183	2326	872	218	1454	0	491	2184	0.399	871	1181	0.5
	4 - M1 Northbound	908	908	227	0	1454	872	1893	0.480	907	490	0.6

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1195		299			205	2163	0.552	1195	2349	1.2
	2 - M1 Northbound	838		209			461	2165	0.387	838	939	0.6
	3 - A5183	2068		517			386	2404	0.860	2067	913	5.7
	4 - Warley Road	381		95			2192	375	1.015	361	261	9.5
2 - Eastern Roundabout	1 - Dunstable Road	1606	1606	402	0	0	88	1762	0.911	1603	1702	8.4
	3 - A5183	2349	880	220	1468	0	497	2179	0.404	880	1195	0.7
	4 - M1 Northbound	908	908	227	0	1468	881	1886	0.482	908	496	0.9

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	994		249			182	2176	0.457	996	1985	1.2
	2 - M1 Northbound	684		171			396	2202	0.311	685	781	0.6
	3 - A5183	1688		422			316	2446	0.690	1703	765	5.9
	4 - Warley Road	311		78			1805	525	0.592	362	214	14.4
2 - Eastern Roundabout	1 - Dunstable Road	1312	1312	328	0	0	72	1773	0.740	1336	1417	9.1
	3 - A5183	1985	744	186	1241	0	414	2247	0.331	745	994	0.7
	4 - M1 Northbound	742	742	185	0	1241	746	1999	0.371	743	413	0.9

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	822		206			144	2197	0.374	823	1623	0.8
	2 - M1 Northbound	573		143			320	2245	0.255	573	646	0.5
	3 - A5183	1414		353			264	2476	0.571	1418	630	2.3
	4 - Warley Road	260		65			1503	641	0.406	264	179	1.5
2 - Eastern Roundabout	1 - Dunstable Road	1098	1098	275	0	0	60	1781	0.617	1104	1171	2.9
	3 - A5183	1623	608	152	1015	0	342	2306	0.264	609	822	0.5
	4 - M1 Northbound	621	621	155	0	1015	610	2112	0.294	622	341	0.6

D10 - 2041 | Local Plan with Development | PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - Western Roundabout - 1 - Dunstable Road	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - Eastern Roundabout - 3 - A5183	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - Western Roundabout	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.
Warning	Vehicle Mix	2 - Eastern Roundabout	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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Western Roundabout	Standard Roundabout		1, 2, 3, 4	4.61	A
2	Eastern Roundabout	Standard Roundabout		1, 3, 4	125.43	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-16	2 - Eastern Roundabout - 1 - Dunstable Road	65.76	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2041	Local Plan with Development	PM	ONE HOUR	00:00	01:30	15	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - Western Roundabout	1 - Dunstable Road	2	3	Simple (vertical queueing)	Normal	0	100.00	
2 - Eastern Roundabout	3 - A5183	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Western Roundabout	1 - Dunstable Road	✓				
	2 - M1 Northbound		ONE HOUR	✓	924	100.000
	3 - A5183		ONE HOUR	✓	868	100.000
	4 - Warley Road		ONE HOUR	✓	124	100.000
2 - Eastern Roundabout	1 - Dunstable Road		ONE HOUR	✓	1770	100.000
	3 - A5183	✓				
	4 - M1 Northbound		ONE HOUR	✓	982	100.000

Origin-Destination Data

Demand (Veh/hr)

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	957	882	28
	2 - M1 Northbound	75	0	780	69
	3 - A5183	753	82	1	32
	4 - Warley Road	87	1	35	1

Demand (Veh/hr)

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	1	1505	264
	3 - A5183	406	0	495
	4 - M1 Northbound	815	164	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

1 - Western Roundabout

	To				
		1 - Dunstable Road	2 - M1 Northbound	3 - A5183	4 - Warley Road
From	1 - Dunstable Road	0	0	0	0
	2 - M1 Northbound	0	0	0	0
	3 - A5183	0	0	0	0
	4 - Warley Road	0	0	0	0

Heavy Vehicle %

2 - Eastern Roundabout

	To			
		1 - Dunstable Road	3 - A5183	4 - M1 Northbound
From	1 - Dunstable Road	0	0	0
	3 - A5183	0	0	0
	4 - M1 Northbound	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Western Roundabout	1 - Dunstable Road	0.74	6.21	2.8	A	1526	2289
	2 - M1 Northbound	0.52	3.84	1.1	A	848	1272
	3 - A5183	0.38	2.30	0.6	A	796	1195
	4 - Warley Road	0.16	5.16	0.2	A	114	171
2 - Eastern Roundabout	1 - Dunstable Road	1.15	257.16	136.7	F	1624	2436
	3 - A5183	0.19	1.87	0.2	A	839	567
	4 - M1 Northbound	0.48	3.10	0.9	A	901	1352

Main Results for each time segment

00:00 - 00:15

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1245		311			90	2227	0.559	1240	687	0.0
	2 - M1 Northbound	696		174			632	2068	0.336	694	698	0.0
	3 - A5183	653		163			127	2557	0.256	652	1199	0.0
	4 - Warley Road	93		23			684	958	0.097	93	95	0.0
2 - Eastern Roundabout	1 - Dunstable Road	1333	1333	333	0	0	125	1738	0.767	1320	922	0.0
	3 - A5183	687	310	77	378	0	200	2422	0.128	309	1245	0.0
	4 - M1 Northbound	739	739	185	0	378	310	2362	0.313	737	199	0.0

00:15 - 00:30

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1479		370			108	2217	0.667	1476	822	1.3
	2 - M1 Northbound	831		208			753	2000	0.415	830	831	0.5
	3 - A5183	780		195			152	2542	0.307	780	1430	0.3
	4 - Warley Road	111		28			819	906	0.123	111	114	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1591	1591	398	0	0	150	1722	0.924	1566	1103	3.2
	3 - A5183	822	370	93	452	0	237	2392	0.155	370	1479	0.1
	4 - M1 Northbound	883	883	221	0	452	371	2311	0.382	882	236	0.5

00:30 - 00:45

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1617		404			132	2204	0.734	1614	1007	2.0
	2 - M1 Northbound	1017		254			828	1957	0.520	1016	919	0.7
	3 - A5183	956		239			184	2524	0.379	955	1660	0.4
	4 - Warley Road	137		34			1002	835	0.164	136	136	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1949	1949	487	0	0	184	1700	1.147	1690	1351	9.3
	3 - A5183	1007	454	113	553	0	256	2376	0.191	453	1617	0.2
	4 - M1 Northbound	1081	1081	270	0	553	454	2241	0.482	1080	255	0.6

00:45 - 01:00

Junction	Am	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1625		406			132	2203	0.737	1624	1007	2.7
	2 - M1 Northbound	1017		254			833	1954	0.521	1017	924	1.1
	3 - A5183	956		239			184	2524	0.379	956	1666	0.6
	4 - Warley Road	137		34			1003	835	0.164	137	137	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1949	1949	487	0	0	184	1700	1.147	1698	1352	74.1
	3 - A5183	1007	454	113	553	0	258	2375	0.191	454	1625	0.2
	4 - M1 Northbound	1081	1081	270	0	553	455	2241	0.483	1081	257	0.9

01:00 - 01:15

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1601		400			108	2217	0.722	1601	823	2.8
	2 - M1 Northbound	831		208			814	1965	0.423	832	895	1.1
	3 - A5183	780		195			155	2541	0.307	781	1491	0.6
	4 - Warley Road	111		28			820	905	0.123	112	116	0.2
2 - Eastern Roundabout	1 - Dunstable Road	1591	1591	398	0	0	150	1722	0.924	1709	1106	136.
	3 - A5183	823	371	93	452	0	259	2374	0.156	371	1601	0.2
	4 - M1 Northbound	883	883	221	0	452	372	2310	0.382	884	258	0.9

01:15 - 01:30

Junction	Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
1 - Western Roundabout	1 - Dunstable Road	1587		397			90	2226	0.713	1588	689	2.6
	2 - M1 Northbound	696		174			802	1972	0.353	696	876	0.7
	3 - A5183	653		163			133	2554	0.256	654	1365	0.4
	4 - Warley Road	93		23			686	957	0.098	93	101	0.1
2 - Eastern Roundabout	1 - Dunstable Road	1333	1333	333	0	0	126	1738	0.767	1722	926	107.
	3 - A5183	689	311	78	379	0	260	2373	0.131	311	1587	0.2
	4 - M1 Northbound	739	739	185	0	379	312	2360	0.313	740	259	0.6

APPENDIX K. A5183 / Harpenden Lane / Redbourn
Lane Model Output

Junctions 11		
ARCADY 11 - Roundabout Module		
Version: 11.1.0.2307		
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Filename: 7. A5183, Harpenden Lane, Redbourn Lane Roundabout.j11

Path: L:\PROJECTS\16000 SERIES\16207 - North Hemel Hempstead\Tech\Junction Assessments\Arcady

Report generation date: 03/12/2025 19:28:18

-
- »D1 - 2025 | Observed | AM
 - »D2 - 2025 | Observed | PM
 - »D3 - 2025 | Reference | AM
 - »D4 - 2025 | Reference | PM
 - »D5 - 2041 | Local Plan | AM
 - »D6 - 2041 | Local Plan | PM
 - »D7 - 2041 | Reference with Development | AM
 - »D8 - 2041 | Reference with Development | PM
 - »D9 - 2041 | Local Plan with Development | AM
 - »D10 - 2041 | Local Plan with Development | PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 - Observed											
1 - A5183 N	D1	10.4	31.78	0.93	D	-3 % [2 - Redbourn Lane]	D2	3.7	11.81	0.79	B	-4 % [3 - A5183 S]
2 - Redbourn Lane		14.0	48.28	0.96	E			6.0	22.18	0.87	C	
3 - A5183 S		3.3	13.11	0.78	B			19.5	59.86	0.98	F	
4 - Harpenden Lane		0.5	7.31	0.35	A			0.6	9.23	0.36	A	
	2025 - Reference											
1 - A5183 N	D3	147.6	374.77	1.22	F	-21 % [2 - Redbourn Lane]	D4	17.0	46.46	0.97	E	-21 % [3 - A5183 S]
2 - Redbourn Lane		125.2	409.57	1.20	F			83.1	218.44	1.14	F	
3 - A5183 S		16.9	54.65	0.97	F			150.8	456.49	1.22	F	
4 - Harpenden Lane		1.1	12.08	0.52	B			0.8	11.25	0.46	B	
	2041 - Local Plan											
1 - A5183 N	D5	306.5	799.71	1.38	F	-29 % [2 - Redbourn Lane]	D6	37.0	87.10	1.02	F	-25 % [3 - A5183 S]
2 - Redbourn Lane		247.2	773.59	1.32	F			126.0	392.44	1.22	F	
3 - A5183 S		62.7	158.76	1.08	F			214.3	635.90	1.29	F	
4 - Harpenden Lane		1.5	15.40	0.61	C			0.9	11.64	0.48	B	
	2041 - Reference with Development											
1 - A5183 N	D7	163.0	437.85	1.23	F	-22 % [2 - Redbourn Lane]	D8	45.6	102.44	1.04	F	-23 % [3 - A5183 S]
2 - Redbourn Lane		132.4	432.56	1.21	F			103.2	326.96	1.19	F	
3 - A5183 S		49.4	128.61	1.06	F			183.0	545.05	1.26	F	
4 - Harpenden Lane		1.2	13.15	0.54	B			0.8	11.20	0.46	B	
	2041 - Local Plan with Development											
1 - A5183 N	D9	316.7	829.29	1.38	F	-30 % [2 - Redbourn Lane]	D10	75.5	157.04	1.09	F	-27 % [3 - A5183 S]
2 - Redbourn Lane		256.4	795.04	1.34	F			146.2	488.43	1.25	F	
3 - A5183 S		104.9	294.90	1.15	F			249.6	731.13	1.32	F	
4 - Harpenden Lane		1.5	15.52	0.61	C			0.9	11.65	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. 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	
Location	
Site number	
Date	20/10/2025
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	I-TRANSPORT\basingstoke.hotdesk
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75					✓	Delay	0.85	36.00	20.00		

Demand Set Summary

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025	Observed	AM	ONE HOUR	00:00	01:30	15	✓
D2	2025	Observed	PM	ONE HOUR	00:00	01:30	15	✓
D3	2025	Reference	AM	ONE HOUR	00:00	01:30	15	✓
D4	2025	Reference	PM	ONE HOUR	00:00	01:30	15	✓
D5	2041	Local Plan	AM	ONE HOUR	00:00	01:30	15	✓
D6	2041	Local Plan	PM	ONE HOUR	00:00	01:30	15	✓
D7	2041	Reference with Development	AM	ONE HOUR	00:00	01:30	15	✓
D8	2041	Reference with Development	PM	ONE HOUR	00:00	01:30	15	✓
D9	2041	Local Plan with Development	AM	ONE HOUR	00:00	01:30	15	✓
D10	2041	Local Plan with Development	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

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

D1 - 2025 | Observed | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	30.12	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	2 - Redbourn Lane	30.12	D

Arms

Arms

Arm	Name	Description	No give-way line
1	A5183 N		
2	Redbourn Lane		
3	A5183 S		
4	Harpenden Lane		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A5183 N	3.97	8.21	8.4	32.3	49.2	33.5		
2 - Redbourn Lane	4.32	7.95	8.4	23.3	49.2	51.7		
3 - A5183 S	2.75	7.69	16.1	45.3	49.2	28.0		
4 - Harpenden Lane	3.89	6.97	8.6	21.4	49.2	33.6		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A5183 N	0.615	1704
2 - Redbourn Lane	0.582	1648
3 - A5183 S	0.611	1644
4 - Harpenden Lane	0.590	1598

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

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025	Observed	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1145	100.000
2 - Redbourn Lane		ONE HOUR	✓	999	100.000
3 - A5183 S		ONE HOUR	✓	857	100.000
4 - Harpenden Lane		ONE HOUR	✓	240	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	1	370	706	68
	2 - Redbourn Lane	452	0	426	121
	3 - A5183 S	487	361	0	9
	4 - Harpenden Lane	91	138	11	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	0.93	31.78	10.4	D	1051	1576
2 - Redbourn Lane	0.96	48.28	14.0	E	917	1375
3 - A5183 S	0.78	13.11	3.3	B	786	1180
4 - Harpenden Lane	0.35	7.31	0.5	A	220	330

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	862	216	382	1469	0.587	856	771	0.0	1.4	5.827	A
2 - Redbourn Lane	752	188	588	1306	0.576	747	650	0.0	1.3	6.379	A
3 - A5183 S	645	161	480	1350	0.478	642	855	0.0	0.9	5.054	A
4 - Harpenden Lane	181	45	973	1024	0.176	180	148	0.0	0.2	4.260	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1029	257	457	1422	0.724	1025	923	1.4	2.5	8.950	A
2 - Redbourn Lane	898	225	704	1239	0.725	893	779	1.3	2.5	10.280	B
3 - A5183 S	770	193	574	1293	0.596	768	1023	0.9	1.4	6.833	A
4 - Harpenden Lane	216	54	1165	911	0.237	215	177	0.2	0.3	5.174	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1261	315	558	1361	0.927	1234	1116	2.5	9.1	24.635	C
2 - Redbourn Lane	1100	275	848	1155	0.953	1066	945	2.5	10.9	32.640	D
3 - A5183 S	944	236	686	1224	0.771	937	1228	1.4	3.2	12.223	B
4 - Harpenden Lane	264	66	1410	766	0.345	263	212	0.3	0.5	7.147	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1261	315	561	1359	0.928	1255	1129	9.1	10.4	31.784	D
2 - Redbourn Lane	1100	275	862	1146	0.959	1088	955	10.9	14.0	48.281	E
3 - A5183 S	944	236	699	1216	0.776	943	1250	3.2	3.3	13.105	B
4 - Harpenden Lane	264	66	1426	757	0.349	264	216	0.5	0.5	7.305	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1029	257	462	1420	0.725	1060	951	10.4	2.7	10.810	B
2 - Redbourn Lane	898	225	727	1225	0.733	943	795	14.0	2.9	14.612	B
3 - A5183 S	770	193	605	1274	0.605	778	1066	3.3	1.6	7.349	A
4 - Harpenden Lane	216	54	1197	892	0.242	217	185	0.5	0.3	5.334	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	862	216	385	1467	0.588	867	780	2.7	1.4	6.056	A
2 - Redbourn Lane	752	188	595	1302	0.578	758	657	2.9	1.4	6.691	A
3 - A5183 S	645	161	487	1346	0.479	648	866	1.6	0.9	5.174	A
4 - Harpenden Lane	181	45	985	1017	0.178	181	150	0.3	0.2	4.306	A

D2 - 2025 | Observed | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	30.69	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-4	3 - A5183 S	30.69	D

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025	Observed	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1039	100.000
2 - Redbourn Lane		ONE HOUR	✓	926	100.000
3 - A5183 S		ONE HOUR	✓	1091	100.000
4 - Harpenden Lane		ONE HOUR	✓	201	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	4	317	645	73
	2 - Redbourn Lane	453	0	374	99
	3 - A5183 S	801	281	0	9
	4 - Harpenden Lane	98	88	15	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	0.79	11.81	3.7	B	953	1430
2 - Redbourn Lane	0.87	22.18	6.0	C	850	1275
3 - A5183 S	0.98	59.86	19.5	F	1001	1502
4 - Harpenden Lane	0.36	9.23	0.6	A	184	277

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	782	196	287	1527	0.512	778	1014	0.0	1.0	4.781	A
2 - Redbourn Lane	697	174	552	1327	0.525	693	513	0.0	1.1	5.639	A
3 - A5183 S	821	205	471	1356	0.606	815	774	0.0	1.5	6.586	A
4 - Harpenden Lane	151	38	1151	920	0.165	151	135	0.0	0.2	4.676	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	934	234	344	1492	0.626	932	1213	1.0	1.6	6.391	A
2 - Redbourn Lane	832	208	661	1264	0.659	829	614	1.1	1.9	8.230	A
3 - A5183 S	981	245	563	1299	0.755	975	927	1.5	2.9	10.907	B
4 - Harpenden Lane	181	45	1376	786	0.230	180	162	0.2	0.3	5.936	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1144	286	411	1451	0.788	1136	1452	1.6	3.5	11.176	B
2 - Redbourn Lane	1020	255	806	1179	0.865	1005	741	1.9	5.5	19.274	C
3 - A5183 S	1201	300	683	1226	0.980	1156	1128	2.9	14.3	37.580	E
4 - Harpenden Lane	221	55	1642	630	0.352	220	197	0.3	0.5	8.777	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1144	286	417	1447	0.791	1143	1477	3.5	3.7	11.810	B
2 - Redbourn Lane	1020	255	811	1176	0.867	1018	750	5.5	6.0	22.184	C
3 - A5183 S	1201	300	691	1221	0.984	1181	1137	14.3	19.5	59.855	F
4 - Harpenden Lane	221	55	1673	611	0.362	221	199	0.5	0.6	9.226	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	934	234	362	1481	0.631	942	1275	3.7	1.7	6.770	A
2 - Redbourn Lane	832	208	668	1259	0.661	848	636	6.0	2.0	9.076	A
3 - A5183 S	981	245	575	1292	0.759	1045	941	19.5	3.3	18.061	C
4 - Harpenden Lane	181	45	1455	740	0.244	182	165	0.6	0.3	6.459	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	782	196	291	1525	0.513	785	1028	1.7	1.1	4.886	A
2 - Redbourn Lane	697	174	557	1324	0.526	701	519	2.0	1.1	5.805	A
3 - A5183 S	821	205	476	1353	0.607	828	782	3.3	1.6	6.955	A
4 - Harpenden Lane	151	38	1167	910	0.166	152	137	0.3	0.2	4.755	A

D3 - 2025 | Reference | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	273.96	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-21	2 - Redbourn Lane	273.96	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025	Reference	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1414	100.000
2 - Redbourn Lane		ONE HOUR	✓	1233	100.000
3 - A5183 S		ONE HOUR	✓	1059	100.000
4 - Harpenden Lane		ONE HOUR	✓	296	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	1	457	872	84
	2 - Redbourn Lane	558	0	526	149
	3 - A5183 S	602	446	0	11
	4 - Harpenden Lane	112	170	14	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.22	374.77	147.6	F	1298	1946
2 - Redbourn Lane	1.20	409.57	125.2	F	1131	1697
3 - A5183 S	0.97	54.65	16.9	F	972	1458
4 - Harpenden Lane	0.52	12.08	1.1	B	272	407

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1065	266	471	1414	0.753	1053	949	0.0	2.9	9.675	A
2 - Redbourn Lane	928	232	723	1227	0.756	916	801	0.0	2.9	11.197	B
3 - A5183 S	797	199	589	1284	0.621	791	1051	0.0	1.6	7.212	A
4 - Harpenden Lane	223	56	1198	891	0.250	222	182	0.0	0.3	5.361	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1271	318	563	1358	0.936	1243	1124	2.9	9.9	26.601	D
2 - Redbourn Lane	1108	277	854	1151	0.963	1072	952	2.9	12.0	35.419	E
3 - A5183 S	952	238	690	1222	0.779	945	1237	1.6	3.3	12.680	B
4 - Harpenden Lane	266	67	1421	760	0.350	265	213	0.3	0.5	7.269	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1557	389	676	1288	1.209	1282	1275	9.9	78.5	133.899	F
2 - Redbourn Lane	1358	339	883	1134	1.197	1129	1075	12.0	69.2	140.199	F
3 - A5183 S	1166	291	724	1201	0.971	1127	1288	3.3	13.1	36.629	E
4 - Harpenden Lane	326	81	1627	639	0.510	324	224	0.5	1.0	11.370	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1557	389	687	1281	1.215	1281	1291	78.5	147.6	320.509	F
2 - Redbourn Lane	1358	339	882	1135	1.197	1134	1086	69.2	125.1	316.960	F
3 - A5183 S	1166	291	727	1199	0.972	1151	1289	13.1	16.9	54.653	F
4 - Harpenden Lane	326	81	1653	623	0.523	326	225	1.0	1.1	12.084	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1271	318	589	1341	0.948	1332	1174	147.6	132.3	374.766	F
2 - Redbourn Lane	1108	277	914	1116	0.993	1108	1007	125.1	125.2	409.571	F
3 - A5183 S	952	238	716	1206	0.789	1004	1307	16.9	4.0	21.398	C
4 - Harpenden Lane	266	67	1496	716	0.372	268	223	1.1	0.6	8.069	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1065	266	478	1410	0.755	1399	1033	132.3	48.7	235.100	F
2 - Redbourn Lane	928	232	957	1091	0.851	1082	920	125.2	86.7	353.548	F
3 - A5183 S	797	199	705	1213	0.657	806	1335	4.0	2.0	9.006	A
4 - Harpenden Lane	223	56	1288	838	0.266	224	222	0.6	0.4	5.866	A

D4 - 2025 | Reference | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	230.50	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-21	3 - A5183 S	230.50	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025	Reference	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1258	100.000
2 - Redbourn Lane		ONE HOUR	✓	1122	100.000
3 - A5183 S		ONE HOUR	✓	1321	100.000
4 - Harpenden Lane		ONE HOUR	✓	244	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	5	384	781	88
	2 - Redbourn Lane	549	0	453	120
	3 - A5183 S	970	340	0	11
	4 - Harpenden Lane	119	107	18	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	0.97	46.46	17.0	E	1154	1732
2 - Redbourn Lane	1.14	218.44	83.1	F	1030	1544
3 - A5183 S	1.22	456.49	150.8	F	1212	1818
4 - Harpenden Lane	0.46	11.25	0.8	B	224	336

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	947	237	346	1491	0.635	940	1223	0.0	1.7	6.463	A
2 - Redbourn Lane	845	211	667	1260	0.670	837	620	0.0	2.0	8.356	A
3 - A5183 S	995	249	568	1296	0.767	982	935	0.0	3.1	11.056	B
4 - Harpenden Lane	184	46	1387	780	0.236	182	163	0.0	0.3	6.012	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1131	283	408	1453	0.778	1124	1443	1.7	3.3	10.745	B
2 - Redbourn Lane	1009	252	797	1184	0.852	996	735	2.0	5.1	18.077	C
3 - A5183 S	1188	297	677	1230	0.966	1150	1116	3.1	12.6	34.627	D
4 - Harpenden Lane	219	55	1632	636	0.345	218	195	0.3	0.5	8.614	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1385	346	442	1432	0.967	1344	1534	3.3	13.5	31.804	D
2 - Redbourn Lane	1235	309	954	1093	1.130	1079	833	5.1	44.3	94.452	F
3 - A5183 S	1454	364	743	1190	1.222	1186	1290	12.6	79.8	150.300	F
4 - Harpenden Lane	269	67	1709	590	0.455	267	219	0.5	0.8	11.112	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1385	346	443	1431	0.968	1371	1537	13.5	17.0	46.459	E
2 - Redbourn Lane	1235	309	972	1082	1.142	1080	842	44.3	83.1	218.444	F
3 - A5183 S	1454	364	745	1188	1.224	1188	1307	79.8	146.5	350.830	F
4 - Harpenden Lane	269	67	1712	589	0.456	269	221	0.8	0.8	11.249	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1131	283	414	1449	0.780	1184	1532	17.0	3.8	15.967	C
2 - Redbourn Lane	1009	252	839	1160	0.870	1146	759	83.1	48.7	207.745	F
3 - A5183 S	1188	297	771	1173	1.013	1171	1214	146.5	150.8	456.491	F
4 - Harpenden Lane	219	55	1726	580	0.378	220	215	0.8	0.6	10.033	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	947	237	408	1453	0.652	955	1492	3.8	1.9	7.328	A
2 - Redbourn Lane	845	211	677	1254	0.673	1031	685	48.7	2.2	33.840	D
3 - A5183 S	995	249	685	1225	0.812	1217	1022	150.8	95.2	364.965	F
4 - Harpenden Lane	184	46	1715	587	0.313	184	187	0.6	0.5	8.964	A

D5 - 2041 | Local Plan | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	564.09	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-29	2 - Redbourn Lane	564.09	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2041	Local Plan	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1575	100.000
2 - Redbourn Lane		ONE HOUR	✓	1374	100.000
3 - A5183 S		ONE HOUR	✓	1179	100.000
4 - Harpenden Lane		ONE HOUR	✓	330	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	1	509	971	94
	2 - Redbourn Lane	622	0	586	166
	3 - A5183 S	670	497	0	12
	4 - Harpenden Lane	125	190	15	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.38	799.71	306.5	F	1445	2168
2 - Redbourn Lane	1.32	773.59	247.2	F	1261	1891
3 - A5183 S	1.08	158.76	62.7	F	1082	1623
4 - Harpenden Lane	0.61	15.40	1.5	C	303	454

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1186	296	523	1382	0.858	1164	1051	0.0	5.4	15.309	C
2 - Redbourn Lane	1034	259	799	1183	0.874	1011	888	0.0	5.9	18.924	C
3 - A5183 S	888	222	650	1246	0.712	878	1160	0.0	2.4	9.541	A
4 - Harpenden Lane	248	62	1328	815	0.305	247	201	0.0	0.4	6.314	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1416	354	624	1320	1.073	1296	1210	5.4	35.4	68.308	F
2 - Redbourn Lane	1235	309	890	1130	1.093	1112	1029	5.9	36.8	81.414	F
3 - A5183 S	1060	265	716	1206	0.879	1045	1286	2.4	6.1	20.613	C
4 - Harpenden Lane	297	74	1538	691	0.429	295	222	0.4	0.7	9.079	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1734	434	720	1261	1.375	1260	1323	35.4	153.9	277.698	F
2 - Redbourn Lane	1513	378	869	1142	1.325	1141	1111	36.8	129.7	270.275	F
3 - A5183 S	1298	325	731	1197	1.084	1177	1280	6.1	36.3	76.876	F
4 - Harpenden Lane	363	91	1683	605	0.600	361	225	0.7	1.4	14.528	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1734	434	728	1256	1.381	1256	1334	153.9	273.4	611.865	F
2 - Redbourn Lane	1513	378	867	1144	1.323	1144	1118	129.7	222.0	560.726	F
3 - A5183 S	1298	325	732	1197	1.085	1192	1279	36.3	62.7	158.755	F
4 - Harpenden Lane	363	91	1699	596	0.609	363	225	1.4	1.5	15.401	C

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1416	354	683	1284	1.103	1284	1298	273.4	306.5	799.709	F
2 - Redbourn Lane	1235	309	882	1135	1.089	1134	1084	222.0	247.2	755.698	F
3 - A5183 S	1060	265	728	1199	0.884	1180	1289	62.7	32.7	148.242	F
4 - Harpenden Lane	297	74	1682	606	0.490	299	226	1.5	1.0	11.806	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1186	296	580	1347	0.880	1343	1169	306.5	267.2	769.240	F
2 - Redbourn Lane	1034	259	920	1112	0.930	1108	1002	247.2	228.8	773.586	F
3 - A5183 S	888	222	716	1206	0.736	1006	1312	32.7	3.0	28.656	D
4 - Harpenden Lane	248	62	1499	714	0.348	250	224	1.0	0.5	7.786	A

D6 - 2041 | Local Plan | 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	353.26	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-25	3 - A5183 S	353.26	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2041	Local Plan	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1327	100.000
2 - Redbourn Lane		ONE HOUR	✓	1184	100.000
3 - A5183 S		ONE HOUR	✓	1395	100.000
4 - Harpenden Lane		ONE HOUR	✓	256	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	5	405	824	93
	2 - Redbourn Lane	579	0	478	127
	3 - A5183 S	1024	359	0	12
	4 - Harpenden Lane	125	112	19	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.02	87.10	37.0	F	1218	1827
2 - Redbourn Lane	1.22	392.44	126.0	F	1086	1630
3 - A5183 S	1.29	635.90	214.3	F	1280	1920
4 - Harpenden Lane	0.48	11.64	0.9	B	235	352

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	999	250	364	1480	0.675	991	1287	0.0	2.0	7.248	A
2 - Redbourn Lane	891	223	703	1239	0.719	882	652	0.0	2.5	9.815	A
3 - A5183 S	1050	263	599	1278	0.822	1033	985	0.0	4.2	13.900	B
4 - Harpenden Lane	193	48	1459	737	0.261	191	173	0.0	0.4	6.577	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1193	298	419	1446	0.825	1184	1488	2.0	4.4	13.272	B
2 - Redbourn Lane	1064	266	839	1160	0.918	1042	764	2.5	8.2	26.519	D
3 - A5183 S	1254	314	708	1211	1.036	1174	1172	4.2	24.2	55.739	F
4 - Harpenden Lane	230	58	1678	609	0.378	229	205	0.4	0.6	9.464	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1461	365	450	1427	1.024	1382	1539	4.4	24.0	47.917	E
2 - Redbourn Lane	1304	326	981	1077	1.211	1071	851	8.2	66.4	136.656	F
3 - A5183 S	1536	384	740	1191	1.289	1190	1311	24.2	110.8	212.855	F
4 - Harpenden Lane	282	70	1708	591	0.477	281	222	0.6	0.9	11.568	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1461	365	451	1426	1.024	1409	1539	24.0	37.0	87.102	F
2 - Redbourn Lane	1304	326	1000	1066	1.223	1065	860	66.4	126.0	329.658	F
3 - A5183 S	1536	384	739	1192	1.289	1192	1326	110.8	196.9	471.450	F
4 - Harpenden Lane	282	70	1708	591	0.477	282	223	0.9	0.9	11.643	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1193	298	423	1444	0.826	1319	1523	37.0	5.4	42.837	E
2 - Redbourn Lane	1064	266	934	1105	0.964	1096	809	126.0	118.1	392.439	F
3 - A5183 S	1254	314	751	1185	1.058	1184	1279	196.9	214.3	635.898	F
4 - Harpenden Lane	230	58	1715	587	0.392	231	220	0.9	0.7	10.156	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	999	250	394	1461	0.684	1012	1538	5.4	2.2	8.231	A
2 - Redbourn Lane	891	223	717	1231	0.724	1220	689	118.1	35.9	230.191	F
3 - A5183 S	1050	263	802	1153	0.911	1148	1135	214.3	189.9	634.020	F
4 - Harpenden Lane	193	48	1739	573	0.337	193	212	0.7	0.5	9.506	A

D7 - 2041 | Reference with 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	319.31	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-22	2 - Redbourn Lane	319.31	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2041	Reference with Development	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1451	100.000
2 - Redbourn Lane		ONE HOUR	✓	1233	100.000
3 - A5183 S		ONE HOUR	✓	1159	100.000
4 - Harpenden Lane		ONE HOUR	✓	296	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	1	457	909	84
	2 - Redbourn Lane	558	0	526	149
	3 - A5183 S	702	446	0	11
	4 - Harpenden Lane	112	170	14	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.23	437.85	163.0	F	1331	1997
2 - Redbourn Lane	1.21	432.56	132.4	F	1131	1697
3 - A5183 S	1.06	128.61	49.4	F	1064	1595
4 - Harpenden Lane	0.54	13.15	1.2	B	272	407

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1092	273	470	1415	0.772	1080	1023	0.0	3.2	10.382	B
2 - Redbourn Lane	928	232	750	1212	0.766	916	800	0.0	3.1	11.729	B
3 - A5183 S	873	218	588	1284	0.680	864	1077	0.0	2.1	8.420	A
4 - Harpenden Lane	223	56	1271	848	0.263	221	181	0.0	0.4	5.730	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1304	326	561	1359	0.960	1268	1208	3.2	12.4	31.305	D
2 - Redbourn Lane	1108	277	881	1135	0.976	1067	948	3.1	13.5	38.971	E
3 - A5183 S	1042	260	686	1224	0.851	1030	1262	2.1	5.1	17.500	C
4 - Harpenden Lane	266	67	1504	711	0.374	265	212	0.4	0.6	8.055	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1598	399	655	1301	1.228	1297	1343	12.4	87.6	148.053	F
2 - Redbourn Lane	1358	339	904	1122	1.210	1118	1048	13.5	73.5	150.560	F
3 - A5183 S	1276	319	717	1206	1.058	1178	1305	5.1	29.6	65.063	F
4 - Harpenden Lane	326	81	1674	611	0.533	324	221	0.6	1.1	12.444	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1598	399	663	1296	1.233	1296	1357	87.6	163.0	352.372	F
2 - Redbourn Lane	1358	339	903	1122	1.209	1122	1056	73.5	132.4	337.734	F
3 - A5183 S	1276	319	719	1204	1.060	1197	1306	29.6	49.4	128.614	F
4 - Harpenden Lane	326	81	1694	599	0.544	326	222	1.1	1.2	13.154	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1304	326	622	1321	0.987	1313	1321	163.0	160.9	437.849	F
2 - Redbourn Lane	1108	277	912	1117	0.992	1108	1023	132.4	132.4	432.555	F
3 - A5183 S	1042	260	713	1208	0.862	1184	1308	49.4	13.8	101.374	F
4 - Harpenden Lane	266	67	1676	610	0.436	268	221	1.2	0.8	10.565	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1092	273	492	1401	0.780	1392	1129	160.9	85.9	320.414	F
2 - Redbourn Lane	928	232	964	1087	0.854	1079	920	132.4	94.8	380.134	F
3 - A5183 S	873	218	700	1216	0.718	917	1343	13.8	2.7	13.735	B
4 - Harpenden Lane	223	56	1397	774	0.288	224	220	0.8	0.4	6.568	A

D8 - 2041 | Reference with 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	307.05	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-23	3 - A5183 S	307.05	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2041	Reference with Development	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1357	100.000
2 - Redbourn Lane		ONE HOUR	✓	1122	100.000
3 - A5183 S		ONE HOUR	✓	1376	100.000
4 - Harpenden Lane		ONE HOUR	✓	244	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	5	384	880	88
	2 - Redbourn Lane	549	0	453	120
	3 - A5183 S	1025	340	0	11
	4 - Harpenden Lane	119	107	18	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.04	102.44	45.6	F	1245	1868
2 - Redbourn Lane	1.19	326.96	103.2	F	1030	1544
3 - A5183 S	1.26	545.05	183.0	F	1263	1894
4 - Harpenden Lane	0.46	11.20	0.8	B	224	336

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1022	255	346	1491	0.685	1013	1262	0.0	2.1	7.407	A
2 - Redbourn Lane	845	211	740	1217	0.694	836	619	0.0	2.2	9.236	A
3 - A5183 S	1036	259	568	1297	0.799	1021	1008	0.0	3.7	12.471	B
4 - Harpenden Lane	184	46	1426	757	0.243	182	163	0.0	0.3	6.249	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1220	305	403	1456	0.838	1209	1474	2.1	4.7	14.045	B
2 - Redbourn Lane	1009	252	883	1134	0.890	991	729	2.2	6.5	22.873	C
3 - A5183 S	1237	309	674	1232	1.004	1179	1201	3.7	18.2	44.956	E
4 - Harpenden Lane	219	55	1659	620	0.354	218	194	0.3	0.5	8.953	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1494	374	434	1437	1.040	1400	1542	4.7	28.3	53.434	F
2 - Redbourn Lane	1235	309	1024	1052	1.174	1043	811	6.5	54.6	117.395	F
3 - A5183 S	1515	379	718	1205	1.257	1202	1349	18.2	96.4	180.738	F
4 - Harpenden Lane	269	67	1708	590	0.455	268	212	0.5	0.8	11.108	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1494	374	435	1436	1.040	1425	1543	28.3	45.6	102.437	F
2 - Redbourn Lane	1235	309	1041	1042	1.186	1041	819	54.6	103.2	279.853	F
3 - A5183 S	1515	379	718	1205	1.258	1204	1364	96.4	174.0	410.471	F
4 - Harpenden Lane	269	67	1709	590	0.455	269	213	0.8	0.8	11.200	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1220	305	410	1452	0.840	1377	1523	45.6	6.4	61.815	F
2 - Redbourn Lane	1009	252	1003	1064	0.948	1054	783	103.2	91.9	326.961	F
3 - A5183 S	1237	309	723	1202	1.029	1201	1334	174.0	183.0	545.050	F
4 - Harpenden Lane	219	55	1712	588	0.373	220	212	0.8	0.6	9.808	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1022	255	381	1470	0.695	1038	1541	6.4	2.3	8.641	A
2 - Redbourn Lane	845	211	758	1207	0.700	1194	661	91.9	4.5	150.921	F
3 - A5183 S	1036	259	783	1165	0.889	1159	1169	183.0	152.3	521.428	F
4 - Harpenden Lane	184	46	1738	573	0.320	184	204	0.6	0.5	9.267	A

D9 - 2041 | Local Plan with 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	612.63	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-30	2 - Redbourn Lane	612.63	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2041	Local Plan with Development	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1599	100.000
2 - Redbourn Lane		ONE HOUR	✓	1374	100.000
3 - A5183 S		ONE HOUR	✓	1259	100.000
4 - Harpenden Lane		ONE HOUR	✓	330	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	1	509	995	94
	2 - Redbourn Lane	622	0	586	166
	3 - A5183 S	750	497	0	12
	4 - Harpenden Lane	125	190	15	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.38	829.29	316.7	F	1467	2201
2 - Redbourn Lane	1.34	795.04	256.4	F	1261	1891
3 - A5183 S	1.15	294.90	104.9	F	1155	1733
4 - Harpenden Lane	0.61	15.52	1.5	C	303	454

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1204	301	523	1382	0.871	1180	1109	0.0	5.8	16.315	C
2 - Redbourn Lane	1034	259	816	1173	0.882	1010	887	0.0	6.2	19.750	C
3 - A5183 S	948	237	649	1247	0.760	936	1176	0.0	3.0	11.177	B
4 - Harpenden Lane	248	62	1385	781	0.318	247	200	0.0	0.5	6.709	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1437	359	620	1323	1.087	1302	1272	5.8	39.6	74.441	F
2 - Redbourn Lane	1235	309	901	1124	1.099	1107	1021	6.2	38.3	84.665	F
3 - A5183 S	1132	283	712	1209	0.937	1105	1296	3.0	9.7	29.232	D
4 - Harpenden Lane	297	74	1596	656	0.452	295	221	0.5	0.8	9.928	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1761	440	695	1277	1.379	1276	1360	39.6	160.8	289.751	F
2 - Redbourn Lane	1513	378	886	1132	1.336	1132	1085	38.3	133.6	281.188	F
3 - A5183 S	1386	347	725	1201	1.154	1192	1293	9.7	58.1	113.339	F
4 - Harpenden Lane	363	91	1694	599	0.607	361	223	0.8	1.5	14.937	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1761	440	699	1274	1.382	1274	1366	160.8	282.5	625.795	F
2 - Redbourn Lane	1513	378	885	1133	1.335	1133	1088	133.6	228.6	582.747	F
3 - A5183 S	1386	347	725	1200	1.155	1199	1292	58.1	104.9	252.141	F
4 - Harpenden Lane	363	91	1701	595	0.611	363	223	1.5	1.5	15.522	C

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1437	359	656	1300	1.105	1300	1332	282.5	316.7	828.062	F
2 - Redbourn Lane	1235	309	900	1124	1.099	1124	1056	228.6	256.4	782.846	F
3 - A5183 S	1132	283	722	1203	0.941	1191	1302	104.9	90.0	294.900	F
4 - Harpenden Lane	297	74	1689	602	0.493	299	224	1.5	1.0	11.970	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1204	301	626	1319	0.913	1315	1310	316.7	289.0	829.290	F
2 - Redbourn Lane	1034	259	908	1120	0.924	1115	1033	256.4	236.1	795.041	F
3 - A5183 S	948	237	718	1205	0.787	1192	1305	90.0	29.0	183.190	F
4 - Harpenden Lane	248	62	1686	604	0.412	250	223	1.0	0.7	10.203	B

D10 - 2041 | Local Plan with 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A5183	Standard Roundabout		1, 2, 3, 4	432.49	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-27	3 - A5183 S	432.49	F

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2041	Local Plan with Development	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A5183 N		ONE HOUR	✓	1415	100.000
2 - Redbourn Lane		ONE HOUR	✓	1184	100.000
3 - A5183 S		ONE HOUR	✓	1444	100.000
4 - Harpenden Lane		ONE HOUR	✓	256	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
From	1 - A5183 N	5	405	912	93
	2 - Redbourn Lane	579	0	478	127
	3 - A5183 S	1073	359	0	12
	4 - Harpenden Lane	125	112	19	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To				
From		1 - A5183 N	2 - Redbourn Lane	3 - A5183 S	4 - Harpenden Lane
	1 - A5183 N	0	0	0	0
	2 - Redbourn Lane	0	0	0	0
	3 - A5183 S	0	0	0	0
	4 - Harpenden Lane	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A5183 N	1.09	157.04	75.5	F	1298	1948
2 - Redbourn Lane	1.25	488.43	146.2	F	1086	1630
3 - A5183 S	1.32	731.13	249.6	F	1325	1988
4 - Harpenden Lane	0.48	11.65	0.9	B	235	352

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1065	266	363	1480	0.720	1055	1320	0.0	2.5	8.288	A
2 - Redbourn Lane	891	223	767	1201	0.742	880	651	0.0	2.7	10.874	B
3 - A5183 S	1087	272	598	1278	0.851	1067	1050	0.0	5.0	15.793	C
4 - Harpenden Lane	193	48	1492	718	0.268	191	173	0.0	0.4	6.818	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1272	318	413	1450	0.877	1257	1505	2.5	6.2	17.470	C
2 - Redbourn Lane	1064	266	914	1116	0.954	1032	756	2.7	10.9	34.010	D
3 - A5183 S	1298	325	702	1215	1.069	1190	1244	5.0	32.2	68.440	F
4 - Harpenden Lane	230	58	1689	602	0.382	229	203	0.4	0.6	9.626	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1558	389	442	1432	1.088	1412	1546	6.2	42.8	73.265	F
2 - Redbourn Lane	1304	326	1028	1049	1.242	1045	826	10.9	75.5	159.846	F
3 - A5183 S	1590	397	721	1203	1.322	1202	1353	32.2	129.1	249.329	F
4 - Harpenden Lane	282	70	1708	591	0.477	281	215	0.6	0.9	11.572	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1558	389	443	1431	1.089	1427	1547	42.8	75.5	157.042	F
2 - Redbourn Lane	1304	326	1040	1043	1.250	1042	831	75.5	140.8	380.644	F
3 - A5183 S	1590	397	720	1203	1.321	1203	1362	129.1	225.8	536.341	F
4 - Harpenden Lane	282	70	1708	591	0.477	282	216	0.9	0.9	11.652	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1272	318	417	1447	0.879	1428	1522	75.5	36.4	143.512	F
2 - Redbourn Lane	1064	266	1037	1045	1.019	1043	809	140.8	146.2	488.430	F
3 - A5183 S	1298	325	721	1203	1.079	1203	1359	225.8	249.6	721.717	F
4 - Harpenden Lane	230	58	1708	591	0.390	231	216	0.9	0.6	10.042	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A5183 N	1065	266	391	1463	0.728	1200	1526	36.4	2.8	21.418	C
2 - Redbourn Lane	891	223	871	1141	0.781	1134	720	146.2	85.6	369.493	F
3 - A5183 S	1087	272	759	1180	0.921	1175	1245	249.6	227.6	731.134	F
4 - Harpenden Lane	193	48	1724	581	0.332	193	210	0.6	0.5	9.294	A

