H689 – LAND OFF FIDDINGTON LANE, ASHCHURCH

FILE NOTE DEALING WITH NATIONAL HIGHWAYS PLANNING RESPONSE DATED 20 DECEMBER 2022 (PLANNING APPLICATION: 22/01320/OUT)

1. Introduction

1.1. This file note has been produced by PFA Consulting in response to National Highways Planning Response to Tewkesbury Borough Council (TBC) dated 20 December 2022, in relation to planning application 22/01320/OUT for residential development on land off Fiddington Lane. A copy of National Highways response is reproduced at **Appendix A**.

1.2. National Highways has recommended that the planning application not be granted for a period of up to 3-months pending the submission and review of additional information from the applicant.

1.3. This report provides the additional information requested by National Highways.

2. Trip Generation

2.1. National Highways has queried the robustness of the trip generation provided for the proposed development and have requested further evidence be provided to demonstrate the suitability of the trip rates used in the traffic modelling.

2.2. For the proposed residential development the TA has used vehicular trip rates derived from the TRICS database using comparable sites. The use of 'Houses Privately Owned' trip rates is considered a 'robust' assessment given that at least 30% of the total residential units will be for affordable housing in accordance with Core Policy SD12 of the adopted JCS.

2.3. The residential vehicular trip rates used to establish the traffic generation of the proposed development are consistent with those provided within the TA scoping study which was issued to National Highways for approval. In response to the TA scoping study concerning the proposed traffic generation National Highways stated:

> **"Vehicular trip generation for the proposed residential development has been calculated for both the AM and PM peak hours using the TRICS database. It is proposed development will generate 88 two-way vehicle trips in the AM peak and 87 two-way vehicle trips in the PM peak. We have undertaken our independent TRICS exercise and we can confirm that the above trip generation values are acceptable."**

2.4. At the time of the TA scoping it was anticipated that the proposed development would be for 170 dwellings; this was subsequently reduced to 120 dwellings due to on-site constraints. This reduction in dwelling numbers has resulted in a reduction to the traffic generation; Table 5.7 of the TA shows that the proposed development will generate 62 two-way vehicle trips in the AM peak hour and 61 two-way vehicle trips in the PM peak hour. Importantly, the trip rates used to derive the traffic generation reflects those previously agreed by National Highways as part of the TA scoping exercise.

3. S-Paramics Model Files

3.1. National Highways have requested the S-Paramics model files in order to check and confirm the input data and output reporting. Copies of the S-Paramics model files will therefore be provided to National Highways by email via file transfer.

4. Retail Outlet Centre Roundabouts

4.1. National Highways has requested evidence that the recently constructed roundabouts serving the retail outlet centre would not adversely impact upon the operation of the A46(T).

4.2. The S-Paramics traffic modelling includes the infrastructure associated with the retail outlet centre and other committed developments as part of its modelled highway network; this includes the internal spine road through the retail development connecting the two roundabouts as shown on drawing no. H689/01 at **Appendix B**.

4.3. To provide National Highways with the comfort that these two roundabouts would operate within capacity and would not adversely impact the operation of the A46(T), Junctions 10 capacity assessments have been undertaken for the 2024 and 2031 assessment years with the inclusion of the proposed development.

4.4. The results of the standalone Junctions 10 capacity assessments for the weekday AM and PM peak hours using the traffic flows output from the S-Paramics modelling for Scenarios 3 & 5 are provided below for both the eastern and western roundabout junctions serving the retail outlet centre.

Retail Outlet Centre Eastern Roundabout on Fiddington Lane

4.5. **Tables 4.1** and **4.2** set out the 'Junctions 10' results for the Retail Outlet Centre Eastern Roundabout on Fiddington Lane for both the weekday AM and PM peak hours respectively.

Table 4.1: Retail Outlet Centre Eastern Roundabout AM Peak Hour Junctions 10 Results

Scenario		Approach	Max Queue (vehicles)	Max Delay (sec/veh)	Max RFC
3	2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Fiddington Lane (N)	0.1	3.13	0.08
		Fiddington Lane (S)	0.1	3.80	0.11
		Retail Outlet Centre Access	0.2	4.16	0.19
5	2031 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Fiddington Lane (N)	0.1	3.14	0.09
		Fiddington Lane (S)	0.1	3.77	0.11
		Retail Outlet Centre Access	0.2	4.13	0.18

Table 4.2: Retail Outlet Centre Eastern Roundabout PM Peak Hour Junctions 10 Results

Scenario		Approach	Max Queue (vehicles)	Max Delay (sec/veh)	Max RFC
3	2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Fiddington Lane (N)	0.1	3.20	0.12
		Fiddington Lane (S)	0.1	3.59	0.08
		Retail Outlet Centre Access	0.2	3.97	0.15
5	2031 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Fiddington Lane (N)	0.1	3.18	0.12
		Fiddington Lane (S)	0.1	3.58	0.09
		Retail Outlet Centre Access	0.2	3.96	0.15

4.6. The results show that the Retail Outlet Centre Eastern Roundabout on Fiddington Lane would operate within capacity in both scenarios during both the weekday AM and PM peak hours. The 'Junctions 10' output report is included at **Appendix C**.

Retail Outlet Centre Western Roundabout south of Alexandra Way

4.7. **Tables 4.3** and **4.4** set out the 'Junctions 10' results for the Retail Outlet Centre Western Roundabout for both the weekday AM and PM peak hours respectively.

Table 4.3: Retail Outlet Centre Western Roundabout AM Peak Hour Junctions 10 Results

Scenario		Approach	Max Queue (vehicles)	Max Delay (sec/veh)	Max RFC
3	2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Retail Outlet Centre	0.0	2.26	0.03
		Fiddington Residential	0.6	3.80	0.36
		Dobbies Garden Centre	0.0	3.67	0.01
		Link to A46(T)	0.2	2.11	0.16
5	2031 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Retail Outlet Centre	0.0	2.26	0.03
		Fiddington Residential	0.6	3.81	0.36
		Dobbies Garden Centre	0.0	3.67	0.01
		Link to A46(T)	0.2	2.10	0.17

Table 4.4: Retail Outlet Centre Western Roundabout PM Peak Hour Junctions 10 Results

Scenario		Approach	Max Queue (vehicles)	Max Delay (sec/veh)	Max RFC
3	2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Retail Outlet Centre	0.2	3.10	0.19
		Fiddington Residential	0.2	3.15	0.16
		Dobbies Garden Centre	0.1	3.70	0.08
		Link to A46(T)	0.4	2.45	0.31
5	2031 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	Retail Outlet Centre	0.2	3.07	0.19
		Fiddington Residential	0.2	3.16	0.17
		Dobbies Garden Centre	0.1	3.70	0.08
		Link to A46(T)	0.4	2.45	0.31

4.8. The results show that the Retail Outlet Centre Western Roundabout would operate within capacity in both scenarios during both the weekday AM and PM peak hours. The 'Junctions 10' output report is included at **Appendix D.**

APPENDICES

Appendix A: Copy of National Highways Planning Response dated 20 December 2022

Appendix B: Drawing H689/01 Site Access Arrangements off A46(T) – General Arrangement

Appendix C: Junctions 10 Model Outputs for Retail Outlet Centre Eastern Roundabout

Appendix D: Junctions 10 Model Outputs for Retail Outlet Centre Western Roundabout

Appendices

Appendix A

National Highways Planning Response (NHPR 22-12)
Formal Recommendation to an Application for Planning Permission

From: Andrew Jinks (Regional Director)
Operations Directorate
Midlands Region
National Highways
PlanningM@nationalhighways.co.uk

To: **Tewkesbury Borough Council- FAO:** [redacted]
developmentapplications@tewkesbury.gov.uk

CC: transportplanning@dft.gov.uk
spatialplanning@nationalhighways.co.uk

Council's Reference: 22/01320/OUT

Location: Parcel 5558, Road from Natton to Homedowns, Ashchurch

Proposal: Residential Development, associated works including infrastructure, open space and landscaping. Vehicular access from Fiddington Lane.

National Highways Ref: 97005

Referring to the consultation on a planning application dated 08.12.2022, referenced above, in the vicinity of the M5 and A46 that forms part of the Strategic Road Network, notice is hereby given that National Highways' formal recommendation is that we:

Recommend that planning permission not be granted for a specified period (see reasons at Annex A);

This represents National Highways' formal recommendation and is copied to the Department for Transport as per the terms of our Licence.

Should the Local Planning Authority not propose to determine the application in accordance with this recommendation they are required to consult the Secretary of State for Transport, as set out in the Town and Country Planning (Development Affecting Trunk Roads) Direction 2018, via transportplanning@dft.gov.uk and may not determine the application until the consultation process is complete.

The Local Planning Authority must also copy any consultation under the 2018 Direction to PlanningM@nationalhighways.co.uk.

Signature: [redacted]	**Date:** 20/12/2022
Name: [redacted]	**Position:** Spatial Planner
National Highways The Cube, Birmingham, B1 1RN	

Annex A National Highways' assessment of the proposed development

National Highways has been appointed by the Secretary of State for Transport as a strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the Strategic Road Network (SRN). The SRN is a critical national asset and as such we work to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

This response represents our formal recommendation regarding 22/01320/OUT and has been prepared by Neil Hansen.

Our initial comments are set out below::

The trip generation provided for the proposed development are not considered to have been robustly derived and further evidence is required to demonstrate the suitability or otherwise of the trip rates.
In order to verify the model output we will need to have the S PARAMICS files to check and confirm the input data and output reporting.
The individual junction capacity assessments cover the appropriate junction and make use of previously agreed models for the junctions being assessed. Therefore, although the models are likely to be correctly built, until the traffic flows have been verified in terms of appropriate trip rates and S PARAMICS outputs the conclusions of the capacity assessments cannot be confirmed.
Evidence is required to demonstrate that newly constructed roundabout serving the retail outlet centre and linking with Fiddington Lane will not adversely impact upon the operation of the A46(T).
National Highways requests the provision of the S PARAMICS files so that a robust review can be undertaken of the inputs and reporting. Confirmation that the traffic signal timings used are appropriate will also be required. A further set of trip rates are requested to ensure that the ones proposed and used in the assessment to date are sufficiently robust.

Recommendation

Considering the above, National Highways recommends that planning permission not be granted for a period of up to three months from the date of this response to allow for sufficient time for the applicant to provide further information and for National Highways to review and respond to information provided.

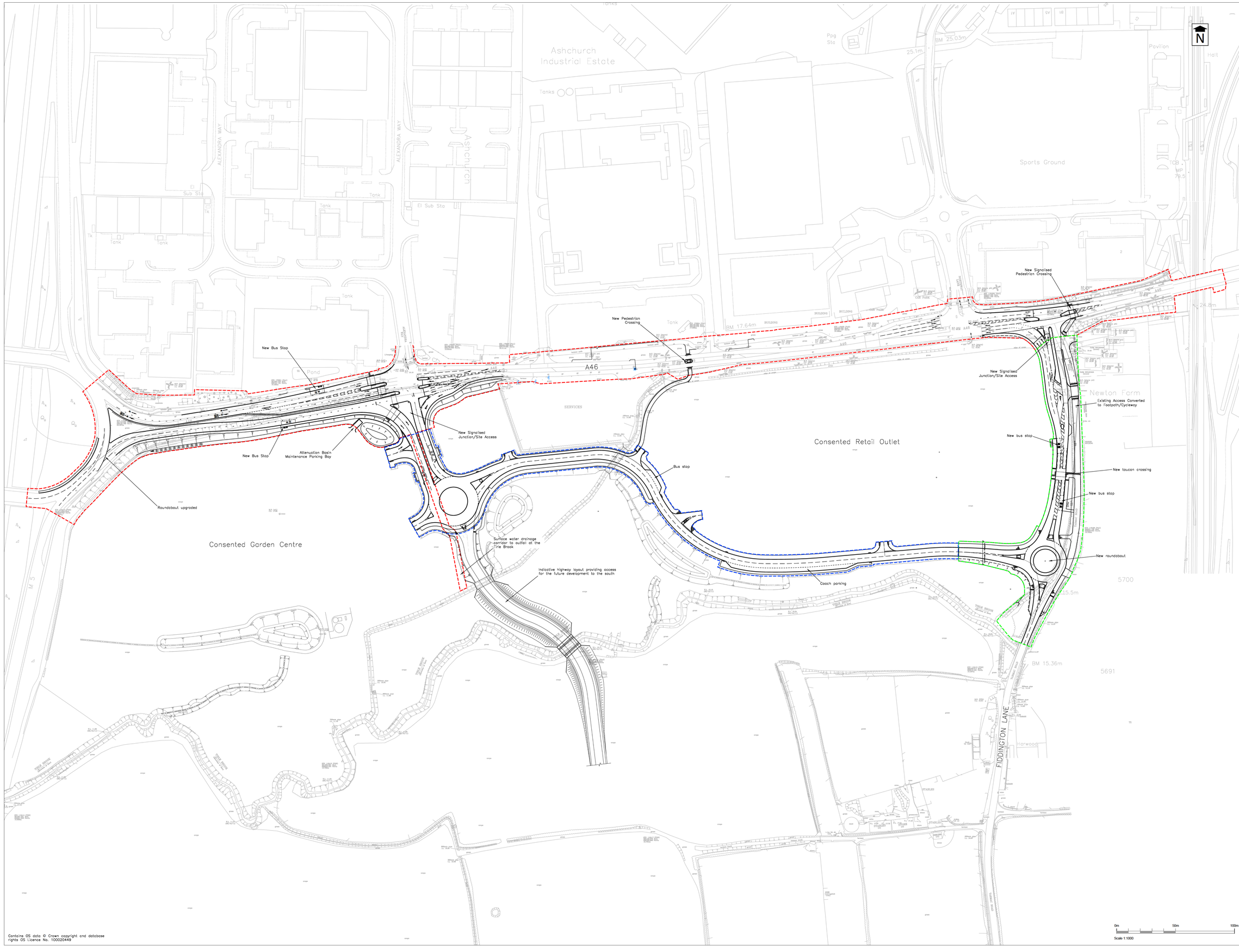
Standing advice to the local planning authority

The Climate Change Committee's 2022 Report to Parliament notes that for the UK to achieve net zero carbon status by 2050, action is needed to support a modal shift away from car travel. The NPPF supports this position, with paragraphs 73 and 105 prescribing that significant development should offer a genuine choice of transport modes, while paragraphs 104 and 110 advise that appropriate opportunities to promote walking, cycling and public transport should be taken up.

Moreover, the build clever and build efficiently criteria as set out in clause 6.1.4 of PAS2080 promote the use of low carbon materials and products, innovative design solutions and construction methods to minimise resource consumption.

These considerations should be weighed alongside any relevant Local Plan policies to ensure that planning decisions are in line with the necessary transition to net zero carbon.

Appendix B



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For Planning
These drawings are produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOTES

1. Based on Topographical Survey No. 1184/01B and 1184/02B by Nigel Ruxton Land Surveyors and PFA Consulting's Drawing Nos. H592/0101 Rev F 'Section 278 – Series 0101 General Arrangement' and H592/01/102 Rev C 'Section 38 – General Arrangement'.

KEY:

- Limit of S278 proposed works with technical approval from Highways England
- Limit of S278 proposed works with technical approval from Gloucestershire County Council
- Limit of S38 proposed works with technical approval from Gloucestershire County Council

Rev	Date	Description	Drawn	Check
#	01/09/21	First Issue	TLH	JA

Status
FOR PLANNING

Client
Robert Hitchins Ltd

Project
Land off Fiddington Lane, Ashchurch

Drawing Title
Site Access Arrangements off A46(T) - General Arrangement

Drawing No.
H689/1

Date: September 2021 | Scale: 1:1000 @ A0

E-Mail: rharrison@pfaplc.com

Appendix C

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693
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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: Roundabout 2 Eastern Roundabout.j10
Path: F:\Workfile\H689\Traffic Modelling\Junction Models\Roundabout 2 - Eastern Roundabout
Report generation date: 09/02/2023 12:47:58

»S3 2024, AM
»S3 2024, PM
»S5 2031, AM
»S5 2031, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	S3 2024									
A - Fiddington Lane (N)	D1	0.1	3.13	0.08	A	D2	0.1	3.20	0.12	A
B - Fiddington Lane (S)		0.1	3.80	0.11	A		0.1	3.59	0.08	A
C - Retail Outlet Centre		0.2	4.16	0.19	A		0.2	3.97	0.15	A
	S5 2031									
A - Fiddington Lane (N)	D3	0.1	3.14	0.09	A	D4	0.1	3.18	0.12	A
B - Fiddington Lane (S)		0.1	3.77	0.11	A		0.1	3.58	0.09	A
C - Retail Outlet Centre		0.2	4.13	0.18	A		0.2	3.96	0.15	A

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

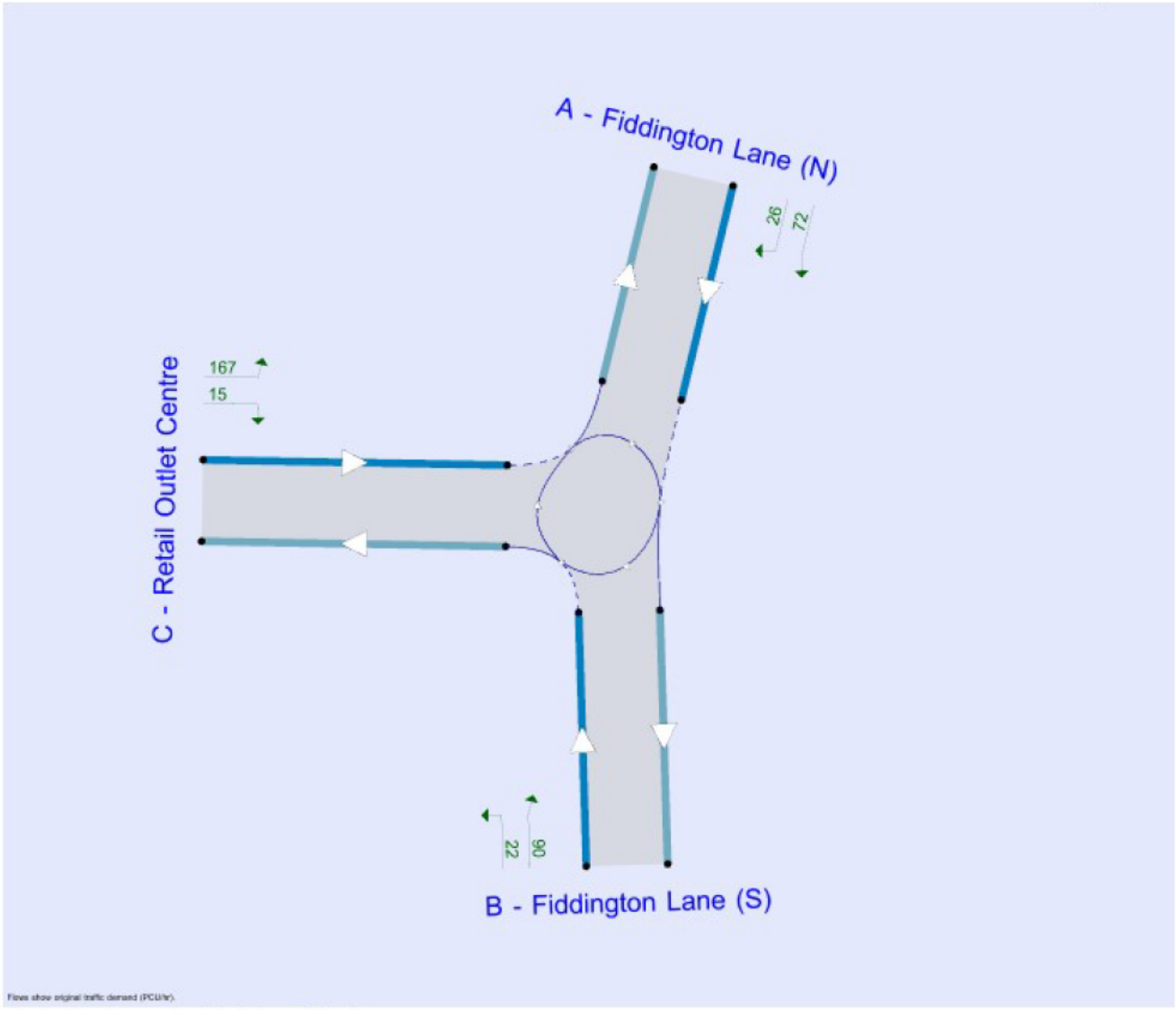
File summary

File Description

Title	
Location	
Site number	
Date	07/02/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	PFA\harryp
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	S3 2024	AM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15
D2	S3 2024	PM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15
D3	S5 2031	AM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15
D4	S5 2031	PM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

S3 2024, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R2	Eastern Roundabout	Standard Roundabout		A, B, C	3.80	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.80	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Fiddington Lane (N)		
B	Fiddington Lane (S)		
C	Retail Outlet Centre		

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 - Fiddington Lane (N)	3.65	4.50	22.0	20.0	36.0	32.0		
B - Fiddington Lane (S)	2.75	4.50	27.6	20.0	36.0	59.0		
C - Retail Outlet Centre	2.75	4.50	12.0	20.0	36.0	49.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Fiddington Lane (N)	0.572	1326
B - Fiddington Lane (S)	0.507	1146
C - Retail Outlet Centre	0.512	1116

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	S3 2024	AM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fiddington Lane (N)		✓	98	100.000
B - Fiddington Lane (S)		✓	112	100.000
C - Retail Outlet Centre		✓	182	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	72	26
	B - Fiddington Lane (S)	90	0	22
	C - Retail Outlet Centre	167	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	7	0
	B - Fiddington Lane (S)	8	0	0
	C - Retail Outlet Centre	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Fiddington Lane (N)	0.08	3.13	0.1	A
B - Fiddington Lane (S)	0.11	3.80	0.1	A
C - Retail Outlet Centre	0.19	4.16	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	74	11	1319	0.056	74	0.1	3.035	A
B - Fiddington Lane (S)	84	20	1136	0.074	84	0.1	3.639	A
C - Retail Outlet Centre	137	67	1081	0.127	136	0.1	3.807	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	88	13	1318	0.067	88	0.1	3.073	A
B - Fiddington Lane (S)	101	23	1134	0.089	101	0.1	3.703	A
C - Retail Outlet Centre	164	81	1075	0.152	163	0.2	3.951	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	108	16	1316	0.082	108	0.1	3.128	A
B - Fiddington Lane (S)	123	29	1131	0.109	123	0.1	3.796	A
C - Retail Outlet Centre	200	99	1065	0.188	200	0.2	4.160	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	108	17	1316	0.082	108	0.1	3.128	A
B - Fiddington Lane (S)	123	29	1131	0.109	123	0.1	3.796	A
C - Retail Outlet Centre	200	99	1065	0.188	200	0.2	4.161	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	88	14	1318	0.067	88	0.1	3.076	A
B - Fiddington Lane (S)	101	23	1134	0.089	101	0.1	3.707	A
C - Retail Outlet Centre	164	81	1075	0.152	164	0.2	3.953	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	74	11	1319	0.056	74	0.1	3.035	A
B - Fiddington Lane (S)	84	20	1136	0.074	84	0.1	3.642	A
C - Retail Outlet Centre	137	68	1081	0.127	137	0.1	3.812	A

S3 2024, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R2	Eastern Roundabout	Standard Roundabout		A, B, C	3.59	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.59	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	S3 2024	PM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fiddington Lane (N)		✓	147	100.000
B - Fiddington Lane (S)		✓	83	100.000
C - Retail Outlet Centre		✓	147	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	1	67	79
	B - Fiddington Lane (S)	69	0	14
	C - Retail Outlet Centre	117	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	3	1
	B - Fiddington Lane (S)	1	0	0
	C - Retail Outlet Centre	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Fiddington Lane (N)	0.12	3.20	0.1	A
B - Fiddington Lane (S)	0.08	3.59	0.1	A
C - Retail Outlet Centre	0.15	3.97	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	111	22	1313	0.084	110	0.1	3.050	A
B - Fiddington Lane (S)	62	60	1115	0.056	62	0.1	3.446	A
C - Retail Outlet Centre	111	52	1089	0.102	110	0.1	3.704	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	132	27	1310	0.101	132	0.1	3.112	A
B - Fiddington Lane (S)	75	72	1109	0.067	75	0.1	3.507	A
C - Retail Outlet Centre	132	63	1084	0.122	132	0.1	3.811	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	162	33	1307	0.124	162	0.1	3.202	A
B - Fiddington Lane (S)	91	88	1101	0.083	91	0.1	3.594	A
C - Retail Outlet Centre	162	77	1077	0.150	162	0.2	3.966	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	162	33	1307	0.124	162	0.1	3.202	A
B - Fiddington Lane (S)	91	88	1101	0.083	91	0.1	3.594	A
C - Retail Outlet Centre	162	77	1077	0.150	162	0.2	3.966	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	132	27	1310	0.101	132	0.1	3.113	A
B - Fiddington Lane (S)	75	72	1109	0.067	75	0.1	3.510	A
C - Retail Outlet Centre	132	63	1084	0.122	132	0.1	3.816	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	111	23	1313	0.084	111	0.1	3.050	A
B - Fiddington Lane (S)	62	60	1115	0.056	63	0.1	3.447	A
C - Retail Outlet Centre	111	53	1089	0.102	111	0.1	3.708	A

S5 2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R2	Eastern Roundabout	Standard Roundabout		A, B, C	3.77	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.77	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	S5 2031	AM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fiddington Lane (N)		✓	103	100.000
B - Fiddington Lane (S)		✓	110	100.000
C - Retail Outlet Centre		✓	176	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	74	29
	B - Fiddington Lane (S)	91	0	19
	C - Retail Outlet Centre	160	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	7	0
	B - Fiddington Lane (S)	7	0	0
	C - Retail Outlet Centre	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Fiddington Lane (N)	0.09	3.14	0.1	A
B - Fiddington Lane (S)	0.11	3.77	0.1	A
C - Retail Outlet Centre	0.18	4.13	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	78	12	1319	0.059	77	0.1	3.042	A
B - Fiddington Lane (S)	83	22	1135	0.073	82	0.1	3.617	A
C - Retail Outlet Centre	133	68	1081	0.123	132	0.1	3.791	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	93	14	1318	0.070	93	0.1	3.082	A
B - Fiddington Lane (S)	99	26	1133	0.087	99	0.1	3.681	A
C - Retail Outlet Centre	158	82	1074	0.147	158	0.2	3.930	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	113	18	1316	0.086	113	0.1	3.140	A
B - Fiddington Lane (S)	121	32	1130	0.107	121	0.1	3.773	A
C - Retail Outlet Centre	194	100	1065	0.182	194	0.2	4.131	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	113	18	1316	0.086	113	0.1	3.140	A
B - Fiddington Lane (S)	121	32	1130	0.107	121	0.1	3.773	A
C - Retail Outlet Centre	194	100	1065	0.182	194	0.2	4.133	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	93	14	1318	0.070	93	0.1	3.083	A
B - Fiddington Lane (S)	99	26	1133	0.087	99	0.1	3.684	A
C - Retail Outlet Centre	158	82	1074	0.147	158	0.2	3.933	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	78	12	1319	0.059	78	0.1	3.044	A
B - Fiddington Lane (S)	83	22	1135	0.073	83	0.1	3.620	A
C - Retail Outlet Centre	133	69	1081	0.123	133	0.1	3.795	A

S5 2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R2	Eastern Roundabout	Standard Roundabout		A, B, C	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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	S5 2031	PM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fiddington Lane (N)		✓	148	100.000
B - Fiddington Lane (S)		✓	86	100.000
C - Retail Outlet Centre		✓	146	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	68	80
	B - Fiddington Lane (S)	71	0	15
	C - Retail Outlet Centre	116	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fiddington Lane (N)	B - Fiddington Lane (S)	C - Retail Outlet Centre
From	A - Fiddington Lane (N)	0	1	1
	B - Fiddington Lane (S)	0	0	0
	C - Retail Outlet Centre	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Fiddington Lane (N)	0.12	3.18	0.1	A
B - Fiddington Lane (S)	0.09	3.58	0.1	A
C - Retail Outlet Centre	0.15	3.96	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	111	22	1313	0.085	111	0.1	3.025	A
B - Fiddington Lane (S)	65	60	1115	0.058	64	0.1	3.425	A
C - Retail Outlet Centre	110	53	1089	0.101	109	0.1	3.703	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	133	27	1310	0.102	133	0.1	3.087	A
B - Fiddington Lane (S)	77	72	1109	0.070	77	0.1	3.487	A
C - Retail Outlet Centre	131	64	1083	0.121	131	0.1	3.810	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	163	33	1307	0.125	163	0.1	3.177	A
B - Fiddington Lane (S)	95	88	1101	0.086	95	0.1	3.576	A
C - Retail Outlet Centre	161	78	1076	0.149	161	0.2	3.964	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	163	33	1307	0.125	163	0.1	3.177	A
B - Fiddington Lane (S)	95	88	1101	0.086	95	0.1	3.576	A
C - Retail Outlet Centre	161	78	1076	0.149	161	0.2	3.964	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	133	27	1310	0.102	133	0.1	3.088	A
B - Fiddington Lane (S)	77	72	1109	0.070	77	0.1	3.491	A
C - Retail Outlet Centre	131	64	1083	0.121	131	0.1	3.811	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Fiddington Lane (N)	111	23	1313	0.085	112	0.1	3.028	A
B - Fiddington Lane (S)	65	60	1115	0.058	65	0.1	3.426	A
C - Retail Outlet Centre	110	53	1089	0.101	110	0.1	3.707	A

Appendix D

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693
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Filename: Roundabout 1 Western Roundabout.j10
Path: F:\Workfile\H689\Traffic Modelling\Junction Models\Roundabout 1 - Western Roundabout
Report generation date: 09/02/2023 12:45:56

»S3 2024, AM
»S3 2024, PM
»S5 2031, AM
»S5 2031, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	S3 2024									
A - Retail Outlet Centre	D1	0.0	2.26	0.03	A	D2	0.2	3.10	0.19	A
B - Fiddington Residential		0.6	3.80	0.36	A		0.2	3.15	0.16	A
C - Dobbies Garden Centre		0.0	3.67	0.01	A		0.1	3.70	0.08	A
D - Link to A46(T)		0.2	2.11	0.16	A		0.4	2.45	0.31	A
	S5 2031									
A - Retail Outlet Centre	D3	0.0	2.26	0.03	A	D4	0.2	3.07	0.19	A
B - Fiddington Residential		0.6	3.81	0.36	A		0.2	3.16	0.17	A
C - Dobbies Garden Centre		0.0	3.67	0.01	A		0.1	3.70	0.08	A
D - Link to A46(T)		0.2	2.10	0.17	A		0.4	2.45	0.31	A

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

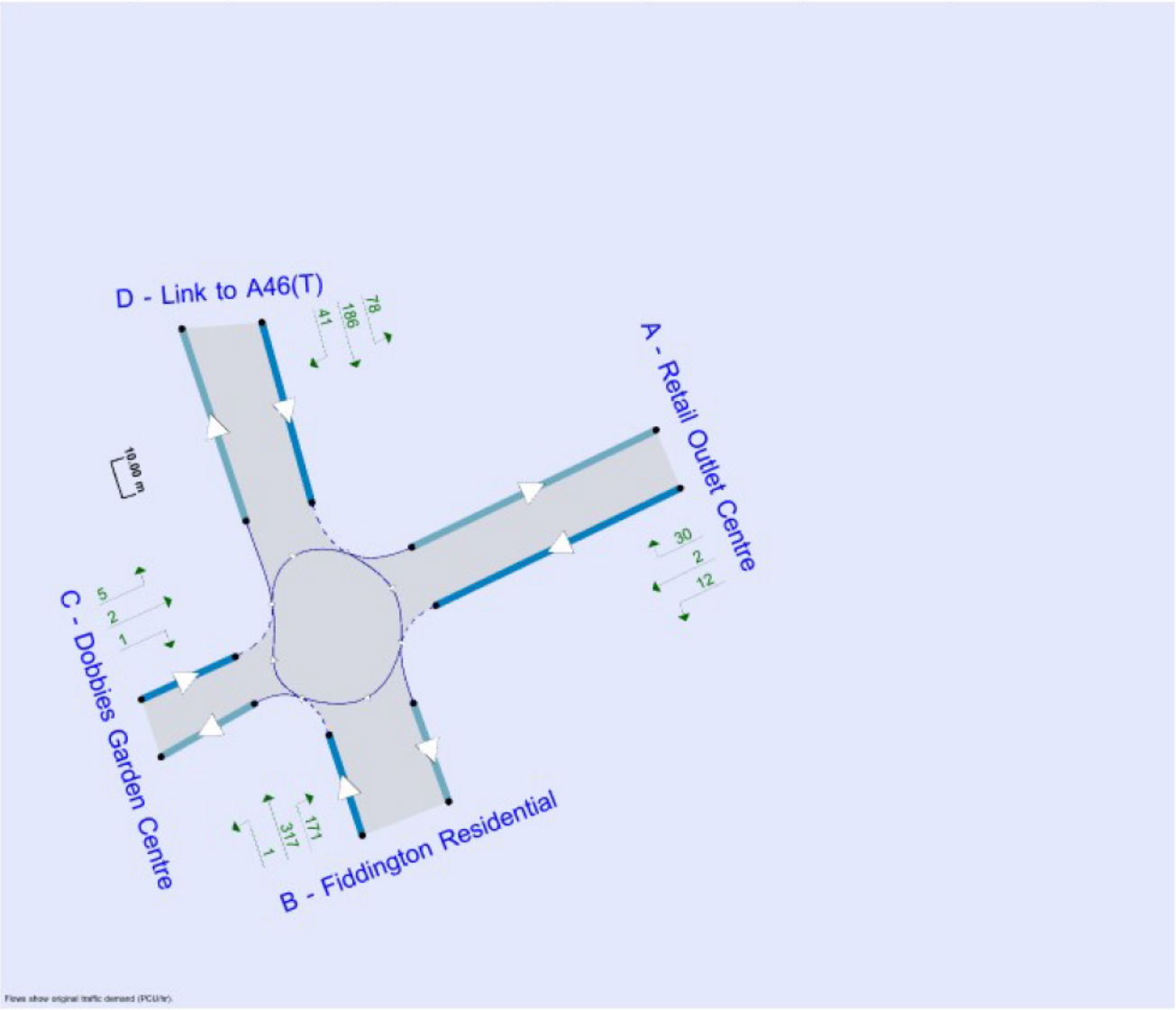
File summary

File Description

Title	
Location	
Site number	
Date	07/02/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	PFA\harryp
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	S3 2024	AM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15
D2	S3 2024	PM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15
D3	S5 2031	AM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15
D4	S5 2031	PM		ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

S3 2024, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R1	Western Roundabout	Standard Roundabout		A, B, C, D	3.11	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.11	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Retail Outlet Centre		
B	Fiddington Residential		
C	Dobbies Garden Centre		
D	Link to A46(T)		

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 - Retail Outlet Centre	3.65	7.50	14.0	50.0	42.0	24.0		
B - Fiddington Residential	3.38	6.00	12.0	25.0	42.0	24.0		
C - Dobbies Garden Centre	3.65	4.50	6.0	20.0	42.0	23.0		
D - Link to A46(T)	7.30	7.30	0.0	20.0	42.0	31.0		

Geometry Notes

Arm	Notes
A - Retail Outlet Centre	
B - Fiddington Residential	Geometry extracted from H689/1 - Site Access Arrangements off A46(T) - General Arrangement
C - Dobbies Garden Centre	
D - Link to A46(T)	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Retail Outlet Centre	0.674	1813
B - Fiddington Residential	0.614	1536
C - Dobbies Garden Centre	0.568	1314
D - Link to A46(T)	0.736	2204

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	S3 2024	AM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Retail Outlet Centre		✓	44	100.000
B - Fiddington Residential		✓	489	100.000
C - Dobbies Garden Centre		✓	8	100.000
D - Link to A46(T)		✓	307	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	12	2	30
	B - Fiddington Residential	171	0	1	317
	C - Dobbies Garden Centre	2	1	0	5
	D - Link to A46(T)	78	186	41	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	0	0	0
	B - Fiddington Residential	0	0	0	0
	C - Dobbies Garden Centre	0	0	0	0
	D - Link to A46(T)	3	0	0	50

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Retail Outlet Centre	0.03	2.26	0.0	A
B - Fiddington Residential	0.36	3.80	0.6	A
C - Dobbies Garden Centre	0.01	3.67	0.0	A
D - Link to A46(T)	0.16	2.11	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	33	173	1697	0.020	33	0.0	2.163	A
B - Fiddington Residential	368	56	1502	0.245	367	0.3	3.170	A
C - Dobbies Garden Centre	6	390	1093	0.006	6	0.0	3.311	A
D - Link to A46(T)	231	131	2108	0.110	231	0.1	1.936	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	40	207	1674	0.024	40	0.0	2.202	A
B - Fiddington Residential	440	67	1495	0.294	439	0.4	3.411	A
C - Dobbies Garden Centre	7	467	1049	0.007	7	0.0	3.454	A
D - Link to A46(T)	276	156	2089	0.132	276	0.2	2.004	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	48	253	1642	0.030	48	0.0	2.258	A
B - Fiddington Residential	538	83	1485	0.362	538	0.6	3.797	A
C - Dobbies Garden Centre	9	572	990	0.009	9	0.0	3.669	A
D - Link to A46(T)	338	191	2063	0.164	338	0.2	2.106	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	48	253	1642	0.030	48	0.0	2.258	A
B - Fiddington Residential	538	83	1485	0.362	538	0.6	3.800	A
C - Dobbies Garden Centre	9	573	989	0.009	9	0.0	3.670	A
D - Link to A46(T)	338	192	2063	0.164	338	0.2	2.106	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	40	207	1674	0.024	40	0.0	2.204	A
B - Fiddington Residential	440	67	1495	0.294	440	0.4	3.414	A
C - Dobbies Garden Centre	7	468	1049	0.007	7	0.0	3.458	A
D - Link to A46(T)	276	157	2089	0.132	276	0.2	2.006	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	33	173	1696	0.020	33	0.0	2.166	A
B - Fiddington Residential	368	56	1501	0.245	369	0.3	3.180	A
C - Dobbies Garden Centre	6	392	1092	0.006	6	0.0	3.314	A
D - Link to A46(T)	231	131	2108	0.110	231	0.1	1.936	A

S3 2024, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R1	Western Roundabout	Standard Roundabout		A, B, C, D	2.81	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.81	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	S3 2024	PM	Scenario 3 - 2024 Opening Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Retail Outlet Centre		✓	260	100.000
B - Fiddington Residential		✓	205	100.000
C - Dobbies Garden Centre		✓	77	100.000
D - Link to A46(T)		✓	601	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	56	4	200
	B - Fiddington Residential	62	0	1	142
	C - Dobbies Garden Centre	20	2	0	55
	D - Link to A46(T)	146	411	39	5

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	0	0	3
	B - Fiddington Residential	0	0	0	0
	C - Dobbies Garden Centre	0	0	0	0
	D - Link to A46(T)	1	0	0	20

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Retail Outlet Centre	0.19	3.10	0.2	A
B - Fiddington Residential	0.16	3.15	0.2	A
C - Dobbies Garden Centre	0.08	3.70	0.1	A
D - Link to A46(T)	0.31	2.45	0.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	196	343	1582	0.124	195	0.1	2.654	A
B - Fiddington Residential	154	186	1422	0.109	154	0.1	2.839	A
C - Dobbies Garden Centre	58	307	1140	0.051	58	0.1	3.326	A
D - Link to A46(T)	452	63	2158	0.210	451	0.3	2.117	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	234	411	1536	0.152	234	0.2	2.826	A
B - Fiddington Residential	184	223	1399	0.132	184	0.2	2.962	A
C - Dobbies Garden Centre	69	367	1106	0.063	69	0.1	3.472	A
D - Link to A46(T)	540	75	2149	0.251	540	0.3	2.246	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	286	503	1474	0.194	286	0.2	3.099	A
B - Fiddington Residential	226	273	1389	0.165	226	0.2	3.148	A
C - Dobbies Garden Centre	85	450	1059	0.080	85	0.1	3.694	A
D - Link to A46(T)	662	92	2136	0.310	661	0.4	2.450	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	286	503	1474	0.194	286	0.2	3.100	A
B - Fiddington Residential	226	273	1389	0.165	226	0.2	3.149	A
C - Dobbies Garden Centre	85	450	1059	0.080	85	0.1	3.695	A
D - Link to A46(T)	662	92	2136	0.310	662	0.4	2.450	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	234	411	1536	0.152	234	0.2	2.830	A
B - Fiddington Residential	184	223	1399	0.132	184	0.2	2.965	A
C - Dobbies Garden Centre	69	368	1105	0.063	69	0.1	3.474	A
D - Link to A46(T)	540	76	2149	0.251	541	0.3	2.249	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	196	344	1581	0.124	196	0.1	2.660	A
B - Fiddington Residential	154	187	1421	0.109	154	0.1	2.841	A
C - Dobbies Garden Centre	58	308	1139	0.051	58	0.1	3.328	A
D - Link to A46(T)	452	63	2158	0.210	453	0.3	2.119	A

S5 2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R1	Western Roundabout	Standard Roundabout		A, B, C, D	3.11	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.11	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	S5 2031	AM	Scenario 5 - 2031 Forecast Year + Committed Development + Proposed Development on Land off Fiddington Lane (120 dwellings)	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Retail Outlet Centre		✓	45	100.000
B - Fiddington Residential		✓	492	100.000
C - Dobbies Garden Centre		✓	7	100.000
D - Link to A46(T)		✓	311	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	13	3	29
	B - Fiddington Residential	164	0	2	326
	C - Dobbies Garden Centre	2	0	0	5
	D - Link to A46(T)	80	189	39	3

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	0	0	0
	B - Fiddington Residential	0	0	0	0
	C - Dobbies Garden Centre	0	0	0	0
	D - Link to A46(T)	3	0	0	33

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Retail Outlet Centre	0.03	2.26	0.0	A
B - Fiddington Residential	0.36	3.81	0.6	A
C - Dobbies Garden Centre	0.01	3.67	0.0	A
D - Link to A46(T)	0.17	2.10	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	34	174	1696	0.020	34	0.0	2.165	A
B - Fiddington Residential	370	56	1502	0.247	369	0.3	3.175	A
C - Dobbies Garden Centre	5	392	1092	0.005	5	0.0	3.311	A
D - Link to A46(T)	234	125	2113	0.111	234	0.1	1.935	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	40	208	1673	0.024	40	0.0	2.204	A
B - Fiddington Residential	442	66	1495	0.296	442	0.4	3.417	A
C - Dobbies Garden Centre	6	469	1048	0.006	6	0.0	3.454	A
D - Link to A46(T)	280	149	2095	0.133	279	0.2	2.003	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	50	254	1642	0.030	50	0.0	2.260	A
B - Fiddington Residential	542	81	1486	0.365	541	0.6	3.807	A
C - Dobbies Garden Centre	8	574	988	0.008	8	0.0	3.670	A
D - Link to A46(T)	342	183	2070	0.165	342	0.2	2.104	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	50	254	1642	0.030	50	0.0	2.260	A
B - Fiddington Residential	542	81	1486	0.365	542	0.6	3.810	A
C - Dobbies Garden Centre	8	575	988	0.008	8	0.0	3.671	A
D - Link to A46(T)	342	183	2070	0.165	342	0.2	2.104	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	40	208	1673	0.024	40	0.0	2.206	A
B - Fiddington Residential	442	67	1495	0.296	443	0.4	3.421	A
C - Dobbies Garden Centre	6	470	1048	0.006	6	0.0	3.459	A
D - Link to A46(T)	280	149	2094	0.134	280	0.2	2.003	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	34	174	1696	0.020	34	0.0	2.167	A
B - Fiddington Residential	370	56	1502	0.247	371	0.3	3.185	A
C - Dobbies Garden Centre	5	393	1091	0.005	5	0.0	3.317	A
D - Link to A46(T)	234	125	2112	0.111	234	0.1	1.937	A

S5 2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
R1	Western Roundabout	Standard Roundabout		A, B, C, D	2.81	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.81	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	S5 2031	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Retail Outlet Centre		✓	261	100.000
B - Fiddington Residential		✓	209	100.000
C - Dobbies Garden Centre		✓	77	100.000
D - Link to A46(T)		✓	597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	56	4	201
	B - Fiddington Residential	62	0	1	146
	C - Dobbies Garden Centre	21	2	0	54
	D - Link to A46(T)	147	408	39	3

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Retail Outlet Centre	B - Fiddington Residential	C - Dobbies Garden Centre	D - Link to A46(T)
From	A - Retail Outlet Centre	0	0	0	2
	B - Fiddington Residential	0	0	0	0
	C - Dobbies Garden Centre	0	0	0	0
	D - Link to A46(T)	2	0	0	33

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Retail Outlet Centre	0.19	3.07	0.2	A
B - Fiddington Residential	0.17	3.16	0.2	A
C - Dobbies Garden Centre	0.08	3.70	0.1	A
D - Link to A46(T)	0.31	2.45	0.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	196	339	1584	0.124	196	0.1	2.631	A
B - Fiddington Residential	157	185	1422	0.111	157	0.1	2.845	A
C - Dobbies Garden Centre	58	309	1139	0.051	58	0.1	3.330	A
D - Link to A46(T)	449	64	2157	0.208	448	0.3	2.118	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	235	406	1539	0.152	234	0.2	2.801	A
B - Fiddington Residential	188	222	1400	0.134	188	0.2	2.969	A
C - Dobbies Garden Centre	69	370	1104	0.063	69	0.1	3.477	A
D - Link to A46(T)	537	76	2148	0.250	536	0.3	2.247	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	287	497	1478	0.194	287	0.2	3.070	A
B - Fiddington Residential	230	272	1369	0.168	230	0.2	3.159	A
C - Dobbies Garden Centre	85	453	1057	0.080	85	0.1	3.701	A
D - Link to A46(T)	657	94	2135	0.308	657	0.4	2.449	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	287	498	1477	0.195	287	0.2	3.070	A
B - Fiddington Residential	230	272	1369	0.168	230	0.2	3.159	A
C - Dobbies Garden Centre	85	454	1057	0.080	85	0.1	3.702	A
D - Link to A46(T)	657	94	2135	0.308	657	0.4	2.450	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	235	407	1539	0.152	235	0.2	2.803	A
B - Fiddington Residential	188	222	1400	0.134	188	0.2	2.973	A
C - Dobbies Garden Centre	69	371	1104	0.063	69	0.1	3.479	A
D - Link to A46(T)	537	76	2148	0.250	537	0.3	2.248	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Retail Outlet Centre	196	341	1583	0.124	197	0.1	2.637	A
B - Fiddington Residential	157	186	1422	0.111	157	0.1	2.846	A
C - Dobbies Garden Centre	58	310	1138	0.051	58	0.1	3.332	A
D - Link to A46(T)	449	64	2157	0.208	450	0.3	2.123	A