22092-01-001

PROPOSED RESIDENTIAL DEVELOPMENT AT CORNMADDY ATHLONE, Co. WESTMEATH

Traffic Impact Assessment

for

Akiyda Ltd.

March 2023

ROADPLAN CONSULTING

7, Ormonde Road
Kilkenny.
R95 N4FE

Tel: 056 7795800
info@roadplan.ie

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1 INTRODUCTION

1 Introduction

1.1 INTRODUCTION

Roadplan Consulting were commissioned by Genesis Planning Consultants on behalf of Akiyda Ltd. to prepare a Traffic Impact Assessment for a proposed residential development at Cornamaddy, Athlone, Co. Westmeath.

In preparing this report, Roadplan Consulting has made reference to:

- The Westmeath County Development Plan 2021 - 2027.
- The Institute of Highways and Transportation Guidelines on the Preparation of Traffic Impact Assessments.
- The TII Transport Assessment Guidelines.
- The TII National Traffic Model.

1.2 OBJECTIVES

The objective of this report is to examine the traffic implications of the proposed residential development in terms of how it can integrate with existing traffic in the area. The report will determine and quantify the extent of additional trips generated by the development, and the impact of such trips on the operational performance of the local road network and junctions, in particular the existing N55 / R916 / L8048 roundabout.

1.3 STUDY METHODOLOGY

The methodology adopted for this report is summarised as follows:

- A traffic count was undertaken by IDASO on Tuesday 22nd of November 2022 as requested by Westmeath County Council during a 12-hour period (07:00 to 19:00). Count information was obtained at the existing N55 / R916 / L8048 roundabout.
- Existing Traffic Assessment – A spreadsheet model was created which contains the base year DO-NOTHING traffic count data described above. The traffic count data was used to develop an ARCADY model of the existing N55 / R916 / L8048 roundabout.
- Future Year Assessment – The estimated future year traffic volumes on the study area road network, as a result of the increase in background traffic and the additional development related traffic was used to assess the future operational performance of the junctions both at the year of opening of the development, 5 and 15 years after opening.
- Parking Requirements – Car parking provision for the proposed development was assessed against the parking standards as set out in the Westmeath County Development Plan.

1.4 STRUCTURE OF REPORT

Following this introduction, the report is set out as follows:

- Chapter 2 provides details of the proposed development;
- Chapter 3 provides an overview of the existing traffic conditions and the local road network, identifying any existing issues related to traffic flow or road infrastructure;
- Chapters 4 and 5 outline the analysis as described in the Study Methodology above. The analysis examines trip generation, distribution and resulting junction operational performance with the development in place;
- Chapter 6 establishes the parking requirements for the development using the county development plan; and
- Chapter 7 presents the conclusions of the report.

2 PROPOSED DEVELOPMENT

2 Proposed Development

2.1 SITE LOCATION

The proposed residential development is located at Cornamaddy, Athlone, Co. Westmeath. The proposed development is bounded by local roads to the north and east, residential zoned development lands to the west and un-developed lands to the south, east and west as shown on Figure 2.1 'Site Location Map'.

Figure 2.1: Site Location Map

2.2 DESCRIPTION OF PROPOSED DEVELOPMENT

The development will consist of the provision of a total of 332no. residential units along with provision of a crèche. The development will be constructed in 3 phases with phase 1 complete in 2027, phase 2 complete in 2029 and phase 3 complete in 2032:

Phase 1 (152 units):

Item	Unit	Quantity
Houses	No.	78
Duplex	No.	34
Apartments	No.	40
Creche	Sqm.	438

Phase 2 (148 units):

Item	Unit	Quantity
Houses	No.	62
Duplex	No.	52
Apartments	No.	34

Phase 3 (32 units):

Item	Unit	Quantity
Houses	No.	32

Access to the proposed residential development will be via the existing roundabout onto the N55 national road. A layout of the proposed development and its access point are shown on the Architect's drawing which is contained in Appendix A – Drawings.

3 EXISTING AND PROPOSED TRAFFIC CONDITIONS

3 Existing and Proposed Traffic Conditions

3.1 EXISTING TRAFFIC FLOWS

A traffic count was undertaken during a 12-hour period (07:00 to 19:00) on Tuesday 22nd of November 2022. The count data is provided in Appendix B – Traffic Counts. Count information was obtained at the following junction:

- N55 / R916 / L8048 roundabout

The traffic flows during the AM and PM peak hours were abstracted from the surveyed data and are shown in the following tables:

N55 / R916 / L8048 Roundabout

AM Peak Existing (08:00 – 09:00)

From / To	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	4	251	417	0	**672**
R916	205	1	150	6	**362**
N55 (south)	258	77	3	5	**343**
L8048	7	11	15	0	**33**
Totals	**474**	**340**	**585**	**11**	**1410**

PM Peak Existing (17:00 – 18:00)

From / To	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	210	273	2	**485**
R916	338	5	151	5	**499**
N55 (south)	467	138	2	15	**622**
L8048	5	8	8	0	**21**
Totals	**810**	**361**	**434**	**22**	**1627**

A summary of the count data for the peak hour flows is contained in Appendix C – Traffic Flow Sheets.

3.2 EXISTING ROAD NETWORK

The N55 travels in a south / north direction and provides a link between Athlone and Cavan town. The N55 / R916 / L8048 roundabout has the following characteristics at the location of the access to the residential development:

- It's a 4-arm roundabout with an ICD of 48m.
- It's a 2-lane circulating carriageway with a carriageway width of approximately 10m.
- Street lighting is provided at the roundabout and on all approaches to the roundabout.
- The speed limit on the N55 is 50km/h.

The L8048 will provide access to the proposed development. The L8048 has the following characteristics:

- It's a single carriageway road that is approximately 7.5m wide.
- There are 1.5m wide on-road cycle lane located on either side of the carriageway.
- There is a 2m wide footpath located on either side of the carriageway.
- Street lighting is provided along the L8048.

3.3 ROAD COLLISIONS

Information on road collisions was taken from the Road Safety Authority website and is provided hereunder in Figure 3.1.

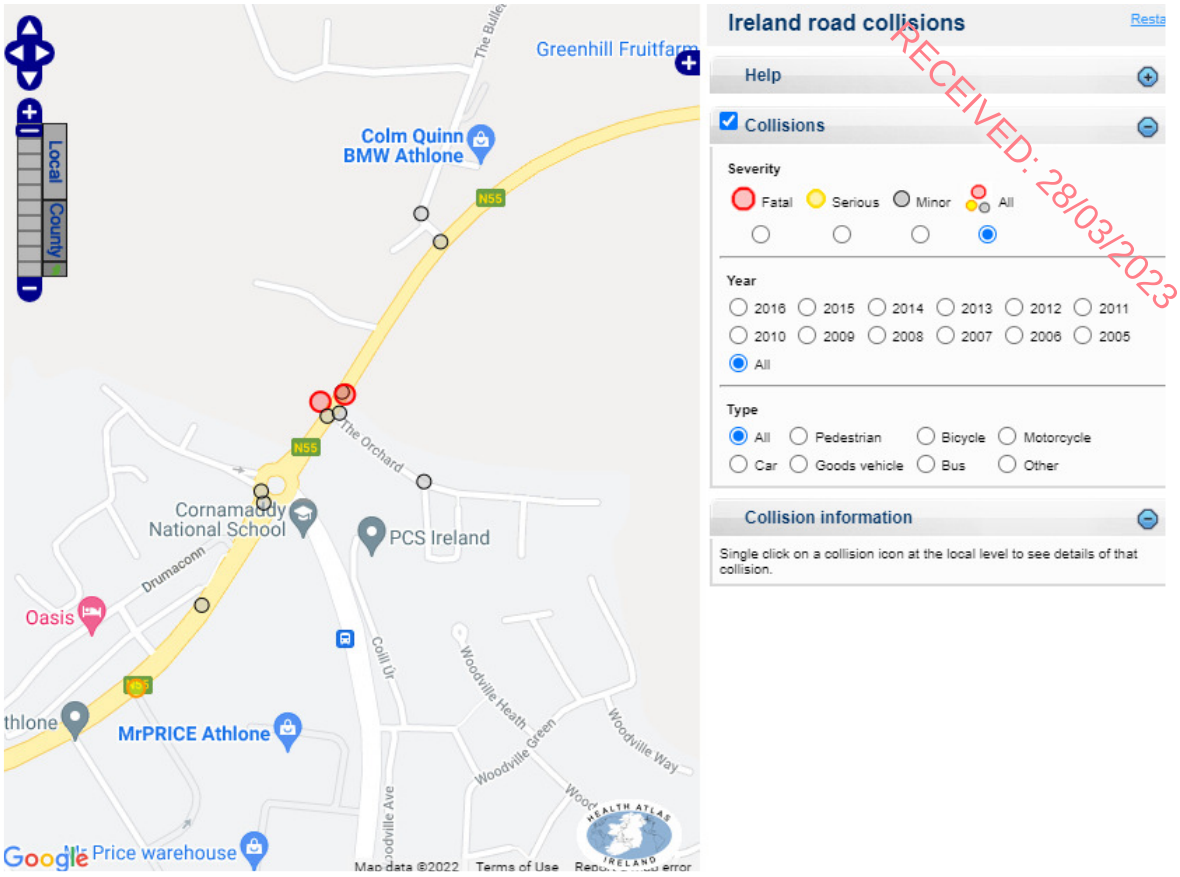


Fig 3.1: Road collisions

There two number collisions recorded at the existing N55 / R916 / L8048 roundabout which provides access to the proposed residential development in the period of twelve years (from 2005 to 2016).

4 TRAFFIC GENERATION & TRIP DISTRIBUTION

4 Traffic Generation and Trip Distribution

4.1 DEVELOPMENT TRIP GENERATION

The TRICS database has been used to predict the trip generation to and from the proposed residential development for the AM and PM peak periods. Full details of the TRICS information used for the assessments are provided in Appendix D - TRICS information.

4.1.1 House Dwellings

The category of "Residential – Houses Privately Owned" has been assessed as the most appropriate development type category for this part of the development and the trip rates for the AM and PM peak periods are shown below:

Trip rates per number of Units

	Trip rate to development	Trip rate from development
AM Peak	0.168	0.433
PM Peak	0.399	0.241

For the proposed 258 dwellings, this would give the following trips to and from the proposed development:

Trip Generation – 258 Residential Dwellings

	Trip rate to development	Trip rate from development
AM Peak	43	112
PM Peak	103	62

4.1.2 Apartments

The category of "Residential – Apartments Privately Owned" has been assessed as the most appropriate development type category for this part of the development and the trip rates for the AM and PM peak periods are shown below:

Trip rates per number of Units

	Trip rate to development	Trip rate from development
AM Peak	0.031	0.281
PM Peak	0.188	0.156

For the proposed 74 apartments, this would give the following trips to and from the proposed development:

Trip Generation – 74 Apartments

	Trip rate to development	Trip rate from development
AM Peak	3	21
PM Peak	14	12

4.1.3 Creche

The category of "Education – Creche" has been assessed as the most appropriate development type category for this part of the development and the trip rates for the AM and PM peak periods are shown below:

Trip rates per Sqm

	Trip rate to development	Trip rate from development
AM Peak	6.629	5.181
PM Peak	5.211	5.861

For the proposed creche of 438sqm, this would give the following trips to and from the proposed development:

Trip Generation – 438sqm

	Trip rate to development	Trip rate from development
AM Peak	29	23
PM Peak	23	26

4.1.4 Total Development Trip Generation Summary

To summarise, the trips that are predicted to be generated by the proposed development (residential and creche) are shown in the table below:

Trip Generation – Total Development

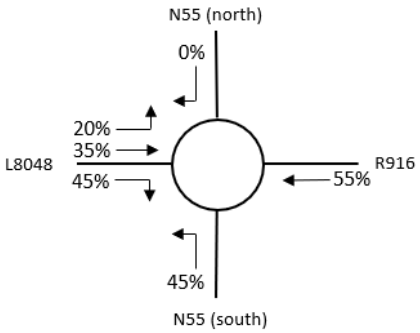
	Trip rate to development	Trip rate from development	Total
AM peak	75	156	231
PM peak	140	100	240

4.2 TRIP DISTRIBUTION

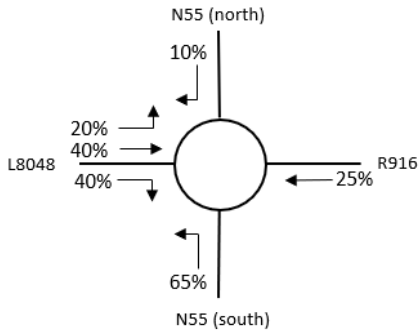
The access to the proposed development will be via the existing N55 / R916 / L8048 roundabout.

The following diagrams show the existing and proposed traffic distribution percentage for the AM and PM peak at the existing N55 / R916 / L8048 roundabout.

AM Peak - Development Trip Distribution (Percentage)

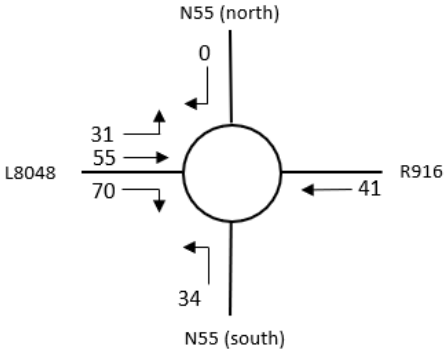


PM Peak - Development Trip Distribution (Percentage)

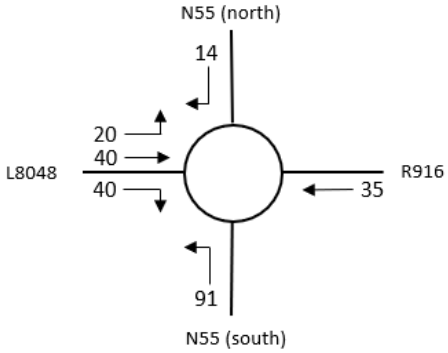


Using the proposed directional splits shown above and the trips generated by the proposed development outlined in 4.1, the following diagrams show the turning movements of predicted development traffic at the existing N55 / R916 / L8048 roundabout during the AM and PM peak hours:

AM Peak - Development Flows



PM Peak - Development Flows



4.3 FUTURE DEVELOPMENTS

There are lands adjacent to the proposed development which are not in the ownership of the client but which are currently subject to a planning application. Access to the adjacent residential development would be via the existing N55 / R916 / L8048 roundabout. For this reason, a capacity assessment has been undertaken to determine the impact that the adjacent development will have on the existing existing N55 / R916 / L8048 roundabout, when the development is fully operational.

The TRICS database has been used to predict trip generation to and from the proposed development for the AM and PM peak periods. The adjacent residential lands will cater for 321 residential dwellings and a creche

Residential - Houses Privately Owned has been used as most appropriate category for the future residential developments, and the trip rates for the AM and PM peak periods are shown below:

Trip rates per number of Units

	Trip rate to development	Trip rate from development
AM Peak	0.168	0.433
PM Peak	0.399	0.241

For the proposed 321 dwellings, this would give the following trips to and from the proposed development:

Trip Generation – 321 Residential Dwellings

	Trip rate to development	Trip rate from development
AM Peak	54	139
PM Peak	128	77

The category of "Education – Creche" has been assessed as the most appropriate development type category for this part of the development and the trip rates for the AM and PM peak periods are shown below:

Trip rates per Sqm

	Trip rate to development	Trip rate from development
AM Peak	6.629	5.181
PM Peak	5.211	5.861

For the proposed creche of 680sqm, this would give the following trips to and from the proposed development:

Trip Generation – 680sqm

	Trip rate to development	Trip rate from development
AM Peak	45	35
PM Peak	35	40

The above future development flows for the adjacent residential developments have been added to the 2042 Sensitivity Tests using the percentage distribution splits outlined in 4.2 above. Full details of the predicted traffic flows are provided in Appendix C – Traffic Flow Sheets.

4.4 FUTURE YEAR TRAFFIC GROWTH

The TII issues a range of forecasts: low growth, medium growth and high growth. The implementation of policies relating to Smarter Travel and to public transport will act as a deterrent to high growth in car-based travel. Low growth factors are however likely to be equally unrealistic at present in the Athlone area, so we have used medium growth factors in our assessment.

The zone in which the site is located is numbered 296 in the TII National Traffic Model. The growth factors are as follows:

Zone	2022 Existing	2027 development completion	2032 5 years after dev. completion	2042 15 years after dev. completion
296	1	6.58%	13.61%	15.02%

These percentages have been used to predict the increase in background traffic that will occur in future years. Full summary tables and predicted future traffic flows for 2027, 2032 and 2042 future years are included in Appendix C – Traffic Flow Sheets.

5 OPERATIONAL ASSESSMENTS

5 Operational Assessments

5.1 INTRODUCTION

Traffic generated by the proposed development will have some effect on the local road network surrounding the site. The following junctions were assessed:

- the existing N55 / R916 / L8048 roundabout

5.2 N55 / R916 / L8048 ROUNDABOUT

Capacity assessments have been undertaken using the computer program PICADY for the AM and PM peak hours.

The following table summarises the existing situation and the effects that the proposed development will have on this junction in 2027, 2032 and 2042 using the existing and predicted traffic flows shown in Appendix C – Traffic Flow Sheets. Full ARCADY printouts are provided in Appendix E – ARCADY Results.

The parameters shown in the table are defined as follows:

Ratio of Flow to Capacity (RFC) is a factor indicating the flow on a junction arm relative to its capacity. An RFC of 1.0 means the junction has reached its ultimate capacity and an RFC of 0.85 means that the junction has reached its reserve capacity.

Avg. Queue is the average number of vehicles queued over the time period on the junction approach.

Queue delay is the average number of seconds delay to each vehicle in the time period.

N55 / R916 / L8048 Roundabout – Capacity Assessment

Year	Period	Approach	Predicted RFC value	Avg Queue (vehicles)	Queue delay (secs./veh.)
2022 Base Flows	AM Peak	N55 (north)	0.47	1	4
		R916	0.34	1	5
		N55 (south)	0.25	0	3
		L8048	0.03	0	4
	PM Peak	N55 (north)	0.35	1	4
		R916	0.42	1	5
		N55 (south)	0.49	1	5
		L8048	0.03	0	5
2027 No Development	AM Peak	N55 (north)	0.50	1	4
		R916	0.36	1	5
		N55 (south)	0.27	0	6
		L8048	0.04	0	5
	PM Peak	N55 (north)	0.37	1	4
		R916	0.45	1	5
		N55 (south)	0.52	1	5
		L8048	0.03	0	5
2027 With Development (Phase 1)	AM Peak	N55 (north)	0.52	1	5
		R916	0.39	1	5
		N55 (south)	0.29	0	4
		L8048	0.12	0	4
	PM Peak	N55 (north)	0.38	1	4
		R916	0.47	1	5
		N55 (south)	0.57	1	6
		L8048	0.12	0	5

Year	Period	Approach	Predicted RFC value	Avg Queue (vehicles)	Queue delay (secs./veh.)
2032 No Development	AM Peak	N55 (north)	0.53	1	5
		R916	0.39	1	5
		N55 (south)	0.29	0	3
		L8048	0.04	0	4
	PM Peak	N55 (north)	0.40	1	4
		R916	0.49	1	6
		N55 (south)	0.57	1	6
		L8048	0.04	0	5
2032 With Development (Phase 1, 2 & 3)	AM Peak	N55 (north)	0.57	1	6
		R916	0.45	1	6
		N55 (south)	0.32	1	4
		L8048	0.21	0	4
	PM Peak	N55 (north)	0.43	1	4
		R916	0.53	1	6
		N55 (south)	0.66	2	8
		L8048	0.19	0	6
2042 No Development	AM Peak	N55 (north)	0.55	1	5
		R916	0.40	1	5
		N55 (south)	0.30	0	4
		L8048	0.04	0	4
	PM Peak	N55 (north)	0.41	1	4
		R916	0.50	1	6
		N55 (south)	0.58	1	6
		L8048	0.04	0	5
2042 With Development (Phase 1, 2 & 3)	AM Peak	N55 (north)	0.58	1	6
		R916	0.46	1	6
		N55 (south)	0.33	1	4
		L8048	0.21	0	5
	PM Peak	N55 (north)	0.44	1	4
		R916	0.55	1	7
		N55 (south)	0.67	2	8
		L8048	0.19	0	6
2042 With Development + Future Development	AM Peak	N55 (north)	0.63	2	7
		R916	0.54	1	8
		N55 (south)	0.37	1	4
		L8048	0.40	1	6
	PM Peak	N55 (north)	0.47	1	5
		R916	0.60	2	8
		N55 (south)	0.79	4	13
		L8048	0.43	1	9

The summary predictions shown in the table above indicate that currently the existing N55 / R916 / L8048 roundabout operates within capacity with small queues and delays during the AM and PM peak period.

In 2027, 2032 and 2042 with no residential development in place and an increase in background flows only the roundabout will operate within capacity with small queues and delays with a maximum RFC value of 0.64 during the AM peak hour in 2042.

In 2027, 2032 and 2042 with the residential development operational and an increase in background flows the roundabout will operate within capacity with small queues and delays with a maximum RFC value of 0.71 during the PM peak hour in 2042.

In 2042 with the residential development operational, the future residential developments adjacent to the development operational and an increase in background flows the roundabout will operate within capacity with small queues and delays with a maximum RFC value of 0.82 during the PM peak hour in 2042.

5.3 OPERATIONAL ASSESSMENT CONCLUSIONS

Junction analyses to assess the effects of traffic generated by the proposed development have been undertaken for the existing N55 / R916 / L8048 roundabout. The analysis shows that:

- The existing N55 / R916 / L8048 roundabout currently operates within capacity with small queues and delays during the AM and PM peak hours.
- The existing N55 / R916 / L8048 roundabout will continue to operate within capacity with small queues and delays when the proposed residential development is completed in 2027, year of opening, 2032, five years after opening and in 2042, fifteen years after opening.
- The existing N55 / R916 / L8048 roundabout will continue to operate within capacity with small queues and delays when the proposed residential development and the future residential developments adjacent to the development are complete in 2042, fifteen years after opening.

6 PARKING

6 Parking

6.1 CAR PARKING PROVISION

A total of 413 parking spaces will be provided to cater for the proposed residential development, including 8 parking spaces for the crèche as shown on the architect's drawing contained in Appendix A – Drawings.

6.2 CAR PARKING REQUIREMENTS FROM DEVELOPMENT PLAN

The *'Westmeath County Development Plan 2021-2027'* lists standard provision for car parking and the table below sets out those requirements in relation to the proposed development.

Car parking requirements from the Westmeath County Development Plan 2021 – 2027

Parking Standards for Residential Development – Phase 3			
Land-use	Requirements	Quantity	Parking
Residential Dwellings	1 space per dwellings	332 Dwellings	332 spaces
Visitor Parking for Residential Dwellings	1 space per 3 dwellings	332 Dwellings	110 spaces
		Total	**442**

The Westmeath County Development Plan indicates that the maximum number of parking spaces required for the proposed residential development is 442 parking spaces. The proposed residential development will provide 413 parking spaces.

The Design Standard for New Apartments 2020 one car parking spaces per unit, together with an element of visitor parking, such as one space for every 3-4 apartments, should generally be required.

In addition, it is noted in the Athlone Town Development Plan that the Councils shall seek to control the provision of parking in town centres and has a policy to encourage alternatives to car commuting.

In order to encourage a modal shift towards more sustainable forms of transport the approach to parking for the residential development has been to provide 1 space per residential unit and visitor parking at a rate of 1 space per 4 units and 1 space per 5 units.

Parking requirements for a creche is not set out in the Westmeath County Development Plan. The creche will provide 8 parking spaces which is considered adequate to cater for staff parking.

7 CONCLUSIONS

7 Conclusions

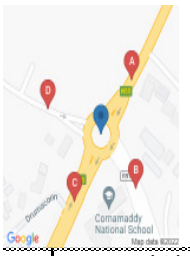
The main conclusions of this study are summarised as follows:

- The development flows to and from the proposed development have been predicted using the TRICS database.
- The existing N55 / R916 / L8048 roundabout currently operates within capacity with small queues and delays during the AM and PM peak hours.
- The existing N55 / R916 / L8048 roundabout will continue to operate within capacity with small queues and delays when the proposed residential development is completed in 2027, year of opening, 2032, five years after opening and in 2042, fifteen years after opening.
- The existing N55 / R916 / L8048 roundabout will continue to operate within capacity with small queues and delays when the proposed residential development and the future residential developments adjacent to the development are complete in 2042, fifteen years after opening.
- The development provides adequate car parking spaces as set-out in Chapter 6 above. Facilities for pedestrians are included in the internal layout.

APPENDICES

APPENDIX A – DRAWINGS

APPENDIX B – TRAFFIC COUNTS



IDASO

Survey Name: 410 22677 Repeat of 21362 Athlone

Site: Site 1

Location: N55 / R916 Woodville Road

Date: Tue 22-Nov-2022

	A => A									A => B									A => C									A => D								
TIME	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	0	0	0	0	0	0	0	0	0	32	2	0	3	0	37	40.9	0	0	29	6	0	0	0	35	35	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	28	7	3	3	1	42	48.4	0	0	38	7	1	2	1	49	53.1	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	36	8	2	3	0	49	53.9	0	0	43	8	2	1	0	54	56.3	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	85	14	3	1	0	103	105.8	0	0	75	13	3	3	0	94	99.4	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	181	31	8	10	1	231	249	0	0	185	34	6	6	1	232	243.8	0	0	0	0	0	0	0	0	0
08:00	0	0	3	0	0	0	0	3	3	0	0	92	12	3	1	2	110	114.8	0	0	100	15	3	0	3	121	125.5	0	0	0	0	0	0	0	0	0
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08:30	0	0	0	1	0	0	0	1	1	0	0	37	4	4	0	1	46	49	0	0	71	13	0	2	0	86	88.6	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	39	10	1	3	0	53	57.4	0	0	58	10	1	1	2	72	75.8	0	0	0	0	0	0	0	0	0
H/TOT	0	0	6	1	0	0	0	7	7	0	1	225	37	10	8	3	284	301.8	1	0	372	43	5	5	6	432	446.2	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	62	6	4	5	0	77	85.5	0	0	99	6	2	0	0	107	108	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	65	8	2	3	0	78	82.9	0	0	90	8	1	3	0	102	106.4	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	43	8	2	2	0	55	58.6	0	0	65	9	1	1	1	77	79.8	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	42	7	2	2	0	53	56.6	2	0	65	4	0	1	0	72	71.7	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	212	29	10	12	0	263	283.6	2	0	319	27	4	5	1	358	365.9	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	30	5	1	2	0	38	41.1	0	0	47	2	1	0	0	50	50.5	0	0	1	0	0	0	0	1	1
10:15	0	0	0	0	0	0	0	0	0	0	0	27	3	3	1	0	34	36.8	0	0	46	2	0	3	1	52	56.9	0	0	0	0	0	0	0	0	0
10:30	0	0	1	0	0	0	0	1	1	1	0	46	9	3	2	0	61	64.3	0	0	55	4	2	1	0	62	64.3	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	34	4	3	4	0	45	51.7	0	0	55	5	1	1	0	62	63.8	0	0	0	0	0	0	0	0	0
H/TOT	0	0	1	0	0	0	0	1	1	1	0	137	21	10	9	0	178	193.9	0	0	203	13	4	5	1	226	235.5	0	0	1	0	0	0	0	1	1
11:00	0	0	0	0	0	0	0	0	0	0	0	34	6	1	3	0	44	48.4	0	0	44	4	3	0	0	51	52.5	0	0	0	0	0	0	0	0	0
11:15	0	0	1	0	0	0	0	1	1	0	0	30	5	7	2	0	44	50.1	0	0	42	3	2	0	0	47	48	0	0	0	1	0	0	0	1	1
11:30	0	0	0	0	1	0	0	1	1.5	0	0	28	1	3	4	0	36	42.7	0	0	46	4	0	1	0	51	52.3	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	50	7	7	2	1	67	74.1	0	0	52	11	4	1	2	70	75.3	0	0	0	0	0	0	0	0	0
H/TOT	0	0	1	0	1	0	0	2	2.5	0	0	142	19	18	11	1	191	215.3	0	0	184	22	9	7	3	219	228.1	0	0	0	1	0	0	0	1	1
12:00	0	0	0	0	0	0	0	0	0	0	0	34	4	3	4	1	46	53.7	0	0	37	3	1	0	0	41	41.5	0	0	0	1	0	0	0	1	1
12:15	0	0	0	0	0	0	0	0	0	0	0	29	3	3	3	0	38	43.4	0	0	43	9	2	2	1	57	61.6	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	32	7	2	1	0	42	44.3	0	0	54	6	2	0	0	62	63	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	28	6	4	0	0	38	40	0	0	35	3	0	4	0	42	47.2	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	123	20	12	8	1	164	181.4	0	0	169	21	5	6	1	202	213.3	0	0	0	1	0	0	0	1	1
13:00	0	0	1	0	0	0	0	1	1	0	0	23	5	4	3	0	35	40.9	0	0	46	7	2	1	0	56	58.3	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	20	6	2	1	0	29	31.3	0	0	51	5	1	0	0	57	57.5	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	39	3	1	1	1	45	47.8	0	0	58	2	1	1	0	62	63.8	0	0	1	0	0	0	0	1	1
13:45	0	0	0	0	0	0	0	0	0	0	0	35	10	2	1	0	48	50.3	0	0	50	8	1	0	1	60	61.5	0	0	1	0	0	0	0	1	1
H/TOT	0	0	1	0	0	0	0	1	1	0	0	117	24	9	6	1	157	170.3	0	0	205	22	5	2	1	235	241.1	0	0	2	0	0	0	0	2	2
14:00	0	0	0	0	0	0	0	0	0	0	0	33	4	4	0	0	41	43	0	0	65	6	2	1	0	74	76.3	0	0	1	0	0	0	0	1	1
14:15	0	0	0	0	0	0	0	0	0	0	0	21	4	2	6	0	33	41.8	1	0	55	3	2	0	0	61	61.2	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	25	11	4	1	0	41	44.3	0	0	36	9	0	1	1	47	49.3	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	1	0	36	8	2	2	0	49	51.8	0	0	37	5	1	1	0	44	45.8	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	1	0	115	27	12	9	0	164	180.9	1	0	193	23	5	3	1	226	232.6	0	0	1	0	0	0	0	1	1
15:00	0	0	1	0	0	0	0	1	1	1	0	39	7	2	0	0	49	49.2	0	0	59	2	0	1	1	63	65.3	0	0	1	0	0	0	0	1	1
15:15	0	0	0	0	0	0	0	0	0	0	0	46	10	3	2	3	64	71.1	0	0	57	7	1	2	0	67	70.1	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	1	0	0	1	1.5	0	0	34	7	5	2	2	50	57.1	0	0	57	11	1	0	0	69	69.5	0	0	0	0	1	0	0	1	1.5
15:45	0	0	2	0	0	0	0	2	2	0	0	35	7	3	3	0	48	53.4	0	0	69	6	1	1	1	78	80.8	0	0	0	0	0	0	0	0	0
H/TOT	0	0	3	0	1	0	0	4	4.5	1	0	154	31	13	7	5	211	230.8	0	0	242	26	3	4	2	277	285.7	0	0	1	0	1	0	0	2	2.5
16:00	0	0	0	0	0	0	0	0	0	0	0	35	12	3	2	0	52	56.1	0	0	56	7	0	0	0	63	63	0	0	0	1	0	0	0	1	1
16:15	0	0	1	0	0	0	0	1	1	0	0	37	7	1	0	0	45	45.5	0	0	34	8	1	0	1	44	45.5	0	0	1	0	0	0	0	1	1
16:30	0	0	0	0	0	0	0	0	0	1	0	42	5	1	3	1	53	57.6	0	0	57	8	1	0	0	66	66.5	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	44	10	1	1	1	57	59.8	0	0	55	8	2	1	0	66	68.3	0	0	1	0	0	0	0	1	1
H/TOT	0	0	1	0	0	0	0	1	1	1	0	158	34	6	6	2	207	219	0	0	202	31	4	1	1	239	243.3	0	0	2	1	0	0	0	3	3
17:00	0	0	0	0	0	0	0	0	0	0	0	39	8	1	2	0	50	53.1	0	1	59	6	1	0	0	67	66.9	0	0	1	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	42	8	0	1	0	51	52.3	1	0	64	9	1	0	0	75	74.7	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	41	7	1	0	2	51	53.5	0	0	49	5	2	0	0	56	57	0	0	1	0	0	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	2	0	49	6	0	2	0	59	60	0	0	67	4	0	0	0	71	71	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	2	0	171	29	2	5	2	211	218.9	1	1	239	24	4	1	0	269	269.6	0	0	2	0	0	0	0	2	2
18:00	0	0	0	0	0	0	0	0	0	0	0	42	7	3	1	0	53	55.8	0	0	62	7	1	0	0	70	70.5	0	0	0	1	0	0	0	1	1
18:15	0	0	0	0	0	0	0	0	0	0	0	39	5	5	0	0	49	51.5	0	0	49	2	1	1	0	53	54.8	0	0	3	0	0	0	0	3	3
18:30	0	0	0	0	0	0	0	0	0	0	0	25	7	4	1	0	37	40.3	0	1	48	4	0	1	0	54	54.7	0	0	1	0	0	0	0	1	1
18:45	0	0	0	0	0	0	0	0	0	0	0	42	1	0	0	0	43	43	0	0	58	4	0	0	0	62	62	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	148	20	12	2	0	182	190.6	0	1	217	17	2	2	0	239	242	0	0	4	1	0	0	0	5	5
12 TOT	0	0	13	1	2	0	0	16	17	6	1	1883	322	122	93	16	2443	2636	5	2	2730	303	56	41	17	3154	3247	0	0	13	4	1	0	0	18	18.5

B => A									B => B									B => C									B => D								
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU
0	0	13	2	4	0	0	19	21	0	0	0	0	0	0	0	0	0	0	0	7	2	1	0	0	10	10.5	0	0	0	0	0	0	0	0	0
0	0	6	2	0	1	1	10	12.3	0	0	0	0	0	0	0	0	0	0	0	17	0	0	1	1	19	21.3	0	0	0	0	0	0	0	0	0
0	0	18	2	1	2	0	23	26.1	0	0	0	0	0	0	0	0	0	0	0	15	1	1	0	0	17	17.5	0	0	0	0	0	0	0	0	0
0	0	17	6	1	1	0	25	26.8	0	0	0	0	0	0	0	0	0	0	0	37	3	0	0	1	41	42	0	0	0	0	0	0	0	0	0
0	0	54	12	6	4	1	77	86.2	0	0	0	0	0	0	0	0	0	0	0	76	6	2	1	2	87	91.3	0	0	0	0	0	0	0	0	0
0	0	27	5	1	2	1	36	40.1	0	0	0	0	0	0	0	0	0	0	0	18	3	0	0	1	22	23	0	0	0	0	0	0	0	0	0
0	0	30	4	1	1	1	37	39.8	0	0	0	0	0	0	0	0	0	0	0	42	8	2	0	3	55	59	0	0	2	0	0	0	0	2	2
0	0	43	5	2	1	3	54	59.3	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	1	24	25	0	0	1	1	0	0	0	2	2
0	0	47	3	2	0	1	53	55	0	0	0	0	0	0	0	0	0	0	0	25	3	1	0	1	30	31.5	0	0	0	0	0	0	0	0	0
0	0	147	17	6	4	6	180	194.2	0	0	0	0	0	0	0	0	0	0	0	108	14	3	0	6	131	138.5	0	0	3	1	0	0	0	4	4
0	0	49	5	3	3	1	61	67.4	0	0	1	0	0	0	0	1	1	0	0	40	1	0	0	0	41	41	0	0	2	0	0	0	0	2	2
0	0	54	7	3	3	0	67	72.4	0	0	4	0	0	0	0	4	4	0	0	33	0	0	0	1	34	35	0	0	1	0	0	0	0	1	1
0	0	29	7	1	1	0	38	39.8	0	0	1	0	0	0	0	1	1	0	0	32	3	1	0	0	36	36.5	0	0	1	0	0	0	0	1	1
0	0	21	3	4	2	1	31	36.6	0	0	2	0	0	0	0	2	2	0	0	21	3	0	1	1	26	28.3	0	0	1	0	0	0	0	1	1
0	0	153	22	11	9	2	197	216.2	0	0	8	0	0	0	0	8	8	0	0	126	7	1	1	2	137	140.8	0	0	5	0	0	0	0	5	5
0	0	21	6	2	3	1	33	38.9	0	0	0	0	0	0	0	0	0	1	0	14	3	0	0	0	18	17.2	0	0	1	0	0	0	0	1	1
0	0	13	7	2	1	0	23	25.3	0	0	2	2	0	0	0	4	4	0	0	18	3	3	1	1	26	29.8	0	0	1	0	0	0	0	1	1
0	0	22	3	5	6	0	36	46.3	0	0	0	0	0	0	0	0	0	1	0	17	3	0	0	0	21	20.2	0	0	1	0	0	0	0	1	1
0	0	11	2	2	3	0	18	22.9	0	0	0	0	0	0	0	0	0	0	0	19	0	3	1	1	24	27.8	0	0	1	0	0	0	0	1	1
0	0	67	18	11	13	1	110	133.4	0	0	2	2	0	0	0	4	4	2	0	68	9	6	2	2	89	95	0	0	4	0	0	0	0	4	4
0	0	20	4	5	3	0	32	38.4	0	0	2	0	0	0	0	2	2	0	0	15	5	1	0	0	21	21.5	0	0	3	0	0	0	0	3	3
0	0	22	5	5	4	0	36	43.7	0	0	1	0	0	0	0	1	1	0	0	4	4	1	0	1	10	11.5	0	0	0	1	0	0	0	1	1
0	0	21	5	4	4	0	34	41.2	0	0	1	0	0	0	0	1	1	0	0	11	1	0	0	2	14	16	0	0	1	0	0	0	0	1	1
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0	0	89	18	15	9	0	131	148	0	0	4	0	0	0	0	4	4	1	0	45	12	2	0	4	64	68.2	0	0	5	1	0	0	0	6	6
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0	0	37	1	3	3	0	44	49.4	0	0	0	1	0	0	0	1	1	0	0	23	1	1	0	1	26	27.5	0	0	1	0	0	0	0	1	1
2	0	134	12	16	16	0	180	207.2	0	0	1	1	0	0	0	2	2	0	0	90	10	4	1	2	107	112.3	0	0	4	0	0	0	0	4	4
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0	0	31	9	0	4	0	44	49.2	0	0	0	0	0	0	0	0	0	0	0	31	3	0	1	1	36	38.3	0	0	1	0	0	0	0	1	1
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0	0	37	6	0	3	0	46	49.9	0	0	0	0	0	0	0	0	0	0	0	20	4	1	0	2	27	29.5	0	0	4	0	0	0	0	4	4
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0	1	42	6	5	5	0	59	67.4	0	0	2	0	0	0	0	2	2	1	0	52	2	1	0	0	56	55.7	0	0	1	0	0	0	0	1	1
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0	0	48	8	4	4	0	64	71.2	0	0	4	0	0	0	0	4	4	0	0	24	3	1	1	0	29	30.8	0	0	0	0	0	0	0	0	0
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0	0	203	22	6	8	4	243	260.4	0	0	16	0	0	0	0	16	16	2	0	150	12	2	0	3	169	171.4	0	0	6	0	0	0	0	6	6
0	0	73	9	1	1	0	84	85.8	0	0	0	0	0	0	0	0	0	0	0	33	3	0	0	0	36	36	0	0	1	0	0	0	0	1	1
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0	0	64	6	2	1	1	74	77.3	0	0	1	0	0	0	0	1	1	1	0	33	5	0	0	0	39	38.2	0	0	1	0	0	0	0	1	1
0	0	289	33	3	4	1	330	337.7	0	0	6	0	0	0	0	6	6	1	0	143	11	0	0	1	156	156.2	0	0	6	0	0	0	0	6	6
0	0	87	3	0	0	1	91	92	0	0	0	0	0	0	0	0	0	0	0	18	1	0	0	1	20	21	0	0	1	0	0	0	0	1	1
0	0	58	6	0	1	0	65	66.3	0	0	0	0	0	0	0	0	0	0	0	21	1	0	0	1	23	24	0	0	1	0	0	0	0	1	1
0	0	50	2	1	1	0	54	55.8	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	21	21	0	0	1	0	0	0	0	1	1
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0	0	225	13	1	4	1	244	250.7	0	0	0	0	0	0	0	0	0	0	0	80	4	0	0	3	87	90	0	0	4	0	0	0	0	4	4
7	1	1960	259	101	113	18	2459	2667	0	0	55	4	0	0	0	59	59	7	0	1248	123	32	8	24	1442	1507	0	0	51	2	0	0	0	53	53

C => A									C => B									C => C									C => D								
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU
0	0	15	4	0	2	0	21	23.6	1	0	4	2	0	0	0	7	6.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	20	3	0	1	0	24	25.3	0	0	5	2	1	0	0	8	8.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	27	5	3	0	1	36	38.5	0	0	17	2	1	1	1	22	24.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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1	0	32	9	1	0	0	43	42.7	0	0	16	2	2	0	0	20	21	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	1	1
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0	0	40	3	1	1	0	45	46.8	0	0	35	1	0	0	1	37	38	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
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0	0	31	7	2	1	0	41	43.3	0	0	13	3	0	0	0	16	16	0	0	1	0	0	0	0	1	1	0	0	2	0	1	0	0	3	3.5
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1	1	180	33	5	1	1	222	225.4	0	0	106	6	3	0	3	118	122.5	0	0	3	1	0	0	0	4	4	1	0	5	0	1	0	0	7	6.7
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0	0	50	11	1	3	0	65	69.4	0	0	28	7	2	1	2	40	44.3	0	0	2	0	0	0	0	2	2	0	0	3	0	0	1	0	4	5.3
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0	0	51	10	2	3	0	66	70.9	0	0	42	1	0	0	1	44	45	0	0	2	0	0	0	0	2	2	0	0	4	0	0	0	0	4	4
0	0	221	37	7	12	0	277	296.1	0	0	132	16	3	3	3	157	165.4	0	0	7	0	0	0	0	7	7	0	0	11	0	0	1	0	12	13.3
0	0	67	7	2	2	0	78	81.6	0	0	29	3	0	0	0	32	32	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
0	0	47	4	0	2	0	53	55.6	0	0	18	2	1	0	2	23	25.5	0	0	1	0	0	0	0	1	1	0	0	2	0	0	0	0	2	2
0	0	70	2	3	4	1	80	87.7	0	0	20	0	2	0	0	22	23	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
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0	0	265	20	7	9	2	303	320.2	0	0	103	8	3	0	5	119	125.5	0	0	2	0	0	0	0	2	2	0	0	5	1	0	0	0	6	6
0	0	57	10	3	2	0	72	76.1	0	0	37	6	1	0	1	45	46.5	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
0	0	60	5	1	1	1	68	70.8	0	0	34	6	1	0	4	45	49.5	0	0	1	0	0	0	0	1	1	0	0	3	0	0	0	0	3	3
0	0	80	1	1	1	0	83	84.8	0	0	42	4	0	0	0	46	46	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0
0	0	62	5	6	4	0	77	85.2	0	0	20	7	1	0	1	29	30.5	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
0	0	259	21	11	8	1	300	316.9	0	0	133	23	3	0	6	165	172.5	0	0	5	0	0	0	0	5	5	0	0	4	1	0	0	0	5	5
0	0	95	15	5	0	0	115	117.5	0	0	46	3	1	0	1	51	52.5	0	0	2	0	0	0	0	2	2	0	0	9	0	0	0	0	9	9
0	0	93	12	2	2	0	109	112.6	0	0	29	3	0	0	3	35	38	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	7
0	0	106	12	0	0	0	118	118	0	0	45	4	1	0	1	51	52.5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
0	0	94	18	1	3	1	117	122.4	0	0	24	2	1	0	1	28	29.5	0	0	1	0	0	0	0	1	1	0	0	4	0	0	0	0	4	4
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0	0	101	11	1	0	2	115	117.5	0	0	30	1	0	0	0	31	31	0	0	1	0	0	0	0	1	1	0	0	2	0	0	0	0	2	2
0	0	104	11	0	2	0	117	119.6	0	0	25	1	1	0	1	28	29.5	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	6
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0	0	97	16	1	1	0	115	116.8	0	0	27	2	0	0	2	31	33	0	0	0	0	1	0	0	1	1.5	0	0	3	0	0	0	0	3	3
0	1	387	41	2	3	3	437	444.1	0	0	106	6	1	0	3	116	119.5	0	0	3	0	1	0	0	4	4.5	0	0	14	0	0	0	0	14	14
0	0	76	9	1	0	0	86	86.5	0	0	20	0	0	0	0	20	20	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4
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0	0	60	4	0	1	1	66	68.3	0	0	16	1	0	0	0	17	17	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0	0	76	3	2	0	1	82	84	0	0	17	1	0	0	1	19	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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3	3	2738	342	77	70	16	3249	3390	3	1	1110	138	41	9	41	1335	1405	0	0	34	4	1	0	0	39	39.5	1	0	94	4	2	1	1	103	105.5

D => A									D => B									D => C									D => D								
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	PCU
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
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0	0	3	0	0	0	0	3	3	0	0	7	0	0	0	0	7	7	0	0	7	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0
0	0	30	2	0	0	0	32	32	1	0	58	4	1	0	1	75	75.7	0	0	76	6	2	1	0	85	87.3	0	0	0	0	0	0	0	0	0

APPENDIX C – TRAFFIC FLOW SHEETS

N55 / R916 / L8048 Roundabout - AM Peak Hour Flows

2022 AM Peak - Base Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	4	251	417	0	**672**
R916	205	1	150	6	**362**
N55 (south)	258	77	3	5	**343**
L8048	7	11	15	0	**33**
Totals	**474**	**340**	**585**	**11**	**1410**

2027 AM Peak - No Development (Base Flows + 6.58%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	4	268	444	0	**716**
R916	218	1	160	6	**386**
N55 (south)	275	82	3	5	**366**
L8048	7	12	16	0	**35**
Totals	**505**	**362**	**623**	**12**	**1503**

AM Peak - Phase 1 Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	0	**0**
R916	0	0	0	28	**28**
N55 (south)	0	0	0	22	**22**
L8048	16	29	37	0	**82**
Totals	**16**	**29**	**37**	**50**	**132**

AM Peak - Phase 2 & 3 Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	0	**0**
R916	0	0	0	14	**14**
N55 (south)	0	0	0	11	**11**
L8048	15	26	33	0	**74**
Totals	**15**	**26**	**33**	**25**	**99**

2027 AM Peak - With Development (Phase 1)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	4	268	444	0	**716**
R916	218	1	160	34	**414**
N55 (south)	275	82	3	27	**388**
L8048	23	41	53	0	**117**
Totals	**521**	**391**	**660**	**62**	**1635**

2032 AM Peak - No Development (Base Flows + 13.61%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	5	285	474	0	**763**
R916	233	1	170	7	**411**
N55 (south)	293	87	3	6	**390**
L8048	8	12	17	0	**37**
Totals	**539**	**386**	**665**	**12**	**1602**

2032 AM Peak - With Development (Phase 1, 2 & 3)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	5	285	474	0	**763**
R916	233	1	170	49	**453**
N55 (south)	293	87	3	39	**423**
L8048	39	67	87	0	**193**
Totals	**570**	**441**	**735**	**87**	**1833**

2042 AM Peak - No Development (Base Flows + 15.02%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	5	289	480	0	**773**
R916	236	1	173	7	**416**
N55 (south)	297	89	3	6	**395**
L8048	8	13	17	0	**38**
Totals	**545**	**391**	**673**	**13**	**1622**

2042 AM Peak - With Development (Phase 1, 2 & 3)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	5	289	480	0	**773**
R916	236	1	173	49	**458**
N55 (south)	297	89	3	39	**428**
L8048	39	68	87	0	**194**
Totals	**576**	**446**	**743**	**88**	**1853**

AM Peak - Future Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	0	**0**
R916	0	0	0	55	**55**
N55 (south)	0	0	0	44	**44**
L8048	35	61	78	0	**174**
Totals	**35**	**61**	**78**	**99**	**273**

2042 AM Peak - Development Flows (Phase 1, 2 & 3) + Future Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	5	289	480	0	**773**
R916	236	1	173	104	**513**
N55 (south)	297	89	3	83	**472**
L8048	74	129	165	0	**368**
Totals	**611**	**507**	**821**	**187**	**2126**

N55 / R916 / L8048 Roundabout - PM Peak Hour Flows

2022 PM Peak - Base Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	210	273	2	**485**
R916	338	5	151	5	**499**
N55 (south)	467	138	2	15	**622**
L8048	5	8	8	0	**21**
Totals	**810**	**361**	**434**	**22**	**1627**

2027 PM Peak - No Development (Base Flows + 6.58%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	224	291	2	**517**
R916	360	5	161	5	**532**
N55 (south)	498	147	2	16	**663**
L8048	5	9	9	0	**22**
Totals	**863**	**385**	**463**	**23**	**1734**

PM Peak - Phase 1 Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	8	**8**
R916	0	0	0	19	**19**
N55 (south)	0	0	0	49	**49**
L8048	11	24	24	0	**59**
Totals	**11**	**24**	**24**	**76**	**135**

PM Peak - Phase 2 & 3 Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	6	**6**
R916	0	0	0	16	**16**
N55 (south)	0	0	0	42	**42**
L8048	9	16	16	0	**41**
Totals	**9**	**16**	**16**	**64**	**105**

2027 PM Peak - With Development (Phase 1)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	224	291	10	**525**
R916	360	5	161	24	**551**
N55 (south)	498	147	2	65	**712**
L8048	16	33	33	0	**81**
Totals	**874**	**409**	**487**	**99**	**1869**

2032 PM Peak - No Development (Base Flows + 13.61%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	239	310	2	**551**
R916	384	6	172	6	**567**
N55 (south)	531	157	2	17	**707**
L8048	6	9	9	0	**24**
Totals	**920**	**410**	**493**	**25**	**1848**

2032 PM Peak - With Development (Phase 1, 2 & 3)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	239	310	16	**565**
R916	384	6	172	41	**602**
N55 (south)	531	157	2	108	**798**
L8048	26	49	49	0	**124**
Totals	**940**	**450**	**533**	**165**	**2088**

2042 PM Peak - No Development (Base Flows + 15.02%)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	242	314	2	**558**
R916	389	6	174	6	**574**
N55 (south)	537	159	2	17	**715**
L8048	6	9	9	0	**24**
Totals	**932**	**415**	**499**	**25**	**1871**

2042 PM Peak - With Development (Phase 1, 2 & 3)

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	242	314	16	**572**
R916	389	6	174	41	**609**
N55 (south)	537	159	2	108	**806**
L8048	26	49	49	0	**124**
Totals	**952**	**455**	**539**	**165**	**2111**

PM Peak - Future Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	0	0	16	**16**
R916	0	0	0	41	**41**
N55 (south)	0	0	0	106	**106**
L8048	49	70	35	0	**154**
Totals	**49**	**70**	**35**	**163**	**317**

2042 PM Peak - Development Flows (Phase 1, 2 & 3) + Future Development Flows

	N55 (north)	R916	N55 (south)	L8048	**Totals**
N55 (north)	0	242	314	32	**588**
R916	389	6	174	82	**650**
N55 (south)	537	159	2	214	**912**
L8048	75	119	84	0	**278**
Totals	**1001**	**525**	**574**	**328**	**2428**

APPENDIX D – TRICS INFORMATION

Calculation Reference: AUDIT-464201-190123-0159

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

13	MUNSTER		
	WA	WATERFORD	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	2 days
16	ULSTER (REPUBLIC OF IRELAND)		
	DN	DONEGAL	1 days

Secondary Filtering selection:

Parameter:	Number of dwellings
Actual Range:	146 to 280 (units:)
Range Selected by User:	100 to 500 (units:)

Parking Spaces Range: Selected: 16 to 982 Actual: 16 to 982

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 03/09/14

Selected survey days:

Tuesday	2 days
Wednesday	1 days
Friday	1 days

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	1

Selected Location Sub Categories:

Residential Zone	4

Secondary Filtering selection:

Use Class:

C3	4 days

Population within 1 mile:

10,001 to 15,000	2 days
25,001 to 50,000	2 days

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
500,001 or More	2 days

Car ownership within 5 miles:

1.1 to 1.5	4 days

Travel Plan:

No	4 days

PTAL Rating:

No PTAL Present	4 days

LIST OF SITES relevant to selection parameters

1 DL-03-A-03 TERRACED/SEMI-DET. DUBLIN
RAHENY ROAD
DUBLIN
RAHENY
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 206
Survey date: TUESDAY *20/04/10* *Survey Type: MANUAL*

2 DL-03-A-06 DETACHED DUBLIN
UPPER KILMACUD ROAD
DUBLIN
DUNDRUM
Edge of Town
Residential Zone
Total Number of dwellings: 147
Survey date: FRIDAY *30/04/10* *Survey Type: MANUAL*

3 DN-03-A-05 DETACHED/SEMI-DETACHED DONEGAL
GORTLEE ROAD
LETTERKENNY
GORTLEE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 146
Survey date: WEDNESDAY *03/09/14* *Survey Type: MANUAL*

4 WA-03-A-04 DETACHED WATERFORD
MAYPARK LANE
WATERFORD

Edge of Town
Residential Zone
Total Number of dwellings: 280
Survey date: TUESDAY *24/06/14* *Survey Type: MANUAL*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	195	0.047	4	195	0.187	4	195	0.234
08:00 - 09:00	4	195	0.168	4	195	0.433	4	195	0.601
09:00 - 10:00	4	195	0.168	4	195	0.243	4	195	0.411
10:00 - 11:00	4	195	0.168	4	195	0.189	4	195	0.357
11:00 - 12:00	4	195	0.184	4	195	0.227	4	195	0.411
12:00 - 13:00	4	195	0.272	4	195	0.258	4	195	0.530
13:00 - 14:00	4	195	0.241	4	195	0.218	4	195	0.459
14:00 - 15:00	4	195	0.280	4	195	0.263	4	195	0.543
15:00 - 16:00	4	195	0.297	4	195	0.228	4	195	0.525
16:00 - 17:00	4	195	0.308	4	195	0.211	4	195	0.519
17:00 - 18:00	4	195	0.399	4	195	0.241	4	195	0.640
18:00 - 19:00	4	195	0.298	4	195	0.263	4	195	0.561
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.830			2.961			5.791

Parameter summary

Trip rate parameter range selected:	146 - 280 (units:)
Survey date date range:	01/01/10 - 03/09/14
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : D - NURSERY
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
03	SOUTH WEST		
	BA	BATH & NORTH EAST SOMERSET	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
09	NORTH		
	DH	DURHAM	1 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	EA	EAST AYRSHIRE	1 days
14	LEINSTER		
	WT	WESTMEATH	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 230 to 850 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 27/11/08

Selected survey days:

Tuesday	5 days
Wednesday	1 days
Thursday	3 days
Friday	2 days

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	6
Neighbourhood Centre (PPS6 Local Centre)	2
Free Standing (PPS6 Out of Town)	2

Selected Location Sub Categories:

Commercial Zone	2
Development Zone	1
Residential Zone	2
Village	1
Out of Town	2
No Sub Category	3

LIST OF SITES relevant to selection parameters

1 BA-04-D-01 NURSERY, BATH BATH & NORTH EAST SOMERSET
WESTON ROAD

BATH
Total Gross floor area: 825 sqm
Survey date: THURSDAY 05/10/06 Survey Type: MANUAL

2 CA-04-D-01 NURSERY, CAMBRIDGE CAMBRIDGESHIRE
CHAPEL STREET

CAMBRIDGE
Total Gross floor area: 420 sqm
Survey date: FRIDAY 05/11/04 Survey Type: MANUAL

3 DH-04-D-01 NURSERY, STANLEY DURHAM
PEA ROAD

STANLEY
Total Gross floor area: 750 sqm
Survey date: TUESDAY 10/06/03 Survey Type: MANUAL

4 EA-04-D-01 NURSERY, KILMARNOCK EAST AYRSHIRE
ALTONHILL AVENUE

KILMARNOCK
Total Gross floor area: 592 sqm
Survey date: THURSDAY 19/05/05 Survey Type: MANUAL

5 HC-04-D-01 NURSERY, BASINGSTOKE HAMPSHIRE
STAG OAK LANE
CHINEHAM BUSINESS PARK
BASINGSTOKE
Total Gross floor area: 725 sqm
Survey date: THURSDAY 22/11/07 Survey Type: MANUAL

6 NF-04-D-01 NURSERY, NORWICH NORFOLK
MERIDIAN WAY

NORWICH
Total Gross floor area: 700 sqm
Survey date: FRIDAY 25/05/07 Survey Type: MANUAL

7 NY-04-D-01 NURSERY, NEAR TADCASTER NORTH YORKSHIRE
LONDON ROAD
BARKSTON ASH
NEAR TADCASTER
Total Gross floor area: 245 sqm
Survey date: TUESDAY 10/05/05 Survey Type: MANUAL

8 SF-04-D-01 NURSERY, NR BURY ST EDMUNDS SUFFOLK
IXWORTH ROAD
THURSTON
NEAR BURY ST EDMUNDS
Total Gross floor area: 600 sqm
Survey date: TUESDAY 09/05/06 Survey Type: MANUAL

9 WM-04-D-01 NURSERY, BIRMINGHAM WEST MIDLANDS
SCHOOL ROAD
YARDLEY WOOD
BIRMINGHAM
Total Gross floor area: 850 sqm
Survey date: WEDNESDAY 19/09/07 Survey Type: MANUAL

10 WR-04-D-01 NURSERY, NEAR WREXHAM WREXHAM
LLAY ROAD
CEFN-Y-BEDD
NEAR WREXHAM
Total Gross floor area: 230 sqm
Survey date: TUESDAY 23/09/03 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

11 WT-04-D-01 NURSERY, ATHLONE WESTMEATH
DUBLIN ROAD
GARRYCASTLE
ATHLONE
Total Gross floor area: 625 sqm
Survey date: TUESDAY 19/06/07 Survey Type: MANUAL

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	9	599	2.170	9	599	1.076	9	599	3.246
08:00 - 09:00	11	597	6.629	11	597	5.181	11	597	11.810
09:00 - 10:00	11	597	3.155	11	597	3.810	11	597	6.965
10:00 - 11:00	11	597	1.143	11	597	1.189	11	597	2.332
11:00 - 12:00	11	597	1.798	11	597	1.783	11	597	3.581
12:00 - 13:00	11	597	2.530	11	597	2.316	11	597	4.846
13:00 - 14:00	11	597	1.280	11	597	1.265	11	597	2.545
14:00 - 15:00	11	597	2.194	11	597	1.798	11	597	3.992
15:00 - 16:00	11	597	1.173	11	597	2.133	11	597	3.306
16:00 - 17:00	9	599	2.578	9	599	2.207	9	599	4.785
17:00 - 18:00	9	599	5.211	9	599	5.861	9	599	11.072
18:00 - 19:00	8	645	0.484	8	645	1.918	8	645	2.402
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			30.345			30.537			60.882

Parameter summary

Trip rate parameter range selected:	230 - 850 (units: sqm)
Survey date date range:	01/01/00 - 27/11/08
Number of weekdays (Monday-Friday):	11
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	4

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
VEHICLES

Selected regions and areas:

07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
13	REPUBLIC OF IRELAND		
	WT	WESTMEATH	1 days

Main parameter selection:

Parameter: Number of households
Range: 12 to 20 (units:)

Date Range: 01/01/00 to 21/09/07

Selected survey days:

Tuesday	1 days
Wednesday	1 days

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

Selected Locations:

Town Centre	1
Edge of Town Centre	1

Selected Location Sub Categories:

Built-Up Zone	1
No Sub Category	1

LIST OF SITES relevant to selection parameters

1 WT-03-C-02 FLATS, ATHLONE WESTMEATH
CUSTUME PLACE

ATHLONE
Total Number of households: 20

2 WY-03-C-02 BLOCK OF FLATS, HUDDERSFIELD WEST YORKSHIRE
KINGS MILL LANE
ASPLEY
HUDDERSFIELD
Total Number of households: 12

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES
Calculation factor: 1 HHOLDS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	2	16	0.031	2	16	0.063	2	16	0.093
08:00 - 09:00	2	16	0.031	2	16	0.281	2	16	0.312
09:00 - 10:00	2	16	0.063	2	16	0.156	2	16	0.218
10:00 - 11:00	2	16	0.063	2	16	0.031	2	16	0.093
11:00 - 12:00	2	16	0.031	2	16	0.031	2	16	0.062
12:00 - 13:00	2	16	0.000	2	16	0.094	2	16	0.094
13:00 - 14:00	2	16	0.031	2	16	0.031	2	16	0.062
14:00 - 15:00	2	16	0.031	2	16	0.031	2	16	0.062
15:00 - 16:00	2	16	0.094	2	16	0.031	2	16	0.125
16:00 - 17:00	2	16	0.063	2	16	0.031	2	16	0.093
17:00 - 18:00	2	16	0.188	2	16	0.156	2	16	0.344
18:00 - 19:00	2	16	0.063	2	16	0.094	2	16	0.156
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.685			1.029			1.714

Parameter summary

Trip rate parameter range selected:	12 - 20 (units:)
Survey date date range:	01/01/00 - 21/09/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Optional parameters used in selection:	NO
Surveys manually removed from selection:	5

APPENDIX E – ARCADY RESULTS

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Roundabout Junction Rev A.j9
Path: S:\Jobs\2022\22092 Cornmaddy, Athlone TIA + RSA 1-2\22092-01\Reports\Working\ARCADY
Report generation date: 19/01/2023 12:37:39

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2022							
Arm 1	0.9	4.38	0.47	A	0.5	3.64	0.35	A
Arm 2	0.5	4.55	0.34	A	0.7	4.82	0.42	A
Arm 3	0.3	3.23	0.25	A	1.0	5.08	0.49	A
Arm 4	0.0	3.49	0.03	A	0.0	4.64	0.03	A
	2026 no dev							
Arm 1	1.0	4.62	0.50	A	0.6	3.77	0.37	A
Arm 2	0.6	4.77	0.36	A	0.8	5.08	0.45	A
Arm 3	0.4	3.31	0.27	A	1.1	5.46	0.52	A
Arm 4	0.0	3.56	0.04	A	0.0	4.85	0.03	A
	2026 with dev							
Arm 1	1.1	4.93	0.52	A	0.6	3.95	0.38	A
Arm 2	0.6	5.16	0.39	A	0.9	5.41	0.47	A
Arm 3	0.4	3.46	0.29	A	1.3	6.15	0.57	A
Arm 4	0.1	3.91	0.12	A	0.1	5.31	0.12	A
	2031 no dev							
Arm 1	1.1	4.98	0.53	A	0.7	3.97	0.40	A
Arm 2	0.6	5.11	0.39	A	0.9	5.51	0.49	A
Arm 3	0.4	3.44	0.29	A	1.3	6.09	0.57	A
Arm 4	0.0	3.66	0.04	A	0.0	5.19	0.04	A
	2031 with dev							
Arm 1	1.3	5.72	0.57	A	0.7	4.32	0.43	A
Arm 2	0.8	5.89	0.45	A	1.1	6.24	0.53	A
Arm 3	0.5	3.67	0.32	A	1.9	7.91	0.66	A
Arm 4	0.3	4.44	0.21	A	0.2	6.16	0.19	A
	2041 no dev							
Arm 1	1.2	5.15	0.55	A	0.7	4.04	0.41	A
Arm 2	0.7	5.25	0.40	A	1.0	5.68	0.50	A
Arm 3	0.4	3.49	0.30	A	1.4	6.35	0.58	A
Arm 4	0.0	3.71	0.04	A	0.0	5.31	0.04	A
	2041 with dev							
Arm 1	1.4	5.94	0.58	A	0.8	4.41	0.44	A
Arm 2	0.9	6.09	0.46	A	1.2	6.45	0.55	A
Arm 3	0.5	3.73	0.33	A	2.0	8.35	0.67	A
Arm 4	0.3	4.51	0.21	A	0.2	6.35	0.19	A
	2041 with future dev							
Arm 1	1.7	7.16	0.63	A	0.9	5.00	0.47	A
Arm 2	1.2	7.55	0.54	A	1.5	7.53	0.60	A
Arm 3	0.6	4.11	0.37	A	3.6	13.16	0.79	B
Arm 4	0.7	5.93	0.40	A	0.8	9.04	0.43	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	
Location	
Site number	
Date	07/03/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROADPLAN01\jbyrne
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	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	07:45	09:15	15	✓
D2	2022	PM	ONE HOUR	16:45	18:15	15	✓
D3	2026 no dev	AM	ONE HOUR	07:45	09:15	15	✓
D4	2026 no dev	PM	ONE HOUR	16:45	18:15	15	✓
D5	2026 with dev	AM	ONE HOUR	07:45	09:15	15	✓
D6	2026 with dev	PM	ONE HOUR	16:45	18:15	15	✓
D7	2031 no dev	AM	ONE HOUR	07:45	09:15	15	✓
D8	2031 no dev	PM	ONE HOUR	16:45	18:15	15	✓
D9	2031 with dev	AM	ONE HOUR	07:45	09:15	15	✓
D10	2031 with dev	PM	ONE HOUR	16:45	18:15	15	✓
D11	2041 no dev	AM	ONE HOUR	07:45	09:15	15	✓
D12	2041 no dev	PM	ONE HOUR	16:45	18:15	15	✓
D13	2041 with dev	AM	ONE HOUR	07:45	09:15	15	✓
D14	2041 with dev	PM	ONE HOUR	16:45	18:15	15	✓
D15	2041 with future dev	AM	ONE HOUR	07:45	09:15	15	✓
D16	2041 with future dev	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	N55 (north)	
2	R916	
3	N55 (south)	
4	L8048	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.20	6.00	40.0	25.0	45.0	8.0	
2	3.20	6.00	25.0	18.0	45.0	20.0	
3	3.20	6.50	30.0	20.0	45.0	12.0	
4	3.40	6.20	15.0	20.0	45.0	27.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.674	1806
2	0.625	1641
3	0.669	1816
4	0.607	1578

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	672	100.000
2		ONE HOUR	✓	362	100.000
3		ONE HOUR	✓	343	100.000
4		ONE HOUR	✓	33	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	4	251	417	0
	2	205	1	150	6
	3	258	77	3	5
	4	7	11	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.47	4.38	0.9	A	617	925
2	0.34	4.55	0.5	A	332	498
3	0.25	3.23	0.3	A	315	472
4	0.03	3.49	0.0	A	30	45

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	506	126	80	1588	0.319	504	356	0.0	0.5	3.316	A
2	273	68	329	1286	0.212	271	255	0.0	0.3	3.546	A
3	258	65	162	1542	0.167	257	439	0.0	0.2	2.800	A
4	25	6	411	1185	0.021	25	8	0.0	0.0	3.103	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	604	151	96	1577	0.383	604	426	0.5	0.6	3.696	A
2	325	81	394	1245	0.261	325	305	0.3	0.4	3.911	A
3	308	77	194	1521	0.203	308	525	0.2	0.3	2.967	A
4	30	7	492	1135	0.026	30	10	0.0	0.0	3.255	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	740	185	118	1562	0.474	739	521	0.6	0.9	4.366	A
2	399	100	483	1190	0.335	398	374	0.4	0.5	4.542	A
3	378	94	237	1492	0.253	377	643	0.3	0.3	3.229	A
4	36	9	603	1068	0.034	36	12	0.0	0.0	3.487	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	740	185	118	1562	0.474	740	522	0.9	0.9	4.376	A
2	399	100	483	1190	0.335	399	374	0.5	0.5	4.550	A
3	378	94	238	1492	0.253	378	644	0.3	0.3	3.230	A
4	36	9	603	1068	0.034	36	12	0.0	0.0	3.488	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	604	151	96	1577	0.383	605	427	0.9	0.6	3.708	A
2	325	81	395	1245	0.261	326	306	0.5	0.4	3.921	A
3	308	77	195	1521	0.203	309	527	0.3	0.3	2.970	A
4	30	7	493	1135	0.026	30	10	0.0	0.0	3.259	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	506	126	81	1587	0.319	507	357	0.6	0.5	3.334	A
2	273	68	331	1285	0.212	273	256	0.4	0.3	3.557	A
3	258	65	163	1542	0.167	258	441	0.3	0.2	2.806	A
4	25	6	413	1184	0.021	25	8	0.0	0.0	3.106	A

2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	485	100.000
2		ONE HOUR	✓	499	100.000
3		ONE HOUR	✓	622	100.000
4		ONE HOUR	✓	21	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	210	273	2
	2	338	5	151	5
	3	467	138	2	15
	4	5	8	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.35	3.64	0.5	A	445	668
2	0.42	4.82	0.7	A	458	687
3	0.49	5.08	1.0	A	571	856
4	0.03	4.64	0.0	A	19	29

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	365	91	121	1560	0.234	364	607	0.0	0.3	3.006	A
2	376	94	214	1358	0.277	374	271	0.0	0.4	3.655	A
3	468	117	262	1475	0.317	466	326	0.0	0.5	3.562	A
4	16	4	712	1002	0.016	16	16	0.0	0.0	3.650	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	436	109	145	1544	0.282	436	727	0.3	0.4	3.247	A
2	449	112	256	1332	0.337	448	324	0.4	0.5	4.073	A
3	559	140	314	1441	0.388	558	390	0.5	0.6	4.079	A
4	19	5	853	916	0.021	19	20	0.0	0.0	4.010	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	534	133	177	1523	0.351	533	890	0.4	0.5	3.638	A
2	549	137	313	1296	0.424	549	397	0.5	0.7	4.811	A
3	685	171	385	1393	0.491	684	477	0.6	1.0	5.061	A
4	23	6	1044	800	0.029	23	24	0.0	0.0	4.630	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	534	133	177	1522	0.351	534	892	0.5	0.5	3.641	A
2	549	137	314	1296	0.424	549	397	0.7	0.7	4.824	A
3	685	171	385	1393	0.492	685	478	1.0	1.0	5.082	A
4	23	6	1046	799	0.029	23	24	0.0	0.0	4.637	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	436	109	145	1544	0.282	437	730	0.5	0.4	3.254	A
2	449	112	257	1331	0.337	449	325	0.7	0.5	4.087	A
3	559	140	315	1440	0.388	560	391	1.0	0.6	4.098	A
4	19	5	856	915	0.021	19	20	0.0	0.0	4.020	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	365	91	121	1560	0.234	365	611	0.4	0.3	3.016	A
2	376	94	215	1357	0.277	376	272	0.5	0.4	3.672	A
3	468	117	264	1474	0.318	469	327	0.6	0.5	3.582	A
4	16	4	716	999	0.016	16	17	0.0	0.0	3.662	A

2026 no dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2026 no dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	707	100.000
2		ONE HOUR	✓	381	100.000
3		ONE HOUR	✓	361	100.000
4		ONE HOUR	✓	35	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	4	264	439	0
	2	216	1	158	6
	3	272	81	3	5
	4	7	12	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.50	4.62	1.0	A	649	973
2	0.36	4.77	0.6	A	350	524
3	0.27	3.31	0.4	A	331	497
4	0.04	3.56	0.0	A	32	48

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	532	133	85	1585	0.336	530	374	0.0	0.5	3.409	A
2	287	72	347	1275	0.225	286	269	0.0	0.3	3.636	A
3	272	68	170	1537	0.177	271	462	0.0	0.2	2.842	A
4	26	7	433	1171	0.022	26	8	0.0	0.0	3.143	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	636	159	102	1573	0.404	635	448	0.5	0.7	3.834	A
2	343	86	415	1232	0.278	342	322	0.3	0.4	4.042	A
3	325	81	204	1514	0.214	324	553	0.2	0.3	3.024	A
4	31	8	518	1120	0.028	31	10	0.0	0.0	3.307	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	778	195	124	1558	0.500	777	549	0.7	1.0	4.603	A
2	419	105	508	1174	0.357	419	394	0.4	0.6	4.761	A
3	397	99	250	1484	0.268	397	677	0.3	0.4	3.312	A
4	39	10	635	1049	0.037	38	12	0.0	0.0	3.561	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	778	195	124	1558	0.500	778	549	1.0	1.0	4.618	A
2	419	105	509	1174	0.357	419	394	0.6	0.6	4.772	A
3	397	99	250	1484	0.268	397	678	0.4	0.4	3.313	A
4	39	10	635	1049	0.037	39	12	0.0	0.0	3.563	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	636	159	102	1573	0.404	637	449	1.0	0.7	3.849	A
2	343	86	416	1232	0.278	343	322	0.6	0.4	4.056	A
3	325	81	204	1514	0.214	325	555	0.4	0.3	3.027	A
4	31	8	519	1119	0.028	32	10	0.0	0.0	3.310	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	532	133	85	1584	0.336	533	376	0.7	0.5	3.428	A
2	287	72	348	1274	0.225	287	270	0.4	0.3	3.651	A
3	272	68	171	1536	0.177	272	464	0.3	0.2	2.847	A
4	26	7	435	1170	0.023	26	8	0.0	0.0	3.146	A

2026 no dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2026 no dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	510	100.000
2		ONE HOUR	✓	525	100.000
3		ONE HOUR	✓	655	100.000
4		ONE HOUR	✓	21	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	221	287	2
	2	356	5	159	5
	3	492	145	2	16
	4	5	8	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.37	3.77	0.6	A	468	702
2	0.45	5.08	0.8	A	482	723
3	0.52	5.46	1.1	A	601	902
4	0.03	4.85	0.0	A	19	29

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	384	96	126	1557	0.247	383	640	0.0	0.3	3.063	A
2	395	99	224	1351	0.292	394	284	0.0	0.4	3.752	A
3	493	123	276	1466	0.336	491	342	0.0	0.5	3.683	A
4	16	4	750	979	0.016	16	17	0.0	0.0	3.736	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	458	115	151	1540	0.298	458	766	0.3	0.4	3.327	A
2	472	118	269	1324	0.357	471	340	0.4	0.6	4.220	A
3	589	147	330	1430	0.412	588	410	0.5	0.7	4.273	A
4	19	5	898	889	0.021	19	21	0.0	0.0	4.136	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	562	140	185	1517	0.370	561	937	0.4	0.6	3.762	A
2	578	145	329	1286	0.449	577	417	0.6	0.8	5.069	A
3	721	180	404	1380	0.522	720	501	0.7	1.1	5.435	A
4	23	6	1099	767	0.030	23	25	0.0	0.0	4.837	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	562	140	185	1517	0.370	562	939	0.6	0.6	3.766	A
2	578	145	329	1286	0.450	578	417	0.8	0.8	5.085	A
3	721	180	405	1380	0.523	721	502	1.1	1.1	5.465	A
4	23	6	1101	766	0.030	23	25	0.0	0.0	4.846	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	458	115	151	1540	0.298	459	769	0.6	0.4	3.335	A
2	472	118	269	1323	0.357	473	341	0.8	0.6	4.237	A
3	589	147	332	1429	0.412	590	411	1.1	0.7	4.299	A
4	19	5	901	887	0.021	19	21	0.0	0.0	4.146	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	384	96	127	1556	0.247	384	643	0.4	0.3	3.074	A
2	395	99	225	1351	0.293	396	286	0.6	0.4	3.770	A
3	493	123	277	1465	0.337	494	344	0.7	0.5	3.708	A
4	16	4	754	976	0.016	16	17	0.0	0.0	3.746	A

2026 with dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 with dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	707	100.000
2		ONE HOUR	✓	409	100.000
3		ONE HOUR	✓	383	100.000
4		ONE HOUR	✓	117	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	4	264	439	0
	2	216	1	158	34
	3	272	81	3	27
	4	23	41	53	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.52	4.93	1.1	A	649	973
2	0.39	5.16	0.6	A	375	563
3	0.29	3.46	0.4	A	351	527
4	0.12	3.91	0.1	A	107	161

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	532	133	134	1551	0.343	530	386	0.0	0.5	3.518	A
2	308	77	374	1258	0.245	307	290	0.0	0.3	3.780	A
3	288	72	191	1523	0.189	287	490	0.0	0.2	2.912	A
4	88	22	433	1171	0.075	88	46	0.0	0.1	3.322	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	636	159	161	1533	0.414	635	463	0.5	0.7	4.003	A
2	368	92	448	1212	0.303	367	348	0.3	0.4	4.262	A
3	344	86	229	1498	0.230	344	586	0.2	0.3	3.120	A
4	105	26	518	1120	0.094	105	55	0.1	0.1	3.547	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	778	195	197	1509	0.516	777	566	0.7	1.1	4.909	A
2	450	113	548	1149	0.392	449	425	0.4	0.6	5.140	A
3	422	105	280	1463	0.288	421	718	0.3	0.4	3.452	A
4	129	32	634	1049	0.123	129	67	0.1	0.1	3.911	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	778	195	197	1509	0.516	778	567	1.1	1.1	4.927	A
2	450	113	549	1148	0.392	450	426	0.6	0.6	5.157	A
3	422	105	281	1463	0.288	422	719	0.4	0.4	3.456	A
4	129	32	635	1049	0.123	129	67	0.1	0.1	3.913	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	636	159	161	1533	0.415	637	464	1.1	0.7	4.024	A
2	368	92	450	1211	0.304	368	349	0.6	0.4	4.279	A
3	344	86	230	1497	0.230	345	588	0.4	0.3	3.426	A
4	105	26	520	1119	0.094	105	55	0.1	0.1	3.551	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	532	133	135	1551	0.343	533	388	0.7	0.5	3.541	A
2	308	77	376	1257	0.245	308	292	0.4	0.3	3.800	A
3	288	72	192	1522	0.189	289	492	0.3	0.2	2.918	A
4	88	22	435	1170	0.075	88	46	0.1	0.1	3.326	A

2026 with dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 with dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	518	100.000
2		ONE HOUR	✓	544	100.000
3		ONE HOUR	✓	704	100.000
4		ONE HOUR	✓	80	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	221	287	10
	2	356	5	159	24
	3	492	145	2	65
	4	16	32	32	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.38	3.95	0.6	A	475	713
2	0.47	5.41	0.9	A	499	749
3	0.57	6.15	1.3	A	646	969
4	0.12	5.31	0.1	A	73	110

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	390	97	162	1533	0.254	389	648	0.0	0.3	3.142	A
2	410	102	248	1336	0.306	408	302	0.0	0.4	3.869	A
3	530	133	296	1453	0.365	528	360	0.0	0.6	3.882	A
4	60	15	750	979	0.062	60	74	0.0	0.1	3.915	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	466	116	194	1511	0.308	465	776	0.3	0.4	3.440	A
2	489	122	297	1306	0.375	488	362	0.4	0.6	4.401	A
3	633	158	355	1414	0.448	632	431	0.6	0.8	4.599	A
4	72	18	898	889	0.081	72	89	0.1	0.1	4.404	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	570	143	237	1482	0.385	570	949	0.4	0.6	3.943	A
2	599	150	364	1264	0.474	598	443	0.6	0.9	5.391	A
3	775	194	434	1360	0.570	773	528	0.8	1.3	6.108	A
4	88	22	1098	767	0.115	88	109	0.1	0.1	5.296	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	570	143	238	1481	0.385	570	951	0.6	0.6	3.950	A
2	599	150	364	1264	0.474	599	444	0.9	0.9	5.413	A
3	775	194	435	1360	0.570	775	528	1.3	1.3	6.155	A
4	88	22	1101	766	0.115	88	109	0.1	0.1	5.310	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	466	116	195	1511	0.308	466	779	0.6	0.4	3.449	A
2	489	122	298	1305	0.375	490	363	0.9	0.6	4.422	A
3	633	158	356	1413	0.448	635	432	1.3	0.8	4.641	A
4	72	18	902	887	0.081	72	89	0.1	0.1	4.418	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	390	97	163	1532	0.255	390	652	0.4	0.3	3.156	A
2	410	102	249	1336	0.307	410	304	0.6	0.4	3.893	A
3	530	133	298	1452	0.365	531	362	0.8	0.6	3.915	A
4	60	15	754	976	0.062	60	75	0.1	0.1	3.931	A

2031 no dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2031 no dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	754	100.000
2		ONE HOUR	✓	407	100.000
3		ONE HOUR	✓	386	100.000
4		ONE HOUR	✓	37	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	4	282	468	0
	2	230	1	169	7
	3	290	87	3	6
	4	8	12	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.53	4.98	1.1	A	692	1038
2	0.39	5.11	0.6	A	373	560
3	0.29	3.44	0.4	A	354	531
4	0.04	3.66	0.0	A	34	51

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	568	142	90	1581	0.359	565	399	0.0	0.6	3.537	A
2	306	77	369	1261	0.243	305	287	0.0	0.3	3.761	A
3	291	73	181	1529	0.190	290	493	0.0	0.2	2.902	A
4	28	7	461	1154	0.024	28	10	0.0	0.0	3.195	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	678	169	108	1569	0.432	677	478	0.6	0.8	4.032	A
2	366	91	442	1216	0.301	365	343	0.3	0.4	4.233	A
3	347	87	217	1505	0.230	347	590	0.2	0.3	3.106	A
4	33	8	552	1099	0.030	33	12	0.0	0.0	3.377	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	830	208	132	1553	0.535	829	585	0.8	1.1	4.961	A
2	448	112	541	1154	0.388	447	420	0.4	0.6	5.091	A
3	425	106	266	1473	0.289	425	722	0.3	0.4	3.431	A
4	41	10	676	1024	0.040	41	14	0.0	0.0	3.661	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	830	208	132	1553	0.535	830	586	1.1	1.1	4.981	A
2	448	112	542	1153	0.389	448	421	0.6	0.6	5.105	A
3	425	106	266	1473	0.289	425	723	0.4	0.4	3.435	A
4	41	10	677	1023	0.040	41	14	0.0	0.0	3.663	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	678	169	108	1569	0.432	679	479	1.1	0.8	4.054	A
2	366	91	443	1215	0.301	367	344	0.6	0.4	4.250	A
3	347	87	218	1505	0.231	347	592	0.4	0.3	3.110	A
4	33	8	554	1098	0.030	33	12	0.0	0.0	3.380	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	568	142	90	1581	0.359	568	401	0.8	0.6	3.560	A
2	306	77	371	1260	0.243	307	288	0.4	0.3	3.778	A
3	291	73	182	1529	0.190	291	495	0.3	0.2	2.910	A
4	28	7	464	1153	0.024	28	10	0.0	0.0	3.202	A

2031 no dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.27	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2031 no dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	545	100.000
2		ONE HOUR	✓	562	100.000
3		ONE HOUR	✓	699	100.000
4		ONE HOUR	✓	24	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	236	307	2
	2	380	6	170	6
	3	525	155	2	17
	4	6	9	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.40	3.97	0.7	A	500	750
2	0.49	5.51	0.9	A	516	774
3	0.57	6.09	1.3	A	641	962
4	0.04	5.19	0.0	A	22	33

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	410	103	136	1550	0.265	409	683	0.0	0.4	3.149	A
2	423	106	240	1342	0.315	421	304	0.0	0.5	3.903	A
3	526	132	295	1453	0.362	524	366	0.0	0.6	3.864	A
4	18	5	801	948	0.019	18	19	0.0	0.0	3.870	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	490	122	162	1532	0.320	490	818	0.4	0.5	3.450	A
2	505	126	287	1312	0.385	505	365	0.5	0.6	4.454	A
3	628	157	354	1414	0.444	627	438	0.6	0.8	4.569	A
4	22	5	959	852	0.025	22	22	0.0	0.0	4.333	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	600	150	199	1508	0.398	599	1001	0.5	0.7	3.959	A
2	619	155	352	1272	0.487	618	446	0.6	0.9	5.493	A
3	770	192	433	1361	0.565	768	536	0.8	1.3	6.046	A
4	26	7	1173	722	0.037	26	27	0.0	0.0	5.174	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	600	150	199	1507	0.398	600	1003	0.7	0.7	3.967	A
2	619	155	352	1271	0.487	619	447	0.9	0.9	5.514	A
3	770	192	434	1361	0.566	770	537	1.3	1.3	6.090	A
4	26	7	1176	720	0.037	26	28	0.0	0.0	5.186	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	490	122	163	1532	0.320	491	821	0.7	0.5	3.459	A
2	505	126	288	1312	0.385	506	366	0.9	0.6	4.479	A
3	628	157	355	1413	0.445	630	440	1.3	0.8	4.610	A
4	22	5	963	850	0.025	22	23	0.0	0.0	4.348	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	410	103	137	1550	0.265	411	687	0.5	0.4	3.161	A
2	423	106	241	1341	0.316	424	306	0.6	0.5	3.929	A
3	526	132	297	1452	0.362	527	368	0.8	0.6	3.897	A
4	18	5	805	945	0.019	18	19	0.0	0.0	3.882	A

2031 with dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2031 with dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	754	100.000
2		ONE HOUR	✓	449	100.000
3		ONE HOUR	✓	419	100.000
4		ONE HOUR	✓	193	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	4	282	468	0
	2	230	1	169	49
	3	290	87	3	39
	4	39	67	87	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.57	5.72	1.3	A	692	1038
2	0.45	5.89	0.8	A	412	618
3	0.32	3.67	0.5	A	384	577
4	0.21	4.44	0.3	A	177	266

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	568	142	184	1518	0.374	565	422	0.0	0.6	3.769	A
2	338	85	421	1228	0.275	337	328	0.0	0.4	4.030	A
3	315	79	213	1508	0.209	314	545	0.0	0.3	3.012	A
4	145	36	461	1154	0.126	145	66	0.0	0.1	3.564	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	678	169	220	1493	0.454	677	506	0.6	0.8	4.404	A
2	404	101	505	1176	0.343	403	392	0.4	0.5	4.653	A
3	377	94	255	1480	0.254	376	653	0.3	0.3	3.261	A
4	174	43	552	1099	0.158	173	79	0.1	0.2	3.889	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	830	208	269	1460	0.569	828	619	0.8	1.3	5.680	A
2	494	124	617	1106	0.447	493	480	0.5	0.8	5.866	A
3	461	115	312	1442	0.320	461	799	0.3	0.5	3.666	A
4	212	53	676	1024	0.208	212	97	0.2	0.3	4.435	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	830	208	270	1460	0.569	830	620	1.3	1.3	5.715	A
2	494	124	619	1105	0.447	494	481	0.8	0.8	5.894	A
3	461	115	313	1442	0.320	461	800	0.5	0.5	3.671	A
4	212	53	677	1023	0.208	212	97	0.3	0.3	4.440	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	678	169	221	1493	0.454	680	507	1.3	0.8	4.435	A
2	404	101	507	1175	0.343	405	394	0.8	0.5	4.681	A
3	377	94	256	1480	0.255	377	655	0.5	0.3	3.268	A
4	174	43	554	1098	0.158	174	79	0.3	0.2	3.897	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	568	142	185	1517	0.374	569	424	0.8	0.6	3.797	A
2	338	85	424	1227	0.276	339	329	0.5	0.4	4.055	A
3	315	79	214	1508	0.209	316	548	0.3	0.3	3.020	A
4	145	36	464	1153	0.126	145	66	0.2	0.1	3.576	A

2031 with dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2031 with dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	559	100.000
2		ONE HOUR	✓	597	100.000
3		ONE HOUR	✓	790	100.000
4		ONE HOUR	✓	124	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	236	307	16
	2	380	6	170	41
	3	525	155	2	108
	4	26	49	49	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.43	4.32	0.7	A	513	769
2	0.53	6.24	1.1	A	548	822
3	0.66	7.91	1.9	A	725	1087
4	0.19	6.16	0.2	A	114	171

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	421	105	196	1510	0.279	419	698	0.0	0.4	3.296	A
2	449	112	280	1316	0.341	447	334	0.0	0.5	4.130	A
3	595	149	332	1429	0.416	592	396	0.0	0.7	4.287	A
4	93	23	800	948	0.098	93	124	0.0	0.1	4.206	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	503	126	234	1484	0.339	502	836	0.4	0.5	3.664	A
2	537	134	336	1282	0.419	536	400	0.5	0.7	4.821	A
3	710	178	398	1385	0.513	709	474	0.7	1.0	5.314	A
4	111	28	958	852	0.131	111	148	0.1	0.1	4.856	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	615	154	286	1449	0.425	615	1022	0.5	0.7	4.311	A
2	657	164	411	1235	0.532	656	490	0.7	1.1	6.199	A
3	870	217	487	1325	0.656	867	580	1.0	1.9	7.789	A
4	137	34	1172	723	0.189	136	181	0.1	0.2	6.135	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	615	154	287	1448	0.425	615	1025	0.7	0.7	4.323	A
2	657	164	412	1234	0.533	657	491	1.1	1.1	6.238	A
3	870	217	488	1325	0.657	870	581	1.9	1.9	7.909	A
4	137	34	1176	720	0.189	137	182	0.2	0.2	6.164	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	503	126	236	1483	0.339	503	840	0.7	0.5	3.680	A
2	537	134	337	1281	0.419	538	402	1.1	0.7	4.858	A
3	710	178	399	1384	0.513	713	476	1.9	1.1	5.399	A
4	111	28	964	849	0.131	112	149	0.2	0.2	4.886	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	421	105	197	1509	0.279	421	702	0.5	0.4	3.313	A
2	449	112	282	1315	0.342	450	336	0.7	0.5	4.166	A
3	595	149	334	1427	0.417	596	398	1.1	0.7	4.337	A
4	93	23	806	945	0.099	94	124	0.2	0.1	4.228	A

2041 no dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2041 no dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	774	100.000
2		ONE HOUR	✓	417	100.000
3		ONE HOUR	✓	395	100.000
4		ONE HOUR	✓	38	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	5	289	480	0
	2	236	1	173	7
	3	297	89	3	6
	4	8	13	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.55	5.15	1.2	A	710	1065
2	0.40	5.25	0.7	A	383	574
3	0.30	3.49	0.4	A	362	544
4	0.04	3.71	0.0	A	35	52

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	92	1580	0.369	580	410	0.0	0.6	3.596	A
2	314	78	379	1255	0.250	313	294	0.0	0.3	3.815	A
3	297	74	187	1526	0.195	296	505	0.0	0.2	2.928	A
4	29	7	473	1147	0.025	29	10	0.0	0.0	3.218	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	110	1567	0.444	695	490	0.6	0.8	4.122	A
2	375	94	453	1208	0.310	374	352	0.3	0.4	4.315	A
3	355	89	224	1501	0.237	355	604	0.2	0.3	3.140	A
4	34	9	567	1090	0.031	34	12	0.0	0.0	3.408	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	135	1551	0.550	851	600	0.8	1.2	5.130	A
2	459	115	555	1145	0.401	458	431	0.4	0.7	5.237	A
3	435	109	274	1468	0.296	434	740	0.3	0.4	3.481	A
4	42	10	694	1013	0.041	42	14	0.0	0.0	3.705	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	135	1550	0.550	852	601	1.2	1.2	5.154	A
2	459	115	556	1144	0.401	459	432	0.7	0.7	5.254	A
3	435	109	274	1467	0.296	435	741	0.4	0.4	3.485	A
4	42	10	695	1012	0.041	42	14	0.0	0.0	3.707	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	111	1567	0.444	697	492	1.2	0.8	4.148	A
2	375	94	455	1207	0.311	376	353	0.7	0.5	4.333	A
3	355	89	224	1501	0.237	356	606	0.4	0.3	3.143	A
4	34	9	568	1089	0.031	34	12	0.0	0.0	3.414	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	93	1579	0.369	584	412	0.8	0.6	3.620	A
2	314	78	381	1254	0.250	314	296	0.5	0.3	3.836	A
3	297	74	188	1525	0.195	298	507	0.3	0.2	2.932	A
4	29	7	476	1145	0.025	29	10	0.0	0.0	3.225	A

2041 no dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2041 no dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	558	100.000
2		ONE HOUR	✓	575	100.000
3		ONE HOUR	✓	715	100.000
4		ONE HOUR	✓	24	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	242	314	2
	2	389	6	174	6
	3	537	159	2	17
	4	6	9	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.41	4.04	0.7	A	512	768
2	0.50	5.68	1.0	A	528	791
3	0.58	6.35	1.4	A	656	984
4	0.04	5.31	0.0	A	22	33

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	420	105	139	1548	0.271	419	699	0.0	0.4	3.182	A
2	433	108	245	1338	0.323	431	312	0.0	0.5	3.960	A
3	538	135	302	1449	0.372	536	374	0.0	0.6	3.933	A
4	18	5	819	937	0.019	18	19	0.0	0.0	3.917	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	502	125	166	1530	0.328	501	837	0.4	0.5	3.497	A
2	517	129	294	1308	0.395	516	374	0.5	0.6	4.542	A
3	643	161	362	1409	0.456	642	448	0.6	0.8	4.688	A
4	22	5	981	839	0.026	22	22	0.0	0.0	4.405	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	614	154	203	1505	0.408	614	1024	0.5	0.7	4.036	A
2	633	158	360	1267	0.500	632	457	0.6	1.0	5.654	A
3	787	197	443	1355	0.581	785	549	0.8	1.4	6.296	A
4	26	7	1200	706	0.037	26	27	0.0	0.0	5.300	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	614	154	204	1504	0.408	614	1026	0.7	0.7	4.044	A
2	633	158	360	1267	0.500	633	458	1.0	1.0	5.681	A
3	787	197	444	1354	0.581	787	549	1.4	1.4	6.350	A
4	26	7	1203	704	0.038	26	28	0.0	0.0	5.314	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	502	125	167	1529	0.328	502	840	0.7	0.5	3.510	A
2	517	129	294	1308	0.395	518	375	1.0	0.7	4.569	A
3	643	161	363	1408	0.457	645	449	1.4	0.8	4.732	A
4	22	5	986	836	0.026	22	23	0.0	0.0	4.422	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	420	105	140	1548	0.271	421	703	0.5	0.4	3.196	A
2	433	108	246	1338	0.324	434	314	0.7	0.5	3.985	A
3	538	135	304	1448	0.372	539	376	0.8	0.6	3.969	A
4	18	5	824	934	0.019	18	19	0.0	0.0	3.932	A

2041 with dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2041 with dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	774	100.000
2		ONE HOUR	✓	459	100.000
3		ONE HOUR	✓	428	100.000
4		ONE HOUR	✓	194	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	5	289	480	0
	2	236	1	173	49
	3	297	89	3	39
	4	39	68	87	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.58	5.94	1.4	A	710	1065
2	0.46	6.09	0.9	A	421	632
3	0.33	3.73	0.5	A	393	589
4	0.21	4.51	0.3	A	178	267

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	186	1516	0.384	580	433	0.0	0.6	3.835	A
2	346	86	431	1222	0.283	344	335	0.0	0.4	4.091	A
3	322	81	218	1505	0.214	321	557	0.0	0.3	3.038	A
4	146	37	473	1147	0.127	145	66	0.0	0.1	3.593	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	223	1492	0.466	695	518	0.6	0.9	4.512	A
2	413	103	516	1169	0.353	412	401	0.4	0.5	4.751	A
3	385	96	261	1476	0.261	384	667	0.3	0.4	3.297	A
4	174	44	567	1090	0.160	174	79	0.1	0.2	3.930	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	273	1458	0.585	850	634	0.9	1.4	5.902	A
2	505	126	632	1097	0.461	504	491	0.5	0.8	6.061	A
3	471	118	320	1437	0.328	471	816	0.4	0.5	3.723	A
4	214	53	694	1013	0.211	213	97	0.2	0.3	4.501	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	273	1458	0.585	852	635	1.4	1.4	5.944	A
2	505	126	633	1096	0.461	505	492	0.8	0.9	6.094	A
3	471	118	320	1437	0.328	471	818	0.5	0.5	3.728	A
4	214	53	695	1012	0.211	214	97	0.3	0.3	4.505	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	223	1491	0.467	698	520	1.4	0.9	4.550	A
2	413	103	518	1168	0.353	414	403	0.9	0.6	4.782	A
3	385	96	262	1475	0.261	385	670	0.5	0.4	3.303	A
4	174	44	568	1089	0.160	175	79	0.3	0.2	3.939	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	187	1516	0.384	584	435	0.9	0.6	3.867	A
2	346	86	434	1221	0.283	346	337	0.6	0.4	4.120	A
3	322	81	219	1504	0.214	323	560	0.4	0.3	3.047	A
4	146	37	476	1145	0.128	146	66	0.2	0.1	3.602	A

2041 with dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2041 with dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	572	100.000
2		ONE HOUR	✓	610	100.000
3		ONE HOUR	✓	806	100.000
4		ONE HOUR	✓	124	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	242	314	16
	2	389	6	174	41
	3	537	159	2	108
	4	26	49	49	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.44	4.41	0.8	A	525	787
2	0.55	6.45	1.2	A	560	840
3	0.67	8.35	2.0	A	740	1109
4	0.19	6.35	0.2	A	114	171

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	431	108	199	1508	0.286	429	713	0.0	0.4	3.333	A
2	459	115	286	1313	0.350	457	342	0.0	0.5	4.196	A
3	607	152	339	1424	0.426	604	404	0.0	0.7	4.372	A
4	93	23	819	937	0.100	93	124	0.0	0.1	4.263	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	514	129	238	1481	0.347	514	854	0.4	0.5	3.717	A
2	548	137	342	1278	0.429	548	409	0.5	0.7	4.926	A
3	725	181	406	1379	0.525	723	484	0.7	1.1	5.473	A
4	111	28	981	839	0.133	111	148	0.1	0.2	4.947	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	630	157	291	1446	0.436	629	1045	0.5	0.8	4.403	A
2	672	168	419	1230	0.546	670	501	0.7	1.2	6.406	A
3	887	222	496	1319	0.673	884	592	1.1	2.0	8.206	A
4	137	34	1199	706	0.193	136	181	0.2	0.2	6.309	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	630	157	292	1445	0.436	630	1048	0.8	0.8	4.414	A
2	672	168	419	1230	0.546	672	502	1.2	1.2	6.452	A
3	887	222	498	1318	0.673	887	593	2.0	2.0	8.353	A
4	137	34	1203	704	0.194	137	182	0.2	0.2	6.345	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	514	129	239	1481	0.347	515	859	0.8	0.5	3.734	A
2	548	137	343	1277	0.429	550	411	1.2	0.8	4.962	A
3	725	181	408	1378	0.526	728	486	2.0	1.1	5.570	A
4	111	28	987	835	0.133	112	149	0.2	0.2	4.980	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	431	108	200	1507	0.286	431	718	0.5	0.4	3.347	A
2	459	115	287	1312	0.350	460	344	0.8	0.5	4.230	A
3	607	152	341	1423	0.426	608	406	1.1	0.7	4.427	A
4	93	23	825	934	0.100	94	124	0.2	0.1	4.286	A

2041 with future dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D15	2041 with future dev	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	774	100.000
2		ONE HOUR	✓	514	100.000
3		ONE HOUR	✓	472	100.000
4		ONE HOUR	✓	368	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	5	289	480	0
	2	236	1	173	104
	3	297	89	3	83
	4	74	129	165	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.63	7.16	1.7	A	710	1065
2	0.54	7.55	1.2	A	472	707
3	0.37	4.11	0.6	A	433	650
4	0.40	5.93	0.7	A	338	507

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	290	1446	0.403	580	459	0.0	0.7	4.144	A
2	387	97	489	1186	0.326	385	381	0.0	0.5	4.484	A
3	355	89	259	1477	0.241	354	615	0.0	0.3	3.202	A
4	277	69	473	1147	0.242	276	140	0.0	0.3	4.126	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	347	1408	0.494	695	549	0.7	1.0	5.041	A
2	462	116	586	1125	0.411	461	456	0.5	0.7	5.413	A
3	424	106	310	1443	0.294	424	737	0.3	0.4	3.529	A
4	331	83	567	1090	0.303	330	168	0.3	0.4	4.734	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	425	1355	0.629	849	672	1.0	1.7	7.078	A
2	566	141	717	1044	0.542	564	558	0.7	1.2	7.475	A
3	520	130	380	1397	0.372	519	901	0.4	0.6	4.097	A
4	405	101	693	1013	0.400	404	205	0.4	0.7	5.902	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	852	213	426	1355	0.629	852	674	1.7	1.7	7.161	A
2	566	141	719	1042	0.543	566	559	1.2	1.2	7.554	A
3	520	130	381	1396	0.372	520	904	0.6	0.6	4.107	A
4	405	101	695	1012	0.400	405	206	0.7	0.7	5.927	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	696	174	349	1407	0.495	699	552	1.7	1.0	5.102	A
2	462	116	589	1123	0.411	464	458	1.2	0.7	5.475	A
3	424	106	312	1442	0.294	425	741	0.6	0.4	3.541	A
4	331	83	569	1089	0.304	332	169	0.7	0.4	4.761	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	583	146	292	1445	0.403	584	462	1.0	0.7	4.187	A
2	387	97	493	1184	0.327	388	383	0.7	0.5	4.527	A
3	355	89	261	1476	0.241	356	619	0.4	0.3	3.215	A
4	277	69	476	1145	0.242	278	141	0.4	0.3	4.150	A

2041 with future dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D16	2041 with future dev	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	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		ONE HOUR	✓	588	100.000
2		ONE HOUR	✓	651	100.000
3		ONE HOUR	✓	912	100.000
4		ONE HOUR	✓	278	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	242	314	32
	2	389	6	174	82
	3	537	159	2	214
	4	75	119	84	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.47	5.00	0.9	A	540	809
2	0.60	7.53	1.5	A	597	896
3	0.79	13.16	3.6	B	837	1255
4	0.43	9.04	0.8	A	255	383

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	443	111	277	1455	0.304	441	750	0.0	0.4	3.544	A
2	490	123	324	1289	0.380	488	394	0.0	0.6	4.477	A
3	687	172	381	1396	0.492	683	430	0.0	1.0	5.022	A
4	209	52	818	937	0.223	208	246	0.0	0.3	4.930	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	529	132	332	1418	0.373	528	898	0.4	0.6	4.042	A
2	585	146	388	1249	0.468	584	472	0.6	0.9	5.403	A
3	820	205	457	1345	0.609	818	515	1.0	1.5	6.791	A
4	250	62	980	839	0.298	249	294	0.3	0.4	6.098	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	647	162	405	1369	0.473	646	1096	0.6	0.9	4.974	A
2	717	179	475	1195	0.600	714	577	0.9	1.5	7.451	A
3	1004	251	559	1277	0.786	996	630	1.5	3.5	12.491	B
4	306	77	1196	708	0.432	305	359	0.4	0.7	8.895	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	647	162	407	1367	0.474	647	1102	0.9	0.9	5.000	A
2	717	179	476	1194	0.600	717	579	1.5	1.5	7.532	A
3	1004	251	560	1276	0.787	1004	632	3.5	3.6	13.161	B
4	306	77	1203	704	0.435	306	361	0.7	0.8	9.044	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	529	132	335	1416	0.373	530	906	0.9	0.6	4.067	A
2	585	146	389	1248	0.469	588	475	1.5	0.9	5.470	A
3	820	205	459	1344	0.610	828	518	3.6	1.6	7.092	A
4	250	62	990	833	0.300	251	297	0.8	0.4	6.198	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	443	111	279	1453	0.305	443	756	0.6	0.4	3.568	A
2	490	123	326	1288	0.381	491	397	0.9	0.6	4.525	A
3	687	172	384	1394	0.493	689	433	1.6	1.0	5.126	A
4	209	52	825	933	0.224	210	248	0.4	0.3	4.982	A