REPORT

Boston Alternative Energy Facility – Environmental Statement

Appendix 19.6 Junction Modelling Outputs

Client:	Alternative Use Boston Projects Ltd
Planning Inspectorate Reference:	EN010095
Document Reference:	6.4.25
Pursuant to:	APFP Regulation: 5(2)(a)
Reference:	PB6934-RHD-01-ZZ-RP-N-3019_A19.6
Status:	Final/0.0
Date:	23 March 2021

baef
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Document title: Boston Alternative Energy Facility – Environmental Statement

Document short title: Junction Modelling Outputs
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Date: 23 March 2021
Project name: Boston Alternative Energy Facility
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Date: 27/11/20 AR

Approved by: Paul Salmon

Date: 25/02/21 PS

Classification
Project Related

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: J1a A16&Marsh lane Rbt (HGVs from the North).arc8
Path: C:\Users\304111\Box\PB6934 Boston Gasification Team\E-TECHNICAL DATA\Transport\TD\Calcs\Junctions\Models\ES Results
Report generation date: 08/09/2020 14:02:13

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS
	A1 - 2018 Surveyed									
Arm 1	1.13	3.66	0.53	A	A	0.86	3.03	0.46	A	A
Arm 2	0.48	4.39	0.33	A		0.72	4.74	0.42	A	
Arm 3	1.05	3.48	0.51	A		0.79	3.14	0.44	A	
	A1 - 2021 Forecast									
Arm 1	1.24	3.87	0.55	A	A	0.92	3.14	0.48	A	A
Arm 2	0.53	4.59	0.35	A		0.79	5.02	0.44	A	
Arm 3	1.15	3.67	0.54	A		0.86	3.28	0.46	A	
	A1 - 2021 Peak Construction									
Arm 1	1.86	5.02	0.65	A	A	0.96	3.25	0.49	A	A
Arm 2	0.57	4.85	0.37	A		1.60	7.39	0.62	A	
Arm 3	1.24	3.86	0.56	A		1.00	3.79	0.50	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - 2018 Surveyed, AM " model duration: 07:20 - 08:50
"D2 - 2018 Surveyed, PM" model duration: 16:10 - 17:40
"D3 - 2021 Forecast, AM" model duration: 07:20 - 08:50
"D4 - 2021 Forecast, PM" model duration: 16:10 - 17:40
"D5 - 2021 Peak Construction, AM" model duration: 07:20 - 08:50
"D6 - 2021 Peak Construction, PM" model duration: 16:10 - 17:40

Run using Junctions 8.0.6.541 at 08/09/2020 14:02:10

File summary

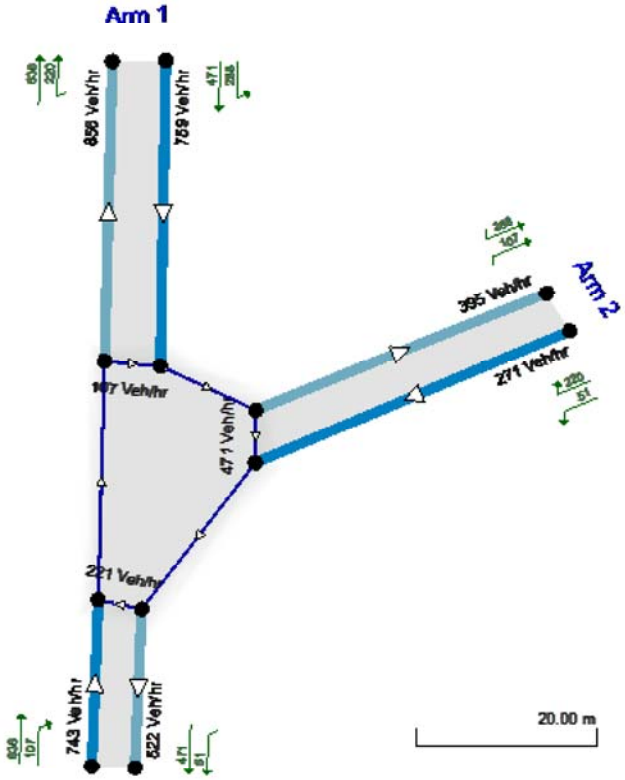
Title	Boston Alternative Energy Facility
Location	Boston
Site Number	J1a
Date	15/08/2020
Version	
Status	(new file)
Identifier	
Client	Alternative Use Boston Projects Ltd
Jobnumber	PB6934
Enumerator	304111
Description	100% of Construction HGVs Originate from the North

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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



Showing modelled flow through junction (Veh/hr).
Time Segment: (07:20-07:35)
Showing Analysis Set "A1"; Demand Set "D1 - 2018 Surveyed, AM"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2018 Surveyed, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, AM	2018 Surveyed	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				3.70	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1011.00	100.000
2	ONE HOUR	✓	361.00	100.000
3	ONE HOUR	✓	990.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	383.000	627.000
	2	293.000	0.000	68.000
	3	847.000	143.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

	To			

		1	2	3
From	1	0.00	0.38	0.62
	2	0.81	0.00	0.19
	3	0.86	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.029	1.073
	2	1.085	1.000	1.265
	3	1.065	1.154	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	2.9	7.3
	2	8.5	0.0	26.5
	3	6.5	15.4	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.53	3.66	1.13	A	927.71	1391.57	72.49	3.13	0.81	72.49	3.13
2	0.33	4.39	0.48	A	331.26	496.89	31.78	3.84	0.35	31.78	3.84
3	0.51	3.48	1.05	A	908.44	1362.66	67.14	2.96	0.75	67.14	2.96

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	761.13	190.28	758.93	856.45	107.36	0.00	2136.65	2007.56	0.356	0.00	0.55	2.608	A
2	271.78	67.94	270.78	394.87	471.42	0.00	1360.37	856.36	0.200	0.00	0.25	3.301	A
3	745.32	186.33	743.29	521.68	220.53	0.00	2207.45	1828.32	0.338	0.00	0.51	2.455	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	908.87	227.22	908.08	1024.84	128.45	0.00	2119.29	2007.56	0.429	0.55	0.75	2.971	A
2	324.53	81.13	324.20	472.46	564.07	0.00	1300.16	856.36	0.250	0.25	0.33	3.688	A
3	889.99	222.50	889.26	624.24	264.03	0.00	2172.84	1828.32	0.410	0.51	0.69	2.803	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1113.13	278.28	1111.62	1254.56	157.24	0.00	2095.57	2007.55	0.531	0.75	1.12	3.654	A
2	397.47	99.37	396.87	578.36	690.51	0.00	1218.01	856.37	0.326	0.33	0.48	4.381	A
3	1090.01	272.50	1088.59	764.16	323.21	0.00	2125.76	1828.31	0.513	0.69	1.04	3.466	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1113.13	278.28	1113.11	1256.24	157.44	0.00	2095.40	2007.55	0.531	1.12	1.13	3.664	A
2	397.47	99.37	397.46	579.13	691.43	0.00	1217.40	856.37	0.326	0.48	0.48	4.390	A
3	1090.01	272.50	1089.99	765.19	323.69	0.00	2125.37	1828.31	0.513	1.04	1.05	3.476	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	908.87	227.22	910.36	1027.42	128.76	0.00	2119.03	2007.56	0.429	1.13	0.76	2.981	A
2	324.53	81.13	325.12	473.63	565.49	0.00	1299.25	856.36	0.250	0.48	0.33	3.699	A
3	889.99	222.50	891.39	625.83	264.78	0.00	2172.24	1828.32	0.410	1.05	0.70	2.815	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	761.13	190.28	761.93	859.91	107.77	0.00	2136.32	2007.56	0.356	0.76	0.56	2.622	A
2	271.78	67.94	272.11	396.41	473.29	0.00	1359.16	856.36	0.200	0.33	0.25	3.311	A
3	745.32	186.33	746.06	523.79	221.61	0.00	2206.59	1828.32	0.338	0.70	0.51	2.465	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.10	0.54	2.608	A	A
2	3.65	0.24	3.301	A	A
3	7.48	0.50	2.455	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.01	0.73	2.971	A	A
2	4.88	0.33	3.688	A	A
3	10.19	0.68	2.803	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.45	1.10	3.654	A	A
2	7.07	0.47	4.381	A	A
3	15.31	1.02	3.466	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.90	1.13	3.664	A	A
2	7.23	0.48	4.390	A	A
3	15.70	1.05	3.476	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.55	0.77	2.981	A	A
2	5.11	0.34	3.699	A	A
3	10.66	0.71	2.815	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.47	0.56	2.622	A	A
2	3.82	0.25	3.311	A	A
3	7.79	0.52	2.465	A	A

(Default Analysis Set) - 2018 Surveyed, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, PM	2018 Surveyed	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				3.44	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	926.00	100.000

2	ONE HOUR	✓	497.00	100.000
3	ONE HOUR	✓	830.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	240.000	686.000
	2	403.000	1.000	93.000
	3	764.000	66.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.26	0.74
	2	0.81	0.00	0.19
	3	0.92	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.058	1.025
	2	1.015	1.000	1.075
	3	1.059	1.242	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.8	2.5
	2	1.5	0.0	7.5
	3	5.9	24.2	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.46	3.03	0.86	A	849.72	1274.57	57.04	2.69	0.63	57.04	2.69
2	0.42	4.74	0.72	A	456.05	684.08	45.53	3.99	0.51	45.53	3.99
3	0.44	3.14	0.79	A	761.62	1142.44	52.02	2.73	0.58	52.02	2.73

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	695.33	875.98	50.31	0.00	2228.54	2133.25	0.313	0.00	0.45	2.344	A
2	374.17	93.54	372.81	230.52	515.11	0.00	1468.60	747.53	0.255	0.00	0.34	3.280	A
3	624.87	156.22	623.25	584.88	303.05	0.00	2165.97	1938.29	0.288	0.00	0.40	2.331	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.46	208.11	831.88	1048.20	60.19	0.00	2219.61	2133.25	0.375	0.45	0.60	2.592	A
2	446.79	111.70	446.29	275.79	616.27	0.00	1400.13	747.53	0.319	0.34	0.47	3.772	A
3	746.15	186.54	745.61	699.78	362.78	0.00	2121.32	1938.29	0.352	0.40	0.54	2.615	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.55	254.89	1018.53	1283.16	73.69	0.00	2207.42	2133.25	0.462	0.60	0.85	3.025	A
2	547.21	136.80	546.21	337.66	754.54	0.00	1306.53	747.54	0.419	0.47	0.71	4.729	A
3	913.85	228.46	912.84	856.76	444.01	0.00	2060.61	1938.29	0.443	0.54	0.79	3.133	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.55	254.89	1019.54	1284.86	73.77	0.00	2207.34	2133.25	0.462	0.85	0.86	3.030	A
2	547.21	136.80	547.19	338.01	755.29	0.00	1306.02	747.54	0.419	0.71	0.72	4.743	A
3	913.85	228.46	913.84	857.68	444.80	0.00	2060.01	1938.29	0.444	0.79	0.79	3.140	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.46	208.11	833.47	1050.82	60.31	0.00	2219.50	2133.25	0.375	0.86	0.60	2.598	A
2	446.79	111.70	447.78	276.33	617.45	0.00	1399.33	747.53	0.319	0.72	0.47	3.789	A
3	746.15	186.54	747.15	701.24	363.99	0.00	2120.42	1938.29	0.352	0.79	0.55	2.622	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	697.73	879.50	50.49	0.00	2228.38	2133.25	0.313	0.60	0.46	2.352	A
2	374.17	93.54	374.68	231.32	516.89	0.00	1467.40	747.53	0.255	0.47	0.34	3.295	A
3	624.87	156.22	625.42	587.00	304.57	0.00	2164.83	1938.29	0.289	0.55	0.41	2.340	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.69	0.45	2.344	A	A
2	5.00	0.33	3.280	A	A
3	5.96	0.40	2.331	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.84	0.59	2.592	A	A
2	6.87	0.46	3.772	A	A
3	7.99	0.53	2.615	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.56	0.84	3.025	A	A
2	10.45	0.70	4.729	A	A
3	11.66	0.78	3.133	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.82	0.85	3.030	A	A
2	10.75	0.72	4.743	A	A
3	11.91	0.79	3.140	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.19	0.61	2.598	A	A
2	7.23	0.48	3.789	A	A
3	8.31	0.55	2.622	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.94	0.46	2.352	A	A
2	5.24	0.35	3.295	A	A

3	6.19	0.41	2.340	A	A

(Default Analysis Set) - 2021 Forecast, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, AM	2021 Forecast	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				3.90	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1053.00	100.000
2	ONE HOUR	✓	376.00	100.000
3	ONE HOUR	✓	1031.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	399.000	653.000
	2	305.000	0.000	71.000
	3	882.000	149.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.38	0.62
	2	0.81	0.00	0.19
	3	0.86	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.029	1.073
	2	1.085	1.000	1.265
	3	1.065	1.154	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	2.9	7.3
	2	8.5	0.0	26.5
	3	6.5	15.4	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.55	3.87	1.24	A	966.25	1449.37	78.67	3.26	0.87	78.68	3.26
2	0.35	4.59	0.53	A	345.02	517.54	34.24	3.97	0.38	34.24	3.97
3	0.54	3.67	1.15	A	946.07	1419.10	72.92	3.08	0.81	72.93	3.08

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	792.75	198.19	790.40	891.67	111.86	0.00	2132.95	2007.41	0.372	0.00	0.59	2.677	A
2	283.07	70.77	282.01	411.36	490.90	0.00	1347.61	856.47	0.210	0.00	0.26	3.375	A
3	776.19	194.05	774.02	543.40	229.51	0.00	2200.30	1828.63	0.353	0.00	0.54	2.521	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	946.62	236.66	945.76	1067.00	133.83	0.00	2114.85	2007.40	0.448	0.59	0.81	3.078	A
2	338.02	84.50	337.65	492.19	587.39	0.00	1284.92	856.47	0.263	0.26	0.35	3.800	A
3	926.85	231.71	926.04	650.25	274.79	0.00	2164.28	1828.62	0.428	0.54	0.74	2.906	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1159.37	289.84	1157.66	1306.08	163.82	0.00	2090.15	2007.40	0.555	0.81	1.23	3.853	A
2	413.98	103.50	413.31	602.48	719.00	0.00	1199.40	856.47	0.345	0.35	0.52	4.576	A
3	1135.15	283.79	1133.54	795.95	336.37	0.00	2115.29	1828.62	0.537	0.74	1.15	3.660	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1159.37	289.84	1159.35	1307.99	164.05	0.00	2089.96	2007.40	0.555	1.23	1.24	3.868	A
2	413.98	103.50	413.97	603.35	720.05	0.00	1198.72	856.47	0.345	0.52	0.53	4.587	A
3	1135.15	283.79	1135.13	797.12	336.91	0.00	2114.86	1828.62	0.537	1.15	1.15	3.673	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	946.62	236.66	948.32	1069.90	134.18	0.00	2114.57	2007.40	0.448	1.24	0.82	3.090	A
2	338.02	84.50	338.68	493.51	588.99	0.00	1283.88	856.47	0.263	0.53	0.36	3.813	A
3	926.85	231.71	928.45	652.04	275.63	0.00	2163.61	1828.62	0.428	1.15	0.75	2.920	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	792.75	198.19	793.64	895.39	112.29	0.00	2132.59	2007.41	0.372	0.82	0.59	2.691	A
2	283.07	70.77	283.44	413.02	492.91	0.00	1346.31	856.47	0.210	0.36	0.27	3.387	A
3	776.19	194.05	777.02	545.68	230.67	0.00	2199.38	1828.63	0.353	0.75	0.55	2.533	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.65	0.58	2.677	A	A
2	3.89	0.26	3.375	A	A
3	7.99	0.53	2.521	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.87	0.79	3.078	A	A
2	5.24	0.35	3.800	A	A
3	10.99	0.73	2.906	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.04	1.20	3.853	A	A
2	7.68	0.51	4.576	A	A
3	16.81	1.12	3.660	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.56	1.24	3.868	A	A
2	7.87	0.52	4.587	A	A
3	17.27	1.15	3.673	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.49	0.83	3.090	A	A
2	5.50	0.37	3.813	A	A
3	11.53	0.77	2.920	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.06	0.60	2.691	A	A
2	4.08	0.27	3.387	A	A
3	8.34	0.56	2.533	A	A

(Default Analysis Set) - 2021 Forecast, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, PM	2021 Forecast	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				3.60	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	961.00	100.000
2	ONE HOUR	✓	517.00	100.000
3	ONE HOUR	✓	862.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	249.000	712.000
	2	419.000	1.000	97.000
	3	793.000	69.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.26	0.74
	2	0.81	0.00	0.19
	3	0.92	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.058	1.025
	2	1.015	1.000	1.075
	3	1.059	1.242	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.8	2.5

	2	1.5	0.0	7.5
	3	5.9	24.2	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.48	3.14	0.92	A	881.83	1322.75	60.86	2.76	0.68	60.87	2.76
2	0.44	5.02	0.79	A	474.41	711.61	49.42	4.17	0.55	49.42	4.17
3	0.46	3.28	0.86	A	790.99	1186.48	55.86	2.82	0.62	55.86	2.82

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	721.57	909.70	52.56	0.00	2226.50	2132.37	0.325	0.00	0.48	2.389	A
2	389.22	97.31	387.77	239.52	534.61	0.00	1455.36	747.84	0.267	0.00	0.36	3.367	A
3	648.96	162.24	647.24	607.36	315.02	0.00	2156.82	1938.20	0.301	0.00	0.43	2.383	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	863.30	1088.57	62.88	0.00	2217.17	2132.37	0.390	0.48	0.64	2.657	A
2	464.77	116.19	464.22	286.56	639.61	0.00	1384.29	747.84	0.336	0.36	0.50	3.910	A
3	774.92	193.73	774.32	726.71	377.12	0.00	2110.40	1938.20	0.367	0.43	0.58	2.692	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1056.95	1332.48	76.98	0.00	2204.43	2132.37	0.480	0.64	0.92	3.134	A
2	569.23	142.31	568.09	350.84	783.09	0.00	1287.17	747.85	0.442	0.50	0.79	4.998	A
3	949.08	237.27	947.95	889.68	461.51	0.00	2047.33	1938.20	0.464	0.58	0.86	3.272	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1058.07	1334.41	77.07	0.00	2204.35	2132.37	0.480	0.92	0.92	3.139	A
2	569.23	142.31	569.21	351.22	783.92	0.00	1286.61	747.85	0.442	0.79	0.79	5.017	A
3	949.08	237.27	949.07	890.72	462.42	0.00	2046.66	1938.20	0.464	0.86	0.86	3.279	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	865.03	1091.49	63.02	0.00	2217.05	2132.37	0.390	0.92	0.64	2.664	A
2	464.77	116.19	465.89	287.15	640.90	0.00	1383.42	747.84	0.336	0.79	0.51	3.928	A
3	774.92	193.73	776.03	728.31	378.48	0.00	2109.39	1938.20	0.367	0.86	0.58	2.701	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	724.12	913.48	52.75	0.00	2226.33	2132.37	0.325	0.64	0.48	2.398	A
2	389.22	97.31	389.79	240.37	536.50	0.00	1454.08	747.84	0.268	0.51	0.37	3.383	A
3	648.96	162.24	649.56	609.63	316.66	0.00	2155.59	1938.20	0.301	0.58	0.43	2.392	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.07	0.47	2.389	A	A

2	5.33	0.36	3.367	A	A
3	6.32	0.42	2.383	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.39	0.63	2.657	A	A
2	7.39	0.49	3.910	A	A
3	8.54	0.57	2.692	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.49	0.90	3.134	A	A
2	11.47	0.76	4.998	A	A
3	12.62	0.84	3.272	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.78	0.92	3.139	A	A
2	11.82	0.79	5.017	A	A
3	12.91	0.86	3.279	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.78	0.65	2.664	A	A
2	7.81	0.52	3.928	A	A
3	8.90	0.59	2.701	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.35	0.49	2.398	A	A
2	5.60	0.37	3.383	A	A
3	6.57	0.44	2.392	A	A

(Default Analysis Set) - 2021 Peak Construction, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Construction, AM	2021 Peak Construction	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				4.53	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1224.00	100.000
2	ONE HOUR	✓	388.00	100.000
3	ONE HOUR	✓	1059.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	570.000	653.000
	2	317.000	0.000	71.000
	3	882.000	177.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.47	0.53
	2	0.82	0.00	0.18

	3	0.83	0.17	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.041	1.073
	2	1.121	1.000	1.265
	3	1.065	1.129	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	4.1	7.3
	2	12.1	0.0	26.5
	3	6.5	12.9	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.65	5.02	1.86	A	1123.16	1684.74	111.09	3.96	1.23	111.10	3.96
2	0.37	4.85	0.57	A	356.04	534.05	37.10	4.17	0.41	37.10	4.17
3	0.56	3.86	1.24	A	971.75	1457.63	77.66	3.20	0.86	77.67	3.20

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	921.49	230.37	918.42	900.59	132.87	0.00	2114.45	1986.67	0.436	0.00	0.77	3.002	A
2	292.11	73.03	290.97	560.57	490.72	0.00	1314.42	952.70	0.222	0.00	0.28	3.515	A
3	797.27	199.32	794.99	543.22	238.48	0.00	2191.28	1745.23	0.364	0.00	0.57	2.573	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1100.35	275.09	1099.03	1077.72	158.97	0.00	2093.45	1986.67	0.526	0.77	1.10	3.615	A
2	348.80	87.20	348.41	670.77	587.22	0.00	1253.26	952.70	0.278	0.28	0.38	3.976	A
3	952.02	238.00	951.14	650.08	285.55	0.00	2152.51	1745.23	0.442	0.57	0.79	2.995	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1347.65	336.91	1344.64	1319.11	194.58	0.00	2064.80	1986.67	0.653	1.10	1.85	4.978	A
2	427.20	106.80	426.45	820.76	718.46	0.00	1170.10	952.70	0.365	0.38	0.57	4.835	A
3	1165.98	291.49	1164.18	795.40	349.51	0.00	2099.84	1745.23	0.555	0.79	1.24	3.841	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1347.65	336.91	1347.59	1321.19	194.88	0.00	2064.56	1986.67	0.653	1.85	1.86	5.021	A
2	427.20	106.80	427.18	822.43	720.04	0.00	1169.10	952.70	0.365	0.57	0.57	4.851	A
3	1165.98	291.49	1165.95	797.10	350.11	0.00	2099.34	1745.23	0.555	1.24	1.24	3.856	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS

1	1100.35	275.09	1103.34	1080.87	159.42	0.00	2093.09	1986.67	0.526	1.86	1.12	3.647	A
2	348.80	87.20	349.54	673.23	589.53	0.00	1251.80	952.70	0.279	0.57	0.39	3.992	A
3	952.02	238.00	953.80	652.59	286.48	0.00	2151.75	1745.23	0.442	1.24	0.80	3.008	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	921.49	230.37	922.85	904.50	133.40	0.00	2114.02	1986.67	0.436	1.12	0.78	3.027	A
2	292.11	73.03	292.51	563.16	493.09	0.00	1312.92	952.70	0.222	0.39	0.29	3.528	A
3	797.27	199.32	798.16	545.86	239.74	0.00	2190.24	1745.23	0.364	0.80	0.57	2.589	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.25	0.75	3.002	A	A
2	4.17	0.28	3.515	A	A
3	8.38	0.56	2.573	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.11	1.07	3.615	A	A
2	5.65	0.38	3.976	A	A
3	11.62	0.77	2.995	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	26.72	1.78	4.978	A	A
2	8.36	0.56	4.835	A	A
3	18.07	1.20	3.841	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	27.89	1.86	5.021	A	A
2	8.58	0.57	4.851	A	A
3	18.61	1.24	3.856	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	17.23	1.15	3.647	A	A
2	5.95	0.40	3.992	A	A
3	12.22	0.81	3.008	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.89	0.79	3.027	A	A
2	4.38	0.29	3.528	A	A
3	8.76	0.58	2.589	A	A

(Default Analysis Set) - 2021 Peak Construction, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

	Scenario	Time		Traffic	Model Start	Model Finish	Model Time	Time Segment	Results For	Single Time		Run	Use	

Name	Name	Period Name	Description	Profile Type	Time (HH:mm)	Time (HH:mm)	Period Length (min)	Length (min)	Central Hour Only	Segment Only	Locked	Automatically	Relationship	Relationship
2021 Peak Construction, PM	2021 Peak Construction	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1a - A16 / Marsh Lane	Roundabout	1,2,3				4.58	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	973.00	100.000
2	ONE HOUR	✓	716.00	100.000

3	ONE HOUR	✓	862.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	261.000	712.000
	2	590.000	1.000	125.000
	3	793.000	69.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.27	0.73
	2	0.82	0.00	0.17
	3	0.92	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.102	1.025
	2	1.031	1.000	1.058
	3	1.059	1.242	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	10.2	2.5
	2	3.1	0.0	5.8
	3	5.9	24.2	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.49	3.25	0.96	A	892.85	1339.27	63.45	2.84	0.71	63.46	2.84
2	0.62	7.39	1.60	A	657.01	985.52	91.16	5.55	1.01	91.16	5.55
3	0.50	3.79	1.00	A	790.99	1186.48	62.41	3.16	0.69	62.42	3.16

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	732.53	183.13	730.54	1037.55	52.55	0.00	2200.74	2109.79	0.333	0.00	0.50	2.445	A
2	539.04	134.76	536.67	248.51	534.58	0.00	1442.12	765.18	0.374	0.00	0.59	3.965	A
3	648.96	162.24	647.12	628.27	442.98	0.00	2055.97	1912.79	0.316	0.00	0.46	2.552	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	874.71	218.68	874.05	1241.71	62.87	0.00	2191.53	2109.79	0.399	0.50	0.66	2.731	A
2	643.67	160.92	642.54	297.33	639.59	0.00	1371.68	765.18	0.469	0.59	0.88	4.922	A
3	774.92	193.73	774.22	751.77	530.36	0.00	1989.63	1912.79	0.389	0.46	0.63	2.960	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1071.30	267.82	1070.10	1519.06	76.95	0.00	2178.95	2109.79	0.492	0.66	0.96	3.244	A
2	788.33	197.08	785.49	364.00	783.05	0.00	1275.46	765.18	0.618	0.88	1.59	7.305	A
3	949.08	237.27	947.66	920.18	648.36	0.00	1900.06	1912.79	0.500	0.63	0.99	3.775	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1071.30	267.82	1071.28	1522.63	77.07	0.00	2178.84	2109.79	0.492	0.96	0.96	3.249	A
2	788.33	197.08	788.26	364.43	783.92	0.00	1274.88	765.18	0.618	1.59	1.60	7.395	A
3	949.08	237.27	949.06	921.53	650.64	0.00	1898.32	1912.79	0.500	0.99	1.00	3.791	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	874.71	218.68	875.90	1246.92	63.05	0.00	2191.37	2109.79	0.399	0.96	0.67	2.738	A
2	643.67	160.92	646.50	298.00	640.94	0.00	1370.78	765.18	0.470	1.60	0.89	4.989	A
3	774.92	193.73	776.33	753.81	533.63	0.00	1987.15	1912.79	0.390	1.00	0.64	2.975	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	732.53	183.13	733.20	1042.81	52.76	0.00	2200.56	2109.79	0.333	0.67	0.50	2.455	A
2	539.04	134.76	540.21	249.43	536.52	0.00	1440.82	765.18	0.374	0.89	0.60	4.002	A
3	648.96	162.24	649.67	630.83	445.90	0.00	2053.75	1912.79	0.316	0.64	0.46	2.566	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.32	0.49	2.445	A	A
2	8.65	0.58	3.965	A	A
3	6.77	0.45	2.552	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.77	0.65	2.731	A	A
2	12.79	0.85	4.922	A	A
3	9.37	0.62	2.960	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	14.12	0.94	3.244	A	A
2	22.68	1.51	7.305	A	A
3	14.50	0.97	3.775	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	14.44	0.96	3.249	A	A
2	23.94	1.60	7.395	A	A
3	14.90	0.99	3.791	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.19	0.68	2.738	A	A
2	13.86	0.92	4.989	A	A
3	9.83	0.66	2.975	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.62	0.51	2.455	A	A
2	9.23	0.62	4.002	A	A

3	7.06	0.47	2.566	A	A

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: J1b A16&Marsh lane Rbt (HGVs from the South).arc8
Path: C:\Users\304111\Box\PB6934 Boston Gasification Team\E-TECHNICAL DATA\Transport\TD\Calcs\Junctions\Models\ES Results
Report generation date: 08/09/2020 14:05:04

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS
	A1 - 2018 Surveyed Flows									
Arm 1	1.13	3.66	0.53	A	A	0.86	3.03	0.46	A	A
Arm 2	0.48	4.39	0.33	A		0.72	4.74	0.42	A	
Arm 3	1.05	3.48	0.51	A		0.79	3.14	0.44	A	
	A1 - 2021 Forecast									
Arm 1	1.24	3.87	0.55	A	A	0.92	3.14	0.48	A	A
Arm 2	0.53	4.59	0.35	A		0.79	5.02	0.44	A	
Arm 3	1.15	3.67	0.54	A		0.86	3.28	0.46	A	
	A1 - 2021 Peak Construction									
Arm 1	1.82	4.94	0.65	A	A	0.94	3.20	0.49	A	A
Arm 2	0.57	4.85	0.37	A		1.66	7.66	0.63	A	
Arm 3	1.28	3.92	0.56	A		1.03	3.86	0.51	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - 2018 Surveyed Flows, AM " model duration: 07:20 - 08:50
"D2 - 2018 Surveyed Flows, PM" model duration: 16:10 - 17:40
"D3 - 2021 Forecast, AM" model duration: 07:20 - 08:50
"D4 - 2021 Forecast, PM" model duration: 16:10 - 17:40
"D5 - 2021 Peak Construction, AM" model duration: 07:20 - 08:50
"D6 - 2021 Peak Construction, PM" model duration: 16:10 - 17:40

Run using Junctions 8.0.6.541 at 08/09/2020 14:05:00

File summary

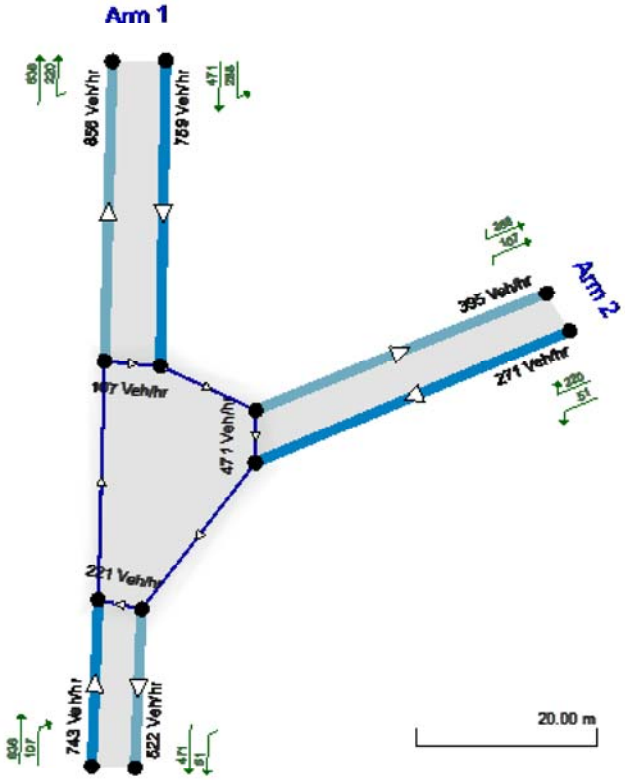
Title	Boston Alternative Energy Facility
Location	Boston
Site Number	J1b
Date	15/08/2020
Version	
Status	(new file)
Identifier	
Client	Alternative Use Boston Projects Ltd
Jobnumber	PB6934
Enumerator	304111
Description	100% of Construction HGVs Originate from the South

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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



Showing modelled flow through junction (Veh/hr).
Time Segment: (07:20-07:35)
Showing Analysis Set "A1 "; Demand Set "D1 - 2018 Surveyed Flows, AM "

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2018 Surveyed Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed Flows, AM	2018 Surveyed Flows	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				3.70	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1011.00	100.000
2	ONE HOUR	✓	361.00	100.000
3	ONE HOUR	✓	990.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

	To			
		1	2	3

From	1	1.000	383.000	627.000
	2	293.000	0.000	68.000
	3	847.000	143.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.38	0.62
	2	0.81	0.00	0.19
	3	0.86	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.029	1.073
	2	1.085	1.000	1.265
	3	1.065	1.154	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	2.9	7.3
	2	8.5	0.0	26.5
	3	6.5	15.4	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.53	3.66	1.13	A	927.71	1391.57	72.49	3.13	0.81	72.49	3.13
2	0.33	4.39	0.48	A	331.26	496.89	31.78	3.84	0.35	31.78	3.84
3	0.51	3.48	1.05	A	908.44	1362.66	67.14	2.96	0.75	67.14	2.96

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	761.13	190.28	758.93	856.45	107.36	0.00	2136.65	2007.56	0.356	0.00	0.55	2.608	A
2	271.78	67.94	270.78	394.87	471.42	0.00	1360.37	856.36	0.200	0.00	0.25	3.301	A
3	745.32	186.33	743.29	521.68	220.53	0.00	2207.45	1828.32	0.338	0.00	0.51	2.455	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	908.87	227.22	908.08	1024.84	128.45	0.00	2119.29	2007.56	0.429	0.55	0.75	2.971	A
2	324.53	81.13	324.20	472.46	564.07	0.00	1300.16	856.36	0.250	0.25	0.33	3.688	A
3	889.99	222.50	889.26	624.24	264.03	0.00	2172.84	1828.32	0.410	0.51	0.69	2.803	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1113.13	278.28	1111.62	1254.56	157.24	0.00	2095.57	2007.55	0.531	0.75	1.12	3.654	A
2	397.47	99.37	396.87	578.36	690.51	0.00	1218.01	856.37	0.326	0.33	0.48	4.381	A
3	1090.01	272.50	1088.59	764.16	323.21	0.00	2125.76	1828.31	0.513	0.69	1.04	3.466	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1113.13	278.28	1113.11	1256.24	157.44	0.00	2095.40	2007.55	0.531	1.12	1.13	3.664	A
2	397.47	99.37	397.46	579.13	691.43	0.00	1217.40	856.37	0.326	0.48	0.48	4.390	A
3	1090.01	272.50	1089.99	765.19	323.69	0.00	2125.37	1828.31	0.513	1.04	1.05	3.476	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	908.87	227.22	910.36	1027.42	128.76	0.00	2119.03	2007.56	0.429	1.13	0.76	2.981	A
2	324.53	81.13	325.12	473.63	565.49	0.00	1299.25	856.36	0.250	0.48	0.33	3.699	A
3	889.99	222.50	891.39	625.83	264.78	0.00	2172.24	1828.32	0.410	1.05	0.70	2.815	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	761.13	190.28	761.93	859.91	107.77	0.00	2136.32	2007.56	0.356	0.76	0.56	2.622	A
2	271.78	67.94	272.11	396.41	473.29	0.00	1359.16	856.36	0.200	0.33	0.25	3.311	A
3	745.32	186.33	746.06	523.79	221.61	0.00	2206.59	1828.32	0.338	0.70	0.51	2.465	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.10	0.54	2.608	A	A
2	3.65	0.24	3.301	A	A
3	7.48	0.50	2.455	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.01	0.73	2.971	A	A
2	4.88	0.33	3.688	A	A
3	10.19	0.68	2.803	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.45	1.10	3.654	A	A
2	7.07	0.47	4.381	A	A
3	15.31	1.02	3.466	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.90	1.13	3.664	A	A
2	7.23	0.48	4.390	A	A
3	15.70	1.05	3.476	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.55	0.77	2.981	A	A
2	5.11	0.34	3.699	A	A
3	10.66	0.71	2.815	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.47	0.56	2.622	A	A
2	3.82	0.25	3.311	A	A
3	7.79	0.52	2.465	A	A

(Default Analysis Set) - 2018 Surveyed Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed Flows, PM	2018 Surveyed Flows	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				3.44	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

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	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	926.00	100.000
2	ONE HOUR	✓	497.00	100.000
3	ONE HOUR	✓	830.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	240.000	686.000
	2	403.000	1.000	93.000
	3	764.000	66.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.26	0.74
	2	0.81	0.00	0.19
	3	0.92	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.058	1.025
	2	1.015	1.000	1.075
	3	1.059	1.242	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.8	2.5
	2	1.5	0.0	7.5
	3	5.9	24.2	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.46	3.03	0.86	A	849.72	1274.57	57.04	2.69	0.63	57.04	2.69
2	0.42	4.74	0.72	A	456.05	684.08	45.53	3.99	0.51	45.53	3.99
3	0.44	3.14	0.79	A	761.62	1142.44	52.02	2.73	0.58	52.02	2.73

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	695.33	875.98	50.31	0.00	2228.54	2133.25	0.313	0.00	0.45	2.344	A
2	374.17	93.54	372.81	230.52	515.11	0.00	1468.60	747.53	0.255	0.00	0.34	3.280	A
3	624.87	156.22	623.25	584.88	303.05	0.00	2165.97	1938.29	0.288	0.00	0.40	2.331	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.46	208.11	831.88	1048.20	60.19	0.00	2219.61	2133.25	0.375	0.45	0.60	2.592	A
2	446.79	111.70	446.29	275.79	616.27	0.00	1400.13	747.53	0.319	0.34	0.47	3.772	A
3	746.15	186.54	745.61	699.78	362.78	0.00	2121.32	1938.29	0.352	0.40	0.54	2.615	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.55	254.89	1018.53	1283.16	73.69	0.00	2207.42	2133.25	0.462	0.60	0.85	3.025	A
2	547.21	136.80	546.21	337.66	754.54	0.00	1306.53	747.54	0.419	0.47	0.71	4.729	A
3	913.85	228.46	912.84	856.76	444.01	0.00	2060.61	1938.29	0.443	0.54	0.79	3.133	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.55	254.89	1019.54	1284.86	73.77	0.00	2207.34	2133.25	0.462	0.85	0.86	3.030	A
2	547.21	136.80	547.19	338.01	755.29	0.00	1306.02	747.54	0.419	0.71	0.72	4.743	A
3	913.85	228.46	913.84	857.68	444.80	0.00	2060.01	1938.29	0.444	0.79	0.79	3.140	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.46	208.11	833.47	1050.82	60.31	0.00	2219.50	2133.25	0.375	0.86	0.60	2.598	A
2	446.79	111.70	447.78	276.33	617.45	0.00	1399.33	747.53	0.319	0.72	0.47	3.789	A
3	746.15	186.54	747.15	701.24	363.99	0.00	2120.42	1938.29	0.352	0.79	0.55	2.622	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	697.73	879.50	50.49	0.00	2228.38	2133.25	0.313	0.60	0.46	2.352	A
2	374.17	93.54	374.68	231.32	516.89	0.00	1467.40	747.53	0.255	0.47	0.34	3.295	A
3	624.87	156.22	625.42	587.00	304.57	0.00	2164.83	1938.29	0.289	0.55	0.41	2.340	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.69	0.45	2.344	A	A
2	5.00	0.33	3.280	A	A
3	5.96	0.40	2.331	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.84	0.59	2.592	A	A
2	6.87	0.46	3.772	A	A
3	7.99	0.53	2.615	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.56	0.84	3.025	A	A
2	10.45	0.70	4.729	A	A
3	11.66	0.78	3.133	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.82	0.85	3.030	A	A

2	10.75	0.72	4.743	A	A
3	11.91	0.79	3.140	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.19	0.61	2.598	A	A
2	7.23	0.48	3.789	A	A
3	8.31	0.55	2.622	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.94	0.46	2.352	A	A
2	5.24	0.35	3.295	A	A
3	6.19	0.41	2.340	A	A

(Default Analysis Set) - 2021 Forecast, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, AM	2021 Forecast	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				3.90	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

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	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1053.00	100.000
2	ONE HOUR	✓	376.00	100.000
3	ONE HOUR	✓	1031.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	399.000	653.000
	2	305.000	0.000	71.000
	3	882.000	149.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.38	0.62
	2	0.81	0.00	0.19
	3	0.86	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.029	1.073
	2	1.085	1.000	1.265
	3	1.065	1.154	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	2.9	7.3
	2	8.5	0.0	26.5
	3	6.5	15.4	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.55	3.87	1.24	A	966.25	1449.37	78.67	3.26	0.87	78.68	3.26
2	0.35	4.59	0.53	A	345.02	517.54	34.24	3.97	0.38	34.24	3.97
3	0.54	3.67	1.15	A	946.07	1419.10	72.92	3.08	0.81	72.93	3.08

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	792.75	198.19	790.40	891.67	111.86	0.00	2132.95	2007.41	0.372	0.00	0.59	2.677	A
2	283.07	70.77	282.01	411.36	490.90	0.00	1347.61	856.47	0.210	0.00	0.26	3.375	A
3	776.19	194.05	774.02	543.40	229.51	0.00	2200.30	1828.63	0.353	0.00	0.54	2.521	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	946.62	236.66	945.76	1067.00	133.83	0.00	2114.85	2007.40	0.448	0.59	0.81	3.078	A
2	338.02	84.50	337.65	492.19	587.39	0.00	1284.92	856.47	0.263	0.26	0.35	3.800	A
3	926.85	231.71	926.04	650.25	274.79	0.00	2164.28	1828.62	0.428	0.54	0.74	2.906	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1159.37	289.84	1157.66	1306.08	163.82	0.00	2090.15	2007.40	0.555	0.81	1.23	3.853	A
2	413.98	103.50	413.31	602.48	719.00	0.00	1199.40	856.47	0.345	0.35	0.52	4.576	A
3	1135.15	283.79	1133.54	795.95	336.37	0.00	2115.29	1828.62	0.537	0.74	1.15	3.660	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1159.37	289.84	1159.35	1307.99	164.05	0.00	2089.96	2007.40	0.555	1.23	1.24	3.868	A
2	413.98	103.50	413.97	603.35	720.05	0.00	1198.72	856.47	0.345	0.52	0.53	4.587	A
3	1135.15	283.79	1135.13	797.12	336.91	0.00	2114.86	1828.62	0.537	1.15	1.15	3.673	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	946.62	236.66	948.32	1069.90	134.18	0.00	2114.57	2007.40	0.448	1.24	0.82	3.090	A
2	338.02	84.50	338.68	493.51	588.99	0.00	1283.88	856.47	0.263	0.53	0.36	3.813	A
3	926.85	231.71	928.45	652.04	275.63	0.00	2163.61	1828.62	0.428	1.15	0.75	2.920	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	792.75	198.19	793.64	895.39	112.29	0.00	2132.59	2007.41	0.372	0.82	0.59	2.691	A
2	283.07	70.77	283.44	413.02	492.91	0.00	1346.31	856.47	0.210	0.36	0.27	3.387	A
3	776.19	194.05	777.02	545.68	230.67	0.00	2199.38	1828.63	0.353	0.75	0.55	2.533	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.65	0.58	2.677	A	A
2	3.89	0.26	3.375	A	A
3	7.99	0.53	2.521	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.87	0.79	3.078	A	A
2	5.24	0.35	3.800	A	A
3	10.99	0.73	2.906	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.04	1.20	3.853	A	A
2	7.68	0.51	4.576	A	A
3	16.81	1.12	3.660	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.56	1.24	3.868	A	A
2	7.87	0.52	4.587	A	A
3	17.27	1.15	3.673	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.49	0.83	3.090	A	A
2	5.50	0.37	3.813	A	A
3	11.53	0.77	2.920	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.06	0.60	2.691	A	A
2	4.08	0.27	3.387	A	A
3	8.34	0.56	2.533	A	A

(Default Analysis Set) - 2021 Forecast, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, PM	2021 Forecast	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				3.60	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	961.00	100.000
2	ONE HOUR	✓	517.00	100.000
3	ONE HOUR	✓	862.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

	To			
		1	2	3

From	1	0.000	249.000	712.000
	2	419.000	1.000	97.000
	3	793.000	69.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.26	0.74
	2	0.81	0.00	0.19
	3	0.92	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.058	1.025
	2	1.015	1.000	1.075
	3	1.059	1.242	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.8	2.5
	2	1.5	0.0	7.5
	3	5.9	24.2	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.48	3.14	0.92	A	881.83	1322.75	60.86	2.76	0.68	60.87	2.76
2	0.44	5.02	0.79	A	474.41	711.61	49.42	4.17	0.55	49.42	4.17
3	0.46	3.28	0.86	A	790.99	1186.48	55.86	2.82	0.62	55.86	2.82

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	721.57	909.70	52.56	0.00	2226.50	2132.37	0.325	0.00	0.48	2.389	A
2	389.22	97.31	387.77	239.52	534.61	0.00	1455.36	747.84	0.267	0.00	0.36	3.367	A
3	648.96	162.24	647.24	607.36	315.02	0.00	2156.82	1938.20	0.301	0.00	0.43	2.383	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	863.30	1088.57	62.88	0.00	2217.17	2132.37	0.390	0.48	0.64	2.657	A
2	464.77	116.19	464.22	286.56	639.61	0.00	1384.29	747.84	0.336	0.36	0.50	3.910	A
3	774.92	193.73	774.32	726.71	377.12	0.00	2110.40	1938.20	0.367	0.43	0.58	2.692	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1056.95	1332.48	76.98	0.00	2204.43	2132.37	0.480	0.64	0.92	3.134	A
2	569.23	142.31	568.09	350.84	783.09	0.00	1287.17	747.85	0.442	0.50	0.79	4.998	A
3	949.08	237.27	947.95	889.68	461.51	0.00	2047.33	1938.20	0.464	0.58	0.86	3.272	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1058.07	1334.41	77.07	0.00	2204.35	2132.37	0.480	0.92	0.92	3.139	A
2	569.23	142.31	569.21	351.22	783.92	0.00	1286.61	747.85	0.442	0.79	0.79	5.017	A
3	949.08	237.27	949.07	890.72	462.42	0.00	2046.66	1938.20	0.464	0.86	0.86	3.279	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	865.03	1091.49	63.02	0.00	2217.05	2132.37	0.390	0.92	0.64	2.664	A
2	464.77	116.19	465.89	287.15	640.90	0.00	1383.42	747.84	0.336	0.79	0.51	3.928	A
3	774.92	193.73	776.03	728.31	378.48	0.00	2109.39	1938.20	0.367	0.86	0.58	2.701	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	724.12	913.48	52.75	0.00	2226.33	2132.37	0.325	0.64	0.48	2.398	A
2	389.22	97.31	389.79	240.37	536.50	0.00	1454.08	747.84	0.268	0.51	0.37	3.383	A
3	648.96	162.24	649.56	609.63	316.66	0.00	2155.59	1938.20	0.301	0.58	0.43	2.392	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.07	0.47	2.389	A	A
2	5.33	0.36	3.367	A	A
3	6.32	0.42	2.383	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.39	0.63	2.657	A	A
2	7.39	0.49	3.910	A	A
3	8.54	0.57	2.692	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.49	0.90	3.134	A	A
2	11.47	0.76	4.998	A	A
3	12.62	0.84	3.272	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.78	0.92	3.139	A	A
2	11.82	0.79	5.017	A	A
3	12.91	0.86	3.279	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.78	0.65	2.664	A	A
2	7.81	0.52	3.928	A	A
3	8.90	0.59	2.701	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.35	0.49	2.398	A	A
2	5.60	0.37	3.383	A	A
3	6.57	0.44	2.392	A	A

(Default Analysis Set) - 2021 Peak Construction, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Construction, AM	2021 Peak Construction	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				4.51	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

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	7.30	8.16	2.02	24.28	46.06	29.00	
2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1212.00	100.000
2	ONE HOUR	✓	388.00	100.000
3	ONE HOUR	✓	1071.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	558.000	653.000
	2	305.000	0.000	83.000
	3	882.000	189.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.46	0.54
	2	0.79	0.00	0.21
	3	0.82	0.18	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.021	1.073
	2	1.085	1.000	1.373
	3	1.065	1.186	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	2.1	7.3
	2	8.5	0.0	37.3
	3	6.5	18.6	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.65	4.94	1.82	A	1112.15	1668.23	108.47	3.90	1.21	108.48	3.90
2	0.37	4.85	0.57	A	356.04	534.05	37.06	4.16	0.41	37.06	4.16
3	0.56	3.92	1.28	A	982.77	1474.16	79.64	3.24	0.88	79.64	3.24

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	912.46	228.11	909.45	891.57	141.88	0.00	2119.55	1973.81	0.431	0.00	0.75	2.967	A
2	292.11	73.03	290.97	560.59	490.74	0.00	1315.25	951.05	0.222	0.00	0.28	3.512	A
3	806.31	201.58	803.98	552.24	229.48	0.00	2183.13	1772.79	0.369	0.00	0.58	2.606	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1089.56	272.39	1088.27	1066.93	169.75	0.00	2095.79	1973.81	0.520	0.75	1.07	3.568	A
2	348.80	87.20	348.41	670.79	587.24	0.00	1254.06	951.05	0.278	0.28	0.38	3.973	A
3	962.81	240.70	961.91	660.87	274.78	0.00	2147.38	1772.79	0.448	0.58	0.81	3.036	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1334.44	333.61	1331.52	1305.90	207.77	0.00	2063.38	1973.81	0.647	1.07	1.80	4.899	A
2	427.20	106.80	426.45	820.79	718.49	0.00	1170.83	951.05	0.365	0.38	0.57	4.831	A
3	1179.20	294.80	1177.35	808.62	336.32	0.00	2098.79	1772.79	0.562	0.81	1.27	3.899	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1334.44	333.61	1334.38	1307.98	208.09	0.00	2063.11	1973.81	0.647	1.80	1.82	4.940	A
2	427.20	106.80	427.18	822.43	720.04	0.00	1169.85	951.05	0.365	0.57	0.57	4.847	A
3	1179.20	294.80	1179.17	810.32	336.90	0.00	2098.33	1772.79	0.562	1.27	1.28	3.916	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1089.56	272.39	1092.46	1070.08	170.23	0.00	2095.38	1973.81	0.520	1.82	1.09	3.601	A
2	348.80	87.20	349.54	673.20	589.50	0.00	1252.63	951.05	0.278	0.57	0.39	3.989	A
3	962.81	240.70	964.64	663.37	275.67	0.00	2146.67	1772.79	0.449	1.28	0.82	3.052	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	912.46	228.11	913.78	895.46	142.45	0.00	2119.06	1973.81	0.431	1.09	0.76	2.989	A
2	292.11	73.03	292.51	563.15	493.08	0.00	1313.77	951.05	0.222	0.39	0.29	3.525	A
3	806.31	201.58	807.23	554.90	230.69	0.00	2182.18	1772.79	0.370	0.82	0.59	2.621	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.01	0.73	2.967	A	A
2	4.17	0.28	3.512	A	A
3	8.57	0.57	2.606	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	15.76	1.05	3.568	A	A
2	5.65	0.38	3.973	A	A
3	11.91	0.79	3.036	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	26.07	1.74	4.899	A	A
2	8.35	0.56	4.831	A	A
3	18.55	1.24	3.899	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	27.18	1.81	4.940	A	A
2	8.57	0.57	4.847	A	A

3	19.11	1.27	3.916	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.83	1.12	3.601	A	A
2	5.94	0.40	3.989	A	A
3	12.53	0.84	3.052	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.63	0.78	2.989	A	A
2	4.38	0.29	3.525	A	A
3	8.97	0.60	2.621	A	A

(Default Analysis Set) - 2021 Peak Construction, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Construction, PM	2021 Peak Construction	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J1b - A16 / Marsh L:ane	Roundabout	1,2,3				4.68	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	Marsh Lane	
3	3	A16 South	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

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	7.30	8.16	2.02	24.28	46.06	29.00	

2	3.65	7.07	17.10	51.08	46.06	17.50	
3	6.10	9.27	30.00	31.92	46.60	35.00	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
1	None			
2	Percentage	Queue Validation		100.00
3	Percentage	Queue Validation		100.00

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.754	2350.279
2		(calculated)	(calculated)	0.678	1864.900
3		(calculated)	(calculated)	0.791	2568.436

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	962.00	100.000
2	ONE HOUR	✓	716.00	100.000
3	ONE HOUR	✓	874.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	249.000	712.000
	2	578.000	1.000	137.000
	3	793.000	81.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.26	0.74
	2	0.81	0.00	0.19
	3	0.91	0.09	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.058	1.025
	2	1.011	1.000	1.210
	3	1.056	1.386	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To

From		1	2	3
	1	0.0	5.8	2.5
	2	1.1	0.0	21.0
	3	5.6	38.6	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.49	3.20	0.94	A	882.74	1324.12	61.87	2.80	0.69	61.87	2.80
2	0.63	7.66	1.66	A	657.02	985.52	93.82	5.71	1.04	93.82	5.71
3	0.51	3.86	1.03	A	802.00	1203.00	64.35	3.21	0.72	64.36	3.21

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	724.24	181.06	722.30	1029.24	61.56	0.00	2212.02	2093.76	0.327	0.00	0.48	2.413	A
2	539.04	134.76	536.62	248.51	535.35	0.00	1423.22	750.17	0.379	0.00	0.61	4.050	A
3	658.00	164.50	656.10	637.27	434.70	0.00	2044.04	1915.98	0.322	0.00	0.47	2.590	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	864.81	216.20	864.18	1231.80	73.65	0.00	2199.84	2093.76	0.393	0.48	0.64	2.693	A
2	643.67	160.92	642.50	297.33	640.50	0.00	1353.59	750.17	0.476	0.61	0.90	5.054	A
3	785.71	196.43	784.99	762.53	520.46	0.00	1980.95	1915.98	0.397	0.47	0.65	3.008	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1059.18	264.79	1058.01	1506.86	90.14	0.00	2183.22	2093.76	0.485	0.64	0.94	3.196	A
2	788.33	197.08	785.36	363.99	784.17	0.00	1258.46	750.17	0.626	0.90	1.64	7.560	A
3	962.30	240.57	960.82	933.33	636.19	0.00	1895.83	1915.98	0.508	0.65	1.02	3.844	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1059.18	264.79	1059.16	1510.52	90.28	0.00	2183.08	2093.76	0.485	0.94	0.94	3.202	A
2	788.33	197.08	788.26	364.43	785.02	0.00	1257.90	750.17	0.627	1.64	1.66	7.662	A
3	962.30	240.57	962.27	934.74	638.53	0.00	1894.11	1915.98	0.508	1.02	1.03	3.863	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	864.81	216.20	865.97	1237.13	73.86	0.00	2199.63	2093.76	0.393	0.94	0.65	2.701	A
2	643.67	160.92	646.64	298.00	641.83	0.00	1352.71	750.17	0.476	1.66	0.92	5.121	A
3	785.71	196.43	787.17	764.66	523.81	0.00	1978.49	1915.98	0.397	1.03	0.66	3.024	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	724.24	181.06	724.89	1034.56	61.80	0.00	2211.77	2093.76	0.327	0.65	0.49	2.423	A
2	539.04	134.76	540.25	249.43	537.27	0.00	1421.95	750.17	0.379	0.92	0.61	4.088	A
3	658.00	164.50	658.73	639.88	437.63	0.00	2041.88	1915.98	0.322	0.66	0.48	2.603	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.15	0.48	2.413	A	A
2	8.83	0.59	4.050	A	A
3	6.96	0.46	2.590	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.53	0.64	2.693	A	A
2	13.10	0.87	5.054	A	A
3	9.65	0.64	3.008	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.76	0.92	3.196	A	A
2	23.43	1.56	7.560	A	A
3	14.96	1.00	3.844	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	14.07	0.94	3.202	A	A
2	24.79	1.65	7.662	A	A
3	15.39	1.03	3.863	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.93	0.66	2.701	A	A
2	14.23	0.95	5.121	A	A
3	10.13	0.68	3.024	A	A

Queueing Delay results: (17:25-17:40)

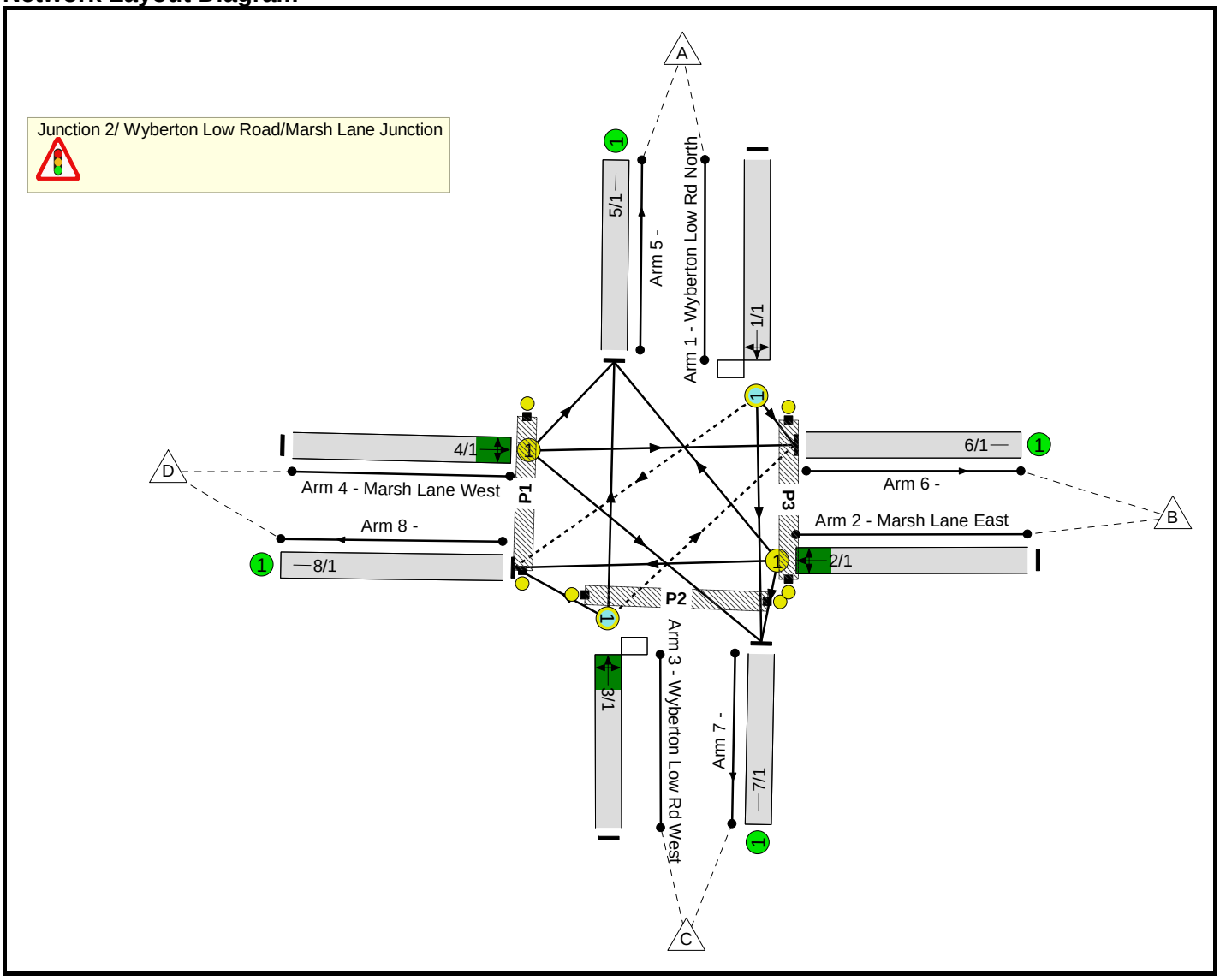
Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.43	0.50	2.423	A	A
2	9.44	0.63	4.088	A	A
3	7.27	0.48	2.603	A	A

Full Input Data And Results

User and Project Details

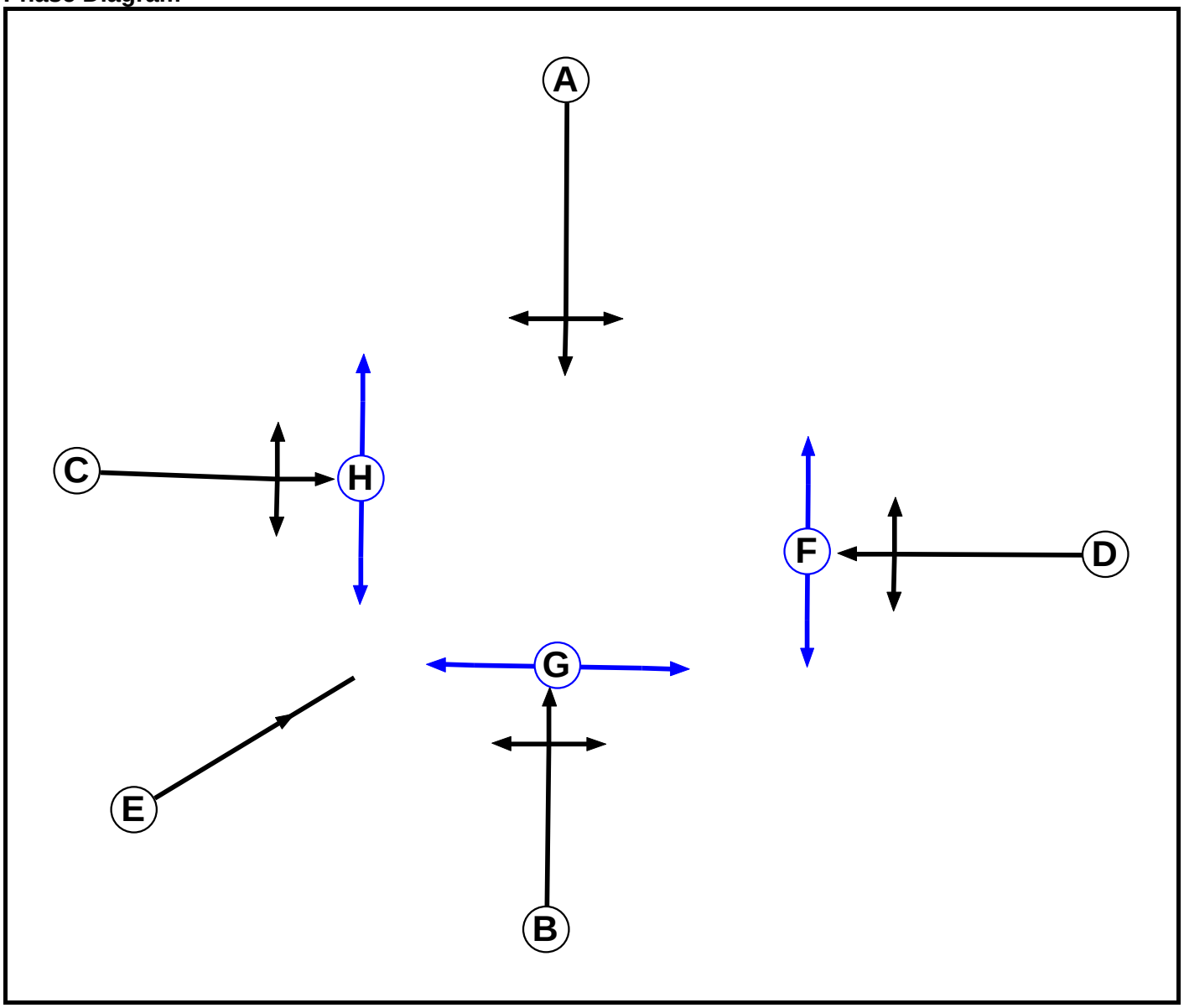
Project:	
Title:	
Location:	
Additional detail:	
File name:	J2 Wyberton Low Rd & Marsh Lane v2.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7

Full Input Data And Results

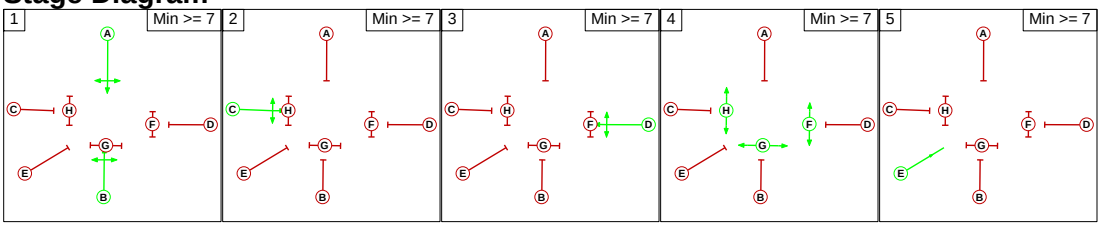
Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		-	9	8	10	11	11	11
	B	-		9	9	10	11	11	11
	C	7	7		7	10	11	11	11
	D	7	7	7		9	11	11	11
	E	6	6	6	6		11	11	11
	F	10	10	10	10	9		-	-
	G	10	10	10	10	9	-		-
	H	10	10	10	10	9	-	-	

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

		To Stage				
		1	2	3	4	5
From Stage	1		9	9	11	10
	2	7		7	11	10
	3	7	7		11	9
	4	10	10	10		9
	5	6	6	6	11	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction

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)
1/1 (Wyberton Low Rd North)	8/1 (Right)	1439	0	3/1	1.09	All	1.00	1.00	0.50	1	2.00
3/1 (Wyberton Low Rd West)	6/1 (Right)	1439	0	1/1	1.09	All	1.00	1.00	0.50	1	2.00

Full Input Data And Results

Lane Input Data

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Wyberton Low Rd North)	O	A	2	3	11.3	Geom	-	3.91	0.00	Y	Arm 6 Left	64.00
											Arm 7 Ahead	Inf
											Arm 8 Right	15.49
2/1 (Marsh Lane East)	U	D	2	3	60.0	Geom	-	3.56	0.00	Y	Arm 5 Right	25.25
											Arm 7 Left	15.02
											Arm 8 Ahead	Inf
3/1 (Wyberton Low Rd West)	O	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	14.85
											Arm 8 Left	28.20
4/1 (Marsh Lane West)	U	C	2	3	44.3	Geom	-	3.41	0.00	Y	Arm 5 Left	10.47
											Arm 6 Ahead	Inf
											Arm 7 Right	20.34
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Base 2018 AM '	07:40	08:40	01:00	
2: 'Base 2018 PM'	16:00	17:00	01:00	
3: 'Forecast 2021 AM'	07:40	08:40	01:00	
4: 'Forecast 2021 PM '	16:00	17:00	01:00	
5: '2021 Peak Construction AM '	07:40	08:40	01:00	
6: '2021 Peak Cosntruction PM'	16:00	17:00	01:00	

Scenario 1: 'Base 2018 Surveyed AM' (FG1: 'Base 2018 AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	1	0	3	4
	B	0	0	2	199	201
	C	0	16	0	203	219
	D	3	470	83	0	556
	Tot.	3	487	85	405	980

Traffic Lane Flows

Lane	Scenario 1: Base 2018 Surveyed AM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	4
2/1	201
3/1	219
4/1	556
5/1	3
6/1	487
7/1	85
8/1	405

Full Input Data And Results

Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	25.0 %	1860	1860
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	15.49	75.0 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.0 %	1969	1969
				Arm 7 Left	15.02	1.0 %		
				Arm 8 Ahead	Inf	99.0 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1812	1812
				Arm 6 Right	14.85	7.3 %		
				Arm 8 Left	28.20	92.7 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	0.5 %	1933	1933
				Arm 6 Ahead	Inf	84.5 %		
				Arm 7 Right	20.34	14.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'Base 2018 Surveyed PM' (FG2: 'Base 2018 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	2	5	7
	B	1	0	5	367	373
	C	1	3	0	109	113
	D	5	270	107	0	382
	Tot.	7	273	114	481	875

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: Base 2018 Surveyed PM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	7
2/1	373
3/1	113
4/1	382
5/1	7
6/1	273
7/1	114
8/1	481

Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	0.0 %	1876	1876
				Arm 7 Ahead	Inf	28.6 %		
				Arm 8 Right	15.49	71.4 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.3 %	1968	1968
				Arm 7 Left	15.02	1.3 %		
				Arm 8 Ahead	Inf	98.4 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.9 %	1817	1817
				Arm 6 Right	14.85	2.7 %		
				Arm 8 Left	28.20	96.5 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	1.3 %	1913	1913
				Arm 6 Ahead	Inf	70.7 %		
				Arm 7 Right	20.34	28.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2021 Forecast AM' (FG3: 'Forecast 2021 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	1	0	3	4
	B	0	0	2	207	209
	C	0	17	0	211	228
	D	3	489	86	0	578
	Tot.	3	507	88	421	1019

Traffic Lane Flows

Lane	Scenario 3: 2021 Forecast AM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	4
2/1	209
3/1	228
4/1	578
5/1	3
6/1	507
7/1	88
8/1	421

Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	25.0 %	1860	1860
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	15.49	75.0 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.0 %	1969	1969
				Arm 7 Left	15.02	1.0 %		
				Arm 8 Ahead	Inf	99.0 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1812	1812
				Arm 6 Right	14.85	7.5 %		
				Arm 8 Left	28.20	92.5 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	0.5 %	1933	1933
				Arm 6 Ahead	Inf	84.6 %		
				Arm 7 Right	20.34	14.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2021 Forecast PM' (FG4: 'Forecast 2021 PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	2	5	7
	B	1	0	5	381	387
	C	1	3	0	113	117
	D	5	280	111	0	396
	Tot.	7	283	118	499	907

Traffic Lane Flows

Lane	Scenario 4: 2021 Forecast PM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	7
2/1	387
3/1	117
4/1	396
5/1	7
6/1	283
7/1	118
8/1	499

Full Input Data And Results

Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	0.0 %	1876	1876
				Arm 7 Ahead	Inf	28.6 %		
				Arm 8 Right	15.49	71.4 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.3 %	1968	1968
				Arm 7 Left	15.02	1.3 %		
				Arm 8 Ahead	Inf	98.4 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.9 %	1817	1817
				Arm 6 Right	14.85	2.6 %		
				Arm 8 Left	28.20	96.6 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	1.3 %	1913	1913
				Arm 6 Ahead	Inf	70.7 %		
				Arm 7 Right	20.34	28.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2021 Peak Construction AM' (FG5: '2021 Peak Construction AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	1	0	3	4
	B	0	0	2	232	234
	C	0	17	0	211	228
	D	3	701	86	0	790
	Tot.	3	719	88	446	1256

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2021 Peak Construction AM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	4
2/1	234
3/1	228
4/1	790
5/1	3
6/1	719
7/1	88
8/1	446

Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	25.0 %	1860	1860
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	15.49	75.0 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.0 %	1969	1969
				Arm 7 Left	15.02	0.9 %		
				Arm 8 Ahead	Inf	99.1 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1812	1812
				Arm 6 Right	14.85	7.5 %		
				Arm 8 Left	28.20	92.5 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	0.4 %	1939	1939
				Arm 6 Ahead	Inf	88.7 %		
				Arm 7 Right	20.34	10.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: '2021 Peak Construction PM' (FG6: '2021 Peak Cosntruction PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	2	5	7
	B	1	0	5	593	599
	C	1	3	0	113	117
	D	5	305	111	0	421
	Tot.	7	308	118	711	1144

Traffic Lane Flows

Lane	Scenario 6: 2021 Peak Construction PM
Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction	
1/1	7
2/1	599
3/1	117
4/1	421
5/1	7
6/1	308
7/1	118
8/1	711

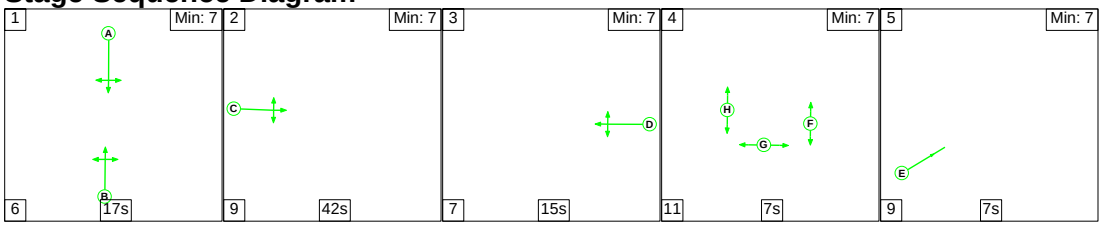
Lane Saturation Flows

Junction: Junction 2/ Wyberton Low Road/Marsh Lane Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wyberton Low Rd North)	3.91	0.00	Y	Arm 6 Left	64.00	0.0 %	1876	1876
				Arm 7 Ahead	Inf	28.6 %		
				Arm 8 Right	15.49	71.4 %		
2/1 (Marsh Lane East)	3.56	0.00	Y	Arm 5 Right	25.25	0.2 %	1969	1969
				Arm 7 Left	15.02	0.8 %		
				Arm 8 Ahead	Inf	99.0 %		
3/1 (Wyberton Low Rd West)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.9 %	1817	1817
				Arm 6 Right	14.85	2.6 %		
				Arm 8 Left	28.20	96.6 %		
4/1 (Marsh Lane West)	3.41	0.00	Y	Arm 5 Left	10.47	1.2 %	1915	1915
				Arm 6 Ahead	Inf	72.4 %		
				Arm 7 Right	20.34	26.4 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: 'Base 2018 Surveyed AM' (FG1: 'Base 2018 AM ', Plan 1: 'Network Control Plan 1')

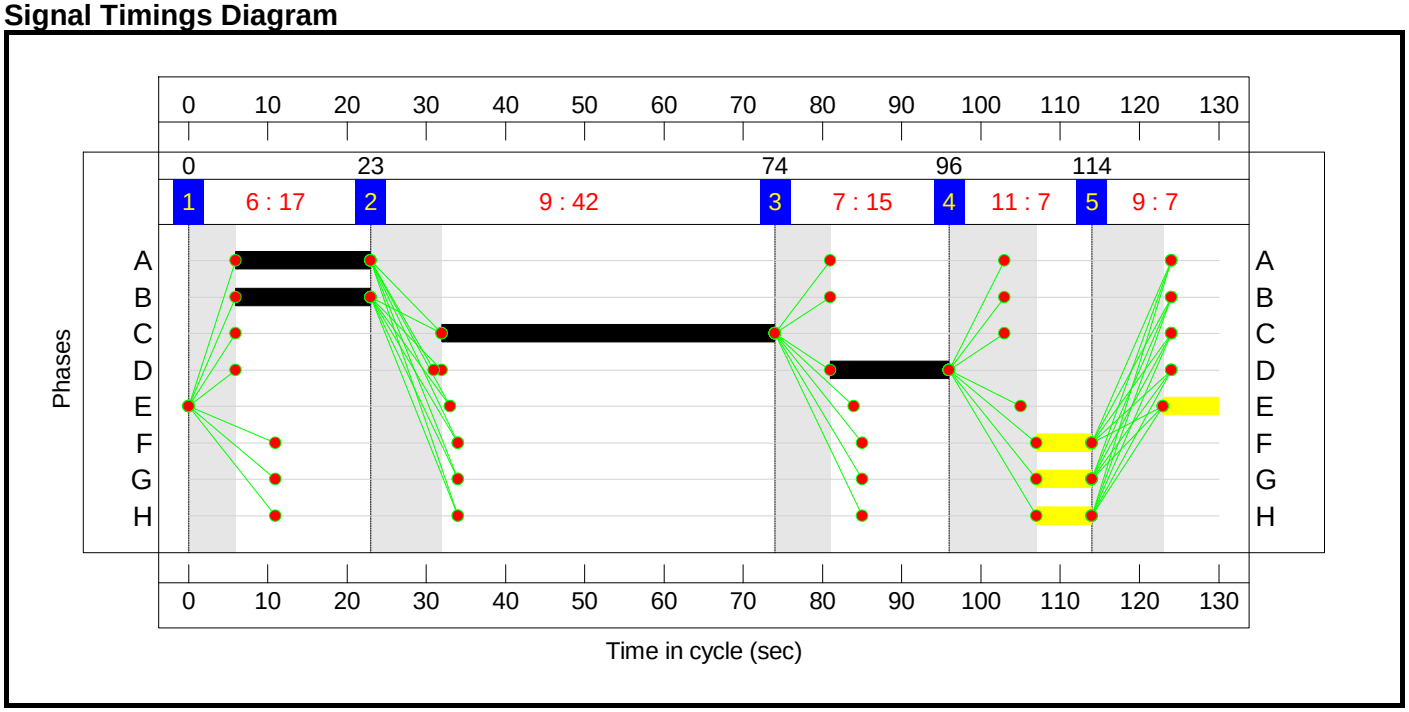
Stage Sequence Diagram



Stage Timings

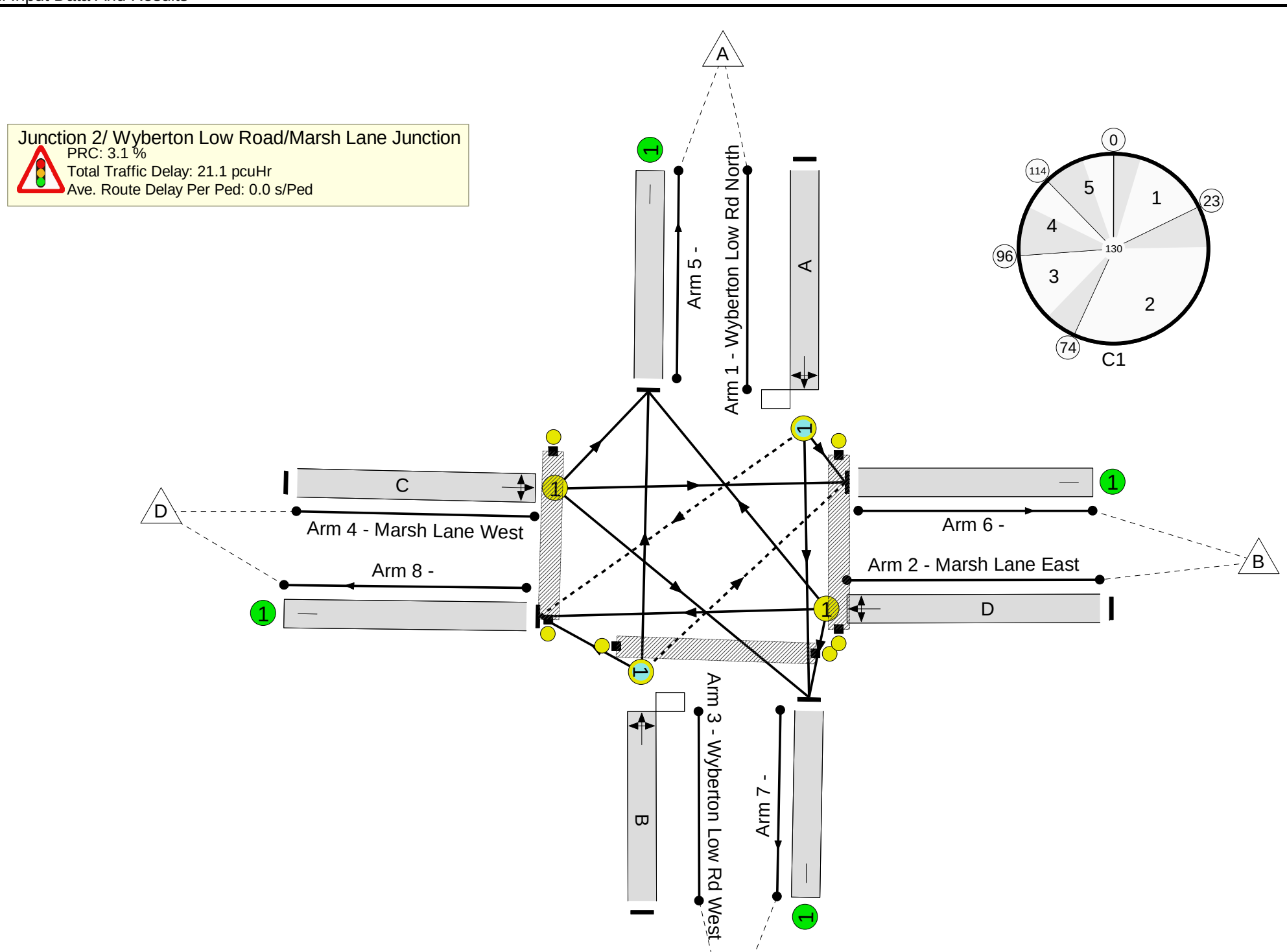
Stage	1	2	3	4	5
Duration	17	42	15	7	7
Change Point	0	23	74	96	114

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 3.1 %
Total Traffic Delay: 21.1 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
Arm 5 -
Arm 1 - Wyberton Low Rd North
A
0
114
5
1
23
4
130
96
3
2
74
C1
C
D
Arm 4 - Marsh Lane West
Arm 8 -
Arm 6 -
Arm 2 - Marsh Lane East
B
D
B
Arm 3 - Wyberton Low Rd West
Arm 7 -

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.3%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.3%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	17	-	4	1860	37	10.8%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	15	-	201	1969	242	82.9%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	17	-	219	1812	251	87.3%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	42	-	556	1933	639	87.0%
5/1		U	N/A	N/A	-		-	-	-	3	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	487	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	85	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**19**	**0**	**0**	**12.8**	**8.3**	**0.0**	**21.1**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**19**	**0**	**0**	**12.8**	**8.3**	**0.0**	**21.1**	**-**	**-**	**-**	**-**
1/1	4	4	3	0	0	0.1	0.1	0.0	0.1	114.3	0.1	0.1	0.2
2/1	201	201	-	-	-	3.1	2.2	-	5.3	95.0	7.0	2.2	9.2
3/1	219	219	16	0	0	3.3	2.9	0.0	6.2	102.6	7.7	2.9	10.6
4/1	556	556	-	-	-	6.3	3.1	-	9.4	61.0	18.8	3.1	21.9
5/1	3	3	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	487	487	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	85	85	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 3.1
PRC Over All Lanes (%): 3.1

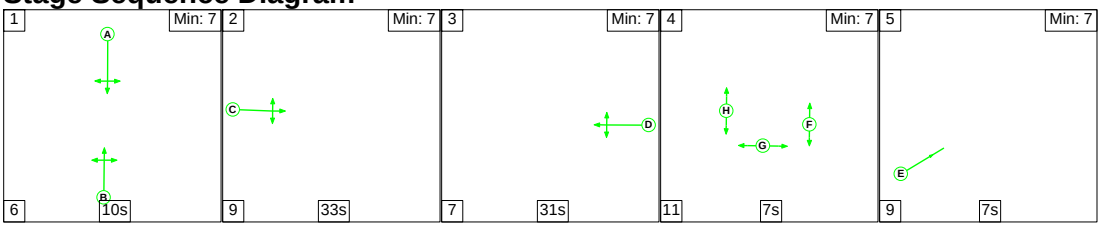
Total Delay for Signalled Lanes (pcuHr): 21.09
Total Delay Over All Lanes(pcuHr): 21.09

Cycle Time (s): 130

Full Input Data And Results

Scenario 2: 'Base 2018 Surveyed PM' (FG2: 'Base 2018 PM', Plan 1: 'Network Control Plan 1')

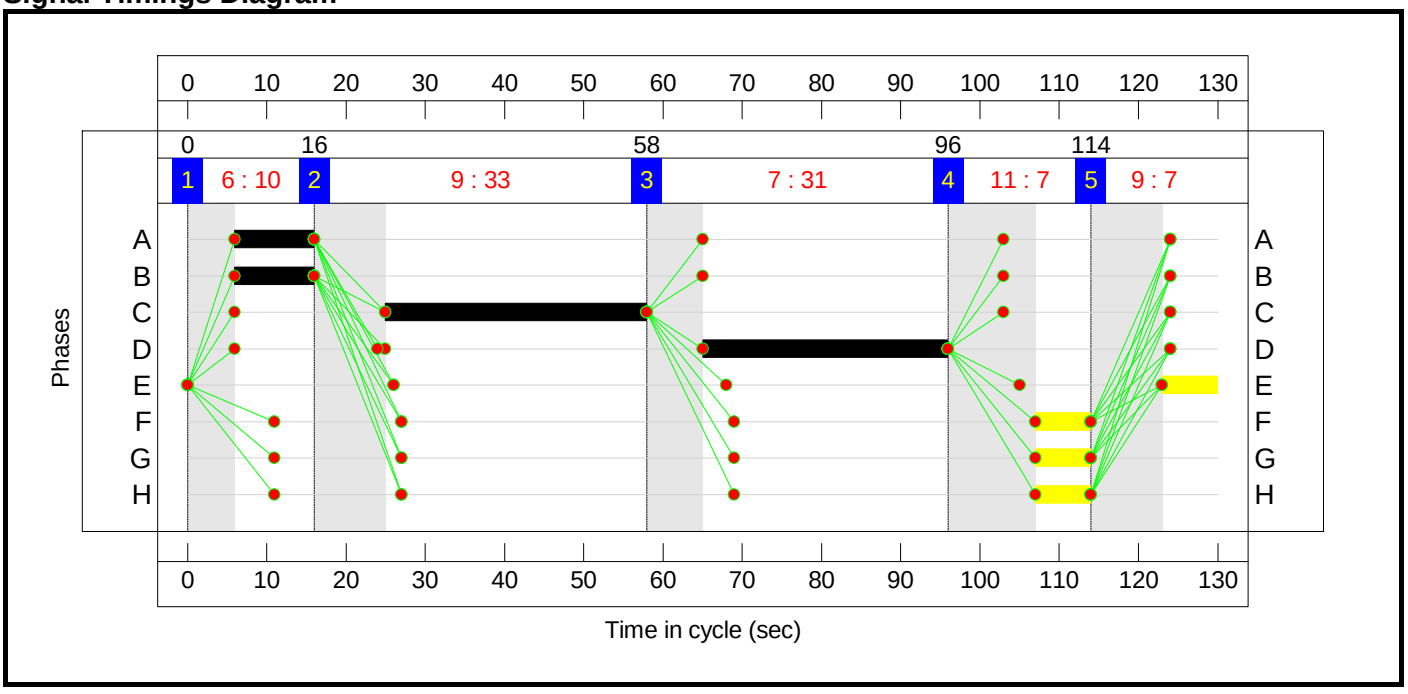
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5
Duration	10	33	31	7	7
Change Point	0	16	58	96	114

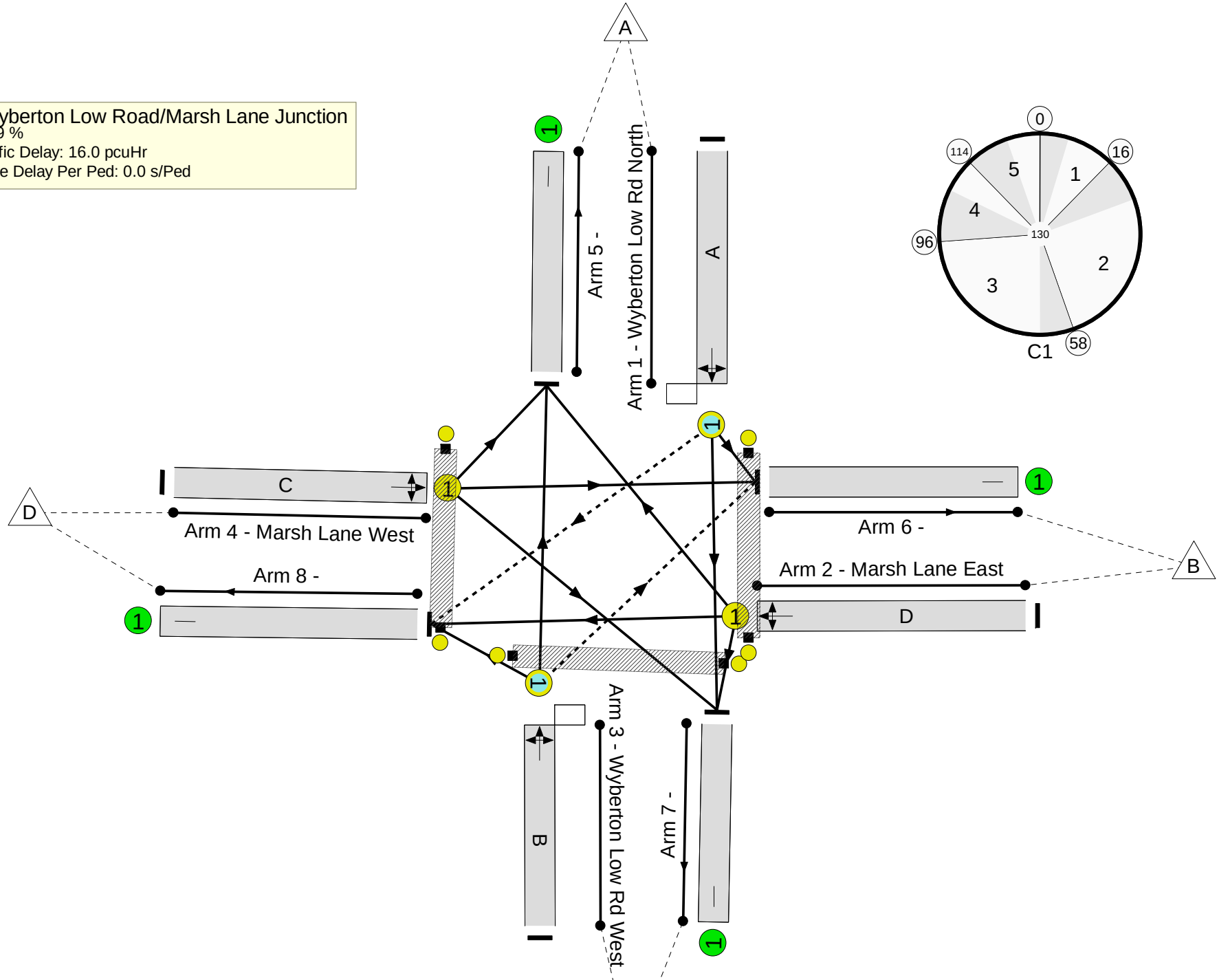
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 16.9 %
Total Traffic Delay: 16.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**77.0%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**77.0%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	10	-	7	1876	39	18.1%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	31	-	373	1968	484	77.0%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	10	-	113	1817	154	73.5%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	33	-	382	1913	500	76.4%
5/1		U	N/A	N/A	-		-	-	-	7	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	273	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	114	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	481	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**8**	**0**	**0**	**11.4**	**4.6**	**0.0**	**16.0**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**8**	**0**	**0**	**11.4**	**4.6**	**0.0**	**16.0**	**-**	**-**	**-**	**-**
1/1	7	7	5	0	0	0.1	0.1	0.0	0.2	117.3	0.2	0.1	0.3
2/1	373	373	-	-	-	4.7	1.6	-	6.3	61.3	12.4	1.6	14.1
3/1	113	113	3	0	0	1.8	1.3	0.0	3.1	99.6	4.0	1.3	5.3
4/1	382	382	-	-	-	4.7	1.6	-	6.3	59.1	12.6	1.6	14.2
5/1	7	7	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	273	273	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	114	114	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	481	481	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 16.9
PRC Over All Lanes (%): 16.9

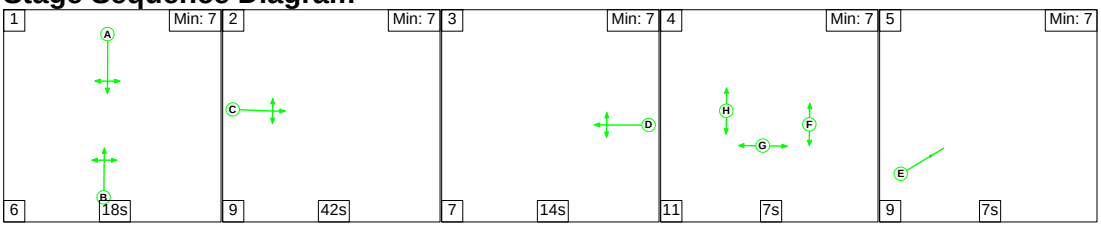
Total Delay for Signalled Lanes (pcuHr): 15.98
Total Delay Over All Lanes(pcuHr): 15.98

Cycle Time (s): 130

Full Input Data And Results

Scenario 3: '2021 Forecast AM' (FG3: 'Forecast 2021 AM', Plan 1: 'Network Control Plan 1')

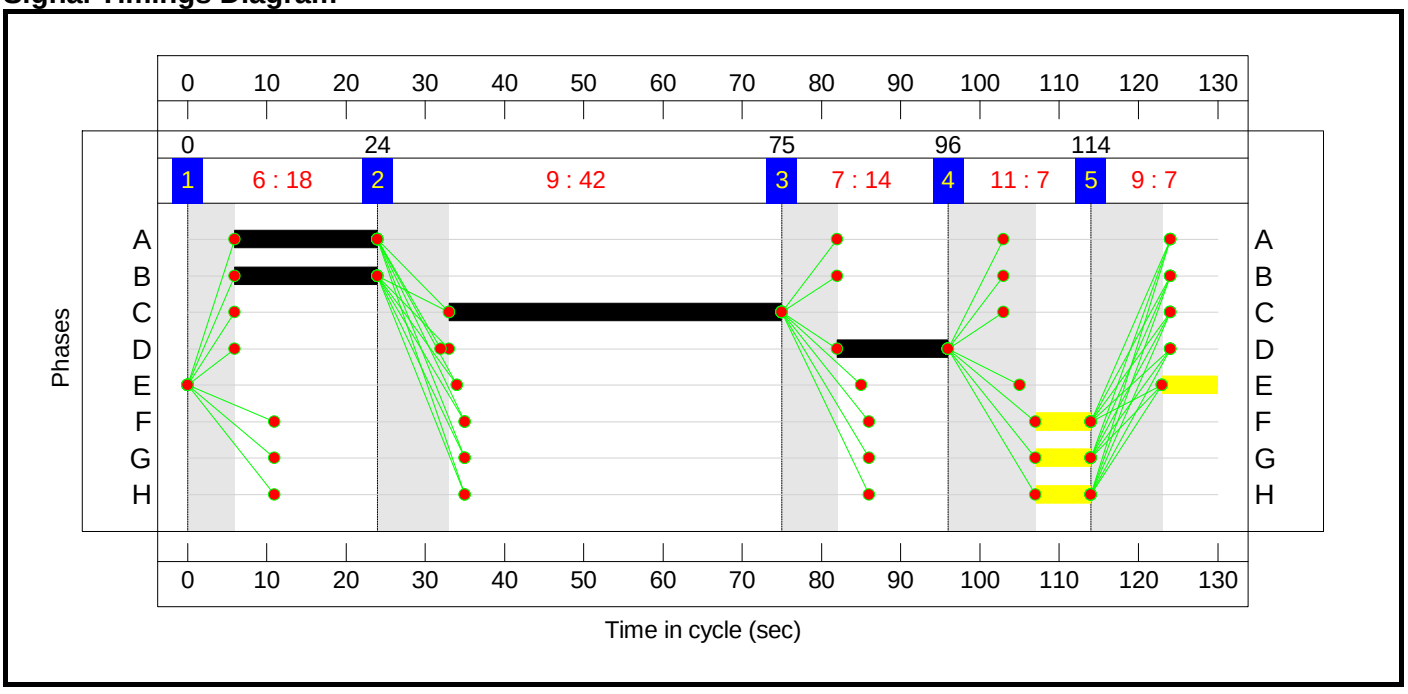
Stage Sequence Diagram



Stage Timings

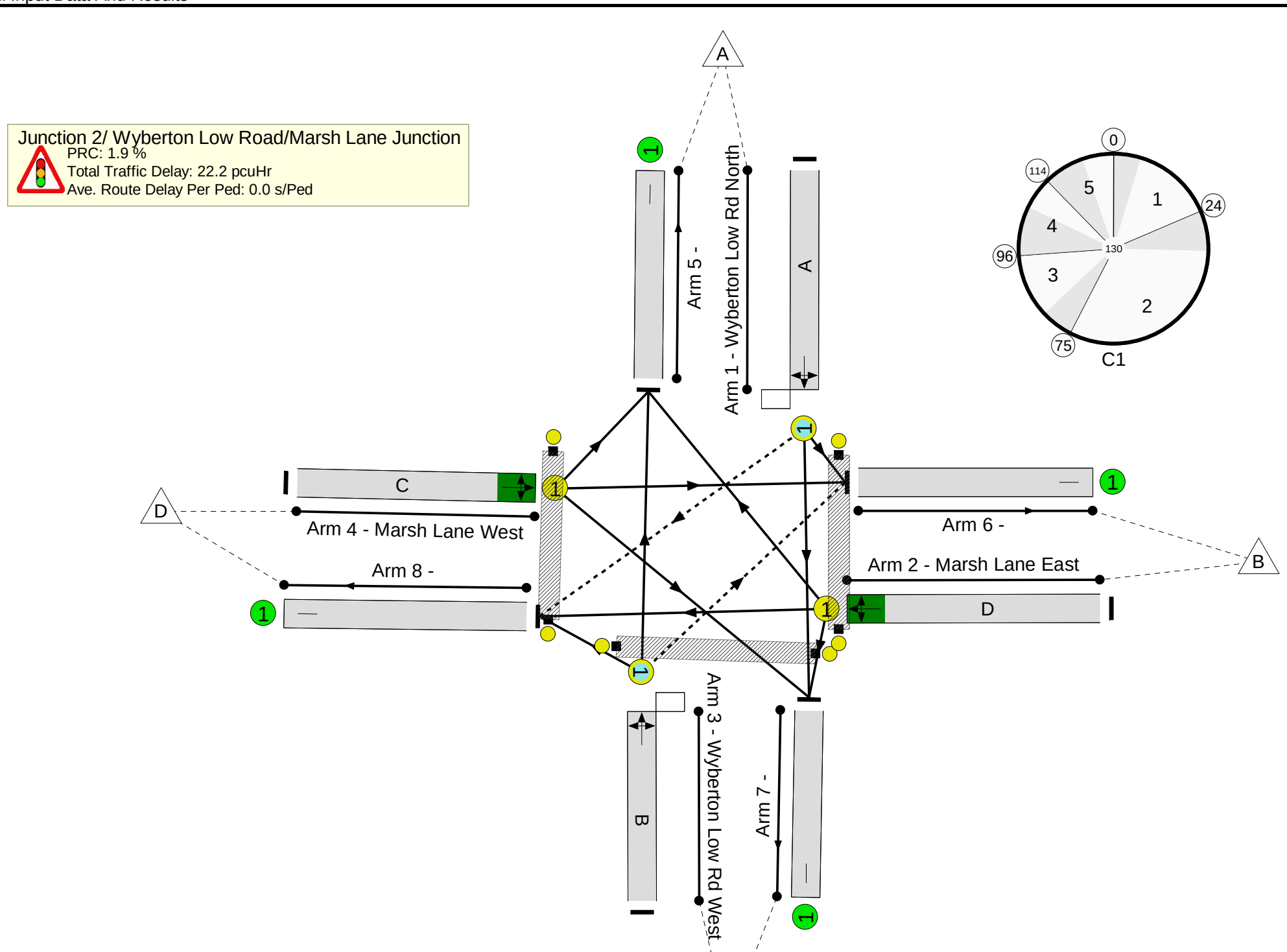
Stage	1	2	3	4	5
Duration	18	42	14	7	7
Change Point	0	24	75	96	114

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 1.9 %
Total Traffic Delay: 22.2 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
Arm 5 -
Arm 1 - Wyberton Low Rd North
A
0
114
5
1
24
4
130
96
3
2
75
C1
C
D
Arm 4 - Marsh Lane West
Arm 8 -
Arm 6 -
Arm 2 - Marsh Lane East
B
D
B
Arm 3 - Wyberton Low Rd West
Arm 7 -

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.3%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.3%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	18	-	4	1860	37	10.8%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	14	-	209	1969	242	86.2%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	18	-	228	1812	265	86.1%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	42	-	578	1933	654	88.3%
5/1		U	N/A	N/A	-		-	-	-	3	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	507	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	88	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	421	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**20**	**0**	**0**	**13.2**	**8.9**	**0.0**	**22.2**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**20**	**0**	**0**	**13.2**	**8.9**	**0.0**	**22.2**	**-**	**-**	**-**	**-**
1/1	4	4	3	0	0	0.1	0.1	0.0	0.1	114.1	0.1	0.1	0.2
2/1	209	209	-	-	-	3.2	2.7	-	5.9	102.4	7.4	2.7	10.1
3/1	228	228	17	0	0	3.4	2.7	0.0	6.1	96.8	8.0	2.7	10.7
4/1	578	578	-	-	-	6.5	3.5	-	10.0	62.2	19.6	3.5	23.1
5/1	3	3	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	507	507	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	88	88	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	421	421	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 1.9
PRC Over All Lanes (%): 1.9

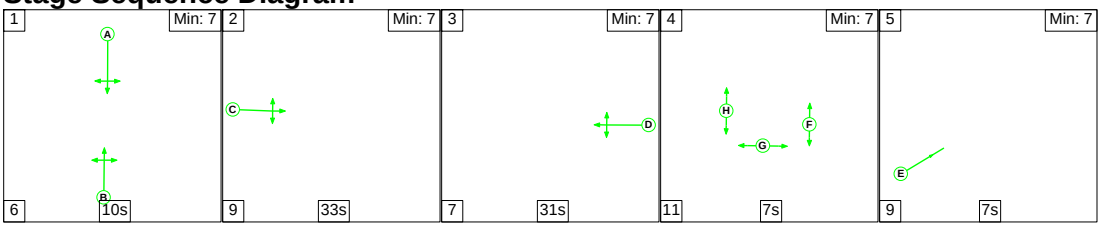
Total Delay for Signalled Lanes (pcuHr): 22.19
Total Delay Over All Lanes(pcuHr): 22.19

Cycle Time (s): 130

Full Input Data And Results

Scenario 4: '2021 Forecast PM' (FG4: 'Forecast 2021 PM ', Plan 1: 'Network Control Plan 1')

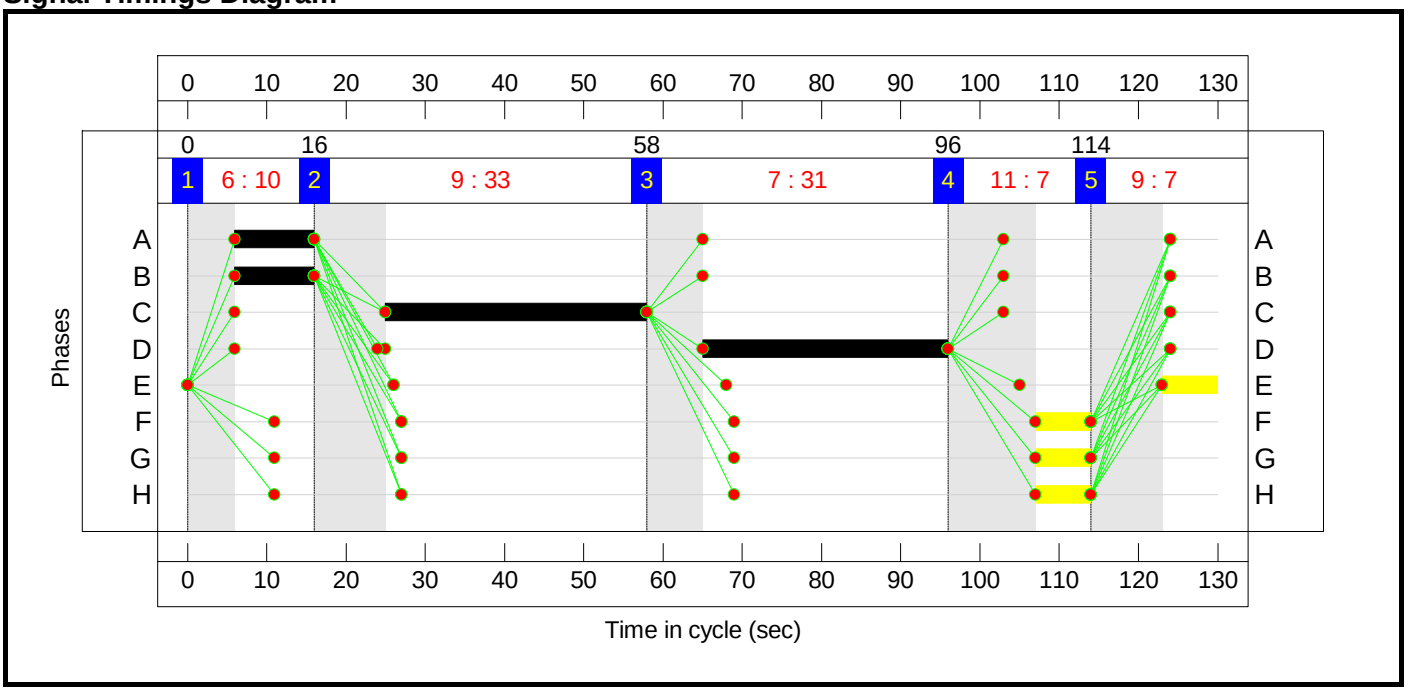
Stage Sequence Diagram



Stage Timings

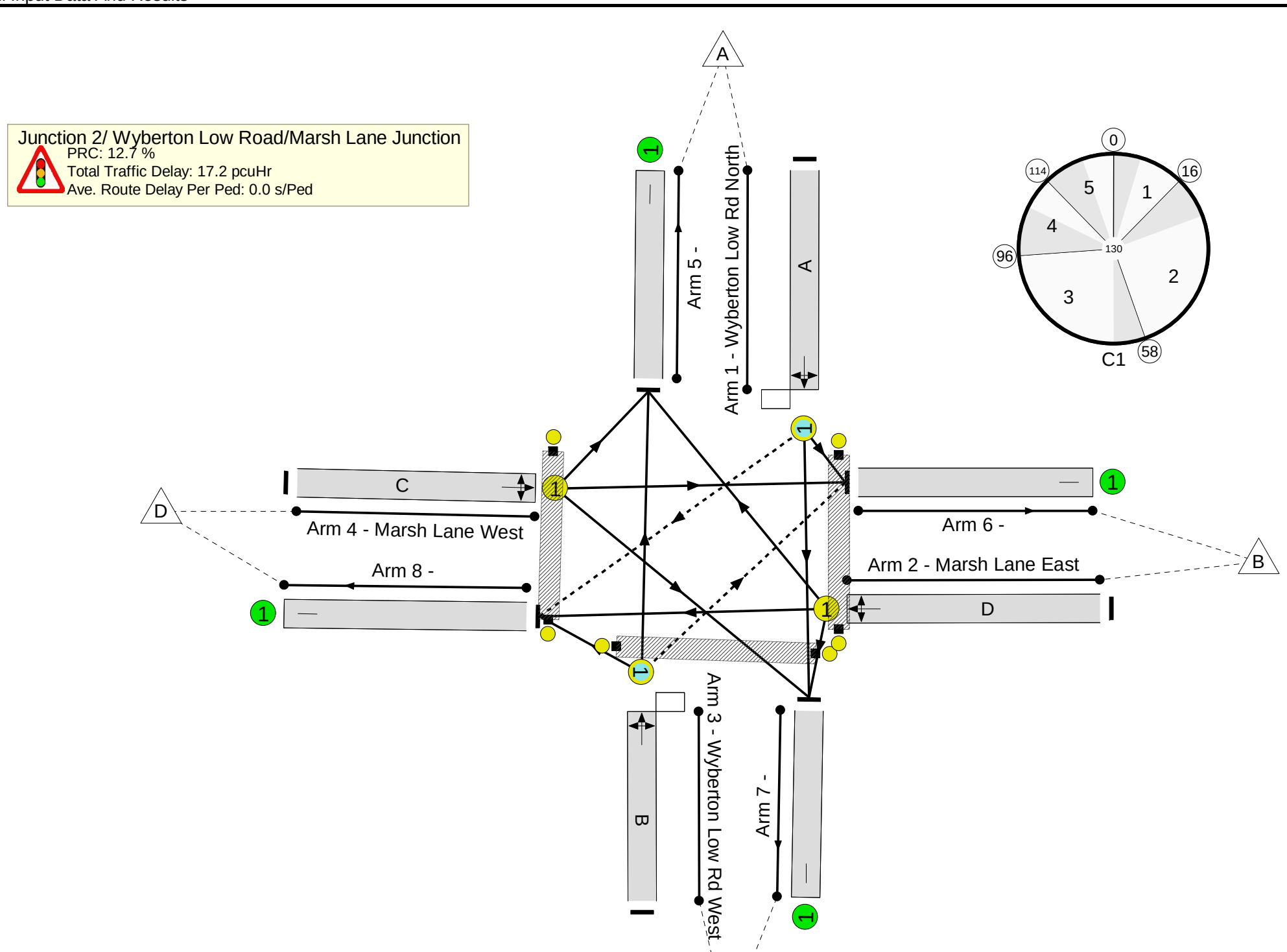
Stage	1	2	3	4	5
Duration	10	33	31	7	7
Change Point	0	16	58	96	114

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 12.7 %
Total Traffic Delay: 17.2 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
C
D
Arm 1 - Wyberton Low Rd North
Arm 2 - Marsh Lane East
Arm 3 - Wyberton Low Rd West
Arm 4 - Marsh Lane West
Arm 5 -
Arm 6 -
Arm 7 -
Arm 8 -
0
16
1
2
58
3
96
4
114
5
130
C1

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.9%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.9%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	10	-	7	1876	39	18.1%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	31	-	387	1968	484	79.9%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	10	-	117	1817	154	76.1%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	33	-	396	1913	500	79.1%
5/1		U	N/A	N/A	-		-	-	-	7	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	283	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	118	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	499	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**8**	**0**	**0**	**11.9**	**5.3**	**0.0**	**17.2**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**8**	**0**	**0**	**11.9**	**5.3**	**0.0**	**17.2**	**-**	**-**	**-**	**-**
1/1	7	7	5	0	0	0.1	0.1	0.0	0.2	117.3	0.2	0.1	0.3
2/1	387	387	-	-	-	4.9	1.9	-	6.9	63.8	13.0	1.9	14.9
3/1	117	117	3	0	0	1.9	1.5	0.0	3.4	103.6	4.1	1.5	5.6
4/1	396	396	-	-	-	4.9	1.8	-	6.8	61.4	13.3	1.8	15.1
5/1	7	7	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	283	283	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	118	118	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	499	499	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 12.7
PRC Over All Lanes (%): 12.7

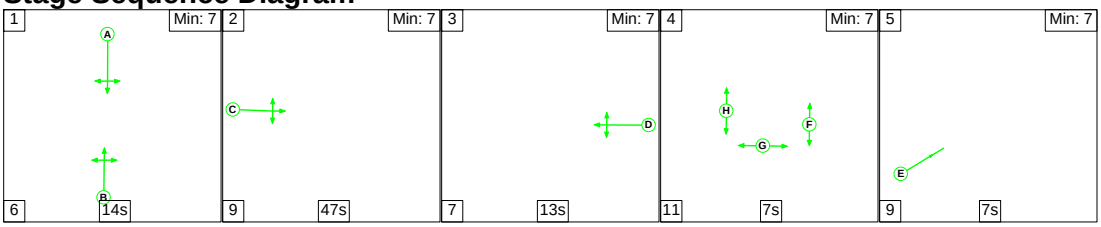
Total Delay for Signalled Lanes (pcuHr): 17.20
Total Delay Over All Lanes(pcuHr): 17.20

Cycle Time (s): 130

Full Input Data And Results

Scenario 5: '2021 Peak Construction AM' (FG5: '2021 Peak Construction AM ', Plan 1: 'Network Control Plan 1')

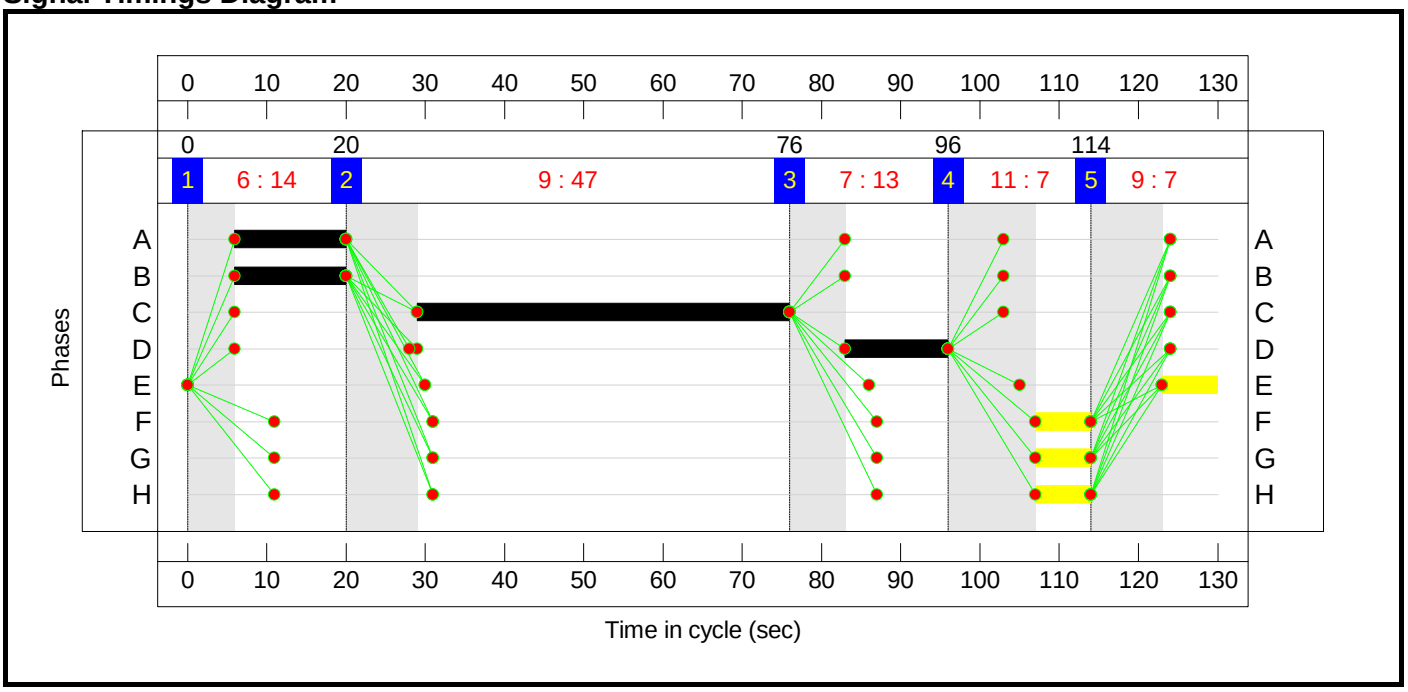
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5
Duration	14	47	13	7	7
Change Point	0	20	76	96	114

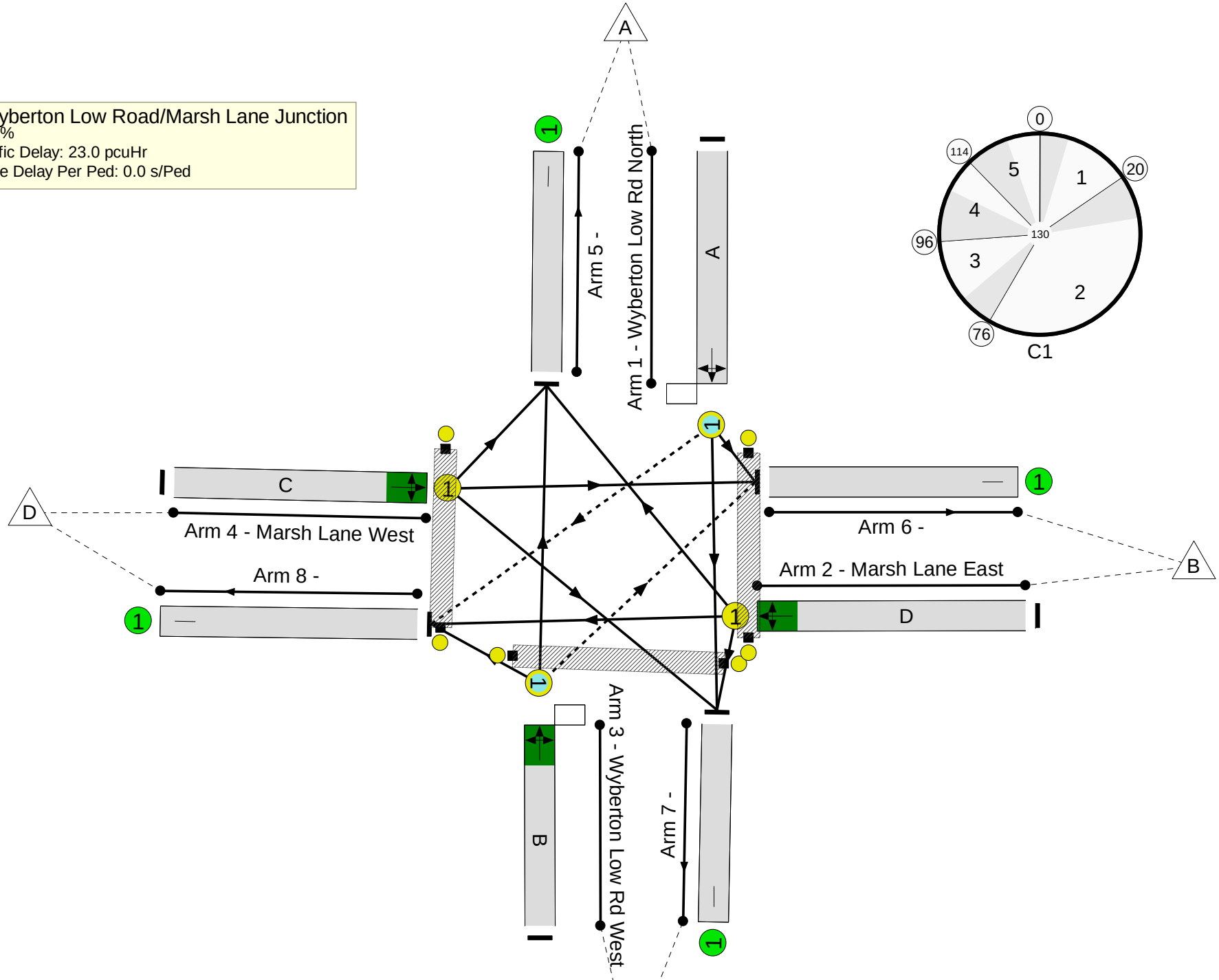
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 2.0 %
Total Traffic Delay: 23.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.3%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.3%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	14	-	4	1860	37	10.8%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	13	-	234	1969	273	85.8%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	14	-	228	1812	265	86.1%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	47	-	790	1939	895	88.3%
5/1		U	N/A	N/A	-		-	-	-	3	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	719	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	88	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	446	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**17**	**3**	**0**	**14.0**	**8.9**	**0.0**	**23.0**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**17**	**3**	**0**	**14.0**	**8.9**	**0.0**	**23.0**	**-**	**-**	**-**	**-**
1/1	4	4	3	0	0	0.1	0.1	0.0	0.1	114.9	0.1	0.1	0.2
2/1	234	234	-	-	-	3.6	2.7	-	6.2	95.7	8.3	2.7	10.9
3/1	228	228	14	3	0	3.4	2.7	0.0	6.1	96.8	8.0	2.7	10.7
4/1	790	790	-	-	-	7.0	3.5	-	10.5	47.9	25.9	3.5	29.4
5/1	3	3	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	719	719	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	88	88	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	446	446	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 2.0
PRC Over All Lanes (%): 2.0

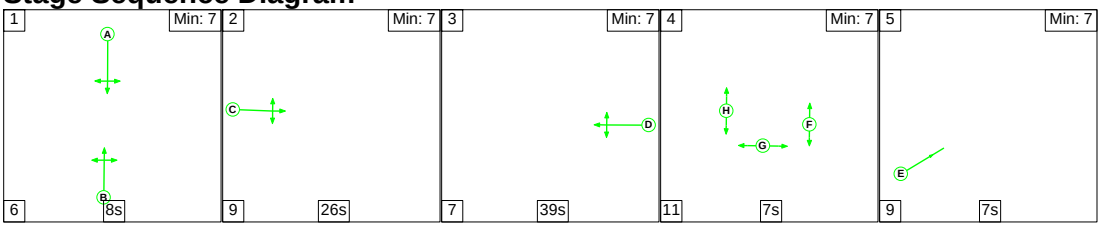
Total Delay for Signalled Lanes (pcuHr): 22.99
Total Delay Over All Lanes(pcuHr): 22.99

Cycle Time (s): 130

Full Input Data And Results

Scenario 6: '2021 Peak Construction PM' (FG6: '2021 Peak Cosntruction PM', Plan 1: 'Network Control Plan 1')

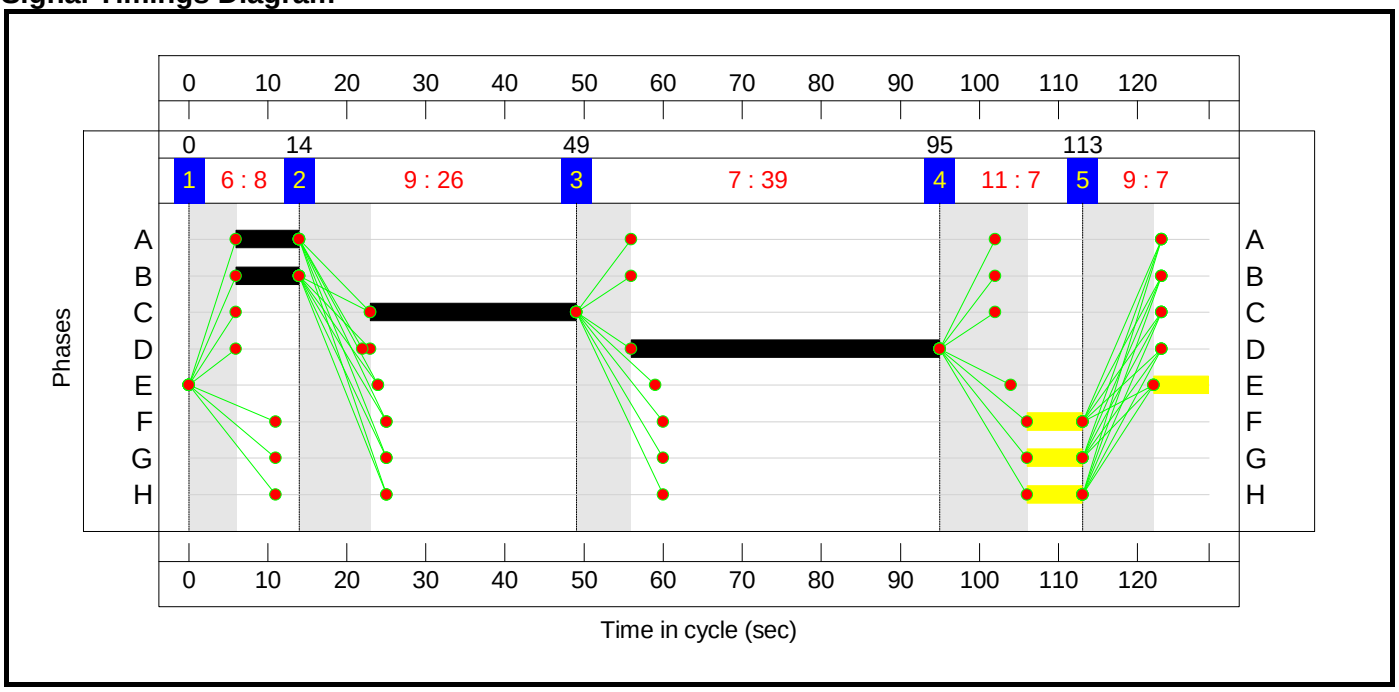
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5
Duration	8	26	39	7	7
Change Point	0	14	49	95	113

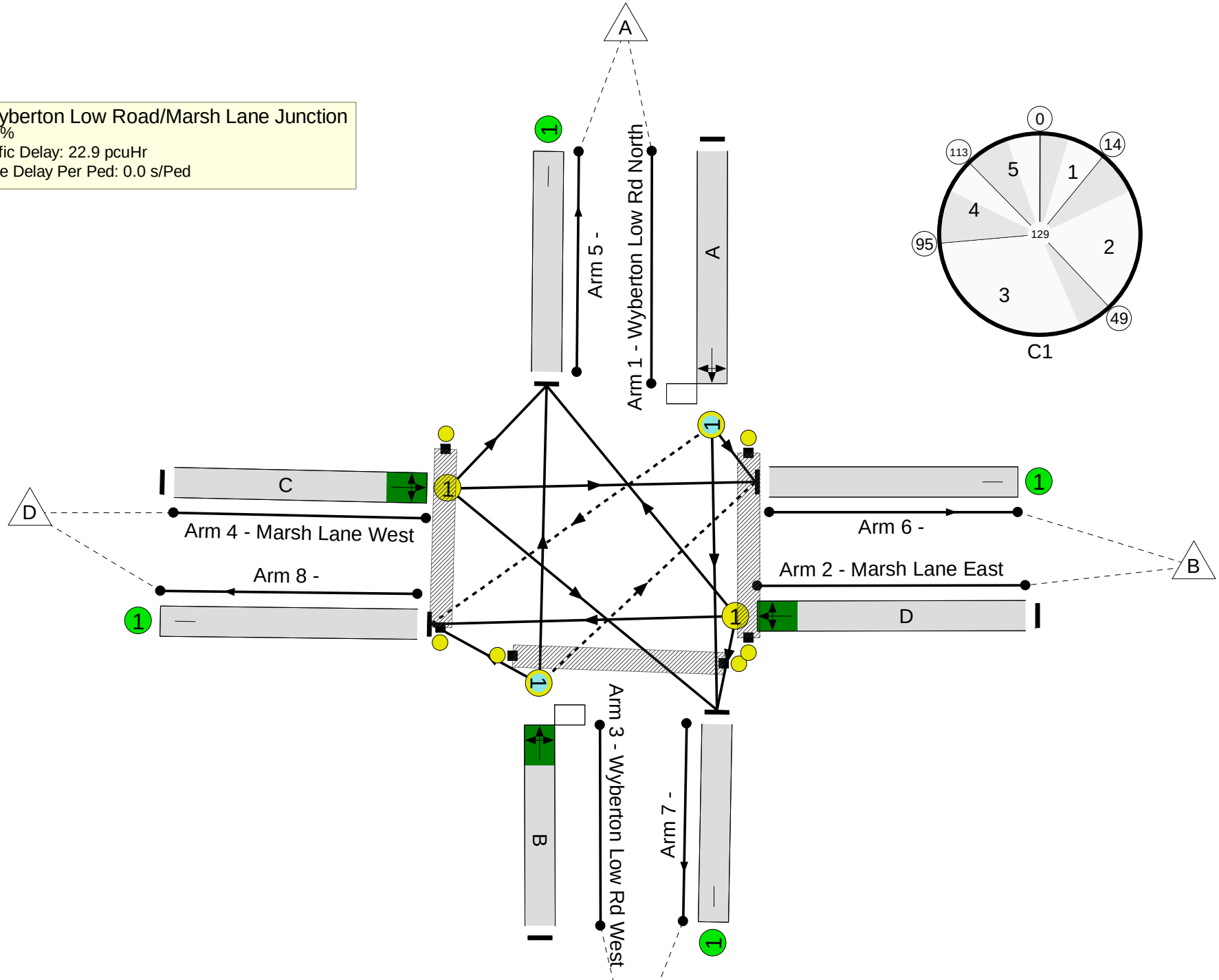
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Junction 2/ Wyberton Low Road/Marsh Lane Junction
PRC: 1.6 %
Total Traffic Delay: 22.9 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.6%**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.6%**
1/1	Wyberton Low Rd North Left Ahead Right	O	N/A	N/A	A		1	8	-	7	1876	39	17.9%
2/1	Marsh Lane East Right Left Ahead	U	N/A	N/A	D		1	39	-	599	1969	687	87.2%
3/1	Wyberton Low Rd West Ahead Right Left	O	N/A	N/A	B		1	8	-	117	1817	141	83.1%
4/1	Marsh Lane West Left Ahead Right	U	N/A	N/A	C		1	26	-	421	1915	475	88.6%
5/1		U	N/A	N/A	-		-	-	-	7	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	118	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	711	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**8**	**0**	**0**	**14.0**	**8.8**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
Junction 2/ Wyberton Low Road/Marsh Lane Junction	**-**	**-**	**8**	**0**	**0**	**14.0**	**8.8**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
1/1	7	7	5	0	0	0.1	0.1	0.0	0.2	117.5	0.2	0.1	0.3
2/1	599	599	-	-	-	6.5	3.2	-	9.7	58.4	20.0	3.2	23.1
3/1	117	117	3	0	0	1.9	2.1	0.0	4.0	122.9	4.1	2.1	6.2
4/1	421	421	-	-	-	5.5	3.5	-	8.9	76.3	14.5	3.5	18.0
5/1	7	7	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	118	118	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	711	711	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 1.6
PRC Over All Lanes (%): 1.6

Total Delay for Signalled Lanes (pcuHr): 22.86
Total Delay Over All Lanes(pcuHr): 22.86

Cycle Time (s): 129

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: J3 A16 &B1397 Rbt.arc8
Path: C:\Users\304111\Box\PB6934 Boston Gasification Team\E-TECHNICAL DATA\Transport\TD\Calcs\Junctions\Models\ES Results
Report generation date: 08/09/2020 14:07:00

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS
	A1 - 2018 Surveyed									
Arm 1	2.15	7.42	0.69	A	A	2.16	7.00	0.69	A	A
Arm 2	0.89	8.44	0.47	A		1.21	10.14	0.55	B	
Arm 3	2.20	6.35	0.69	A		2.80	8.03	0.74	A	
Arm 4	1.78	8.99	0.64	A		1.00	5.97	0.50	A	
	A1 - 2021 Forecast									
Arm 1	2.54	8.42	0.72	A	A	2.51	7.85	0.72	A	A
Arm 2	1.05	9.51	0.51	A		1.45	11.74	0.60	B	
Arm 3	2.57	7.15	0.72	A		3.38	9.40	0.78	A	
Arm 4	2.24	10.90	0.70	B		1.15	6.63	0.54	A	
	A1 - 2021 Peak Cosntruction									
Arm 1	4.90	14.52	0.84	B	B	2.71	8.40	0.73	A	B
Arm 2	1.56	14.34	0.62	B		1.53	12.43	0.61	B	
Arm 3	2.75	7.58	0.74	A		7.43	18.61	0.89	C	
Arm 4	2.71	12.76	0.74	B		1.50	8.68	0.60	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - 2018 Surveyed, AM " model duration: 07:20 - 08:50
"D2 - 2018 Surveyed, PM" model duration: 16:10 - 17:40
"D3 - 2021 Forecast, AM" model duration: 07:20 - 08:50
"D4 - 2021 Forecast, PM" model duration: 16:10 - 17:40
"D5 - 2021 Peak Cosntruction, AM" model duration: 07:20 - 08:50
"D6 - 2021 Peak Cosntruction, PM" model duration: 16:10 - 17:40

Run using Junctions 8.0.6.541 at 08/09/2020 14:06:55

File summary

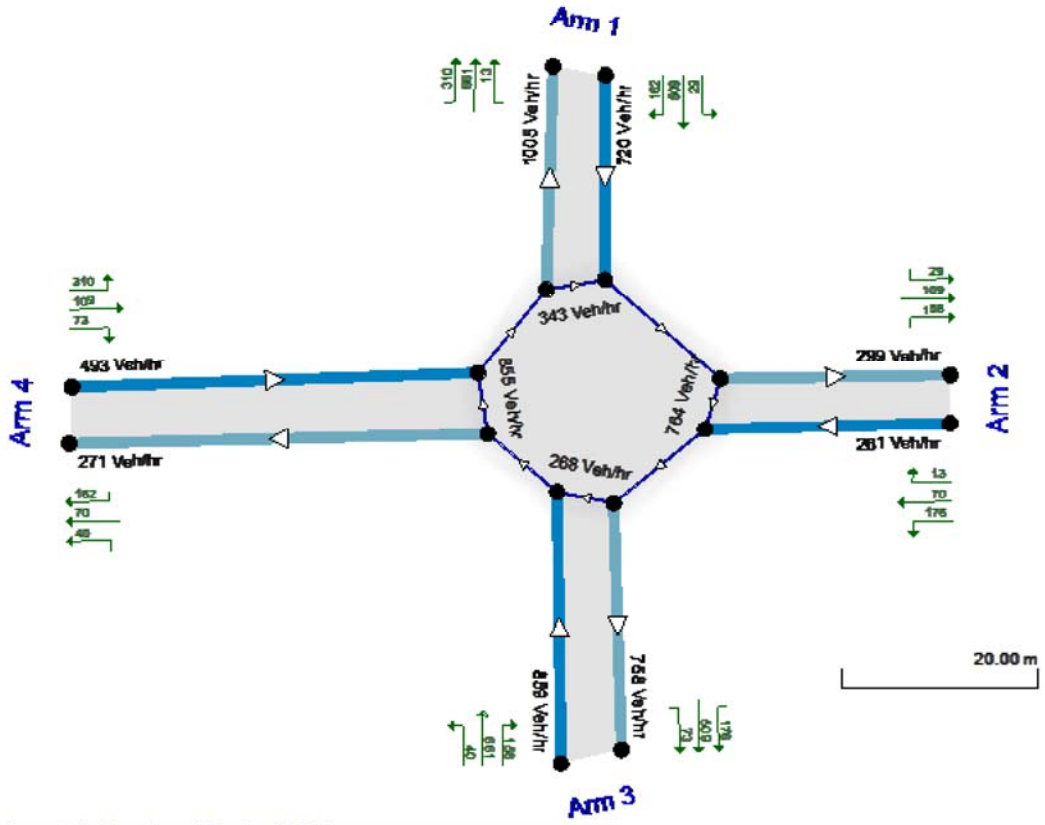
Title	Boston Alternative Energy Facility
Location	Boston
Site Number	J3 - A16 / B1397 (London Road)
Date	15/08/2020
Version	
Status	(new file)
Identifier	
Client	Alternative Use Boston Projects Ltd
Jobnumber	PB6934
Enumerator	304111
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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



Showing modelled flow through junction (Veh/hr).
Time Segment: (07:20-07:35)
Showing Analysis Set "A1"; Demand Set "D1 - 2018 Surveyed, AM"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2018 Surveyed, 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.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, AM	2018 Surveyed	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS

1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				7.46	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.53	7.48	57.40	12.85	36.18	29.00	
2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	961.00	100.000
2	ONE HOUR	✓	349.00	100.000
3	ONE HOUR	✓	1145.00	100.000
4	ONE HOUR	✓	657.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	27.000	39.000	679.000	216.000
	2	18.000	3.000	235.000	93.000
	3	881.000	211.000	0.000	53.000
	4	414.000	146.000	97.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.03	0.04	0.71	0.22
	2	0.05	0.01	0.67	0.27
	3	0.77	0.18	0.00	0.05
	4	0.63	0.22	0.15	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.026	1.074	1.042
	2	1.111	1.000	1.013	1.011
	3	1.078	1.024	1.000	1.094
	4	1.056	1.014	1.031	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.0	2.6	7.4	4.2
	2	11.1	0.0	1.3	1.1
	3	7.8	2.4	0.0	9.4
	4	5.6	1.4	3.1	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.69	7.42	2.15	A	881.83	1322.75	120.82	5.48	1.34	120.83	5.48
2	0.47	8.44	0.89	A	320.25	480.37	50.84	6.35	0.56	50.84	6.35
3	0.69	6.35	2.20	A	1050.67	1576.01	124.90	4.75	1.39	124.91	4.76
4	0.64	8.99	1.78	A	602.87	904.31	91.89	6.10	1.02	91.89	6.10

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	720.40	1004.86	342.68	0.00	1651.39	1475.21	0.438	0.00	0.77	3.855	A
2	262.75	65.69	261.42	299.19	763.88	0.00	1052.85	534.88	0.250	0.00	0.33	4.541	A
3	862.02	215.50	858.77	757.75	267.55	0.00	1916.58	1717.28	0.450	0.00	0.81	3.394	A
4	494.62	123.66	492.54	271.33	854.99	0.00	1440.11	762.45	0.343	0.00	0.52	3.791	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	862.41	1202.61	410.11	0.00	1605.79	1475.21	0.538	0.77	1.15	4.833	A
2	313.74	78.44	313.11	358.08	914.44	0.00	950.92	534.88	0.330	0.33	0.49	5.638	A
3	1029.33	257.33	1027.78	907.20	320.35	0.00	1879.03	1717.28	0.548	0.81	1.20	4.221	A
4	590.63	147.66	589.44	324.85	1023.28	0.00	1306.94	762.45	0.452	0.52	0.82	5.009	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1054.20	1469.84	501.06	0.00	1544.27	1475.21	0.685	1.15	2.12	7.287	A
2	384.26	96.06	382.69	437.59	1117.66	0.00	813.33	534.88	0.472	0.49	0.88	8.329	A
3	1260.67	315.17	1256.77	1108.78	391.57	0.00	1828.36	1717.28	0.690	1.20	2.17	6.256	A
4	723.37	180.84	719.64	397.10	1251.25	0.00	1126.55	762.45	0.642	0.82	1.75	8.768	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1058.08	264.52	1057.96	1475.19	503.10	0.00	1542.89	1475.21	0.686	2.12	2.15	7.418	A
2	384.26	96.06	384.21	439.25	1121.81	0.00	810.53	534.88	0.474	0.88	0.89	8.444	A
3	1260.67	315.17	1260.56	1112.99	393.02	0.00	1827.33	1717.28	0.690	2.17	2.20	6.349	A
4	723.37	180.84	723.24	398.52	1255.06	0.00	1123.54	762.45	0.644	1.75	1.78	8.987	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	863.92	215.98	867.81	1210.20	412.96	0.00	1603.86	1475.21	0.539	2.15	1.18	4.916	A
2	313.74	78.44	315.31	360.42	920.35	0.00	946.92	534.88	0.331	0.89	0.50	5.715	A
3	1029.33	257.33	1033.22	913.23	322.43	0.00	1877.54	1717.28	0.548	2.20	1.23	4.284	A
4	590.63	147.66	594.40	326.90	1028.76	0.00	1302.61	762.45	0.453	1.78	0.84	5.109	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	723.49	180.87	725.07	1010.92	344.81	0.00	1649.95	1475.21	0.438	1.18	0.79	3.898	A
2	262.75	65.69	263.40	301.03	768.85	0.00	1049.48	534.88	0.250	0.50	0.34	4.583	A
3	862.02	215.50	863.62	762.87	269.38	0.00	1915.28	1717.28	0.450	1.23	0.82	3.430	A
4	494.62	123.66	495.86	273.14	859.87	0.00	1436.25	762.45	0.344	0.84	0.53	3.835	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.28	0.75	3.855	A	A
2	4.82	0.32	4.541	A	A
3	11.86	0.79	3.394	A	A
4	7.60	0.51	3.791	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.78	1.12	4.833	A	A
2	7.14	0.48	5.638	A	A
3	17.52	1.17	4.221	A	A
4	11.92	0.79	5.009	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	30.19	2.01	7.287	A	A
2	12.66	0.84	8.329	A	A
3	31.05	2.07	6.256	A	A
4	24.72	1.65	8.768	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	32.12	2.14	7.418	A	A
2	13.32	0.89	8.444	A	A
3	32.84	2.19	6.349	A	A
4	26.52	1.77	8.987	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.36	1.22	4.916	A	A
2	7.74	0.52	5.715	A	A

3	19.00	1.27	4.284	A	A
4	13.03	0.87	5.109	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.09	0.81	3.898	A	A
2	5.15	0.34	4.583	A	A
3	12.64	0.84	3.430	A	A
4	8.11	0.54	3.835	A	A

(Default Analysis Set) - 2018 Surveyed, 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.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, PM	2018 Surveyed	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				7.59	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

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	3.53	7.48	57.40	12.85	36.18	29.00	

2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1022.00	100.000
2	ONE HOUR	✓	394.00	100.000
3	ONE HOUR	✓	1157.00	100.000
4	ONE HOUR	✓	552.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	**2**	**3**	**4**
From	**1**	16.000	20.000	623.000	363.000
	2	21.000	0.000	223.000	150.000
	3	868.000	184.000	0.000	105.000
	4	344.000	129.000	77.000	2.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	**2**	**3**	**4**
From	**1**	0.02	0.02	0.61	0.36
	2	0.05	0.00	0.57	0.38
	3	0.75	0.16	0.00	0.09
	4	0.62	0.23	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	**2**	**3**	**4**
From	**1**	1.000	1.000	1.037	1.030
	2	1.000	1.000	1.004	1.020
	3	1.056	1.000	1.000	1.000
	4	1.020	1.000	1.078	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To

		1	2	3	4
From	1	0.0	0.0	3.7	3.0
	2	0.0	0.0	0.4	2.0
	3	5.6	0.0	0.0	0.0
	4	2.0	0.0	7.8	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.69	7.00	2.16	A	937.81	1406.71	122.37	5.22	1.36	122.38	5.22
2	0.55	10.14	1.21	B	361.54	542.31	65.23	7.22	0.72	65.24	7.22
3	0.74	8.03	2.80	A	1061.69	1592.53	147.83	5.57	1.64	147.84	5.57
4	0.50	5.97	1.00	A	506.53	759.79	57.51	4.54	0.64	57.51	4.54

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	769.42	192.35	766.25	936.62	294.00	0.00	1733.89	1508.04	0.444	0.00	0.79	3.708	A
2	296.62	74.16	295.04	249.73	810.51	0.00	1041.50	503.06	0.285	0.00	0.40	4.813	A
3	871.05	217.76	867.56	691.85	413.71	0.00	1861.74	1595.79	0.468	0.00	0.87	3.610	A
4	415.58	103.89	414.07	464.72	816.55	0.00	1512.23	971.21	0.275	0.00	0.38	3.274	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	918.76	229.69	917.24	1120.89	351.83	0.00	1693.92	1508.04	0.542	0.79	1.17	4.625	A
2	354.20	88.55	353.37	298.86	970.21	0.00	935.07	503.06	0.379	0.40	0.60	6.179	A
3	1040.12	260.03	1038.22	828.26	495.31	0.00	1802.71	1595.79	0.577	0.87	1.35	4.698	A
4	496.24	124.06	495.53	556.34	977.19	0.00	1385.33	971.21	0.358	0.38	0.55	4.042	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1125.24	281.31	1121.39	1369.70	430.06	0.00	1639.85	1508.04	0.686	1.17	2.14	6.893	A
2	433.80	108.45	431.47	365.27	1186.17	0.00	791.12	503.06	0.548	0.60	1.19	9.946	A
3	1273.88	318.47	1268.29	1012.34	605.32	0.00	1723.12	1595.79	0.739	1.35	2.75	7.819	A
4	607.77	151.94	606.03	679.86	1193.74	0.00	1214.26	971.21	0.501	0.55	0.99	5.902	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1125.24	281.31	1125.13	1374.98	431.55	0.00	1638.82	1508.04	0.687	2.14	2.16	7.003	A
2	433.80	108.45	433.72	366.59	1190.09	0.00	788.51	503.06	0.550	1.19	1.21	10.140	B
3	1273.88	318.47	1273.68	1016.12	607.69	0.00	1721.41	1595.79	0.740	2.75	2.80	8.031	A
4	607.77	151.94	607.72	682.55	1198.81	0.00	1210.25	971.21	0.502	0.99	1.00	5.974	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	918.76	229.69	922.61	1128.33	353.95	0.00	1692.45	1508.04	0.543	2.16	1.20	4.700	A
2	354.20	88.55	356.54	300.74	975.82	0.00	931.33	503.06	0.380	1.21	0.62	6.287	A
3	1040.12	260.03	1045.77	833.67	498.69	0.00	1800.27	1595.79	0.578	2.80	1.39	4.805	A
4	496.24	124.06	497.98	560.14	984.30	0.00	1379.71	971.21	0.360	1.00	0.57	4.092	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	769.42	192.35	771.00	942.33	295.71	0.00	1732.70	1508.04	0.444	1.20	0.80	3.751	A

2	296.62	74.16	297.49	251.22	815.49	0.00	1038.19	503.06	0.286	0.62	0.40	4.867	A
3	871.05	217.76	873.04	696.44	416.54	0.00	1859.70	1595.79	0.468	1.39	0.89	3.655	A
4	415.58	103.89	416.31	467.85	821.73	0.00	1508.14	971.21	0.276	0.57	0.38	3.301	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.55	0.77	3.708	A	A
2	5.76	0.38	4.813	A	A
3	12.72	0.85	3.610	A	A
4	5.54	0.37	3.274	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	17.10	1.14	4.625	A	A
2	8.80	0.59	6.179	A	A
3	19.60	1.31	4.698	A	A
4	8.15	0.54	4.042	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	30.43	2.03	6.893	A	A
2	16.86	1.12	9.946	A	A
3	38.60	2.57	7.819	A	A
4	14.34	0.96	5.902	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	32.29	2.15	7.003	A	A
2	17.98	1.20	10.140	B	B
3	41.66	2.78	8.031	A	A
4	14.95	1.00	5.974	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.64	1.24	4.700	A	A
2	9.65	0.64	6.287	A	A
3	21.59	1.44	4.805	A	A
4	8.70	0.58	4.092	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.35	0.82	3.751	A	A
2	6.19	0.41	4.867	A	A
3	13.64	0.91	3.655	A	A
4	5.84	0.39	3.301	A	A

(Default Analysis Set) - 2021 Forecast, 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.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, AM	2021 Forecast	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				8.58	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.53	7.48	57.40	12.85	36.18	29.00	
2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1001.00	100.000
2	ONE HOUR	✓	364.00	100.000
3	ONE HOUR	✓	1192.00	100.000
4	ONE HOUR	✓	684.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	28.000	41.000	707.000	225.000
	2	19.000	3.000	245.000	97.000
	3	917.000	220.000	0.000	55.000
	4	431.000	152.000	101.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.03	0.04	0.71	0.22
	2	0.05	0.01	0.67	0.27
	3	0.77	0.18	0.00	0.05
	4	0.63	0.22	0.15	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.026	1.074	1.042
	2	1.111	1.000	1.013	1.011
	3	1.078	1.024	1.000	1.094
	4	1.056	1.014	1.031	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.0	2.6	7.4	4.2
	2	11.1	0.0	1.3	1.1
	3	7.8	2.4	0.0	9.4
	4	5.6	1.4	3.1	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.72	8.42	2.54	A	918.54	1377.80	137.51	5.99	1.53	137.53	5.99
2	0.51	9.51	1.05	A	334.01	501.02	57.69	6.91	0.64	57.70	6.91
3	0.72	7.15	2.57	A	1093.80	1640.70	141.33	5.17	1.57	141.34	5.17
4	0.70	10.90	2.24	B	627.65	941.47	109.15	6.96	1.21	109.15	6.96

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	753.61	188.40	750.24	1045.91	356.85	0.00	1641.82	1475.05	0.459	0.00	0.84	4.022	A
2	274.04	68.51	272.60	311.88	795.21	0.00	1031.56	535.33	0.266	0.00	0.36	4.735	A

3	897.40	224.35	893.88	789.07	278.74	0.00	1908.64	1717.22	0.470	0.00	0.88	3.536	A
4	514.95	128.74	512.67	282.52	890.10	0.00	1412.33	762.29	0.365	0.00	0.57	3.992	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	899.88	224.97	898.13	1251.72	427.06	0.00	1594.33	1475.05	0.564	0.84	1.28	5.159	A
2	327.23	81.81	326.50	373.25	951.93	0.00	925.47	535.33	0.354	0.36	0.54	6.002	A
3	1071.59	267.90	1069.80	944.69	333.74	0.00	1869.52	1717.22	0.573	0.88	1.33	4.491	A
4	614.90	153.72	613.49	338.25	1065.29	0.00	1273.69	762.29	0.483	0.57	0.92	5.442	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1102.12	275.53	1097.27	1528.82	521.32	0.00	1530.57	1475.05	0.720	1.28	2.49	8.216	A
2	400.77	100.19	398.82	455.80	1162.79	0.00	782.72	535.33	0.512	0.54	1.03	9.331	A
3	1312.42	328.10	1307.60	1153.90	407.72	0.00	1816.89	1717.22	0.722	1.33	2.53	7.001	A
4	753.09	188.27	748.07	413.25	1302.07	0.00	1086.33	762.29	0.693	0.92	2.18	10.490	B

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1102.12	275.53	1101.94	1535.65	523.97	0.00	1528.78	1475.05	0.721	2.49	2.54	8.424	A
2	400.77	100.19	400.70	457.94	1167.97	0.00	779.21	535.33	0.514	1.03	1.05	9.506	A
3	1312.42	328.10	1312.26	1159.17	409.51	0.00	1815.62	1717.22	0.723	2.53	2.57	7.147	A
4	753.09	188.27	752.86	415.02	1306.76	0.00	1082.62	762.29	0.696	2.18	2.24	10.898	B

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	899.88	224.97	904.77	1261.27	430.72	0.00	1591.86	1475.05	0.565	2.54	1.32	5.275	A
2	327.23	81.81	329.18	376.23	959.26	0.00	920.51	535.33	0.355	1.05	0.56	6.107	A
3	1071.59	267.90	1076.42	952.15	336.29	0.00	1867.70	1717.22	0.574	2.57	1.36	4.576	A
4	614.90	153.72	620.04	340.76	1071.96	0.00	1268.42	762.29	0.485	2.24	0.95	5.594	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	753.61	188.40	755.45	1052.69	359.26	0.00	1640.19	1475.05	0.459	1.32	0.86	4.077	A
2	274.04	68.51	274.80	313.94	800.76	0.00	1027.81	535.33	0.267	0.56	0.37	4.787	A
3	897.40	224.35	899.27	794.79	280.78	0.00	1907.20	1717.22	0.471	1.36	0.90	3.577	A
4	514.95	128.74	516.43	284.53	895.51	0.00	1408.04	762.29	0.366	0.95	0.58	4.044	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.24	0.82	4.022	A	A
2	5.24	0.35	4.735	A	A
3	12.85	0.86	3.536	A	A
4	8.32	0.55	3.992	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.59	1.24	5.159	A	A
2	7.91	0.53	6.002	A	A
3	19.34	1.29	4.491	A	A
4	13.43	0.90	5.442	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	35.11	2.34	8.216	A	A
2	14.69	0.98	9.331	A	A
3	35.88	2.39	7.001	A	A
4	30.35	2.02	10.490	B	B

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	37.82	2.52	8.424	A	A
2	15.59	1.04	9.506	A	A
3	38.33	2.56	7.147	A	A
4	33.22	2.21	10.898	B	B

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	20.55	1.37	5.275	A	A
2	8.65	0.58	6.107	A	A
3	21.17	1.41	4.576	A	A
4	14.91	0.99	5.594	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.19	0.88	4.077	A	A
2	5.62	0.37	4.787	A	A
3	13.75	0.92	3.577	A	A
4	8.92	0.59	4.044	A	A

(Default Analysis Set) - 2021 Forecast, 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.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, PM	2021 Forecast	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				8.70	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.53	7.48	57.40	12.85	36.18	29.00	
2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1062.00	100.000
2	ONE HOUR	✓	410.00	100.000
3	ONE HOUR	✓	1201.00	100.000
4	ONE HOUR	✓	573.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	17.000	21.000	647.000	377.000
	2	22.000	0.000	232.000	156.000
	3	901.000	191.000	0.000	109.000
	4	357.000	134.000	80.000	2.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.02	0.02	0.61	0.35
	2	0.05	0.00	0.57	0.38
	3	0.75	0.16	0.00	0.09
	4	0.62	0.23	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.037	1.030
	2	1.000	1.000	1.004	1.020
	3	1.056	1.000	1.000	1.000
	4	1.020	1.000	1.078	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.0	0.0	3.7	3.0
	2	0.0	0.0	0.4	2.0
	3	5.6	0.0	0.0	0.0
	4	2.0	0.0	7.8	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.72	7.85	2.51	A	974.51	1461.77	137.71	5.65	1.53	137.73	5.65
2	0.60	11.74	1.45	B	376.22	564.34	75.12	7.99	0.83	75.12	7.99
3	0.78	9.40	3.38	A	1102.06	1653.09	170.87	6.20	1.90	170.88	6.20
4	0.54	6.63	1.15	A	525.80	788.69	64.31	4.89	0.71	64.32	4.89

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	799.53	199.88	796.11	972.44	305.20	0.00	1726.18	1508.09	0.463	0.00	0.86	3.857	A
2	308.67	77.17	306.95	259.44	841.86	0.00	1020.62	503.29	0.302	0.00	0.43	5.032	A
3	904.18	226.04	900.38	718.70	430.12	0.00	1849.88	1595.59	0.489	0.00	0.95	3.775	A
4	431.38	107.85	429.76	482.62	847.88	0.00	1487.48	970.81	0.290	0.00	0.41	3.399	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	954.72	238.68	952.97	1163.74	365.23	0.00	1684.69	1508.09	0.567	0.86	1.29	4.908	A
2	368.58	92.15	367.61	310.47	1007.72	0.00	910.07	503.29	0.405	0.43	0.67	6.624	A
3	1079.68	269.92	1077.46	860.40	514.94	0.00	1788.51	1595.59	0.604	0.95	1.50	5.046	A
4	515.12	128.78	514.31	577.75	1014.65	0.00	1355.74	970.81	0.380	0.41	0.61	4.275	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1169.29	292.32	1164.57	1421.09	446.18	0.00	1628.74	1508.09	0.718	1.29	2.47	7.677	A
2	451.42	112.85	448.45	379.22	1231.52	0.00	760.91	503.29	0.593	0.67	1.42	11.413	B
3	1322.33	330.58	1315.13	1051.03	628.94	0.00	1706.04	1595.59	0.775	1.50	3.30	9.046	A
4	630.89	157.72	628.78	705.59	1238.48	0.00	1178.93	970.81	0.535	0.61	1.13	6.519	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1169.29	292.32	1169.12	1427.72	448.04	0.00	1627.46	1508.09	0.718	2.47	2.51	7.847	A
2	451.42	112.85	451.29	380.88	1236.28	0.00	757.74	503.29	0.596	1.42	1.45	11.735	B
3	1322.33	330.58	1322.00	1055.70	631.87	0.00	1703.93	1595.59	0.776	3.30	3.38	9.404	A
4	630.89	157.72	630.82	708.92	1244.95	0.00	1173.82	970.81	0.537	1.13	1.15	6.627	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS

1	954.72	238.68	959.46	1173.02	367.85	0.00	1682.88	1508.09	0.567	2.51	1.33	5.007	A
2	368.58	92.15	371.59	312.80	1014.50	0.00	905.56	503.29	0.407	1.45	0.69	6.780	A
3	1079.68	269.92	1087.01	867.01	519.09	0.00	1785.52	1595.59	0.605	3.38	1.55	5.206	A
4	515.12	128.78	517.23	582.44	1023.65	0.00	1348.64	970.81	0.382	1.15	0.62	4.340	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	799.53	199.88	801.36	978.81	307.10	0.00	1724.86	1508.09	0.464	1.33	0.87	3.907	A
2	308.67	77.17	309.69	261.09	847.37	0.00	1016.96	503.29	0.304	0.69	0.44	5.096	A
3	904.18	226.04	906.52	723.79	433.26	0.00	1847.61	1595.59	0.489	1.55	0.97	3.833	A
4	431.38	107.85	432.23	486.09	853.69	0.00	1482.90	970.81	0.291	0.62	0.41	3.428	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.46	0.83	3.857	A	A
2	6.26	0.42	5.032	A	A
3	13.80	0.92	3.775	A	A
4	5.96	0.40	3.399	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.80	1.25	4.908	A	A
2	9.78	0.65	6.624	A	A
3	21.78	1.45	5.046	A	A
4	8.92	0.59	4.275	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	34.93	2.33	7.677	A	A
2	19.92	1.33	11.413	B	B
3	45.77	3.05	9.046	A	A
4	16.35	1.09	6.519	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	37.45	2.50	7.847	A	A
2	21.53	1.44	11.735	B	B
3	50.28	3.35	9.404	A	A
4	17.17	1.14	6.627	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	20.68	1.38	5.007	A	A
2	10.86	0.72	6.780	A	A
3	24.36	1.62	5.206	A	A
4	9.60	0.64	4.340	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.39	0.89	3.907	A	A
2	6.76	0.45	5.096	A	A
3	14.88	0.99	3.833	A	A
4	6.30	0.42	3.428	A	A

(Default Analysis Set) - 2021 Peak Cosntruction, 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.
		Arm 4 - Roundabout	

Warning	Geometry	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Cosntruction, AM	2021 Peak Cosntruction	AM		ONE HOUR	07:20	08:50	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				11.66	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.53	7.48	57.40	12.85	36.18	29.00	
2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1144.00	100.000
2	ONE HOUR	✓	364.00	100.000
3	ONE HOUR	✓	1204.00	100.000
4	ONE HOUR	✓	712.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	28.000	41.000	850.000	225.000
	2	19.000	3.000	245.000	97.000
	3	929.000	220.000	0.000	55.000
	4	431.000	152.000	129.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.02	0.04	0.74	0.20
	2	0.05	0.01	0.67	0.27
	3	0.77	0.18	0.00	0.05
	4	0.61	0.21	0.18	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.026	1.076	1.042
	2	1.111	1.000	1.013	1.011
	3	1.090	1.024	1.000	1.094
	4	1.056	1.014	1.024	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.0	2.6	7.6	4.2
	2	11.1	0.0	1.3	1.1
	3	9.0	2.4	0.0	9.4
	4	5.6	1.4	2.4	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.84	14.52	4.90	B	1049.76	1574.63	226.11	8.62	2.51	226.14	8.62
2	0.62	14.34	1.56	B	334.01	501.02	76.53	9.16	0.85	76.53	9.17
3	0.74	7.58	2.75	A	1104.81	1657.22	149.00	5.39	1.66	149.01	5.40
4	0.74	12.76	2.71	B	653.34	980.01	126.20	7.73	1.40	126.20	7.73

Main Results for each time segment

Main results: (07:20-07:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	861.26	215.32	856.79	1054.77	377.79	0.00	1623.57	1464.54	0.530	0.00	1.12	4.668	A
2	274.04	68.51	272.42	311.82	922.76	0.00	944.36	521.23	0.290	0.00	0.41	5.344	A
3	906.44	226.61	902.79	916.64	278.54	0.00	1892.23	1740.17	0.479	0.00	0.91	3.625	A
4	536.03	134.01	533.57	282.35	898.98	0.00	1401.35	738.17	0.383	0.00	0.61	4.137	A

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1028.43	257.11	1025.51	1262.30	452.09	0.00	1573.51	1464.54	0.654	1.12	1.85	6.534	A
2	327.23	81.81	326.23	373.17	1104.43	0.00	821.21	521.23	0.398	0.41	0.65	7.258	A
3	1082.37	270.59	1080.48	1097.21	333.45	0.00	1853.51	1740.17	0.584	0.91	1.39	4.646	A
4	640.07	160.02	638.45	337.99	1075.93	0.00	1259.85	738.17	0.508	0.61	1.02	5.778	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1259.57	314.89	1248.25	1540.76	551.40	0.00	1506.61	1464.54	0.836	1.85	4.68	13.382	B
2	400.77	100.19	397.39	455.27	1344.38	0.00	658.54	521.23	0.609	0.65	1.50	13.612	B
3	1325.63	331.41	1320.39	1335.81	405.97	0.00	1802.37	1740.17	0.735	1.39	2.70	7.388	A
4	783.92	195.98	777.53	411.72	1314.64	0.00	1068.98	738.17	0.733	1.02	2.62	12.095	B

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1259.57	314.89	1258.68	1548.73	554.73	0.00	1504.36	1464.54	0.837	4.68	4.90	14.521	B
2	400.77	100.19	400.52	457.88	1355.53	0.00	650.98	521.23	0.616	1.50	1.56	14.344	B
3	1325.63	331.41	1325.43	1346.75	409.30	0.00	1800.02	1740.17	0.736	2.70	2.75	7.578	A
4	783.92	195.98	783.56	414.84	1319.89	0.00	1064.78	738.17	0.736	2.62	2.71	12.762	B

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1028.43	257.11	1040.29	1273.42	456.69	0.00	1570.41	1464.54	0.655	4.90	1.94	6.938	A
2	327.23	81.81	330.73	376.81	1120.17	0.00	810.53	521.23	0.404	1.56	0.69	7.558	A
3	1082.37	270.59	1087.66	1112.71	338.19	0.00	1850.17	1740.17	0.585	2.75	1.43	4.752	A
4	640.07	160.02	646.69	342.42	1083.42	0.00	1253.88	738.17	0.510	2.71	1.06	5.993	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	861.26	215.32	864.43	1061.98	380.49	0.00	1621.75	1464.54	0.531	1.94	1.14	4.774	A
2	274.04	68.51	275.12	314.04	930.88	0.00	938.86	521.23	0.292	0.69	0.42	5.432	A
3	906.44	226.61	908.43	924.88	281.12	0.00	1890.42	1740.17	0.479	1.43	0.93	3.672	A
4	536.03	134.01	537.75	284.83	904.72	0.00	1396.77	738.17	0.384	1.06	0.63	4.198	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:20-07:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.14	1.08	4.668	A	A
2	5.89	0.39	5.344	A	A
3	13.30	0.89	3.625	A	A
4	8.96	0.60	4.137	A	A

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	26.53	1.77	6.534	A	A
2	9.49	0.63	7.258	A	A
3	20.18	1.35	4.646	A	A
4	14.80	0.99	5.778	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	62.28	4.15	13.382	B	B
2	20.86	1.39	13.612	B	B
3	38.08	2.54	7.388	A	A
4	35.96	2.40	12.095	B	B

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	72.20	4.81	14.521	B	B
2	23.09	1.54	14.344	B	B
3	40.94	2.73	7.578	A	A
4	40.15	2.68	12.762	B	B

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	31.21	2.08	6.938	A	A
2	10.79	0.72	7.558	A	A
3	22.23	1.48	4.752	A	A
4	16.67	1.11	5.993	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	17.76	1.18	4.774	A	A
2	6.41	0.43	5.432	A	A
3	14.27	0.95	3.672	A	A
4	9.65	0.64	4.198	A	A

(Default Analysis Set) - 2021 Peak Cosntruction, 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.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Cosntruction, PM	2021 Peak Cosntruction	PM		ONE HOUR	16:10	17:40	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	J3 - A16 / B1397 (London Road)	Roundabout	1,2,3,4				13.04	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A16 North	
2	2	B1397 East	
3	3	A16 South	
4	4	B1397 West	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

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	3.53	7.48	57.40	12.85	36.18	29.00	
2	4.73	5.43	0.99	37.34	36.18	17.50	
3	7.77	8.25	0.74	10.61	39.18	35.50	
4	3.41	7.90	37.70	46.55	39.18	11.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.703	2001.392
2		(calculated)	(calculated)	0.649	1597.349
3		(calculated)	(calculated)	0.735	2251.828
4		(calculated)	(calculated)	0.774	2207.639

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1074.00	100.000
2	ONE HOUR	✓	410.00	100.000
3	ONE HOUR	✓	1373.00	100.000
4	ONE HOUR	✓	573.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	17.000	21.000	659.000	377.000
	2	22.000	0.000	232.000	156.000
	3	1045.000	191.000	0.000	137.000
	4	357.000	134.000	80.000	2.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To			
		1	2	3	4
	1	0.02	0.02	0.61	0.35

From	2	0.05	0.00	0.57	0.38
	3	0.76	0.14	0.00	0.10
	4	0.62	0.23	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.055	1.030
	2	1.000	1.000	1.004	1.020
	3	1.060	1.000	1.000	1.000
	4	1.020	1.000	1.078	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.0	0.0	5.5	3.0
	2	0.0	0.0	0.4	2.0
	3	6.0	0.0	0.0	0.0
	4	2.0	0.0	7.8	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.73	8.40	2.71	A	985.52	1478.28	146.37	5.94	1.63	146.39	5.94
2	0.61	12.43	1.53	B	376.22	564.34	78.12	8.31	0.87	78.13	8.31
3	0.89	18.61	7.43	C	1259.88	1889.83	304.27	9.66	3.38	304.30	9.66
4	0.60	8.68	1.50	A	525.80	788.69	77.62	5.90	0.86	77.62	5.91

Main Results for each time segment

Main results: (16:10-16:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	808.56	202.14	805.00	1079.76	305.04	0.00	1707.95	1511.81	0.473	0.00	0.89	3.975	A
2	308.67	77.17	306.92	259.30	850.74	0.00	1008.99	489.32	0.306	0.00	0.44	5.115	A
3	1033.66	258.42	1028.61	727.60	430.06	0.00	1843.44	1597.86	0.561	0.00	1.26	4.391	A
4	431.38	107.85	429.61	503.49	955.19	0.00	1399.42	976.38	0.308	0.00	0.44	3.706	A

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	965.50	241.38	963.63	1291.86	364.98	0.00	1666.96	1511.80	0.579	0.89	1.36	5.105	A
2	368.58	92.15	367.57	310.25	1018.36	0.00	896.14	489.33	0.411	0.44	0.69	6.799	A
3	1234.29	308.57	1230.54	871.05	514.89	0.00	1782.30	1597.86	0.693	1.26	2.20	6.481	A
4	515.12	128.78	514.11	602.69	1142.73	0.00	1250.62	976.38	0.412	0.44	0.69	4.880	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1182.49	295.62	1177.29	1570.17	444.37	0.00	1612.67	1511.81	0.733	1.36	2.66	8.170	A
2	451.42	112.85	448.21	377.54	1244.12	0.00	744.16	489.32	0.607	0.69	1.49	12.035	B
3	1511.70	377.92	1492.94	1063.66	628.67	0.00	1700.26	1597.86	0.889	2.20	6.89	16.090	C
4	630.89	157.72	627.87	734.95	1386.65	0.00	1057.10	976.38	0.597	0.69	1.45	8.328	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS

1	1182.49	295.62	1182.28	1584.80	447.74	0.00	1610.38	1511.81	0.734	2.66	2.71	8.398	A
2	451.42	112.85	451.27	380.60	1249.42	0.00	740.59	489.32	0.610	1.49	1.53	12.426	B
3	1511.70	377.92	1509.55	1068.85	631.84	0.00	1697.98	1597.86	0.890	6.89	7.43	18.614	C
4	630.89	157.72	630.68	739.54	1401.87	0.00	1045.03	976.38	0.604	1.45	1.50	8.680	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	965.50	241.38	970.75	1313.17	369.89	0.00	1663.63	1511.80	0.580	2.71	1.40	5.235	A
2	368.58	92.15	371.85	314.72	1025.93	0.00	891.05	489.33	0.414	1.53	0.71	6.978	A
3	1234.29	308.57	1254.73	878.41	519.37	0.00	1779.07	1597.86	0.694	7.43	2.32	7.120	A
4	515.12	128.78	518.21	609.25	1164.85	0.00	1233.06	976.38	0.418	1.50	0.72	5.058	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	808.56	202.14	810.54	1088.75	307.39	0.00	1706.35	1511.81	0.474	1.40	0.91	4.027	A
2	308.67	77.17	309.74	261.35	856.58	0.00	1005.06	489.32	0.307	0.71	0.45	5.184	A
3	1033.66	258.42	1037.76	732.99	433.33	0.00	1841.09	1597.86	0.561	2.32	1.29	4.503	A
4	431.38	107.85	432.48	507.43	963.67	0.00	1392.69	976.38	0.310	0.72	0.45	3.755	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:10-16:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.97	0.86	3.975	A	A
2	6.36	0.42	5.115	A	A
3	18.24	1.22	4.391	A	A
4	6.49	0.43	3.706	A	A

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	19.73	1.32	5.105	A	A
2	10.02	0.67	6.799	A	A
3	31.45	2.10	6.481	A	A
4	10.15	0.68	4.880	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	37.41	2.49	8.170	A	A
2	20.92	1.40	12.035	B	B
3	87.64	5.84	16.090	C	B
4	20.60	1.37	8.328	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	40.40	2.69	8.398	A	A
2	22.75	1.52	12.426	B	B
3	108.17	7.21	18.614	C	B
4	22.23	1.48	8.680	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	21.88	1.46	5.235	A	A
2	11.19	0.75	6.978	A	A
3	38.68	2.58	7.120	A	A
4	11.23	0.75	5.058	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.98	0.93	4.027	A	A
2	6.88	0.46	5.184	A	A
3	20.09	1.34	4.503	A	A
4	6.92	0.46	3.755	A	A

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: J4 A16&A52.arc8
Path: C:\Users\304111\Box\PB6934 Boston Gasification Team\E-TECHNICAL DATA\Transport\TD\Calcs\Junctions\Models\ES Results
Report generation date: 08/09/2020 14:09:27

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS	Queue (Veh)	Delay (s)	RFC	LOS	Junction LOS
	A1 - 2018 Surveyed									
Arm 1	1.86	6.94	0.65	A	A	2.07	7.57	0.68	A	A
Arm 2	2.39	4.51	0.71	A		2.98	5.21	0.75	A	
Arm 3	2.15	6.57	0.68	A		3.21	9.36	0.77	A	
	A1 - 2021 Forecast									
Arm 1	2.24	8.01	0.69	A	A	2.49	8.82	0.72	A	A
Arm 2	2.81	5.11	0.74	A		3.58	6.04	0.78	A	
Arm 3	2.65	7.82	0.73	A		4.33	12.31	0.82	B	
	A1 - 2021 Peak Construction									
Arm 1	2.95	9.94	0.75	A	A	2.99	10.67	0.76	B	B
Arm 2	3.78	6.63	0.79	A		3.77	6.34	0.79	A	
Arm 3	2.85	8.34	0.74	A		9.82	25.71	0.92	D	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - 2018 Surveyed, AM " model duration: 07:35 - 09:05
"D2 - 2018 Surveyed, PM" model duration: 16:25 - 17:55
"D3 - 2021 Forecast, AM" model duration: 07:35 - 09:05
"D4 - 2021 Forecast, PM" model duration: 16:25 - 17:55
"D5 - 2021 Peak Construction, AM" model duration: 07:35 - 09:05
"D6 - 2021 Peak Construction, PM" model duration: 16:25 - 17:55

Run using Junctions 8.0.6.541 at 08/09/2020 14:09:22

File summary

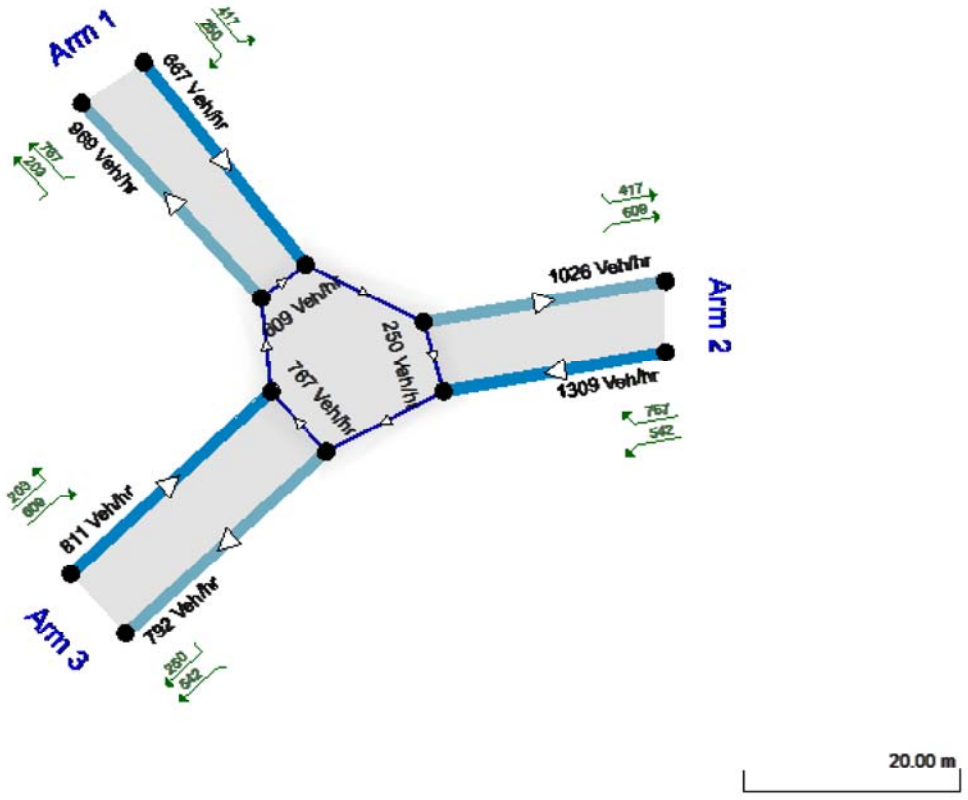
Title	Boston Alternative Energy Facility
Location	Boston
Site Number	J4 - A16 / A52
Date	15/08/2020
Version	
Status	(new file)
Identifier	
Client	Alternative Use Boston Projects Ltd
Jobnumber	PB6934
Enumerator	304111
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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



Showing modelled flow through junction (Veh/hr).
Time Segment: (07:35-07:50)
Showing Analysis Set "A1"; Demand Set "D1 - 2018 Surveyed, AM"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2018 Surveyed, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, AM	2018 Surveyed	AM		ONE HOUR	07:35	09:05	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				5.69	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	889.00	100.000
2	ONE HOUR	✓	1743.00	100.000
3	ONE HOUR	✓	1081.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	556.000	333.000
	2	1021.000	0.000	722.000
	3	270.000	811.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

	To			

		1	2	3
From	1	0.00	0.63	0.37
	2	0.59	0.00	0.41
	3	0.25	0.75	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.054	1.024
	2	1.035	1.000	1.086
	3	1.078	1.078	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.4	2.4
	2	3.5	0.0	8.6
	3	7.8	7.8	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.65	6.94	1.86	A	815.76	1223.65	102.02	5.00	1.13	102.03	5.00
2	0.71	4.51	2.39	A	1599.40	2399.10	134.47	3.36	1.49	134.48	3.36
3	0.68	6.57	2.15	A	991.94	1487.92	112.83	4.55	1.25	112.83	4.55

Main Results for each time segment

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	669.29	167.32	666.77	969.26	608.60	0.00	1727.80	1369.53	0.387	0.00	0.63	3.382	A
2	1312.22	328.05	1308.77	1025.62	249.76	0.00	2828.17	2576.99	0.464	0.00	0.86	2.365	A
3	813.83	203.46	811.22	791.89	766.64	0.00	2051.05	1400.81	0.397	0.00	0.65	2.897	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	799.19	199.80	797.90	1159.24	727.98	0.00	1631.10	1369.57	0.490	0.63	0.95	4.307	A
2	1566.91	391.73	1565.24	1227.01	298.88	0.00	2781.30	2576.97	0.563	0.86	1.28	2.956	A
3	971.80	242.95	970.35	947.24	916.88	0.00	1919.56	1400.81	0.506	0.65	1.02	3.788	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	978.81	244.70	975.27	1417.79	889.63	0.00	1500.17	1369.53	0.652	0.95	1.84	6.812	A
2	1919.07	479.77	1914.74	1499.58	365.31	0.00	2717.90	2576.99	0.706	1.28	2.36	4.458	A
3	1190.20	297.55	1185.81	1158.45	1121.61	0.00	1740.36	1400.81	0.684	1.02	2.12	6.440	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	978.81	244.70	978.70	1421.34	892.84	0.00	1497.57	1369.53	0.654	1.84	1.86	6.936	A
2	1919.07	479.77	1918.98	1504.94	366.60	0.00	2716.68	2576.99	0.706	2.36	2.39	4.511	A
3	1190.20	297.55	1190.09	1161.50	1124.09	0.00	1738.18	1400.81	0.685	2.12	2.15	6.567	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	799.19	199.80	802.76	1164.22	732.40	0.00	1627.53	1369.57	0.491	1.86	0.97	4.383	A
2	1566.91	391.73	1571.25	1234.46	300.69	0.00	2779.56	2576.97	0.564	2.39	1.30	2.989	A
3	971.80	242.95	976.23	951.55	920.40	0.00	1916.47	1400.81	0.507	2.15	1.04	3.846	A

Main results: (08:50-09:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	669.29	167.32	670.63	973.31	611.69	0.00	1725.30	1369.53	0.388	0.97	0.64	3.416	A
2	1312.22	328.05	1313.94	1031.11	251.20	0.00	2826.79	2576.99	0.464	1.30	0.87	2.381	A
3	813.83	203.46	815.33	795.48	769.67	0.00	2048.40	1400.81	0.397	1.04	0.66	2.922	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.20	0.61	3.382	A	A
2	12.66	0.84	2.365	A	A
3	9.60	0.64	2.897	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.92	0.93	4.307	A	A
2	18.80	1.25	2.956	A	A
3	14.89	0.99	3.788	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	26.25	1.75	6.812	A	A
2	34.02	2.27	4.458	A	A
3	30.14	2.01	6.440	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	27.82	1.85	6.936	A	A
2	35.65	2.38	4.511	A	A
3	32.02	2.13	6.567	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	15.07	1.01	4.383	A	A
2	20.05	1.34	2.989	A	A
3	16.05	1.07	3.846	A	A

Queueing Delay results: (08:50-09:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.77	0.65	3.416	A	A
2	13.29	0.89	2.381	A	A
3	10.13	0.68	2.922	A	A

(Default Analysis Set) - 2018 Surveyed, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Surveyed, PM	2018 Surveyed	PM		ONE HOUR	16:25	17:55	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				6.97	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	905.00	100.000

2	ONE HOUR	✓	1892.00	100.000
3	ONE HOUR	✓	1143.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	551.000	354.000
	2	1189.000	0.000	703.000
	3	272.000	871.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.61	0.39
	2	0.63	0.00	0.37
	3	0.24	0.76	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.045	1.025
	2	1.020	1.000	1.036
	3	1.029	1.051	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	4.5	2.5
	2	2.0	0.0	3.6
	3	2.9	5.1	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.68	7.57	2.07	A	830.44	1245.66	110.19	5.31	1.22	110.20	5.31
2	0.75	5.21	2.98	A	1736.12	2604.19	160.32	3.69	1.78	160.33	3.69
3	0.77	9.36	3.21	A	1048.84	1573.26	150.89	5.75	1.68	150.89	5.75

Main Results for each time segment

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	681.33	170.33	678.71	1096.79	653.47	0.00	1713.89	1417.95	0.398	0.00	0.66	3.469	A
2	1424.39	356.10	1420.54	1066.69	265.48	0.00	2895.66	2611.35	0.492	0.00	0.96	2.434	A
3	860.51	215.13	857.54	793.31	892.72	0.00	2012.20	1346.77	0.428	0.00	0.74	3.110	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	813.57	203.39	812.16	1311.67	781.54	0.00	1612.21	1417.95	0.505	0.66	1.01	4.491	A
2	1700.86	425.22	1698.81	1276.02	317.69	0.00	2844.33	2611.35	0.598	0.96	1.47	3.137	A
3	1027.54	256.88	1025.60	948.91	1067.60	0.00	1856.70	1346.77	0.553	0.74	1.23	4.322	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	996.42	249.11	992.34	1603.09	953.21	0.00	1475.91	1417.91	0.675	1.01	2.03	7.383	A
2	2083.12	520.78	2077.24	1557.39	388.17	0.00	2775.03	2611.36	0.751	1.47	2.94	5.117	A
3	1258.47	314.62	1250.89	1160.00	1305.42	0.00	1645.23	1346.76	0.765	1.23	3.12	8.962	A

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	996.42	249.11	996.26	1608.41	958.74	0.00	1471.52	1417.91	0.677	2.03	2.07	7.570	A
2	2083.12	520.78	2082.97	1565.31	389.70	0.00	2773.53	2611.36	0.751	2.94	2.98	5.209	A
3	1258.47	314.62	1258.14	1163.66	1309.02	0.00	1642.03	1346.76	0.766	3.12	3.21	9.357	A

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	813.57	203.39	817.69	1318.98	788.94	0.00	1606.33	1417.95	0.506	2.07	1.04	4.589	A
2	1700.86	425.22	1706.77	1286.79	319.85	0.00	2842.20	2611.35	0.598	2.98	1.50	3.188	A
3	1027.54	256.88	1035.32	954.03	1072.60	0.00	1852.25	1346.77	0.555	3.21	1.26	4.447	A

Main results: (17:40-17:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	681.33	170.33	682.81	1101.72	657.28	0.00	1710.87	1417.95	0.398	1.04	0.67	3.508	A
2	1424.39	356.10	1426.50	1072.99	267.09	0.00	2894.08	2611.35	0.492	1.50	0.97	2.458	A
3	860.51	215.13	862.54	797.13	896.47	0.00	2008.87	1346.77	0.428	1.26	0.75	3.145	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	9.59	0.64	3.469	A	A
2	14.13	0.94	2.434	A	A
3	10.87	0.72	3.110	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	14.73	0.98	4.491	A	A
2	21.60	1.44	3.137	A	A
3	17.87	1.19	4.322	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	28.80	1.92	7.383	A	A
2	41.97	2.80	5.117	A	A
3	43.25	2.88	8.962	A	A

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	30.79	2.05	7.570	A	A
2	44.51	2.97	5.209	A	A
3	47.61	3.17	9.357	A	A

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.08	1.07	4.589	A	A
2	23.22	1.55	3.188	A	A
3	19.73	1.32	4.447	A	A

Queueing Delay results: (17:40-17:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.21	0.68	3.508	A	A
2	14.89	0.99	2.458	A	A

3	11.56	0.77	3.145	A	A

(Default Analysis Set) - 2021 Forecast, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, AM	2021 Forecast	AM		ONE HOUR	07:35	09:05	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				6.60	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	926.00	100.000
2	ONE HOUR	✓	1815.00	100.000
3	ONE HOUR	✓	1125.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	579.000	347.000
	2	1063.000	0.000	752.000
	3	281.000	844.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.63	0.37
	2	0.59	0.00	0.41
	3	0.25	0.75	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.054	1.024
	2	1.035	1.000	1.086
	3	1.078	1.078	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.4	2.4
	2	3.5	0.0	8.6
	3	7.8	7.8	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.69	8.01	2.24	A	849.71	1274.57	117.53	5.53	1.31	117.53	5.53
2	0.74	5.11	2.81	A	1665.48	2498.21	153.01	3.67	1.70	153.02	3.68
3	0.73	7.82	2.65	A	1032.32	1548.48	132.64	5.14	1.47	132.65	5.14

Main Results for each time segment

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	694.40	1008.92	633.26	0.00	1707.83	1369.36	0.408	0.00	0.69	3.544	A
2	1366.43	341.61	1362.68	1067.45	260.21	0.00	2818.19	2576.85	0.485	0.00	0.94	2.467	A
3	846.96	211.74	844.10	824.81	798.09	0.00	2023.53	1401.10	0.419	0.00	0.72	3.044	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.45	208.11	830.94	1206.66	757.45	0.00	1607.24	1369.36	0.518	0.69	1.06	4.627	A
2	1631.65	407.91	1629.70	1277.01	311.38	0.00	2769.37	2576.85	0.589	0.94	1.42	3.153	A
3	1011.35	252.84	1009.64	986.61	954.48	0.00	1886.64	1401.10	0.536	0.72	1.14	4.096	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.54	254.89	1015.02	1475.14	924.89	0.00	1471.62	1369.36	0.693	1.06	2.19	7.807	A
2	1998.35	499.59	1992.94	1559.55	380.36	0.00	2703.55	2576.85	0.739	1.42	2.78	5.028	A
3	1238.65	309.66	1232.82	1206.08	1167.22	0.00	1700.43	1401.10	0.728	1.14	2.60	7.605	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1019.54	254.89	1019.37	1479.64	929.11	0.00	1468.19	1369.36	0.694	2.19	2.24	8.014	A
2	1998.35	499.59	1998.22	1566.50	381.99	0.00	2701.99	2576.85	0.740	2.78	2.81	5.113	A
3	1238.65	309.66	1238.45	1209.90	1170.31	0.00	1697.73	1401.10	0.730	2.60	2.65	7.823	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	832.45	208.11	837.03	1212.89	763.18	0.00	1602.59	1369.36	0.519	2.24	1.09	4.731	A
2	1631.65	407.91	1637.09	1286.55	313.66	0.00	2767.19	2576.85	0.590	2.81	1.45	3.199	A
3	1011.35	252.84	1017.27	991.94	958.80	0.00	1882.86	1401.10	0.537	2.65	1.17	4.188	A

Main results: (08:50-09:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	697.14	174.29	698.72	1013.46	636.75	0.00	1705.01	1369.36	0.409	1.09	0.70	3.582	A
2	1366.43	341.61	1368.44	1073.64	261.83	0.00	2816.64	2576.85	0.485	1.45	0.95	2.488	A
3	846.96	211.74	848.74	828.81	801.46	0.00	2020.58	1401.10	0.419	1.17	0.73	3.078	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.01	0.67	3.544	A	A
2	13.74	0.92	2.467	A	A
3	10.49	0.70	3.044	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	15.51	1.03	4.627	A	A
2	20.83	1.39	3.153	A	A
3	16.71	1.11	4.096	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	31.03	2.07	7.807	A	A
2	39.65	2.64	5.028	A	A
3	36.60	2.44	7.605	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	33.31	2.22	8.014	A	A
2	41.93	2.80	5.113	A	A
3	39.50	2.63	7.823	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.98	1.13	4.731	A	A
2	22.38	1.49	3.199	A	A
3	18.23	1.22	4.188	A	A

Queueing Delay results: (08:50-09:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.68	0.71	3.582	A	A
2	14.48	0.97	2.488	A	A
3	11.12	0.74	3.078	A	A

(Default Analysis Set) - 2021 Forecast, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Forecast, PM	2021 Forecast	PM		ONE HOUR	16:25	17:55	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				8.52	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	940.00	100.000
2	ONE HOUR	✓	1965.00	100.000
3	ONE HOUR	✓	1187.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	572.000	368.000
	2	1235.000	0.000	730.000
	3	282.000	905.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.61	0.39
	2	0.63	0.00	0.37
	3	0.24	0.76	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.045	1.025
	2	1.020	1.000	1.036
	3	1.029	1.051	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	4.5	2.5

	2	2.0	0.0	3.6
	3	2.9	5.1	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.72	8.82	2.49	A	862.56	1293.84	127.14	5.90	1.41	127.15	5.90
2	0.78	6.04	3.58	A	1803.13	2704.69	184.56	4.09	2.05	184.57	4.09
3	0.82	12.31	4.33	B	1089.22	1633.82	187.89	6.90	2.09	187.90	6.90

Main Results for each time segment

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	707.68	176.92	704.83	1138.67	678.84	0.00	1693.76	1417.54	0.418	0.00	0.71	3.629	A
2	1479.36	369.84	1475.18	1107.74	275.93	0.00	2885.41	2611.08	0.513	0.00	1.05	2.545	A
3	893.64	223.41	890.37	823.96	927.14	0.00	1981.57	1346.77	0.451	0.00	0.82	3.290	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	845.04	211.26	843.39	1361.70	811.80	0.00	1588.20	1417.54	0.532	0.71	1.12	4.822	A
2	1766.50	441.63	1764.12	1325.01	330.18	0.00	2832.08	2611.08	0.624	1.05	1.64	3.364	A
3	1067.09	266.77	1064.76	985.55	1108.74	0.00	1820.10	1346.77	0.586	0.82	1.40	4.752	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1034.96	258.74	1029.76	1662.90	988.02	0.00	1448.29	1417.56	0.715	1.12	2.42	8.496	A
2	2163.51	540.88	2156.00	1614.64	403.14	0.00	2760.34	2611.07	0.784	1.64	3.52	5.885	A
3	1306.92	326.73	1295.89	1204.09	1355.04	0.00	1601.09	1346.78	0.816	1.40	4.16	11.407	B

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1034.96	258.74	1034.69	1669.94	995.88	0.00	1442.04	1417.56	0.718	2.42	2.49	8.824	A
2	2163.51	540.88	2163.28	1625.50	405.07	0.00	2758.44	2611.07	0.784	3.52	3.58	6.043	A
3	1306.92	326.73	1306.21	1208.73	1359.61	0.00	1597.03	1346.78	0.818	4.16	4.33	12.306	B

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	845.04	211.26	850.36	1371.28	822.38	0.00	1579.80	1417.54	0.535	2.49	1.16	4.970	A
2	1766.50	441.63	1774.10	1339.83	332.90	0.00	2829.40	2611.08	0.624	3.58	1.68	3.434	A
3	1067.09	266.77	1078.64	991.98	1115.02	0.00	1814.52	1346.77	0.588	4.33	1.45	4.968	A

Main results: (17:40-17:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	707.68	176.92	709.43	1144.22	683.21	0.00	1690.29	1417.54	0.419	1.16	0.73	3.678	A
2	1479.36	369.84	1481.84	1114.91	277.74	0.00	2883.64	2611.08	0.513	1.68	1.06	2.572	A
3	893.64	223.41	896.10	828.24	931.33	0.00	1977.85	1346.77	0.452	1.45	0.83	3.337	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.41	0.69	3.629	A	A

2	15.33	1.02	2.545	A	A
3	11.93	0.80	3.290	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.37	1.09	4.822	A	A
2	23.97	1.60	3.364	A	A
3	20.31	1.35	4.752	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	34.06	2.27	8.496	A	A
2	49.62	3.31	5.885	A	A
3	55.93	3.73	11.407	B	B

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	37.01	2.47	8.824	A	A
2	53.35	3.56	6.043	A	A
3	63.97	4.26	12.306	B	B

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.15	1.21	4.970	A	A
2	26.07	1.74	3.434	A	A
3	23.02	1.53	4.968	A	A

Queueing Delay results: (17:40-17:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.14	0.74	3.678	A	A
2	16.22	1.08	2.572	A	A
3	12.75	0.85	3.337	A	A

(Default Analysis Set) - 2021 Peak Construction, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2021 Peak Construction, AM	2021 Peak Construction	AM		ONE HOUR	07:35	09:05	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				7.92	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	991.00	100.000
2	ONE HOUR	✓	1892.00	100.000
3	ONE HOUR	✓	1137.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	579.000	412.000
	2	1063.000	0.000	829.000
	3	281.000	856.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.58	0.42
	2	0.56	0.00	0.44

	3	0.25	0.75	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.054	1.020
	2	1.035	1.000	1.093
	3	1.078	1.091	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	5.4	2.0
	2	3.5	0.0	9.3
	3	7.8	9.1	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.75	9.94	2.95	A	909.36	1364.04	145.50	6.40	1.62	145.51	6.40
2	0.79	6.63	3.78	A	1736.14	2604.21	191.30	4.41	2.13	191.31	4.41
3	0.74	8.34	2.85	A	1043.33	1564.99	140.26	5.38	1.56	140.26	5.38

Main Results for each time segment

Main results: (07:35-07:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	746.08	186.52	742.97	1008.72	642.21	0.00	1699.03	1321.73	0.439	0.00	0.78	3.753	A
2	1424.40	356.10	1420.17	1076.30	308.88	0.00	2761.71	2533.94	0.516	0.00	1.06	2.667	A
3	855.99	214.00	853.03	931.15	797.90	0.00	2005.48	1462.69	0.427	0.00	0.74	3.116	A

Main results: (07:50-08:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	890.89	222.72	889.01	1206.39	768.16	0.00	1595.50	1321.73	0.558	0.78	1.25	5.082	A
2	1700.87	425.22	1698.40	1287.57	369.60	0.00	2704.24	2533.94	0.629	1.06	1.68	3.570	A
3	1022.14	255.53	1020.32	1113.76	954.22	0.00	1869.88	1462.69	0.547	0.74	1.19	4.229	A

Main results: (08:05-08:20)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1091.12	272.78	1084.63	1473.65	937.68	0.00	1456.14	1321.74	0.749	1.25	2.87	9.528	A
2	2083.14	520.78	2075.04	1571.38	450.93	0.00	2627.25	2533.94	0.793	1.68	3.70	6.426	A
3	1251.86	312.96	1245.49	1360.12	1165.83	0.00	1686.33	1462.69	0.742	1.19	2.79	8.052	A

Main results: (08:20-08:35)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1091.12	272.78	1090.80	1479.54	942.28	0.00	1452.36	1321.74	0.751	2.87	2.95	9.935	A
2	2083.14	520.78	2082.85	1579.59	453.49	0.00	2624.82	2533.94	0.794	3.70	3.78	6.632	A
3	1251.86	312.96	1251.60	1366.10	1170.22	0.00	1682.52	1462.69	0.744	2.79	2.85	8.342	A

Main results: (08:35-08:50)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS

1	890.89	222.72	897.53	1214.46	774.42	0.00	1590.35	1321.73	0.560	2.95	1.29	5.246	A
2	1700.87	425.22	1709.10	1298.81	373.14	0.00	2700.88	2533.94	0.630	3.78	1.72	3.658	A
3	1022.14	255.53	1028.64	1122.00	960.24	0.00	1864.67	1462.69	0.548	2.85	1.23	4.338	A

Main results: (08:50-09:05)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	746.08	186.52	748.08	1013.76	645.87	0.00	1696.02	1321.73	0.440	1.29	0.79	3.804	A
2	1424.40	356.10	1426.98	1082.93	311.00	0.00	2759.70	2533.94	0.516	1.72	1.07	2.708	A
3	855.99	214.00	857.89	936.25	801.73	0.00	2002.16	1462.69	0.428	1.23	0.75	3.150	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:35-07:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.33	0.76	3.753	A	A
2	15.50	1.03	2.667	A	A
3	10.84	0.72	3.116	A	A

Queueing Delay results: (07:50-08:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.14	1.21	5.082	A	A
2	24.46	1.63	3.570	A	A
3	17.41	1.16	4.229	A	A

Queueing Delay results: (08:05-08:20)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	39.84	2.66	9.528	A	A
2	51.90	3.46	6.426	A	A
3	38.98	2.60	8.052	A	A

Queueing Delay results: (08:20-08:35)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	43.79	2.92	9.935	A	A
2	56.21	3.75	6.632	A	A
3	42.39	2.83	8.342	A	A

Queueing Delay results: (08:35-08:50)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	20.24	1.35	5.246	A	A
2	26.78	1.79	3.658	A	A
3	19.12	1.27	4.338	A	A

Queueing Delay results: (08:50-09:05)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	12.17	0.81	3.804	A	A
2	16.45	1.10	2.708	A	A
3	11.52	0.77	3.150	A	A

(Default Analysis Set) - 2021 Peak Construction, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

	Scenario	Time		Traffic	Model Start	Model Finish	Model Time	Time Segment	Results For	Single Time		Run	Use	

Name	Name	Period Name	Description	Profile Type	Time (HH:mm)	Time (HH:mm)	Period Length (min)	Length (min)	Central Hour Only	Segment Only	Locked	Automatically	Relationship	Relationship
2021 Peak Construction, PM	2021 Peak Construction	PM		ONE HOUR	16:25	17:55	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A16/A52	Roundabout	1,2,3				13.43	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A52 Liquorpond Street	
2	2	A16 John Adams Way	
3	3	A16 Spalding Rd	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.78	8.78	10.10	25.03	38.00	20.05	
2	8.93	10.25	7.40	93.60	38.00	14.00	
3	6.39	10.33	30.00	39.00	38.00	20.50	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.784	2315.724
2		(calculated)	(calculated)	0.984	3238.604
3		(calculated)	(calculated)	0.912	2934.416

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	940.00	100.000
2	ONE HOUR	✓	1977.00	100.000

3	ONE HOUR	✓	1330.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	572.000	368.000
	2	1235.000	0.000	742.000
	3	348.000	982.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.61	0.39
	2	0.62	0.00	0.38
	3	0.26	0.74	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.045	1.025
	2	1.020	1.000	1.051
	3	1.024	1.059	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	4.5	2.5
	2	2.0	0.0	5.1
	3	2.4	5.9	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)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
1	0.76	10.67	2.99	B	862.56	1293.84	144.27	6.69	1.60	144.28	6.69
2	0.79	6.34	3.77	A	1814.14	2721.21	192.26	4.24	2.14	192.27	4.24
3	0.92	25.71	9.82	D	1220.43	1830.65	338.28	11.09	3.76	338.30	11.09

Main Results for each time segment

Main results: (16:25-16:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	707.68	176.92	704.68	1188.02	736.29	0.00	1643.70	1429.01	0.431	0.00	0.75	3.821	A
2	1488.40	372.10	1484.11	1165.09	275.87	0.00	2869.56	2592.28	0.519	0.00	1.07	2.591	A
3	1001.30	250.32	997.21	832.88	927.10	0.00	1973.93	1360.77	0.507	0.00	1.02	3.671	A

Main results: (16:40-16:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	845.04	211.26	843.16	1420.61	880.20	0.00	1528.57	1428.96	0.553	0.75	1.22	5.237	A
2	1777.29	444.32	1774.80	1393.28	330.09	0.00	2816.55	2592.30	0.631	1.07	1.69	3.446	A
3	1195.65	298.91	1192.12	996.20	1108.69	0.00	1813.09	1360.76	0.659	1.02	1.90	5.766	A

Main results: (16:55-17:10)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1034.96	258.74	1028.47	1730.80	1061.20	0.00	1383.77	1429.01	0.748	1.22	2.84	9.955	A
2	2176.73	544.18	2168.68	1687.02	402.63	0.00	2745.61	2592.28	0.793	1.69	3.71	6.154	A
3	1464.36	366.09	1437.27	1216.56	1354.73	0.00	1595.16	1360.77	0.918	1.90	8.67	20.123	C

Main results: (17:10-17:25)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	1034.96	258.74	1034.37	1741.54	1077.82	0.00	1370.48	1429.01	0.755	2.84	2.99	10.674	B
2	2176.73	544.18	2176.45	1707.24	404.94	0.00	2743.35	2592.28	0.793	3.71	3.77	6.342	A
3	1464.36	366.09	1459.77	1221.80	1359.59	0.00	1590.86	1360.77	0.920	8.67	9.82	25.715	D

Main results: (17:25-17:40)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	845.04	211.26	851.84	1436.38	905.92	0.00	1508.00	1428.96	0.560	2.99	1.29	5.543	A
2	1777.29	444.32	1785.46	1424.28	333.49	0.00	2813.22	2592.30	0.632	3.77	1.73	3.531	A
3	1195.65	298.91	1226.95	1003.59	1115.34	0.00	1807.20	1360.76	0.662	9.82	1.99	6.532	A

Main results: (17:40-17:55)

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
1	707.68	176.92	709.79	1194.38	742.11	0.00	1639.04	1429.01	0.432	1.29	0.77	3.882	A
2	1488.40	372.10	1490.99	1174.02	277.87	0.00	2867.60	2592.28	0.519	1.73	1.09	2.619	A
3	1001.30	250.32	1005.10	837.47	931.39	0.00	1970.13	1360.77	0.508	1.99	1.04	3.744	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:25-16:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	10.94	0.73	3.821	A	A
2	15.69	1.05	2.591	A	A
3	14.86	0.99	3.671	A	A

Queueing Delay results: (16:40-16:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	17.72	1.18	5.237	A	A
2	24.70	1.65	3.446	A	A
3	27.29	1.82	5.766	A	A

Queueing Delay results: (16:55-17:10)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	39.40	2.63	9.955	A	A
2	52.04	3.47	6.154	A	A
3	104.57	6.97	20.123	C	C

Queueing Delay results: (17:10-17:25)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	44.12	2.94	10.674	B	B
2	56.22	3.75	6.342	A	A
3	140.20	9.35	25.715	D	C

Queueing Delay results: (17:25-17:40)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	20.31	1.35	5.543	A	A
2	26.97	1.80	3.531	A	A
3	35.28	2.35	6.532	A	A

Queueing Delay results: (17:40-17:55)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	11.78	0.79	3.882	A	A
2	16.63	1.11	2.619	A	A

3	16.09	1.07	3.744	A	A