



Norwich Western Link

Transport Assessment - Appendix 11 – Junction Model Results

Sub Appendix 11a – Junction 1 A1067 Fakenham Road with the Norwich Western Link

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Document Reference: 4.01.11a

Version Number: 00

Date: March 2024



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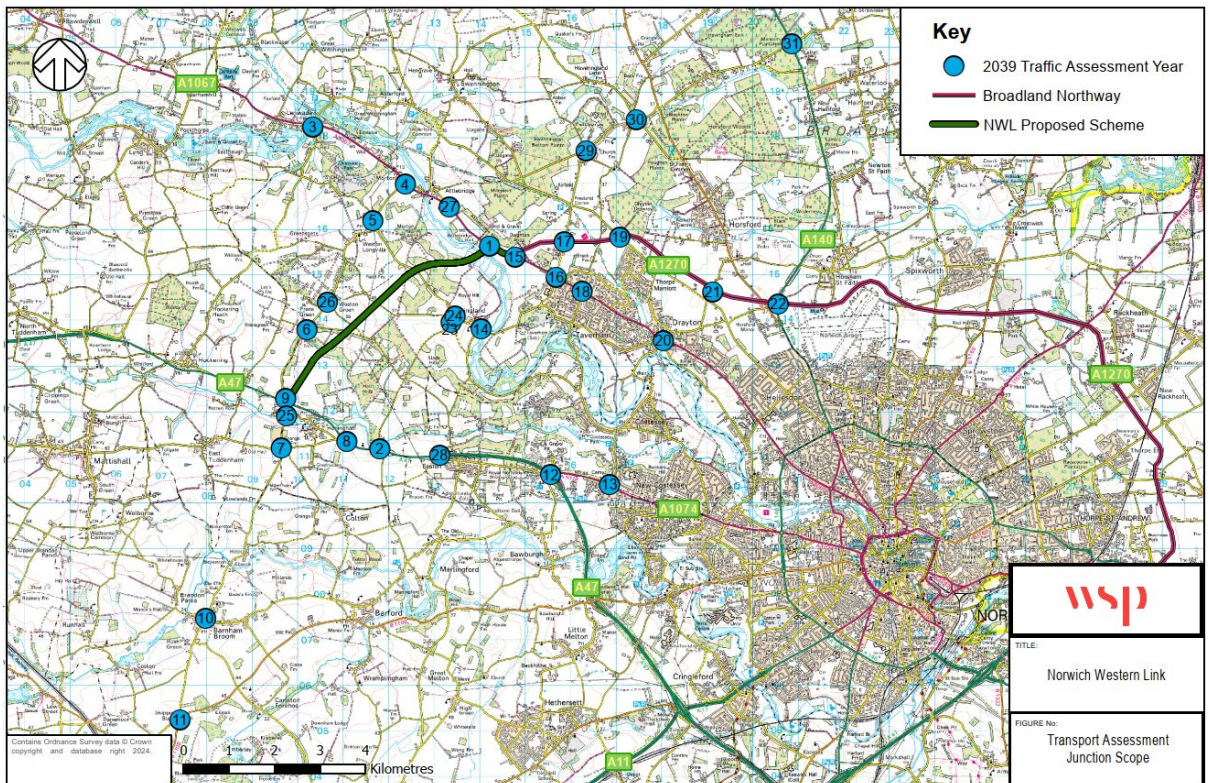
1 Junction Model Results

1.1.1 Junctions 10 modelling software output file that shows the junction capacity results for Junction 1 of the TA – A1067 new roundabout for the Proposed Scheme.

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. It should be noted that Junction 1 does not exist in this scenario.
- 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).



J1 – A1067 Fakenham Road Junction with the Norwich Western Link Results

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.0.1.1519 © Copyright TRL Software Limited, 2021
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: A1067 Fakenham Road Roundabout_NCC geometries_GNLP_FP.j10
 Path: C:\Users\NCS04445\OneDrive - WSP O365\WSP\Projects\38 NWL\Working\20240216\J1_Mitigation
 Report generation date: 16/02/2024 11:28:34

- »2029DS, AM
- »2029DS, PM
- »2029DS_Mitigation, AM
- »2029DS_Mitigation, 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
2029DS										
1 - Fakenham Road West	D3	1.3	5.67	0.55	A	D4	0.7	4.29	0.42	A
2 - Fakenham Road East		1.3	3.19	0.56	A		0.8	2.39	0.43	A
3 - Norwich Western Link		0.5	1.89	0.34	A		0.6	1.70	0.37	A
2029DS_Mitigation										
1 - Fakenham Road West	D5	1.0	4.94	0.49	A	D6	0.7	4.22	0.40	A
2 - Fakenham Road East		1.2	2.98	0.54	A		0.7	2.33	0.42	A
3 - Norwich Western Link		0.5	1.64	0.32	A		0.5	1.65	0.34	A
2039DS										
1 - Fakenham Road West	D9	1.7	7.45	0.62	A	D10	1.0	5.38	0.49	A
2 - Fakenham Road East		1.7	3.65	0.62	A		1.2	2.92	0.53	A
3 - Norwich Western Link		0.9	2.02	0.45	A		0.8	1.96	0.45	A
2039DS_Mitigation										
1 - Fakenham Road West	D11	1.4	6.69	0.57	A	D12	0.9	5.28	0.48	A
2 - Fakenham Road East		1.7	3.56	0.62	A		1.1	2.84	0.52	A
3 - Norwich Western Link		0.8	1.93	0.42	A		0.7	1.88	0.42	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.

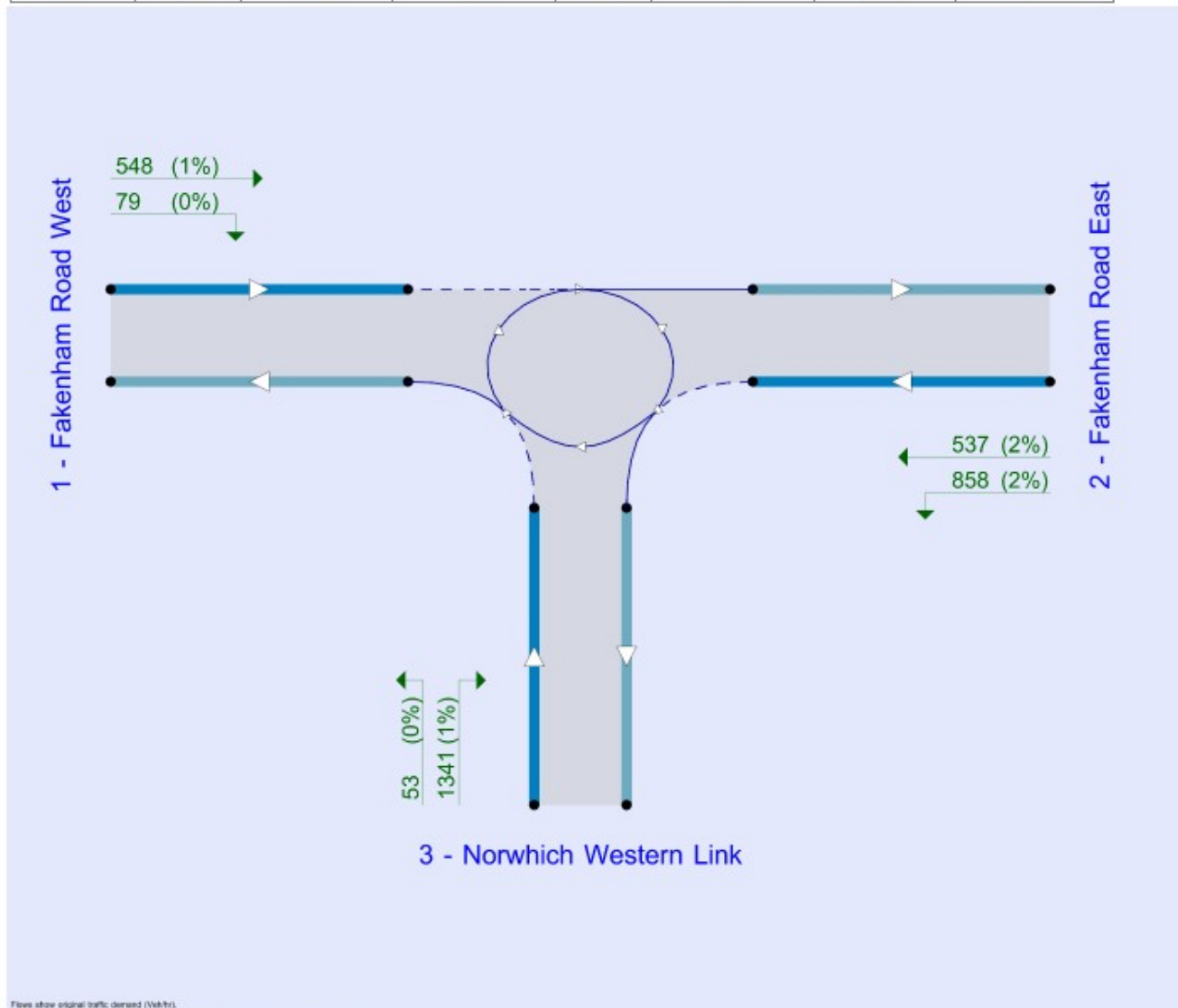
File summary

File Description

Title	A1087 Norwich Western Link Roundabout_80mICD
Location	
Site number	
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	38.00	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	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	✓	D3,D4,D5,D6,D9,D10,D11,D12	100.000	100.000

2029DS, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1067 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	3.27	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.27	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Fakenham Road West		
2	Fakenham Road East		
3	Norwich Western Link		

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
1 - Fakenham Road West	3.65	8.96	29.1	20.0	82.0	48.1		
2 - Fakenham Road East	7.85	9.25	6.4	17.9	82.0	13.0		
3 - Norwich Western Link	8.15	13.53	69.6	23.0	82.0	32.6		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Fakenham Road West	0.496	1989
2 - Fakenham Road East	0.635	2767
3 - Norwich Western Link	0.768	3766

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
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 (%)
1 - Fakenham Road West		FLAT	✓	785	100.000
2 - Fakenham Road East		FLAT	✓	1448	100.000
3 - Norwich Western Link		FLAT	✓	1101	100.000

Origin-Destination Data

Demand (Veh/hr)

From		To		
		1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
	1 - Fakenham Road West	0	601	183
	2 - Fakenham Road East	485	0	963
	3 - Norwich Western Link	111	990	0

Proportions

From		To		
		1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
	1 - Fakenham Road West	0.00	0.77	0.23
	2 - Fakenham Road East	0.33	0.00	0.67
	3 - Norwich Western Link	0.10	0.90	0.00

Vehicle Mix

Heavy Vehicle Percentages

From		To		
		1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
	1 - Fakenham Road West	0	4	4
	2 - Fakenham Road East	3	0	3
	3 - Norwich Western Link	3	5	0

Average PCU Per Veh

From		To		
		1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
	1 - Fakenham Road West	1.000	1.038	1.045
	2 - Fakenham Road East	1.027	1.000	1.027
	3 - Norwich Western Link	1.031	1.048	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	07:15-07:30	785	815
	07:30-07:45	785	815
	07:45-08:00	785	815
	08:00-08:15	785	815
2 - Fakenham Road East	07:15-07:30	1448	1488
	07:30-07:45	1448	1488
	07:45-08:00	1448	1488
	08:00-08:15	1448	1488
3 - Norwich Western Link	07:15-07:30	1101	1152
	07:30-07:45	1101	1152
	07:45-08:00	1101	1152
	08:00-08:15	1101	1152

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)
1 - Fakenham Road West	0.55	5.67	1.3	A	815	815
2 - Fakenham Road East	0.56	3.19	1.3	A	1486	1486
3 - Norwich Western Link	0.34	1.69	0.5	A	1152	1152

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
1 - Fakenham Road West	815	204	1038	1475	0.553	810	610	0.0	1.3	5.579	A
2 - Fakenham Road East	1486	372	190	2646	0.562	1481	1655	0.0	1.3	3.158	A
3 - Norwich Western Link	1152	288	496	3385	0.340	1150	1176	0.0	0.5	1.683	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
1 - Fakenham Road West	815	204	1038	1474	0.553	815	612	1.3	1.3	5.671	A
2 - Fakenham Road East	1486	372	192	2646	0.562	1486	1661	1.3	1.3	3.187	A
3 - Norwich Western Link	1152	288	498	3384	0.340	1152	1180	0.5	0.5	1.687	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
1 - Fakenham Road West	815	204	1038	1474	0.553	815	612	1.3	1.3	5.671	A
2 - Fakenham Road East	1486	372	192	2646	0.562	1486	1661	1.3	1.3	3.187	A
3 - Norwich Western Link	1152	288	498	3384	0.340	1152	1180	0.5	0.5	1.687	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
1 - Fakenham Road West	815	204	1038	1474	0.553	815	612	1.3	1.3	5.671	A
2 - Fakenham Road East	1486	372	192	2646	0.562	1486	1661	1.3	1.3	3.187	A
3 - Norwich Western Link	1152	288	498	3384	0.340	1152	1180	0.5	0.5	1.687	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	8.500	7.700	12.900	0.000	0.000	0.000	0.000
2 - Fakenham Road East	16.700	19.600	1.800	0.000	0.000	0.000	0.000
3 - Norwich Western Link	14.200	12.200	6.300	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.633	0.000
2 - Fakenham Road East	1.130	0.000
3 - Norwich Western Link	1.169	0.000

2029DS, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1087 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	2.49	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.49	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 (%)
1 - Fakenham Road West		FLAT	✓	600	100.000
2 - Fakenham Road East		FLAT	✓	1142	100.000
3 - Norwich Western Link		FLAT	✓	1214	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	494	108
2 - Fakenham Road East	535	0	607
3 - Norwich Western Link	131	1083	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.82	0.18
2 - Fakenham Road East	0.47	0.00	0.53
3 - Norwich Western Link	0.11	0.89	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	1	0	
2 - Fakenham Road East	2	0	2	
3 - Norwich Western Link	0	1	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.008	1.002	
2 - Fakenham Road East	1.020	1.000	1.019	
3 - Norwich Western Link	1.000	1.008	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	16:45-17:00	600	604
	17:00-17:15	600	604
	17:15-17:30	600	604
	17:30-17:45	600	604
2 - Fakenham Road East	16:45-17:00	1142	1165
	17:00-17:15	1142	1165
	17:15-17:30	1142	1165
	17:30-17:45	1142	1165
3 - Norwich Western Link	16:45-17:00	1214	1222
	17:00-17:15	1214	1222
	17:15-17:30	1214	1222
	17:30-17:45	1214	1222

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)
1 - Fakenham Road West	0.42	4.29	0.7	A	604	604
2 - Fakenham Road East	0.43	2.39	0.8	A	1165	1165
3 - Norwich Western Link	0.37	1.70	0.6	A	1222	1222

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
1 - Fakenham Road West	604	151	1089	1449	0.417	601	675	0.0	0.7	4.259	A
2 - Fakenham Road East	1165	291	106	2700	0.431	1161	1584	0.0	0.8	2.380	A
3 - Norwich Western Link	1222	305	544	3348	0.365	1220	723	0.0	0.6	1.701	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
1 - Fakenham Road West	604	151	1091	1448	0.417	603	677	0.7	0.7	4.292	A
2 - Fakenham Road East	1165	291	106	2700	0.431	1165	1588	0.8	0.8	2.390	A
3 - Norwich Western Link	1222	305	546	3347	0.365	1222	725	0.6	0.6	1.704	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
1 - Fakenham Road West	604	151	1091	1448	0.417	604	677	0.7	0.7	4.292	A
2 - Fakenham Road East	1165	291	106	2700	0.431	1165	1588	0.8	0.8	2.390	A
3 - Norwich Western Link	1222	305	546	3347	0.385	1222	725	0.6	0.6	1.704	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
1 - Fakenham Road West	604	151	1091	1448	0.417	604	677	0.7	0.7	4.292	A
2 - Fakenham Road East	1165	291	106	2700	0.431	1165	1588	0.8	0.8	2.390	A
3 - Norwich Western Link	1222	305	546	3347	0.385	1222	725	0.6	0.6	1.704	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	8.500	7.700	12.900	0.000	0.000	0.000	0.000
2 - Fakenham Road East	16.700	19.600	1.800	0.000	0.000	0.000	0.000
3 - Norwich Western Link	14.200	12.200	6.300	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.633	0.000
2 - Fakenham Road East	1.130	0.000
3 - Norwich Western Link	1.169	0.000

2029DS_Mitigation, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1087 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	2.97	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.97	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 (%)
1 - Fakenham Road West		FLAT	✓	692	100.000
2 - Fakenham Road East		FLAT	✓	1445	100.000
3 - Norwich Western Link		FLAT	✓	1022	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	632	60
2 - Fakenham Road East	491	0	955
3 - Norwich Western Link	45	977	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.91	0.09
2 - Fakenham Road East	0.34	0.00	0.66
3 - Norwich Western Link	0.04	0.96	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	4	11	
2 - Fakenham Road East	3	0	3	
3 - Norwich Western Link	7	5	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.036	1.107	
2 - Fakenham Road East	1.027	1.000	1.028	
3 - Norwich Western Link	1.069	1.049	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	07:15-07:30	692	721
	07:30-07:45	692	721
	07:45-08:00	692	721
	08:00-08:15	692	721
2 - Fakenham Road East	07:15-07:30	1445	1485
	07:30-07:45	1445	1485
	07:45-08:00	1445	1485
	08:00-08:15	1445	1485
3 - Norwich Western Link	07:15-07:30	1022	1073
	07:30-07:45	1022	1073
	07:45-08:00	1022	1073
	08:00-08:15	1022	1073

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)
1 - Fakenham Road West	0.49	4.94	1.0	A	721	721
2 - Fakenham Road East	0.54	2.98	1.2	A	1485	1485
3 - Norwich Western Link	0.32	1.64	0.5	A	1073	1073

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
1 - Fakenham Road West	721	180	1024	1481	0.487	717	550	0.0	1.0	4.889	A
2 - Fakenham Road East	1485	371	66	2726	0.545	1480	1675	0.0	1.2	2.960	A
3 - Norwich Western Link	1073	268	502	3381	0.318	1071	1044	0.0	0.5	1.635	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
1 - Fakenham Road West	721	180	1026	1480	0.487	721	552	1.0	1.0	4.943	A
2 - Fakenham Road East	1485	371	66	2725	0.545	1485	1681	1.2	1.2	2.981	A
3 - Norwich Western Link	1073	268	504	3379	0.318	1073	1047	0.5	0.5	1.638	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
1 - Fakenham Road West	721	180	1026	1480	0.487	721	552	1.0	1.0	4.943	A
2 - Fakenham Road East	1485	371	66	2725	0.545	1485	1681	1.2	1.2	2.981	A
3 - Norwich Western Link	1073	268	504	3379	0.318	1073	1047	0.5	0.5	1.638	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
1 - Fakenham Road West	721	180	1026	1480	0.487	721	552	1.0	1.0	4.943	A
2 - Fakenham Road East	1485	371	66	2725	0.545	1485	1681	1.2	1.2	2.981	A
3 - Norwich Western Link	1073	268	504	3379	0.318	1073	1047	0.5	0.5	1.638	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

2029DS_Mitigation, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1087 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	2.44	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.44	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 (%)
1 - Fakenham Road West		FLAT	✓	574	100.000
2 - Fakenham Road East		FLAT	✓	1136	100.000
3 - Norwich Western Link		FLAT	✓	1140	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	516	58
2 - Fakenham Road East	535	0	602
3 - Norwich Western Link	34	1106	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.90	0.10
2 - Fakenham Road East	0.47	0.00	0.53
3 - Norwich Western Link	0.03	0.97	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	1	0	
2 - Fakenham Road East	2	0	1	
3 - Norwich Western Link	0	1	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.007	1.002	
2 - Fakenham Road East	1.021	1.000	1.014	
3 - Norwich Western Link	1.000	1.007	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	16:45-17:00	574	578
	17:00-17:15	574	578
	17:15-17:30	574	578
	17:30-17:45	574	578
2 - Fakenham Road East	16:45-17:00	1136	1156
	17:00-17:15	1136	1156
	17:15-17:30	1136	1156
	17:30-17:45	1136	1156
3 - Norwich Western Link	16:45-17:00	1140	1148
	17:00-17:15	1140	1148
	17:15-17:30	1140	1148
	17:30-17:45	1140	1148

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)
1 - Fakenham Road West	0.40	4.22	0.7	A	578	578
2 - Fakenham Road East	0.42	2.33	0.7	A	1156	1156
3 - Norwich Western Link	0.34	1.65	0.5	A	1148	1148

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
1 - Fakenham Road West	578	144	1112	1437	0.402	575	579	0.0	0.7	4.192	A
2 - Fakenham Road East	1156	289	58	2730	0.423	1153	1629	0.0	0.7	2.318	A
3 - Norwich Western Link	1148	287	544	3348	0.343	1146	667	0.0	0.5	1.644	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
1 - Fakenham Road West	578	144	1114	1436	0.402	578	580	0.7	0.7	4.221	A
2 - Fakenham Road East	1156	289	58	2730	0.423	1156	1633	0.7	0.7	2.325	A
3 - Norwich Western Link	1148	287	546	3347	0.343	1148	669	0.5	0.5	1.648	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
1 - Fakenham Road West	578	144	1114	1436	0.402	578	580	0.7	0.7	4.221	A
2 - Fakenham Road East	1156	289	58	2730	0.423	1156	1633	0.7	0.7	2.325	A
3 - Norwich Western Link	1148	287	546	3347	0.343	1148	669	0.5	0.5	1.648	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
1 - Fakenham Road West	578	144	1114	1436	0.402	578	580	0.7	0.7	4.221	A
2 - Fakenham Road East	1156	289	58	2730	0.423	1156	1633	0.7	0.7	2.325	A
3 - Norwich Western Link	1148	287	546	3347	0.343	1148	669	0.5	0.5	1.648	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

2039DS, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1067 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	3.80	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.80	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
D9	2039DS	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 (%)
1 - Fakenham Road West		FLAT	✓	788	100.000
2 - Fakenham Road East		FLAT	✓	1603	100.000
3 - Norwich Western Link		FLAT	✓	1467	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	615	173
2 - Fakenham Road East	499	0	1104
3 - Norwich Western Link	135	1332	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.78	0.22
2 - Fakenham Road East	0.31	0.00	0.69
3 - Norwich Western Link	0.09	0.91	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	2	5	
2 - Fakenham Road East	3	0	2	
3 - Norwich Western Link	4	4	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.015	1.054	
2 - Fakenham Road East	1.026	1.000	1.024	
3 - Norwich Western Link	1.037	1.040	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	07:15-07:30	788	807
	07:30-07:45	788	807
	07:45-08:00	788	807
	08:00-08:15	788	807
2 - Fakenham Road East	07:15-07:30	1603	1643
	07:30-07:45	1603	1643
	07:45-08:00	1603	1643
	08:00-08:15	1603	1643
3 - Norwich Western Link	07:15-07:30	1467	1525
	07:30-07:45	1467	1525
	07:45-08:00	1467	1525
	08:00-08:15	1467	1525

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)
1 - Fakenham Road West	0.62	7.45	1.7	A	807	807
2 - Fakenham Road East	0.62	3.65	1.7	A	1643	1643
3 - Norwich Western Link	0.45	2.02	0.9	A	1525	1525

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
1 - Fakenham Road West	807	202	1382	1303	0.619	800	650	0.0	1.6	7.238	A
2 - Fakenham Road East	1643	411	181	2653	0.619	1636	2002	0.0	1.6	3.606	A
3 - Norwich Western Link	1525	381	510	3375	0.452	1521	1307	0.0	0.9	2.016	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
1 - Fakenham Road West	807	202	1385	1302	0.620	807	652	1.6	1.7	7.444	A
2 - Fakenham Road East	1643	411	182	2652	0.619	1642	2010	1.6	1.7	3.655	A
3 - Norwich Western Link	1525	381	512	3373	0.452	1525	1313	0.9	0.9	2.024	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
1 - Fakenham Road West	807	202	1385	1302	0.620	807	652	1.7	1.7	7.447	A
2 - Fakenham Road East	1643	411	182	2852	0.619	1642	2010	1.7	1.7	3.655	A
3 - Norwich Western Link	1525	381	512	3373	0.452	1525	1313	0.9	0.9	2.024	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
1 - Fakenham Road West	807	202	1385	1302	0.620	807	652	1.7	1.7	7.447	A
2 - Fakenham Road East	1643	411	182	2852	0.619	1643	2010	1.7	1.7	3.655	A
3 - Norwich Western Link	1525	381	512	3373	0.452	1525	1313	0.9	0.9	2.024	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

2039DS, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1067 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	2.96	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.96	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
D10	2039DS	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 (%)
1 - Fakenham Road West		FLAT	✓	642	100.000
2 - Fakenham Road East		FLAT	✓	1396	100.000
3 - Norwich Western Link		FLAT	✓	1477	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	510	132	
2 - Fakenham Road East	539	0	857	
3 - Norwich Western Link	143	1334	0	

Proportions

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0.00	0.79	0.21	
2 - Fakenham Road East	0.39	0.00	0.61	
3 - Norwich Western Link	0.10	0.90	0.00	

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	1	0	
2 - Fakenham Road East	2	0	2	
3 - Norwich Western Link	0	1	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.008	1.002	
2 - Fakenham Road East	1.022	1.000	1.019	
3 - Norwich Western Link	1.000	1.010	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	16:45-17:00	642	646
	17:00-17:15	642	646
	17:15-17:30	642	646
	17:30-17:45	642	646
2 - Fakenham Road East	16:45-17:00	1396	1424
	17:00-17:15	1396	1424
	17:15-17:30	1396	1424
	17:30-17:45	1396	1424
3 - Norwich Western Link	16:45-17:00	1477	1491
	17:00-17:15	1477	1491
	17:15-17:30	1477	1491
	17:30-17:45	1477	1491

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)
1 - Fakenham Road West	0.49	5.38	1.0	A	646	646
2 - Fakenham Road East	0.53	2.92	1.2	A	1424	1424
3 - Norwich Western Link	0.45	1.96	0.8	A	1491	1491

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
1 - Fakenham Road West	646	162	1345	1322	0.489	642	692	0.0	1.0	5.308	A
2 - Fakenham Road East	1424	356	131	2684	0.531	1420	1856	0.0	1.1	2.894	A
3 - Norwich Western Link	1491	373	549	3345	0.446	1488	1002	0.0	0.8	1.954	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
1 - Fakenham Road West	646	162	1348	1320	0.490	646	694	1.0	1.0	5.378	A
2 - Fakenham Road East	1424	356	132	2683	0.531	1424	1862	1.1	1.2	2.916	A
3 - Norwich Western Link	1491	373	551	3343	0.446	1491	1005	0.8	0.8	1.962	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
1 - Fakenham Road West	646	162	1348	1320	0.490	646	694	1.0	1.0	5.378	A
2 - Fakenham Road East	1424	356	132	2883	0.531	1424	1862	1.2	1.2	2.916	A
3 - Norwich Western Link	1491	373	551	3343	0.446	1491	1005	0.8	0.8	1.962	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
1 - Fakenham Road West	646	162	1348	1320	0.490	646	694	1.0	1.0	5.378	A
2 - Fakenham Road East	1424	356	132	2883	0.531	1424	1862	1.2	1.2	2.916	A
3 - Norwich Western Link	1491	373	551	3343	0.446	1491	1005	0.8	0.8	1.962	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

2039DS_Mitigation, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1087 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	3.57	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.57	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
D11	2039DS_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 (%)
1 - Fakenham Road West		FLAT	✓	725	100.000
2 - Fakenham Road East		FLAT	✓	1648	100.000
3 - Norwich Western Link		FLAT	✓	1374	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	686	59
2 - Fakenham Road East	502	0	1146
3 - Norwich Western Link	67	1307	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.92	0.08
2 - Fakenham Road East	0.30	0.00	0.70
3 - Norwich Western Link	0.05	0.95	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	0	3	11	
2 - Fakenham Road East	3	0	2	
3 - Norwich Western Link	4	4	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link	
1 - Fakenham Road West	1.000	1.035	1.112	
2 - Fakenham Road East	1.026	1.000	1.025	
3 - Norwich Western Link	1.045	1.040	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	07:15-07:30	725	754
	07:30-07:45	725	754
	07:45-08:00	725	754
	08:00-08:15	725	754
2 - Fakenham Road East	07:15-07:30	1648	1690
	07:30-07:45	1648	1690
	07:45-08:00	1648	1690
	08:00-08:15	1648	1690
3 - Norwich Western Link	07:15-07:30	1374	1429
	07:30-07:45	1374	1429
	07:45-08:00	1374	1429
	08:00-08:15	1374	1429

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)
1 - Fakenham Road West	0.57	6.69	1.4	A	754	754
2 - Fakenham Road East	0.62	3.56	1.7	A	1690	1690
3 - Norwich Western Link	0.42	1.93	0.8	A	1429	1429

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
1 - Fakenham Road West	754	189	1356	1316	0.573	749	583	0.0	1.4	6.547	A
2 - Fakenham Road East	1690	422	65	2726	0.620	1683	2040	0.0	1.7	3.541	A
3 - Norwich Western Link	1429	357	513	3372	0.424	1426	1235	0.0	0.8	1.924	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
1 - Fakenham Road West	754	189	1359	1314	0.574	754	585	1.4	1.4	6.690	A
2 - Fakenham Road East	1690	422	65	2726	0.620	1690	2048	1.7	1.7	3.563	A
3 - Norwich Western Link	1429	357	515	3371	0.424	1429	1240	0.8	0.8	1.928	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
1 - Fakenham Road West	754	189	1359	1314	0.574	754	585	1.4	1.4	6.690	A
2 - Fakenham Road East	1690	422	65	2726	0.620	1690	2048	1.7	1.7	3.563	A
3 - Norwich Western Link	1429	357	515	3371	0.424	1429	1240	0.8	0.8	1.928	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
1 - Fakenham Road West	754	189	1359	1314	0.574	754	585	1.4	1.4	6.690	A
2 - Fakenham Road East	1690	422	65	2726	0.620	1690	2048	1.7	1.7	3.563	A
3 - Norwich Western Link	1429	357	515	3371	0.424	1429	1240	0.8	0.8	1.928	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

2039DS_Mitigation, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Norwich Western Link - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Safety	2 - Fakenham Road East - Accident Parameters	Roundabout accident prediction: Angles between arms expected to sum to 360 degrees.
Info	Safety	Accident Prediction	Roundabout accident prediction: Accident frequencies are unavailable due to the roundabout not having 4 Arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1087 Norwich Western Link Roundabout_80mICD	Standard Roundabout		1, 2, 3	2.89	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.89	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
D12	2039DS_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 (%)
1 - Fakenham Road West		FLAT	✓	626	100.000
2 - Fakenham Road East		FLAT	✓	1396	100.000
3 - Norwich Western Link		FLAT	✓	1394	100.000

Origin-Destination Data

Demand (Veh/hr)

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0	548	79
2 - Fakenham Road East	537	0	858
3 - Norwich Western Link	53	1341	0

Proportions

From	To		
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwich Western Link
1 - Fakenham Road West	0.00	0.87	0.13
2 - Fakenham Road East	0.38	0.00	0.62
3 - Norwich Western Link	0.04	0.96	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwhich Western Link	
1 - Fakenham Road West	0	1	0	
2 - Fakenham Road East	2	0	2	
3 - Norwhich Western Link	0	1	0	

Average PCU Per Veh

From	To			
	1 - Fakenham Road West	2 - Fakenham Road East	3 - Norwhich Western Link	
1 - Fakenham Road West	1.000	1.008	1.002	
2 - Fakenham Road East	1.023	1.000	1.018	
3 - Norwhich Western Link	1.000	1.010	1.000	

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (Veh/hr)	Demand in PCU (PCU/hr)
1 - Fakenham Road West	16:45-17:00	626	631
	17:00-17:15	626	631
	17:15-17:30	626	631
	17:30-17:45	626	631
2 - Fakenham Road East	16:45-17:00	1396	1423
	17:00-17:15	1396	1423
	17:15-17:30	1396	1423
	17:30-17:45	1396	1423
3 - Norwhich Western Link	16:45-17:00	1394	1408
	17:00-17:15	1394	1408
	17:15-17:30	1394	1408
	17:30-17:45	1394	1408

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)
1 - Fakenham Road West	0.48	5.28	0.9	A	631	631
2 - Fakenham Road East	0.52	2.84	1.1	A	1423	1423
3 - Norwhich Western Link	0.42	1.88	0.7	A	1408	1408

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
1 - Fakenham Road West	631	158	1352	1318	0.478	627	601	0.0	0.9	5.218	A
2 - Fakenham Road East	1423	356	78	2718	0.524	1419	1900	0.0	1.1	2.817	A
3 - Norwhich Western Link	1408	352	548	3346	0.421	1405	949	0.0	0.7	1.872	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
1 - Fakenham Road West	631	158	1355	1317	0.479	631	603	0.9	0.9	5.282	A
2 - Fakenham Road East	1423	356	79	2717	0.524	1423	1906	1.1	1.1	2.835	A
3 - Norwhich Western Link	1408	352	549	3344	0.421	1408	952	0.7	0.7	1.876	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
1 - Fakenham Road West	631	158	1355	1317	0.479	631	603	0.9	0.9	5.282	A
2 - Fakenham Road East	1423	356	79	2717	0.524	1423	1908	1.1	1.1	2.835	A
3 - Norwich Western Link	1408	352	549	3344	0.421	1408	952	0.7	0.7	1.876	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
1 - Fakenham Road West	631	158	1355	1317	0.479	631	603	0.9	0.9	5.282	A
2 - Fakenham Road East	1423	356	79	2717	0.524	1423	1908	1.1	1.1	2.835	A
3 - Norwich Western Link	1408	352	549	3344	0.421	1408	952	0.7	0.7	1.876	A

Accident Prediction

Accident Prediction Options

Accident prediction type	Junction Environment	Central Island Diameter (m)
Simple (M0)	Urban	67.80

Accident Parameters

Arm	Use geometries from capacity?	Entry path radius (m)	Approach radius (m)	Angle to next arm (Deg)	Yellow bars
1 - Fakenham Road West	✓	64.28	1061.28	89.90	
2 - Fakenham Road East	✓	65.44	1306.35	124.80	
3 - Norwich Western Link	✓	67.85	2055.00	63.20	

Accident Flows

Arm	Total entry flow (AADT x 1000)	Total exit flow (AADT x 1000)	Total circulating flow (AADT x 1000)	Motorcycles entry flow (AADT x 1000)	Motorcycles exit flow (AADT x 1000)	Motorcycles circulating flow (AADT x 1000)	Pedestrian flow (peds x 1000)
1 - Fakenham Road West	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 - Fakenham Road East	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 - Norwich Western Link	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Accident Arm Results

Arm	Vehicle accidents index	Pedestrian accidents index
1 - Fakenham Road West	0.000	0.000
2 - Fakenham Road East	0.000	0.000
3 - Norwich Western Link	0.000	0.000

