APPENDIX N **Cumulative Development Junction Capacity Assessment Outputs**

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: Cumulative Development.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Picady\Lees Hall Road_Site Access
Report generation date: 17/11/2016 08:40:29

»Base + Committed + Cumulative Development, AM
»Base + Committed + Cumulative Development, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
	Base + Committed + Cumulative Development											
Stream B-C	0.1	6.60	0.07	A	0.70	214 % [Stream B-A]	0.0	6.13	0.03	A	0.76	259 % [Stream B-A]
Stream B-A	0.0	9.82	0.02	A			0.0	9.47	0.01	A		
Stream C-AB	0.0	5.79	0.03	A			0.1	5.79	0.07	A		

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

File summary

File Description

Title	Lees Hall Road Site Access
Location	Dewsbury
Site number	
Date	10/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed + Cumulative Development	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Base + Committed + Cumulative Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.70	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	214	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	Lees Hall Road (East)		Major
B	Site Access		Minor
C	Lees Hall Road (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.60			65.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	4.70	3.40	3.40	3.40	✓	1.00	17	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	488	0.087	0.219	0.138	0.313
1	B-C	686	0.102	0.259	-	-
1	C-B	612	0.231	0.231	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	347	100.000
B		ONE HOUR	✓	43	100.000
C		ONE HOUR	✓	180	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	344
	B	8	0	35
	C	168	12	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.07	6.60	0.1	A	32	48
B-A	0.02	9.82	0.0	A	7	11
C-AB	0.03	5.79	0.0	A	15	22
C-A					151	226
A-B					3	4
A-C					316	473

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	26	7	616	0.043	26	0.0	0.0	6.099	A
B-A	6	2	411	0.015	6	0.0	0.0	8.882	A
C-AB	11	3	639	0.018	11	0.0	0.0	5.788	A
C-A	124	31			124				
A-B	2	0.56			2				
A-C	259	65			259				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	31	8	603	0.052	31	0.0	0.1	6.301	A
B-A	7	2	396	0.018	7	0.0	0.0	9.253	A
C-AB	14	4	645	0.022	14	0.0	0.0	5.762	A
C-A	148	37			148				
A-B	3	0.67			3				
A-C	309	77			309				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	39	10	584	0.066	38	0.1	0.1	6.599	A
B-A	9	2	375	0.023	9	0.0	0.0	9.817	A
C-AB	18	5	655	0.028	18	0.0	0.0	5.729	A
C-A	180	45			180				
A-B	3	0.83			3				
A-C	379	95			379				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	39	10	584	0.066	39	0.1	0.1	6.600	A
B-A	9	2	375	0.023	9	0.0	0.0	9.817	A
C-AB	18	5	655	0.028	18	0.0	0.0	5.738	A
C-A	180	45			180				
A-B	3	0.83			3				
A-C	379	95			379				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	31	8	603	0.052	32	0.1	0.1	6.305	A
B-A	7	2	396	0.018	7	0.0	0.0	9.253	A
C-AB	14	4	645	0.022	14	0.0	0.0	5.775	A
C-A	148	37			148				
A-B	3	0.67			3				
A-C	309	77			309				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	26	7	616	0.043	26	0.1	0.0	6.105	A
B-A	6	2	411	0.015	6	0.0	0.0	8.884	A
C-AB	11	3	639	0.018	11	0.0	0.0	5.795	A
C-A	124	31			124				
A-B	2	0.56			2				
A-C	259	65			259				

Base + Committed + Cumulative Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.76	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	259	Stream B-A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Base + Committed + Cumulative Development	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	274	100.000
B		ONE HOUR	✓	23	100.000
C		ONE HOUR	✓	211	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	267
	B	4	0	19
	C	181	30	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.03	6.13	0.0	A	17	26
B-A	0.01	9.47	0.0	A	4	6
C-AB	0.07	5.79	0.1	A	37	56
C-A					157	235
A-B					6	10
A-C					245	368

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	633	0.023	14	0.0	0.0	5.820	A
B-A	3	0.75	417	0.007	3	0.0	0.0	8.697	A
C-AB	28	7	658	0.043	28	0.0	0.1	5.776	A
C-A	130	33			130				
A-B	5	1			5				
A-C	201	50			201				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	17	4	622	0.027	17	0.0	0.0	5.947	A
B-A	4	0.90	403	0.009	4	0.0	0.0	9.007	A
C-AB	36	9	667	0.054	36	0.1	0.1	5.763	A
C-A	154	38			154				
A-B	6	2			6				
A-C	240	60			240				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	21	5	608	0.034	21	0.0	0.0	6.133	A
B-A	4	1	384	0.011	4	0.0	0.0	9.473	A
C-AB	47	12	681	0.069	47	0.1	0.1	5.750	A
C-A	186	46			186				
A-B	8	2			8				
A-C	294	73			294				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	21	5	608	0.034	21	0.0	0.0	6.133	A
B-A	4	1	384	0.011	4	0.0	0.0	9.473	A
C-AB	47	12	681	0.069	47	0.1	0.1	5.758	A
C-A	185	46			185				
A-B	8	2			8				
A-C	294	73			294				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	17	4	622	0.027	17	0.0	0.0	5.950	A
B-A	4	0.90	403	0.009	4	0.0	0.0	9.008	A
C-AB	36	9	667	0.054	36	0.1	0.1	5.778	A
C-A	154	38			154				
A-B	6	2			6				
A-C	240	60			240				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	633	0.023	14	0.0	0.0	5.821	A
B-A	3	0.75	417	0.007	3	0.0	0.0	8.700	A
C-AB	29	7	658	0.043	29	0.1	0.1	5.788	A
C-A	130	33			130				
A-B	5	1			5				
A-C	201	50			201				

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Development.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Brewery Lane_Lees Hall Road
Report generation date: 17/11/2016 11:48:20

»Base + Committed + Cumulative Development, AM
»Base + Committed + Cumulative Development, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
	Base + Committed + Cumulative Development											
Arm 1	0.7	6.54	0.42	A	6.06	103 % [Arm 1]	0.5	5.47	0.32	A	5.43	164 % [Arm 1]
Arm 2	0.4	5.66	0.28	A			0.4	5.60	0.29	A		
Arm 3	0.2	5.16	0.13	A			0.2	5.03	0.16	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	Brewery Lane / Lees Hall Road
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75			✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed + Cumulative Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

Base + Committed + Cumulative Development, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	1,2,3	6.06	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		103	Arm 1

Arms

Arms

Arm	Name	Description
1	Lees Hall Road (east)	
2	Lees Hall Road (west)	
3	Brewery Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.40	3.40	3.40	0.0	15.60	15.60	0.0	
2	3.50	3.50	4.40	0.4	8.00	4.16	0.0	
3	4.60	4.60	4.60	0.0	9.70	5.50	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.639	1027
2	0.614	967
3	0.651	954

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	377	100.000
2		ONE HOUR	✓	231	100.000
3		ONE HOUR	✓	102	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	284	93
	2	139	0	92
	3	40	62	0

Vehicle Mix

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	3	0	1
	3	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.42	6.54	0.7	A	346	519
2	0.28	5.66	0.4	A	212	318
3	0.13	5.16	0.2	A	94	140

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	284	71	46	997	0.285	282	134	0.0	0.4	5.187	A
2	174	43	70	924	0.188	173	259	0.0	0.2	4.891	A
3	77	19	104	887	0.087	76	139	0.0	0.1	4.726	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	339	85	56	991	0.342	338	161	0.4	0.5	5.694	A
2	208	52	83	916	0.227	207	311	0.2	0.3	5.193	A
3	92	23	125	873	0.105	92	166	0.1	0.1	4.902	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	415	104	68	983	0.422	414	197	0.5	0.7	6.523	A
2	254	64	102	904	0.281	254	380	0.3	0.4	5.654	A
3	112	28	153	855	0.131	112	203	0.1	0.2	5.156	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	415	104	68	983	0.422	415	197	0.7	0.7	6.542	A
2	254	64	102	904	0.281	254	381	0.4	0.4	5.661	A
3	112	28	153	855	0.131	112	204	0.2	0.2	5.159	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	339	85	56	991	0.342	340	161	0.7	0.5	5.715	A
2	208	52	84	915	0.227	208	312	0.4	0.3	5.203	A
3	92	23	125	873	0.105	92	167	0.2	0.1	4.907	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	284	71	47	997	0.285	284	135	0.5	0.4	5.219	A
2	174	43	70	924	0.188	174	261	0.3	0.2	4.910	A
3	77	19	105	886	0.087	77	140	0.1	0.1	4.736	A

Base + Committed + Cumulative Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	1,2,3	5.43	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		164	Arm 1

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	286	100.000
2		ONE HOUR	✓	246	100.000
3		ONE HOUR	✓	122	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	219	67
	2	145	0	101
	3	67	55	0

Vehicle Mix

HV %s

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.32	5.47	0.5	A	262	394
2	0.29	5.60	0.4	A	226	339
3	0.16	5.03	0.2	A	112	168

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	215	54	41	1000	0.215	214	159	0.0	0.3	4.676	A
2	185	46	50	936	0.198	184	205	0.0	0.2	4.838	A
3	92	23	109	884	0.104	91	126	0.0	0.1	4.542	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	257	64	49	995	0.258	257	190	0.3	0.4	4.984	A
2	221	55	60	930	0.238	221	246	0.2	0.3	5.135	A
3	110	27	130	870	0.126	110	151	0.1	0.1	4.737	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	315	79	60	988	0.319	314	233	0.4	0.5	5.462	A
2	271	68	74	922	0.294	270	301	0.3	0.4	5.588	A
3	134	34	159	851	0.158	134	185	0.1	0.2	5.024	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	315	79	61	988	0.319	315	233	0.5	0.5	5.469	A
2	271	68	74	922	0.294	271	302	0.4	0.4	5.596	A
3	134	34	160	850	0.158	134	185	0.2	0.2	5.027	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	257	64	50	995	0.258	258	191	0.5	0.4	4.997	A
2	221	55	60	930	0.238	222	247	0.4	0.3	5.144	A
3	110	27	131	869	0.126	110	151	0.2	0.1	4.742	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	215	54	41	1000	0.215	216	160	0.4	0.3	4.695	A
2	185	46	51	936	0.198	185	207	0.3	0.3	4.856	A
3	92	23	109	883	0.104	92	127	0.1	0.1	4.552	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Development.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Lees Hall Rd
Report generation date: 17/11/2016 12:03:34

»Base + Committed Development, AM
»Base + Committed Development, PM
»Base + Committed + Cumulative Development, AM
»Base + Committed + Cumulative Development, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
	Base + Committed Development											
Arm A	0.7	6.87	0.40	A	7.94	39 % [Arm B]	0.8	7.39	0.44	A	6.98	79 % [Arm A]
Arm B	1.3	10.86	0.55	B			0.6	7.66	0.37	A		
Arm C	0.6	5.83	0.38	A			0.8	6.26	0.45	A		
	Base + Committed + Cumulative Development											
Arm A	0.7	7.06	0.41	A	8.38	34 % [Arm B]	0.9	7.73	0.45	A	7.31	71 % [Arm A]
Arm B	1.4	11.67	0.58	B			0.7	8.05	0.40	A		
Arm C	0.7	6.08	0.41	A			0.9	6.56	0.48	A		

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

File summary

File Description

Title	Forge Lane_Lees Hall Road
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75			✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed Development	PM	ONE HOUR	16:15	17:45	15	✓
D3	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base + Committed + Cumulative Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

Base + Committed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	7.94	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		39	Arm B

Arms

Arms

Arm	Name	Description
A	Forge Lane	
B	Lees Hall Road (E)	
C	Lees Hall Road (W)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.65	3.65	5.00	5.0	9.30	9.00	0.0	
B	3.25	3.25	3.25	0.0	13.50	15.00	0.0	
C	3.25	3.25	5.25	7.0	9.50	9.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.643	1018
B	0.624	958
C	0.640	1123

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	336	100.000
B		ONE HOUR	✓	385	100.000
C		ONE HOUR	✓	361	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	54	282
	B	118	0	267
	C	216	145	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	4
	C	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.40	6.87	0.7	A	308	462
B	0.55	10.86	1.3	B	353	530
C	0.38	5.83	0.6	A	331	497

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	253	63	109	948	0.267	251	250	0.0	0.4	5.370	A
B	290	72	211	826	0.351	288	149	0.0	0.5	6.839	A
C	272	68	88	1066	0.255	270	411	0.0	0.4	4.699	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	302	76	130	934	0.323	302	300	0.4	0.5	5.921	A
B	346	87	253	800	0.433	345	179	0.5	0.8	8.115	A
C	325	81	106	1055	0.308	324	493	0.4	0.5	5.125	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	370	92	159	916	0.404	369	367	0.5	0.7	6.851	A
B	424	106	310	765	0.554	422	219	0.8	1.2	10.732	B
C	397	99	129	1040	0.382	397	602	0.5	0.6	5.820	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	370	92	160	916	0.404	370	368	0.7	0.7	6.872	A
B	424	106	310	764	0.555	424	219	1.2	1.3	10.860	B
C	397	99	130	1039	0.382	397	604	0.6	0.6	5.835	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	302	76	131	934	0.323	303	301	0.7	0.5	5.946	A
B	346	87	254	799	0.433	348	179	1.3	0.8	8.226	A
C	325	81	107	1054	0.308	325	496	0.6	0.5	5.142	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	253	63	109	948	0.267	253	252	0.5	0.4	5.405	A
B	290	72	213	825	0.351	291	150	0.8	0.6	6.931	A
C	272	68	89	1066	0.255	272	414	0.5	0.4	4.724	A

Base + Committed Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	6.98	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		79	Arm A

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	355	100.000
B		ONE HOUR	✓	261	100.000
C		ONE HOUR	✓	445	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	79	276
	B	54	0	207
	C	270	175	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	1	4
	B	0	0	3
	C	5	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.44	7.39	0.8	A	326	489
B	0.37	7.66	0.6	A	239	359
C	0.45	6.26	0.8	A	408	613

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	267	67	131	934	0.286	266	243	0.0	0.4	5.552	A
B	196	49	207	829	0.237	195	190	0.0	0.3	5.801	A
C	335	84	40	1097	0.305	333	361	0.0	0.5	4.867	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	319	80	157	917	0.348	319	291	0.4	0.5	6.209	A
B	235	59	248	803	0.292	234	228	0.3	0.4	6.470	A
C	400	100	48	1092	0.366	399	433	0.5	0.6	5.372	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391	98	192	895	0.437	390	356	0.5	0.8	7.355	A
B	287	72	303	769	0.374	287	279	0.4	0.6	7.632	A
C	490	122	59	1085	0.452	489	530	0.6	0.8	6.237	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391	98	193	894	0.437	391	357	0.8	0.8	7.387	A
B	287	72	304	768	0.374	287	280	0.6	0.6	7.660	A
C	490	122	59	1085	0.452	490	532	0.8	0.8	6.258	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	319	80	158	917	0.348	320	292	0.8	0.6	6.245	A
B	235	59	249	803	0.292	235	229	0.6	0.4	6.502	A
C	400	100	49	1092	0.367	401	436	0.8	0.6	5.397	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	267	67	132	933	0.286	268	244	0.6	0.4	5.595	A
B	196	49	208	828	0.237	197	192	0.4	0.3	5.844	A
C	335	84	41	1097	0.306	336	364	0.6	0.5	4.896	A

Base + Committed + Cumulative Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	8.38	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		34	Arm B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Base + Committed + Cumulative Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	340	100.000
B		ONE HOUR	✓	404	100.000
C		ONE HOUR	✓	385	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	54	286
	B	118	0	286
	C	226	159	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	4
	C	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.41	7.06	0.7	A	312	468
B	0.58	11.67	1.4	B	371	556
C	0.41	6.08	0.7	A	353	530

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	256	64	119	942	0.272	254	257	0.0	0.4	5.445	A
B	304	76	214	824	0.369	302	159	0.0	0.6	7.050	A
C	290	72	88	1066	0.272	288	428	0.0	0.4	4.802	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	306	76	143	926	0.330	305	309	0.4	0.5	6.031	A
B	363	91	257	798	0.455	362	191	0.6	0.8	8.474	A
C	346	87	106	1055	0.328	346	513	0.4	0.5	5.274	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	374	94	175	906	0.413	373	378	0.5	0.7	7.033	A
B	445	111	314	762	0.584	443	234	0.8	1.4	11.507	B
C	424	106	129	1040	0.408	423	627	0.5	0.7	6.062	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	374	94	175	906	0.413	374	379	0.7	0.7	7.058	A
B	445	111	315	761	0.584	445	235	1.4	1.4	11.674	B
C	424	106	130	1039	0.408	424	630	0.7	0.7	6.080	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	306	76	143	926	0.330	306	310	0.7	0.5	6.063	A
B	363	91	258	797	0.456	365	192	1.4	0.9	8.614	A
C	346	87	107	1054	0.328	347	516	0.7	0.5	5.299	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	256	64	120	941	0.272	256	260	0.5	0.4	5.481	A
B	304	76	216	823	0.369	305	161	0.9	0.6	7.158	A
C	290	72	89	1066	0.272	290	432	0.5	0.4	4.833	A

Base + Committed + Cumulative Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	7.31	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		71	Arm A

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	363	100.000
B		ONE HOUR	✓	277	100.000
C		ONE HOUR	✓	470	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	79	284
	B	54	0	223
	C	276	194	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	1	4
	B	0	0	3
	C	5	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.45	7.73	0.9	A	333	500
B	0.40	8.05	0.7	A	254	381
C	0.48	6.56	0.9	A	431	647

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	273	68	145	925	0.296	272	247	0.0	0.4	5.680	A
B	209	52	212	825	0.253	207	204	0.0	0.3	5.949	A
C	354	88	40	1097	0.323	352	379	0.0	0.5	4.979	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	326	82	174	906	0.360	326	296	0.4	0.6	6.401	A
B	249	62	255	799	0.312	249	245	0.3	0.5	6.691	A
C	423	106	48	1092	0.387	422	455	0.5	0.6	5.548	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	400	100	213	881	0.454	399	363	0.6	0.8	7.691	A
B	305	76	312	763	0.400	304	300	0.5	0.7	8.011	A
C	517	129	59	1085	0.477	516	557	0.6	0.9	6.530	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	400	100	214	881	0.454	400	363	0.8	0.9	7.729	A
B	305	76	313	763	0.400	305	301	0.7	0.7	8.050	A
C	517	129	59	1085	0.477	517	558	0.9	0.9	6.557	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	326	82	175	906	0.360	327	297	0.9	0.6	6.445	A
B	249	62	256	798	0.312	250	246	0.7	0.5	6.735	A
C	423	106	49	1091	0.387	424	457	0.9	0.7	5.577	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	273	68	146	924	0.296	274	249	0.6	0.4	5.728	A
B	209	52	214	824	0.253	209	206	0.5	0.3	5.995	A
C	354	88	41	1097	0.323	354	383	0.7	0.5	5.017	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Development AM.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Station Rd_Thornhill Rd\Direct Models
Report generation date: 30/11/2016 15:32:21

»Base + Committed Development, AM
»Base + Committed + Cumulative Development, AM

Summary of junction performance

	AM			
	Q (PCU)	Delay (s)	RFC	LOS
	Base + Committed Development			
Junction 1 - Arm 1	0.0	12.30	0.80	B
Junction 1 - Arm 2	64.7	394.49	1.55	F
Junction 1 - Arm 3	2.6	12.39	0.73	B
Junction 2 - Arm 1	78.8	280.68	1.21	F
Junction 2 - Arm 2	93.0	1081.94	1.54	F
Junction 2 - Arm 3	0.0	6.21	0.62	A
	Base + Committed + Cumulative Development			
Junction 1 - Arm 1	0.0	12.28	0.80	B
Junction 1 - Arm 2	66.3	405.10	1.54	F
Junction 1 - Arm 3	2.7	12.51	0.73	B
Junction 2 - Arm 1	89.0	312.63	1.23	F
Junction 2 - Arm 2	102.5	1193.57	1.57	F
Junction 2 - Arm 3	0.0	6.23	0.62	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

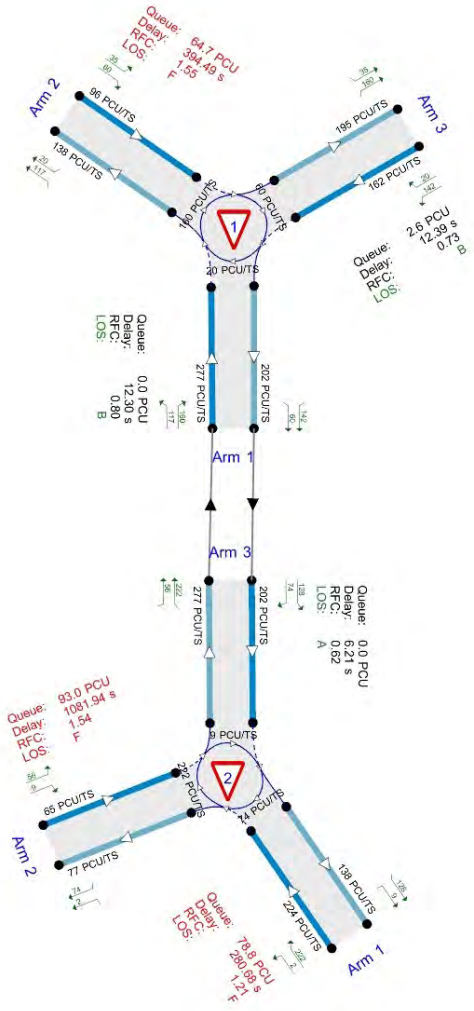
File summary

File Description

Title	Forge Ln / Station Rd / Thornhill Rd double-mini
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin



Flows show modelled flow through junction (PCU/TS).
Time Segment: 08:30-08:45

The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed Development	AM	DIRECT	08:00	09:00	60	15	✓
D5	Base + Committed + Cumulative Development	AM	DIRECT	08:00	09:00	60	15	✓

Analysis Set Details

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

Base + Committed Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 1	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 82% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 84% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	89.12	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	314.04	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	Link	
	2	Thornhill Rd	
	3	Savile Rd	
2	1	Station Rd	
	2	Forge Lane	
	3	Link	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	7.65	7.65	8.10	2.0	10.00	7.50	0.0	
	2	3.00	3.00	6.30	3.0	13.80	9.00	0.0	
	3	3.00	3.00	4.00	5.0	19.50	19.00	0.0	
2	1	3.20	3.20	5.25	13.0	11.50	6.40	0.0	
	2	3.55	3.55	4.80	2.0	13.00	10.00	5.0	
	3	7.25	7.25	7.25	0.0	18.00	18.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1	1	0.777	361.473
	2	0.619	199.488
	3	0.798	325.942
2	1	0.650	272.899
	2	0.569	191.077
	3	0.863	396.431

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed Development	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Demand (PCU/TS)

Junction 1 08:00 - 08:15

		To		
		1	2	3
From	1	0.00	135.00	151.00
	2	72.00	0.00	20.00
	3	120.00	28.00	0.00

Demand (PCU/TS)

Junction 1 08:15 - 08:30

		To		
		1	2	3
From	1	0.00	139.00	184.00
	2	75.00	0.00	19.00
	3	166.00	28.00	0.00

Junction 1 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	140.00	191.00
	2	64.00	0.00	39.00
	3	141.00	20.00	0.00

Junction 1 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	95.00	151.00
	2	84.00	0.00	61.00
	3	119.00	16.00	0.00

Junction 2 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	10.00	222.00
	2	12.00	0.00	64.00
	3	143.00	49.00	0.00

Junction 2 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	250.00
	2	14.00	0.00	73.00
	3	143.00	98.00	0.00

Junction 2 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	2.00	244.00
	2	13.00	0.00	87.00
	3	130.00	75.00	0.00

Junction 2 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	165.00
	2	17.00	0.00	81.00
	3	126.00	77.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	4	3
	2	4	0	7
	3	5	5	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	11	2
	2	2	0	5
	3	4	5	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.80	12.30	0.0	B	272.00	1088.01
	2	1.55	394.49	64.7	F	108.50	434.00
	3	0.73	12.39	2.6	B	159.50	638.00
2	1	1.21	280.68	78.8	F	225.75	903.00
	2	1.54	1081.94	93.0	F	90.25	361.00
	3	0.62	6.21	0.0	A	200.66	802.64

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	266.05	266.05	27.77	339.89	0.783	266.05	188.02	0.0	0.0	11.557	B
	2	92.00	92.00	140.47	112.54	0.817	88.21	153.35	0.0	3.8	34.712	D
	3	148.00	148.00	69.03	270.89	0.546	146.76	159.64	0.0	1.2	7.541	A
2	1	232.00	232.00	47.99	241.72	0.960	221.05	150.26	0.0	10.9	34.880	D
	2	76.00	76.00	211.52	70.77	1.074	64.75	57.51	0.0	11.2	103.446	F
	3	188.02	188.02	10.22	387.60	0.485	188.02	266.05	0.0	0.0	4.656	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	266.35	266.35	27.85	339.82	0.784	266.35	238.03	0.0	0.0	11.611	B
	2	94.00	94.00	151.73	105.57	0.890	91.92	142.47	3.8	5.9	59.439	F
	3	194.00	194.00	73.28	267.49	0.725	192.60	170.37	1.2	2.6	12.390	B
2	1	255.00	255.00	96.79	210.01	1.214	208.80	153.07	10.9	57.1	157.979	F
	2	87.00	87.00	204.45	74.79	1.163	73.73	101.14	11.2	24.5	251.967	F
	3	238.03	238.03	11.83	386.22	0.616	238.03	266.35	0.0	0.0	6.206	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	277.46	277.46	20.20	345.77	0.802	277.46	202.41	0.0	0.0	12.295	B
	2	103.00	103.00	160.10	100.39	1.026	95.61	137.55	5.9	13.3	112.505	F
	3	161.00	161.00	60.44	277.74	0.580	162.16	195.27	2.6	1.5	8.258	A
2	1	246.00	246.00	74.05	224.79	1.094	224.34	137.54	57.1	78.8	280.684	F
	2	100.00	100.00	221.86	64.89	1.541	64.77	76.53	24.5	59.7	609.218	F
	3	202.41	202.41	9.18	388.51	0.521	202.41	277.45	0.0	0.0	4.987	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	278.15	278.15	16.07	348.98	0.797	278.15	174.18	0.0	0.0	11.926	B
	2	145.00	145.00	170.74	93.80	1.546	93.54	123.48	13.3	64.7	394.487	F
	3	135.00	135.00	54.74	282.28	0.478	135.50	209.53	1.5	1.0	6.462	A
2	1	170.00	170.00	66.07	229.97	0.739	227.03	116.75	78.8	21.8	204.014	F
	2	98.00	98.00	222.03	64.79	1.513	64.75	71.07	59.7	93.0	1081.938	F
	3	174.18	174.18	8.64	388.98	0.448	174.18	278.15	0.0	0.0	4.340	A

Base + Committed + Cumulative Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 1	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 82% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 84% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	91.69	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	349.80	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	Base + Committed + Cumulative Development	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Junction 1 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	138.00	155.00
	2	73.00	0.00	20.00
	3	122.00	28.00	0.00

Junction 1 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	142.00	187.00
	2	76.00	0.00	19.00
	3	166.00	28.00	0.00

Junction 1 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	143.00	194.00
	2	66.00	0.00	39.00
	3	142.00	20.00	0.00

Junction 1 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	100.00	155.00
	2	85.00	0.00	61.00
	3	121.00	16.00	0.00

Junction 2 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	10.00	226.00
	2	12.00	0.00	67.00
	3	144.00	51.00	0.00

Junction 2 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	254.00
	2	14.00	0.00	75.00
	3	144.00	98.00	0.00

Junction 2 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	2.00	248.00
	2	13.00	0.00	89.00
	3	132.00	76.00	0.00

Junction 2 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	171.00
	2	17.00	0.00	84.00
	3	128.00	78.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	4	3
	2	4	0	7
	3	5	5	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	11	2
	2	2	0	5
	3	4	5	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.80	12.28	0.0	B	272.88	1091.54
	2	1.54	405.10	66.3	F	109.75	439.00
	3	0.73	12.51	2.7	B	160.75	643.00
2	1	1.23	312.63	89.0	F	230.25	921.00
	2	1.57	1193.57	102.5	F	92.75	371.00
	3	0.62	6.23	0.0	A	202.88	811.51

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	268.52	268.52	27.76	339.90	0.790	268.52	190.73	0.0	0.0	11.893	B
	2	93.00	93.00	142.05	111.56	0.834	88.90	154.23	0.0	4.1	36.797	E
	3	150.00	150.00	69.78	270.29	0.555	148.72	161.17	0.0	1.3	7.694	A
2	1	236.00	236.00	49.88	240.49	0.981	222.97	150.70	0.0	13.0	39.296	E
	2	79.00	79.00	213.52	69.63	1.135	64.84	59.33	0.0	14.2	122.193	F
	3	190.73	190.73	9.85	387.93	0.492	190.73	268.52	0.0	0.0	4.711	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	267.10	267.10	27.85	339.82	0.786	267.10	238.96	0.0	0.0	11.709	B
	2	95.00	95.00	151.82	105.51	0.900	92.83	143.14	4.1	6.3	62.899	F
	3	194.00	194.00	74.20	266.76	0.727	192.62	170.45	1.3	2.7	12.514	B
2	1	259.00	259.00	96.77	210.03	1.233	209.09	153.74	13.0	62.9	173.994	F
	2	89.00	89.00	204.75	74.62	1.193	73.90	101.11	14.2	29.3	299.321	F
	3	238.96	238.96	11.55	386.46	0.618	238.96	267.10	0.0	0.0	6.232	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	277.34	277.34	20.20	345.77	0.802	277.34	204.72	0.0	0.0	12.279	B
	2	105.00	105.00	159.65	100.66	1.043	96.55	137.88	6.3	14.7	120.917	F
	3	162.00	162.00	61.76	276.68	0.586	163.15	194.44	2.7	1.5	8.405	A
2	1	250.00	250.00	74.80	224.30	1.115	223.98	139.08	62.9	89.0	312.626	F
	2	102.00	102.00	221.48	65.11	1.567	65.02	77.30	29.3	66.2	685.186	F
	3	204.72	204.72	9.16	388.52	0.527	204.72	277.33	0.0	0.0	5.047	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	278.58	278.58	16.07	348.98	0.798	278.58	177.10	0.0	0.0	11.987	B
	2	146.00	146.00	169.33	94.67	1.542	94.43	125.32	14.7	66.3	405.098	F
	3	137.00	137.00	55.66	281.55	0.487	137.51	208.10	1.5	1.0	6.585	A
2	1	176.00	176.00	67.06	229.33	0.767	226.73	118.29	89.0	38.2	255.665	F
	2	101.00	101.00	222.11	64.75	1.560	64.72	71.68	66.2	102.5	1193.565	F
	3	177.10	177.10	8.25	389.31	0.455	177.10	278.58	0.0	0.0	4.391	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Development PM.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Station Rd_Thornhill Rd\Direct Models
Report generation date: 30/11/2016 15:38:00

»Base + Committed Development, PM
»Base + Committed + Cumulative Development, PM

Summary of junction performance

	PM			
	Q (PCU)	Delay (s)	RFC	LOS
	Base + Committed Development			
Junction 1 - Arm 1	0.0	6.86	0.62	A
Junction 1 - Arm 2	147.7	918.48	1.46	F
Junction 1 - Arm 3	4.5	21.18	0.83	C
Junction 2 - Arm 1	4.3	20.92	0.83	C
Junction 2 - Arm 2	5.4	60.29	0.87	F
Junction 2 - Arm 3	0.0	9.47	0.76	A
	Base + Committed + Cumulative Development			
Junction 1 - Arm 1	0.0	7.03	0.63	A
Junction 1 - Arm 2	163.8	1024.45	1.50	F
Junction 1 - Arm 3	4.8	21.93	0.84	C
Junction 2 - Arm 1	4.6	22.12	0.84	C
Junction 2 - Arm 2	6.2	68.46	0.89	F
Junction 2 - Arm 3	0.0	9.62	0.77	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

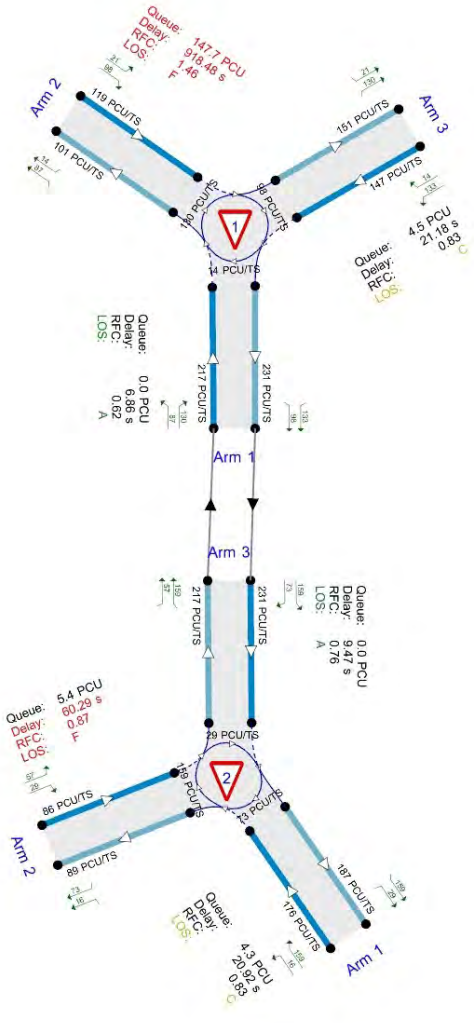
File summary

File Description

Title	Forge Ln / Station Rd / Thornhill Rd double-mini
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin



Flows show modelled flow through junction (PCU/TS).
Time Segment: 17:00-17:15

The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Base + Committed Development	PM	DIRECT	16:30	17:30	60	15	✓
D6	Base + Committed + Cumulative Development	PM	DIRECT	16:30	17:30	60	15	✓

Analysis Set Details

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

Base + Committed Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	282.26	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	20.88	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	Link	
	2	Thornhill Rd	
	3	Savile Rd	
2	1	Station Rd	
	2	Forge Lane	
	3	Link	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	7.65	7.65	8.10	2.0	10.00	7.50	0.0	
	2	3.00	3.00	6.30	3.0	13.80	9.00	0.0	
	3	3.00	3.00	4.00	5.0	19.50	19.00	0.0	
2	1	3.20	3.20	5.25	13.0	11.50	6.40	0.0	
	2	3.55	3.55	4.80	2.0	13.00	10.00	5.0	
	3	7.25	7.25	7.25	0.0	18.00	18.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1	1	0.777	361.473
	2	0.619	199.488
	3	0.798	325.942
2	1	0.650	272.899
	2	0.569	191.077
	3	0.863	396.431

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Base + Committed Development	PM	DIRECT	16:30	17:30	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Demand (PCU/TS)

Junction 1 16:30 - 16:45

		To		
		1	2	3
From	1	0.00	70.00	129.00
	2	122.00	0.00	16.00
	3	171.00	22.00	0.00

Demand (PCU/TS)

Junction 1 16:45 - 17:00

		To		
		1	2	3
From	1	0.00	78.00	140.00
	2	128.00	0.00	35.00
	3	161.00	18.00	0.00

Junction 1 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	87.00	130.00
	2	154.00	0.00	20.00
	3	132.00	14.00	0.00

Junction 1 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	56.00	100.00
	2	138.00	0.00	19.00
	3	177.00	14.00	0.00

Junction 2 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	14.00	139.00
	2	16.00	0.00	60.00
	3	214.00	79.00	0.00

Junction 2 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	20.00	167.00
	2	31.00	0.00	51.00
	3	207.00	82.00	0.00

Junction 2 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	16.00	159.00
	2	29.00	0.00	58.00
	3	196.00	90.00	0.00

Junction 2 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	16.00	110.00
	2	12.00	0.00	46.00
	3	212.00	103.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	6	2
	2	1	0	5
	3	6	1	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	9	0	6
	3	1	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.62	6.86	0.0	A	196.98	787.91
	2	1.46	918.48	147.7	F	158.00	632.00
	3	0.83	21.18	4.5	C	177.25	709.00
2	1	0.83	20.92	4.3	C	160.25	641.00
	2	0.87	60.29	5.4	F	75.75	303.00
	3	0.76	9.47	0.0	A	262.26	1049.02

Main Results for each time segment

16:30 - 16:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	195.55	195.55	21.59	344.70	0.567	195.55	270.11	0.0	0.0	6.129	A
	2	138.00	138.00	126.76	121.02	1.140	115.75	90.37	0.0	22.3	104.359	F
	3	193.00	193.00	102.33	244.33	0.790	189.37	140.18	0.0	3.6	16.331	C
2	1	153.00	153.00	72.83	225.58	0.678	150.95	212.86	0.0	2.0	11.911	B
	2	76.00	76.00	137.14	113.08	0.672	73.98	86.64	0.0	2.0	23.492	C
	3	270.11	270.11	15.58	382.98	0.705	270.11	195.55	0.0	0.0	7.779	A

16:45 - 17:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	214.91	214.91	18.15	347.37	0.619	214.91	253.42	0.0	0.0	6.859	A
	2	163.00	163.00	138.02	114.06	1.429	113.85	95.04	22.3	71.4	380.462	F
	3	179.00	179.00	91.60	252.88	0.708	179.97	160.26	3.6	2.7	13.197	B
2	1	187.00	187.00	71.91	226.18	0.827	184.76	211.29	2.0	4.3	20.925	C
	2	82.00	82.00	165.03	97.21	0.844	79.65	91.63	2.0	4.4	49.101	E
	3	253.42	253.42	29.77	370.73	0.684	253.42	214.91	0.0	0.0	7.525	A

17:00 - 17:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	216.56	216.56	14.12	350.50	0.618	216.56	231.32	0.0	0.0	6.795	A
	2	174.00	174.00	129.74	119.18	1.460	119.14	100.94	71.4	126.3	715.353	F
	3	146.00	146.00	98.32	247.52	0.590	147.11	150.55	2.7	1.6	9.557	A
2	1	175.00	175.00	72.79	225.60	0.776	175.56	187.37	4.3	3.7	18.494	C
	2	87.00	87.00	159.45	100.39	0.867	85.96	88.91	4.4	5.4	60.290	F
	3	231.32	231.32	28.85	371.52	0.623	231.32	216.56	0.0	0.0	6.377	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	160.90	160.90	13.82	350.73	0.459	160.90	294.18	0.0	0.0	4.859	A
	2	157.00	157.00	103.14	135.65	1.157	135.60	71.58	126.3	147.7	918.483	F
	3	191.00	191.00	119.95	230.27	0.829	188.04	118.78	1.6	4.5	21.176	C
2	1	126.00	126.00	96.19	210.40	0.599	128.17	211.60	3.7	1.6	11.371	B
	2	58.00	58.00	112.02	127.36	0.455	62.48	112.33	5.4	0.9	15.759	C
	3	294.18	294.18	13.61	384.68	0.765	294.18	160.90	0.0	0.0	9.473	A

Base + Committed + Cumulative Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	313.98	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	22.65	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	Base + Committed + Cumulative Development	PM	DIRECT	16:30	17:30	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Junction 1 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	72.00	130.00
	2	125.00	0.00	16.00
	3	174.00	22.00	0.00

Junction 1 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	80.00	142.00
	2	131.00	0.00	35.00
	3	164.00	18.00	0.00

Junction 1 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	88.00	132.00
	2	157.00	0.00	20.00
	3	136.00	14.00	0.00

Junction 1 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	59.00	103.00
	2	141.00	0.00	19.00
	3	180.00	14.00	0.00

Junction 2 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	14.00	141.00
	2	16.00	0.00	61.00
	3	218.00	81.00	0.00

Junction 2 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	20.00	169.00
	2	31.00	0.00	53.00
	3	211.00	84.00	0.00

Junction 2 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	16.00	161.00
	2	29.00	0.00	59.00
	3	200.00	93.00	0.00

Junction 2 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	16.00	114.00
	2	12.00	0.00	48.00
	3	216.00	105.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	6	2
	2	1	0	5
	3	6	1	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	9	0	6
	3	1	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.63	7.03	0.0	A	200.92	803.70
	2	1.50	1024.45	163.8	F	161.00	644.00
	3	0.84	21.93	4.8	C	180.50	722.00
2	1	0.84	22.12	4.6	C	162.75	651.00
	2	0.89	68.46	6.2	F	77.25	309.00
	3	0.77	9.62	0.0	A	264.80	1059.18

Main Results for each time segment

16:30 - 16:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	198.34	198.34	21.56	344.71	0.575	198.34	273.21	0.0	0.0	6.242	A
	2	141.00	141.00	127.65	120.48	1.170	115.81	92.26	0.0	25.2	115.308	F
	3	196.00	196.00	102.67	244.06	0.803	192.10	140.79	0.0	3.9	17.169	C
2	1	155.00	155.00	74.01	224.81	0.689	152.85	214.75	0.0	2.2	12.324	B
	2	77.00	77.00	139.04	111.99	0.688	74.85	87.82	0.0	2.1	24.613	C
	3	273.21	273.21	15.55	383.00	0.713	273.21	198.34	0.0	0.0	7.978	A

16:45 - 17:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	218.35	218.35	18.16	347.36	0.629	218.35	256.44	0.0	0.0	7.032	A
	2	166.00	166.00	139.67	113.03	1.469	112.88	96.84	25.2	78.3	421.571	F
	3	182.00	182.00	91.53	252.94	0.720	183.07	161.01	3.9	2.8	13.802	B
2	1	189.00	189.00	73.02	225.46	0.838	186.56	212.99	2.2	4.6	22.123	C
	2	84.00	84.00	166.85	96.17	0.873	81.07	92.73	2.1	5.1	55.077	F
	3	256.44	256.44	29.57	370.90	0.691	256.44	218.35	0.0	0.0	7.696	A

17:00 - 17:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	219.50	219.49	14.13	350.49	0.626	219.50	234.01	0.0	0.0	6.939	A
	2	177.00	177.00	131.70	117.97	1.500	117.94	101.92	78.3	137.4	786.053	F
	3	150.00	150.00	96.95	248.62	0.603	151.19	152.69	2.8	1.6	9.861	A
2	1	177.00	177.00	74.28	224.64	0.788	177.57	188.56	4.6	4.0	19.696	C
	2	88.00	88.00	161.45	99.25	0.887	86.88	90.40	5.1	6.2	68.460	F
	3	234.01	234.01	28.83	371.54	0.630	234.01	219.50	0.0	0.0	6.493	A

17:15 - 17:30

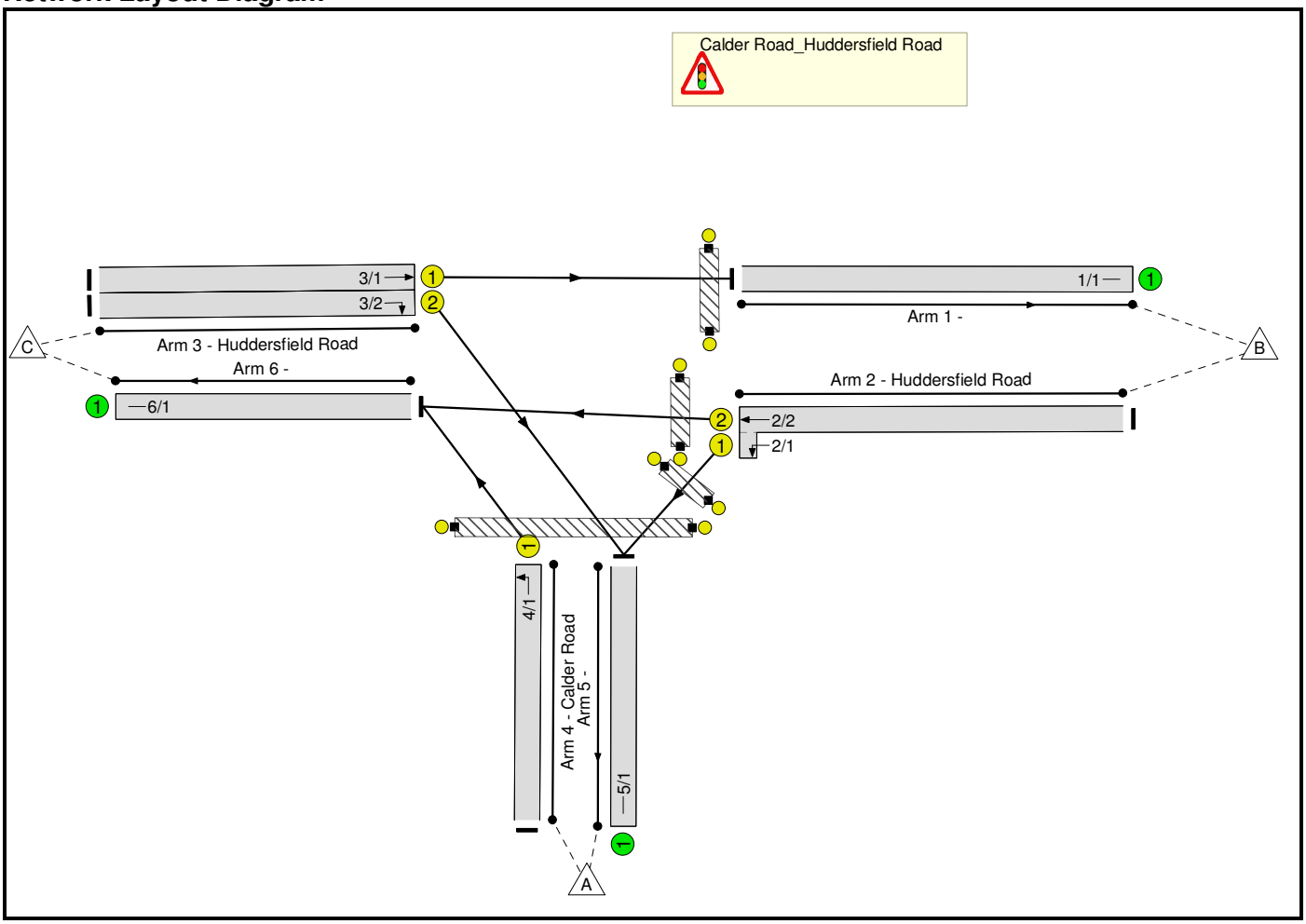
Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	167.51	167.51	13.81	350.74	0.478	167.51	295.53	0.0	0.0	5.029	A
	2	160.00	160.00	106.50	133.56	1.198	133.53	74.82	137.4	163.8	1024.452	F
	3	194.00	194.00	118.44	231.48	0.838	190.89	121.59	1.6	4.8	21.929	C
2	1	130.00	130.00	96.67	210.09	0.619	132.32	212.70	4.0	1.7	12.059	B
	2	60.00	60.00	116.17	125.00	0.480	65.18	112.82	6.2	1.0	17.347	C
	3	295.53	295.53	13.84	384.48	0.769	295.53	167.51	0.0	0.0	9.616	A

Full Input Data And Results

User and Project Details

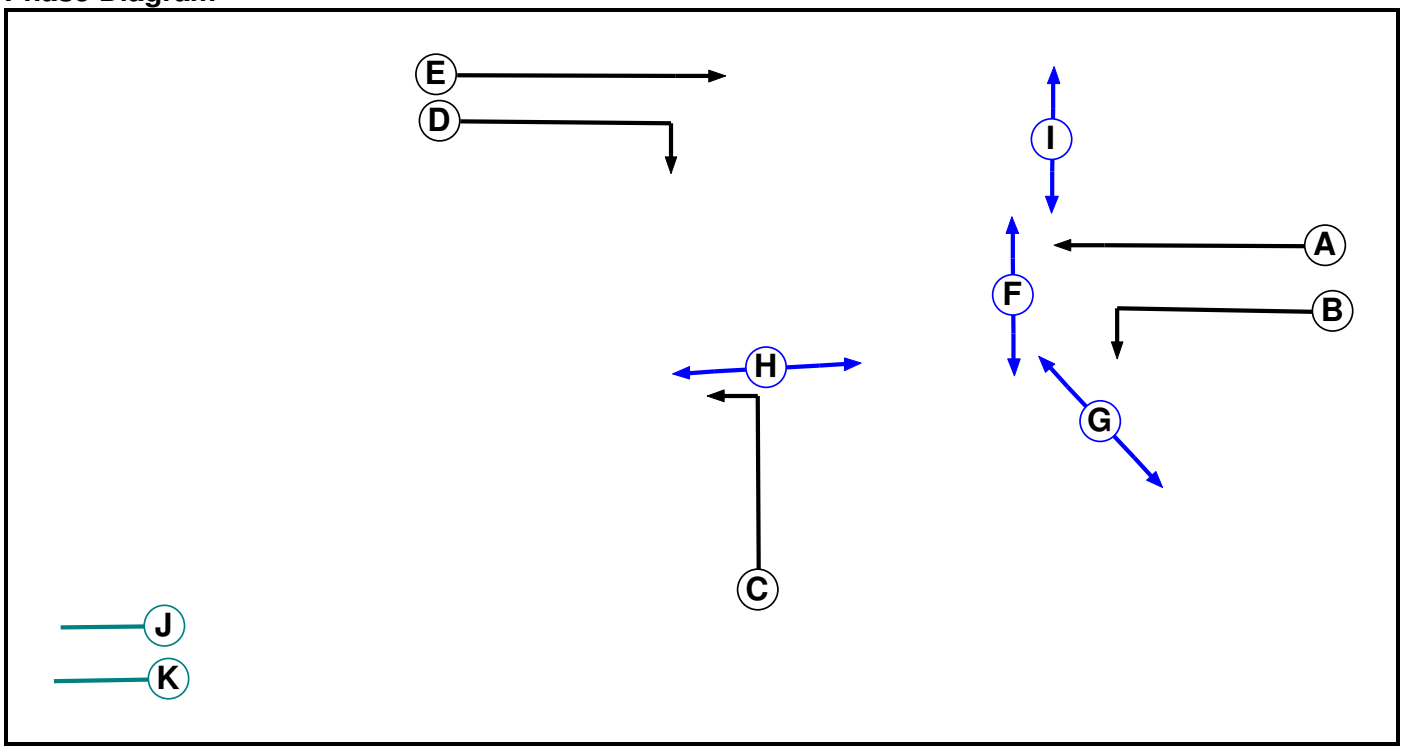
Project:	**Dewsbury**
Title:	**A644_Calder Road**
Location:	
File name:	A644 Hudersfield Rd 512-516 i-T.lsg3x
Author:	Jonathan
Company:	i-Transport
Address:	129 Centurion House, Deasgate, Mancester M3 3WR
Notes:	

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		5	5
G	Pedestrian		5	5
H	Pedestrian		8	8
I	Pedestrian		5	5
J	Dummy		2	2
K	Dummy		2	2

Full Input Data And Results

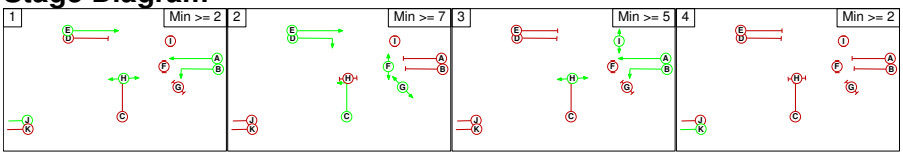
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		-	5	6	-	5	-	-	-	-	3
B	-		-	6	-	-	5	-	-	-	3
C	5	-		-	-	-	-	5	-	-	3
D	5	6	-		-	-	-	7	-	7	3
E	-	-	-	-		-	-	-	7	-	3
F	6	-	-	-	-		-	-	-	-	3
G	-	6	-	-	-	-		-	-	-	3
H	-	-	11	11	-	-	-		-	-	3
I	-	-	-	-	6	-	-	-		6	3
J	-	-	-	0	-	-	-	-	0		3
K	2	2	2	2	2	2	2	2	2	2	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	5	5
1	2	B	Losing	5	5
2	1	C	Losing	1	1
2	3	C	Losing	1	1
3	2	A	Losing	5	5
3	2	B	Losing	5	5

Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		11	7	3
	2	7		7	3
	3	6	11		3
	4	2	2	2	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Calder Road_Huddersfield Road
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Calder Road_Huddersfield Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/1 (Huddersfield Road)	U	B	2	3	1.0	Geom	-	5.00	0.00	Y	Arm 5 Left	35.00
2/2 (Huddersfield Road)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
3/1 (Huddersfield Road)	U	E	2	3	13.9	Geom	-	3.50	0.00	Y	Arm 1 Ahead	Inf
3/2 (Huddersfield Road)	U	D	2	3	13.9	Geom	-	3.50	0.00	Y	Arm 5 Right	12.00
4/1 (Calder Road)	U	C	2	3	60.0	Geom	-	4.10	0.00	Y	Arm 6 Left	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: 'Base + Committed + Cumulative Development'	07:45	08:45	01:00	
8: 'Base + Committed + Cumulative Development'	16:30	17:30	01:00	

Scenario 7: 'Base + Committed + Cumulative Development AM' (FG7: 'Base + Committed + Cumulative Development', Plan 1: 'AM')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	0	385	385
	B	65	0	883	948
	C	264	1079	0	1343
	Tot.	329	1079	1268	2676

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: Base + Committed + Cumulative Development AM
Junction: Calder Road_Huddersfield Road	
1/1	1079
2/1 (short)	65
2/2 (with short)	948(In) 883(Out)
3/1	1079
3/2	264
4/1	385
5/1	329
6/1	1268

Lane Saturation Flows

Junction: Calder Road_Huddersfield Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	Infinite Saturation Flow						Inf	Inf
2/1 (Huddersfield Road)	5.00	0.00	Y	Arm 5 Left	35.00	100.0 %	2028	2028
2/2 (Huddersfield Road)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
3/1 (Huddersfield Road)	3.50	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1965	1965
3/2 (Huddersfield Road)	3.50	0.00	Y	Arm 5 Right	12.00	100.0 %	1747	1747
4/1 (Calder Road)	4.10	0.00	Y	Arm 6 Left	Inf	100.0 %	2025	2025
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: 'Base + Committed + Cumulative Development PM' (FG8: 'Base + Committed + Cumulative Development', Plan 2: 'PM')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	0	297	297
	B	38	0	860	898
	C	270	930	0	1200
	Tot.	308	930	1157	2395

Full Input Data And Results

Traffic Lane Flows

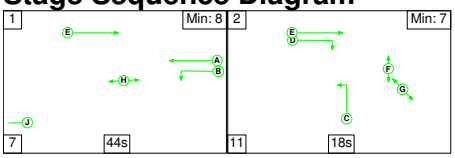
Lane	Scenario 8: Base + Committed + Cumulative Development PM
Junction: Calder Road_Huddersfield Road	
1/1	930
2/1 (short)	38
2/2 (with short)	898(In) 860(Out)
3/1	930
3/2	270
4/1	297
5/1	308
6/1	1157

Lane Saturation Flows

Junction: Calder Road_Huddersfield Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	Infinite Saturation Flow						Inf	Inf
2/1 (Huddersfield Road)	5.00	0.00	Y	Arm 5 Left	35.00	100.0 %	2028	2028
2/2 (Huddersfield Road)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
3/1 (Huddersfield Road)	3.50	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1965	1965
3/2 (Huddersfield Road)	3.50	0.00	Y	Arm 5 Right	12.00	100.0 %	1747	1747
4/1 (Calder Road)	4.10	0.00	Y	Arm 6 Left	Inf	100.0 %	2025	2025
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 7: 'Base + Committed + Cumulative Development AM' (FG7: 'Base + Committed + Cumulative Development', Plan 1: 'AM')

Stage Sequence Diagram

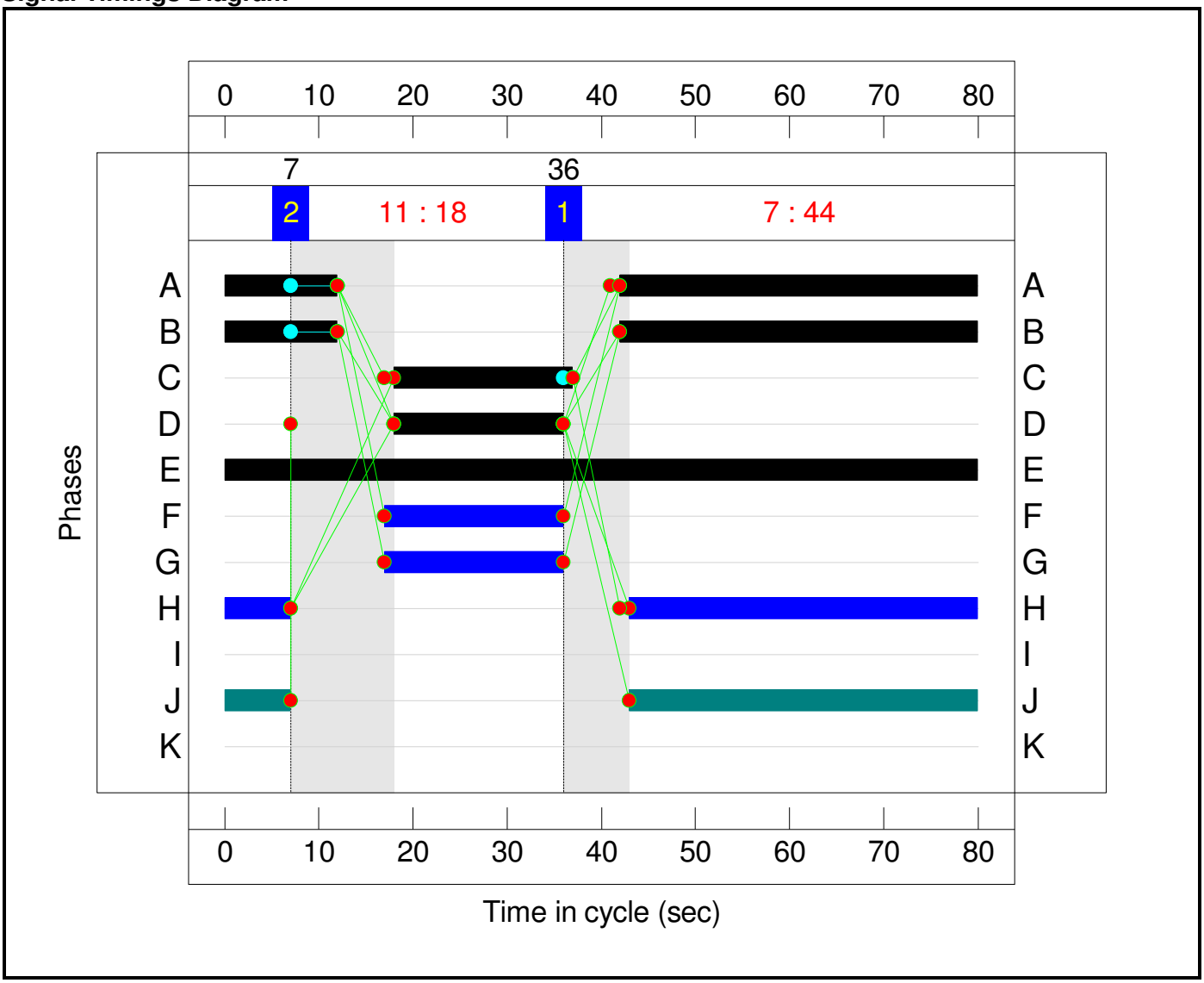


Stage Timings

Stage	1	2
Duration	44	18
Change Point	36	7

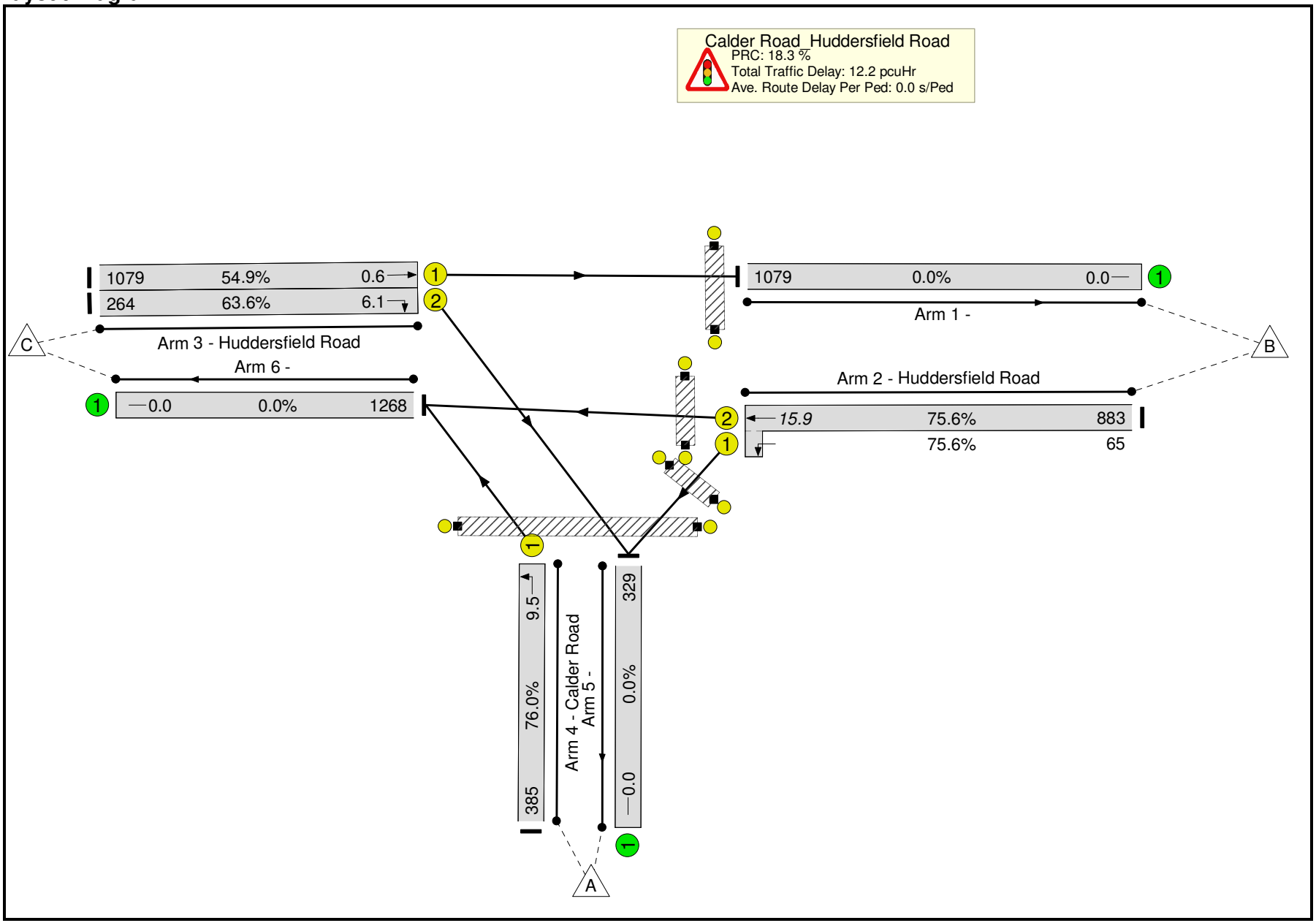
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A644_Calder Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.0%**
Calder Road_Huddersfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.0%**
1/1		U	N/A	N/A	-		-	-	-	1079	Inf	Inf	0.0%
2/2+2/1	Huddersfield Road Left Ahead	U	N/A	N/A	A B		1	50	-	948	1965:2028	1168+86	75.6 : 75.6%
3/1	Huddersfield Road Ahead	U	N/A	N/A	E		1	80	-	1079	1965	1965	54.9%
3/2	Huddersfield Road Right	U	N/A	N/A	D		1	18	-	264	1747	415	63.6%
4/1	Calder Road Left	U	N/A	N/A	C		1	19	-	385	2025	506	76.0%
5/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1268	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	44	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	19	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	19	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		0	0	-	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: A644_Calder Road	**-**	**-**	**0**	**0**	**0**	**7.7**	**4.6**	**0.0**	**12.2**	**-**	**-**	**-**	**-**
Calder Road_Huddersfield Road	**-**	**-**	**0**	**0**	**0**	**7.7**	**4.6**	**0.0**	**12.2**	**-**	**-**	**-**	**-**
1/1	1079	1079	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	948	948	-	-	-	2.7	1.5	-	4.2	16.0	14.4	1.5	15.9
3/1	1079	1079	-	-	-	0.0	0.6	-	0.6	2.0	0.0	0.6	0.6
3/2	264	264	-	-	-	2.0	0.9	-	2.9	39.2	5.2	0.9	6.1
4/1	385	385	-	-	-	3.0	1.5	-	4.5	42.3	7.9	1.5	9.5
5/1	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1268	1268	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1

PRC for Signalled Lanes (%): 18.3
PRC Over All Lanes (%): 18.3

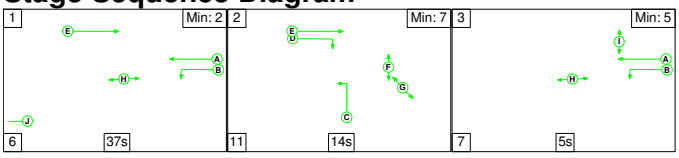
Total Delay for Signalled Lanes (pcuHr): 12.21
Total Delay Over All Lanes(pcuHr): 12.21

Cycle Time (s): 80

Full Input Data And Results

Scenario 8: 'Base + Committed + Cumulative Development PM' (FG8: 'Base + Committed + Cumulative Development', Plan 2: 'PM')

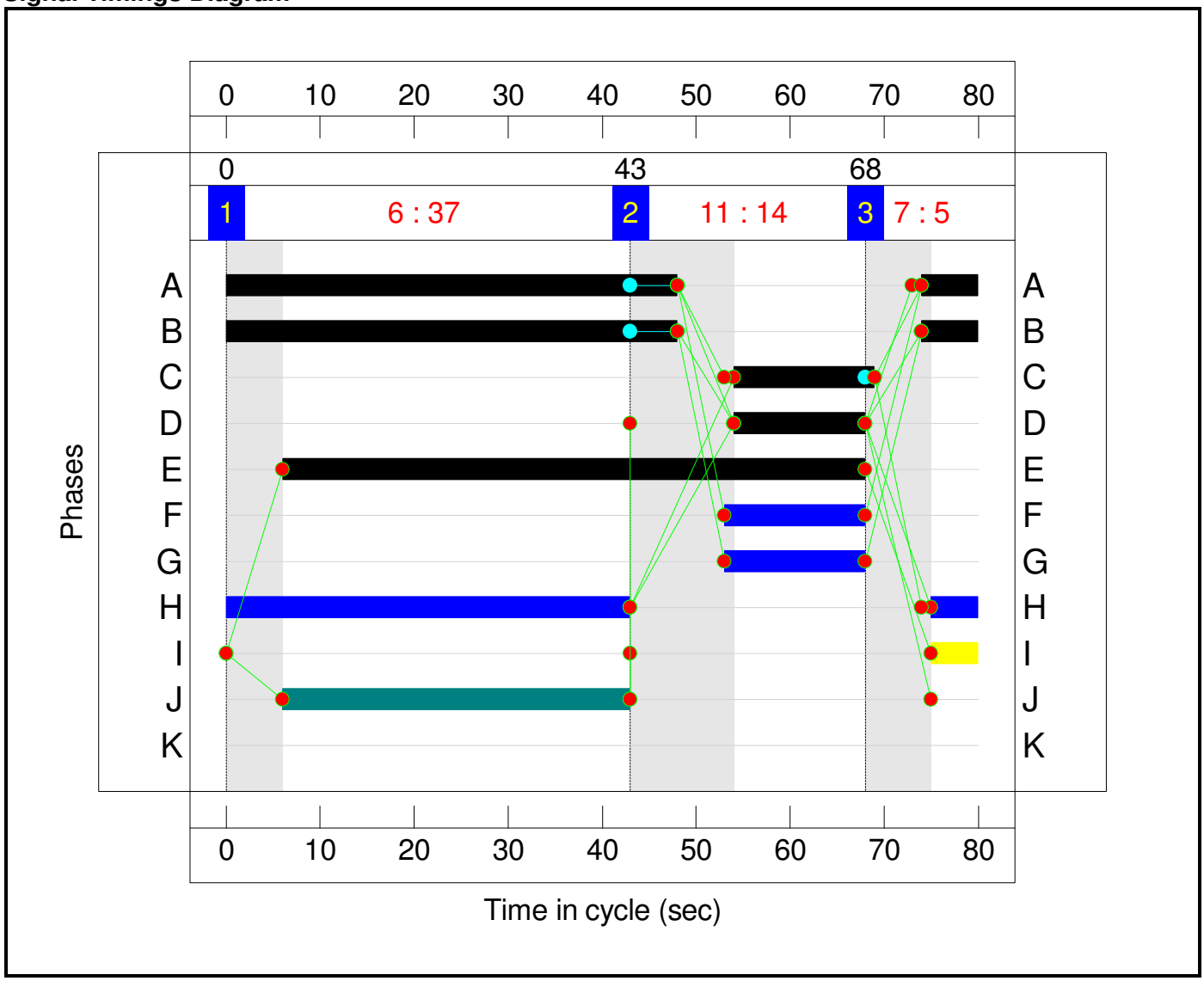
Stage Sequence Diagram



Stage Timings

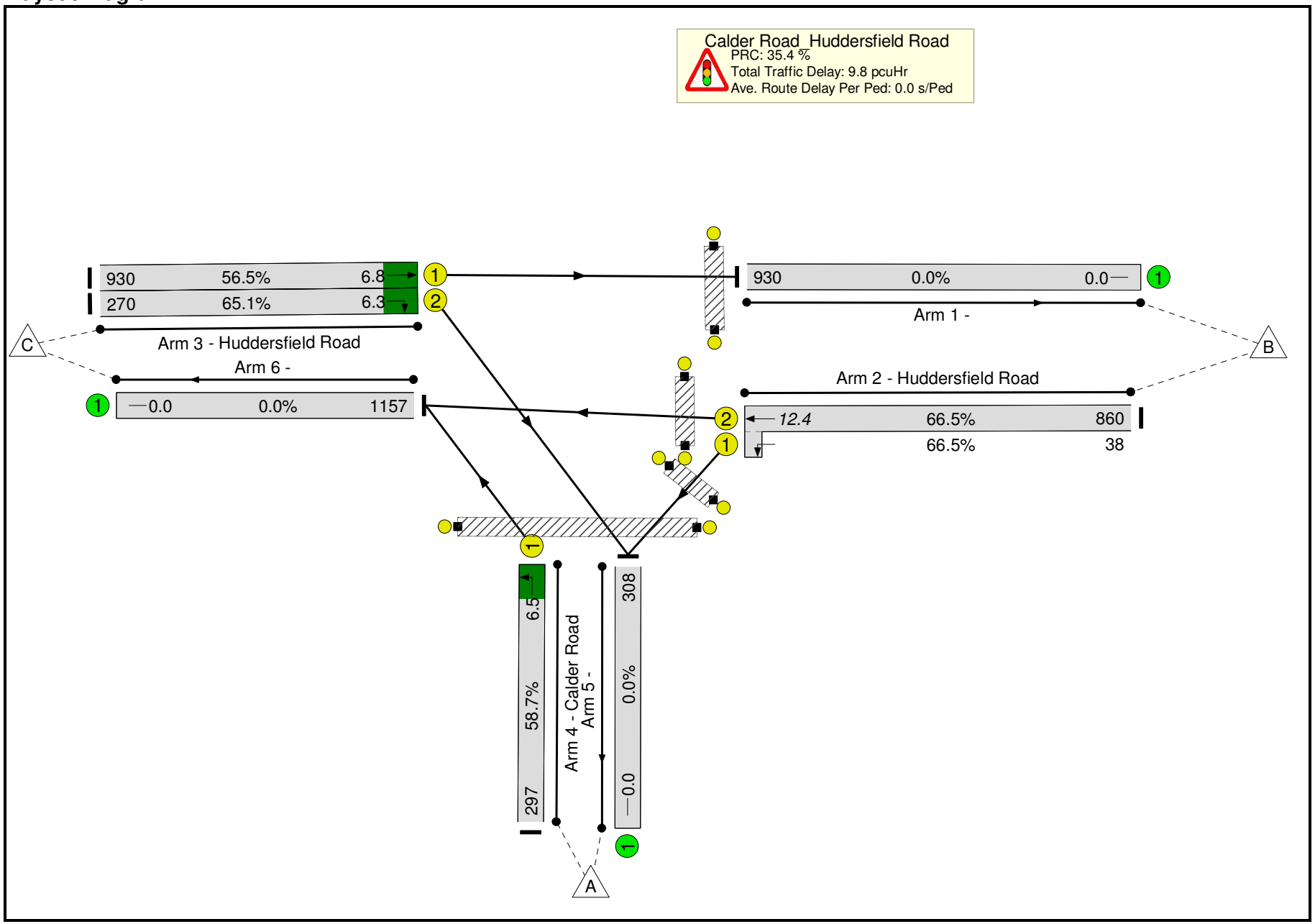
Stage	1	2	3
Duration	37	14	5
Change Point	0	43	68

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A644_Calder Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.5%**
Calder Road_Huddersfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.5%**
1/1		U	N/A	N/A	-		-	-	-	930	Inf	Inf	0.0%
2/2+2/1	Huddersfield Road Left Ahead	U	N/A	N/A	A B		1	54	-	898	1965:2028	1293+57	66.5 : 66.5%
3/1	Huddersfield Road Ahead	U	N/A	N/A	E		1	62	-	930	1965	1646	56.5%
3/2	Huddersfield Road Right	U	N/A	N/A	D		1	14	-	270	1747	415	65.1%
4/1	Calder Road Left	U	N/A	N/A	C		1	15	-	297	2025	506	58.7%
5/1		U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1157	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	48	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	15	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		1	5	-	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: A644_Calder Road	**-**	**-**	**0**	**0**	**0**	**6.6**	**3.3**	**0.0**	**9.8**	**-**	**-**	**-**	**-**
Calder Road_Huddersfield Road	**-**	**-**	**0**	**0**	**0**	**6.6**	**3.3**	**0.0**	**9.8**	**-**	**-**	**-**	**-**
1/1	930	930	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	898	898	-	-	-	1.8	1.0	-	2.8	11.2	11.4	1.0	12.4
3/1	930	930	-	-	-	0.5	0.6	-	1.2	4.5	6.2	0.6	6.8
3/2	270	270	-	-	-	2.1	0.9	-	3.0	39.8	5.4	0.9	6.3
4/1	297	297	-	-	-	2.2	0.7	-	2.9	34.9	5.8	0.7	6.5
5/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1157	1157	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 35.4
PRC Over All Lanes (%): 35.4

Total Delay for Signalled Lanes (pcuHr): 9.82
Total Delay Over All Lanes(pcuHr): 9.82

Cycle Time (s): 80

APPENDIX O **Cumulative Development Sensitivity Test junction Capacity Assessment Outputs**

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: Cumulative Dev Sensitivity Test.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Picady\Lees Hall Road_Site Access
Report generation date: 17/11/2016 08:49:42

»Base + Committed + Cumulative Development - Sensitivity, AM
»Base + Committed + Cumulative Development - Sensitivity, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
	Base + Committed + Cumulative Development - Sensitivity											
Stream B-C	0.1	6.68	0.07	A	0.68	198 % [Stream B-A]	0.0	6.18	0.03	A	0.73	240 % [Stream B-A]
Stream B-A	0.0	10.01	0.02	B			0.0	9.62	0.01	A		
Stream C-AB	0.0	5.79	0.03	A			0.1	5.77	0.07	A		

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

File summary

File Description

Title	Lees Hall Road Site Access
Location	Dewsbury
Site number	
Date	10/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Base + Committed + Cumulative Development - Sensitivity, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.68	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	198	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	Lees Hall Road (East)		Major
B	Site Access		Minor
C	Lees Hall Road (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.60			65.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	4.70	3.40	3.40	3.40	✓	1.00	17	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	488	0.087	0.219	0.138	0.313
1	B-C	686	0.102	0.259	-	-
1	C-B	612	0.231	0.231	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	370	100.000
B		ONE HOUR	✓	43	100.000
C		ONE HOUR	✓	190	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	367
	B	8	0	35
	C	178	12	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.07	6.68	0.1	A	32	48
B-A	0.02	10.01	0.0	B	7	11
C-AB	0.03	5.79	0.0	A	15	22
C-A					159	239
A-B					3	4
A-C					337	505

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	26	7	612	0.043	26	0.0	0.0	6.146	A
B-A	6	2	406	0.015	6	0.0	0.0	8.989	A
C-AB	11	3	641	0.018	11	0.0	0.0	5.778	A
C-A	132	33			132				
A-B	2	0.56			2				
A-C	276	69			276				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	31	8	597	0.053	31	0.0	0.1	6.361	A
B-A	7	2	390	0.018	7	0.0	0.0	9.392	A
C-AB	14	4	647	0.022	14	0.0	0.0	5.749	A
C-A	156	39			156				
A-B	3	0.67			3				
A-C	330	82			330				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	39	10	577	0.067	38	0.1	0.1	6.680	A
B-A	9	2	368	0.024	9	0.0	0.0	10.010	B
C-AB	19	5	657	0.029	19	0.0	0.0	5.714	A
C-A	190	48			190				
A-B	3	0.83			3				
A-C	404	101			404				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	39	10	577	0.067	39	0.1	0.1	6.680	A
B-A	9	2	368	0.024	9	0.0	0.0	10.010	B
C-AB	19	5	657	0.029	19	0.0	0.0	5.723	A
C-A	190	48			190				
A-B	3	0.83			3				
A-C	404	101			404				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	31	8	597	0.053	32	0.1	0.1	6.365	A
B-A	7	2	390	0.018	7	0.0	0.0	9.394	A
C-AB	14	4	647	0.022	14	0.0	0.0	5.764	A
C-A	156	39			156				
A-B	3	0.67			3				
A-C	330	82			330				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	26	7	612	0.043	26	0.1	0.0	6.152	A
B-A	6	2	406	0.015	6	0.0	0.0	8.991	A
C-AB	11	3	641	0.018	11	0.0	0.0	5.786	A
C-A	132	33			132				
A-B	2	0.56			2				
A-C	276	69			276				

Base + Committed + Cumulative Development - Sensitivity, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.73	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	240	Stream B-A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	291	100.000
B		ONE HOUR	✓	23	100.000
C		ONE HOUR	✓	223	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	284
	B	4	0	19
	C	193	30	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.03	6.18	0.0	A	17	26
B-A	0.01	9.62	0.0	A	4	6
C-AB	0.07	5.77	0.1	A	38	57
C-A					167	250
A-B					6	10
A-C					261	391

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	629	0.023	14	0.0	0.0	5.851	A
B-A	3	0.75	413	0.007	3	0.0	0.0	8.783	A
C-AB	29	7	661	0.044	29	0.0	0.1	5.752	A
C-A	139	35			139				
A-B	5	1			5				
A-C	214	53			214				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	17	4	618	0.028	17	0.0	0.0	5.987	A
B-A	4	0.90	398	0.009	4	0.0	0.0	9.117	A
C-AB	36	9	672	0.054	36	0.1	0.1	5.735	A
C-A	164	41			164				
A-B	6	2			6				
A-C	255	64			255				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	21	5	603	0.035	21	0.0	0.0	6.184	A
B-A	4	1	378	0.012	4	0.0	0.0	9.622	A
C-AB	48	12	687	0.070	48	0.1	0.1	5.715	A
C-A	198	49			198				
A-B	8	2			8				
A-C	313	78			313				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	21	5	603	0.035	21	0.0	0.0	6.184	A
B-A	4	1	378	0.012	4	0.0	0.0	9.623	A
C-AB	48	12	687	0.070	48	0.1	0.1	5.724	A
C-A	198	49			198				
A-B	8	2			8				
A-C	313	78			313				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	17	4	618	0.028	17	0.0	0.0	5.990	A
B-A	4	0.90	398	0.009	4	0.0	0.0	9.118	A
C-AB	36	9	672	0.054	37	0.1	0.1	5.753	A
C-A	164	41			164				
A-B	6	2			6				
A-C	255	64			255				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	629	0.023	14	0.0	0.0	5.852	A
B-A	3	0.75	413	0.007	3	0.0	0.0	8.786	A
C-AB	29	7	661	0.044	29	0.1	0.1	5.766	A
C-A	139	35			139				
A-B	5	1			5				
A-C	214	53			214				

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Dev Sensitivity Test.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Brewery Lane_Lees Hall Road
Report generation date: 17/11/2016 11:53:11

»Base + Committed + Cumulative Development - Sensitivity, AM
»Base + Committed + Cumulative Development - Sensitivity, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
	Base + Committed + Cumulative Development - Sensitivity											
Arm 1	0.8	6.88	0.45	A	6.31	91 % [Arm 1]	0.5	5.65	0.34	A	5.60	149 % [Arm 1]
Arm 2	0.4	5.83	0.30	A			0.5	5.77	0.31	A		
Arm 3	0.2	5.25	0.14	A			0.2	5.12	0.17	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	Brewery Lane / Lees Hall Road
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75			✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓
D6	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

Base + Committed + Cumulative Development - Sensitivity, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	1,2,3	6.31	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		91	Arm 1

Arms

Arms

Arm	Name	Description
1	Lees Hall Road (east)	
2	Lees Hall Road (west)	
3	Brewery Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.40	3.40	3.40	0.0	15.60	15.60	0.0	
2	3.50	3.50	4.40	0.4	8.00	4.16	0.0	
3	4.60	4.60	4.60	0.0	9.70	5.50	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.639	1027
2	0.614	967
3	0.651	954

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	400	100.000
2		ONE HOUR	✓	245	100.000
3		ONE HOUR	✓	109	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	302	98
	2	147	0	98
	3	43	66	0

Vehicle Mix

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	3	0	1
	3	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.45	6.88	0.8	A	367	551
2	0.30	5.83	0.4	A	225	337
3	0.14	5.25	0.2	A	100	150

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	301	75	49	995	0.303	299	142	0.0	0.4	5.329	A
2	184	46	73	922	0.200	183	275	0.0	0.3	4.976	A
3	82	21	110	883	0.093	82	147	0.0	0.1	4.779	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	360	90	59	989	0.364	359	171	0.4	0.6	5.896	A
2	220	55	88	913	0.241	220	330	0.3	0.3	5.306	A
3	98	24	132	868	0.113	98	176	0.1	0.1	4.970	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	440	110	73	980	0.449	439	209	0.6	0.8	6.858	A
2	270	67	108	901	0.299	269	404	0.3	0.4	5.822	A
3	120	30	162	849	0.141	120	215	0.1	0.2	5.250	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	440	110	73	980	0.449	440	209	0.8	0.8	6.883	A
2	270	67	108	901	0.300	270	405	0.4	0.4	5.830	A
3	120	30	162	849	0.141	120	216	0.2	0.2	5.253	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	360	90	59	989	0.364	361	171	0.8	0.6	5.927	A
2	220	55	88	913	0.241	221	332	0.4	0.3	5.319	A
3	98	24	132	868	0.113	98	177	0.2	0.1	4.974	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	301	75	50	995	0.303	302	143	0.6	0.5	5.367	A
2	184	46	74	922	0.200	185	278	0.3	0.3	4.996	A
3	82	21	111	882	0.093	82	148	0.1	0.1	4.787	A

Base + Committed + Cumulative Development - Sensitivity, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	1,2,3	5.60	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		149	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	303	100.000
2		ONE HOUR	✓	261	100.000
3		ONE HOUR	✓	129	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	232	71
	2	153	0	108
	3	70	59	0

Vehicle Mix

HV %s

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.34	5.65	0.5	A	278	417
2	0.31	5.77	0.5	A	239	359
3	0.17	5.12	0.2	A	118	178

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	228	57	44	999	0.228	227	167	0.0	0.3	4.765	A
2	196	49	53	934	0.210	195	218	0.0	0.3	4.922	A
3	97	24	115	880	0.110	97	134	0.0	0.1	4.594	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	272	68	53	993	0.274	272	200	0.3	0.4	5.105	A
2	235	59	64	928	0.253	234	261	0.3	0.3	5.249	A
3	116	29	137	865	0.134	116	161	0.1	0.2	4.806	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	334	83	65	985	0.339	333	245	0.4	0.5	5.640	A
2	287	72	78	919	0.313	287	320	0.3	0.5	5.758	A
3	142	36	168	845	0.168	142	197	0.2	0.2	5.119	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	334	83	65	985	0.339	334	246	0.5	0.5	5.649	A
2	287	72	78	919	0.313	287	320	0.5	0.5	5.765	A
3	142	36	168	845	0.168	142	197	0.2	0.2	5.123	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	272	68	53	993	0.274	273	201	0.5	0.4	5.118	A
2	235	59	64	928	0.253	235	262	0.5	0.3	5.263	A
3	116	29	138	865	0.134	116	161	0.2	0.2	4.810	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	228	57	44	998	0.228	228	168	0.4	0.3	4.784	A
2	196	49	54	934	0.210	197	219	0.3	0.3	4.941	A
3	97	24	115	879	0.110	97	135	0.2	0.1	4.605	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Dev Sensitivity Test.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Lees Hall Rd
Report generation date: 17/11/2016 12:06:23

»Base + Committed Development - Sensitivity, AM
»Base + Committed Development - Sensitivity, PM
»Base + Committed + Cumulative Development - Sensitivity, AM
»Base + Committed + Cumulative Development - Sensitivity, PM

Summary of junction performance

	AM						PM					
	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
Base + Committed Development - Sensitivity												
Arm A	0.8	7.26	0.43	A	8.67	31 % [Arm B]	0.9	7.92	0.47	A	7.44	68 % [Arm A]
Arm B	1.5	12.27	0.60	B			0.7	8.19	0.40	A		
Arm C	0.7	6.13	0.41	A			1.0	6.62	0.48	A		
Base + Committed + Cumulative Development - Sensitivity												
Arm A	0.8	7.47	0.44	A	9.20	26 % [Arm B]	1.0	8.31	0.49	A	7.83	61 % [Arm A]
Arm B	1.7	13.31	0.63	B			0.8	8.66	0.43	A		
Arm C	0.8	6.41	0.44	A			1.1	6.96	0.51	A		

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

File summary

File Description

Title	Forge Lane_Lees Hall Road
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75			✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed Development - Sensitivity	PM	ONE HOUR	16:15	17:45	15	✓
D3	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

Base + Committed Development - Sensitivity, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	8.67	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		31	Arm B

Arms

Arms

Arm	Name	Description
A	Forge Lane	
B	Lees Hall Road (E)	
C	Lees Hall Road (W)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.65	3.65	5.00	5.0	9.30	9.00	0.0	
B	3.25	3.25	3.25	0.0	13.50	15.00	0.0	
C	3.25	3.25	5.25	7.0	9.50	9.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.643	1018
B	0.624	958
C	0.640	1123

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	356	100.000
B		ONE HOUR	✓	410	100.000
C		ONE HOUR	✓	385	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	57	299
	B	125	0	285
	C	230	155	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	4
	C	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.43	7.26	0.8	A	327	490
B	0.60	12.27	1.5	B	376	564
C	0.41	6.13	0.7	A	353	530

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	268	67	116	944	0.284	266	266	0.0	0.4	5.524	A
B	309	77	224	818	0.377	306	159	0.0	0.6	7.187	A
C	290	72	93	1063	0.273	288	437	0.0	0.4	4.826	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	320	80	139	929	0.345	320	319	0.4	0.5	6.150	A
B	369	92	268	791	0.466	368	190	0.6	0.9	8.721	A
C	346	87	112	1051	0.329	346	524	0.4	0.5	5.308	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	392	98	170	909	0.431	391	390	0.5	0.8	7.231	A
B	451	113	328	753	0.599	449	233	0.9	1.5	12.066	B
C	424	106	137	1035	0.410	423	641	0.5	0.7	6.112	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	392	98	171	908	0.431	392	391	0.8	0.8	7.259	A
B	451	113	329	753	0.600	451	233	1.5	1.5	12.268	B
C	424	106	138	1035	0.410	424	643	0.7	0.7	6.134	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	320	80	140	928	0.345	321	320	0.8	0.6	6.184	A
B	369	92	270	790	0.467	371	191	1.5	0.9	8.883	A
C	346	87	113	1050	0.330	347	527	0.7	0.5	5.332	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	268	67	117	943	0.284	269	268	0.6	0.4	5.563	A
B	309	77	226	817	0.378	310	160	0.9	0.6	7.304	A
C	290	72	94	1062	0.273	290	441	0.5	0.4	4.858	A

Base + Committed Development - Sensitivity, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	7.44	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		68	Arm A

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	378	100.000
B		ONE HOUR	✓	278	100.000
C		ONE HOUR	✓	473	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	84	294
	B	57	0	221
	C	286	187	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	1	4
	B	0	0	3
	C	5	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.47	7.92	0.9	A	347	520
B	0.40	8.19	0.7	A	255	383
C	0.48	6.62	1.0	A	434	651

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	285	71	140	928	0.307	283	257	0.0	0.5	5.747	A
B	209	52	220	821	0.255	208	203	0.0	0.3	6.000	A
C	356	89	43	1095	0.325	354	385	0.0	0.5	5.008	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	340	85	168	910	0.373	339	308	0.5	0.6	6.506	A
B	250	62	264	793	0.315	249	243	0.3	0.5	6.769	A
C	425	106	51	1090	0.390	425	462	0.5	0.7	5.587	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	416	104	205	886	0.470	415	377	0.6	0.9	7.876	A
B	306	77	323	757	0.405	305	298	0.5	0.7	8.149	A
C	521	130	63	1083	0.481	520	565	0.7	0.9	6.597	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	416	104	206	886	0.470	416	378	0.9	0.9	7.918	A
B	306	77	324	756	0.405	306	298	0.7	0.7	8.191	A
C	521	130	63	1082	0.481	521	567	0.9	1.0	6.624	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	340	85	169	910	0.374	341	309	0.9	0.6	6.551	A
B	250	62	265	793	0.315	251	244	0.7	0.5	6.812	A
C	425	106	51	1090	0.390	426	465	1.0	0.7	5.619	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	285	71	141	927	0.307	285	259	0.6	0.5	5.796	A
B	209	52	222	820	0.255	210	204	0.5	0.4	6.047	A
C	356	89	43	1095	0.325	357	389	0.7	0.5	5.044	A

Base + Committed + Cumulative Development - Sensitivity, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	9.20	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		26	Arm B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Base + Committed + Cumulative Development - Sensitivity	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	360	100.000
B		ONE HOUR	✓	429	100.000
C		ONE HOUR	✓	409	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	57	303
	B	125	0	304
	C	240	169	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	5
	B	0	0	4
	C	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.44	7.47	0.8	A	330	496
B	0.63	13.31	1.7	B	394	590
C	0.44	6.41	0.8	A	375	563

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	271	68	127	937	0.289	269	273	0.0	0.4	5.605	A
B	323	81	227	817	0.396	320	169	0.0	0.7	7.420	A
C	308	77	93	1063	0.290	306	454	0.0	0.4	4.936	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	324	81	152	921	0.352	323	327	0.4	0.6	6.271	A
B	386	96	272	788	0.489	384	203	0.7	1.0	9.135	A
C	368	92	112	1051	0.350	367	544	0.4	0.6	5.470	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	396	99	186	899	0.441	395	400	0.6	0.8	7.434	A
B	472	118	333	750	0.630	469	248	1.0	1.7	13.042	B
C	450	113	137	1035	0.435	449	665	0.6	0.8	6.381	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	396	99	186	899	0.441	396	402	0.8	0.8	7.467	A
B	472	118	334	750	0.630	472	249	1.7	1.7	13.314	B
C	450	113	138	1035	0.435	450	668	0.8	0.8	6.406	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	324	81	152	920	0.352	325	329	0.8	0.6	6.306	A
B	386	96	273	787	0.490	389	204	1.7	1.0	9.339	A
C	368	92	113	1050	0.350	369	549	0.8	0.6	5.501	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	271	68	127	936	0.289	272	275	0.6	0.4	5.649	A
B	323	81	229	815	0.396	324	170	1.0	0.7	7.557	A
C	308	77	94	1062	0.290	308	458	0.6	0.4	4.972	A

Base + Committed + Cumulative Development - Sensitivity, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout	A,B,C	7.83	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		61	Arm A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Base + Committed + Cumulative Development - Sensitivity	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	386	100.000
B		ONE HOUR	✓	295	100.000
C		ONE HOUR	✓	498	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	84	302
	B	57	0	238
	C	292	206	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	1	4
	B	0	0	3
	C	5	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.49	8.31	1.0	A	354	531
B	0.43	8.66	0.8	A	271	406
C	0.51	6.96	1.1	A	457	685

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	291	73	154	919	0.316	289	261	0.0	0.5	5.884	A
B	222	56	226	817	0.272	221	217	0.0	0.4	6.166	A
C	375	94	43	1095	0.342	373	404	0.0	0.5	5.133	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	347	87	185	899	0.386	346	313	0.5	0.6	6.719	A
B	265	66	271	789	0.336	265	260	0.4	0.5	7.024	A
C	448	112	51	1090	0.411	447	484	0.5	0.7	5.778	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	425	106	226	873	0.487	424	383	0.6	1.0	8.262	A
B	325	81	331	751	0.432	324	318	0.5	0.8	8.607	A
C	548	137	63	1083	0.506	547	593	0.7	1.0	6.927	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	425	106	227	872	0.487	425	384	1.0	1.0	8.314	A
B	325	81	332	750	0.433	325	319	0.8	0.8	8.658	A
C	548	137	63	1082	0.507	548	595	1.0	1.1	6.961	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	347	87	186	899	0.386	348	315	1.0	0.7	6.772	A
B	265	66	272	788	0.337	266	262	0.8	0.5	7.081	A
C	448	112	51	1090	0.411	449	487	1.1	0.7	5.815	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	291	73	155	918	0.316	291	263	0.7	0.5	5.941	A
B	222	56	228	816	0.272	223	219	0.5	0.4	6.223	A
C	375	94	43	1095	0.342	376	408	0.7	0.5	5.176	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Dev Sensitivity Test AM.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Station Rd_Thornhill Rd\Direct Models
Report generation date: 30/11/2016 15:42:29

»Base + Committed Development - Sensitivity, AM
»Base + Committed + Cumulative Development - Sensitivity, AM

Summary of junction performance

	AM			
	Q (PCU)	Delay (s)	RFC	LOS
	Base + Committed Development - Sensitivity			
Junction 1 - Arm 1	0.0	12.50	0.80	B
Junction 1 - Arm 2	81.6	507.31	1.66	F
Junction 1 - Arm 3	3.5	15.45	0.78	C
Junction 2 - Arm 1	127.3	437.48	1.32	F
Junction 2 - Arm 2	112.9	1320.04	1.61	F
Junction 2 - Arm 3	0.0	6.86	0.65	A
	Base + Committed + Cumulative Development - Sensitivity			
Junction 1 - Arm 1	0.0	12.67	0.80	B
Junction 1 - Arm 2	83.6	520.96	1.65	F
Junction 1 - Arm 3	3.6	15.62	0.79	C
Junction 2 - Arm 1	139.1	478.26	1.34	F
Junction 2 - Arm 2	122.3	1428.74	1.66	F
Junction 2 - Arm 3	0.0	6.89	0.66	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

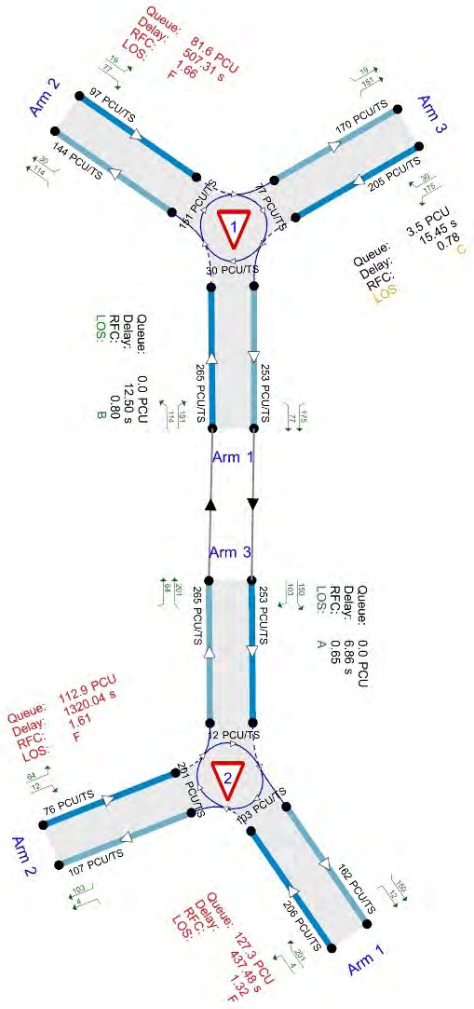
File summary

File Description

Title	Forge Ln / Station Rd / Thornhill Rd double-mini
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin



Flows show modelled flow through junction (PCU/TS).
Time Segment: 08:15-08:30

The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed Development - Sensitivity	AM	DIRECT	08:00	09:00	60	15	✓
D5	Base + Committed + Cumulative Development - Sensitivity	AM	DIRECT	08:00	09:00	60	15	✓

Analysis Set Details

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

Base + Committed Development - Sensitivity, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 1	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 82% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 84% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	115.93	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	424.81	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	Link	
	2	Thornhill Rd	
	3	Savile Rd	
2	1	Station Rd	
	2	Forge Lane	
	3	Link	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	7.65	7.65	8.10	2.0	10.00	7.50	0.0	
	2	3.00	3.00	6.30	3.0	13.80	9.00	0.0	
	3	3.00	3.00	4.00	5.0	19.50	19.00	0.0	
2	1	3.20	3.20	5.25	13.0	11.50	6.40	0.0	
	2	3.55	3.55	4.80	2.0	13.00	10.00	5.0	
	3	7.25	7.25	7.25	0.0	18.00	18.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1	1	0.777	361.473
	2	0.619	199.488
	3	0.798	325.942
2	1	0.650	272.899
	2	0.569	191.077
	3	0.863	396.431

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed Development - Sensitivity	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Demand (PCU/TS)

Junction 1 08:00 - 08:15

		To		
		1	2	3
From	1	0.00	144.00	161.00
	2	77.00	0.00	21.00
	3	128.00	30.00	0.00

Demand (PCU/TS)

Junction 1 08:15 - 08:30

		To		
		1	2	3
From	1	0.00	148.00	196.00
	2	80.00	0.00	20.00
	3	177.00	30.00	0.00

Junction 1 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	149.00	204.00
	2	68.00	0.00	42.00
	3	151.00	21.00	0.00

Junction 1 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	101.00	161.00
	2	90.00	0.00	65.00
	3	127.00	17.00	0.00

Junction 2 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	11.00	237.00
	2	13.00	0.00	68.00
	3	153.00	52.00	0.00

Junction 2 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	267.00
	2	15.00	0.00	77.00
	3	153.00	105.00	0.00

Junction 2 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	2.00	261.00
	2	14.00	0.00	92.00
	3	139.00	80.00	0.00

Junction 2 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	176.00
	2	18.00	0.00	86.00
	3	135.00	82.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	4	3
	2	4	0	7
	3	5	5	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	11	2
	2	2	0	5
	3	4	5	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.80	12.50	0.0	B	272.62	1090.50
	2	1.66	507.31	81.6	F	115.75	463.00
	3	0.78	15.45	3.5	C	170.25	681.00
2	1	1.32	437.48	127.3	F	241.00	964.00
	2	1.61	1320.04	112.9	F	95.75	383.00
	3	0.65	6.86	0.0	A	212.41	849.63

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	271.22	271.22	29.72	338.37	0.802	271.22	199.62	0.0	0.0	12.504	B
	2	98.00	98.00	143.17	110.87	0.884	92.67	157.77	0.0	5.3	43.708	E
	3	158.00	158.00	72.81	267.87	0.590	156.52	163.03	0.0	1.5	8.380	A
2	1	248.00	248.00	50.63	240.00	1.033	228.20	159.14	0.0	19.8	52.529	F
	2	81.00	81.00	218.08	67.04	1.208	63.30	60.76	0.0	17.7	146.480	F
	3	199.62	199.62	10.16	387.66	0.515	199.62	271.22	0.0	0.0	4.932	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	265.04	265.04	29.77	338.34	0.783	265.04	252.65	0.0	0.0	11.639	B
	2	100.00	100.00	151.01	106.02	0.943	96.93	143.80	5.3	8.4	79.287	F
	3	207.00	207.00	77.47	264.16	0.784	204.95	170.47	1.5	3.5	15.447	C
2	1	272.00	272.00	102.82	206.10	1.320	205.68	162.17	19.8	86.1	238.518	F
	2	92.00	92.00	201.39	76.53	1.202	75.99	107.12	17.7	33.7	340.590	F
	3	252.65	252.65	12.35	385.77	0.655	252.65	265.04	0.0	0.0	6.864	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	275.72	275.72	21.29	344.92	0.799	275.72	214.80	0.0	0.0	12.172	B
	2	110.00	110.00	159.34	100.86	1.091	98.38	137.68	8.4	20.0	154.456	F
	3	172.00	172.00	62.35	276.22	0.623	173.75	195.38	3.5	1.8	9.374	A
2	1	263.00	263.00	78.47	221.92	1.185	221.80	146.14	86.1	127.3	437.484	F
	2	106.00	106.00	219.18	66.41	1.596	66.34	81.08	33.7	73.4	758.431	F
	3	214.80	214.80	9.81	387.96	0.554	214.80	275.72	0.0	0.0	5.347	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	278.52	278.52	17.09	348.19	0.800	278.52	182.57	0.0	0.0	12.090	B
	2	155.00	155.00	171.15	93.55	1.657	93.41	124.45	20.0	81.6	507.305	F
	3	144.00	144.00	54.99	282.08	0.510	144.67	209.57	1.8	1.1	6.909	A
2	1	181.00	181.00	68.99	228.08	0.794	226.26	122.10	127.3	82.1	417.920	F
	2	104.00	104.00	222.56	64.49	1.613	64.47	72.69	73.4	112.9	1320.040	F
	3	182.57	182.57	8.51	389.08	0.469	182.57	278.51	0.0	0.0	4.509	A

Base + Committed + Cumulative Development - Sensitivity, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 1	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 82% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 84% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	119.48	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	464.38	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	Base + Committed + Cumulative Development - Sensitivity	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Junction 1 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	147.00	165.00
	2	78.00	0.00	21.00
	3	130.00	30.00	0.00

Junction 1 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	151.00	199.00
	2	81.00	0.00	20.00
	3	177.00	30.00	0.00

Junction 1 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	152.00	207.00
	2	70.00	0.00	42.00
	3	152.00	21.00	0.00

Junction 1 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	106.00	165.00
	2	91.00	0.00	65.00
	3	129.00	17.00	0.00

Junction 2 08:00 - 08:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	11.00	241.00
	2	13.00	0.00	71.00
	3	154.00	54.00	0.00

Junction 2 08:15 - 08:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	271.00
	2	15.00	0.00	79.00
	3	154.00	105.00	0.00

Junction 2 08:30 - 08:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	2.00	265.00
	2	14.00	0.00	94.00
	3	141.00	81.00	0.00

Junction 2 08:45 - 09:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	5.00	182.00
	2	18.00	0.00	89.00
	3	137.00	83.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	4	3
	2	4	0	7
	3	5	5	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	11	2
	2	2	0	5
	3	4	5	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.80	12.67	0.0	B	273.01	1092.04
	2	1.65	520.96	83.6	F	117.00	468.00
	3	0.79	15.62	3.6	C	171.50	686.00
2	1	1.34	478.26	139.1	F	245.50	982.00
	2	1.66	1428.74	122.3	F	98.25	393.00
	3	0.66	6.89	0.0	A	214.55	858.21

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	272.36	272.36	29.71	338.38	0.805	272.36	202.25	0.0	0.0	12.674	B
	2	99.00	99.00	144.04	110.33	0.897	93.28	158.04	0.0	5.7	45.932	E
	3	160.00	160.00	73.49	267.33	0.599	158.47	163.82	0.0	1.5	8.567	A
2	1	252.00	252.00	52.51	238.78	1.055	228.73	159.56	0.0	23.3	59.114	F
	2	84.00	84.00	218.74	66.66	1.260	63.44	62.49	0.0	20.6	164.210	F
	3	202.25	202.25	9.82	387.95	0.521	202.25	272.36	0.0	0.0	4.993	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	265.53	265.53	29.77	338.33	0.785	265.53	253.48	0.0	0.0	11.703	B
	2	101.00	101.00	150.97	106.04	0.952	97.71	144.33	5.7	9.0	83.963	F
	3	207.00	207.00	78.28	263.51	0.786	204.96	170.40	1.5	3.6	15.620	C
2	1	276.00	276.00	102.76	206.13	1.339	205.81	162.76	23.3	93.5	261.035	F
	2	94.00	94.00	201.49	76.47	1.229	76.08	107.08	20.6	38.5	387.263	F
	3	253.48	253.48	12.04	386.04	0.657	253.48	265.53	0.0	0.0	6.890	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	275.56	275.56	21.30	344.92	0.799	275.56	216.93	0.0	0.0	12.149	B
	2	112.00	112.00	158.89	101.14	1.107	99.03	137.97	9.0	22.0	165.358	F
	3	173.00	173.00	63.49	275.31	0.628	174.74	194.43	3.6	1.8	9.554	A
2	1	267.00	267.00	79.15	221.47	1.206	221.38	147.57	93.5	139.1	476.437	F
	2	108.00	108.00	218.73	66.67	1.620	66.61	81.80	38.5	79.9	833.738	F
	3	216.93	216.93	9.79	387.98	0.559	216.93	275.55	0.0	0.0	5.412	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	278.60	278.60	17.09	348.19	0.800	278.60	185.55	0.0	0.0	12.103	B
	2	156.00	156.00	169.63	94.49	1.651	94.37	126.06	22.0	83.6	520.956	F
	3	146.00	146.00	55.96	281.31	0.519	146.67	208.03	1.8	1.2	7.055	A
2	1	187.00	187.00	70.00	227.42	0.822	225.76	123.91	139.1	100.3	478.260	F
	2	107.00	107.00	222.40	64.58	1.657	64.56	73.36	79.9	122.3	1428.742	F
	3	185.55	185.55	8.37	389.21	0.477	185.55	278.59	0.0	0.0	4.570	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Cumulative Dev Sensitivity Test PM.j9
Path: L:\PROJECTS\11389ITY Land off Lees Hall Road, Dewsbury\Tech\Junction Assessments\Arcady\Forge Ln_Station Rd_Thornhill Rd\Direct Models
Report generation date: 30/11/2016 15:47:16

»Base + Committed Development - Sensitivity, PM
»Base + Committed + Cumulative Development - Sensitivity, PM

Summary of junction performance

	PM			
	Q (PCU)	Delay (s)	RFC	LOS
	Base + Committed Development - Sensitivity			
Junction 1 - Arm 1	0.0	7.52	0.66	A
Junction 1 - Arm 2	205.7	1307.69	1.62	F
Junction 1 - Arm 3	5.8	25.14	0.87	D
Junction 2 - Arm 1	6.2	27.97	0.89	D
Junction 2 - Arm 2	11.7	115.01	0.99	F
Junction 2 - Arm 3	0.0	10.31	0.79	B
	Base + Committed + Cumulative Development - Sensitivity			
Junction 1 - Arm 1	0.0	7.67	0.66	A
Junction 1 - Arm 2	222.2	1430.91	1.66	F
Junction 1 - Arm 3	6.1	25.91	0.88	D
Junction 2 - Arm 1	6.7	29.90	0.90	D
Junction 2 - Arm 2	14.0	133.99	1.01	F
Junction 2 - Arm 3	0.0	10.47	0.79	B

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

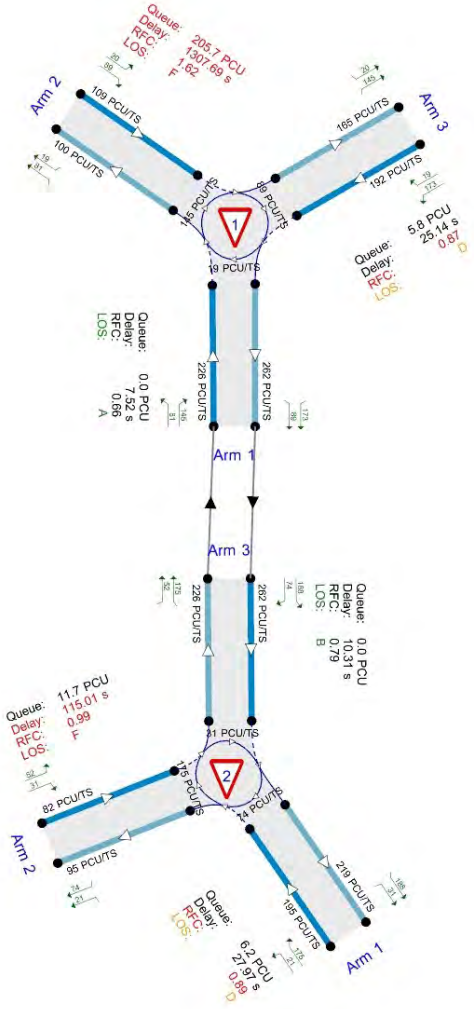
File summary

File Description

Title	Forge Ln / Station Rd / Thornhill Rd double-mini
Location	Dewsbury
Site number	
Date	09/11/2016
Version	
Status	
Identifier	
Client	
Jobnumber	ITY11389
Enumerator	ML
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin



Flows show modelled flow through junction (PCU/TS).
Time Segment: 16:45-17:00

The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Base + Committed Development - Sensitivity	PM	DIRECT	16:30	17:30	60	15	✓
D6	Base + Committed + Cumulative Development - Sensitivity	PM	DIRECT	16:30	17:30	60	15	✓

Analysis Set Details

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

Base + Committed Development - Sensitivity, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	398.72	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	32.37	D

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	Link	
	2	Thornhill Rd	
	3	Savile Rd	
2	1	Station Rd	
	2	Forge Lane	
	3	Link	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	7.65	7.65	8.10	2.0	10.00	7.50	0.0	
	2	3.00	3.00	6.30	3.0	13.80	9.00	0.0	
	3	3.00	3.00	4.00	5.0	19.50	19.00	0.0	
2	1	3.20	3.20	5.25	13.0	11.50	6.40	0.0	
	2	3.55	3.55	4.80	2.0	13.00	10.00	5.0	
	3	7.25	7.25	7.25	0.0	18.00	18.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1	1	0.777	361.473
	2	0.619	199.488
	3	0.798	325.942
2	1	0.650	272.899
	2	0.569	191.077
	3	0.863	396.431

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Base + Committed Development - Sensitivity	PM	DIRECT	16:30	17:30	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Demand (PCU/TS)

Junction 1 16:30 - 16:45

		To		
		1	2	3
From	1	0.00	75.00	138.00
	2	130.00	0.00	17.00
	3	182.00	23.00	0.00

Demand (PCU/TS)

Junction 1 16:45 - 17:00

		To		
		1	2	3
From	1	0.00	83.00	149.00
	2	136.00	0.00	37.00
	3	172.00	19.00	0.00

Junction 1 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	93.00	139.00
	2	164.00	0.00	21.00
	3	141.00	15.00	0.00

Junction 1 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	60.00	107.00
	2	147.00	0.00	20.00
	3	189.00	15.00	0.00

Junction 2 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	15.00	148.00
	2	17.00	0.00	64.00
	3	229.00	84.00	0.00

Junction 2 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	21.00	178.00
	2	33.00	0.00	54.00
	3	221.00	87.00	0.00

Junction 2 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	17.00	170.00
	2	31.00	0.00	62.00
	3	209.00	95.00	0.00

Junction 2 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	17.00	117.00
	2	13.00	0.00	49.00
	3	226.00	109.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	6	2
	2	1	0	5
	3	6	1	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	9	0	6
	3	1	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.66	7.52	0.0	A	209.87	839.47
	2	1.62	1307.69	205.7	F	168.00	672.00
	3	0.87	25.14	5.8	D	189.00	756.00
2	1	0.89	27.97	6.2	D	170.75	683.00
	2	0.99	115.01	11.7	F	80.75	323.00
	3	0.79	10.31	0.0	B	268.58	1074.31

Main Results for each time segment

16:30 - 16:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	207.50	207.50	22.48	344.00	0.603	207.50	277.77	0.0	0.0	6.668	A
	2	147.00	147.00	134.44	116.27	1.264	112.91	95.55	0.0	34.1	152.284	F
	3	205.00	205.00	99.86	246.30	0.832	200.40	147.49	0.0	4.6	19.107	C
2	1	163.00	163.00	74.55	224.47	0.726	160.46	219.64	0.0	2.5	13.746	B
	2	81.00	81.00	145.69	108.21	0.749	78.22	89.31	0.0	2.8	29.767	D
	3	277.77	277.77	16.42	382.26	0.727	277.77	207.50	0.0	0.0	8.341	A

16:45 - 17:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	226.25	226.25	19.18	346.56	0.653	226.25	262.47	0.0	0.0	7.503	A
	2	173.00	173.00	145.31	109.54	1.579	109.46	100.13	34.1	97.6	546.052	F
	3	191.00	191.00	89.40	254.64	0.750	192.26	165.37	4.6	3.3	15.532	C
2	1	199.00	199.00	74.14	224.73	0.886	195.34	219.04	2.5	6.2	27.974	D
	2	87.00	87.00	174.76	91.68	0.949	82.21	94.72	2.8	7.6	76.638	F
	3	262.47	262.47	30.71	369.92	0.710	262.47	226.25	0.0	0.0	8.152	A

17:00 - 17:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	229.52	229.52	15.17	349.69	0.656	229.52	234.01	0.0	0.0	7.521	A
	2	185.00	185.00	137.52	114.37	1.618	114.35	107.17	97.6	168.3	985.707	F
	3	156.00	156.00	91.57	252.91	0.617	157.60	160.29	3.3	1.7	10.122	B
2	1	187.00	187.00	73.13	225.39	0.830	187.80	190.85	6.2	5.4	24.990	C
	2	93.00	93.00	170.64	94.02	0.989	88.85	90.29	7.6	11.7	115.006	F
	3	234.01	234.01	29.97	370.56	0.632	234.01	229.52	0.0	0.0	6.537	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	176.20	176.20	14.74	350.02	0.503	176.20	300.06	0.0	0.0	5.292	A
	2	167.00	167.00	112.89	129.61	1.289	129.59	78.04	168.3	205.7	1307.686	F
	3	204.00	204.00	114.88	234.32	0.871	199.92	127.60	1.7	5.8	25.142	D
2	1	134.00	134.00	97.63	209.47	0.640	137.54	219.10	5.4	1.9	13.262	B
	2	62.00	62.00	120.28	122.66	0.505	72.58	114.89	11.7	1.1	23.170	C
	3	300.06	300.06	16.67	382.04	0.785	300.06	176.20	0.0	0.0	10.312	B

Base + Committed + Cumulative Development - Sensitivity, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 2	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 1 - Arm 1	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 3	Internal storage space between linked junctions is small (2 PCU PCU). Linked junction results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Savile Rd_Thornhill Rd	Mini-roundabout	1,2,3	435.51	F
2	Station Rd_Forge Ln	Mini-roundabout	1,2,3	36.16	E

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	Base + Committed + Cumulative Development - Sensitivity	PM	DIRECT	16:30	17:30	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/TS)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	3	Closely spaced	Normal	0.00	100.00	2.00
2	3	1	1	Closely spaced	Normal	0.00	100.00	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1	1	✓			
	2		DIRECT	✓	100.000
	3		DIRECT	✓	100.000
2	1		DIRECT	✓	100.000
	2		DIRECT	✓	100.000
	3	✓			

Origin-Destination Data

Junction 1 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	77.00	139.00
	2	133.00	0.00	17.00
	3	185.00	23.00	0.00

Junction 1 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	85.00	151.00
	2	139.00	0.00	37.00
	3	175.00	19.00	0.00

Junction 1 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	94.00	141.00
	2	167.00	0.00	21.00
	3	145.00	15.00	0.00

Junction 1 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	63.00	110.00
	2	150.00	0.00	20.00
	3	192.00	15.00	0.00

Junction 2 16:30 - 16:45

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	15.00	150.00
	2	17.00	0.00	65.00
	3	233.00	86.00	0.00

Junction 2 16:45 - 17:00

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	21.00	180.00
	2	33.00	0.00	56.00
	3	225.00	89.00	0.00

Junction 2 17:00 - 17:15

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	17.00	172.00
	2	31.00	0.00	63.00
	3	216.00	98.00	0.00

Junction 2 17:15 - 17:30

Demand (PCU/TS)

		To		
		1	2	3
From	1	0.00	17.00	121.00
	2	13.00	0.00	51.00
	3	230.00	111.00	0.00

Vehicle Mix

Junction 1

HV %s

		To		
		1	2	3
From	1	0	6	2
	2	1	0	5
	3	6	1	0

Junction 2

HV %s

		To		
		1	2	3
From	1	0	4	1
	2	9	0	6
	3	1	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1	1	0.66	7.67	0.0	A	213.80	855.19
	2	1.66	1430.91	222.2	F	171.00	684.00
	3	0.88	25.91	6.1	D	192.25	769.00
2	1	0.90	29.90	6.7	D	173.25	693.00
	2	1.01	133.99	14.0	F	82.25	329.00
	3	0.79	10.47	0.0	B	270.99	1083.96

Main Results for each time segment

16:30 - 16:45

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	210.19	210.19	22.45	344.02	0.611	210.19	280.52	0.0	0.0	6.794	A
	2	150.00	150.00	135.26	115.76	1.296	112.70	97.38	0.0	37.3	165.252	F
	3	208.00	208.00	99.92	246.25	0.845	203.05	148.04	0.0	5.0	20.123	C
2	1	165.00	165.00	75.63	223.76	0.737	162.32	221.27	0.0	2.7	14.277	B
	2	82.00	82.00	147.57	107.14	0.765	79.01	90.38	0.0	3.0	31.457	D
	3	280.52	280.52	16.38	382.29	0.734	280.52	210.19	0.0	0.0	8.539	A

16:45 - 17:00

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	229.12	229.12	19.20	346.55	0.661	229.12	265.62	0.0	0.0	7.673	A
	2	176.00	176.00	146.60	108.75	1.618	108.68	101.72	37.3	104.6	591.085	F
	3	194.00	194.00	89.44	254.61	0.762	195.37	165.83	5.0	3.6	16.407	C
2	1	201.00	201.00	75.29	223.98	0.897	196.94	220.62	2.7	6.7	29.904	D
	2	89.00	89.00	176.40	90.74	0.981	83.01	95.83	3.0	9.0	86.654	F
	3	265.62	265.62	30.29	370.28	0.717	265.62	229.12	0.0	0.0	8.347	A

17:00 - 17:15

Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	231.93	231.93	15.18	349.68	0.663	231.93	236.93	0.0	0.0	7.663	A
	2	188.00	188.00	139.16	113.35	1.659	113.34	107.95	104.6	179.3	1063.972	F
	3	160.00	160.00	90.37	253.87	0.630	161.74	162.13	3.6	1.9	10.491	B
2	1	189.00	189.00	73.94	224.86	0.841	189.84	192.69	6.7	5.9	26.945	D
	2	94.00	94.00	172.67	92.87	1.012	88.97	91.12	9.0	14.0	133.994	F
	3	236.93	236.93	29.71	370.78	0.639	236.93	231.93	0.0	0.0	6.660	A

17:15 - 17:30

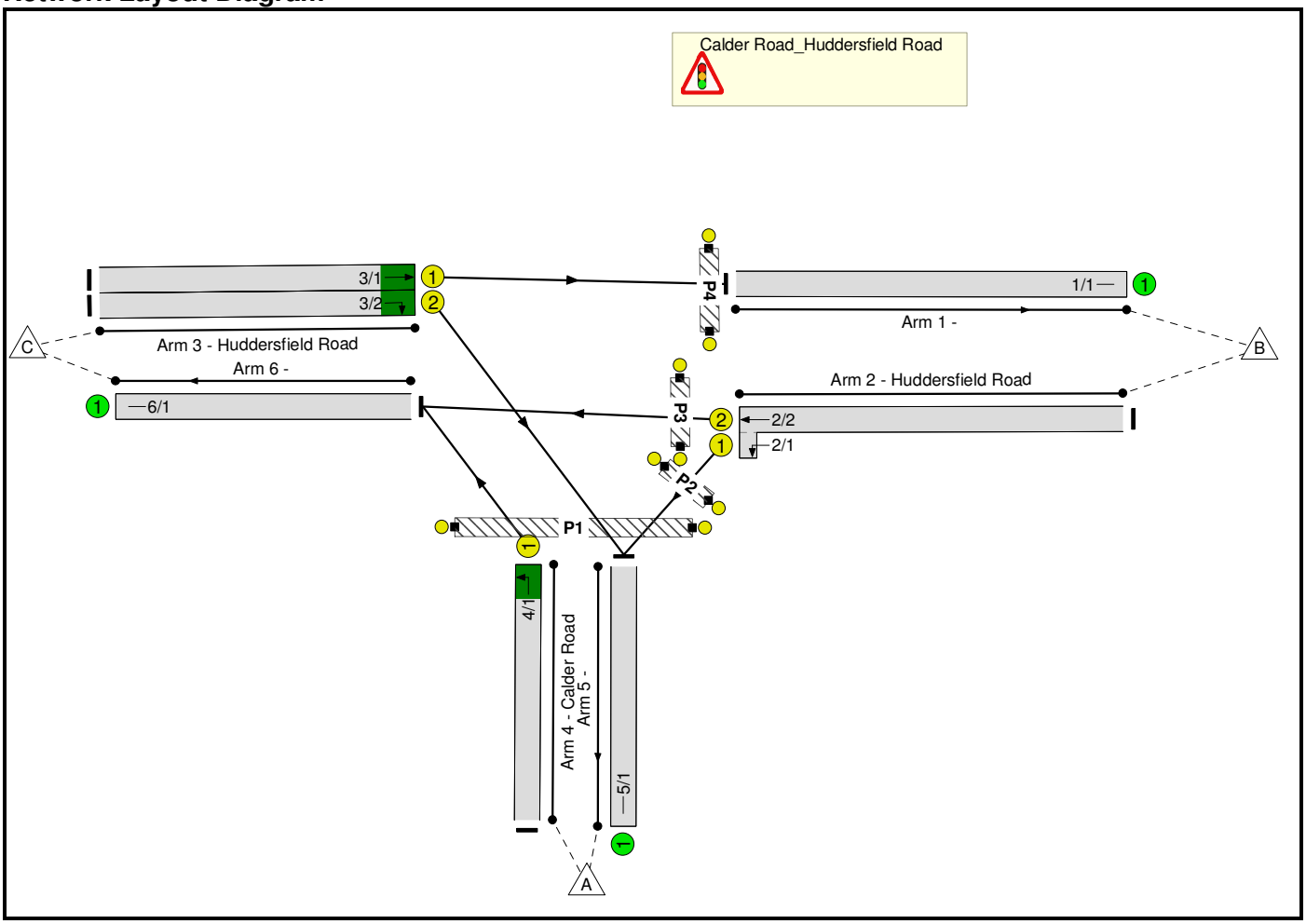
Junction	Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1	183.95	183.95	14.73	350.02	0.526	183.95	300.90	0.0	0.0	5.531	A
	2	170.00	170.00	116.96	127.09	1.338	127.08	81.72	179.3	222.2	1430.908	F
	3	207.00	207.00	112.88	235.91	0.877	202.75	131.16	1.9	6.1	25.914	D
2	1	138.00	138.00	97.95	209.26	0.659	141.85	220.32	5.9	2.0	14.238	B
	2	64.00	64.00	124.57	120.22	0.532	76.74	115.23	14.0	1.3	28.478	D
	3	300.90	300.90	17.36	381.44	0.789	300.90	183.95	0.0	0.0	10.470	B

Full Input Data And Results

User and Project Details

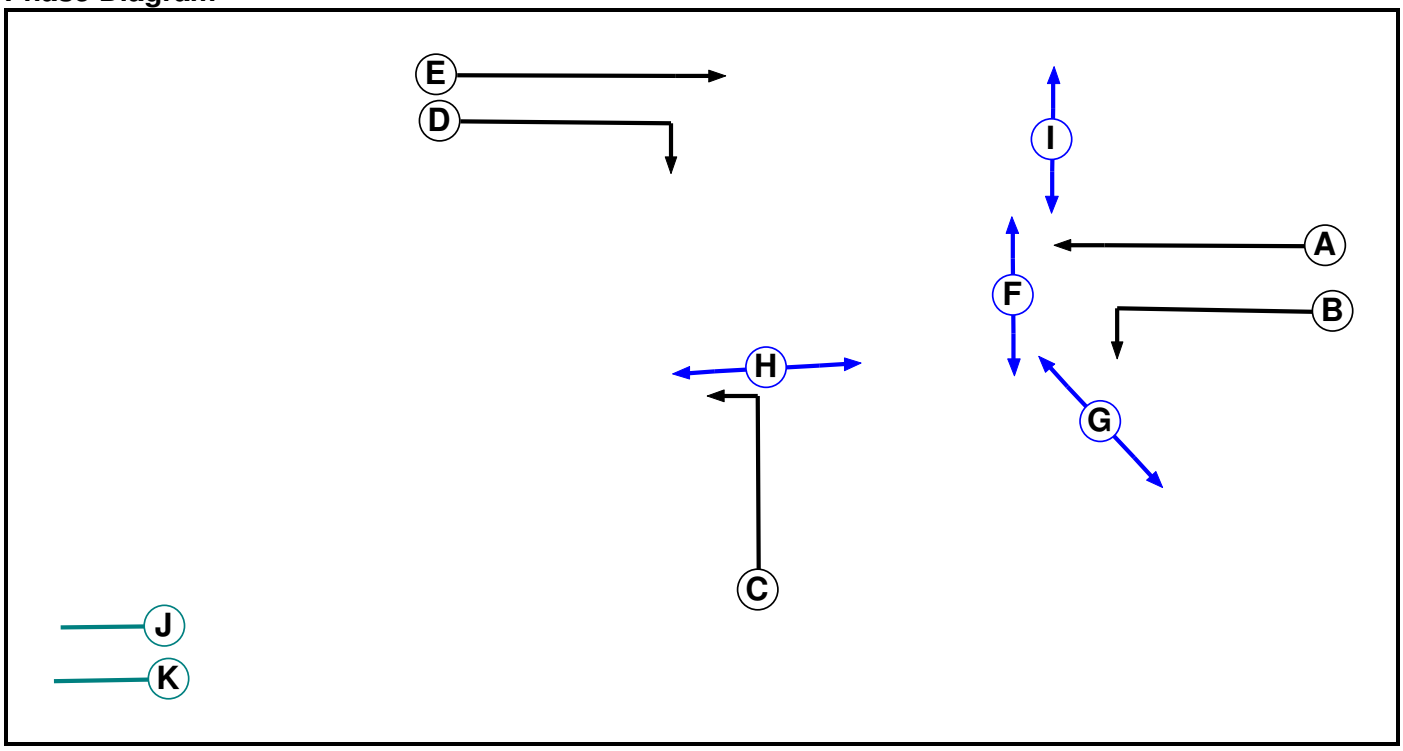
Project:	**Dewsbury**
Title:	**A644_Calder Road**
Location:	
File name:	A644 Hudersfield Rd 512-516 i-T - Sensitivity Test.lsg3x
Author:	Jonathan Orton
Company:	i-Transport
Address:	129 Centurion House, Deansgate, Manchester M3 3WR
Notes:	

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		5	5
G	Pedestrian		5	5
H	Pedestrian		8	8
I	Pedestrian		5	5
J	Dummy		2	2
K	Dummy		2	2

Full Input Data And Results

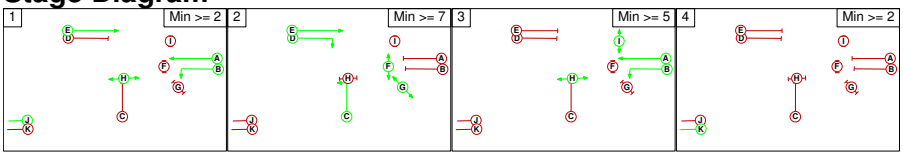
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		-	5	6	-	5	-	-	-	-	3
B	-		-	6	-	-	5	-	-	-	3
C	5	-		-	-	-	-	5	-	-	3
D	5	6	-		-	-	-	7	-	7	3
E	-	-	-	-		-	-	-	7	-	3
F	6	-	-	-	-		-	-	-	-	3
G	-	6	-	-	-	-		-	-	-	3
H	-	-	11	11	-	-	-		-	-	3
I	-	-	-	-	6	-	-	-		6	3
J	-	-	-	0	-	-	-	-	0		3
K	2	2	2	2	2	2	2	2	2	2	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	5	5
1	2	B	Losing	5	5
2	1	C	Losing	1	1
2	3	C	Losing	1	1
3	2	A	Losing	5	5
3	2	B	Losing	5	5

Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		11	7	3
	2	7		7	3
	3	6	11		3
	4	2	2	2	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Calder Road_Huddersfield Road
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Calder Road_Huddersfield Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/1 (Huddersfield Road)	U	B	2	3	1.0	Geom	-	5.00	0.00	Y	Arm 5 Left	35.00
2/2 (Huddersfield Road)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
3/1 (Huddersfield Road)	U	E	2	3	13.9	Geom	-	3.50	0.00	Y	Arm 1 Ahead	Inf
3/2 (Huddersfield Road)	U	D	2	3	13.9	Geom	-	3.50	0.00	Y	Arm 5 Right	12.00
4/1 (Calder Road)	U	C	2	3	60.0	Geom	-	4.10	0.00	Y	Arm 6 Left	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: 'Base + Committed + Cumulative Development'	07:45	08:45	01:00	
8: 'Base + Committed + Cumulative Development'	16:30	17:30	01:00	

Scenario 7: 'Base + Committed + Cumulative Development AM' (FG7: 'Base + Committed + Cumulative Development', Plan 1: 'AM')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	0	406	406
	B	69	0	943	1012
	C	280	1152	0	1432
	Tot.	349	1152	1349	2850

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: Base + Committed + Cumulative Development AM
Junction: Calder Road_Huddersfield Road	
1/1	1152
2/1 (short)	69
2/2 (with short)	1012(In) 943(Out)
3/1	1152
3/2	280
4/1	406
5/1	349
6/1	1349

Lane Saturation Flows

Junction: Calder Road_Huddersfield Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	Infinite Saturation Flow						Inf	Inf
2/1 (Huddersfield Road)	5.00	0.00	Y	Arm 5 Left	35.00	100.0 %	2028	2028
2/2 (Huddersfield Road)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
3/1 (Huddersfield Road)	3.50	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1965	1965
3/2 (Huddersfield Road)	3.50	0.00	Y	Arm 5 Right	12.00	100.0 %	1747	1747
4/1 (Calder Road)	4.10	0.00	Y	Arm 6 Left	Inf	100.0 %	2025	2025
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: 'Base + Committed + Cumulative Development PM' (FG8: 'Base + Committed + Cumulative Development', Plan 2: 'PM')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	0	315	315
	B	40	0	918	958
	C	284	993	0	1277
	Tot.	324	993	1233	2550

Full Input Data And Results

Traffic Lane Flows

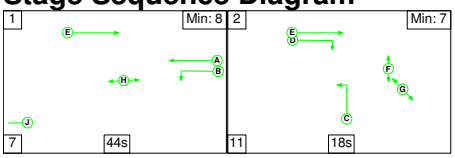
Lane	Scenario 8: Base + Committed + Cumulative Development PM
Junction: Calder Road_Huddersfield Road	
1/1	993
2/1 (short)	40
2/2 (with short)	958(In) 918(Out)
3/1	993
3/2	284
4/1	315
5/1	324
6/1	1233

Lane Saturation Flows

Junction: Calder Road_Huddersfield Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	Infinite Saturation Flow						Inf	Inf
2/1 (Huddersfield Road)	5.00	0.00	Y	Arm 5 Left	35.00	100.0 %	2028	2028
2/2 (Huddersfield Road)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
3/1 (Huddersfield Road)	3.50	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1965	1965
3/2 (Huddersfield Road)	3.50	0.00	Y	Arm 5 Right	12.00	100.0 %	1747	1747
4/1 (Calder Road)	4.10	0.00	Y	Arm 6 Left	Inf	100.0 %	2025	2025
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 7: 'Base + Committed + Cumulative Development AM' (FG7: 'Base + Committed + Cumulative Development', Plan 1: 'AM')

Stage Sequence Diagram

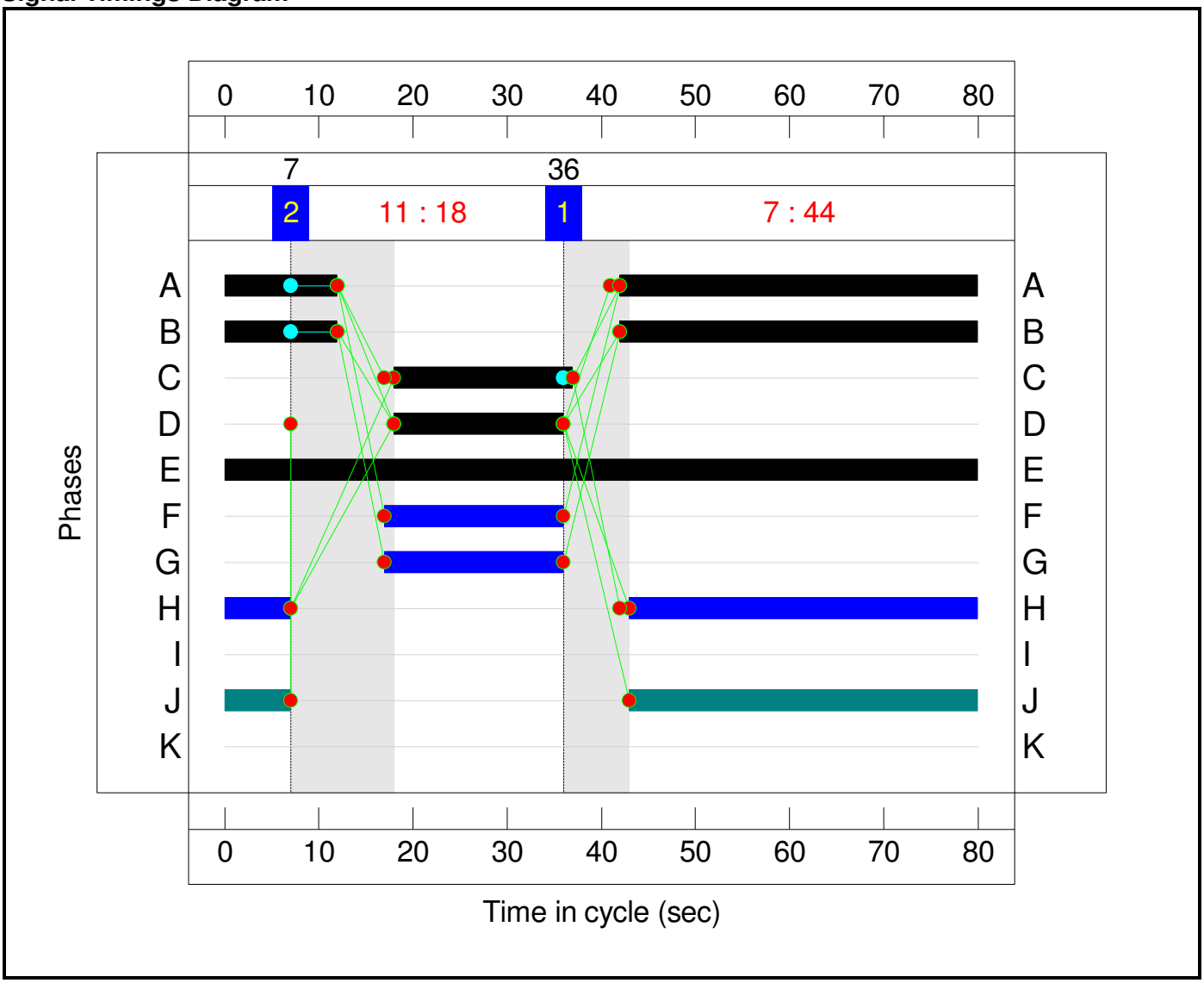


Stage Timings

Stage	1	2
Duration	44	18
Change Point	36	7

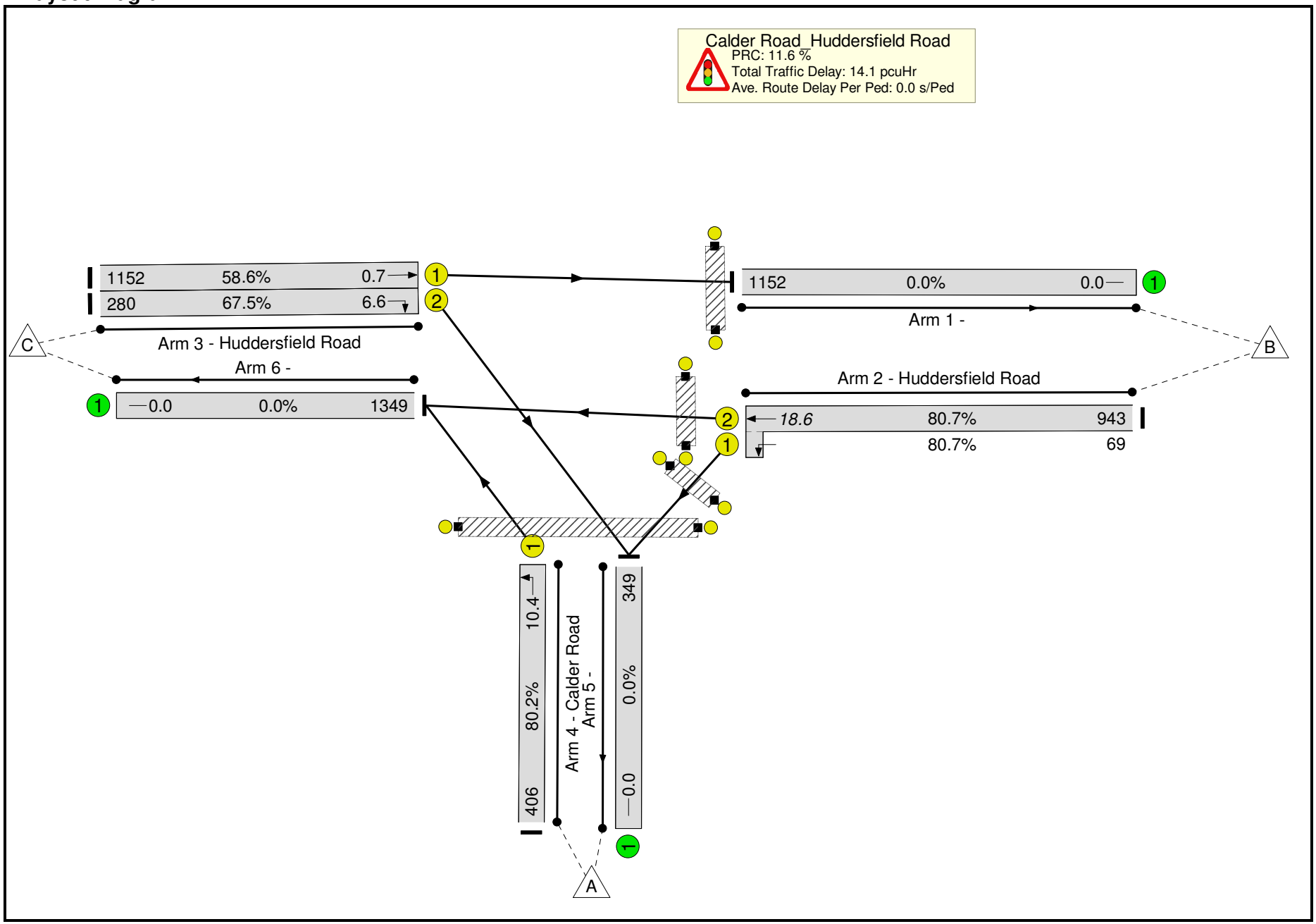
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



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: A644_Calder Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
Calder Road_Huddersfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
1/1		U	N/A	N/A	-		-	-	-	1152	Inf	Inf	0.0%
2/2+2/1	Huddersfield Road Left Ahead	U	N/A	N/A	A B		1	50	-	1012	1965:2028	1169+86	80.7 : 80.7%
3/1	Huddersfield Road Ahead	U	N/A	N/A	E		1	80	-	1152	1965	1965	58.6%
3/2	Huddersfield Road Right	U	N/A	N/A	D		1	18	-	280	1747	415	67.5%
4/1	Calder Road Left	U	N/A	N/A	C		1	19	-	406	2025	506	80.2%
5/1		U	N/A	N/A	-		-	-	-	349	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1349	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	44	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	19	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	19	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		0	0	-	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: A644_Calder Road	**-**	**-**	**0**	**0**	**0**	**8.4**	**5.7**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
Calder Road_Huddersfield Road	**-**	**-**	**0**	**0**	**0**	**8.4**	**5.7**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
1/1	1152	1152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	1012	1012	-	-	-	3.0	2.1	-	5.1	18.1	16.5	2.1	18.6
3/1	1152	1152	-	-	-	0.0	0.7	-	0.7	2.2	0.0	0.7	0.7
3/2	280	280	-	-	-	2.2	1.0	-	3.2	40.8	5.6	1.0	6.6
4/1	406	406	-	-	-	3.2	1.9	-	5.1	45.4	8.5	1.9	10.4
5/1	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1349	1349	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1

PRC for Signalled Lanes (%): 11.6
PRC Over All Lanes (%): 11.6

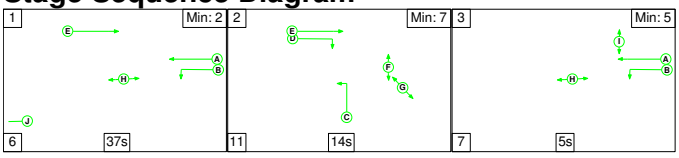
Total Delay for Signalled Lanes (pcuHr): 14.11
Total Delay Over All Lanes(pcuHr): 14.11

Cycle Time (s): 80

Full Input Data And Results

Scenario 8: 'Base + Committed + Cumulative Development PM' (FG8: 'Base + Committed + Cumulative Development', Plan 2: 'PM')

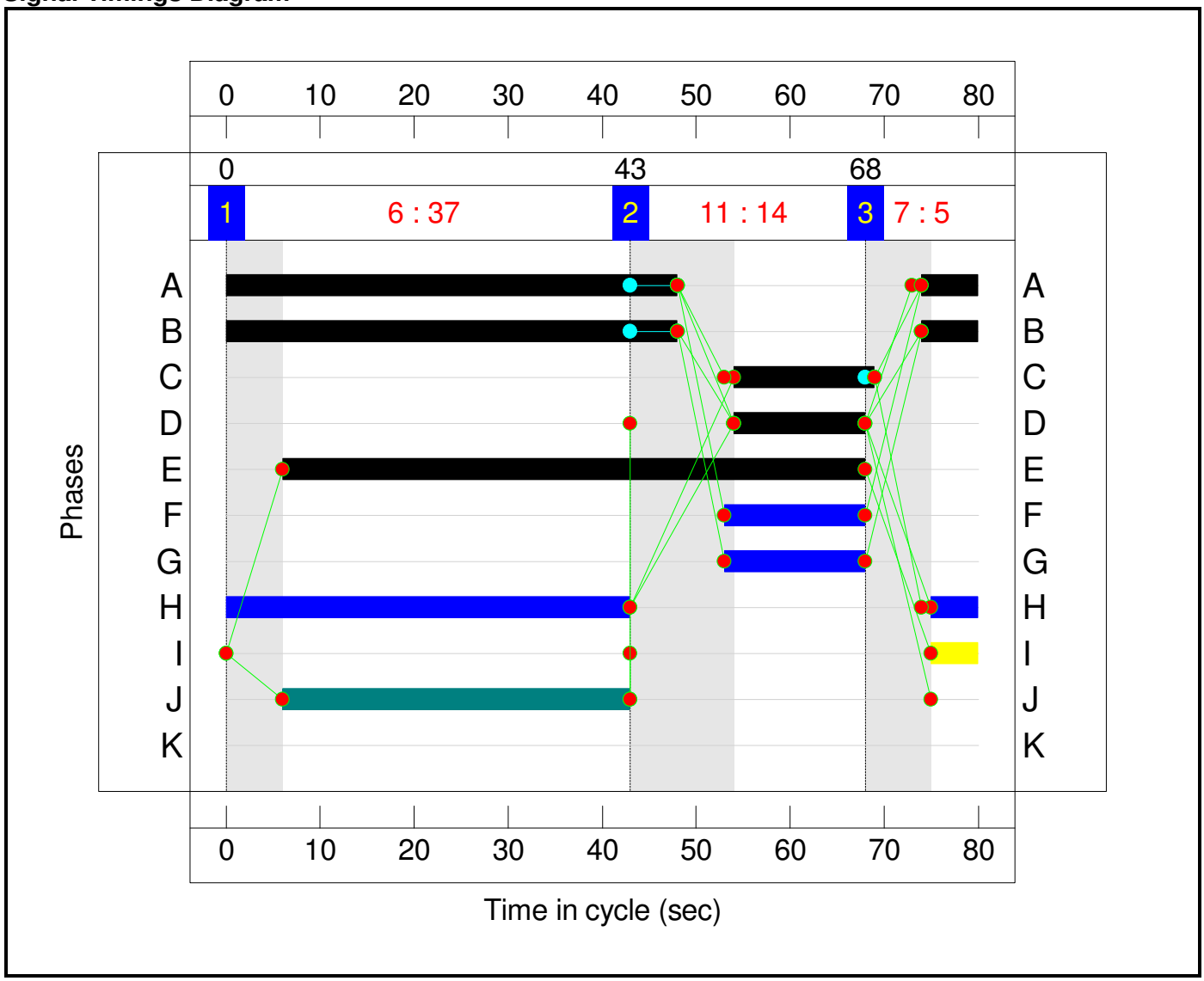
Stage Sequence Diagram



Stage Timings

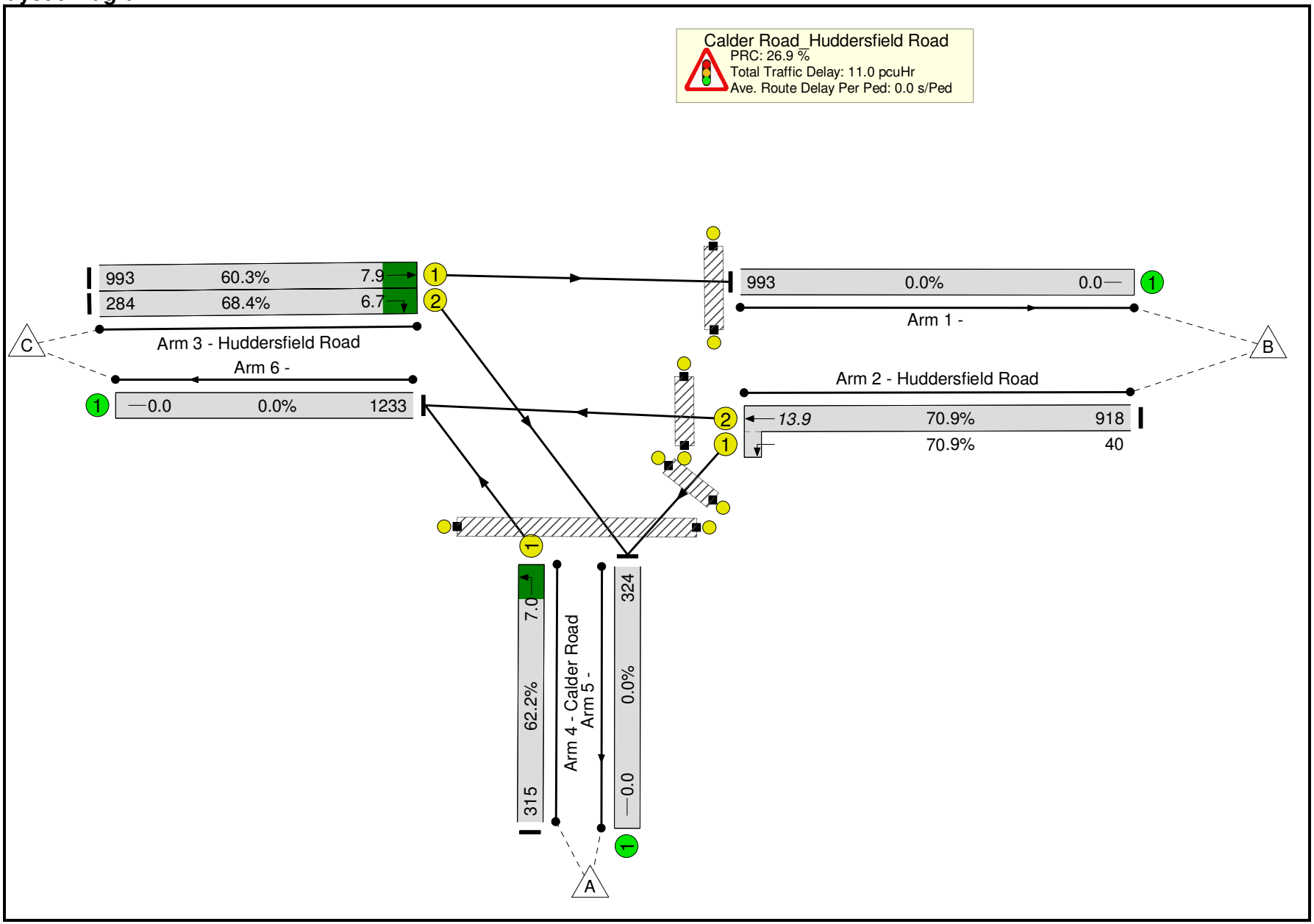
Stage	1	2	3
Duration	37	14	5
Change Point	0	43	68

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A644_Calder Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.9%**
Calder Road_Huddersfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.9%**
1/1		U	N/A	N/A	-		-	-	-	993	Inf	Inf	0.0%
2/2+2/1	Huddersfield Road Left Ahead	U	N/A	N/A	A B		1	54	-	958	1965:2028	1294+56	70.9 : 70.9%
3/1	Huddersfield Road Ahead	U	N/A	N/A	E		1	62	-	993	1965	1646	60.3%
3/2	Huddersfield Road Right	U	N/A	N/A	D		1	14	-	284	1747	415	68.4%
4/1	Calder Road Left	U	N/A	N/A	C		1	15	-	315	2025	506	62.2%
5/1		U	N/A	N/A	-		-	-	-	324	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1233	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		1	48	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	15	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		1	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		1	5	-	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: A644_Calder Road	**-**	**-**	**0**	**0**	**0**	**7.2**	**3.9**	**0.0**	**11.0**	**-**	**-**	**-**	**-**
Calder Road_Huddersfield Road	**-**	**-**	**0**	**0**	**0**	**7.2**	**3.9**	**0.0**	**11.0**	**-**	**-**	**-**	**-**
1/1	993	993	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	958	958	-	-	-	2.0	1.2	-	3.3	12.2	12.7	1.2	13.9
3/1	993	993	-	-	-	0.6	0.8	-	1.3	4.9	7.2	0.8	7.9
3/2	284	284	-	-	-	2.2	1.1	-	3.3	41.3	5.7	1.1	6.7
4/1	315	315	-	-	-	2.3	0.8	-	3.1	36.0	6.2	0.8	7.0
5/1	324	324	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1233	1233	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): 26.9
PRC Over All Lanes (%): 26.9

Total Delay for Signalled Lanes (pcuHr): 11.01
Total Delay Over All Lanes(pcuHr): 11.01

Cycle Time (s): 80

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