

S|C|P

APPENDIX R



Client Name:	REDROW HOMES NORTH WEST	Project Title	RUTHIN ROAD, WREXHAM	Drawing Title	JUNCTION/ ARCADY DIMENSIONS	Scale	1:1000 @ A4	By	AM	Rev	Description	Date	By	Drawing No.
						Date	30.01.2024	Checked	LB	-		-	-	SCP/210187/D03
						Approved/ Unapproved	-	Status	PLANNING	-		-	-	Revision
										-		-	-	-

Junctions 9										
ARCADY 9 - Roundabout Module										
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Filename: 8. Croesnewydd Rd _ Rhyd Broughton Ln _ Hospital Access -2024 UPDATED.j9
Path: Z:\Job Library\2021\210187 - Ruthin Road, Wrexham\Traffic Data\ARCADY - Jan 2024 Update\8. Croesnewydd Rd _ Rhyd Broughton Ln _ Hospital Access_Junctions 9 Report
Report generation date: 06/02/2024 10:44:54

- »2028 Base Re-dist, AM
- »2028 Base Re-dist, PM
- »2028 Assess Re-dist, AM
- »2028 Assess Re-dist, PM
- »2022 Survey, AM
- »2022 Survey, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2028 Base Re-dist									
Arm 1	D1	2.4	6.79	0.69	A	D2	0.4	2.70	0.26	A
Arm 2		0.4	4.14	0.28	A		1.0	5.16	0.47	A
Arm 3		0.0	5.24	0.02	A		0.1	6.31	0.09	A
Arm 4		0.6	4.42	0.35	A		0.7	5.67	0.40	A
	2028 Assess Re-dist									
Arm 1	D3	2.5	7.14	0.70	A	D4	0.4	2.73	0.26	A
Arm 2		0.4	4.21	0.29	A		1.1	5.37	0.49	A
Arm 3		0.0	5.31	0.02	A		0.1	6.50	0.09	A
Arm 4		0.7	4.68	0.39	A		0.7	5.59	0.39	A
	2022 Survey									
Arm 1	D5	1.8	5.55	0.62	A	D6	0.3	2.62	0.23	A
Arm 2		0.4	3.94	0.25	A		0.8	4.77	0.43	A
Arm 3		0.0	5.04	0.02	A		0.1	5.95	0.08	A
Arm 4		0.5	4.21	0.33	A		0.7	5.43	0.39	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.

File summary

File Description

Title	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;
Location	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;
Site number	
Date	01/12/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SCP\abbie.moore
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2028 Base Re-dist	AM	ONE HOUR	07:45	09:15	15
D2	2028 Base Re-dist	PM	ONE HOUR	16:15	17:45	15
D3	2028 Assess Re-dist	AM	ONE HOUR	07:45	09:15	15
D4	2028 Assess Re-dist	PM	ONE HOUR	16:15	17:45	15
D5	2022 Survey	AM	ONE HOUR	07:45	09:15	15
D6	2022 Survey	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2028 Base Re-dist, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	5.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Rhyd Broughton Lane	
2	Croesnewydd Rd (E)	
3	Hospital Access	
4	Croesnewydd Rd (W)	

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)	Exit only
1	3.00	8.00	37.0	65.0	35.0	26.4	
2	4.00	7.00	10.0	22.0	35.0	52.1	
3	3.00	5.00	7.0	16.0	35.0	53.8	
4	4.00	7.00	6.0	28.0	35.0	38.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.738	2058
2	0.600	1555
3	0.503	1109
4	0.613	1536

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2028 Base Re-dist	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1165	100.000
2		✓	333	100.000
3		✓	13	100.000
4		✓	440	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1	2	3	4
From	1	0	835	36	294
	2	223	0	14	96
	3	6	1	0	6
	4	204	214	22	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.69	6.79	2.4	A
2	0.28	4.14	0.4	A
3	0.02	5.24	0.0	A
4	0.35	4.42	0.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	877	178	1927	0.455	873	0.9	3.748	A
2	251	264	1396	0.180	250	0.2	3.450	A
3	10	460	878	0.011	10	0.0	4.559	A
4	331	172	1430	0.232	330	0.3	3.594	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1047	213	1901	0.551	1046	1.3	4.622	A
2	299	316	1365	0.219	299	0.3	3.714	A
3	12	550	833	0.014	12	0.0	4.823	A
4	396	207	1409	0.281	395	0.4	3.906	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1283	261	1865	0.688	1279	2.4	6.702	A
2	367	386	1323	0.277	366	0.4	4.137	A
3	14	673	771	0.019	14	0.0	5.234	A
4	484	253	1381	0.351	484	0.6	4.413	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1283	261	1865	0.688	1283	2.4	6.795	A
2	367	388	1322	0.277	367	0.4	4.143	A
3	14	675	770	0.019	14	0.0	5.239	A
4	484	253	1380	0.351	484	0.6	4.419	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1047	213	1900	0.551	1051	1.4	4.689	A
2	299	318	1364	0.219	300	0.3	3.724	A
3	12	553	832	0.014	12	0.0	4.829	A
4	396	207	1409	0.281	396	0.4	3.913	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	877	179	1926	0.455	879	0.9	3.787	A
2	251	266	1395	0.180	251	0.2	3.460	A
3	10	462	877	0.011	10	0.0	4.566	A
4	331	173	1429	0.232	332	0.3	3.607	A

2028 Base Re-dist, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	4.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2028 Base Re-dist	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	456	100.000
2		✓	627	100.000
3		✓	53	100.000
4		✓	429	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	309	7	140
	2	504	0	2	121
	3	29	7	0	17
	4	325	103	1	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1	2	3	4
	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.26	2.70	0.4	A
2	0.47	5.16	1.0	A
3	0.09	6.31	0.1	A
4	0.40	5.67	0.7	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	343	83	1996	0.172	342	0.2	2.393	A
2	472	111	1488	0.317	470	0.5	3.882	A
3	40	574	821	0.049	40	0.1	5.067	A
4	323	405	1288	0.251	322	0.4	4.093	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	410	100	1984	0.207	410	0.3	2.514	A
2	564	133	1475	0.382	563	0.7	4.340	A
3	48	687	764	0.062	48	0.1	5.527	A
4	386	485	1238	0.311	385	0.5	4.637	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	502	122	1968	0.255	502	0.4	2.701	A
2	690	163	1457	0.474	689	1.0	5.148	A
3	58	841	687	0.085	58	0.1	6.302	A
4	472	593	1172	0.403	471	0.7	5.645	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	502	122	1968	0.255	502	0.4	2.701	A
2	690	163	1457	0.474	690	1.0	5.165	A
3	58	842	686	0.085	58	0.1	6.309	A
4	472	595	1171	0.403	472	0.7	5.665	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	410	100	1984	0.207	410	0.3	2.518	A
2	564	133	1475	0.382	565	0.7	4.358	A
3	48	689	763	0.062	48	0.1	5.537	A
4	386	486	1237	0.312	387	0.5	4.660	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	343	84	1996	0.172	344	0.2	2.398	A
2	472	111	1488	0.317	473	0.5	3.903	A
3	40	577	819	0.049	40	0.1	5.080	A
4	323	407	1286	0.251	323	0.4	4.115	A

2028 Assess Re-dist, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	6.04	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2028 Assess Re-dist	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1174	100.000
2		✓	342	100.000
3		✓	13	100.000
4		✓	486	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1	2	3	4
From	1	0	835	36	303
	2	223	0	14	105
	3	6	1	0	6
	4	227	237	22	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.70	7.14	2.5	A
2	0.29	4.21	0.4	A
3	0.02	5.31	0.0	A
4	0.39	4.68	0.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	884	195	1914	0.462	880	0.9	3.817	A
2	257	271	1392	0.185	256	0.2	3.483	A
3	10	473	872	0.011	10	0.0	4.595	A
4	366	172	1430	0.256	364	0.4	3.711	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1055	233	1885	0.560	1054	1.4	4.750	A
2	307	324	1360	0.226	307	0.3	3.760	A
3	12	567	825	0.014	12	0.0	4.871	A
4	437	207	1409	0.310	436	0.5	4.069	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1293	286	1847	0.700	1288	2.5	7.033	A
2	377	396	1317	0.286	376	0.4	4.206	A
3	14	693	761	0.019	14	0.0	5.303	A
4	535	253	1381	0.388	534	0.7	4.675	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1293	286	1846	0.700	1292	2.5	7.143	A
2	377	397	1316	0.286	377	0.4	4.213	A
3	14	695	760	0.019	14	0.0	5.309	A
4	535	253	1380	0.388	535	0.7	4.683	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1055	234	1885	0.560	1060	1.4	4.825	A
2	307	326	1359	0.226	308	0.3	3.770	A
3	12	569	823	0.014	12	0.0	4.880	A
4	437	207	1409	0.310	438	0.5	4.080	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	884	196	1913	0.462	886	1.0	3.861	A
2	257	272	1391	0.185	258	0.3	3.493	A
3	10	476	870	0.011	10	0.0	4.602	A
4	366	173	1429	0.256	366	0.4	3.725	A

2028 Assess Re-dist, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	4.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2028 Assess Re-dist	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	473	100.000
2		✓	644	100.000
3		✓	53	100.000
4		✓	420	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	309	7	157
	2	504	0	2	138
	3	29	7	0	17
	4	321	98	1	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1	2	3	4
	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.26	2.73	0.4	A
2	0.49	5.37	1.1	A
3	0.09	6.50	0.1	A
4	0.39	5.59	0.7	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	356	79	1999	0.178	355	0.2	2.407	A
2	485	124	1480	0.328	483	0.5	3.961	A
3	40	599	808	0.049	40	0.1	5.151	A
4	316	405	1288	0.246	315	0.4	4.065	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	425	95	1988	0.214	425	0.3	2.534	A
2	579	148	1466	0.395	578	0.7	4.457	A
3	48	717	749	0.064	48	0.1	5.648	A
4	378	485	1238	0.305	377	0.5	4.595	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	521	116	1972	0.264	520	0.4	2.728	A
2	709	182	1446	0.490	708	1.0	5.355	A
3	58	878	668	0.087	58	0.1	6.494	A
4	462	593	1172	0.395	462	0.7	5.568	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	521	117	1972	0.264	521	0.4	2.728	A
2	709	182	1446	0.490	709	1.1	5.375	A
3	58	880	667	0.087	58	0.1	6.504	A
4	462	595	1171	0.395	462	0.7	5.586	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	425	96	1987	0.214	426	0.3	2.535	A
2	579	148	1466	0.395	580	0.7	4.478	A
3	48	720	748	0.064	48	0.1	5.661	A
4	378	487	1237	0.305	378	0.5	4.616	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	356	80	1999	0.178	356	0.2	2.412	A
2	485	124	1480	0.328	486	0.5	3.984	A
3	40	602	807	0.049	40	0.1	5.167	A
4	316	407	1286	0.246	317	0.4	4.088	A

2022 Survey, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	4.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2022 Survey	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1057	100.000
2		✓	309	100.000
3		✓	13	100.000
4		✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	759	34	264
	2	206	0	13	90
	3	6	1	0	6
	4	189	201	21	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1	2	3	4
	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.62	5.55	1.8	A
2	0.25	3.94	0.4	A
3	0.02	5.04	0.0	A
4	0.33	4.21	0.5	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	796	167	1934	0.411	793	0.8	3.460	A
2	233	239	1411	0.165	232	0.2	3.356	A
3	10	420	898	0.011	10	0.0	4.456	A
4	309	160	1438	0.215	308	0.3	3.503	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	950	200	1910	0.498	949	1.1	4.116	A
2	278	286	1383	0.201	278	0.3	3.582	A
3	12	503	857	0.014	12	0.0	4.686	A
4	369	191	1418	0.260	369	0.4	3.774	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1164	245	1877	0.620	1161	1.8	5.512	A
2	340	350	1344	0.253	340	0.4	3.942	A
3	14	616	800	0.018	14	0.0	5.040	A
4	453	234	1392	0.325	452	0.5	4.209	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1164	246	1877	0.620	1164	1.8	5.555	A
2	340	351	1344	0.253	340	0.4	3.944	A
3	14	617	799	0.018	14	0.0	5.043	A
4	453	235	1392	0.325	453	0.5	4.215	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	950	201	1910	0.498	953	1.1	4.151	A
2	278	288	1382	0.201	278	0.3	3.589	A
3	12	504	856	0.014	12	0.0	4.693	A
4	369	192	1418	0.261	370	0.4	3.779	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	796	168	1934	0.412	797	0.8	3.489	A
2	233	241	1410	0.165	233	0.2	3.365	A
3	10	422	897	0.011	10	0.0	4.462	A
4	309	161	1437	0.215	310	0.3	3.515	A

2022 Survey, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	8.Croesnewydd Road / Rhyd Broughton Lane / Wrexham Maelor Hospital Access Priority Roundabout;	Standard Roundabout		1, 2, 3, 4	4.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2022 Survey	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	413	100.000
2		✓	577	100.000
3		✓	50	100.000
4		✓	429	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	278	7	128
	2	462	0	2	113
	3	27	7	0	16
	4	325	103	1	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1	2	3	4
	1	0	10	10	10
	2	10	0	10	10
	3	10	10	0	10
	4	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.23	2.62	0.3	A
2	0.43	4.77	0.8	A
3	0.08	5.95	0.1	A
4	0.39	5.43	0.7	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	311	83	1996	0.156	310	0.2	2.347	A
2	434	102	1493	0.291	433	0.4	3.726	A
3	38	527	844	0.045	37	0.1	4.906	A
4	323	372	1308	0.247	322	0.4	4.009	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	371	100	1984	0.187	371	0.3	2.454	A
2	519	122	1481	0.350	518	0.6	4.108	A
3	45	631	792	0.057	45	0.1	5.300	A
4	386	445	1263	0.305	385	0.5	4.511	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	455	122	1968	0.231	454	0.3	2.616	A
2	635	150	1465	0.434	634	0.8	4.761	A
3	55	773	721	0.076	55	0.1	5.947	A
4	472	545	1201	0.393	471	0.7	5.418	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	455	122	1968	0.231	455	0.3	2.617	A
2	635	150	1465	0.434	635	0.8	4.773	A
3	55	774	720	0.076	55	0.1	5.952	A
4	472	546	1201	0.393	472	0.7	5.434	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	371	100	1984	0.187	372	0.3	2.457	A
2	519	122	1481	0.350	520	0.6	4.123	A
3	45	633	791	0.057	45	0.1	5.308	A
4	386	447	1262	0.306	387	0.5	4.530	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	311	84	1996	0.156	311	0.2	2.352	A
2	434	102	1493	0.291	435	0.5	3.743	A
3	38	530	843	0.045	38	0.1	4.917	A
4	323	374	1306	0.247	323	0.4	4.030	A