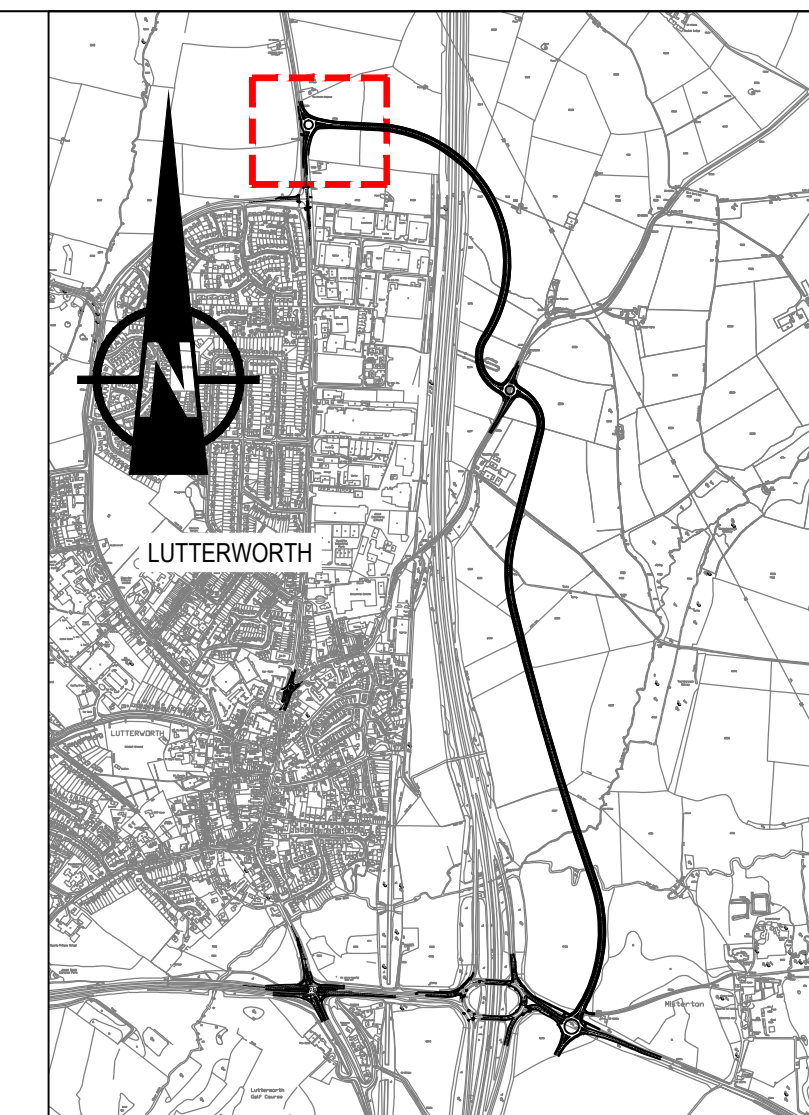
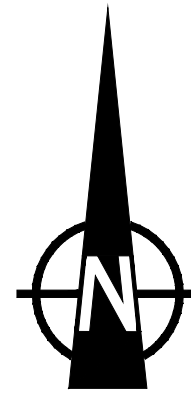


APPENDIX A4
Draft Strategic Transport Assessment, February 2016



LOCATION PLAN
(1:20,000)

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MINOR AMENDMENT TO SOUTHERN ROAD MARKINGS	KB	11.02.16	P2
Revision Details	By	Date	Suffix
	Check		

Purpose of issue
PRELIMINARY

Client
LEICESTERSHIRE COUNTY COUNCIL

Project Title
LUTTERWORTH EAST

DRAFT
**JUNCTION C
GENERAL ARRANGEMENT**
WORK IN PROGRESS

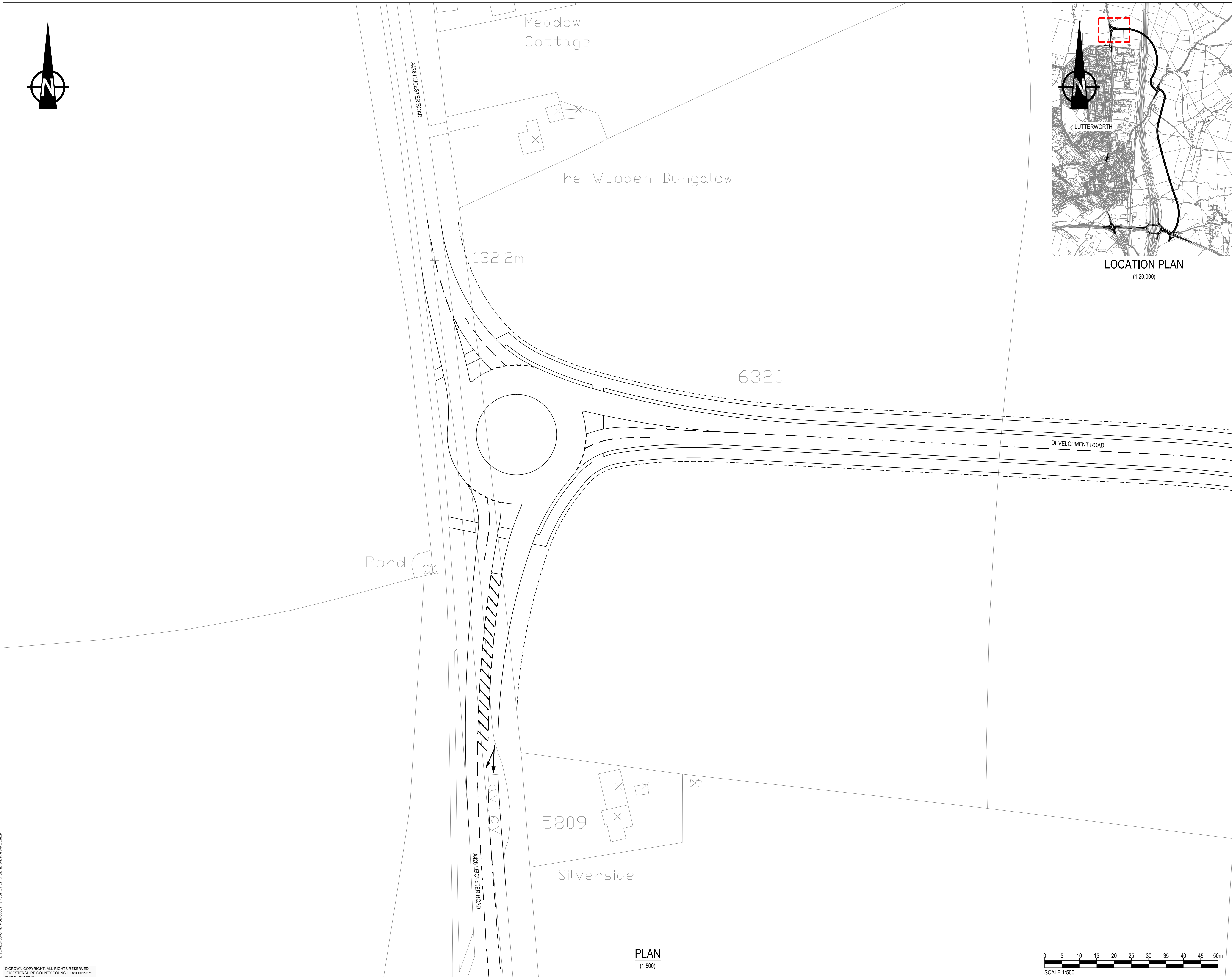
Designed	Drawn	Checked	Approved	Date
KB	KB	DB	GH	27/07/15

AECOM Internal Project No.
47074731
Subsidiary
-
Scale @ A1
Zone
-
AS-SHOWN

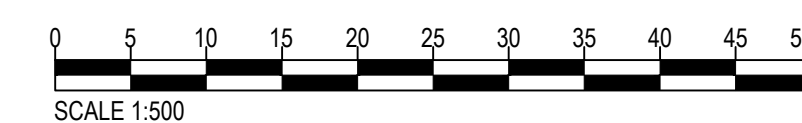
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Drawing Number	Rev
LWE-AEC-CJ-GF-DR-CE-00001	P2

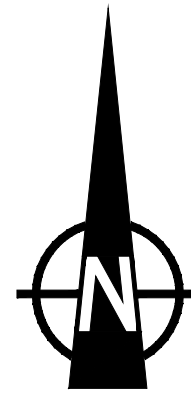


PLAN
(1:500)



Proj DWG: 21/10/16 2:27 PM
File Name: LWE-AEC-CJ-GF-DR-CE-00001 P2 - JUNCTION C GENERAL ARRANGEMENT

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LEICESTERSHIRE COUNTY COUNCIL LA100016271.
PUBLISHED 2015



Meadow Cottage

The Wooden Bungalow

132.2m

CROSSING FACILITIES TO BE CONSIDERED AT DETAILED DESIGN

6320

Pond

5809

Silverside

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Revision Details

By
Check

Date

Suffix

Purpose of issue
PRELIMINARY

Client
LEICESTERSHIRE COUNTY COUNCIL

Project Title
LUTTERWORTH EAST

Drawing Title
**JUNCTION C
GENERAL ARRANGEMENT**

Designed	Drawn	Checked	Approved	Date
DJM	DJM			
AECOM Internal Project No. 47074731		Subsidiary -		
Scale @ A1 1:500		Zone -		

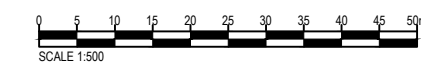
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Drawing Number
LWE-AEC-CJ-GF-DR-TS-00002

Rev
P1



Proj Date: 21/10/2016 6:53 PM
File Name: LWE-AEC-CJ-GF-DR-TS-00002 - JUNCTION C GENERAL ARRANGEMENT

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Junctions 8
ARCADY 8 - Roundabout Module
Version: 8.0.4.487 [15039,24/03/2014] © Copyright TRL Limited, 2015
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Filename: Northern Access - ARCADY.arc8
Path: L:\MHA PSP1\LCC\47074731 - Lutterworth East\3_Analysis\ARCADY
Report generation date: 31/07/2015 09:21:27

- » With Link Road - With Link Road, AM
- » With Link Road - With Link Road, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	With Link Road - With Link Road							
Arm 1	2.29	8.12	0.70	A	4.21	12.68	0.81	B
Arm 2	0.50	4.58	0.33	A	0.98	6.92	0.50	A
Arm 3	2.40	9.04	0.71	A	0.93	5.40	0.48	A

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

"D1 - With Link Road, AM " model duration: 07:45 - 09:15
 "D2 - With Link Road, PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.4.487 at 31/07/2015 09:21:27

File summary

Title	(untitled)
Location	
Site Number	
Date	07/07/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	32309dsg
Description	

Analysis Options

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

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

With Link Road - With Link Road, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	DemandSets	D1 - With Link Road, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
With Link Road, AM	With Link Road	AM		ONE HOUR	07:45	09:15	90	15	✓			✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				7.91	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A426 (N)	
2	2	Development	
3	3	A426 (S)	

Capacity Options

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

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.00	7.00	15.00	15.00	30.00	25.00	
2	3.00	7.00	15.00	15.00	30.00	25.00	
3	3.00	7.00	15.00	15.00	30.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.631	1564.598
2		(calculated)	(calculated)	0.631	1564.598
3		(calculated)	(calculated)	0.631	1564.598

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

Traffic Flows

Demand Set Data Options

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

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	933.00	100.000
2	ONE HOUR	✓	356.00	100.000
3	ONE HOUR	✓	881.00	100.000

Turning Proportions

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

		To		
		1	2	3
From	1	0.000	376.000	557.000
	2	284.000	0.000	72.000
	3	745.000	136.000	0.000

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

		To		
		1	2	3
From	1	0.00	0.40	0.60
	2	0.80	0.00	0.20
	3	0.85	0.15	0.00

Vehicle Mix

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

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	0.0	0.0
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.70	8.12	2.29	A	933.00	933.00	105.01	6.75	1.17	131.37	6.14
2	0.33	4.58	0.50	A	356.00	356.00	25.05	4.22	0.28	32.82	4.02
3	0.71	9.04	2.40	A	881.00	881.00	108.10	7.36	1.20	134.00	6.63

Main Results for each time segment

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	838.75	209.69	837.14	923.36	122.00	0.00	1487.67	1461.97	0.564	0.87	1.28	5.521	A
2	320.04	80.01	319.70	459.37	499.77	0.00	1249.48	1014.28	0.256	0.26	0.34	3.871	A
3	792.00	198.00	790.32	564.43	255.04	0.00	1403.79	1054.41	0.564	0.86	1.28	5.851	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1027.25	256.81	1023.34	1128.80	149.07	0.00	1470.61	1461.97	0.699	1.28	2.25	7.978	A
2	391.96	97.99	391.36	561.48	610.93	0.00	1179.39	1014.28	0.332	0.34	0.49	4.568	A
3	970.00	242.50	965.66	690.09	312.21	0.00	1367.75	1054.41	0.709	1.28	2.36	8.857	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1027.25	256.81	1027.12	1132.81	149.71	0.00	1470.20	1461.97	0.699	2.25	2.29	8.119	A
2	391.96	97.99	391.95	563.65	613.19	0.00	1177.97	1014.28	0.333	0.49	0.50	4.579	A
3	970.00	242.50	969.84	692.46	312.68	0.00	1367.45	1054.41	0.709	2.36	2.40	9.045	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	838.75	209.69	842.64	929.20	122.93	0.00	1487.09	1461.97	0.564	2.29	1.31	5.621	A
2	320.04	80.01	320.63	462.52	503.06	0.00	1247.41	1014.28	0.257	0.50	0.35	3.888	A
3	792.00	198.00	796.34	567.90	255.79	0.00	1403.32	1054.41	0.564	2.40	1.31	5.974	A

Queueing Delay Results for each time segment
Queueing Delay results: (08:00-08:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	18.52	1.23	5.521	A	A
2	5.05	0.34	3.871	A	A
3	18.51	1.23	5.851	A	A

Queueing Delay results: (08:15-08:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	31.93	2.13	7.978	A	A
2	7.26	0.48	4.568	A	A
3	33.26	2.22	8.857	A	A

Queueing Delay results: (08:30-08:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	34.09	2.27	8.119	A	A
2	7.43	0.50	4.579	A	A
3	35.77	2.38	9.045	A	A

Queueing Delay results: (08:45-09:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	20.46	1.36	5.621	A	A
2	5.31	0.35	3.888	A	A
3	20.56	1.37	5.974	A	A

With Link Road - With Link Road, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	DemandSets	D2 - With Link Road, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
With Link Road, FM	With Link Road	FM		ONE HOUR	16:45	18:15	90	15	✓			✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				9.51	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	A426 (N)	
2	2	Development	
3	3	A426 (S)	

Capacity Options

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

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.00	7.00	15.00	15.00	30.00	25.00	
2	3.00	7.00	15.00	15.00	30.00	25.00	
3	3.00	7.00	15.00	15.00	30.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.631	1564.598
2		(calculated)	(calculated)	0.631	1564.598
3		(calculated)	(calculated)	0.631	1564.598

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

Traffic Flows

Demand Set Data Options

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

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	1117.00	100.000
2	ONE HOUR	✓	469.00	100.000
3	ONE HOUR	✓	565.00	100.000

Turning Proportions

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

		To		
		1	2	3
From	1	0.000	356.000	761.000
	2	398.000	0.000	71.000
	3	489.000	76.000	0.000

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

		To		
		1	2	3
From	1	0.00	0.32	0.68
	2	0.85	0.00	0.15
	3	0.87	0.13	0.00

Vehicle Mix

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

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.0	0.0	0.0
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.81	12.68	4.21	B	1117.00	1117.00	176.48	9.48	1.96	213.13	8.32
2	0.50	6.92	0.98	A	469.00	469.00	46.61	5.96	0.52	59.04	5.49
3	0.48	5.40	0.93	A	565.00	565.00	45.71	4.85	0.51	59.10	4.56

Main Results for each time segment

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1004.16	251.04	1001.39	796.24	68.24	0.00	1521.57	1474.16	0.660	1.21	1.90	6.883	A
2	421.62	105.41	420.92	387.39	682.24	0.00	1134.43	931.35	0.372	0.41	0.59	5.040	A
3	507.92	126.98	507.28	745.96	357.20	0.00	1339.38	1066.26	0.379	0.44	0.61	4.320	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1229.84	307.46	1221.14	974.20	83.51	0.00	1511.94	1474.16	0.813	1.90	4.08	12.027	B
2	516.38	129.09	514.84	472.70	831.95	0.00	1040.04	931.35	0.497	0.59	0.97	6.833	A
3	622.08	155.52	620.81	909.89	436.90	0.00	1289.12	1066.26	0.483	0.61	0.92	5.377	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1229.84	307.46	1229.31	976.54	83.67	0.00	1511.84	1474.16	0.813	4.08	4.21	12.677	B
2	516.38	129.09	516.33	475.47	837.52	0.00	1036.53	931.35	0.498	0.97	0.98	6.920	A
3	622.08	155.52	622.05	915.68	438.16	0.00	1288.33	1066.26	0.483	0.92	0.93	5.402	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	1004.16	251.04	1013.05	799.77	68.49	0.00	1521.41	1474.16	0.660	4.21	1.98	7.200	A
2	421.62	105.41	423.15	391.36	690.18	0.00	1129.42	931.35	0.373	0.98	0.60	5.107	A
3	507.92	126.98	509.17	754.24	359.09	0.00	1338.18	1066.26	0.380	0.93	0.62	4.350	A

Queueing Delay Results for each time segment
Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	27.24	1.82	6.883	A	A
2	8.59	0.57	5.040	A	A
3	8.91	0.59	4.320	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	55.30	3.69	12.027	B	B
2	14.05	0.94	6.833	A	A
3	13.44	0.90	5.377	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	62.33	4.16	12.677	B	B
2	14.69	0.98	6.920	A	A
3	13.89	0.93	5.402	A	A

Queueing Delay results: (17:45-18:00)

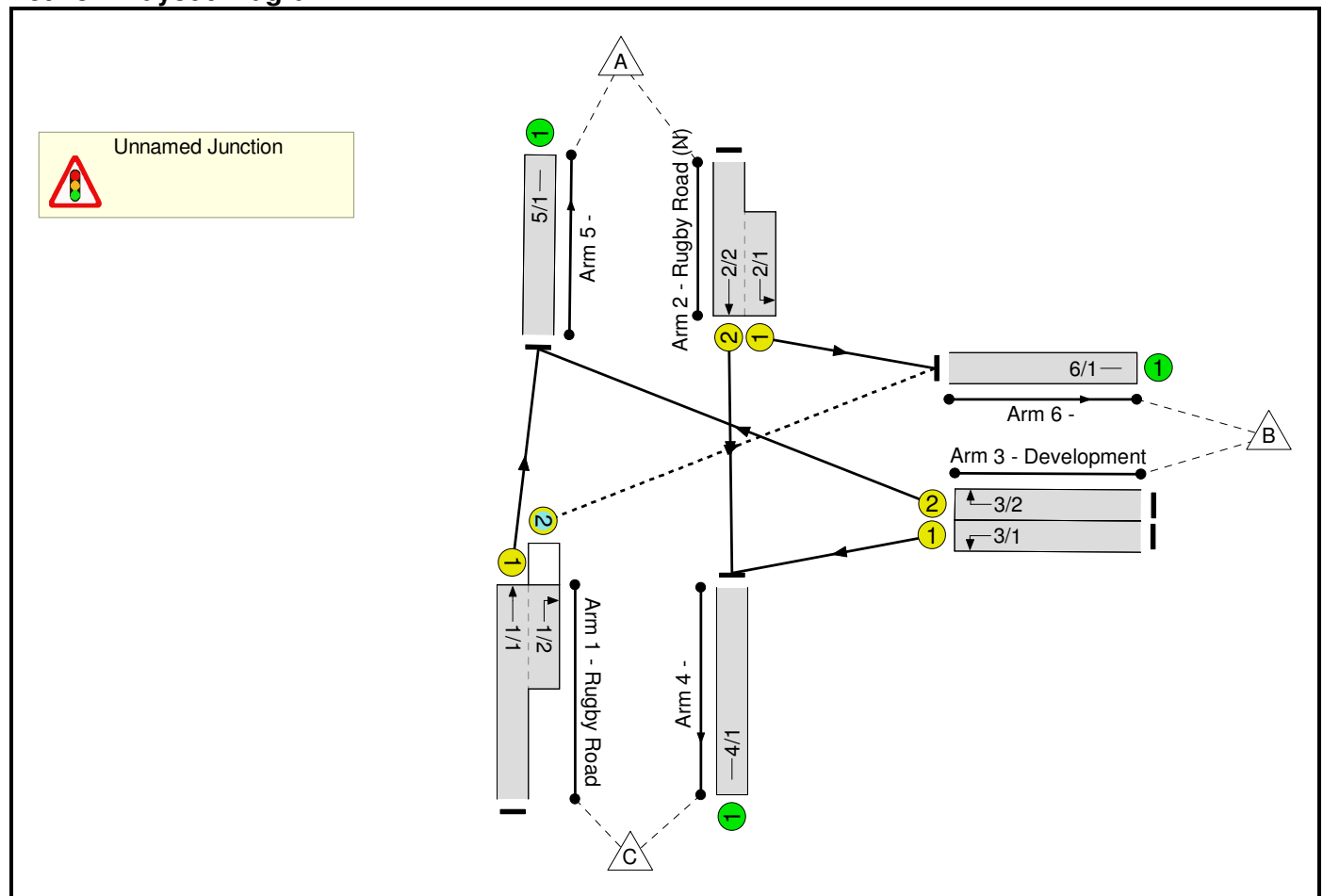
Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	31.61	2.11	7.200	A	A
2	9.27	0.62	5.107	A	A
3	9.47	0.63	4.350	A	A

Full Input Data And Results
Full Input Data And Results

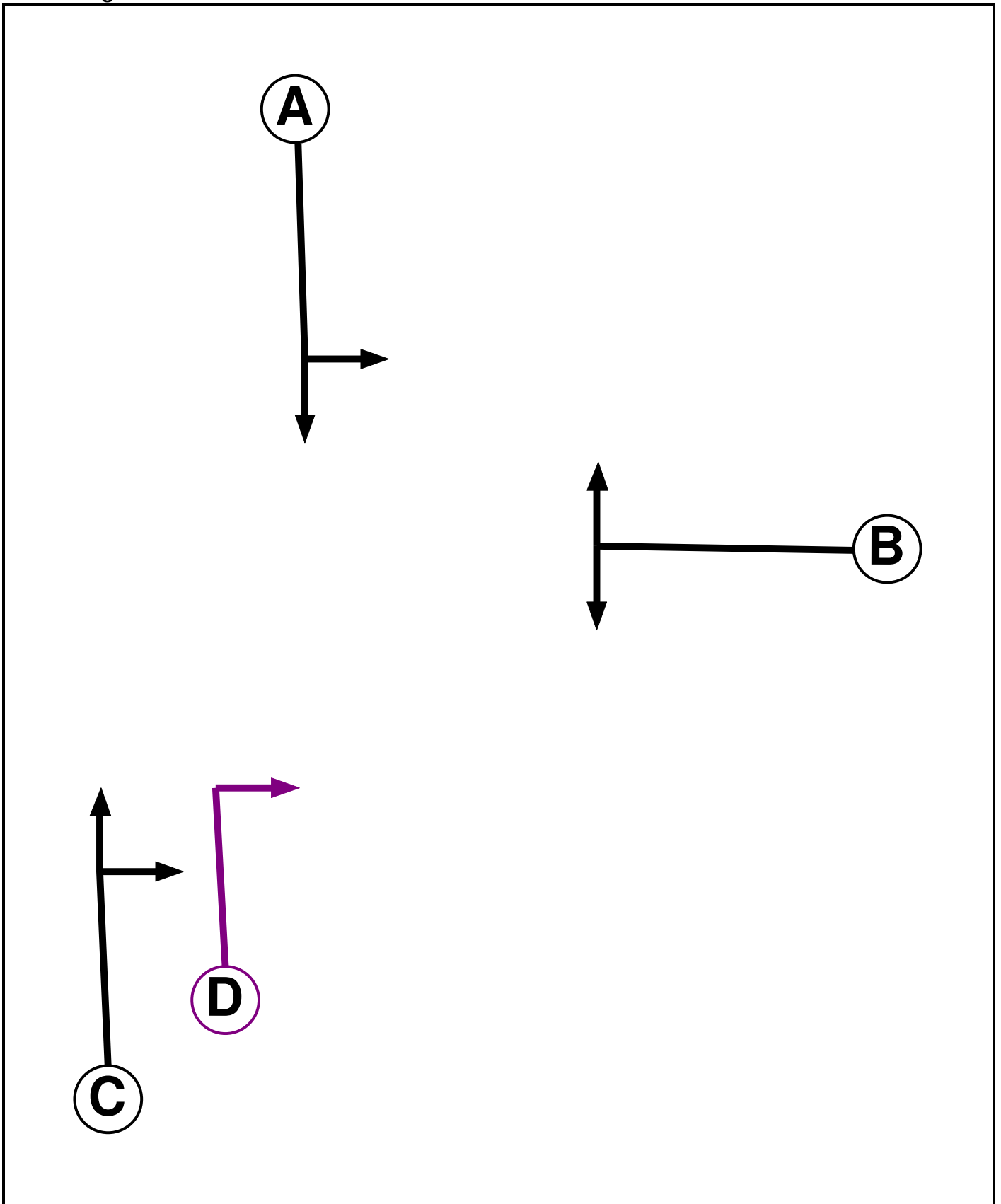
User and Project Details

Project:	
Title:	
Location:	
File name:	Northern Access.lsg3x
Author:	
Company:	
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	C	4	4

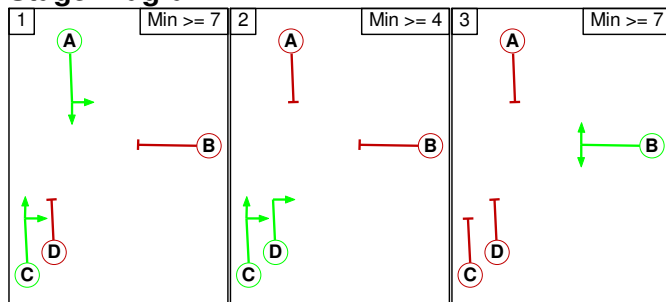
Phase Intergreens Matrix

		Starting Phase			
		A	B	C	D
Terminating Phase	A		6	-	6
	B	6		6	6
	C	-	6		-
	D	6	6	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	C D
3	B

Stage Diagram



Phase Delays

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

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		6	6
	2	6		6
	3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Rugby Road)	6/1 (Right)	1439	0	2/2	1.09	All	2.00	-	0.50	2	2.00
				2/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Rugby Road)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
1/2 (Rugby Road)	O	C D	2	3	5.0	Geom	-	3.25	0.00	Y	Arm 6 Right	25.00
2/1 (Rugby Road (N))	U	A	2	3	5.0	Geom	-	3.25	0.00	Y	Arm 6 Left	15.00
2/2 (Rugby Road (N))	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Ahead	Inf
3/1 (Development)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Left	15.00
3/2 (Development)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Right	25.00
4/1	U		2	3	60.0	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
1: 'Design 2031 AM'	08:00	09:00	01:00	
2: 'Design 2031 PM'	17:00	18:00	01:00	

Scenario 1: 'Design 2031 - AM' (FG1: 'Design 2031 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	376	557	933
	B	284	0	72	356
	C	745	136	0	881
	Tot.	1029	512	629	2170

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: Design 2031 - AM
Junction: Unnamed Junction	
1/1 (with short)	881(In) 745(Out)
1/2 (short)	136
2/1 (short)	376
2/2 (with short)	933(In) 557(Out)
3/1	72
3/2	284
4/1	629
5/1	1029
6/1	512

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Rugby Road)	3.25	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1940	1940
1/2 (Rugby Road)	3.25	0.00	Y	Arm 6 Right	25.00	100.0 %	1830	1830
2/1 (Rugby Road (N))	3.25	0.00	Y	Arm 6 Left	15.00	100.0 %	1764	1764
2/2 (Rugby Road (N))	3.25	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1940	1940
3/1 (Development)	3.25	0.00	Y	Arm 4 Left	15.00	100.0 %	1764	1764
3/2 (Development)	3.25	0.00	Y	Arm 5 Right	25.00	100.0 %	1830	1830
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'Design 2031 - PM' (FG2: 'Design 2031 PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	356	761	1117
	B	398	0	71	469
	C	489	76	0	565
	Tot.	887	432	832	2151

Full Input Data And Results

Traffic Lane Flows

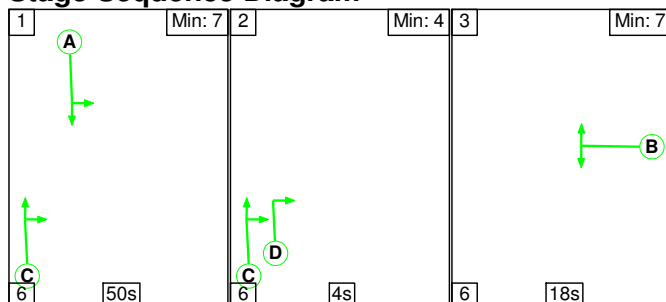
Lane	Scenario 2: Design 2031 - PM
Junction: Unnamed Junction	
1/1 (with short)	565(In) 489(Out)
1/2 (short)	76
2/1 (short)	356
2/2 (with short)	1117(In) 761(Out)
3/1	71
3/2	398
4/1	832
5/1	887
6/1	432

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Rugby Road)	3.25	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1940	1940
1/2 (Rugby Road)	3.25	0.00	Y	Arm 6 Right	25.00	100.0 %	1830	1830
2/1 (Rugby Road (N))	3.25	0.00	Y	Arm 6 Left	15.00	100.0 %	1764	1764
2/2 (Rugby Road (N))	3.25	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1940	1940
3/1 (Development)	3.25	0.00	Y	Arm 4 Left	15.00	100.0 %	1764	1764
3/2 (Development)	3.25	0.00	Y	Arm 5 Right	25.00	100.0 %	1830	1830
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'Design 2031 - AM' (FG1: 'Design 2031 AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

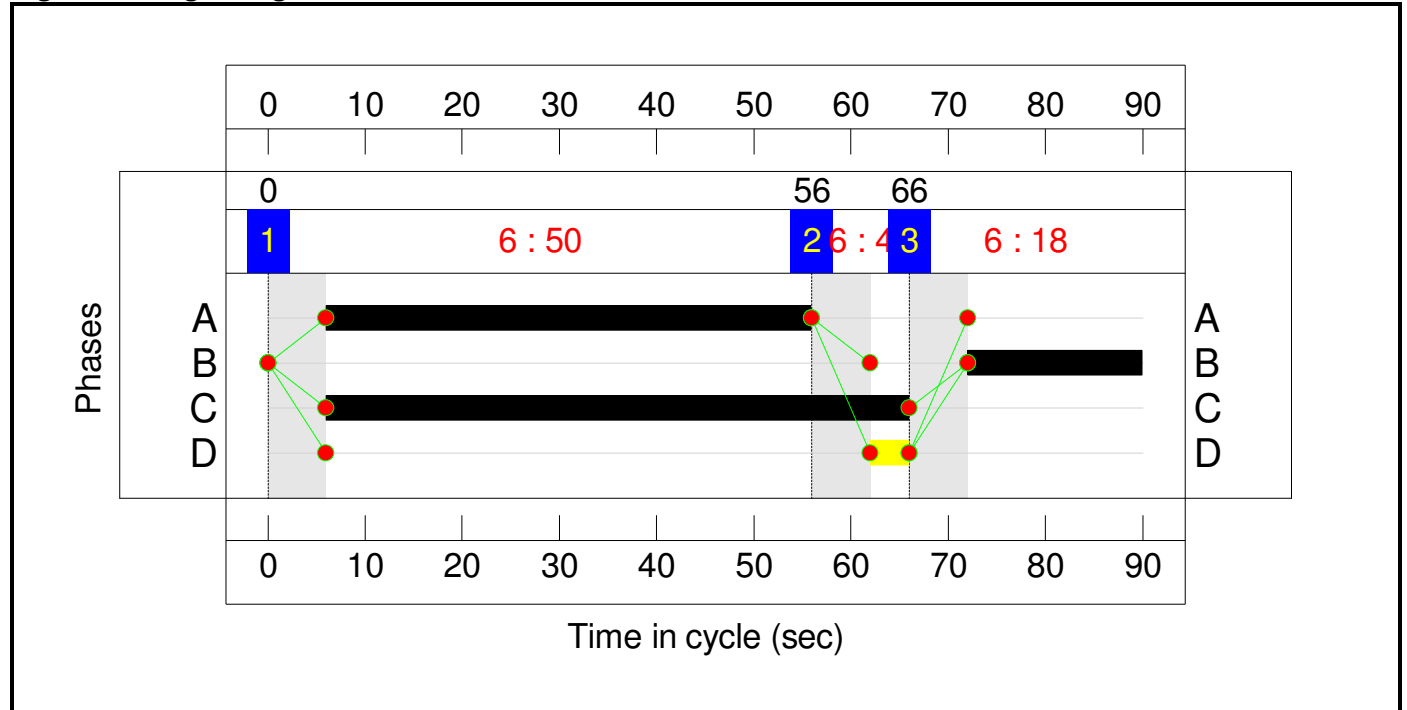


Full Input Data And Results

Stage Timings


Stage	1	2	3
Duration	50	4	18
Change Point	0	56	66

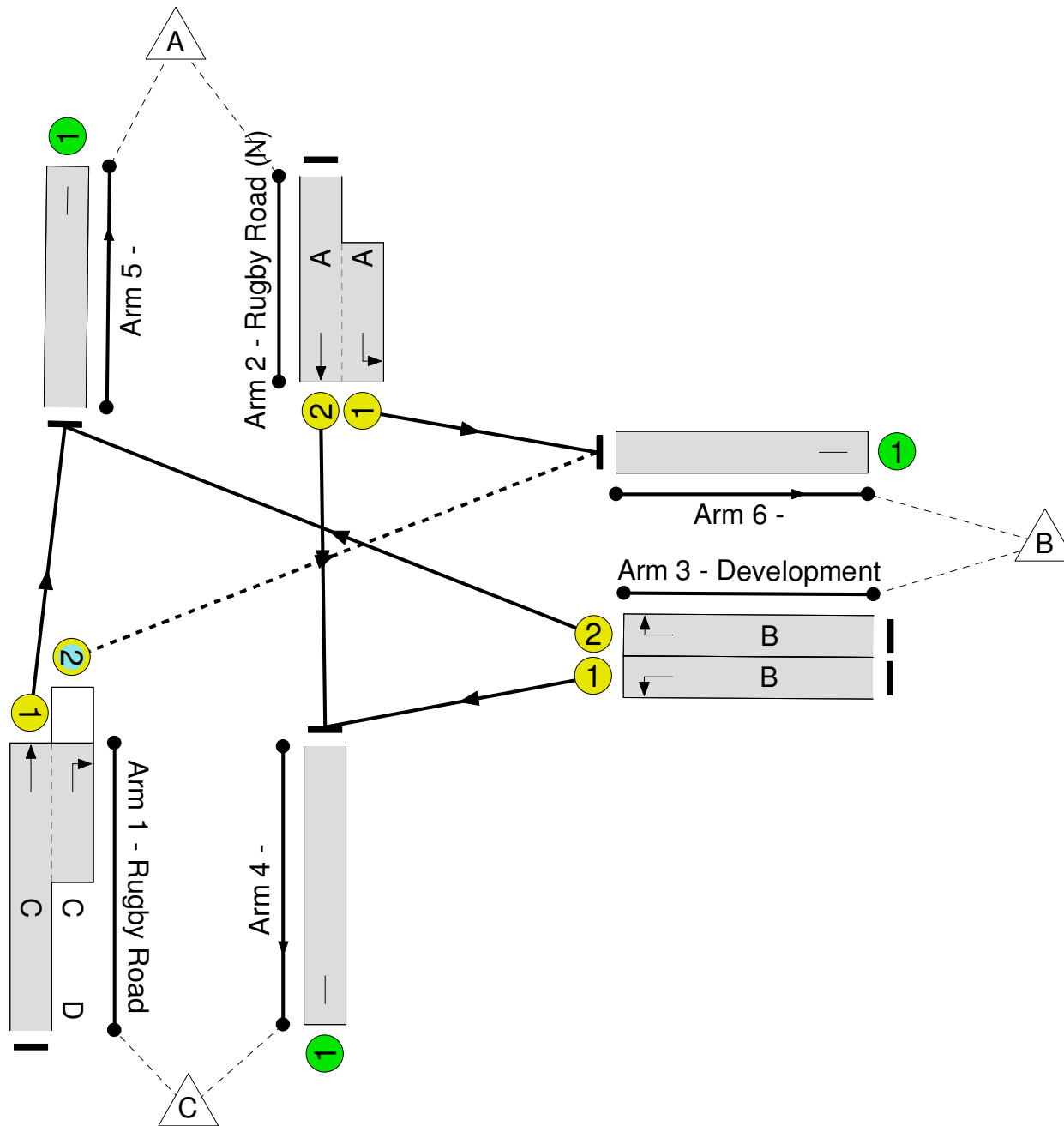
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

 **Unnamed Junction**
PRC: 16.3 %
Total Traffic Delay: 13.1 pcuHr



Full Input Data And Results

Network Results

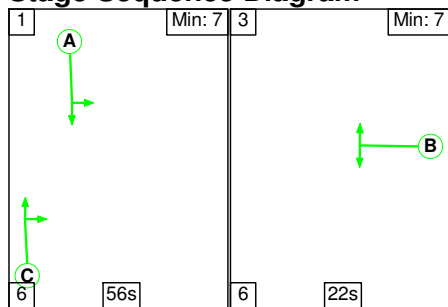
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	77.4%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	77.4%
1/1+1/2	Rugby Road Ahead Right	U+O	N/A	N/A	C	D	1	60	4	881	1940:1830	1347	65.4%
2/2+2/1	Rugby Road (N) Ahead Left	U	N/A	N/A	A		1	50	-	933	1940:1764	1205	77.4%
3/1	Development Left	U	N/A	N/A	B		1	18	-	72	1764	372	19.3%
3/2	Development Right	U	N/A	N/A	B		1	18	-	284	1830	386	73.5%
4/1		U	N/A	N/A	-		-	-	-	629	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	1029	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	512	Inf	Inf	0.0%
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	-	-	119	14	3	8.3	4.1	0.7	13.1	-	-	-	-
Unnamed Junction	-	-	119	14	3	8.3	4.1	0.7	13.1	-	-	-	-
1/1+1/2	881	881	119	14	3	1.9	0.9	0.7	3.5	14.2	11.1	0.9	12.0
2/2+2/1	933	933	-	-	-	3.2	1.7	-	4.9	19.0	13.0	1.7	14.6
3/1	72	72	-	-	-	0.6	0.1	-	0.7	35.2	1.5	0.1	1.6
3/2	284	284	-	-	-	2.6	1.4	-	4.0	50.3	6.6	1.4	8.0
4/1	629	629	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1029	1029	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	512	512	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1			PRC for Signalled Lanes (%):		16.3	Total Delay for Signalled Lanes (pcuHr):			13.07	Cycle Time (s): 90			
			PRC Over All Lanes (%):		16.3	Total Delay Over All Lanes(pcuHr):			13.07				

Full Input Data And Results

Full Input Data And Results

Scenario 2: 'Design 2031 - PM' (FG2: 'Design 2031 PM', Plan 2: 'Network Control Plan 2')

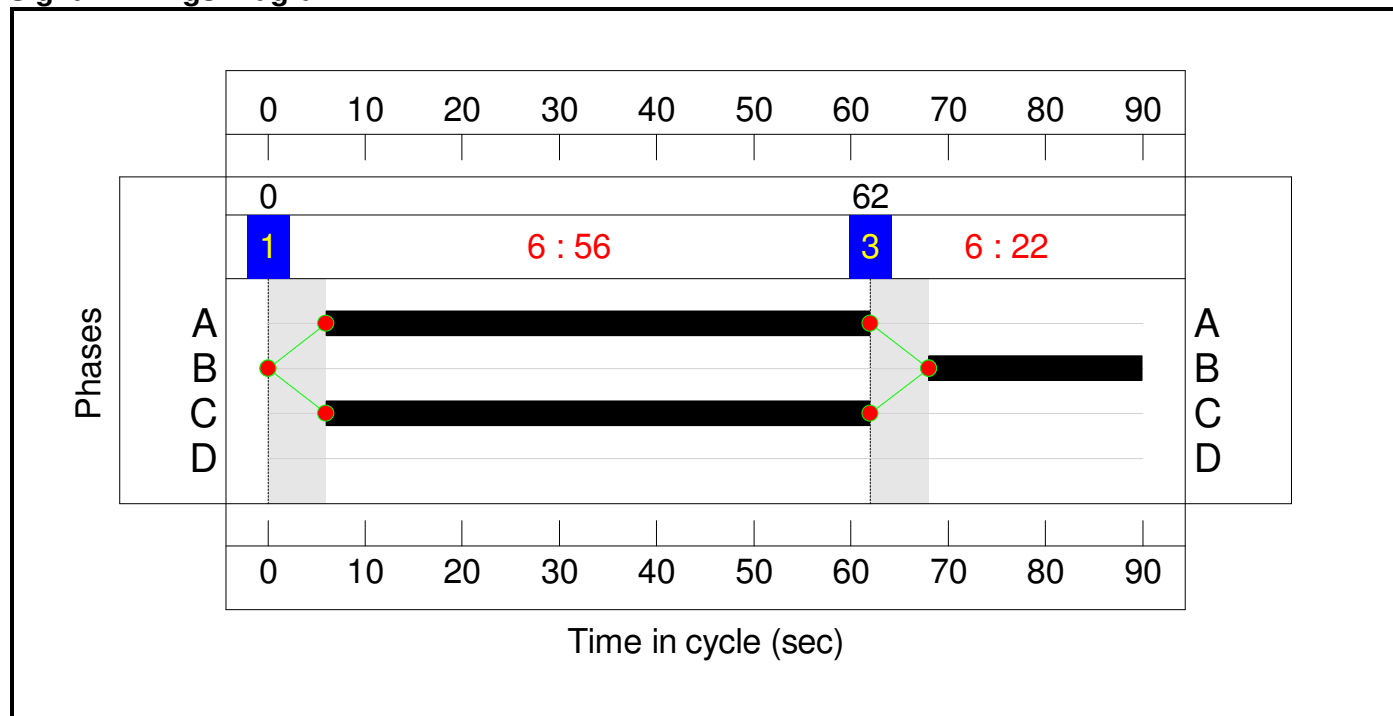
Stage Sequence Diagram



Stage Timings


Stage	1	3
Duration	56	22
Change Point	0	62

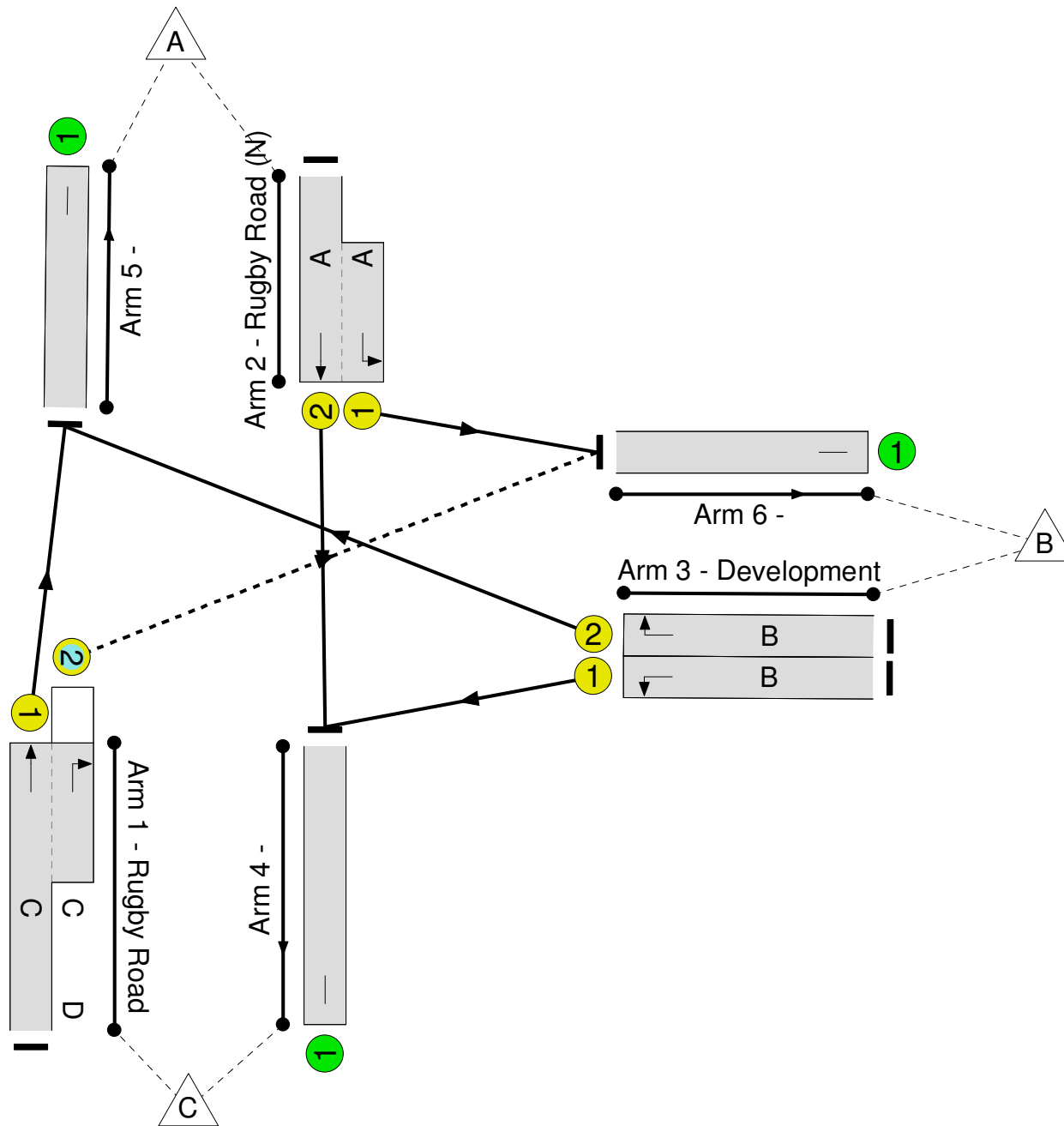
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

 **Unnamed Junction**
PRC: 4.4 %
Total Traffic Delay: 15.6 pcuHr



Full Input Data And Results

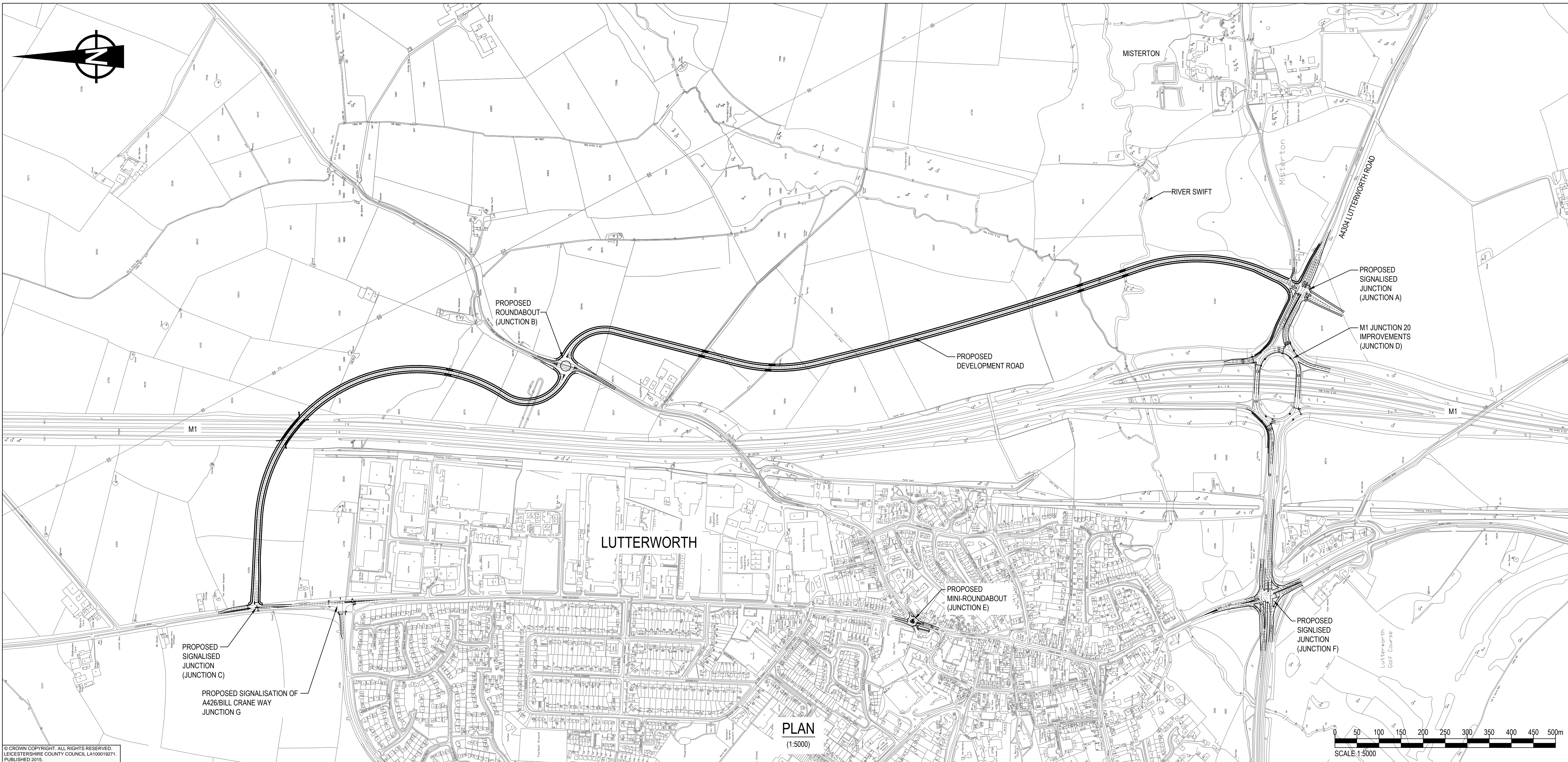
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	
Network	-	-	N/A	-	-		-	-	-	-	-	-	86.2%	
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	86.2%	
1/1+1/2	Rugby Road Ahead Right	U+O	N/A	N/A	C	D	1	56	0	565	1940:1830	1213	46.6%	
2/2+2/1	Rugby Road (N) Ahead Left	U	N/A	N/A	A		1	56	-	1117	1940:1764	1296	86.2%	
3/1	Development Left	U	N/A	N/A	B		1	22	-	71	1764	451	15.7%	
3/2	Development Right	U	N/A	N/A	B		1	22	-	398	1830	468	85.1%	
4/1		U	N/A	N/A	-		-	-	-	832	Inf	Inf	0.0%	
5/1		U	N/A	N/A	-		-	-	-	887	Inf	Inf	0.0%	
6/1		U	N/A	N/A	-		-	-	-	432	Inf	Inf	0.0%	
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	-	-	49	0	27	8.8	6.2	0.7	15.6	-	-	-	-	
Unnamed Junction	-	-	49	0	27	8.8	6.2	0.7	15.6	-	-	-	-	
1/1+1/2	565	565	49	0	27	1.2	0.4	0.7	2.4	15.0	6.1	0.4	6.6	
2/2+2/1	1117	1117	-	-	-	3.5	3.0	-	6.5	21.0	18.8	3.0	21.8	
3/1	71	71	-	-	-	0.5	0.1	-	0.6	30.7	1.4	0.1	1.5	
3/2	398	398	-	-	-	3.5	2.7	-	6.2	55.9	9.4	2.7	12.1	
4/1	832	832	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	887	887	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
6/1	432	432	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
C1			PRC for Signalled Lanes (%):	4.4	Total Delay for Signalled Lanes (pcuHr):			15.64	Cycle Time (s):		90			
			PRC Over All Lanes (%):	4.4	Total Delay Over All Lanes(pcuHr):			15.64						

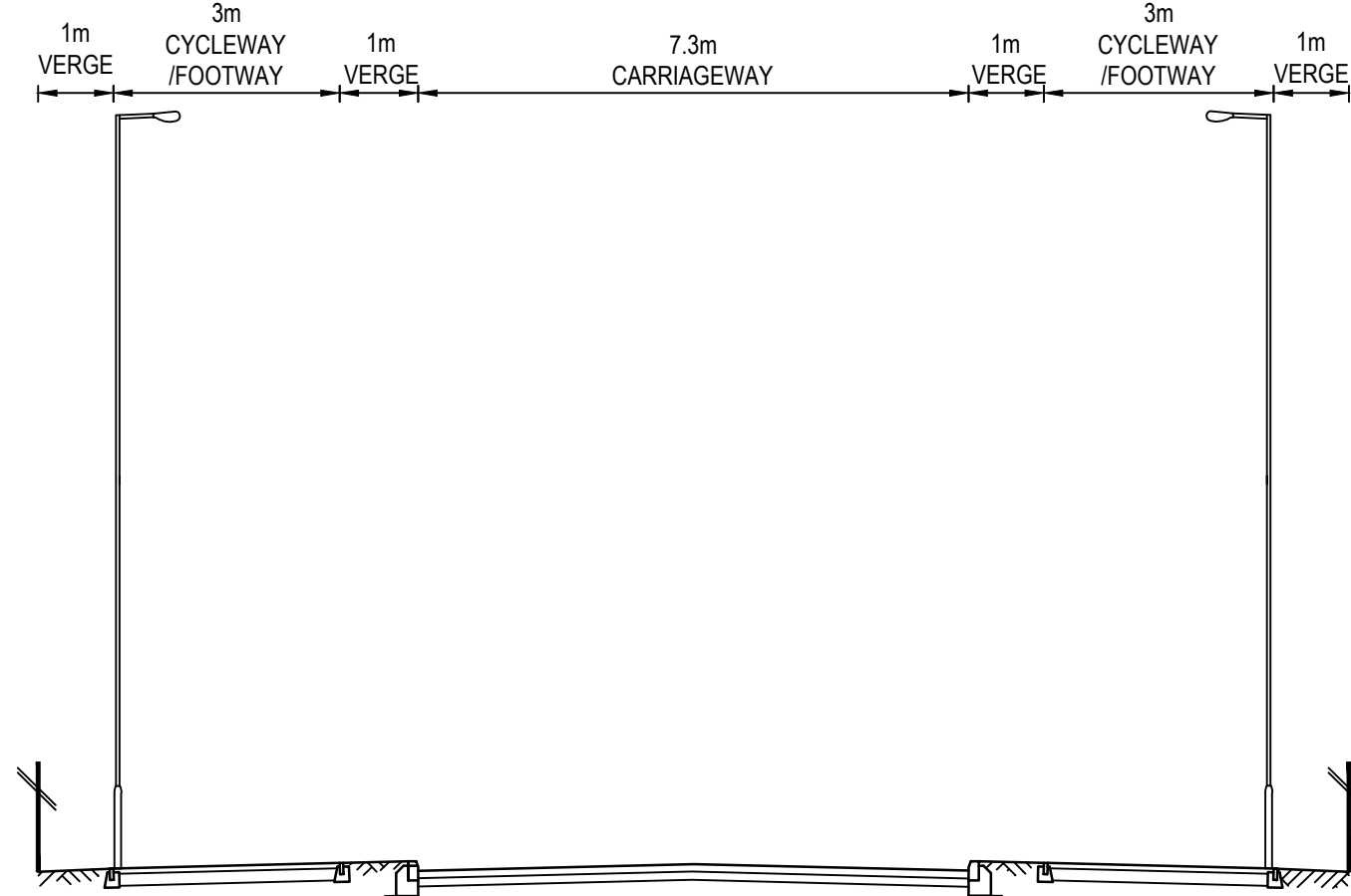
Full Input Data And Results

SPINE ROAD DESIGNS

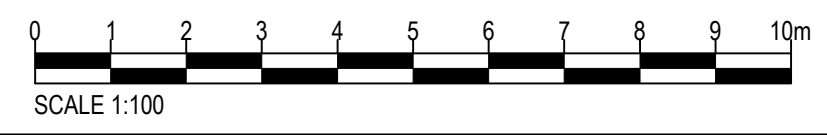
G



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TYPICAL DEVELOPMENT ROAD CORRIDOR SECTION
(1:100)



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KEY

RIVER AND PIPE CROSSING, UNDERPASS AND M1 BRIDGE

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PROPOSED LAYOUT REVISED	KB	11.02.16	P2
Revision Details	By	Date	Suffix
	Check		

Purpose of issue: **PRELIMINARY**

Client: **LEICESTERSHIRE COUNTY COUNCIL**

Project Title: **LUTTERWORTH EAST**

Drawing Title: **GENERAL ARRANGEMENT AND TYPICAL SECTIONS**

Designed	Drawn	Checked	Approved	Date
KB	KB	DB	GH	27/07/15
AECOM Internal Project No.		Suitability		
47074731		-		
Scale @ A1		Zone		
AS SHOWN		-		

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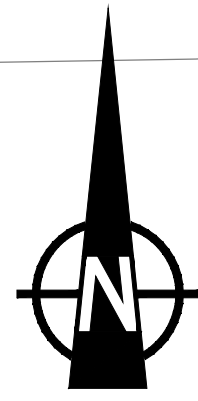
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Drawing Number	Rev
LWE-AEC-ZZ-GF-DR-CE-00001	P2

Proj Date: 21/10/15 3:30 PM
 File Name: LWE-AEC-ZZ-GF-DR-CE-00001 P2 - GENERAL ARRANGEMENT AND TYPICAL SECTION

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3700

5809

Silverside

132.2m

6700

Track

Sorting Office

Ware

NOBLE CLOSE

DRAFT
JUNCTION G
GENERAL ARRANGEMENT
WORK IN PROGRESS

Designed	Drawn	Checked	Approved	Date
DJM	DJM			
AECOM Internal Project No. 47074731		Subsidiary		
Scale @ A1 1:500		Zone		

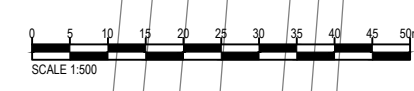
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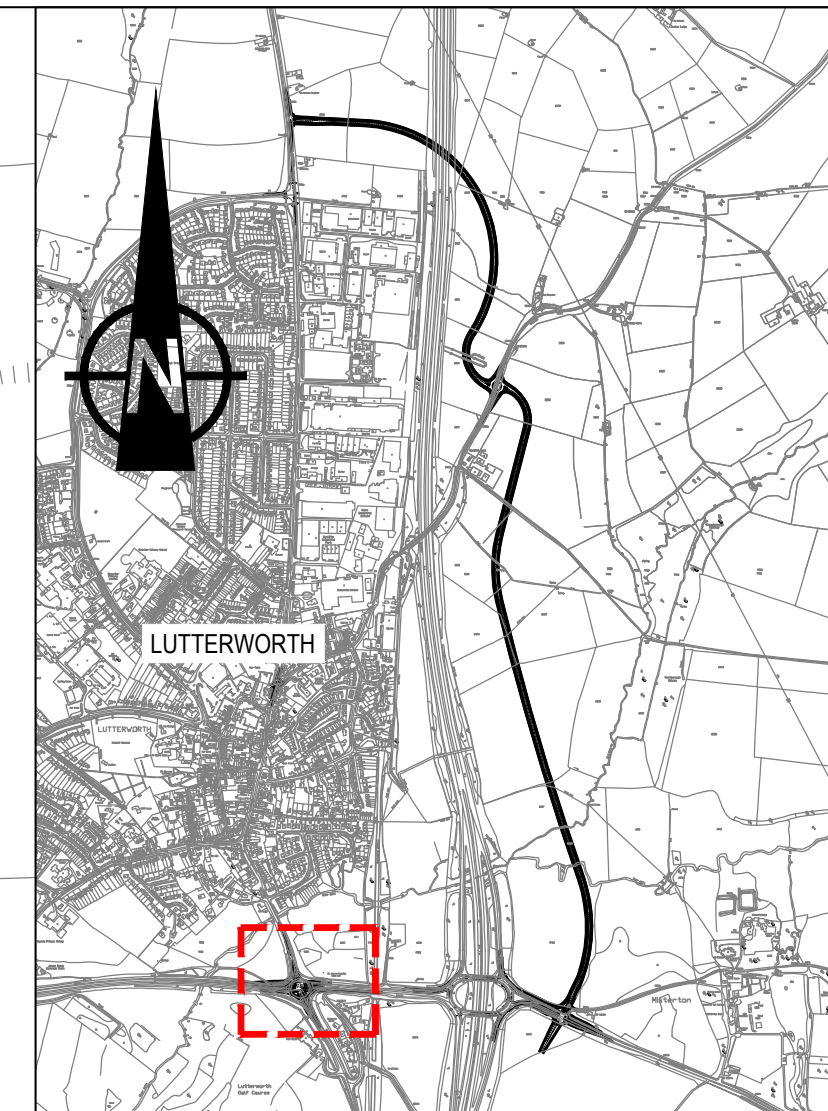
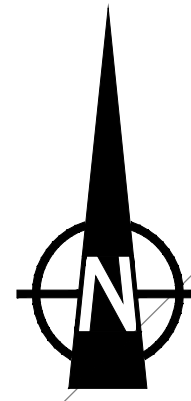
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Proj Date: 21/01/2016 9:58 PM
File Name: LWE-AEC-GJ-GF-DR-TS-00001 - JUNCTION G GENERAL ARRANGEMENT

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LOCATION PLAN
(1:20,000)

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Revision Details	By	Date	Suffix
	Check		

Purpose of issue
PRELIMINARY

Client
LEICESTERSHIRE COUNTY COUNCIL

Project Title
LUTTERWORTH EAST

Drawing Title
**JUNCTION F
GENERAL ARRANGEMENT**
DRAFT
WORK IN PROGRESS

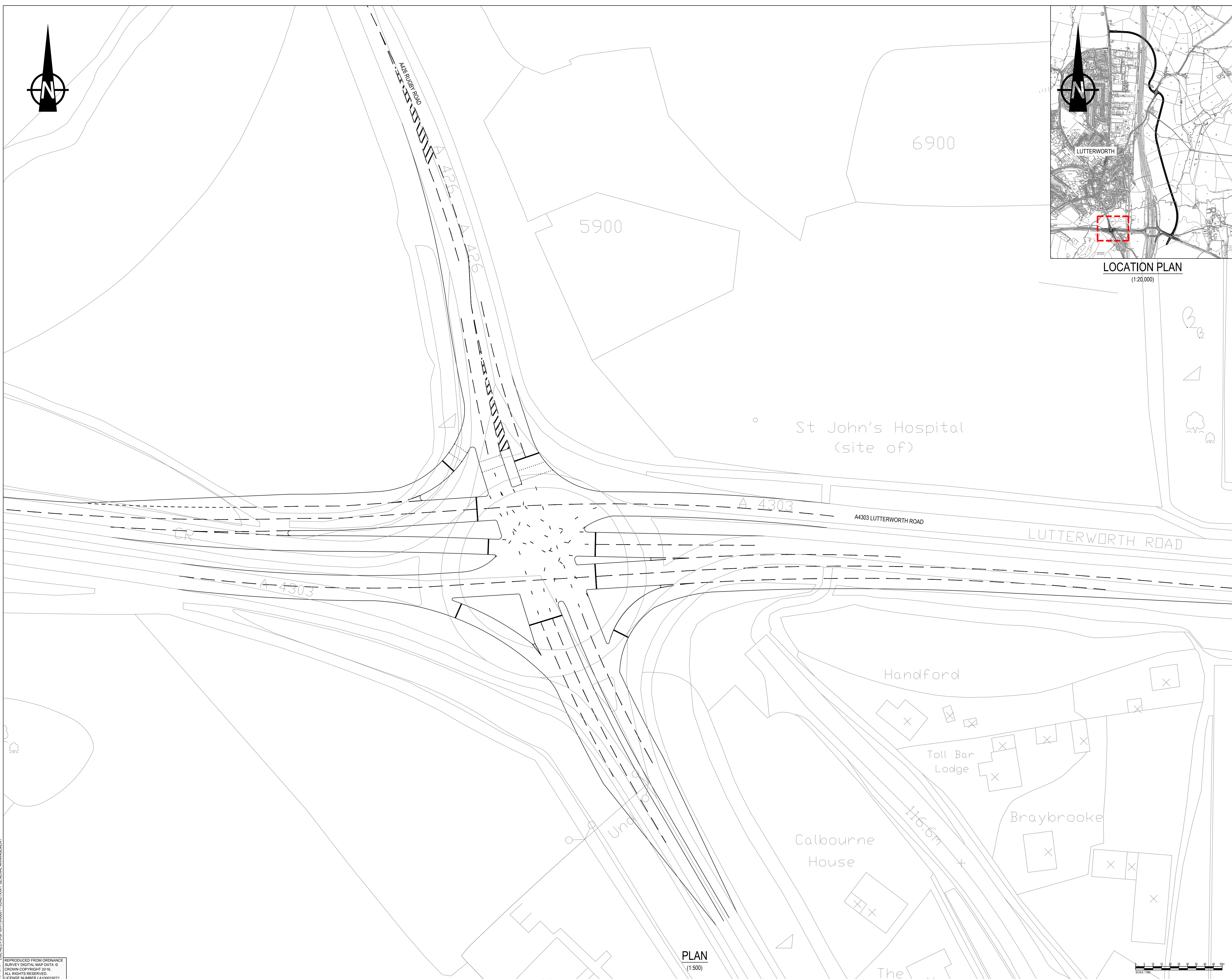
Designed	Drawn	Checked	Approved	Date
DJM	DJM			

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Subsidiary
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Scale @ A1
Zone
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P1



PLAN
(1:500)

Plot Date: 21/05/2016 2:09 PM
File Name: LWE-AEC-FJ-GF-DR-TS-00001 - JUNCTION F GENERAL ARRANGEMENT

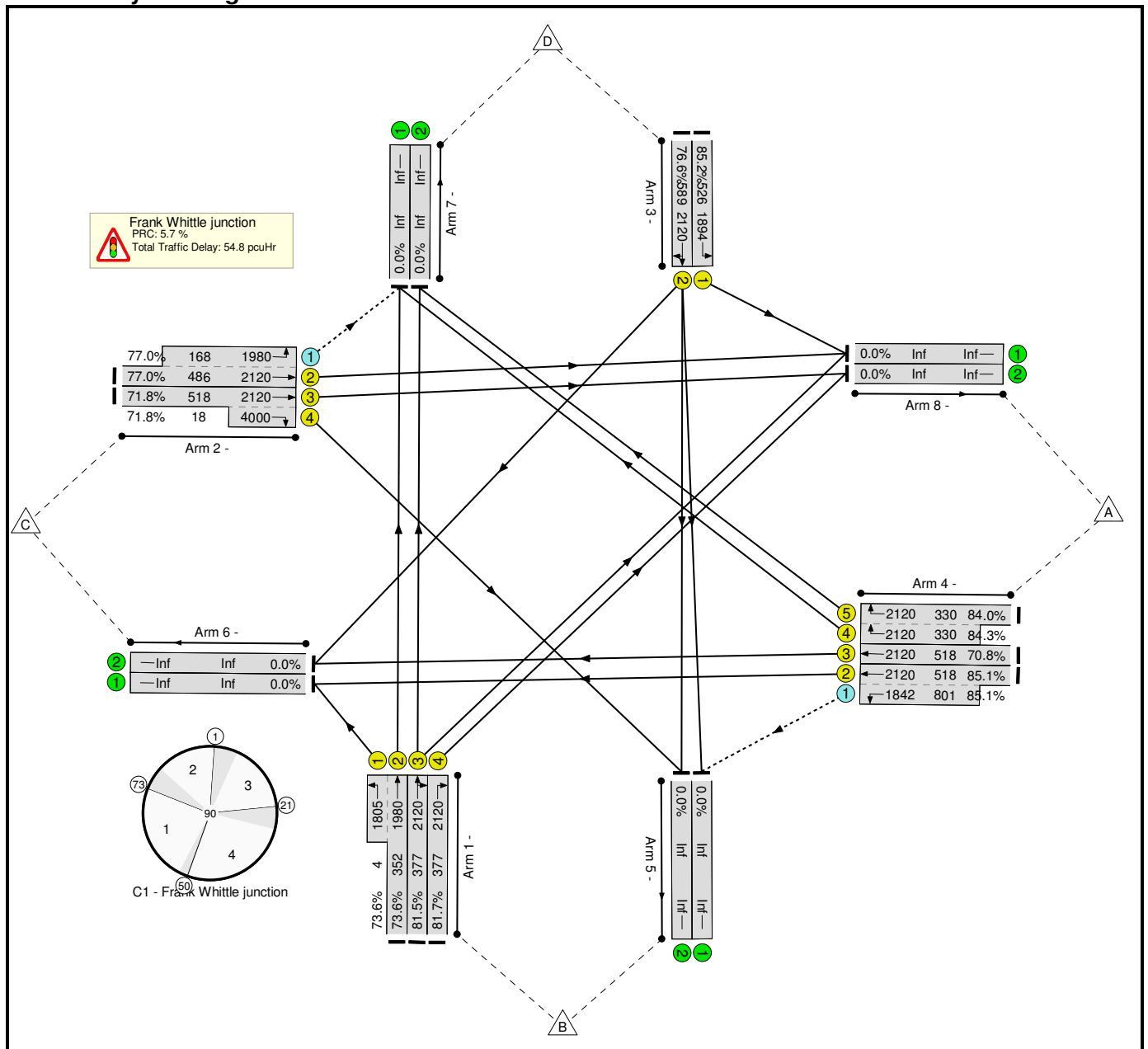
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Basic Results Summary
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
File name:	Frank Whittle junction.lsg3x
Author:	
Company:	
Address:	
Notes:	

Scenario 1: 'AM Base' (FG1: 'AM Peak', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

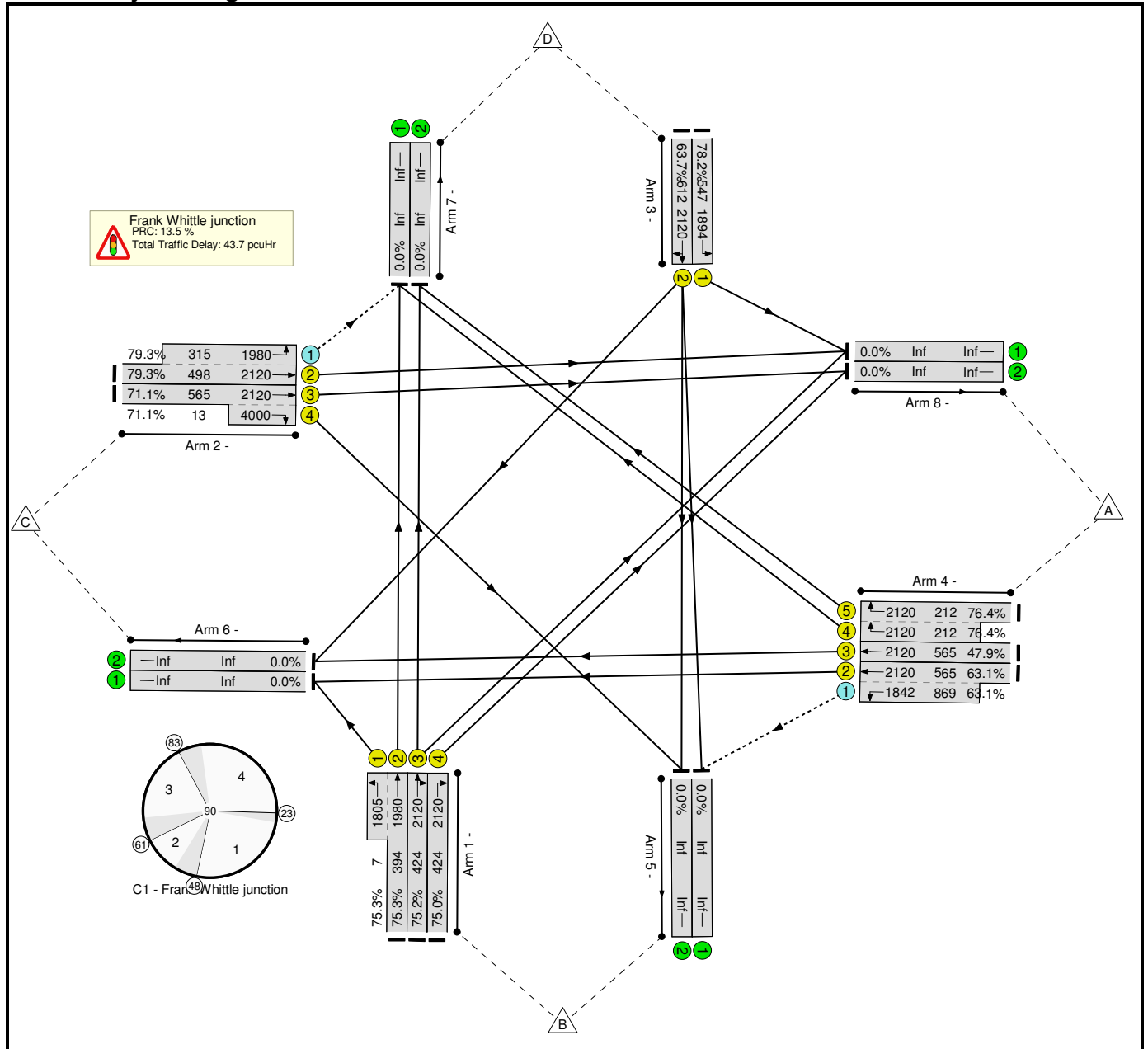
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	
Network	-	-	-		-	-	-	-	-	-	85.2%	212	599	0	54.8	-	-	
Frank Whittle junction	-	-	-		-	-	-	-	-	-	85.2%	212	599	0	54.8	-	-	
1/2+1/1	Left Ahead	U	B		1	15	-	262	1980:1805	352+4	73.6 : 73.6%	-	-	-	3.9	53.6	7.5	
1/3	Ahead Right	U	A		1	15	-	307	2120	377	81.5%	-	-	-	5.1	59.9	9.4	
1/4	Right	U	A		1	15	-	308	2120	377	81.7%	-	-	-	5.2	60.2	9.5	
2/2+2/1	Left Ahead	U+O	D -		1	21	-	503	2120:1980	486+168	77.0 : 77.0%	23	106	0	4.9	35.1	10.2	
2/3+2/4	Right Ahead	U	D C		1	21:13	-	385	2120:4000	518+18	71.8 : 71.8%	-	-	-	4.6	42.9	9.8	
3/1	Left	U	F		1	24	-	448	1894	526	85.2%	-	-	-	6.5	52.3	13.3	
3/2	Ahead Right	U	E		1	24	-	451	2120	589	76.6%	-	-	-	5.3	42.6	11.9	
4/2+4/1	Left Ahead	U+O	H -		1	21	-	1123	2120:1842	518+801	85.1 : 85.1%	189	493	0	6.8	21.6	13.2	
4/3	Ahead	U	H		1	21	-	367	2120	518	70.8%	-	-	-	4.4	42.8	9.6	
4/5+4/4	Right	U	G		1	13	-	555	2120:2120	330+330	84.0 : 84.3%	-	-	-	8.2	53.4	9.2	
C1 - Frank Whittle junction					PRC for Signalled Lanes (%): 5.7			Total Delay for Signalled Lanes (pcuHr): 54.83			Cycle Time (s): 90							
					PRC Over All Lanes (%): 5.7			Total Delay Over All Lanes(pcuHr): 54.83										

Basic Results Summary

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

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	79.3%	209	590	0	43.7	-	-
Frank Whittle junction	-	-	-		-	-	-	-	-	-	79.3%	209	590	0	43.7	-	-
1/2+1/1	Left Ahead	U	B		1	17	-	302	1980:1805	394+7	75.3 : 75.3%	-	-	-	4.3	51.5	8.4
1/3	Ahead Right	U	A		1	17	-	319	2120	424	75.2%	-	-	-	4.5	50.6	8.9
1/4	Right	U	A		1	17	-	318	2120	424	75.0%	-	-	-	4.5	50.4	8.9
2/2+2/1	Left Ahead	U+O	D -		1	23	-	645	2120:1980	498+315	79.3 : 79.3%	50	200	0	5.2	29.1	10.8
2/3+2/4	Right Ahead	U	D C		1	23:8	-	411	2120:4000	565+13	71.1 : 71.1%	-	-	-	4.6	40.6	10.3
3/1	Left	U	F		1	25	-	428	1894	547	78.2%	-	-	-	5.2	44.1	11.5
3/2	Ahead Right	U	E		1	25	-	390	2120	612	63.7%	-	-	-	3.9	35.9	9.3
4/2+4/1	Left Ahead	U+O	H -		1	23	-	906	2120:1842	565+869	63.1 : 63.1%	159	390	0	3.7	14.9	8.7
4/3	Ahead	U	H		1	23	-	271	2120	565	47.9%	-	-	-	2.5	33.9	6.1
4/5+4/4	Right	U	G		1	8	-	324	2120:2120	212+212	76.4 : 76.4%	-	-	-	5.1	56.9	5.5
C1 - Frank Whittle junction					PRC for Signalled Lanes (%):		13.5	Total Delay for Signalled Lanes (pcuHr):		43.66	Cycle Time (s):		90				
					PRC Over All Lanes (%):		13.5	Total Delay Over All Lanes(pcuHr):		43.66							