Proposed residential development at Dolcain House, Monastery Road, Clondalkin, Dublin 22

Traffic and Transport Assessment

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1.0 INTRODUCTION

1.1 GENERAL DESCRIPTION

Dr Martin Rogers has been commissioned to complete a Traffic and Transport and for a proposed 130-unit apartment development at Dolcain House, Monastery Road, Clondalkin, Dublin 22.

The development comprises 130 No. apartment units.

The apartment breakdown is as follows:

- 1-Bedroom units 61 No.
- 2-Bedroom units 59 No.
- 3-bedroom units 10 No.

It is proposed to provide 78 No. car parking spaces, including 5 No. car club spaces, 4 No. motorcycle spaces and 310 No. cycle parking spaces.

The permitted development thus involves a car parking provision of 0.60 No. spaces per dwelling unit, 0.56 No. spaces per unit excluding the communal car club spaces.

It is assumed that the proposed development will open in 2024.

Appendix 1 contains a site layout of the revised development indicating the location of the entrance onto Monastery Road / Woodford Hill Roundabout junction.

The previous application at Dolcain House (SD19A/0324) analysed the impat of the proposed development on the Monastery Road / Woodford Hill Roundabout junction and it is proposed that this application do likewise.

An existing survey from 2019 is available to the applicant for this junction, and this information is utilized within this report as most representative of pre-Covid volumes in the study area and thus seen as both normal and representative.

Within the previous application, there was criticism from the planning authority that the analysis of the roundabout did not reflect the levels of congestion experienced during peak times at this intersection.

The traffic survey at the Monastery Road / Woodford Hill Roundabout junction was carried out on Wednesday 4th September 2019. This survey data will be used within this analysis.

The flows from this survey will be taken as equivalent to current 2021 traffic flows.

The analysis within this report is undertaken based on 1.62% annual growth in network traffic over the period 2021 to 2030 period, decreasing to 0.51% in the 2030 to 2038 period. These rates are consistent with the 'medium sensitivity' assumption for the four planning authorities within the Dublin metropolitan area as detailed within the 2019 Transport Infrastructure Ireland document 'Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections', PE-PAG-02017-2, May 2019.

1.2 PURPOSE OF THE TRAFFIC AND TRANSPORT ASSESSMENT

The purpose of this Traffic and Transport Assessment is to assess the current operational efficiency of the existing transport environment and provide details of the assessment undertaken to identify the level of transport impact resulting from the proposed residential development. The scope of the assessment covers both transport and related sustainability issues, including means of vehicular access, pedestrian, cyclist and local public transport connections. The principal objective of the report is to quantify any level of impact across the local road network and subsequently ascertain both the existing and future operational performance of the local road network.

1.3 METHODOLOGY USED WITHIN THE TRAFFIC AND TRANSPORT ASSESSMENT

This report was developed with guidance from the documents listed below;

- 'Traffic and Transport Assessment Guidelines' (May 2014) National Road Authority;
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation; and
- South Dublin County Council Development Plan 2016-2022.

The methodology utilised can be divided into the following 5 No. phases, in compliance with the Traffic and Transport Assessment Guidelines referenced above:

Audit of existing network
The report establishes the existing level of accessibility at present pertaining to the subject site in terms of the level of access available by walking, cycling and public transport.

Completion of Traffic Counts
The report details Junction traffic counts undertaken at the locations relevant to the proposed development, and analysed in order to assess existing operating efficiencies in the vicinity of the proposed development.

Estimation of Trip Generation Volumes
A trip generation exercise has been carried out to establish an estimate for the level of vehicle trips generated by the proposed residential development.

Distribution of Generated Trips
Based upon both the existing observed flow patterns in the local road network at the identified relevant junctions, the trips predicted to be generated by the proposed development are distributed / assigned onto the local road network.

Network Analysis detailing Impact of Generated Volumes
Junction analysis models are utilised to analyse the impact of the estimated trip generation volumes on the operational efficiency of the junctions selected for detailed analysis.

This analysis of the Monastery Road / Woodford Hill Roundabout intersection is undertaken for both the year of opening of the proposed development and the 'design years' five and fifteen years thereafter.

This methodology is consistent with the following sections required within a basic Traffic and Transport Assessment for compliance with the 2014 TTA Guidelines:

- Introduction / Existing conditions
- Extent of proposed development (including existing and future public transport and walking / cycling facilities)
- Vehicular Trip Generation
- Vehicular Trip Distribution / Assignment to network
- Impact on road network of trips generated by proposed development

1.4 SITE ACCESS TO ROAD NETWORK

The site plan within Appendix 1 indicates the location of the site access onto the Monastery Road / Woodford Hill Roundabout.

Traffic will access the development via the southern leg of the existing roundabout.

Traffic will process via the Monastery Road East access of the roundabout to the M50 interchange at Red Cow

Figure 1-1 details the available access point from the development onto the Monastery Road / Woodford Hill Roundabout.

Figure 1-2 indicates the location of the Dolcain House site relative to the local road network (Monastery Road / M50 Red Cow Interchange)

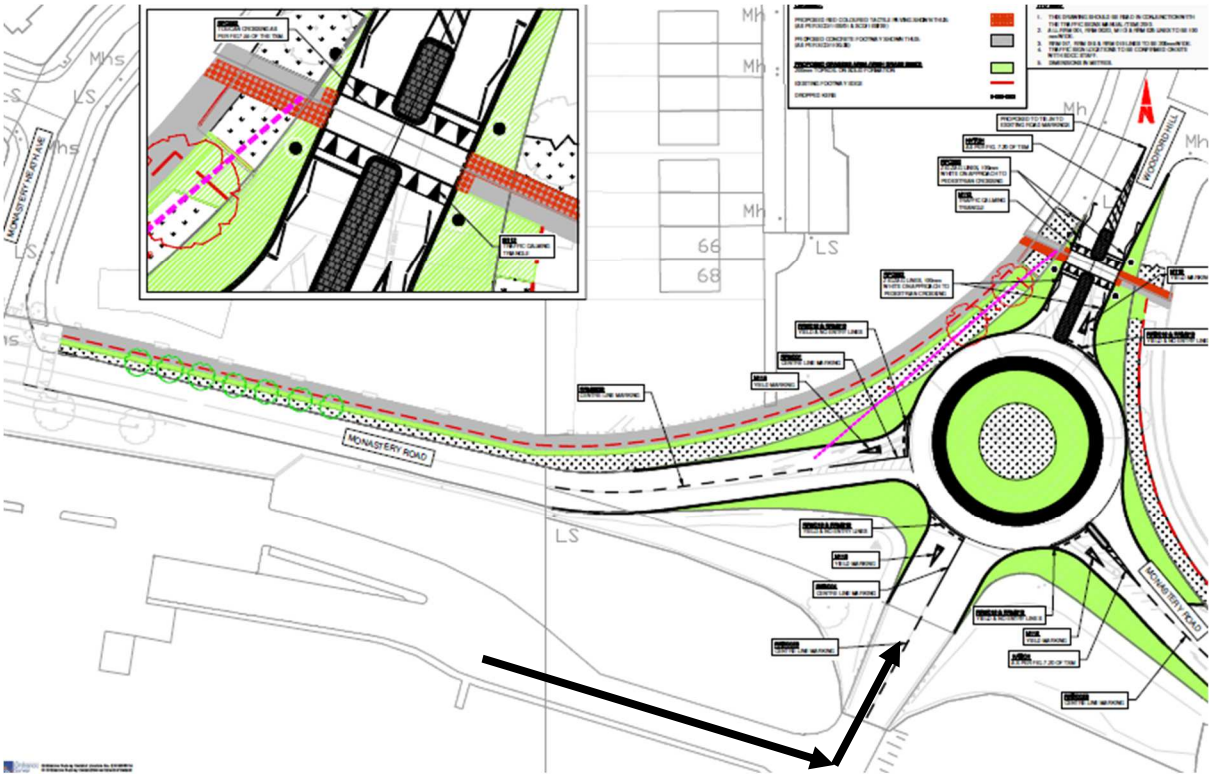

Figure 1-1: Site access onto the Monastery Road / Woodford Hill Roundabout

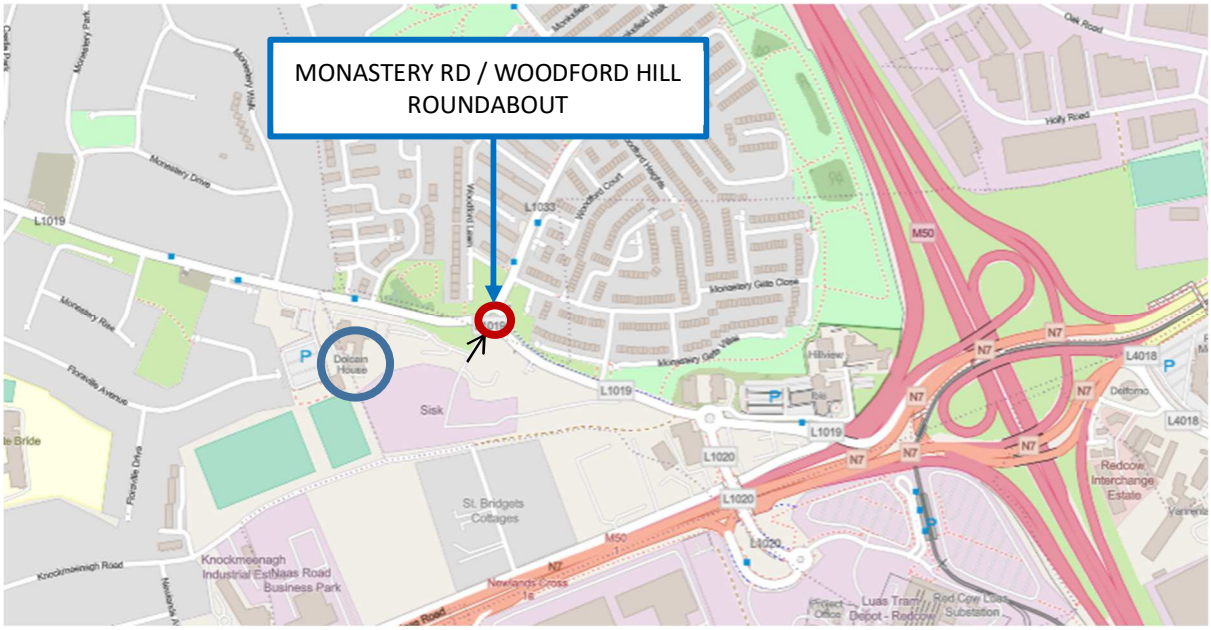

Figure 1-2: Location of site relative to local road network together with the location of the survey at the Monastery Road / Woodford Hill Roundabout.

1.5 SCOPE OF THE REPORT

Section 2 provides details of the receiving environment.

Section 3 details the traffic predicted to be generated by both the proposed development and future planned development.

Section 4 details the need for a traffic assessment based on the criteria within the 2014 Traffic and Transport Assessment Guidelines.

Section 5 provides an analysis of the post-development impact of the proposed development on the nearby Monastery Road / Woodford Hill Roundabout.

Section 6 makes some concluding comments regarding the impact of the proposed project in traffic impact terms, the mitigating factors pertaining to it and its overall sustainability.

The site location is contained within Figure 1-2 below, together with the location of the 3 No. surveys.

2.0 RECEIVING ENVIRONMENT

2.1 LOCATION OF PROPOSED DEVELOPMENT

The site is located on the south side of Monastery Road, adjacent to its junction with Belgard Road, 150 metres west of the Monastery Road / Woodford Hill Roundabout.

The location of the site relative to the nearby surveyed junction is detailed within Figure 1-2.

Given that the proposed development is residential, peak flows will typically occur on weekdays, with peak flows typically occurring between 7am and 9am in the morning and between 4pm and 6pm in the evening.

Accordingly, traffic surveys were carried out on Wednesday 4th September 2019 at the roundabout junction.

The survey data is provided within Appendix 2.

The survey was carried out over a 12-hour period between 0700 and 1900 in order to ascertain the peak hour flows for all traffic movements at the roundabout junction.

The survey indicated that the weekday morning peak occurred between 0800 and 1000 with the evening peak occurring between 1600 and 1800 – these were observed to be the timeframes during which the junctions were most heavily loaded. The following analysis is based on these peak periods.

On the basis of the results of both the surveys and assumptions regarding when peak flows from the generated traffic will occur, the morning peak hour has been taken as 0800 to 0900, with the evening peak taken to occur between 1700 and 1800.

The existing (2019) flows at the junction for the morning and evening peak hours is detailed within Diagrams 1 and 2 respectively within Appendix 3.

2.2 LUAS INFRASTRUCTURE

The Luas Red line stop at Red Cow is approximately 1km/ 10-minute walk from the proposed residential development. This runs every 5 minutes from Dublin City so may be a viable option for occupants of the development.

2.3 EXISTING AND PROPOSED BUS INFRASTRUCTURE

There are a number of bus stops located along Monastery Road, Clondalkin, Dublin 22.

The bus routes that stop at the development along Monastery Road are:

- Route 68 From Hawkins St. to Newcastle/ Greenogue Business Park
- Route 69 from Hawkins St. to Rathcoole

The bus route that avels along Woodford Hill, through the rounabout and towards the Red Cow is:

- Route 13 from Harristown to Grange Castle

The frequency of each bus located along Monastery Road / Woodford Hill are detailed in Table 2-1:

ROUTE	ORIGIN	DESTINATION	FREQUENCY AM PEAK
Route 13	GRANGE CASTLE	HARRISTOWN	6 PER HOUR
Route 68	GREENOGUE BUSINESS PARK	HAWKINS STREET	2 PER HOUR
Route 69	RATHCOOLE	HAWKINS STREET	2 PER HOUR
TOTAL			**10 PER HOUR**

Table 2-1– Dublin Bus Route Frequencies close to proposed development

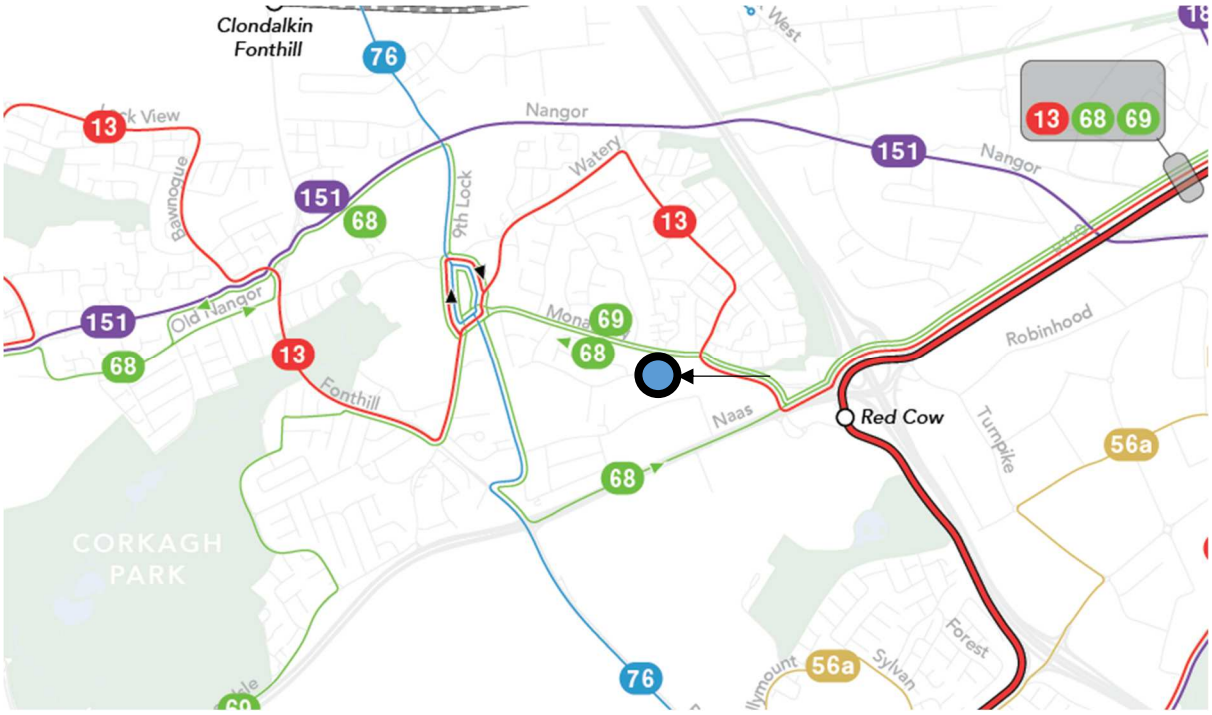

Figure 2-1: Existing bus routes 13, 68/a and 69

Figure 2-1 details the routes taken by the 13, 68 and 69 in close proximity to the site of the proposed development.

Figure 2-2 details the Bus Connects proposals, indicating that the D3 route on the high frequency D spine replacing the existing routes.

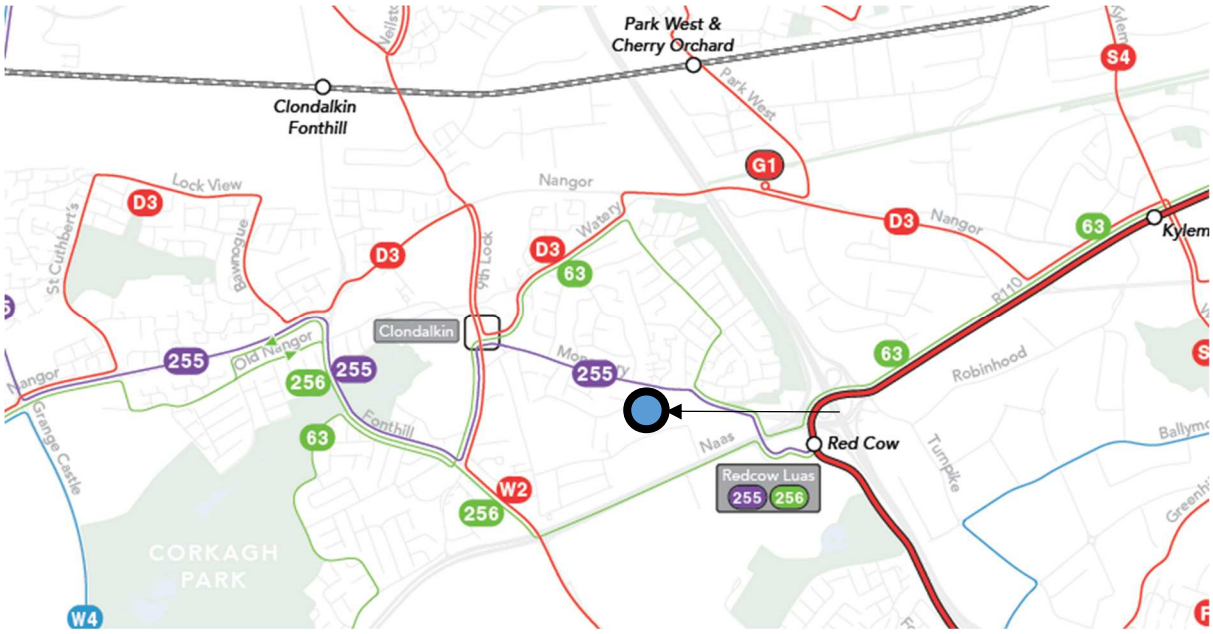

Figure 2-2: Proposed 255 and 63 routes close to Monastery Road

The 255 route along Monastery Road will replace routes 68 and 69.

The general pattern of today's Route 13 remains as the D3 branch, with service every 15 minutes all day, 10 during the peak period. This route differs from the current route mainly in following Nangor Road west of Kylemore, reducing duplication with the Luas Red Line.

Route 255, running every 20 minutes, is the direct link from Redcow to Clondalkin Village but then continues west along Fonthill and Nangor Road and north on Grange Castle Road to connect with the Kildare Line, the W4 orbital and the C1+C2 branch of the C Spine, for ready access to Lucan and Liffey Valley.

2.4 EXISTING AND PROPOSED CYCLING INFRASTRUCTURE

Figure 2-3 details the existing cycle facilities close to the site:

Legend:

- B1 - Bus Lane (no cycle lane)
- C1 - Cycle Track - separated from road
- C2 - Cycle Track - immediately adjacent
- C3 - Cycle Lane (even within Bus Lane)
- G1 - Cycle Trail or Greenway
- S2 - Shared Walking & Cycling
- Study Area
- County Council Boundaries
- Greenline Tram Stops
- Redline Tram Stops
- Stations

Figure 2-3: Cycling facilities in proximity to the Dolcain House site

There is an existing cycle lane on the northern side of Monastery Road opposite the site.

Figure 2-4 details the facilities planned within the GDA Cycle Network Plan.

Figure 2-4: Cycle lane improvements detailed within the GDA Cycle Plan

Residents of the proposed development can gain access to the city via the "7E" route, the secondary route on Monastery Road, with a feeder rute along Woodford Hill.

Route 7E links into Route 8A in Walkinstown and runs towards Clondalkin via Ballymount, involving the construction of a new bridge over the M50 south of Red Cow.

3.0 PARKING REQUIREMENTS AND PROVISION

3.1 CAR AND CYCLE PARKING REQUIREMENTS AS PER SOUTH DUBLIN COUNTY DEVELOPMENT PLAN 2016 - 2022

Tables 3-1 below details the maximum car and bicycle parking standards for South Dublin County Council based on the rates contained within their 2016 - 2022 Development Plan Written Statement for the proposed development:

Development type	Area / units	Maximum car parking standards	Maximum parking required
Apartments 1-bed	61 No.	1.0 per unit	61
Apartments 2-bed	59 No.	1.25 per unit	74
Apartments 3-bed	10 No.	1.50 per unit	15
TOTAL			150
		Bike parking standards	Parking required
Apartments	130 No.	1 private secure bicycle space per 5 No. apartments + 1 visitor bicycle space per 10 No. apartments	26 + 13 = 39

Table 3-1: Parking required under South Dublin County Development Plan Standards

3.2 PROPOSED CAR AND CYCLE PARKING PROVISION

It is proposed to provide 78 No. car parking spaces for the residential component, equating to 0.60 No. car spaces per residential unit, reducing to 0.56 if the communal car club spaces are excluded.

This level of provision is 52% of the quantum required under the South Dublin County Development Plan maximum standards. However, this provision must also be viewed in relation to the New Apartment Guidelines, the level of compliance with which is detailed within the mobility management plan in a separate submitted report.

In terms of cycle parking provision, it is intended to provide 310 No. cycle parking spaces, nearly eight times the requirements stated within the South County Dublin Development Plan.

The National Cycle Manual requires 274 No. cycle spaces. The provision of 310 No. spaces is thus 113% of this onerous requirement.

4.0 TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT ANALYSIS FOR PROPOSED AND ADJACENT FUTURE DEVELOPMENT

4.1 INTRODUCTION

The traffic impact of the proposed development is derived by assessing the trips generated by both the proposal and planned development on lands west of the subject site. It takes the existing, day of opening and design year flows on the network, gauging the extent to which the superimposed flows from the proposed and adjacent developments will affect the efficiency of future network flows.

4.2 TRIPS GENERATED BY CANDIDATE SITE

The subject site consists of the 130 No. apartment units.

The same trip rates as applied within the 2019 TTA for the Belgard Road / Airton Road SHD will be used here (ABP-305763-19).

The following weekday morning and evening peak trip rates for apartments in general urban areas (as stated above, these rates are identical to the values utilised within the Strategic Housing Development at Belgard Road / Airton Road):

		Weekday AM		Weekday PM	
		IN	OUT	IN	OUT
Apartments	Trips/Unit	0.04	0.20	0.17	0.06

Table 4-1: Peak hour trip rates for apartments within development site

The above TRICS trip rates give rise to the following weekday morning and evening peak trip rates for apartments:

		Weekday AM		Weekday PM	
	No. of units	IN	OUT	IN	OUT
Apartments	130	5	26	22	8

Table 4-2: Peak hour flows generated by proposed apartments within development site

4.3 DISTRIBUTION OF GENERATED FLOWS FROM PROPOSED DEVELOPMENTS

The distribution of generated flows from both the subject site and the adjacent lands will be based on the pattern of existing traffic movements in the vicinity, as observed in the 2018 traffic surveys, and are the same assumptions as contained within thee 2019 TTA.

MORNING PEAK
From the traffic survey results, it is observed that inbound flow is predominantly from Monastery Road east. For outbound flow, the dominant flow is in the Monstery Road East direction.

Assumptions
Outbound - 50% to Monastery Road East and 25% to the other 2 No. exits
Inbound - 50% from Monastery Road East and 25% from the other 2 No. exits

EVENING PEAK
From the traffic survey results, it is again observed that inbound flow is predominantly from Monastery Road east For outbound flow, the dominant flow is in the Monstery Road East direction.

Assumptions
Outbound - 50% to Monastery Road East and 25% to the other 2 No. exits
Inbound - 50% from Monastery Road East and 25% from the other 2 No. exits

4.4 TRIP ASSIGNMENT

The 2014 Traffic and Transport Assessment Guidelines published by the NRA requires that the relevant junctions be analysed for the existing situation, the year of opening (2021) with the proposed and adjacent developments in place, the design year 1 (year of opening plus 5) with the proposed and adjacent developments in place, and the design year 2 (year of opening plus 15) with the proposed and adjacent developments in place.

This report will assume that the 2019 pre-Covid survey results are equivalent to present day volumes (2021).

An annual growth rate of 1.62% has been assumed for the period 2021 to 2030, decreasing to 0.51% for 2031 to 2038, based on the low growth estimate for the Dublin Metropolitan Region, containing SDCC, published by TII in 2019 (PE-PAG-02017-2).

The 2024 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 4.9% ($(1.0162)^3$ - 1 = 0.049). The 2024 Do-Something ('with development') scenario is derived by adding the development flows detailed within Diagrams 3 and 4 to these factored network flows.

The 2029 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 13.7% ($(1.0162)^8$ - 1 = 0.137). The 2028 Do-Something ('with development') scenario is derived by adding the development flows detailed within Diagrams 3 and 4 to these factored network flows.

The 2039 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 21.3% ($(1.0162^9 \times (1.005)^9) - 1 = 0.209$). The 2039 Do-Something ('with development') scenario is derived by adding the development flows detailed within Diagrams 3 and 4 to these factored network flows.

Table 3-8 below details the network and development (proposed plus adjacent) incident on the Monastery Road / Woodford Hill Roundabout on the projected day of opening in 2024, within 2028, 5 years after opening and within 2039, 15 years after opening:

MONASTERY ROAD / WOODFORD HILL ROUNDABOUT	Network Flows		Development flows		Total flows		Development flows as % of total flows	
	AM	PM	AM	PM	AM	PM	AM	PM
Day of opening (2024)	1738	1820	31	30	1769	1850	1.8	1.6
Design Year 1 (2029)	1884	1973	31	30	1915	2003	1.6	1.5
Design Year 2 (2039)	2003	2098	31	30	2034	2128	1.5	1.4

Table 4-3: Network and development flows at Monastery Road / Woodford Hill Roundabout on day of opening (2024), Design Year 1 (2029) and Design Year 2 (2039)

The 2014 Traffic and Transport Assessment Guidelines requires the impact of the additional traffic volumes on the critical nearby junctions to be assessed in detail if:

- Development flows exceed 10% of existing turning movements at the two relevant junctions;
- Development flows exceed 5% of turning movements if the location has the potential to become congested.

It is noted that the generated flows from the subject site are below the 5% threshold at the Monastery Road / Woodford Hill Roundabout, with values reducing to less than 2% during both peak hours.

In traffic impact terms, therefore, the impact of the proposed development will be very low.

Notwithstanding that generated flows are below the 5% threshold, it will be fully analysed in detail to provide a robust assessment of the proposed development.

4.5 ADJACENT PLANNED DEVELOPMENT

To add further robustness to the analysis, the flows generated by the 2010 commercial / residential development (SD10A/0064) will be taken into consideration (final permission was granted by An Bord Pleanala on 9th November 2010).

The development comprised the following:

- 340 No. residential units
- 25,715 m^2 of new commercial space

The 2010 Traffic and Transport Assessment details the following traffic flows generated by the development:

	Weekday AM		Weekday PM	
	IN	OUT	IN	OUT
Residential	24	78	53	39
Commercial	232	17	19	203
Total development vehicle flows	256	95	72	242

Table 4-4: Peak hour flows generated by proposed apartments within development site

The original TTA assumed that 100% of the commercial flows entered and exiting via the Monastery Road / Woodford Hill Roundabout, along with 80% of the residential flows. The balancing 20% of residential flows will access the local road network via a new signalised junction at Monastery Gate.

The original Grontmij report assumed full development flows by 2020.

This report will assume that all the flows detailed within Table 4-4 will enter and exit via the Monastery Road / Woodford Hill Roundabout, with 50% of flows assumed incident on the roundabout by 2029 and 100% incident by 2039.

The same distributions as assumed for the development flows within this report are assumed for the 2010 Planned Development mix.

The trip distributions within the AM and PM peak hours for the 50% Planned Future Development are detailed within Diagrams 5 and 6 respectively.

The trip distributions within the AM and PM peak hours for the 100% Planned Future Development are detailed within Diagrams 7 and 8 respectively.

	NETWORK TRAFFIC (2039)		GENERATED TRAFFIC FROM SUBJECT SITE (2039)		GENERATED TRAFFIC FROM SUBJECT SITE PLUS 2010 PERMITTED DEVELOPMENT (2039)	
	AM	PM	AM	PM	AM	PM
Monastery Road / Woodford Hill Roundabout	2003	2098	31 (1.5%)	30 (1.4%)	31+351 (19%)	30+314 (16%)

Table 4-5: Additional traffic impact of flows from 2010 Planned Development assuming fully in place by 2039

Table 4-5 indicates the significant impact on the local road network if the 2010 permitted development were fully developed in addition to the proposed residential development.

This assumption for 2039 is a very robust assumption, as the 2010 planned development contains an office component which is significantly more intensice in terms of its traffic impact than the proposed SHD.

It must be re-stated that the traffic impact of the proposd 130-unit development will be minimal in transport planning terms.

5.0 TRAFFIC IMPACT ASSESSMENT OF MONASTERY ROAD / WOODFORD HILL ROUNDABOUT JUNCTION

5.1 INTRODUCTION

The traffic analysis will analyse the performance of the Monastery Road / Woodford Hill Roundabout for the following 9 No. scenarios:

- Existing flows (2021 AM and PM peak) (2020 AM and PM peak Do-Nothing)– Scenario No. 1
- Year-of Opening (2024) flows with no development in place (2024 AM and PM peak Do-Nothing) – Scenario No. 2
- Year-of Opening (2024) flows with proposed development in place (2023 AM and PM peak Do-Something) – Scenario No. 3
- Year-of Opening Plus 5 (2029) flows with no development in place (2029 AM and PM peak Do-Nothing) – Scenario No. 4
- Year-of Opening plus 5 (2029) flows with proposed development in place (2029 AM and PM peak Do-Something) – Scenario No. 5
- Year-of Opening plus 5 (2029) flows with proposed and 50% future planned development in place (2029 AM and PM peak Do-Something) – Scenario No. 6
- Year-of Opening plus 15 (2039) flows with no development in place (2039 AM and PM peak Do-Nothing) – Scenario No. 7
- Year-of Opening (2039) flows with proposed development in place (2039 AM and PM peak Do-Something) – Scenario No. 8
- Year-of Opening (2039) flows with proposed and 100% future planned development in place (2039 AM and PM peak Do-Something) – Scenario No. 9

The ARCADY programme will be used to analysis the Monastery Road / Woodford Hill Roundabout for all scenarios.

5.2 ARCADY ANALYSIS OF MONASTERY ROAD / WOODFORD HILL ROUNDABOUT

Analysis of AM and PM peak hour flows for 9 No. scenarios

Full details of the analysis of the Monastery Road / Woodford Hill Roundabout junction are contained within Appendix 4.

Table 5-1 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 9 No. scenarios for the Monastery Road / Woodford Hill Roundabout junction:

Scenario No.1	2024 AM PEAK FLOWS (Existing Flows)				2021 PM PEAK FLOWS (Existing Flows)			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	End queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	End queue (PCU)
Woodford Hill	176	151.08	1.16	41	174	163.70	1.06	84
Monastery Road East	149	203.49	0.73	2.6	214	209.70	1.02	20
Development Access	18	92.92	0.19	0.2	14	79.71	0.18	0.2
Monastery Road West	123	119.20	1.03	15.3	78	122.84	0.63	1.7
Scenario No.2	**2024 AM PEAK FLOWS (Do-Nothing)**				**2024 PM PEAK FLOWS (Do-Nothing)**			
Woodford Hill	185	132.48	1.40	101	183	143.88	1.27	61
Monastery Road East	156	200.88	0.78	3.3	224	210.96	1.06	38
Development Access	19	91.64	0.21	0.3	14	77.73	0.18	0.2
Monastery Road West	128	107.72	1.19	44	82	112.18	0.73	2.5
Scenario No.3	**2024 AM PEAK FLOWS (with development)**				**2024 PM PEAK FLOWS (with development)**			
Woodford Hill	185	131.42	1.41	103	185	142.90	1.29	59
Monastery Road East	157	200.68	0.78	3.4	227	209.85	1.08	45
Development Access	26	91.70	0.28	0.4	17	78.15	0.22	0.3
Monastery Road West	128	106.18	1.21	47	84	111.76	0.75	2.7
Scenario No.4	**2029 AM PEAK FLOWS (Do-Nothing)**				**2029 PM PEAK FLOWS (Do-Nothing)**			
Woodford Hill	201	134.21	1.50	145	197	141.91	1.39	99
Monastery Road East	170	197.83	0.86	5.2	242	211.59	1.14	89
Development Access	21	88.38	0.24	0.3	15	74.65	0.20	0.2
Monastery Road West	139	104.86	1.33	82	89	112.10	0.79	3.3
Scenario No.5	**2029 AM PEAK FLOWS (with development)**				**2029 PM PEAK FLOWS (with development)**			
Woodford Hill	201	131.24	1.53	150	199	140.92	1.41	109
Monastery Road East	171	197.75	0.86	5.4	245	210.54	1.16	103
Development Access	28	88.44	0.32	0.5	18	75.41	0.24	0.3
Monastery Road West	139	103.31	1.35	90	91	112.01	0.81	3.7
Scenario No.6	**2029 AM PEAK FLOWS (with development +50% future planned)**				**2029 PM PEAK FLOWS (with development + 50% future planned)**			
Woodford Hill	209	129.26	1.62	189	201	135.36	1.48	138
Monastery Road East	187	195.06	0.96	11.6	250	209.99	1.19	124
Development Access	40	89.36	0.45	0.8	47	76.46	0.61	1.5
Monastery Road West	147	101.03	1.46	129	93	105.91	0.88	5.3
Scenario No.7	**2039 AM PEAK FLOWS (Do-Nothing)**				**2038 PM PEAK FLOWS (Do-Nothing)**			
Woodford Hill	212	132.41	1.60	185	209	140.89	1.48	140
Monastery Road East	179	197.66	0.91	7.3	258	212.04	1.22	140
Development Access	22	86.14	0.26	0.3	16	73.24	0.22	0.3
Monastery Road West	148	103.15	1.43	135	94	112.39	0.84	4.2
Scenario No.8	**2039 AM PEAK FLOWS (with development)**				**2038 PM PEAK FLOWS (with development)**			
Woodford Hill	212	131.09	1.62	189	211	139.91	1.51	151
Monastery Road East	180	197.76	0.91	7.6	261	211.02	1.24	155
Development Access	29	86.20	0.34	0.5	19	74.20	0.26	0.3
Monastery Road West	148	101.32	1.46	128	96	112.38	0.85	4.7
Scenario No.9	**2039 AM PEAK FLOWS (with development + 100% future planned)**				**2038 PM PEAK FLOWS (with development + 100% future planned)**			
Woodford Hill	228	126.94	1.80	268	215	129.42	1.66	207
Monastery Road East	212	193.11	1.10	53	270	209.95	1.29	198
Development Access	49	81.75	0.60	1.4	79	76.83	1.03	15.3
Monastery Road West	164	99.32	1.65	204	100	98.33	1.02	14.6

Table 5-1: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

The above analysis indicates that, at present, the Monastery Road / Woodford Hill Roundabout intersection operates over capacity during both peak hours.

During the morning peak hour, the Woodford Hill and Monastery Road West approaches, carrying citybound flows towards the M50, are both over capacity with significant queuing on both approaches.

During the evening peak, the Woodford Hill and Monastery Road West approaches are both over capacity, with significant queuing on both approaches.

The convergence of the modaelled existing situation with the observed 2019 surveyed flows are demonstrated in Table 5-2 which compares the observed queuing at the congested approaches versus the computed queue lengths, over both peak hours:

	AM PEAK HOUR		PM PEAK HOUR	
	Observed queue	Computed queue	Observed queue	Computed queue
Woodford Hill	43	41	82	84
Monastery Road East	-	-	13	20
Development Access	-	-	-	-
Monastery Road West	22	15	-	-

Table 5-2: Accuracy of calibration for computed versus observed queues at congested approaches (existing situation

By 2024, with network flow increases of 4.9% allowed for and no development in place, the intersection will be over capacity during both peaks, with maximum degree of saturation at 140% and queuing increasing to a maximum of 100 vehicles on Woodford Hill. With the proposed development in place, the maximum degree of saturation increases very marginally to 141%, with a minor increase on the the already significant queuing.

By 2029, with network flow increases of 13.7% allowed for and no development in place, the intersection will be further over capacity during both peaks, with maximum degree of saturation at 150% and queuing increasing to a maximum of 145 vehicles on Woodford Hill. With the proposed development in place, the maximum degree of saturation increases very marginally to 153%, with a minor increase on the the already significant queuing. With 50% of future development on-site allowed for (based on the permitted 2010 proposal), there is a significant increase in the maximum degree of saturation to 162% (on the Woodford Hill approach), with a commensurate increase in maximum queuing on this approach to 189 vehicles.

By 2039, with network flow increases of 21.3% allowed for and no development in place, the intersection will be further over capacity during both peaks, with maximum degree of saturation at 160% and queuing increasing to a maximum of 185 vehicles on Woodford Hill. With the proposed development in place, the maximum degree of saturation increases very marginally to 162%, with a minor increase on the the already significant queuing. With 100% of future development on-site allowed for (based on the permitted 2010 proposal), there is a significant increase in the maximum degree of saturation to 180% (on the Woodford Hill approach), with a commensurate increase in maximum queuing on this approach to 268 vehicles.

6.0 SUMMARY COMMENTS ON TRAFFIC IMPACT PROPOSED RESIDENTIAL DEVELOPMENT MONASTERY ROAD / WOODFORD HILL ROUNDABOUT

6.1 INTRODUCTION

This document contains a Traffic and Transport Assessment (TTA) for a proposed development located on Monastery Road, adjacent to the Monastery Road / Woodford Hill Roundabout. The development consists of 130 No. apartments. It is proposed to provide 78 No. car parking spaces and 310 No. cycle parking spaces.

The function of this TTA is to quantify the existing transport environment in terms of the vehicular flows incident on it and to identify and assess the level of transport impact generated by the vehicular trips generated by both the proposed residential development and future planned developments as required by SDCC.

This TTA has carried out a range of assessments for the existing situation, within the year of opening in 2024, and within 2029 and 2039 design years (year of opening plus 5 and 15).

6.2 MITIGATION

An important factor which significantly mitigates the marginal impact of flows generated by the proposed development is the volume of flows generated by the proposed 130 No. apartments relative to the volumes that would be generated if the existing permited use on site - 6061 m^2 GFA of office space - were fully operational.

To estimate the flows from this volume of office development, let us take the flow rates from the 2010 SIAC development, which predicted a 2-way flow of 247 No. vehicles during the morning peak hour and 222 No. vehicles during the evening peak hour for an office development of 25,715 m2 GFA.

This is the equivalent of a 2-way flow of 58 No. vehicles during the morning peak hour, decreasing to a 2-way flow of 52 No. vhicles during the evening peak hour.

The proposed 130 No. apartment is predicted to result in a 2-way flow of 31 No. vehicles during the morning peak hour and 30 No. vehicle s during the evening peak hour, just over half the volumes that wuld result from the existing permitted development were it fully operational.

Thus, in reality, the proposed development will result in an effective decrease in incident traffic flows relative to the permitted development use if it were fully operational.

In the context of the overall volume of flows generated by all proposed development in the area, the importance of implementing a coherent parking and mobility policy for the area becomes of significant importance. Such policies will minimise the impact of private car traffic and will also be in keeping with the sustainable transport policy presently advocated for the Greater Dublin Area – please also refer to MRCL mobility management document which accompanies this SHD application.

A further significant instrument in mitigating the traffic impacts of the proposed development is centred on the Mobility Management (MMP) that is contained within this submission and compiled with the aim of guiding the delivery and management of coordinated initiatives by the applicant. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.

Also, the proposed development will result in the quantum of car parking spaces reducing by nearly 50% from the office use to residential use, with 78 No. spaces proposed in liew of the existing quantum of approximately 162 No. spaces. Reducing the quantum of car parking will inevitably lead to a reduction in private car trips.

These sustainable practices will be aided by the excellent public transport connectivity and the significant emphasis on the cycling mode of transport at the proposed development, with 340 no. parking spaces proposed. Cycling will be further boosted when the GDA Cycle Plan proposals become operational.

6.3 CONCLUSIONS FROM ANALYSIS

Based on the data and evaluations within this TTA, the following conclusions can be made:

1. While the adjacent roundabout which will provde access to and from the development is at present congested, the proposed development will add very marginally to these congestion levels;
2. Further increases in congestion are premised on the assumption of significant network increases, which take limited account of the ongoing reduction in the use of the private car for the journey to work in the city centre and the inevitable redistribution of traffic to other nearby junctions as the roundabout in question becomes more congested;
3. The site is well served by public transport, within 10 minute's walk of the Red ow LUAS stop, and with the 13, 68 and 69 bus services nearby along Monastery Road; and
4. Future proposals as stated within the GDA Cycle Network Plan include the secondary cycle route 7E planned along Monastery Road providing connectivity into the city centre.

In overall conclusion, while the Monastery Road / Woodford Hill junction is congested, in reality, the proposed development represents imperceptible increases on existing congestion. Furthermore, the proposed development through the mobility management process will actively drive the move away from private car usage for the journey to work. Cycle parking availability and the existence of high quality public transport linkages will greatly aid this process of modal shift.

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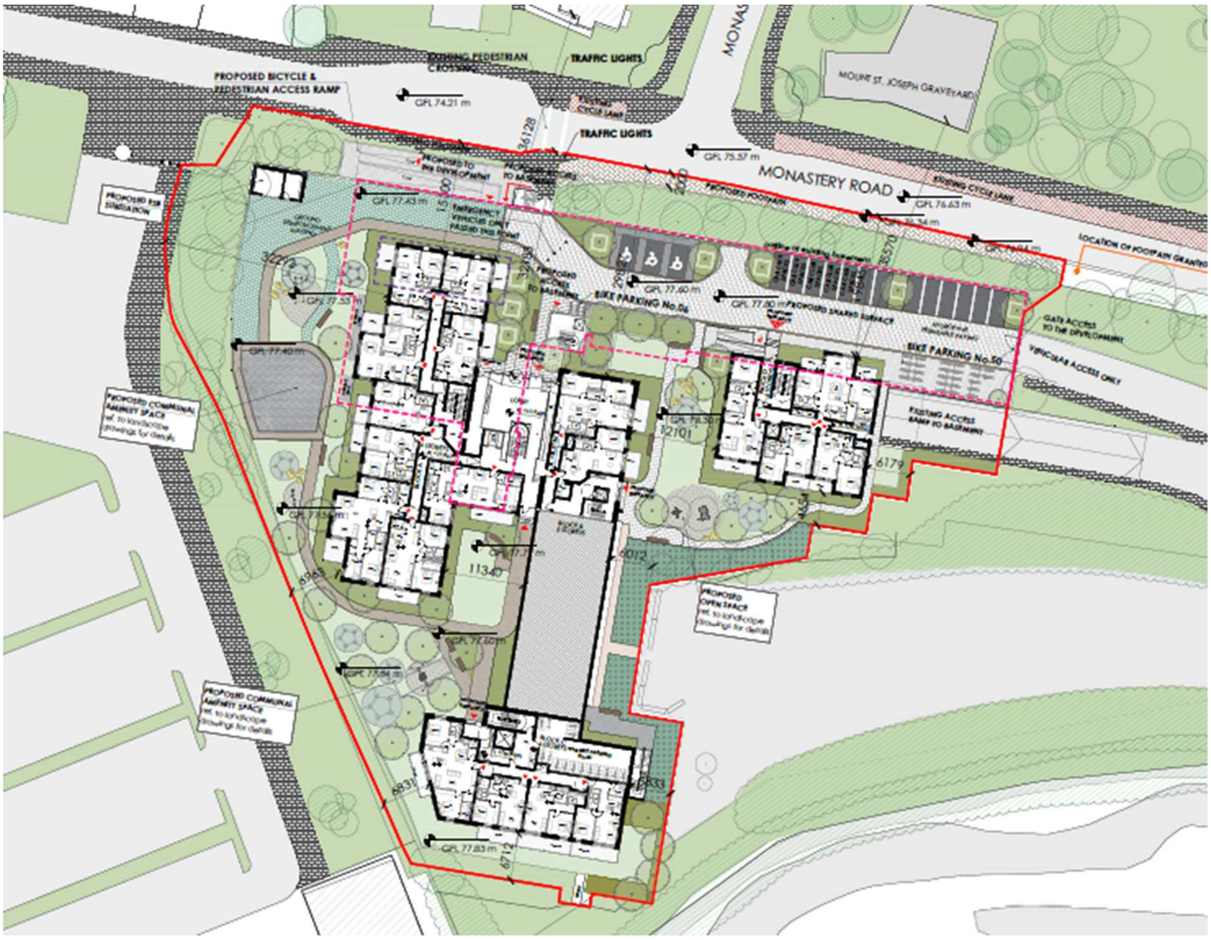
APPENDIX 1 GROUND FLOOR PLAN


MONASTERY ROAD
TRAFFIC LIGHTS
TRAFFIC LIGHTS
EXISTING PEDESTRIAN CROSSING
PROPOSED BICYCLE & PEDESTRIAN ACCESS RAMP
MOUNT ST. JOSEPH GRAVEYARD
GPL 74.21 m
GPL 75.57 m
GPL 76.63 m
GPL 77.43 m
GPL 77.40 m
BIKE PARKING No.50
PROPOSED COMMUNAL AMENITY SPACE
PROPOSED OPEN SPACE
GPL 77.83 m
11340
12101
6179
6012

MRCL TRANSPORT PLANNING PROFESSIONAL

APPENDIX 2 TRAFFIC SURVEY RESULTS

IDASO

Survey Name:	181 19254 Clondalkin
Site:	Site 1
Location:	Woodford Hill/L1019 Monastery Road/Unnamed Road/Monastery Road
Date:	Wed 04-Sep-2019

	A => A										A => B									
TIME	**P/C**	**M/C**	**CAR**	**TAXI**	**LGV**	**OGV1**	**OGV2**	**PSV**	**TOT**	**PCU**	**P/C**	**M/C**	**CAR**	**TAXI**	**LGV**	**OGV1**	**OGV2**	**PSV**	**TOT**	**PCU**
07:00	0	0	0	0	0	0	0	0	0	0	0	1	63	1	15	5	0	3	88	92.9
07:15	0	0	0	0	0	0	0	0	0	0	0	1	52	1	24	5	0	1	84	86.9
07:30	0	0	1	0	0	0	0	0	1	1	0	1	74	2	16	1	2	1	97	100.5
07:45	0	0	0	0	0	0	0	0	0	0	0	1	71	3	18	3	0	2	98	100.9
H/TOT	0	0	1	0	0	0	0	0	1	1	0	4	260	7	73	14	2	7	367	381.2
08:00	0	0	0	0	0	0	0	0	0	0	0	0	82	3	23	1	0	1	110	111.5
08:15	0	0	0	0	0	0	0	0	0	0	0	0	75	3	17	7	0	2	104	109.5
08:30	0	0	0	0	0	0	0	0	0	0	0	1	68	5	21	0	0	1	96	96.4
08:45	0	0	0	0	0	0	0	0	0	0	0	0	45	1	17	4	2	1	70	75.6
H/TOT	0	0	0	0	0	0	0	0	0	0	0	1	270	12	78	12	2	5	380	393
09:00	0	0	0	0	0	0	0	0	0	0	0	0	58	1	13	5	0	2	79	83.5
09:15	0	0	0	0	0	0	0	0	0	0	0	0	65	2	13	5	0	1	86	89.5
09:30	0	0	0	0	0	0	0	0	0	0	0	1	41	2	20	4	0	0	68	69.4
09:45	0	0	0	0	0	0	0	0	0	0	0	0	54	0	16	5	2	2	79	86.1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	1	218	5	62	19	2	5	312	328.5
10:00	0	0	0	0	0	0	0	0	0	0	0	0	41	2	24	4	0	1	72	75
10:15	0	0	0	0	0	0	0	0	0	0	0	1	48	0	21	6	0	0	76	78.4
10:30	0	0	0	0	0	0	0	0	0	0	0	0	35	2	18	3	1	1	60	63.8
10:45	0	0	0	0	0	0	0	0	0	0	0	0	38	1	20	3	1	1	64	67.8
H/TOT	0	0	0	0	0	0	0	0	0	0	0	1	162	5	83	16	2	3	272	285
11:00	0	0	1	0	0	0	0	0	1	1	0	0	48	1	18	3	0	2	72	75.5
11:15	0	0	0	0	0	0	0	0	0	0	0	0	38	1	19	5	0	1	64	67.5
11:30	0	0	0	0	0	0	0	0	0	0	0	0	43	0	20	5	0	1	69	72.5
11:45	0	0	0	0	0	0	0	0	0	0	0	0	43	4	23	5	0	1	76	79.5
H/TOT	0	0	1	0	0	0	0	0	1	1	0	0	172	6	80	18	0	5	281	295
12:00	0	0	1	0	0	0	0	0	1	1	0	0	55	2	22	4	2	2	87	93.6
12:15	0	0	0	0	0	0	0	0	0	0	0	1	51	1	26	2	0	1	82	83.4
12:30	0	0	0	0	0	0	0	0	0	0	0	0	52	3	26	6	0	1	88	92
12:45	0	0	0	0	0	0	0	0	0	0	0	0	53	0	25	6	0	1	85	89
H/TOT	0	0	1	0	0	0	0	0	1	1	0	1	211	6	99	18	2	5	342	358
13:00	0	0	0	0	1	0	0	0	1	1	0	1	66	4	18	11	0	1	101	106.9
13:15	0	0	0	0	0	0	0	0	0	0	0	0	64	1	16	5	0	2	88	92.5
13:30	0	0	0	0	0	0	0	0	0	0	0	0	55	4	22	8	0	2	91	97
13:45	0	0	0	0	0	0	0	0	0	0	0	1	50	3	23	2	0	3	82	85.4
H/TOT	0	0	0	0	1	0	0	0	1	1	0	2	235	12	79	26	0	8	362	381.8
14:00	0	0	0	0	0	0	0	0	0	0	0	0	60	2	13	3	0	2	80	83.5
14:15	0	0	0	0	0	0	0	0	0	0	0	0	58	5	22	3	0	2	90	93.5
14:30	0	0	1	0	0	0	0	0	1	1	0	1	69	1	8	3	0	1	83	84.9
14:45	0	0	0	0	0	0	0	0	0	0	0	0	64	4	19	3	1	0	91	93.8
H/TOT	0	0	1	0	0	0	0	0	1	1	0	1	251	12	62	12	1	5	344	355.7
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15:15	0	0	0	0	0	0	0	0	0	0	0	1	60	3	21	0	0	1	86	86.4
15:30	0	0	0	0	0	0	0	0	0	0	0	0	62	2	20	8	1	2	95	102.3
15:45	0	0	0	0	0	0	0	0	0	0	0	0	72	1	19	3	0	1	96	98.5
H/TOT	0	0	0	0	0	0	0	0	0	0	0	1	267	7	82	15	1	6	379	393.2
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16:15	0	0	0	0	0	0	0	0	0	0	1	1	106	2	19	5	0	1	135	137.1
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16:45	0	0	1	0	0	0	0	0	1	1	0	0	120	1	14	3	0	0	138	139.5
H/TOT	0	0	1	0	0	0	0	0	1	1	2	1	459	7	86	10	0	4	569	575.8
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17:45	0	0	1	0	0	0	0	0	1	1	0	0	110	2	8	4	0	2	126	130
H/TOT	0	0	1	0	0	0	0	0	1	1	1	2	428	6	60	10	1	6	514	524.3
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18:15	0	0	0	0	0	0	0	0	0	0	0	1	104	3	18	4	1	2	133	137.7
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18:45	0	0	1	0	0	0	0	0	1	1	0	0	54	1	4	2	0	1	62	64
H/TOT	0	0	2	0	0	0	0	0	2	2	0	2	329	9	42	8	1	7	398	409.1
12 TOT	0	0	8	0	1	0	0	0	9	9	3	17	3262	94	886	178	14	66	4520	4680.6

	A => C										A => D									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
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07:15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	5
07:30	0	0	0	0	0	0	0	0	0	0	0	0	13	0	1	0	0	0	14	14
07:45	0	0	3	0	0	0	0	0	3	3	1	0	15	1	3	0	0	0	20	19.2
H/TOT	0	0	3	0	0	0	0	0	3	3	1	0	36	1	6	2	0	0	46	46.2
08:00	0	0	1	0	0	0	0	0	1	1	0	0	33	1	1	0	0	0	35	35
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08:45	0	0	0	0	0	0	1	0	1	2.3	0	0	20	1	0	1	0	1	23	24.5
H/TOT	0	0	2	0	0	0	1	0	3	4.3	0	0	170	9	3	1	0	2	185	187.5
09:00	0	0	1	0	0	0	0	0	1	1	0	0	7	4	2	1	0	0	14	14.5
09:15	0	0	0	0	0	0	0	0	0	0	0	1	15	1	2	0	0	0	19	18.4
09:30	0	0	0	0	0	0	0	0	0	0	0	0	11	2	0	0	0	1	14	15
09:45	0	0	0	0	0	0	0	0	0	0	0	0	7	0	4	0	0	0	11	11
H/TOT	0	0	1	0	0	0	0	0	1	1	0	1	40	7	8	1	0	1	58	58.9
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10:45	0	0	1	0	0	0	0	0	1	1	0	0	18	0	0	0	0	0	18	18
H/TOT	0	0	1	0	2	0	0	0	3	3	0	0	50	0	3	3	0	0	56	57.5
11:00	0	0	0	0	1	0	0	0	1	1	0	0	8	0	2	0	0	0	10	10
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11:45	0	0	0	0	0	0	0	0	0	0	0	0	14	2	2	0	0	0	18	18
H/TOT	0	0	0	0	2	0	1	0	3	4.3	0	1	50	2	6	0	0	0	59	58.4
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12:45	0	0	0	0	0	0	0	0	0	0	0	0	8	1	2	2	0	0	13	14
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	43	1	3	3	0	0	50	51.5
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13:45	0	0	3	0	0	0	0	0	3	3	0	0	22	1	2	1	0	0	26	26.5
H/TOT	0	0	9	0	1	1	0	0	11	11.5	0	0	69	5	5	1	0	0	80	80.5
14:00	0	0	0	0	0	0	0	0	0	0	0	0	29	0	1	0	0	0	30	30
14:15	0	0	0	0	1	1	0	0	2	2.5	0	0	28	2	1	0	0	0	31	31
14:30	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	1	0	1	19	20.5
14:45	0	0	1	0	0	0	0	0	1	1	0	0	22	0	2	0	0	0	24	24
H/TOT	0	0	1	0	1	1	0	0	3	3.5	0	0	96	2	4	1	0	1	104	105.5
15:00	0	0	1	0	0	0	0	0	1	1	0	0	8	0	1	0	0	0	9	9
15:15	0	0	0	0	0	0	0	0	0	0	0	0	27	2	2	0	0	0	31	31
15:30	0	0	0	0	0	0	0	0	0	0	1	0	18	0	4	0	0	0	23	22.2
15:45	0	0	0	0	0	0	0	0	0	0	1	0	18	1	2	0	0	0	22	21.2
H/TOT	0	0	1	0	0	0	0	0	1	1	2	0	71	3	9	0	0	0	85	83.4
16:00	0	0	0	0	0	0	0	0	0	0	0	0	19	0	1	0	0	0	20	20
16:15	0	0	0	0	0	0	0	0	0	0	1	0	18	0	2	0	0	0	21	20.2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	13	0	2	0	0	0	15	15
16:45	0	0	2	0	0	0	0	0	2	2	0	0	7	0	3	0	0	0	10	10
H/TOT	0	0	2	0	0	0	0	0	2	2	1	0	57	0	8	0	0	0	66	65.2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	8	0	1	0	0	0	9	9
17:15	0	0	1	0	1	0	0	0	2	2	0	0	18	1	2	0	0	0	21	21
17:30	0	0	1	0	0	0	0	0	1	1	1	0	14	0	1	0	0	0	16	15.2
17:45	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	17	17
H/TOT	0	0	2	0	1	0	0	0	3	3	1	0	57	1	4	0	0	0	63	62.2
18:00	0	0	0	0	0	0	0	0	0	0	0	2	22	1	0	0	0	0	25	23.8
18:15	0	0	1	0	0	0	0	0	1	1	0	0	13	0	0	0	0	0	13	13
18:30	0	0	0	0	0	0	0	0	0	0	1	0	18	1	1	1	0	0	22	21.7
18:45	0	0	1	0	0	0	0	0	1	1	0	0	19	1	1	0	0	0	21	21
H/TOT	0	0	2	0	0	0	0	0	2	2	1	2	72	3	2	1	0	0	81	79.5
12 TOT	0	0	24	0	7	2	2	0	35	38.6	6	4	811	34	61	13	0	4	933	936.3

	B => A										B => B									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	36	1	10	1	0	1	49	50.5	0	0	0	0	0	0	0	0	0	0
07:15	0	0	29	1	9	2	0	1	42	44	0	0	0	0	0	0	0	0	0	0
07:30	0	0	43	1	5	3	0	1	53	55.5	0	0	0	0	0	0	0	0	0	0
07:45	0	2	61	2	11	3	0	2	81	83.3	0	0	0	0	0	0	0	0	0	0
H/TOT	0	2	169	5	35	9	0	5	225	233.3	0	0	0	0	0	0	0	0	0	0
08:00	0	0	56	1	6	0	0	1	64	65	0	0	0	0	0	0	0	0	0	0
08:15	0	0	71	2	5	2	0	2	82	85	0	0	0	0	0	0	0	0	0	0
08:30	1	1	68	1	8	1	0	0	80	79.1	0	0	1	0	0	0	0	0	1	1
08:45	0	0	77	1	11	1	0	3	93	96.5	0	0	0	0	1	0	0	0	1	1
H/TOT	1	1	272	5	30	4	0	6	319	325.6	0	0	1	0	1	0	0	0	2	2
09:00	0	0	63	5	7	1	0	1	77	78.5	0	0	0	0	0	0	0	0	0	0
09:15	0	0	55	5	7	0	0	0	67	67	0	0	0	0	0	0	0	0	0	0
09:30	0	0	52	6	12	0	0	3	73	76	0	0	0	0	0	0	0	0	0	0
09:45	0	0	38	0	7	1	0	1	47	48.5	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	208	16	33	2	0	5	264	270	0	0	0	0	0	0	0	0	0	0
10:00	0	0	26	1	7	3	0	3	40	44.5	0	0	0	0	0	0	0	0	0	0
10:15	0	0	38	3	11	3	0	1	56	58.5	0	0	1	0	0	0	0	0	1	1
10:30	0	0	31	3	4	1	0	1	40	41.5	0	0	0	0	0	0	0	0	0	0
10:45	0	0	34	1	13	2	0	3	53	57	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	129	8	35	9	0	8	189	201.5	0	0	1	0	0	0	0	0	1	1
11:00	0	0	43	0	8	2	0	1	54	56	0	0	1	0	0	0	0	0	1	1
11:15	0	1	24	3	10	3	0	1	42	43.9	0	0	0	0	0	0	0	0	0	0
11:30	1	0	46	2	16	3	0	2	70	72.7	0	0	0	0	0	0	0	0	0	0
11:45	1	0	35	1	8	4	0	1	50	52.2	0	0	0	0	0	0	0	0	0	0
H/TOT	2	1	148	6	42	12	0	5	216	224.8	0	0	1	0	0	0	0	0	1	1
12:00	0	0	37	3	8	1	0	0	49	49.5	0	0	0	0	0	0	0	0	0	0
12:15	0	0	26	2	11	3	0	1	43	45.5	0	0	1	0	0	0	0	0	1	1
12:30	1	0	44	2	8	5	1	1	62	66	0	0	1	0	0	0	0	0	1	1
12:45	0	0	33	0	5	4	0	1	43	46	0	0	0	0	0	0	0	0	0	0
H/TOT	1	0	140	7	32	13	1	3	197	207	0	0	2	0	0	0	0	0	2	2
13:00	1	2	36	3	7	1	0	1	51	50.5	0	0	0	0	0	0	0	0	0	0
13:15	0	0	41	3	8	2	0	0	54	55	0	0	0	0	0	0	0	0	0	0
13:30	1	0	40	1	10	0	0	2	54	55.2	0	0	0	0	1	0	0	0	1	1
13:45	0	1	43	1	6	1	0	1	53	53.9	0	0	2	0	0	0	0	0	2	2
H/TOT	2	3	160	8	31	4	0	4	212	214.6	0	0	2	0	1	0	0	0	3	3
14:00	0	0	43	0	8	1	0	1	53	54.5	0	0	0	0	0	0	0	0	0	0
14:15	1	0	43	2	4	1	0	1	52	52.7	0	0	0	0	0	0	0	0	0	0
14:30	0	0	39	4	7	2	0	1	53	55	0	0	1	0	0	0	0	0	1	1
14:45	0	1	60	0	10	3	0	1	75	76.9	0	0	0	0	0	0	0	0	0	0
H/TOT	1	1	185	6	29	7	0	4	233	239.1	0	0	1	0	0	0	0	0	1	1
15:00	0	1	49	2	17	3	0	2	74	76.9	0	0	0	0	0	0	0	0	0	0
15:15	0	0	54	2	8	9	0	0	73	77.5	0	0	1	0	0	0	0	0	1	1
15:30	1	1	44	0	10	3	0	2	61	63.1	0	0	0	0	0	0	0	0	0	0
15:45	1	0	61	4	8	2	0	1	77	78.2	0	0	0	0	0	0	0	0	0	0
H/TOT	2	2	208	8	43	17	0	5	285	295.7	0	0	1	0	0	0	0	0	1	1
16:00	0	0	59	1	9	2	1	1	73	76.3	0	0	0	0	0	0	0	0	0	0
16:15	0	1	67	2	14	0	1	0	85	85.7	0	0	0	0	0	0	0	0	0	0
16:30	0	0	82	3	11	1	0	3	100	103.5	0	0	0	0	0	0	0	0	0	0
16:45	1	0	65	0	15	1	0	0	82	81.7	0	0	0	0	0	0	0	0	0	0
H/TOT	1	1	273	6	49	4	2	4	340	347.2	0	0	0	0	0	0	0	0	0	0
17:00	0	0	58	1	13	2	2	2	78	83.6	0	0	0	0	0	0	0	0	0	0
17:15	0	1	86	1	14	1	0	1	104	104.9	0	0	0	0	0	0	0	0	0	0
17:30	1	0	60	2	10	0	0	3	76	78.2	0	0	0	0	0	0	0	0	0	0
17:45	0	0	76	2	10	1	0	1	90	91.5	0	0	0	0	0	0	0	0	0	0
H/TOT	1	1	280	6	47	4	2	7	348	358.2	0	0	0	0	0	0	0	0	0	0
18:00	0	1	79	1	6	0	1	0	88	88.7	0	0	0	0	0	0	0	0	0	0
18:15	0	1	87	0	11	2	0	1	102	103.4	0	0	0	0	0	0	0	0	0	0
18:30	0	1	67	2	5	1	0	3	79	81.9	0	0	0	0	0	0	0	0	0	0
18:45	0	1	70	2	7	1	0	2	83	84.9	0	0	0	0	0	0	0	0	0	0
H/TOT	0	4	303	5	29	4	1	6	352	358.9	0	0	0	0	0	0	0	0	0	0
12 TOT	11	16	2475	86	435	89	6	62	3180	3275.9	0	0	9	0	2	0	0	0	11	11

	B => C										B => D									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	0	0	1	0	2	0	3	5.6	0	0	17	1	5	1	0	0	24	24.5
07:15	0	0	3	0	1	0	0	0	4	4	0	0	22	1	6	0	0	0	29	29
07:30	0	0	4	0	1	1	2	0	8	11.1	1	0	20	0	7	1	1	0	30	31
07:45	0	0	3	0	0	4	8	0	15	27.4	0	0	39	2	6	1	0	1	49	50.5
H/TOT	0	0	10	0	3	5	12	0	30	48.1	1	0	98	4	24	3	1	1	132	135
08:00	0	0	4	0	0	1	3	0	8	12.4	2	0	52	0	6	0	0	0	60	58.4
08:15	0	0	3	0	0	3	0	0	6	7.5	1	0	49	1	4	0	0	1	56	56.2
08:30	0	0	7	0	0	0	1	0	8	9.3	0	0	50	1	1	0	0	0	52	52
08:45	0	0	3	0	2	0	4	0	9	14.2	0	0	31	1	5	1	0	0	38	38.5
H/TOT	0	0	17	0	2	4	8	0	31	43.4	3	0	182	3	16	1	0	1	206	205.1
09:00	0	0	2	0	2	3	1	0	8	10.8	1	0	36	3	10	1	0	0	51	50.7
09:15	0	0	4	0	0	1	6	0	11	19.3	1	0	43	2	3	2	0	2	53	55.2
09:30	0	0	1	0	1	1	1	0	4	5.8	0	0	26	2	9	0	0	0	37	37
09:45	0	0	0	0	0	0	4	0	4	9.2	0	2	36	2	6	2	0	0	48	47.8
H/TOT	0	0	7	0	3	5	12	0	27	45.1	2	2	141	9	28	5	0	2	189	190.7
10:00	0	0	0	0	0	1	0	0	1	1.5	1	0	35	0	10	2	0	1	49	50.2
10:15	0	0	1	0	0	1	0	0	2	2.5	0	0	30	1	3	0	0	0	34	34
10:30	0	0	0	0	0	3	3	0	6	11.4	0	0	34	0	5	1	0	1	41	42.5
10:45	0	0	1	0	1	1	2	0	5	8.1	0	0	43	2	6	5	0	0	56	58.5
H/TOT	0	0	2	0	1	6	5	0	14	23.5	1	0	142	3	24	8	0	2	180	185.2
11:00	0	0	0	0	0	2	6	0	8	16.8	0	0	28	3	2	4	0	0	37	39
11:15	0	0	0	0	0	0	3	0	3	6.9	0	0	28	2	2	1	0	1	34	35.5
11:30	0	0	1	0	0	1	1	0	3	4.8	0	1	52	7	4	6	0	1	71	74.4
11:45	0	0	0	0	0	1	5	0	6	13	0	1	37	1	5	1	0	0	45	44.9
H/TOT	0	0	1	0	0	4	15	0	20	41.5	0	2	145	13	13	12	0	2	187	193.8
12:00	0	0	1	0	0	0	1	0	2	3.3	1	0	45	1	4	3	0	0	54	54.7
12:15	0	0	0	0	0	2	3	0	5	9.9	0	0	52	6	3	0	0	1	62	63
12:30	0	0	2	0	0	1	4	0	7	12.7	0	0	31	2	7	1	0	1	42	43.5
12:45	0	0	0	0	0	1	1	0	2	3.8	1	1	49	3	7	1	0	0	62	61.1
H/TOT	0	0	3	0	0	4	9	0	16	29.7	2	1	177	12	21	5	0	2	220	222.3
13:00	0	0	0	0	0	2	4	0	6	12.2	0	0	49	4	4	2	0	1	60	62
13:15	0	0	1	0	1	3	0	0	5	6.5	0	0	51	3	5	2	1	0	62	64.3
13:30	0	0	1	0	0	1	2	0	4	7.1	0	0	38	1	3	0	0	1	43	44
13:45	0	0	1	0	0	2	6	0	9	17.8	0	0	53	0	8	1	0	0	62	62.5
H/TOT	0	0	3	0	1	8	12	0	24	43.6	0	0	191	8	20	5	1	2	227	232.8
14:00	0	0	0	0	1	0	1	0	2	3.3	0	1	48	0	5	0	0	1	55	55.4
14:15	0	0	1	0	0	1	1	0	3	4.8	0	0	50	2	7	1	0	0	60	60.5
14:30	0	0	0	0	0	0	6	0	6	13.8	0	0	54	0	2	2	0	1	59	61
14:45	0	0	0	0	0	0	1	0	1	2.3	0	0	58	0	6	1	0	0	65	65.5
H/TOT	0	0	1	0	1	1	9	0	12	24.2	0	1	210	2	20	4	0	2	239	242.4
15:00	0	0	0	0	1	2	0	0	3	4	0	0	51	0	8	0	0	1	60	61
15:15	0	0	0	0	0	0	1	0	1	2.3	0	0	62	6	8	0	0	0	76	76
15:30	0	0	2	0	0	0	6	0	8	15.8	2	0	59	2	11	0	0	2	76	76.4
15:45	0	0	1	0	0	2	3	0	6	10.9	1	0	69	2	9	0	0	0	81	80.2
H/TOT	0	0	3	0	1	4	10	0	18	33	3	0	241	10	36	0	0	3	293	293.6
16:00	0	0	0	0	0	0	1	0	1	2.3	0	0	56	2	9	1	0	0	68	68.5
16:15	0	0	0	0	0	0	1	0	1	2.3	1	1	65	5	13	0	0	0	85	83.6
16:30	0	0	0	0	0	0	2	0	2	4.6	3	1	80	1	5	3	0	2	95	95.5
16:45	0	0	1	0	0	0	2	0	3	5.6	0	0	70	6	8	1	0	0	85	85.5
H/TOT	0	0	1	0	0	0	6	0	7	14.8	4	2	271	14	35	5	0	2	333	333.1
17:00	0	0	0	0	0	0	0	0	0	0	1	1	97	2	11	0	0	0	112	110.6
17:15	0	0	1	0	1	0	0	0	2	2	1	0	90	0	13	1	0	1	106	106.7
17:30	0	0	1	0	0	1	0	0	2	2.5	2	0	104	2	12	0	0	0	120	118.4
17:45	0	0	3	0	1	0	0	0	4	4	1	2	99	3	14	1	0	1	121	120.5
H/TOT	0	0	5	0	2	1	0	0	8	8.5	5	3	390	7	50	2	0	2	459	456.2
18:00	0	0	3	0	1	0	1	0	5	6.3	3	0	79	1	6	0	1	0	90	88.9
18:15	0	0	2	0	0	0	0	0	2	2	2	1	91	0	13	0	0	1	108	106.8
18:30	0	0	0	0	1	0	0	0	1	1	1	2	75	2	7	1	0	1	89	88.5
18:45	0	0	0	0	0	1	0	0	1	1.5	0	3	49	0	7	0	0	0	59	57.2
H/TOT	0	0	5	0	2	1	1	0	9	10.8	6	6	294	3	33	1	1	2	346	341.4
12 TOT	0	0	58	0	16	43	99	0	216	366.2	27	17	2482	88	320	51	3	23	3011	3031.6

	C => A										C => B									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	2	0	3	6.1
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	5	6.8
07:30	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	1	2.3
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	9.2
H/TOT	0	0	2	0	0	0	0	0	2	2	0	0	0	0	3	2	8	0	13	24.4
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	9	18.3
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	7	14.5
08:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	7.9
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	6.1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	6	16	0	23	46.8
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	5.3
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	7.1
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	6	11.4
09:45	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	1	6	0	8	16.3
H/TOT	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	7	12	0	21	40.1
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4.6
10:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	4.3
10:30	0	0	0	0	0	0	1	0	1	2.3	0	0	2	0	0	3	2	0	7	11.1
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	6.1
H/TOT	0	0	0	0	0	0	1	0	1	2.3	0	0	4	0	0	4	7	0	15	26.1
11:00	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3	3	0	6	11.4
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	9	18.3
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	9.2
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1.5
H/TOT	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	7	13	0	20	40.4
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	7.9
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	6	12.2
12:30	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	1	1	0	4	5.8
12:45	0	0	1	0	2	0	0	0	3	3	0	0	0	0	0	0	5	0	5	11.5
H/TOT	0	0	2	0	2	0	0	0	4	4	0	0	2	0	1	3	13	0	19	37.4
13:00	0	0	4	0	0	0	0	0	4	4	0	0	2	0	0	1	3	0	6	10.4
13:15	0	0	2	0	0	0	0	0	2	2	0	0	3	0	1	1	2	0	7	10.1
13:30	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	3	2	0	6	10.1
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	6	10.4
H/TOT	0	0	7	0	0	0	0	0	7	7	0	0	6	0	3	6	10	0	25	41
14:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	0	6	10.4
14:15	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	1	0	5	6.8
14:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	3	4.3
14:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	8	0	12	23.9
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	5	13	0	26	45.4
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	4	6.3
15:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
15:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	3.3
15:45	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0	4	6.6
H/TOT	0	0	1	0	0	0	0	0	1	1	0	0	4	0	1	2	4	0	11	17.2
16:00	0	0	3	0	0	0	0	0	3	3	0	0	1	0	0	1	1	0	3	4.8
16:15	0	0	1	0	0	0	0	0	1	1	0	0	3	0	1	0	4	0	8	13.2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	5.3
16:45	0	0	2	0	0	0	0	0	2	2	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	6	0	0	0	0	0	6	6	0	0	8	0	1	1	6	0	16	24.3
17:00	0	0	1	0	0	0	0	0	1	1	0	0	7	0	0	0	2	0	9	11.6
17:15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	1	1	0	0	7	7.5
17:30	0	0	1	0	0	0	0	0	1	1	0	0	3	0	1	1	0	0	5	5.5
17:45	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	3	0	0	0	0	0	3	3	0	0	16	0	2	2	2	0	22	25.6
18:00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	5.3
18:15	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	4
18:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	3	4.3
18:45	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	3	1	0	5	7.8
H/TOT	0	0	1	0	0	0	0	0	1	1	0	0	9	0	1	3	3	0	16	21.4
12 TOT	0	0	22	0	4	0	1	0	27	28.3	0	0	58	0	14	48	107	0	227	390.1

	C => C										C => D									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1.5
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1.5
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
13:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
13:30	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	5
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	0	0	8	8
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
17:30	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	1.4
17:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	2	0	4	0	1	0	0	0	7	5.4
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
18:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
12 TOT	0	0	0	0	0	0	0	0	0	0	2	0	17	0	6	1	0	0	26	24.9

	D => A										D => B									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	7	0	0	0	0	0	7	7	1	0	44	2	17	1	0	0	65	64.7
07:15	0	0	4	2	0	0	0	0	6	6	0	0	81	4	12	2	0	1	100	102
07:30	0	0	12	1	0	0	0	0	13	13	1	4	84	3	10	0	0	2	104	102.8
07:45	0	0	13	1	0	0	0	0	14	14	1	2	75	1	19	1	0	1	100	99.5
H/TOT	0	0	36	4	0	0	0	0	40	40	3	6	284	10	58	4	0	4	369	369
08:00	0	0	11	1	2	1	0	0	15	15.5	1	1	90	0	13	1	0	0	106	105.1
08:15	2	0	16	1	0	0	0	0	19	17.4	1	0	82	3	12	0	0	2	100	101.2
08:30	0	0	25	0	0	0	0	0	25	25	3	0	69	2	9	1	0	0	84	82.1
08:45	0	0	27	1	2	1	0	0	31	31.5	0	1	57	1	10	2	0	0	71	71.4
H/TOT	2	0	79	3	4	2	0	0	90	89.4	5	2	298	6	44	4	0	2	361	359.8
09:00	0	0	26	1	1	0	0	0	28	28	0	2	76	4	7	1	0	0	90	89.3
09:15	0	0	13	2	1	0	0	0	16	16	0	1	63	5	19	1	1	0	90	91.2
09:30	0	0	3	0	0	1	0	0	4	4.5	1	2	53	5	12	3	0	1	77	77.5
09:45	0	0	16	0	4	1	0	0	21	21.5	0	0	46	5	6	2	0	1	60	62
H/TOT	0	0	58	3	6	2	0	0	69	70	1	5	238	19	44	7	1	2	317	320
10:00	0	0	9	0	1	1	0	0	11	11.5	0	0	35	2	11	2	2	0	52	55.6
10:15	0	0	11	1	1	0	0	0	13	13	1	0	31	1	9	2	0	0	44	44.2
10:30	0	0	12	0	0	0	0	0	12	12	0	2	39	3	10	1	0	1	56	56.3
10:45	0	0	12	0	4	0	0	0	16	16	0	2	33	0	4	2	0	0	41	40.8
H/TOT	0	0	44	1	6	1	0	0	52	52.5	1	4	138	6	34	7	2	1	193	196.9
11:00	0	0	17	0	0	1	0	0	18	18.5	0	1	35	4	4	1	0	1	46	46.9
11:15	0	1	6	0	2	1	0	0	10	9.9	0	0	38	1	6	2	0	1	48	50
11:30	1	0	16	1	2	0	0	0	20	19.2	0	0	44	2	3	2	0	0	51	52
11:45	0	1	16	1	1	0	0	0	19	18.4	0	0	34	3	8	6	0	0	51	54
H/TOT	1	2	55	2	5	2	0	0	67	66	0	1	151	10	21	11	0	2	196	202.9
12:00	0	0	17	0	1	0	0	0	18	18	0	0	47	4	4	0	0	1	56	57
12:15	0	0	16	0	0	1	0	0	17	17.5	0	0	54	2	11	1	0	1	69	70.5
12:30	0	0	8	0	2	0	0	0	10	10	1	0	40	1	7	1	0	0	50	49.7
12:45	4	0	11	1	4	0	0	0	20	16.8	1	0	39	2	9	0	0	0	51	50.2
H/TOT	4	0	52	1	7	1	0	0	65	62.3	2	0	180	9	31	2	0	2	226	227.4
13:00	0	0	17	1	1	1	0	0	20	20.5	2	0	42	1	13	2	0	1	61	61.4
13:15	0	0	12	1	1	0	0	0	14	14	1	0	27	0	7	2	0	1	38	39.2
13:30	0	0	19	4	0	0	0	0	23	23	0	0	51	3	6	3	0	1	64	66.5
13:45	0	0	9	1	2	0	0	0	12	12	0	0	44	5	9	0	0	1	59	60
H/TOT	0	0	57	7	4	1	0	0	69	69.5	3	0	164	9	35	7	0	4	222	227.1
14:00	0	0	13	1	1	0	0	0	15	15	0	0	52	2	3	0	0	2	59	61
14:15	0	0	26	0	3	0	0	0	29	29	2	0	40	3	9	0	0	0	54	52.4
14:30	1	0	25	1	0	0	0	0	27	26.2	0	0	44	0	6	2	0	1	53	55
14:45	0	0	33	1	1	1	0	0	36	36.5	0	1	50	1	5	3	0	0	60	60.9
H/TOT	1	0	97	3	5	1	0	0	107	106.7	2	1	186	6	23	5	0	3	226	229.3
15:00	0	0	14	0	0	0	0	1	15	16	1	0	45	2	6	2	0	1	57	58.2
15:15	0	0	23	3	2	0	0	0	28	28	1	1	40	2	5	1	0	1	51	51.1
15:30	1	0	23	1	1	1	0	0	27	26.7	0	0	39	2	6	1	1	0	49	50.8
15:45	0	0	17	1	0	3	0	0	21	22.5	0	0	53	4	11	1	0	0	69	69.5
H/TOT	1	0	77	5	3	4	0	1	91	93.2	2	1	177	10	28	5	1	2	226	229.6
16:00	0	0	32	0	1	0	0	0	33	33	0	0	55	1	7	3	0	0	66	67.5
16:15	0	0	16	0	0	0	0	0	16	16	0	0	50	2	8	2	0	1	63	65
16:30	0	0	22	0	4	0	0	0	26	26	0	0	46	3	9	0	0	0	58	58
16:45	0	0	11	0	0	1	0	0	12	12.5	0	0	47	3	6	1	0	1	58	59.5
H/TOT	0	0	81	0	5	1	0	0	87	87.5	0	0	198	9	30	6	0	2	245	250
17:00	0	0	15	2	0	0	0	0	17	17	0	0	46	2	6	1	0	1	56	57.5
17:15	0	0	19	0	0	0	0	0	19	19	0	0	48	0	2	0	0	0	50	50
17:30	1	0	22	1	1	0	0	0	25	24.2	0	0	37	1	3	1	0	0	42	42.5
17:45	0	0	19	1	3	0	0	0	23	23	0	0	47	1	5	0	0	1	54	55
H/TOT	1	0	75	4	4	0	0	0	84	83.2	0	0	178	4	16	2	0	2	202	205
18:00	0	0	26	0	0	0	0	0	26	26	0	0	55	0	7	0	0	1	63	64
18:15	0	0	21	1	2	0	0	0	24	24	0	1	53	5	5	1	0	0	65	64.9
18:30	1	1	18	1	0	0	0	0	21	19.6	0	0	58	1	8	0	0	0	67	67
18:45	0	0	26	1	1	0	0	0	28	28	0	0	45	1	2	0	0	1	49	50
H/TOT	1	1	91	3	3	0	0	0	99	97.6	0	1	211	7	22	1	0	2	244	245.9
12 TOT	11	3	802	36	52	15	0	1	920	917.9	19	21	2403	105	386	61	4	28	3027	3062.9

	D => C										D => D									
TIME	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU
07:00	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	1	0	0	0	0	0	0	0	1	0.2	0	0	0	0	0	0	0	0	0	0
07:45	0	0	2	1	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
H/TOT	1	0	3	1	0	0	0	0	5	4.2	0	0	0	0	0	0	0	0	0	0
08:00	1	0	0	0	0	0	0	0	1	0.2	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	1	0	0	0	0	0	0	0	1	0.2	0	0	1	0	0	0	0	0	1	1
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	3	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	0	0	3	0	0	0	0	0	3	3	0	0	0	1	0	0	0	0	1	1
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	1	0	0	1	0	0	2	2.5	0	0	1	0	0	0	0	0	1	1
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	2
H/TOT	0	0	3	0	0	1	0	0	4	4.5	0	0	2	1	0	0	0	0	3	3
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2	2
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
16:00	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
H/TOT	0	0	1	0	2	0	0	0	3	3	0	0	1	0	0	0	0	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	1	0	0	0	0	0	0	0	1	0.2	0	0	3	0	0	0	0	0	3	3
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	1	0	0	0	0	0	0	0	1	0.2	0	0	4	0	0	0	0	0	4	4
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
18:30	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2	2
12 TOT	3	0	12	1	2	1	0	0	19	17.1	0	0	13	2	0	0	0	0	15	15

MRCL TRANSPORT PLANNING PROFESSIONAL

APPENDIX 3 FLOW DIAGRAMS

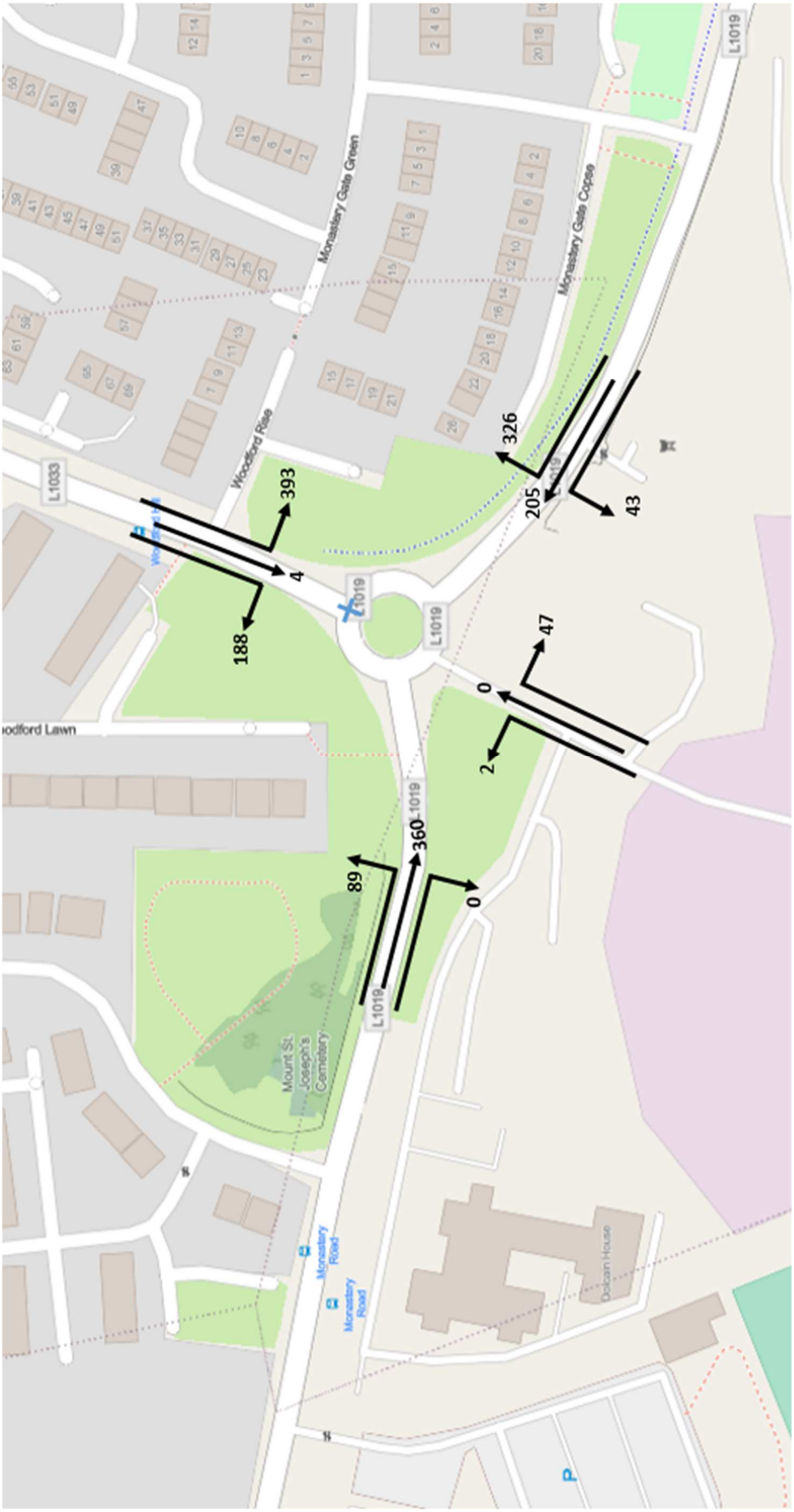

Diagram 1 – 2019 AM Peak (0800 to 0900)

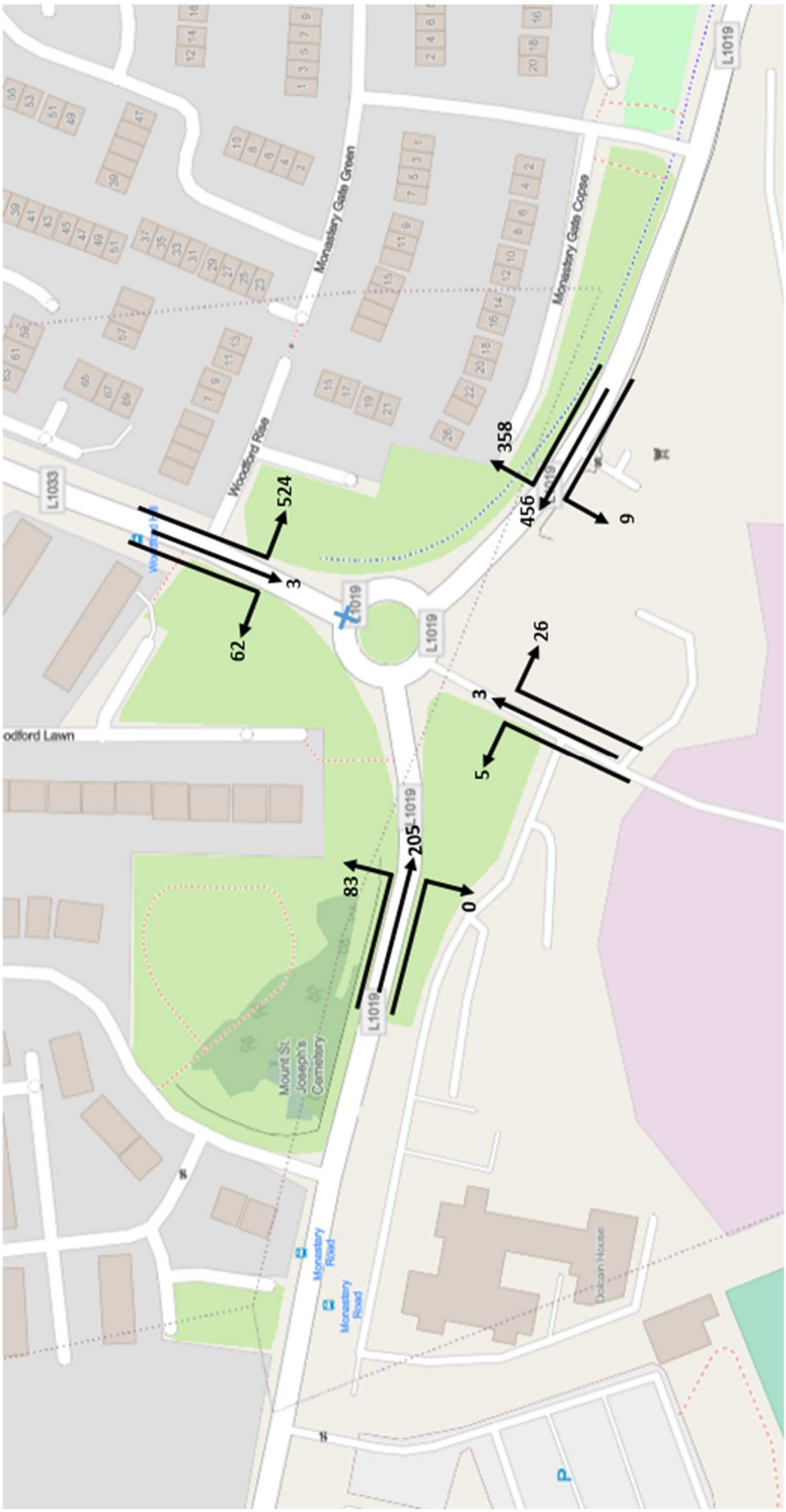

Diagram 2 – 2019 PM Peak (1700:1800)

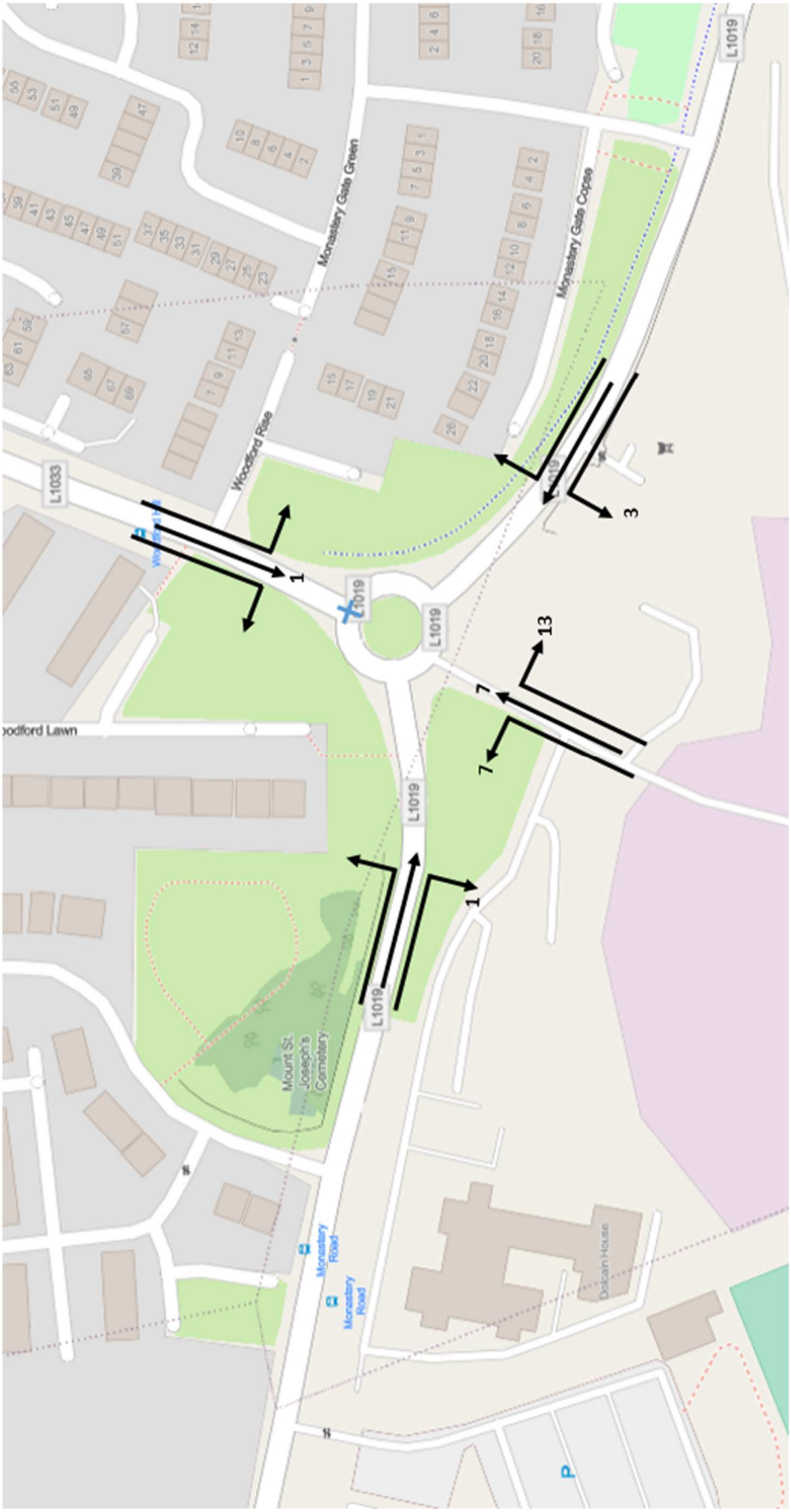

Diagram 3 – Trips generated by proposed development – AM Peak

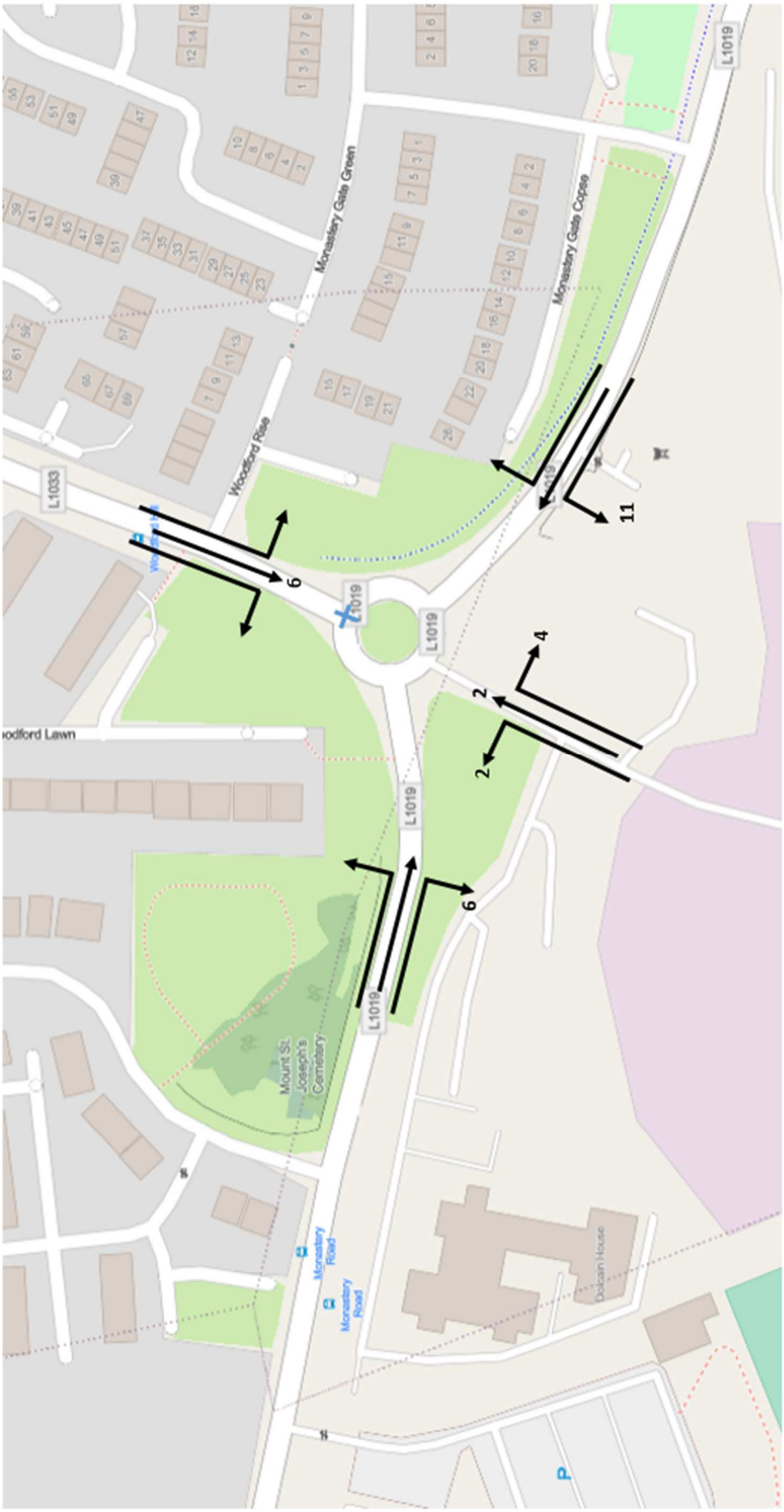

Diagram 4 – Trips generated by proposed development – PM Peak

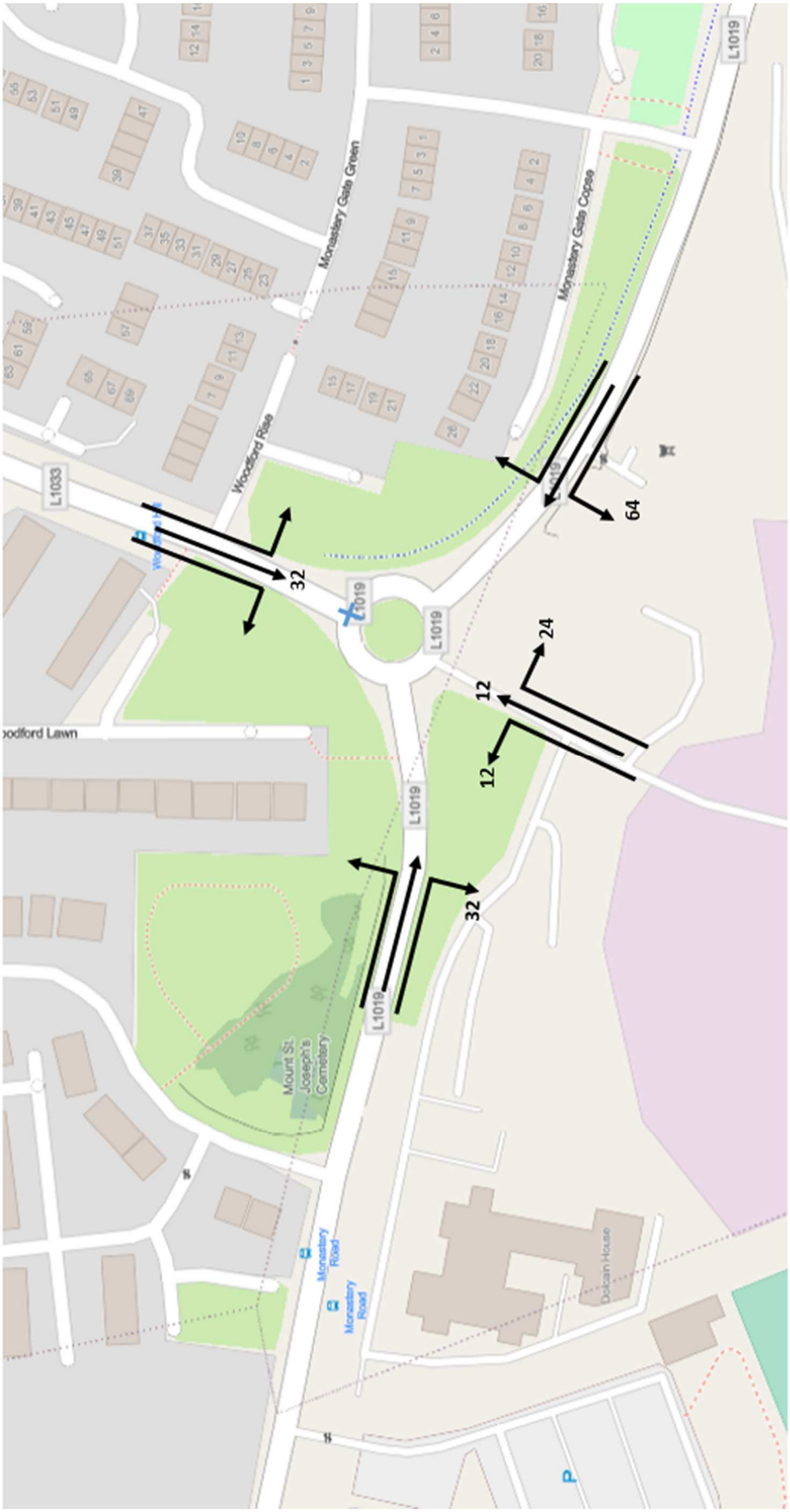

Diagram 5 – Trips Generated by 50% Future Planned Development - AM Peak

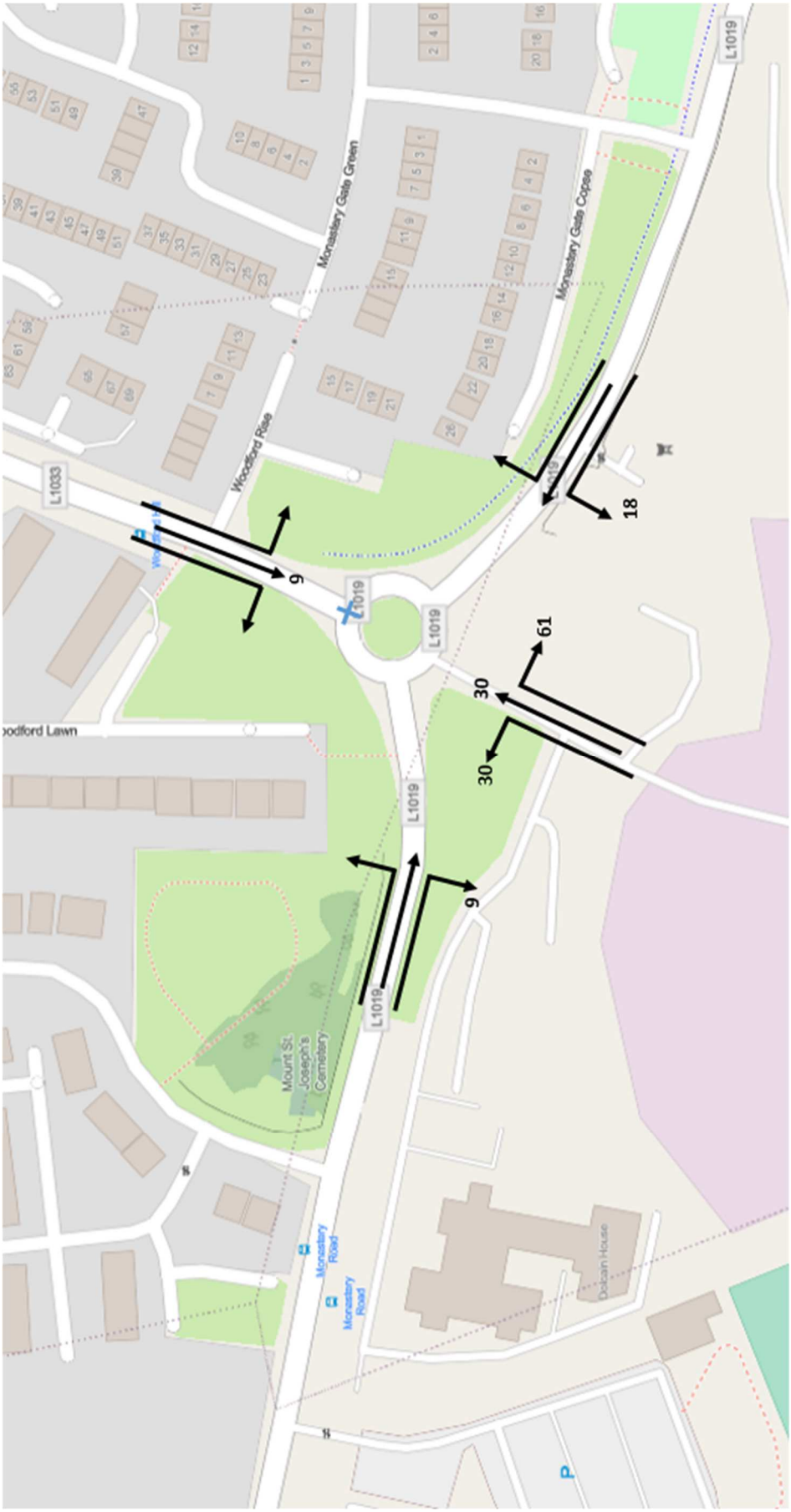

Diagram 6 – Trips Generated by 50% Future Planned Development - PM Peak

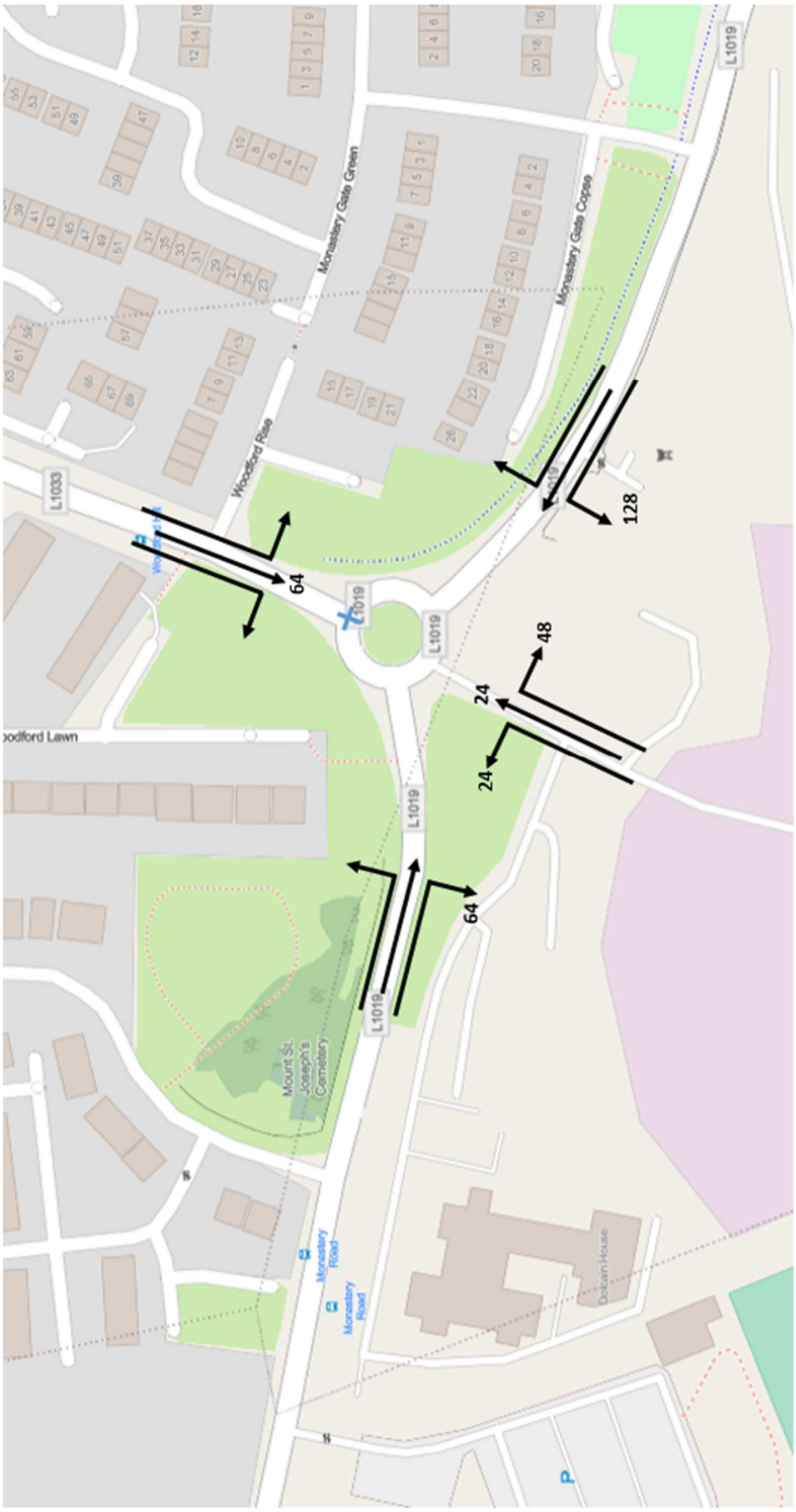

Diagram 7 – Trips Generated by 100% Future Planned Development - AM Peak

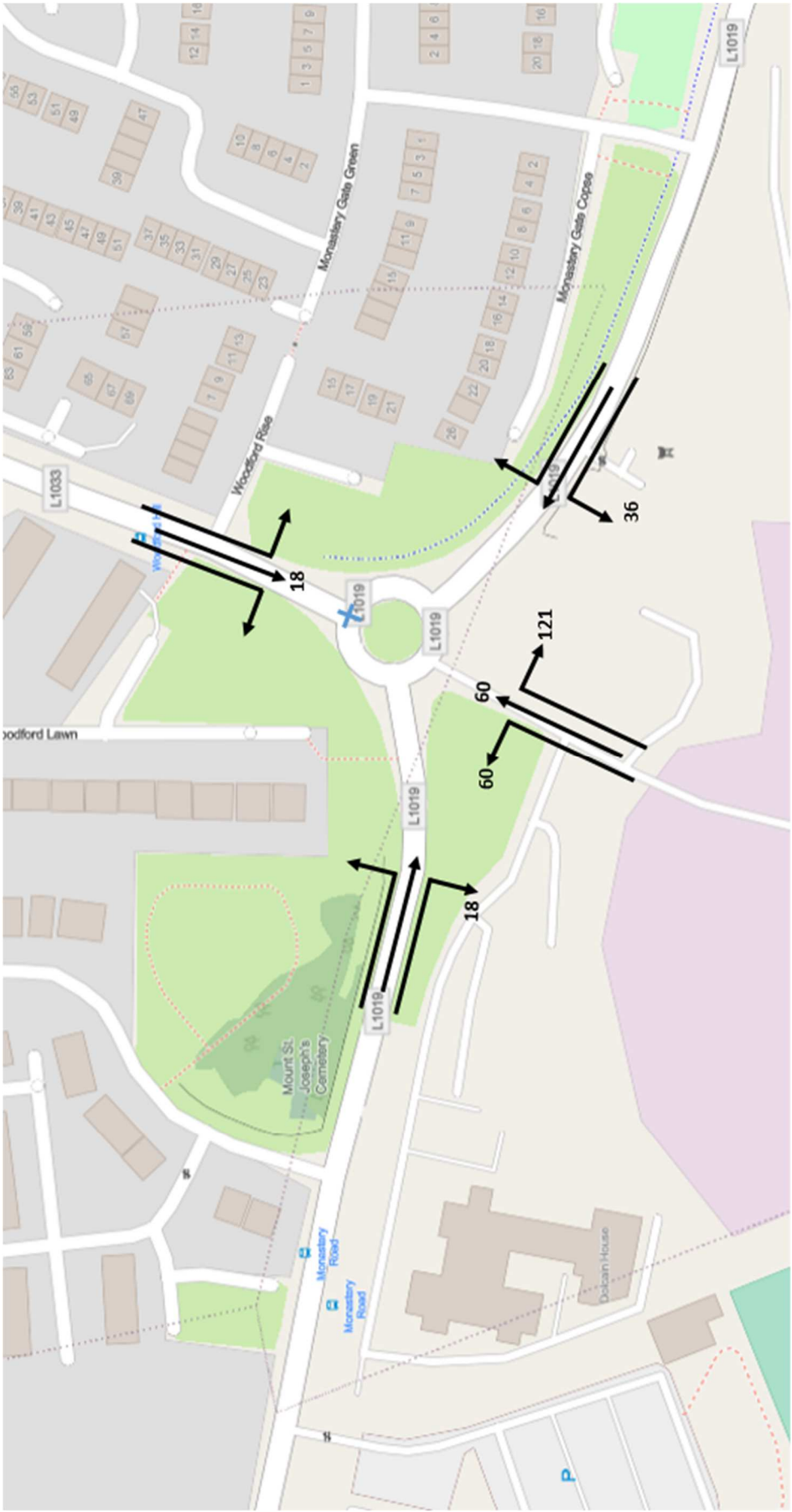

Diagram 8 – Trips Generated by 100% Future Planned Development - PM Peak

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APPENDIX 4 ARCADY OUTPUT

ARCADY OUTPUT – MONASTERY ROAD / WOODFORD HILL ROUNDABOUT

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2021 exist.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 11/05/2021 21:48:51

»2021, AM
»2021, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2021									
Arm 1	D1	40.8	182.86	1.16	F	D2	19.8	84.21	1.06	F
Arm 2		2.6	16.29	0.73	C		19.6	82.72	1.02	F
Arm 3		0.2	13.22	0.19	B		0.2	14.98	0.18	B
Arm 4		15.3	107.11	1.03	F		1.7	19.65	0.63	C

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2021	AM	DIRECT	08:00	09:00	60	15
D2	2021	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2021, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	99.67	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	99.67	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.25	4.00	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.25	20.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.344	183.730
2	0.375	220.762

3	0.309	140.622
4	0.318	151.890

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2021	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	2	3	4
From	1	0.00	102.00	1.00	35.00
	2	65.00	0.00	12.00	58.00
	3	0.00	18.00	0.00	0.00
	4	16.00	90.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	2	3	4
From	1	0.00	100.00	0.00	49.00
	2	85.00	0.00	8.00	56.00
	3	0.00	15.00	0.00	0.00
	4	17.00	91.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	2	3	4
From	1	0.00	96.00	1.00	79.00
	2	79.00	0.00	9.00	52.00
	3	0.00	8.00	0.00	2.00
	4	25.00	87.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	96.00	2.00	25.00
	2	97.00	0.00	14.00	39.00
	3	0.00	6.00	0.00	0.00
	4	32.00	91.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.16	182.86	40.8	F
2	0.73	16.29	2.6	C
3	0.19	13.22	0.2	B
4	1.03	107.11	15.3	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	138.00	104.17	147.86	0.933	130.49	7.5	41.725	E
2	135.00	34.04	208.00	0.649	133.22	1.8	11.773	B
3	18.00	154.47	92.92	0.194	17.76	0.2	11.939	B
4	106.00	81.91	125.84	0.842	101.77	4.2	33.190	D

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	149.00	104.38	147.79	1.008	141.69	14.8	86.898	F
2	149.00	46.09	203.49	0.732	148.20	2.6	16.023	C
3	15.00	186.21	83.11	0.180	15.01	0.2	13.220	B
4	108.00	99.40	120.27	0.898	106.03	6.2	54.738	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	176.00	94.83	151.08	1.165	150.02	40.8	182.861	F
2	140.00	66.33	195.90	0.715	140.02	2.6	16.139	C
3	10.00	196.61	79.90	0.125	10.08	0.1	12.902	B
4	112.00	87.14	124.17	0.902	111.11	7.1	61.276	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	123.00	91.19	152.33	0.807	148.68	15.1	175.503	F
2	150.00	42.23	204.93	0.732	149.91	2.6	16.292	C
3	6.00	176.24	86.19	0.070	6.07	0.1	11.243	B
4	123.00	102.77	119.20	1.032	114.75	15.3	107.106	F

2021, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	71.32	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	71.32	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2021	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	122.00	0.00	9.00
	2	84.00	0.00	0.00	111.00
	3	1.00	12.00	0.00	1.00
	4	17.00	58.00	0.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	141.00	2.00	31.00
	2	105.00	0.00	2.00	107.00
	3	0.00	8.00	0.00	2.00
	4	19.00	50.00	0.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	133.00	1.00	5.00
	2	78.00	0.00	3.00	118.00
	3	1.00	6.00	0.00	1.00
	4	24.00	43.00	0.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	130.00	0.00	7.00
	2	92.00	0.00	4.00	121.00
	3	1.00	1.00	0.00	1.00
	4	23.00	55.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.06	84.21	19.8	F
2	1.02	82.72	19.6	F
3	0.18	14.98	0.2	B
4	0.63	19.65	1.7	C

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	131.00	68.65	160.09	0.818	127.14	3.9	25.008	D
2	195.00	8.73	217.49	0.897	188.50	6.5	26.886	D
3	14.00	197.23	79.71	0.176	13.79	0.2	13.612	B
4	75.00	94.00	121.99	0.615	73.48	1.5	18.044	C

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	174.00	58.16	163.70	1.063	158.09	19.8	84.214	F
2	214.00	29.52	209.70	1.021	202.25	18.3	69.156	F
3	10.00	228.16	70.16	0.143	10.04	0.2	14.982	B
4	69.00	106.90	117.88	0.585	69.06	1.5	18.482	C

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	139.00	49.32	166.75	0.834	152.50	6.3	71.298	F
2	199.00	9.48	217.21	0.916	203.07	14.2	69.051	F
3	8.00	208.41	76.26	0.105	8.05	0.1	13.203	B
4	67.00	88.43	123.76	0.541	67.23	1.2	16.000	C

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	137.00	55.69	164.55	0.833	137.72	5.6	34.920	D
2	217.00	6.99	218.14	0.995	211.59	19.6	82.721	F
3	3.00	214.68	74.32	0.040	3.08	0.0	12.647	B
4	78.00	91.33	122.84	0.635	77.57	1.7	19.649	C

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2024 wod.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 11/05/2021 21:50:26

»2024 wod, AM
»2024 wod, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2024 wod									
Arm 1	D1	101.2	663.33	1.40	F	D2	60.6	358.70	1.27	F
Arm 2		3.3	19.63	0.78	C		38.3	147.34	1.06	F
Arm 3		0.3	13.32	0.21	B		0.2	15.09	0.18	C
Arm 4		43.5	295.60	1.19	F		2.5	28.33	0.73	D

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2024 wod	AM	DIRECT	08:00	09:00	60	15
D2	2024 wod	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024 wod, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	322.06	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	322.06	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2024 wod	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	107.00	1.00	37.00
	2	68.00	0.00	13.00	61.00
	3	0.00	19.00	0.00	0.00
	4	16.00	94.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	105.00	0.00	51.00
	2	89.00	0.00	8.00	59.00
	3	0.00	15.00	0.00	0.00
	4	18.00	95.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	101.00	1.00	83.00
	2	83.00	0.00	10.00	55.00
	3	0.00	8.00	0.00	2.00
	4	26.00	91.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	101.00	2.00	26.00
	2	101.00	0.00	15.00	40.00
	3	0.00	6.00	0.00	0.00
	4	33.00	95.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.40	663.33	101.2	F
2	0.78	19.63	3.3	C
3	0.21	13.32	0.3	B
4	1.19	295.60	43.5	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	145.00	105.71	128.96	1.124	123.28	21.7	95.681	F
2	142.00	32.31	208.65	0.681	139.96	2.0	12.759	B
3	19.00	158.61	91.64	0.207	18.74	0.3	12.304	B
4	110.00	85.77	114.13	0.964	101.77	8.2	55.509	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	156.00	103.53	129.68	1.203	129.16	48.6	259.762	F
2	156.00	40.82	205.46	0.759	155.09	2.9	17.516	C
3	15.00	187.72	82.65	0.181	15.03	0.2	13.316	B
4	113.00	103.33	108.71	1.039	105.13	16.1	123.772	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	185.00	94.98	132.48	1.396	132.39	101.2	516.950	F
2	148.00	53.94	200.54	0.738	148.05	2.9	17.200	C
3	10.00	191.58	81.46	0.123	10.08	0.1	12.623	B
4	117.00	91.17	112.47	1.040	110.38	22.7	176.419	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	129.00	86.43	135.28	0.954	133.96	96.2	663.331	F
2	156.00	53.05	200.88	0.777	155.63	3.3	19.629	C
3	6.00	192.75	81.10	0.074	6.06	0.1	12.003	B
4	128.00	106.55	107.72	1.188	107.24	43.5	295.600	F

2024 wod, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	197.05	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	197.05	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2024 wod	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	128.00	0.00	9.00
	2	88.00	0.00	0.00	116.00
	3	1.00	12.00	0.00	1.00
	4	18.00	60.00	0.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	148.00	2.00	33.00
	2	110.00	0.00	2.00	112.00
	3	0.00	8.00	0.00	2.00
	4	20.00	52.00	0.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	140.00	1.00	5.00
	2	82.00	0.00	3.00	124.00
	3	1.00	6.00	0.00	1.00
	4	25.00	45.00	0.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	136.00	0.00	18.00
	2	96.00	0.00	4.00	126.00
	3	1.00	1.00	0.00	1.00
	4	24.00	58.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.27	358.70	60.6	F
2	1.06	147.34	38.3	F
3	0.18	15.09	0.2	C
4	0.73	28.33	2.5	D

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	137.00	70.14	140.62	0.974	127.38	9.6	51.138	F
2	204.00	8.37	217.63	0.937	195.27	8.7	32.763	D
3	14.00	203.63	77.73	0.180	13.78	0.2	14.029	B
4	78.00	97.03	110.66	0.705	75.82	2.2	24.531	C

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	183.00	60.18	143.88	1.272	143.00	49.6	201.772	F
2	224.00	26.14	210.96	1.062	206.66	26.1	90.360	F
3	10.00	229.58	69.72	0.143	10.05	0.2	15.092	C
4	72.00	109.03	106.95	0.673	72.05	2.1	25.899	D

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	146.00	51.47	146.74	0.995	145.08	50.5	317.816	F
2	209.00	13.41	215.73	0.969	208.83	26.2	115.179	F
3	8.00	218.20	73.24	0.109	8.05	0.1	13.817	B
4	70.00	91.54	112.35	0.623	70.39	1.7	21.685	C

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	154.00	58.45	144.45	1.066	143.97	60.6	358.698	F
2	226.00	13.00	215.89	1.047	213.94	38.3	147.345	F
3	3.00	222.89	71.79	0.042	3.08	0.0	13.112	B
4	82.00	92.10	112.18	0.731	81.27	2.5	28.334	D

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2024 wdev.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 10:44:52

»2024 wdev, AM
»2024 wdev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2024 wdev									
Arm 1	D1	103.5	690.47	1.41	F	D2	59.4	375.81	1.29	F
Arm 2		3.4	20.12	0.78	C		45.3	172.02	1.08	F
Arm 3		0.4	14.83	0.28	B		0.3	15.61	0.22	C
Arm 4		47.6	327.89	1.21	F		2.7	30.50	0.75	D

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2024 wdev	AM	DIRECT	08:00	09:00	60	15
D2	2024 wdev	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024 wdev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	335.10	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	335.10	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2024 wdev	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	107.00	1.00	37.00
	2	68.00	0.00	14.00	61.00
	3	2.00	22.00	0.00	2.00
	4	16.00	94.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	105.00	0.00	51.00
	2	89.00	0.00	9.00	59.00
	3	2.00	18.00	0.00	2.00
	4	18.00	95.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	101.00	1.00	83.00
	2	83.00	0.00	11.00	55.00
	3	1.00	12.00	0.00	3.00
	4	26.00	91.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	101.00	3.00	26.00
	2	101.00	0.00	16.00	40.00
	3	1.00	10.00	0.00	2.00
	4	33.00	95.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.41	690.47	103.5	F
2	0.78	20.12	3.4	C
3	0.28	14.83	0.4	B
4	1.21	327.89	47.6	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	145.00	108.13	128.17	1.131	122.67	22.3	98.194	F
2	143.00	32.15	208.71	0.685	140.92	2.1	12.911	B
3	26.00	158.43	91.70	0.284	25.61	0.4	13.543	B
4	110.00	90.65	112.63	0.977	101.17	8.8	58.730	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	156.00	105.72	128.96	1.210	128.47	49.9	267.696	F
2	157.00	40.55	205.56	0.764	156.07	3.0	17.808	C
3	22.00	187.44	82.74	0.266	22.02	0.4	14.829	B
4	113.00	108.31	107.17	1.054	104.16	17.7	134.516	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	185.00	98.22	131.42	1.408	131.34	103.5	533.094	F
2	149.00	53.30	200.78	0.742	149.05	3.0	17.458	C
3	16.00	190.95	81.65	0.196	16.12	0.2	13.761	B
4	117.00	96.19	110.92	1.055	109.27	25.4	196.092	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	130.00	89.46	134.29	0.968	133.00	100.5	690.467	F
2	157.00	53.58	200.68	0.782	156.60	3.4	20.119	C
3	13.00	193.06	81.00	0.161	13.05	0.2	13.258	B
4	128.00	111.52	106.18	1.206	105.80	47.6	327.888	F

2024 wdev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	212.34	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	212.34	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2024 wdev	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	128.00	2.00	9.00
	2	88.00	0.00	3.00	116.00
	3	2.00	13.00	0.00	2.00
	4	18.00	60.00	2.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	148.00	4.00	33.00
	2	110.00	0.00	5.00	112.00
	3	1.00	9.00	0.00	3.00
	4	20.00	52.00	2.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	140.00	3.00	5.00
	2	82.00	0.00	5.00	124.00
	3	2.00	7.00	0.00	2.00
	4	25.00	45.00	2.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	136.00	2.00	7.00
	2	96.00	0.00	7.00	126.00
	3	2.00	2.00	0.00	2.00
	4	24.00	58.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.29	375.81	59.4	F
2	1.08	172.02	45.3	F
3	0.22	15.61	0.3	C
4	0.75	30.50	2.7	D

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	139.00	72.95	139.70	0.995	128.03	11.0	55.914	F
2	207.00	12.07	216.24	0.957	196.85	10.2	36.397	E
3	17.00	202.28	78.15	0.218	16.73	0.3	14.590	B
4	80.00	98.44	110.22	0.726	77.62	2.4	26.017	D

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	185.00	63.19	142.90	1.295	142.18	53.8	219.774	F
2	227.00	29.11	209.85	1.082	206.63	30.5	103.077	F
3	13.00	226.27	70.74	0.184	13.04	0.2	15.611	C
4	74.00	109.59	106.78	0.693	74.04	2.3	27.632	D

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	148.00	54.50	145.75	1.015	144.83	57.0	354.271	F
2	211.00	17.69	214.13	0.985	209.75	31.8	139.343	F
3	11.00	217.50	73.45	0.150	11.05	0.2	14.434	B
4	72.00	93.47	111.75	0.644	72.42	1.9	23.173	C

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	145.00	61.39	143.49	1.011	142.55	59.4	375.815	F
2	229.00	10.38	216.87	1.056	215.47	45.3	172.022	F
3	6.00	215.15	74.18	0.081	6.09	0.1	13.237	B
4	84.00	93.44	111.76	0.752	83.20	2.7	30.496	D

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2029 wod.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:00:12

»2029 wod, AM
»2029 wod, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2029 wod									
Arm 1	D1	145.6	961.40	1.50	F	D2	98.8	591.21	1.39	F
Arm 2		5.2	29.39	0.86	D		89.3	319.83	1.14	F
Arm 3		0.3	14.31	0.24	B		0.2	15.54	0.20	C
Arm 4		81.9	571.34	1.33	F		3.3	35.55	0.79	E

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wod	AM	DIRECT	08:00	09:00	60	15
D2	2029 wod	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2029 wod, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	507.68	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	507.68	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wod	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	2	3	4
From	1	0.00	116.00	1.00	40.00
	2	74.00	0.00	14.00	66.00
	3	0.00	21.00	0.00	0.00
	4	18.00	102.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	2	3	4
From	1	0.00	114.00	0.00	56.00
	2	97.00	0.00	9.00	64.00
	3	0.00	16.00	0.00	0.00
	4	20.00	103.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	2	3	4
From	1	0.00	110.00	1.00	90.00
	2	90.00	0.00	11.00	59.00
	3	0.00	0.00	0.00	2.00
	4	28.00	99.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	109.00	3.00	28.00
	2	110.00	0.00	16.00	44.00
	3	0.00	7.00	0.00	0.00
	4	36.00	103.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.50	961.40	145.6	F
2	0.86	29.39	5.2	D
3	0.24	14.31	0.3	B
4	1.33	571.34	81.9	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	157.00	109.82	127.62	1.230	123.88	33.1	133.949	F
2	154.00	32.35	208.64	0.738	151.36	2.6	15.092	C
3	21.00	169.16	88.38	0.238	20.69	0.3	13.238	B
4	120.00	93.42	111.77	1.074	104.85	15.2	84.649	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	170.00	104.30	129.42	1.314	129.24	73.9	382.296	F
2	170.00	40.31	205.65	0.827	168.42	4.2	23.118	C
3	16.00	199.51	79.01	0.203	16.05	0.3	14.308	B
4	123.00	111.91	106.06	1.160	105.16	33.0	223.301	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	201.00	89.69	134.21	1.498	134.18	140.7	727.545	F
2	160.00	51.63	201.41	0.794	160.16	4.1	22.042	C
3	2.00	200.55	78.69	0.025	2.23	0.0	11.804	B
4	127.00	90.38	112.71	1.127	112.27	47.7	344.842	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	140.00	86.37	135.30	1.035	135.16	145.6	961.400	F
2	170.00	61.19	197.83	0.859	168.82	5.2	29.392	D
3	7.00	213.55	74.67	0.094	6.92	0.1	13.270	B
4	139.00	115.79	104.86	1.326	104.77	81.9	571.344	F

2029 wod, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	357.70	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	357.70	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2029 wod	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	139.00	0.00	10.00
	2	95.00	0.00	0.00	126.00
	3	1.00	13.00	0.00	1.00
	4	19.00	65.00	0.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	160.00	2.00	35.00
	2	119.00	0.00	2.00	121.00
	3	0.00	9.00	0.00	2.00
	4	22.00	57.00	0.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	151.00	1.00	6.00
	2	89.00	0.00	3.00	135.00
	3	1.00	6.00	0.00	2.00
	4	28.00	48.00	0.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	148.00	0.00	8.00
	2	104.00	0.00	5.00	137.00
	3	1.00	1.00	0.00	1.00
	4	26.00	63.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.39	591.21	98.8	F
2	1.14	319.83	89.3	F
3	0.20	15.54	0.2	C
4	0.79	35.55	3.3	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	149.00	75.55	138.85	1.073	131.39	17.6	77.031	F
2	221.00	8.82	217.46	1.016	204.81	16.2	49.342	E
3	15.00	213.63	74.65	0.201	14.75	0.2	14.966	B
4	84.00	101.81	109.18	0.769	81.11	2.9	29.635	D

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	197.00	66.21	141.91	1.388	141.59	73.0	299.843	F
2	242.00	24.47	211.59	1.144	210.29	47.9	150.216	F
3	11.00	231.89	69.01	0.159	11.05	0.2	15.544	C
4	79.00	111.48	106.20	0.744	79.00	2.9	33.067	D

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	158.00	54.68	145.69	1.085	145.46	85.6	503.744	F
2	227.00	16.92	214.42	1.059	213.63	61.3	238.899	F
3	9.00	226.77	70.59	0.128	9.04	0.1	14.633	B
4	76.00	95.58	111.11	0.684	76.57	2.3	26.563	D

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	156.00	63.19	142.90	1.092	142.74	98.8	591.205	F
2	246.00	6.72	218.24	1.127	217.96	89.3	319.833	F
3	3.00	220.15	72.63	0.041	3.10	0.0	12.964	B
4	89.00	92.35	112.10	0.794	87.98	3.3	35.546	E

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2029 wdev.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:10:02

»2029 wdev, AM
»2029 wdev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2029 wdev									
Arm 1	D1	150.7	998.38	1.53	F	D2	109.7	654.63	1.41	F
Arm 2		5.4	29.93	0.86	D		103.2	371.85	1.16	F
Arm 3		0.5	16.35	0.32	C		0.3	16.04	0.24	C
Arm 4		90.0	643.04	1.35	F		3.7	38.39	0.81	E

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wdev	AM	DIRECT	08:00	09:00	60	15
D2	2029 wdev	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2029 wdev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	530.13	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	530.13	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wdev	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	116.00	1.00	40.00
	2	74.00	0.00	15.00	66.00
	3	2.00	24.00	0.00	2.00
	4	18.00	102.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	114.00	0.00	56.00
	2	97.00	0.00	9.00	64.00
	3	2.00	20.00	0.00	2.00
	4	20.00	103.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	110.00	1.00	90.00
	2	90.00	0.00	11.00	59.00
	3	1.00	12.00	0.00	3.00
	4	28.00	99.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	109.00	3.00	28.00
	2	110.00	0.00	17.00	44.00
	3	2.00	10.00	0.00	2.00
	4	36.00	103.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.53	998.38	150.7	F
2	0.86	29.93	5.4	D
3	0.32	16.35	0.5	C
4	1.35	643.04	90.0	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	157.00	111.88	126.94	1.237	123.28	33.7	136.615	F
2	155.00	32.20	208.69	0.743	152.30	2.7	15.307	C
3	28.00	168.97	88.44	0.317	27.55	0.5	14.677	B
4	120.00	98.29	110.27	1.088	103.84	16.2	89.641	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	170.00	106.87	128.58	1.322	128.40	75.3	393.427	F
2	170.00	40.00	205.77	0.826	168.49	4.2	23.113	C
3	24.00	199.23	79.09	0.303	24.01	0.4	16.346	C
4	123.00	117.90	104.21	1.180	103.47	35.7	243.093	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	201.00	98.75	131.24	1.532	131.21	145.1	757.499	F
2	160.00	50.12	201.98	0.792	160.19	4.0	21.776	C
3	16.00	199.08	79.14	0.202	16.18	0.3	14.335	B
4	127.00	103.34	108.71	1.168	108.41	54.3	394.383	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	140.00	88.62	134.56	1.040	134.45	150.7	998.379	F
2	171.00	60.87	197.95	0.864	169.64	5.4	29.928	D
3	14.00	213.10	74.81	0.187	14.02	0.2	14.814	B
4	139.00	120.81	103.31	1.345	103.24	90.0	643.039	F

2029 wdev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	401.56	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	401.56	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2029 wdev	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	139.00	2.00	10.00
	2	95.00	0.00	3.00	126.00
	3	2.00	14.00	0.00	2.00
	4	19.00	65.00	2.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	160.00	4.00	35.00
	2	119.00	0.00	5.00	121.00
	3	1.00	10.00	0.00	3.00
	4	22.00	57.00	2.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	151.00	3.00	6.00
	2	89.00	0.00	6.00	135.00
	3	2.00	7.00	0.00	2.00
	4	28.00	48.00	2.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	148.00	2.00	8.00
	2	104.00	0.00	7.00	137.00
	3	2.00	2.00	0.00	2.00
	4	26.00	63.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.41	654.63	109.7	F
2	1.16	371.85	103.2	F
3	0.24	16.04	0.3	C
4	0.81	38.39	3.7	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	151.00	78.29	137.95	1.095	131.29	19.7	83.849	F
2	224.00	12.36	216.13	1.036	205.21	18.8	54.857	F
3	18.00	211.16	75.41	0.239	17.69	0.3	15.516	C
4	86.00	102.76	108.89	0.790	82.82	3.2	31.553	D

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	199.00	69.22	140.92	1.412	140.67	78.0	323.862	F
2	245.00	27.27	210.54	1.164	209.57	54.2	169.282	F
3	14.00	228.01	70.21	0.199	14.05	0.3	16.044	C
4	81.00	111.71	106.12	0.763	81.00	3.2	35.724	E

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	160.00	57.74	144.68	1.106	144.52	93.5	547.870	F
2	230.00	21.05	212.87	1.080	212.36	71.9	275.604	F
3	11.00	223.35	71.65	0.154	11.07	0.2	14.876	B
4	78.00	96.58	110.80	0.704	78.62	2.6	28.594	D

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	158.00	66.11	141.94	1.113	141.83	109.7	654.630	F
2	248.00	10.30	216.90	1.143	216.70	103.2	371.852	F
3	6.00	216.69	73.70	0.081	6.09	0.1	13.329	B
4	91.00	92.64	112.01	0.812	89.89	3.7	38.392	E

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2029 wdev plus future.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:28:10

»2029 wdev+future, AM
»2029 wdev+future, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2029 wdev+future									
Arm 1	D1	189.8	1246.54	1.62	F	D2	138.0	842.09	1.48	F
Arm 2		11.6	57.90	0.96	F		123.6	445.62	1.19	F
Arm 3		0.8	20.18	0.45	C		1.5	30.94	0.61	D
Arm 4		129.4	961.24	1.46	F		5.3	54.84	0.88	F

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wdev+future	AM	DIRECT	08:00	09:00	60	15
D2	2029 wdev+future	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2029 wdev+future, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	686.87	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	686.87	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2029 wdev+future	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	116.00	9.00	40.00
	2	74.00	0.00	31.00	66.00
	3	5.00	30.00	0.00	5.00
	4	18.00	102.00	8.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	114.00	8.00	56.00
	2	97.00	0.00	25.00	64.00
	3	5.00	26.00	0.00	5.00
	4	20.00	103.00	8.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	110.00	9.00	90.00
	2	90.00	0.00	27.00	59.00
	3	5.00	18.00	0.00	6.00
	4	28.00	99.00	8.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	109.00	11.00	28.00
	2	110.00	0.00	33.00	44.00
	3	5.00	16.00	0.00	5.00
	4	36.00	103.00	8.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.62	1246.54	189.8	F
2	0.96	57.90	11.6	F
3	0.45	20.18	0.8	C
4	1.46	961.24	129.4	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	165.00	118.38	124.81	1.322	121.97	43.0	170.444	F
2	171.00	42.69	204.76	0.835	166.63	4.4	21.633	C
3	40.00	165.99	89.36	0.448	39.22	0.8	17.691	C
4	128.00	106.42	107.76	1.188	103.53	24.5	124.547	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	178.00	112.31	126.80	1.404	126.70	94.3	497.105	F
2	186.00	49.10	202.36	0.919	182.52	7.8	38.923	E
3	36.00	194.54	80.54	0.447	35.99	0.8	20.183	C
4	131.00	125.80	101.77	1.287	101.50	54.0	361.575	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	209.00	104.81	129.26	1.617	129.24	174.1	932.795	F
2	176.00	56.80	199.47	0.882	176.04	7.8	39.014	E
3	29.00	193.89	80.74	0.359	29.22	0.6	17.544	C
4	135.00	113.33	105.62	1.278	105.53	83.4	610.333	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	148.00	95.42	132.33	1.118	132.30	189.8	1246.536	F
2	187.00	68.57	195.06	0.959	183.23	11.6	57.901	F
3	26.00	208.05	76.37	0.340	26.05	0.5	17.907	C
4	147.00	128.21	101.03	1.455	101.00	129.4	961.239	F

2029 wdev+future, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	475.52	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	475.52	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2029 wdev+future	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	139.00	4.00	10.00
	2	95.00	0.00	7.00	126.00
	3	9.00	29.00	0.00	9.00
	4	19.00	65.00	4.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	160.00	6.00	35.00
	2	119.00	0.00	10.00	121.00
	3	8.00	25.00	0.00	10.00
	4	22.00	57.00	4.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	151.00	5.00	6.00
	2	89.00	0.00	10.00	135.00
	3	9.00	23.00	0.00	10.00
	4	28.00	48.00	4.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	148.00	4.00	8.00
	2	104.00	0.00	12.00	137.00
	3	9.00	17.00	0.00	9.00
	4	26.00	63.00	4.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.48	842.09	138.0	F
2	1.19	445.62	123.6	F
3	0.61	30.94	1.5	D
4	0.88	54.84	5.3	F

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	153.00	93.67	132.91	1.151	127.83	25.2	103.814	F
2	228.00	15.50	214.95	1.061	205.72	22.3	62.038	F
3	47.00	207.76	76.46	0.615	45.53	1.5	27.944	D
4	88.00	122.53	102.78	0.856	83.63	4.4	40.744	E

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	201.00	86.18	135.36	1.485	135.21	91.0	396.270	F
2	250.00	28.73	209.99	1.191	209.32	63.0	195.191	F
3	43.00	221.96	72.08	0.597	43.00	1.5	30.941	D
4	83.00	131.37	100.05	0.830	82.88	4.5	50.987	F

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	162.00	75.97	138.71	1.168	138.63	114.3	681.053	F
2	234.00	25.82	211.08	1.109	210.77	86.2	325.901	F
3	42.00	219.54	72.82	0.577	42.06	1.4	29.383	D
4	80.00	118.24	104.11	0.768	80.78	3.7	40.135	E

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	160.00	82.91	136.43	1.173	136.38	138.0	842.087	F
2	253.00	13.37	215.75	1.173	215.63	123.6	445.622	F
3	35.00	211.14	75.42	0.464	35.51	0.9	22.838	C
4	93.00	112.40	105.91	0.878	91.38	5.3	54.843	F

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2039 wod.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:40:44

»2039 wod, AM
»2039 wod, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2039 wod									
Arm 1	D1	185.1	1189.96	1.60	F	D2	139.8	822.90	1.48	F
Arm 2		7.3	39.08	0.91	E		139.9	498.44	1.22	F
Arm 3		0.3	15.16	0.26	C		0.3	15.59	0.22	C
Arm 4		134.5	990.63	1.43	F		4.2	42.46	0.84	E

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wod	AM	DIRECT	08:00	09:00	60	15
D2	2039 wod	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2039 wod, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	705.61	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	705.61	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wod	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	2	3	4
From	1	0.00	123.00	1.00	42.00
	2	78.00	0.00	15.00	70.00
	3	0.00	22.00	0.00	0.00
	4	19.00	109.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	2	3	4
From	1	0.00	121.00	0.00	59.00
	2	103.00	0.00	9.00	68.00
	3	0.00	17.00	0.00	0.00
	4	21.00	110.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	2	3	4
From	1	0.00	116.00	1.00	95.00
	2	95.00	0.00	11.00	63.00
	3	0.00	10.00	0.00	2.00
	4	38.00	110.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	116.00	3.00	30.00
	2	116.00	0.00	17.00	46.00
	3	0.00	7.00	0.00	0.00
	4	38.00	110.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.60	1189.96	185.1	F
2	0.91	39.08	7.3	E
3	0.26	15.16	0.3	C
4	1.43	990.63	134.5	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	166.00	111.60	127.03	1.307	124.07	41.9	163.811	F
2	163.00	32.14	208.72	0.781	159.74	3.3	17.383	C
3	22.00	176.43	86.14	0.255	21.66	0.3	13.885	B
4	128.00	98.10	110.33	1.160	105.61	22.4	113.789	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	180.00	104.41	129.39	1.391	129.28	92.6	477.209	F
2	180.00	39.49	205.96	0.874	177.60	5.7	29.215	D
3	17.00	207.82	76.44	0.222	17.04	0.3	15.164	C
4	131.00	118.36	104.07	1.259	103.72	49.7	327.253	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212.00	95.20	132.41	1.601	132.38	172.3	897.037	F
2	169.00	48.36	202.63	0.834	169.27	5.4	27.525	D
3	12.00	206.51	76.85	0.156	12.10	0.2	13.925	B
4	148.00	105.34	108.09	1.369	108.01	89.7	605.533	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	149.00	83.69	136.18	1.094	136.13	185.1	1189.958	F
2	179.00	61.65	197.66	0.906	177.07	7.3	39.083	E
3	7.00	221.42	72.24	0.097	7.08	0.1	13.829	B
4	148.00	121.33	103.15	1.435	103.12	134.5	990.635	F

2039 wod, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	522.14	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	522.14	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2039 wod	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	147.00	0.00	11.00
	2	101.00	0.00	0.00	133.00
	3	1.00	14.00	0.00	1.00
	4	21.00	69.00	0.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	170.00	2.00	37.00
	2	127.00	0.00	2.00	129.00
	3	0.00	9.00	0.00	2.00
	4	23.00	60.00	0.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	160.00	1.00	6.00
	2	94.00	0.00	3.00	143.00
	3	1.00	7.00	0.00	2.00
	4	29.00	51.00	0.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	157.00	0.00	8.00
	2	110.00	0.00	5.00	145.00
	3	1.00	1.00	0.00	1.00
	4	28.00	66.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.48	822.90	139.8	F
2	1.22	498.44	139.9	F
3	0.22	15.59	0.3	C
4	0.84	42.46	4.2	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	158.00	79.77	137.46	1.149	132.31	25.7	102.177	F
2	234.00	9.21	217.31	1.077	208.96	25.0	66.805	F
3	16.00	218.17	73.24	0.218	15.73	0.3	15.577	C
4	90.00	104.94	108.21	0.832	86.11	3.9	36.138	E

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	209.00	69.32	140.89	1.483	140.73	94.0	392.007	F
2	258.00	23.26	212.04	1.217	211.54	71.5	216.558	F
3	11.00	232.25	68.90	0.160	11.08	0.2	15.588	C
4	83.00	111.71	106.12	0.782	83.09	3.8	39.668	E

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	167.00	58.94	144.29	1.157	144.21	116.7	671.562	F
2	240.00	19.64	213.40	1.125	213.18	98.3	364.977	F
3	10.00	229.29	69.81	0.143	10.02	0.2	15.059	C
4	80.00	98.71	110.14	0.726	80.90	2.9	31.787	D

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	165.00	66.01	141.97	1.162	141.92	139.8	822.900	F
2	260.00	6.11	218.47	1.190	218.38	139.9	498.438	F
3	3.00	220.26	72.60	0.041	3.13	0.0	12.976	B
4	94.00	91.41	112.39	0.836	92.71	4.2	42.460	E

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Dolcain House 2039 wdev.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:49:25

»2039 wdev, AM
»2039 wdev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2039 wdev									
Arm 1	D1	189.6	1229.60	1.62	F	D2	151.1	890.99	1.51	F
Arm 2		7.6	40.06	0.91	E		155.9	558.22	1.24	F
Arm 3		0.5	17.46	0.34	C		0.3	16.11	0.26	C
Arm 4		127.9	941.98	1.46	F		4.7	46.32	0.85	E

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wdev	AM	DIRECT	08:00	09:00	60	15
D2	2039 wdev	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2039 wdev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	693.54	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	693.54	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wdev	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	123.00	1.00	42.00
	2	78.00	0.00	16.00	70.00
	3	2.00	25.00	0.00	2.00
	4	19.00	109.00	0.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	121.00	0.00	59.00
	2	103.00	0.00	10.00	68.00
	3	2.00	21.00	0.00	2.00
	4	21.00	110.00	0.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	116.00	1.00	95.00
	2	95.00	0.00	12.00	63.00
	3	2.00	13.00	0.00	4.00
	4	30.00	105.00	0.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	116.00	3.00	30.00
	2	116.00	0.00	18.00	46.00
	3	2.00	11.00	0.00	2.00
	4	38.00	110.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.62	1229.60	189.6	F
2	0.91	40.06	7.6	E
3	0.34	17.46	0.5	C
4	1.46	941.98	127.9	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	166.00	113.48	126.41	1.313	123.51	42.5	166.534	F
2	164.00	31.99	208.77	0.786	160.66	3.3	17.660	C
3	29.00	176.24	86.20	0.336	28.51	0.5	15.475	C
4	128.00	102.95	108.83	1.176	104.40	23.6	120.051	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	180.00	106.90	128.57	1.400	128.47	94.0	487.449	F
2	181.00	39.19	206.07	0.878	178.50	5.8	29.909	D
3	25.00	207.43	76.56	0.327	25.00	0.5	17.462	C
4	131.00	124.28	102.24	1.281	101.95	52.6	350.255	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212.00	99.22	131.09	1.617	131.07	175.0	921.058	F
2	170.00	47.59	202.92	0.838	170.28	5.6	28.167	D
3	19.00	205.77	77.08	0.247	19.16	0.3	15.580	C
4	135.00	110.40	106.53	1.267	106.42	81.2	591.083	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	149.00	89.12	134.40	1.109	134.36	189.6	1229.604	F
2	180.00	60.84	197.96	0.909	178.01	7.6	40.065	E
3	15.00	220.58	72.50	0.207	15.07	0.3	15.691	C
4	148.00	127.27	101.32	1.461	101.29	127.9	941.978	F

2039 wdev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	570.19	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	570.19	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2039 wdev	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	147.00	2.00	11.00
	2	101.00	0.00	3.00	133.00
	3	2.00	15.00	0.00	2.00
	4	21.00	69.00	2.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	170.00	4.00	37.00
	2	127.00	0.00	5.00	129.00
	3	1.00	10.00	0.00	3.00
	4	23.00	60.00	2.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	160.00	3.00	6.00
	2	94.00	0.00	6.00	143.00
	3	2.00	8.00	0.00	3.00
	4	29.00	51.00	2.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	157.00	2.00	8.00
	2	110.00	0.00	8.00	145.00
	3	2.00	2.00	0.00	2.00
	4	28.00	66.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.51	890.99	151.1	F
2	1.24	558.22	155.9	F
3	0.26	16.11	0.3	C
4	0.85	46.32	4.7	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	160.00	82.40	136.60	1.171	131.90	28.1	110.110	F
2	237.00	12.62	216.03	1.097	208.67	28.3	73.564	F
3	19.00	215.09	74.20	0.256	18.66	0.3	16.114	C
4	92.00	105.62	108.00	0.852	87.68	4.3	38.659	E

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	211.00	72.31	139.91	1.508	139.78	99.3	419.021	F
2	261.00	25.98	211.02	1.237	210.63	78.7	239.464	F
3	14.00	228.29	70.12	0.200	14.08	0.3	16.084	C
4	85.00	111.88	106.07	0.801	85.06	4.3	43.496	E

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169.00	62.04	143.28	1.180	143.21	125.1	719.670	F
2	243.00	23.66	211.89	1.147	211.73	110.0	406.608	F
3	13.00	225.91	70.85	0.183	13.03	0.2	15.573	C
4	82.00	99.78	109.81	0.747	82.99	3.3	34.867	D

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	167.00	68.92	141.02	1.184	140.98	151.1	890.988	F
2	263.00	9.60	217.17	1.211	217.10	155.9	558.223	F
3	6.00	216.33	73.81	0.081	6.14	0.1	13.326	B
4	96.00	91.46	112.38	0.854	94.61	4.7	46.322	E

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.1.1519

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

Filename: Dolcain House 2039 wdev plus future.j10
Path: C:\Users\martin.rogers\Dropbox\Dolcain House\oscady files
Report generation date: 12/05/2021 11:59:46

»2039 wdev+future, AM
»2039 wdev+future, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2039 wdev+future									
Arm 1	D1	268.4	1746.34	1.80	F	D2	206.8	1302.19	1.66	F
Arm 2		53.1	214.45	1.10	F		198.6	718.71	1.29	F
Arm 3		1.4	27.32	0.60	D		15.3	200.07	1.03	F
Arm 4		204.2	1568.86	1.65	F		14.6	133.35	1.02	F

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	Dolcain House
Location	
Site number	
Date	17/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wdev+future	AM	DIRECT	08:00	09:00	60	15
D2	2039 wdev+future	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2039 wdev+future, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	1039.71	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1039.71	F

Arms

Arms

Arm	Name	Description	No give-way line
1	Woodford Hill		
2	Monastery Road East		
3	Development Access		
4	Monastery Road West		

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)	Entry only	Exit only
1	3.25	3.50	20.0	3.0	25.0	60.0		
2	3.50	5.00	20.0	3.0	25.0	60.0		
3	3.00	3.00	0.0	3.0	25.0	60.0		
4	3.00	3.00	0.0	3.0	25.0	60.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1	0.328	163.609

2	0.375	220.762
3	0.309	140.622
4	0.309	140.622

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2039 wdev+future	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	123.00	17.00	42.00
	2	78.00	0.00	48.00	70.00
	3	8.00	37.00	0.00	8.00
	4	19.00	109.00	16.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	121.00	16.00	59.00
	2	103.00	0.00	42.00	68.00
	3	8.00	33.00	0.00	8.00
	4	21.00	110.00	16.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To			
		1	**2**	**3**	**4**
From	**1**	0.00	116.00	17.00	95.00
	2	95.00	0.00	44.00	63.00
	3	8.00	25.00	0.00	10.00
	4	30.00	105.00	16.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To			
		1	2	3	4
From	1	0.00	116.00	19.00	30.00
	2	116.00	0.00	50.00	46.00
	3	8.00	23.00	0.00	8.00
	4	38.00	110.00	16.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.80	1746.34	268.4	F
2	1.10	214.45	53.1	F
3	0.60	27.32	1.4	D
4	1.65	1568.86	204.2	F

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	182.00	124.51	122.80	1.482	120.82	61.2	236.853	F
2	196.00	50.49	201.84	0.971	185.01	11.0	40.724	E
3	53.00	167.58	88.87	0.596	51.61	1.4	23.385	C
4	144.00	117.45	104.35	1.380	101.93	42.1	202.075	F

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	196.00	118.16	124.88	1.570	124.84	132.3	703.578	F
2	213.00	55.04	200.13	1.064	196.65	27.3	102.683	F
3	49.00	190.63	81.75	0.599	48.95	1.4	27.321	D
4	147.00	135.12	98.89	1.486	98.82	90.3	610.159	F

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	228.00	111.86	126.94	1.796	126.94	233.4	1296.568	F
2	202.00	59.61	198.42	1.018	195.87	33.5	150.672	F
3	43.00	191.98	81.33	0.529	43.27	1.2	23.836	C
4	151.00	125.79	101.78	1.484	101.75	139.5	1042.795	F

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	165.00	102.66	129.96	1.270	129.95	268.4	1746.343	F
2	212.00	73.77	193.11	1.098	192.32	53.1	214.447	F
3	39.00	201.09	78.52	0.497	39.15	1.0	22.969	C
4	164.00	133.75	99.32	1.651	99.31	204.2	1568.859	F

2039 wdev+future, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

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	740.44	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	740.44	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2039 wdev+future	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1		✓	100.000
2		✓	100.000
3		✓	100.000
4		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		1	2	3	4
From	1	0.00	147.00	6.00	11.00
	2	101.00	0.00	12.00	133.00
	3	17.00	45.00	0.00	17.00
	4	21.00	69.00	6.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		1	2	3	4
From	1	0.00	170.00	8.00	37.00
	2	127.00	0.00	14.00	129.00
	3	16.00	41.00	0.00	18.00
	4	23.00	60.00	6.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		1	2	3	4
From	1	0.00	160.00	7.00	6.00
	2	94.00	0.00	15.00	143.00
	3	17.00	38.00	0.00	17.00
	4	29.00	51.00	6.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		1	2	3	4
From	1	0.00	157.00	6.00	8.00
	2	110.00	0.00	17.00	145.00
	3	17.00	33.00	0.00	17.00
	4	28.00	66.00	6.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.66	1302.19	206.8	F
2	1.29	718.71	198.6	F
3	1.03	200.07	15.3	F
4	1.02	133.35	14.6	F

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	164.00	107.81	128.27	1.279	125.06	38.9	152.692	F
2	246.00	18.42	213.86	1.150	208.33	37.7	92.581	F
3	79.00	206.55	76.83	1.028	69.51	9.5	86.142	F
4	96.00	140.08	97.36	0.986	87.31	8.7	65.992	F

17:15 - 17:30

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	215.00	104.32	129.42	1.661	129.35	124.6	575.165	F
2	270.00	28.83	209.95	1.286	209.74	97.9	301.431	F
3	75.00	217.15	73.56	1.020	70.80	13.7	169.728	F
4	89.00	150.45	94.16	0.945	87.73	10.0	107.655	F

17:30 - 17:45

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	173.00	95.60	132.28	1.308	132.25	165.3	1007.644	F
2	252.00	32.67	208.52	1.209	208.44	141.5	519.328	F
3	72.00	218.49	73.15	0.984	70.40	15.3	200.072	F
4	86.00	141.01	97.07	0.886	86.60	9.4	94.471	F

17:45 - 18:00

Arm	Total Demand (PCU/TS)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	171.00	103.97	129.53	1.320	129.52	206.8	1302.191	F
2	272.00	15.51	214.95	1.265	214.91	198.6	718.714	F
3	67.00	206.40	76.88	0.871	72.62	9.7	164.792	F
4	100.00	136.93	98.33	1.017	94.73	14.6	133.349	F