



Norwich Western Link

Transport Assessment - Appendix 11 – Junction Model Results

Sub Appendix 11I – Junction 15 A1067 Fakenham Road/ A1270 Broadland Northway roundabout

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Document Reference: 4.01.11I

Version Number: 00

Date: March 2024



Contents

1 Junction Model Results 3

Figures

Figure 1-1 Junction Assessment Scope 3



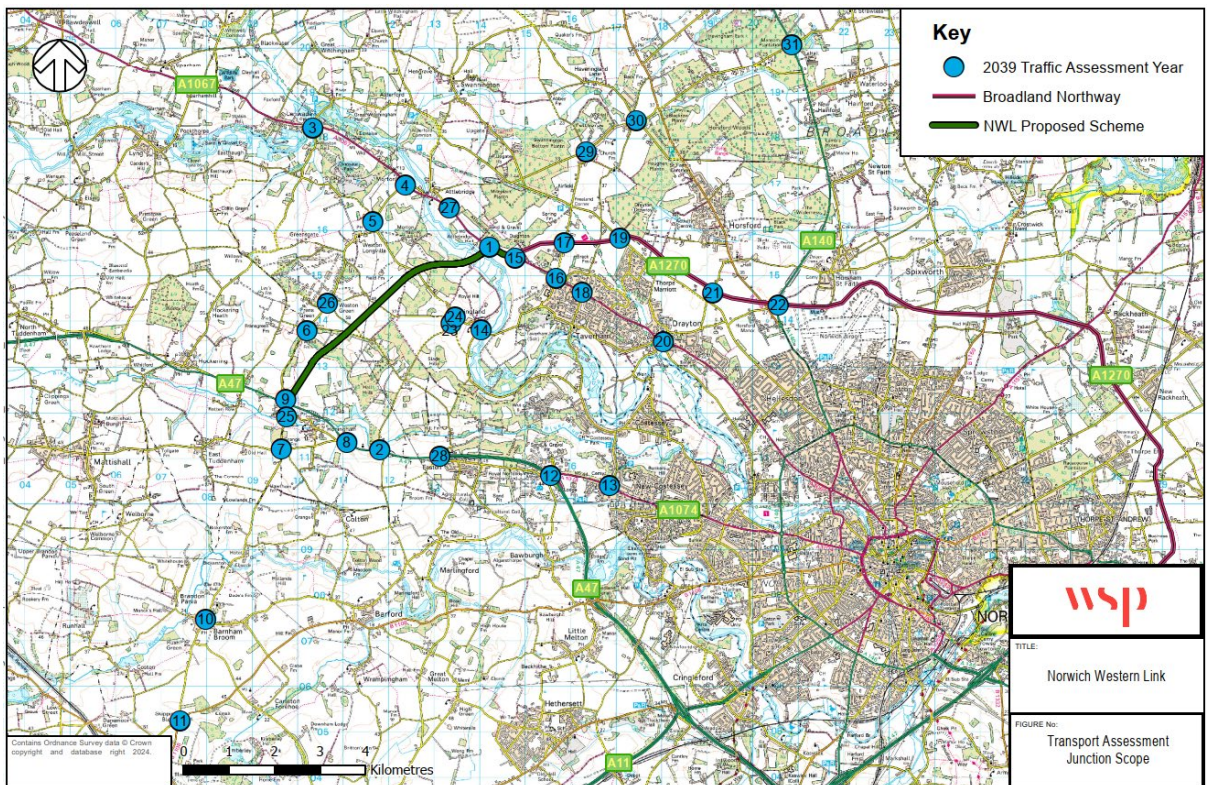
1 Junction Model Results

1.1.1 Junctions 10 modelling software output file that shows the junction capacity results for Junction 15 of the TA.

1.1.2 We have included a summary of key information shown in this document in an accessible format. However, some users may not be able to access all technical details. If you require this document in a more accessible format please contact norwichwesternlink@norfolk.gov.uk

1.1.3 The TA scope map is shown below as a location plan.

Figure 1-1 Junction Assessment Scope



1.1.4 The model results are presented for 2029 and 2039 future assessment years for AM and PM peak hours, taking 7.30-8.30am and AM peak and 5pm-6pm as PM peak.



1.1.5 The scenarios tested are as follows:

- Do Minimum – the baseline future situation with committed developments and planned highway improvements but without the Proposed Scheme.
- Do Something - the baseline future situation with the Proposed Scheme.
- Do Something + Mitigation - the baseline future situation with the Proposed Scheme added plus a package of traffic mitigation measures in the wider network (north of A1067 and south of A47 plus Honingham Lane closure).



J15 – A1067 Fakenham Road/ A1270 Broadland Northway roundabout Results

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.1.1519

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Filename: J15_NCC measurements_GNLP flows_FP.j10

Path: C:\Users\NCS04445\OneDrive - WSP O365\WSP\Projects\38 NWL\Working\20240216J15

Report generation date: 16/02/2024 11:40:16

- »2029DM, AM
- »2029DM, PM
- »2029DS, AM
- »2029DS, PM
- »2029DS_Mitigation, AM
- »2029DS_Mitigation, PM
- »2039DM, AM
- »2039DM, PM
- »2039DS, AM
- »2039DS, PM
- »2039DS_Mitigation, AM
- »2039DS_Mitigation, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2029DM										
A - Broadland Northway	D1	0.3	2.35	0.24	A	D2	0.4	2.46	0.30	A
B - A1067 Fakenham Road (E)		0.1	2.21	0.09	A		0.0	2.43	0.01	A
C - A1067 Fakenham Road (W)		0.4	1.69	0.30	A		0.3	1.51	0.23	A
2029DS										
A - Broadland Northway	D3	1.6	4.60	0.61	A	D4	0.8	3.06	0.43	A
B - A1067 Fakenham Road (E)		0.2	3.06	0.16	A		0.2	2.66	0.15	A
C - A1067 Fakenham Road (W)		1.2	2.57	0.53	A		1.0	2.37	0.51	A
2029DS_Mitigation										
A - Broadland Northway	D5	1.6	4.64	0.61	A	D6	0.8	3.05	0.43	A
B - A1067 Fakenham Road (E)		0.2	3.05	0.15	A		0.2	2.64	0.15	A
C - A1067 Fakenham Road (W)		1.2	2.61	0.54	A		1.1	2.44	0.52	A
2039DM										
A - Broadland Northway	D7	0.4	2.46	0.28	A	D8	0.5	2.61	0.33	A
B - A1067 Fakenham Road (E)		0.1	2.23	0.08	A		0.0	2.26	0.01	A
C - A1067 Fakenham Road (W)		0.5	1.81	0.34	A		0.4	1.56	0.26	A
2039DS										
A - Broadland Northway	D9	2.2	5.68	0.69	A	D10	1.3	3.99	0.56	A
B - A1067 Fakenham Road (E)		0.2	3.29	0.17	A		0.2	2.94	0.16	A
C - A1067 Fakenham Road (W)		1.8	3.32	0.64	A		1.5	2.89	0.60	A
2039DS_Mitigation										
A - Broadland Northway	D11	2.5	6.26	0.71	A	D12	1.3	4.01	0.56	A
B - A1067 Fakenham Road (E)		0.2	3.34	0.16	A		0.2	2.93	0.15	A
C - A1067 Fakenham Road (W)		2.0	3.49	0.66	A		1.6	2.99	0.61	A

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

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

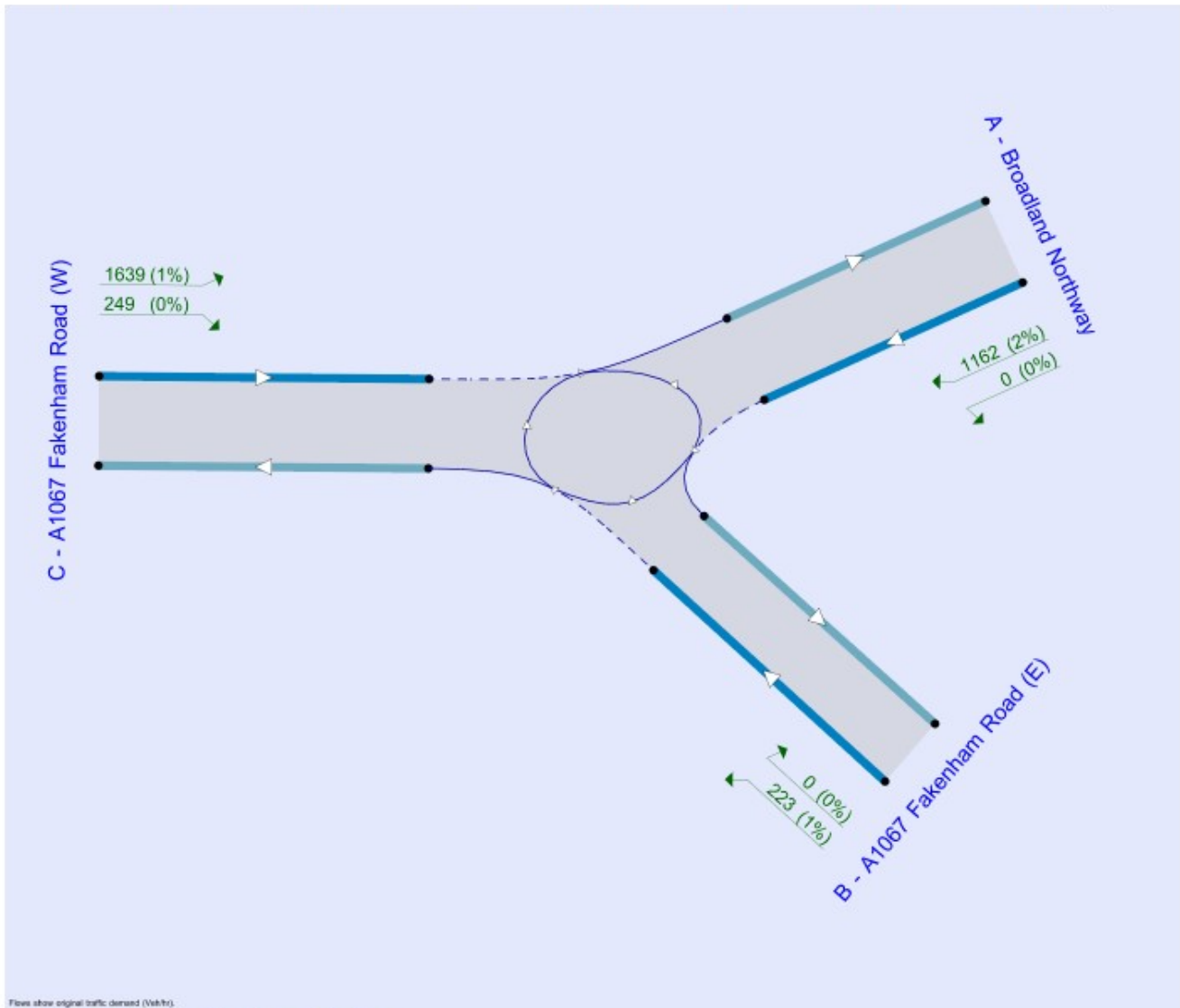
File summary

File Description

Title	Broadland Northway/ Fakenham Road
Location	52.693923730699744, 1.1758678391774564
Site number	J15
Date	16/02/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\INCS04445
Description	

Units

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



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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	2029DM	AM	FLAT	07:15	08:15	60	15	✓
D2	2029DM	PM	FLAT	16:45	17:45	60	15	✓
D3	2029DS	AM	FLAT	07:15	08:15	60	15	✓
D4	2029DS	PM	FLAT	16:45	17:45	60	15	✓
D5	2029DS_Mitigation	AM	FLAT	07:15	08:15	60	15	✓
D6	2029DS_Mitigation	PM	FLAT	16:45	17:45	60	15	✓
D7	2039DM	AM	FLAT	07:15	08:15	60	15	✓
D8	2039DM	PM	FLAT	16:45	17:45	60	15	✓
D9	2039DS	AM	FLAT	07:15	08:15	60	15	✓
D10	2039DS	PM	FLAT	16:45	17:45	60	15	✓
D11	2039DS_Mitigation	AM	FLAT	07:15	08:15	60	15	✓
D12	2039DS_Mitigation	PM	FLAT	16:45	17:45	60	15	✓

Analysis Set Details

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

2029DM, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	1.95	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.95	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Broadland Northway		
B	A1067 Fakenham Road (E)		
C	A1067 Fakenham Road (W)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A - Broadland Northway	7.20	7.50	7.0	22.0	80.0	34.0		
B - A1067 Fakenham Road (E)	3.70	8.00	45.5	22.5	80.0	35.0		
C - A1067 Fakenham Road (W)	7.84	12.12	188.8	14.4	80.0	61.2		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Broadland Northway	0.549	2240
B - A1067 Fakenham Road (E)	0.528	2096
C - A1067 Fakenham Road (W)	0.653	3121

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	2029DM	AM	FLAT	07:15	08:15	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	488	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	165	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	911	100.000

Origin-Destination Data

Demand (Veh/hr)

From		To		
		A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
From	A - Broadland Northway	0	0	488
	B - A1067 Fakenham Road (E)	0	0	165
	C - A1067 Fakenham Road (W)	637	274	0

Proportions

From		To		
		A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
From	A - Broadland Northway	0.00	0.00	1.00
	B - A1067 Fakenham Road (E)	0.00	0.00	1.00
	C - A1067 Fakenham Road (W)	0.70	0.30	0.00

Vehicle Mix

Heavy Vehicle Percentages

From		To		
		A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
From	A - Broadland Northway	0	0	3
	B - A1067 Fakenham Road (E)	0	0	2
	C - A1067 Fakenham Road (W)	3	2	0

Average PCU Per Veh

From		To		
		A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
From	A - Broadland Northway	1.000	1.000	1.000
	B - A1067 Fakenham Road (E)	1.000	1.000	1.000
	C - A1067 Fakenham Road (W)	1.033	1.016	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	07:15-07:30	488	504
	07:30-07:45	488	504
	07:45-08:00	488	504
	08:00-08:15	488	504
B - A1067 Fakenham Road (E)	07:15-07:30	165	168
	07:30-07:45	165	168
	07:45-08:00	165	168
	08:00-08:15	165	168
C - A1067 Fakenham Road (W)	07:15-07:30	911	937
	07:30-07:45	911	937
	07:45-08:00	911	937
	08:00-08:15	911	937

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)
A - Broadland Northway	0.24	2.35	0.3	A	504	504
B - A1067 Fakenham Road (E)	0.09	2.21	0.1	A	168	168
C - A1067 Fakenham Road (W)	0.30	1.69	0.4	A	937	937

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	504	126	278	2088	0.242	503	657	0.0	0.3	2.343	A
B - A1067 Fakenham Road (E)	168	42	503	1831	0.092	168	278	0.0	0.1	2.207	A
C - A1067 Fakenham Road (W)	937	234	0	3121	0.300	935	671	0.0	0.4	1.691	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	504	126	278	2087	0.242	504	659	0.3	0.3	2.347	A
B - A1067 Fakenham Road (E)	168	42	504	1830	0.092	168	278	0.1	0.1	2.208	A
C - A1067 Fakenham Road (W)	937	234	0	3121	0.300	937	673	0.4	0.4	1.694	A

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	504	126	278	2087	0.242	504	659	0.3	0.3	2.347	A
B - A1067 Fakenham Road (E)	168	42	504	1830	0.092	168	278	0.1	0.1	2.208	A
C - A1067 Fakenham Road (W)	937	234	0	3121	0.300	937	673	0.4	0.4	1.694	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	504	126	278	2087	0.242	504	659	0.3	0.3	2.347	A
B - A1067 Fakenham Road (E)	168	42	504	1830	0.092	168	278	0.1	0.1	2.208	A
C - A1067 Fakenham Road (W)	937	234	0	3121	0.300	937	673	0.4	0.4	1.694	A

2029DM, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	1.96	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.96	A

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	2029DM	PM	FLAT	16:45	17:45	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	623	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	17	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	720	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0	0	623
B - A1067 Fakenham Road (E)	0	0	17
C - A1067 Fakenham Road (W)	498	222	0

Proportions

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0.00	0.00	1.0
B - A1067 Fakenham Road (E)	0.00	0.00	1.0
C - A1067 Fakenham Road (W)	0.69	0.31	0.0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	0	0	2	
B - A1067 Fakenham Road (E)	0	0	18	
C - A1067 Fakenham Road (W)	1	0	0	

Average PCU Per Veh

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	1.000	1.000	1.000	
B - A1067 Fakenham Road (E)	1.000	1.000	1.117	
C - A1067 Fakenham Road (W)	1.008	1.003	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	16:45-17:00	623	633
	17:00-17:15	623	633
	17:15-17:30	623	633
	17:30-17:45	623	633
B - A1067 Fakenham Road (E)	16:45-17:00	17	20
	17:00-17:15	17	20
	17:15-17:30	17	20
	17:30-17:45	17	20
C - A1067 Fakenham Road (W)	16:45-17:00	720	725
	17:00-17:15	720	725
	17:15-17:30	720	725
	17:30-17:45	720	725

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)
A - Broadland Northway	0.30	2.46	0.4	A	633	633
B - A1067 Fakenham Road (E)	0.01	2.43	0.0	A	20	20
C - A1067 Fakenham Road (W)	0.23	1.51	0.3	A	725	725

Main Results for each time segment

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	633	158	222	2118	0.299	631	501	0.0	0.4	2.458	A
B - A1067 Fakenham Road (E)	20	5	631	1763	0.011	20	222	0.0	0.0	2.429	A
C - A1067 Fakenham Road (W)	725	181	0	3121	0.232	723	651	0.0	0.3	1.511	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	633	158	223	2118	0.299	633	502	0.4	0.4	2.462	A
B - A1067 Fakenham Road (E)	20	5	633	1762	0.011	20	223	0.0	0.0	2.430	A
C - A1067 Fakenham Road (W)	725	181	0	3121	0.232	725	653	0.3	0.3	1.511	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	633	158	223	2118	0.299	633	502	0.4	0.4	2.462	A
B - A1067 Fakenham Road (E)	20	5	633	1762	0.011	20	223	0.0	0.0	2.430	A
C - A1067 Fakenham Road (W)	725	181	0	3121	0.232	725	653	0.3	0.3	1.511	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	633	158	223	2118	0.299	633	502	0.4	0.4	2.462	A
B - A1067 Fakenham Road (E)	20	5	633	1762	0.011	20	223	0.0	0.0	2.430	A
C - A1067 Fakenham Road (W)	725	181	0	3121	0.232	725	653	0.3	0.3	1.511	A

2029DS, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	3.42	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.42	A

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
D3	2029DS	AM	FLAT	07:15	08:15	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	1229	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	219	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	1590	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0	0	1229
B - A1067 Fakenham Road (E)	0	0	219
C - A1067 Fakenham Road (W)	1295	295	0

Proportions

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0.00	0.00	1.0
B - A1067 Fakenham Road (E)	0.00	0.00	1.0
C - A1067 Fakenham Road (W)	0.81	0.19	0.0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	0	0	3	
B - A1067 Fakenham Road (E)	0	0	2	
C - A1067 Fakenham Road (W)	4	8	0	

Average PCU Per Veh

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	1.000	1.000	1.000	
B - A1067 Fakenham Road (E)	1.000	1.000	1.000	
C - A1067 Fakenham Road (W)	1.037	1.078	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	07:15-07:30	1229	1262
	07:30-07:45	1229	1262
	07:45-08:00	1229	1262
	08:00-08:15	1229	1262
B - A1067 Fakenham Road (E)	07:15-07:30	219	224
	07:30-07:45	219	224
	07:45-08:00	219	224
	08:00-08:15	219	224
C - A1067 Fakenham Road (W)	07:15-07:30	1590	1661
	07:30-07:45	1590	1661
	07:45-08:00	1590	1661
	08:00-08:15	1590	1661

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)
A - Broadland Northway	0.61	4.60	1.6	A	1262	1262
B - A1067 Fakenham Road (E)	0.16	3.06	0.2	A	224	224
C - A1067 Fakenham Road (W)	0.53	2.57	1.2	A	1661	1661

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1262	316	317	2066	0.611	1256	1339	0.0	1.6	4.526	A
B - A1067 Fakenham Road (E)	224	56	1256	1434	0.156	223	317	0.0	0.2	3.045	A
C - A1067 Fakenham Road (W)	1661	415	0	3121	0.532	1656	1479	0.0	1.2	2.558	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1262	316	318	2066	0.611	1262	1343	1.6	1.6	4.599	A
B - A1067 Fakenham Road (E)	224	56	1262	1430	0.157	224	318	0.2	0.2	3.056	A
C - A1067 Fakenham Road (W)	1661	415	0	3121	0.532	1661	1486	1.2	1.2	2.574	A

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1262	316	318	2066	0.611	1262	1343	1.6	1.6	4.599	A
B - A1067 Fakenham Road (E)	224	56	1262	1430	0.157	224	318	0.2	0.2	3.056	A
C - A1067 Fakenham Road (W)	1661	415	0	3121	0.532	1661	1486	1.2	1.2	2.574	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1262	316	318	2066	0.611	1262	1343	1.6	1.6	4.599	A
B - A1067 Fakenham Road (E)	224	56	1262	1430	0.157	224	318	0.2	0.2	3.056	A
C - A1067 Fakenham Road (W)	1661	415	0	3121	0.532	1661	1486	1.2	1.2	2.574	A

2029DS, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	2.62	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.62	A

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
D4	2029DS	PM	FLAT	16:45	17:45	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	889	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	242	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	1577	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0	0	889
B - A1067 Fakenham Road (E)	0	0	242
C - A1067 Fakenham Road (W)	1338	239	0

Proportions

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0.00	0.00	1.0
B - A1067 Fakenham Road (E)	0.00	0.00	1.0
C - A1067 Fakenham Road (W)	0.85	0.15	0.0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	0	0	2	
B - A1067 Fakenham Road (E)	0	0	1	
C - A1067 Fakenham Road (W)	1	0	0	

Average PCU Per Veh

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	1.000	1.000	1.000	
B - A1067 Fakenham Road (E)	1.000	1.000	1.000	
C - A1067 Fakenham Road (W)	1.009	1.003	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	16:45-17:00	889	908
	17:00-17:15	889	908
	17:15-17:30	889	908
	17:30-17:45	889	908
B - A1067 Fakenham Road (E)	16:45-17:00	242	245
	17:00-17:15	242	245
	17:15-17:30	242	245
	17:30-17:45	242	245
C - A1067 Fakenham Road (W)	16:45-17:00	1577	1590
	17:00-17:15	1577	1590
	17:15-17:30	1577	1590
	17:30-17:45	1577	1590

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)
A - Broadland Northway	0.43	3.08	0.8	A	908	908
B - A1067 Fakenham Road (E)	0.15	2.68	0.2	A	245	245
C - A1067 Fakenham Road (W)	0.51	2.37	1.0	A	1590	1590

Main Results for each time segment

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	908	227	239	2109	0.431	905	1346	0.0	0.8	3.046	A
B - A1067 Fakenham Road (E)	245	61	905	1619	0.151	244	239	0.0	0.2	2.650	A
C - A1067 Fakenham Road (W)	1590	397	0	3121	0.509	1585	1149	0.0	1.0	2.358	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	908	227	240	2109	0.431	908	1350	0.8	0.8	3.062	A
B - A1067 Fakenham Road (E)	245	61	908	1617	0.152	245	240	0.2	0.2	2.655	A
C - A1067 Fakenham Road (W)	1590	397	0	3121	0.509	1590	1153	1.0	1.0	2.369	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	908	227	240	2109	0.431	908	1350	0.8	0.8	3.062	A
B - A1067 Fakenham Road (E)	245	61	908	1617	0.152	245	240	0.2	0.2	2.655	A
C - A1067 Fakenham Road (W)	1590	397	0	3121	0.509	1590	1153	1.0	1.0	2.369	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	908	227	240	2109	0.431	908	1350	0.8	0.8	3.062	A
B - A1067 Fakenham Road (E)	245	61	908	1617	0.152	245	240	0.2	0.2	2.655	A
C - A1067 Fakenham Road (W)	1590	397	0	3121	0.509	1590	1153	1.0	1.0	2.369	A

2029DS_Mitigation, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	3.45	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.45	A

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	2029DS_Mitigation	AM	FLAT	07:15	08:15	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	1234	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	210	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	1610	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0	0	1234
B - A1067 Fakenham Road (E)	0	0	210
C - A1067 Fakenham Road (W)	1313	296	0

Proportions

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0.00	0.00	1.0
B - A1067 Fakenham Road (E)	0.00	0.00	1.0
C - A1067 Fakenham Road (W)	0.82	0.18	0.0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	0	0	3	
B - A1067 Fakenham Road (E)	0	0	3	
C - A1067 Fakenham Road (W)	4	8	0	

Average PCU Per Veh

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	1.000	1.000	1.000	
B - A1067 Fakenham Road (E)	1.000	1.000	1.000	
C - A1067 Fakenham Road (W)	1.037	1.078	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	07:15-07:30	1234	1268
	07:30-07:45	1234	1268
	07:45-08:00	1234	1268
	08:00-08:15	1234	1268
B - A1067 Fakenham Road (E)	07:15-07:30	210	215
	07:30-07:45	210	215
	07:45-08:00	210	215
	08:00-08:15	210	215
C - A1067 Fakenham Road (W)	07:15-07:30	1610	1681
	07:30-07:45	1610	1681
	07:45-08:00	1610	1681
	08:00-08:15	1610	1681

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)
A - Broadland Northway	0.61	4.64	1.6	A	1268	1268
B - A1067 Fakenham Road (E)	0.15	3.05	0.2	A	215	215
C - A1067 Fakenham Road (W)	0.54	2.61	1.2	A	1681	1681

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1268	317	318	2066	0.614	1262	1358	0.0	1.6	4.567	A
B - A1067 Fakenham Road (E)	215	54	1262	1430	0.151	215	318	0.0	0.2	3.035	A
C - A1067 Fakenham Road (W)	1681	420	0	3121	0.539	1676	1477	0.0	1.2	2.594	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1268	317	319	2065	0.614	1268	1362	1.6	1.6	4.643	A
B - A1067 Fakenham Road (E)	215	54	1268	1427	0.151	215	319	0.2	0.2	3.046	A
C - A1067 Fakenham Road (W)	1681	420	0	3121	0.539	1681	1484	1.2	1.2	2.610	A

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1288	317	319	2065	0.614	1288	1362	1.6	1.6	4.643	A
B - A1067 Fakenham Road (E)	215	54	1288	1427	0.151	215	319	0.2	0.2	3.046	A
C - A1067 Fakenham Road (W)	1681	420	0	3121	0.539	1681	1484	1.2	1.2	2.610	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	1288	317	319	2065	0.614	1288	1362	1.6	1.6	4.643	A
B - A1067 Fakenham Road (E)	215	54	1288	1427	0.151	215	319	0.2	0.2	3.046	A
C - A1067 Fakenham Road (W)	1681	420	0	3121	0.539	1681	1484	1.2	1.2	2.610	A

2029DS_Mitigation, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1067 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1067 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	2.66	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.66	A

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	2029DS_Mitigation	PM	FLAT	16:45	17:45	60	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	Average Demand (Veh/hr)	Scaling Factor (%)
A - Broadland Northway		FLAT	✓	888	100.000
B - A1067 Fakenham Road (E)		FLAT	✓	236	100.000
C - A1067 Fakenham Road (W)		FLAT	✓	1621	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0	0	888
B - A1067 Fakenham Road (E)	0	0	236
C - A1067 Fakenham Road (W)	1380	241	0

Proportions

From	To		
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)
A - Broadland Northway	0.00	0.00	1.0
B - A1067 Fakenham Road (E)	0.00	0.00	1.0
C - A1067 Fakenham Road (W)	0.85	0.15	0.0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	0	0	2	
B - A1067 Fakenham Road (E)	0	0	1	
C - A1067 Fakenham Road (W)	1	0	0	

Average PCU Per Veh

From	To			
	A - Broadland Northway	B - A1067 Fakenham Road (E)	C - A1067 Fakenham Road (W)	
A - Broadland Northway	1.000	1.000	1.000	
B - A1067 Fakenham Road (E)	1.000	1.000	1.000	
C - A1067 Fakenham Road (W)	1.009	1.003	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
A - Broadland Northway	16:45-17:00	888	905
	17:00-17:15	888	905
	17:15-17:30	888	905
	17:30-17:45	888	905
B - A1067 Fakenham Road (E)	16:45-17:00	236	239
	17:00-17:15	236	239
	17:15-17:30	236	239
	17:30-17:45	236	239
C - A1067 Fakenham Road (W)	16:45-17:00	1621	1634
	17:00-17:15	1621	1634
	17:15-17:30	1621	1634
	17:30-17:45	1621	1634

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)
A - Broadland Northway	0.43	3.05	0.8	A	905	905
B - A1067 Fakenham Road (E)	0.15	2.64	0.2	A	239	239
C - A1067 Fakenham Road (W)	0.52	2.44	1.1	A	1634	1634

Main Results for each time segment

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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	905	226	241	2108	0.429	902	1388	0.0	0.8	3.035	A
B - A1067 Fakenham Road (E)	239	60	902	1620	0.148	238	241	0.0	0.2	2.636	A
C - A1067 Fakenham Road (W)	1634	408	0	3121	0.524	1629	1140	0.0	1.1	2.426	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	905	226	242	2107	0.429	905	1392	0.8	0.8	3.050	A
B - A1067 Fakenham Road (E)	239	60	905	1619	0.148	239	242	0.2	0.2	2.642	A
C - A1067 Fakenham Road (W)	1634	408	0	3121	0.524	1634	1144	1.1	1.1	2.439	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	905	226	242	2107	0.429	905	1392	0.8	0.8	3.050	A
B - A1067 Fakenham Road (E)	239	60	905	1619	0.148	239	242	0.2	0.2	2.642	A
C - A1067 Fakenham Road (W)	1634	408	0	3121	0.524	1634	1144	1.1	1.1	2.439	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 side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Broadland Northway	905	226	242	2107	0.429	905	1392	0.8	0.8	3.050	A
B - A1067 Fakenham Road (E)	239	60	905	1619	0.148	239	242	0.2	0.2	2.642	A
C - A1067 Fakenham Road (W)	1634	408	0	3121	0.524	1634	1144	1.1	1.1	2.439	A

2039DM, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	B - A1087 Fakenham Road (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - A1087 Fakenham Road (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J15	Broadland Northway/ Fakenham Road	Standard Roundabout		A, B, C	2.06	A

