

Proposed 182 Unit Large Scale Residential Development

For Homeland Projects Ltd

Residential Development at Caheranardish, Mungret, Co. Limerick



Traffic and Transportation Assessment

March 2026



MHL & Associates Ltd.
Consulting Engineers





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1 NON TECHNICAL SUMMARY

M.H.L. & Associates Ltd. Consulting Engineers has been engaged by OSL Butler Consulting Engineers on behalf of Homeland Projects Ltd to prepare a Traffic and Transportation Assessment (TTA) in support of an LRD planning application to Limerick City & County Council in relation for the proposed 182 Unit Housing Development and creche located at Caheranardish, Mungret, Co. Limerick.

Homeland Projects Ltd seeks planning permission for a residential development on land bound by the Mungret Park Road and the access roundabout to the east in the townland of Caheranardish, Mungret, Co. Limerick.

The development will consist of a Largescale Residential Development (LRD), comprising of 182no. residential dwellings as follows: 141no. houses consisting of 104no. detached/semi-detached dwellings (24no. 4-beds, 78no. 3-beds and 2no. 2-beds), 37no. townhouses (18no. 3-beds and 19no. 2-beds) and 41no. apartment units across 1no. triplex unit (2no. 2-beds and 1no. 1-bed) and a five-storey apartment building (13no. 2-beds and 25no. 1-beds) with a crèche with capacity to accommodate 70no. children at ground floor level. The proposed development will include the provision for car parking, including EV charging points and bicycle parking. The proposed development will also include the provision of private, communal, and public open spaces; internal roads and pathways; pedestrian and cyclist routes; hard and soft landscaping and boundary treatments; waste storage; plant; signage; a new vehicular and pedestrian access onto the Mungret Park Road; public lighting; substations; all associated site development works; and all drainage and foul sewer infrastructure and network works including a pumping station and connections to the existing networks and nature-based suds measures.

This report has been prepared in accordance with the TII's 2014 publication "Traffic and Transport Assessment Guidelines" and the "Guidelines for Traffic Impact Assessments" as published by the Institution of Highways & Transportation U.K. in 1994.

The Opening year is the year of expected completion for the development and is taken to be 2028. In accordance with the TII's "Traffic and Transport Assessment Guidelines", a traffic analysis is required to be undertaken for the **Opening Year (2028)**, **Opening Year +5 (2033)** and fifteen years from this date i.e., the **Opening Year+15 (2043)**.

This TTA assessment focused on the following traffic junctions:

- **Junction 1:** The signal Crossroads of Mungret Park Road and R859.
- **Junction 2:** The Roundabout to the Development Entrance.

As part of this assessment, 12-hour traffic flows were recorded by third party traffic counters Irish Traffic Surveys. For Junctions 1 & 2, with these traffic counts recorded in October 2025. These counts been factored up to the modelling year scenarios 2028 through to 2043 with TII expansion factors.

The overall impact of the development on the adjoining local road is to increase traffic flows entering/existing the development of 127 no. trips in the morning peak and by 89 no. trips in

the evening peak in the Opening Year 2028, assuming all traffic generated by the development is new to the network.

The development trips were assigned to match current existing traffic junction splits recorded by the traffic counts

Junction 1 reaches a maximum DOS of 129% in the 2043 AM with development scenario but without the development a max of 118.5% will be reached in 2043. The cumulative impact of the development is an RFC of 11% on the junction as a whole.

Junction 2 reaches a maximum RFC of 55% in the 2043 AM with development scenario but without the development a max of 51% will be reached in 2043. The cumulative impact of the development is an RFC of 4% on the junction as a whole.

This report set out these findings in more detail overleaf.

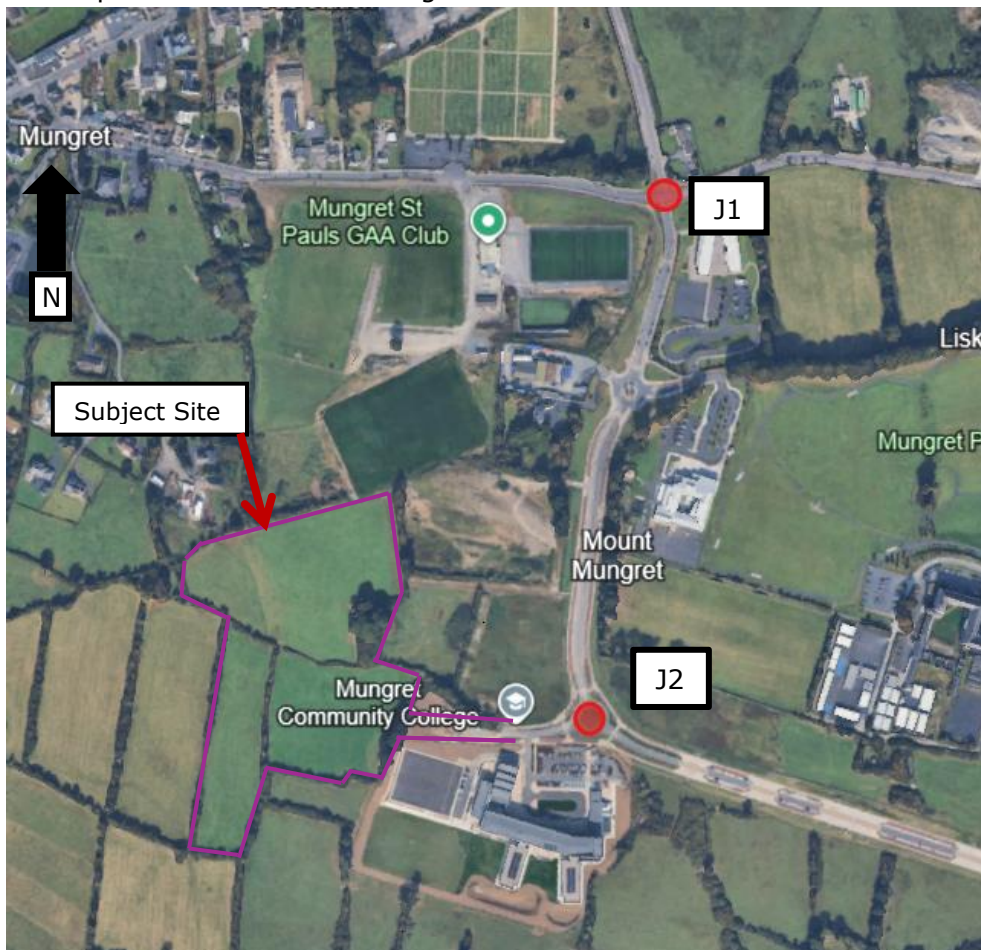


Figure 1.1: Junction Locations (Credit: Google)

2 EXISTING SITE

The site is to be situated along Mungret Park Road, just West of the roundabout junction with Mungret Community College, Co. Limerick. The development is to be accessed via a single vehicular access point after the roundabout existing on Mungret Park Road located within the 50kph speed control of Mungret. The site is Located within Co. Limerick and approximately 6.2km South-West of Limerick City with the location shown below in Figure 2.1 below.



Figure 2.1: Site Location (Credit: Google)

In accordance with the TII's "Traffic and Transport Assessment Guidelines", the traffic analysis was undertaken for the **Opening Year (2028)**, **Opening Year +5 (2033)** and fifteen years from this date i.e., the **Opening Year+15 (2043)**.

3 PROPOSED DEVELOPMENT

The proposed development includes:

The development will consist of a Largescale Residential Development (LRD), comprising of 182no. residential dwellings as follows: 141no. houses consisting of 104no. detached/semi-detached dwellings (24no. 4-beds, 78no. 3-beds and 2no. 2-beds), 37no. townhouses (18no. 3-beds and 19no. 2-beds) and 41no. apartment units across 1no. triplex unit (2no. 2-beds and 1no. 1-bed) and a five-storey apartment building (13no. 2-beds and 25no. 1-beds) with a crèche with capacity to accommodate 70no. children at ground floor level. The proposed development will include the provision for car parking, including EV charging points and bicycle parking. The proposed development will also include the provision of private, communal, and public open spaces; internal roads and pathways; pedestrian and cyclist routes; hard and soft landscaping and boundary treatments; waste storage; plant; signage; a new vehicular and pedestrian access onto the Mungret Park Road; public lighting; substations; all associated site development works; and all drainage and foul sewer infrastructure and network works including a pumping station and connections to the existing networks and nature-based suds measures.

Vehicular access to the development will be via 1 no. new entrance onto the Mungret Park Road via existing Roundabout. The proposed development also includes a new pedestrian/cycle facility along the public road of the eastern boundary.

The site layout plan and schedule can be seen below in Figure 3.2 and Figure 3.3.



Figure 3.1 Development Site (Credit: Google)

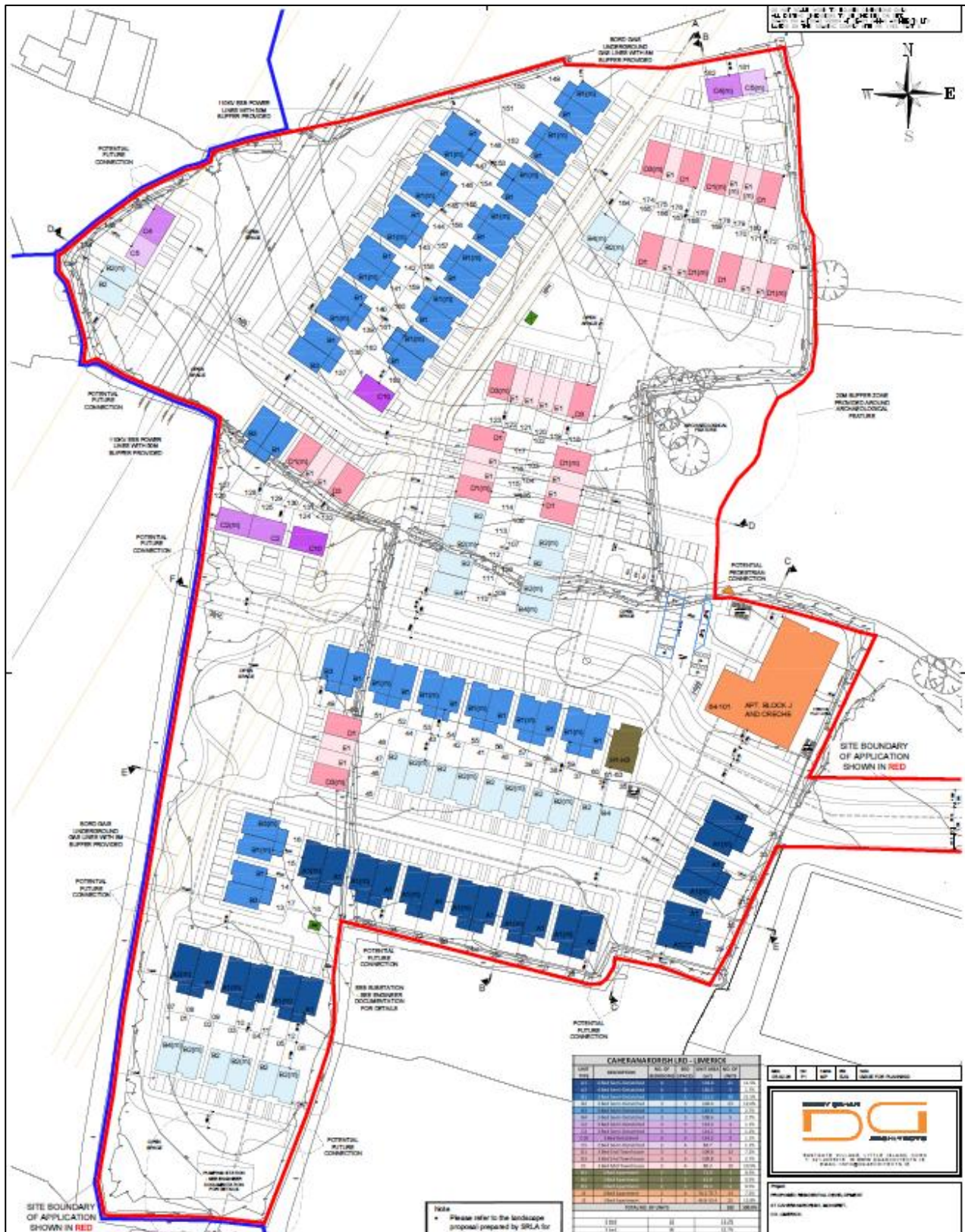


Figure 3.2 Site Layout Map (Credit: Deady Gahan Architects)

CAHERANARDRISH LRD - LIMERICK						
UNIT TYPE	DESCRIPTION	NO. OF BEDROOMS	BED SPACES	UNIT AREA (m²)	NO. OF UNITS	
A1	4 Bed Semi-Detatched	4	7	134.0	21	11.5%
A2	4 Bed Semi-Detatched	4	6	136.5	3	1.7%
B1	3 Bed Semi-Detatched	3	5	115.3	39	21.5%
B2	3 Bed Semi-Detatched	3	5	104.4	23	12.6%
B3	3 Bed Semi-Detatched	3	5	119.6	5	2.7%
B4	3 Bed Semi-Detatched	3	5	108.6	5	2.7%
C2	3 Bed Semi-Detatched	3	5	114.2	2	1.1%
C4	3 Bed Semi-Detatched	3	5	114.2	2	1.1%
C10	3 Bed Detatched	3	5	114.2	2	1.1%
C5	2 Bed Semi-Detatched	2	4	84.7	2	1.1%
D1	3 Bed End Townhouse	3	5	109.8	13	7.2%
D3	3 Bed End Townhouse	3	5	109.8	5	2.7%
E1	2 Bed Mid Townhouse	2	4	80.2	19	10.5%
H1	2 Bed Apartment	2	3	71.9	1	0.5%
H2	1 Bed Apartment	1	2	61.6	1	0.5%
H3	2 Bed Apartment	2	3	69.4	1	0.5%
J1	2 Bed Apartment	2	4	74.1-75.7	13	7.2%
J2	1 Bed Apartment	1	2	46.8-53.4	25	13.8%
TOTAL NO. OF UNITS					182	100.0%
4 bed		24		13.2%		
3 bed		96		52.7%		
2 bed		36		19.8%		
1 bed		26		14.3%		
Detatched/Semi-Detatched		104		57.1%		
Townhouses		37		20.4%		
Apartments		41		22.5%		
TOTAL NUMBER OF UNITS		182				

Figure 3.3: Proposed Development Schedule (Credit: Deady Gahan Architects)

4 TRAFFIC

4.1 Traffic Generation -TRICs

Trip generation from the proposed units was garnered via the TRICS database. MHL are a licence holder for the TRICS database and employ it for traffic studies. TRICS is a well-established UK and Irish national database which holds in excess of 2,100 site locations and 7,000 survey counts with over 98 separate land use sub-categories. MHL & Associates Ltd. are one of over 300 worldwide licensed TRICS member organisations. The TRICS program was utilised for the land-use sub-category associated with the development proposal. The "Guidelines for Traffic and Transportation Assessments" state that for residential units, the busiest hours are between 08:00-09:00 and 17:00-18:00. The proposed development Trip Rates per unit are shown below.

The full TRICS output, is included in Appendix of this report and outlines the likely trip rates for a development of this size. A synopsis of the peak hour trip generation rates and figures for the overall development is displayed in Figure below.

Full Proposed Development		AM PEAK		PM PEAK	
		Arrivals	Departures	Arrivals	Departures
New Residential Development Trip Generation - based on TRICs database					
182	Peak Trics Trip Rates Per Unit	0.149	0.379	0.247	0.187
	Peak Trips No. Units	27	69	45	34
	SUBTOTAL	96		79	
Creche Trip Generation - 70 Students - Based on TRICS Database					
70	Peak Trics Trip Rates	0.251	0.191	0.065	0.083
	Peak Trips	18	13	5	6
		31		10	
Total New Trip Generation					
	Sum New Peak Trips No. Units	45	82	50	40
	TOTAL NEW	127		89	

Figure 4.1 Peak Hour Tric's Traffic Generation for the Proposed Development

4.2 Site Traffic Counts

Traffic counts conducted on Thursday 02/10/2025 by Irish Traffic Surveys were utilised to establish the actual AM & PM Peak traffic hours for the local road network for the purposes of this assessment. These existing junction traffic counts were growth factored as described in Chapter 5. Based on the traffic counts and considering the recommendation of the Guidelines for Traffic and Transportation Assessments, the peak hours considered in this TTA are reflective of the demand case for the site.

4.3 Modal Choice

In predicting the level of traffic that will be generated by the proposed development, the means of transport (modal choice) and quantity of traffic generated (trip attraction) must be considered. It is assumed that there will be a combination of cars, public transport, and active travel, due to the nature of the development. The analysis assumes the cars will dominate the developments traffic movements. Further public transport improvements would encourage a greater modal shift in the future towards sustainable travel modes for those travelling to work

or live at the facility, as encouraged by local and National Transport Authority Policy. This would reduce the modelled impact of this development on the surrounding road network.

4.4 Existing Situation

Traffic counts taken at each of the assessed junctions were used as the basis of the modelling, producing morning and evening O/D Matrices. Site 1 represents the signal crossroads while Site 2 represents the roundabout. The traffic flows through the junctions were assessed as shown in the following figures.

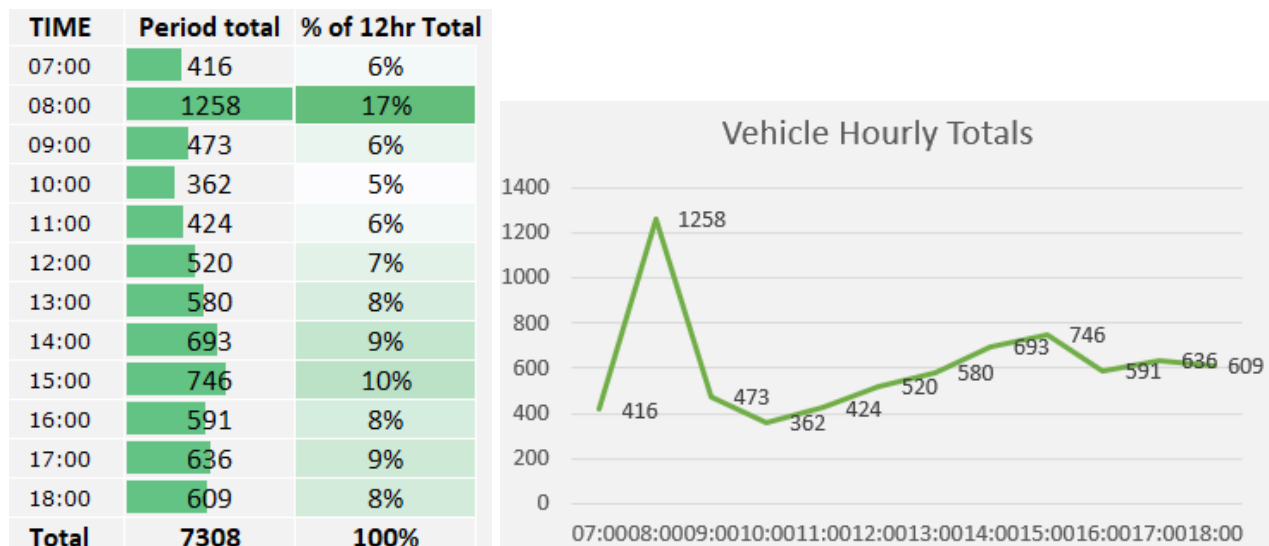


Figure 4.2 Network Traffic Profile for Junction 1 Peak Flow

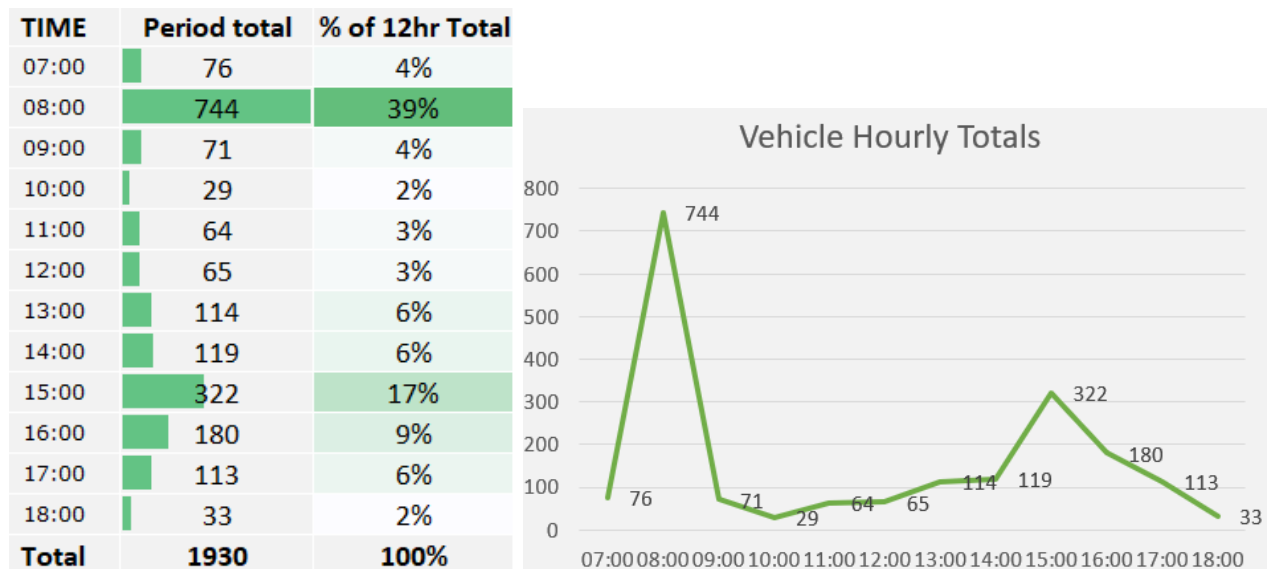


Figure 4.3 Network Traffic Profile for Junction 2 Peak Flow

Traffic Counts were also undertaken at the Junction of Mungret Gate and R510 in October 2025. See Fig 4.5 below that shows the Traffic Profile at the peak flows.

The Traffic Generations model (Based on the existing Traffic Movements) predicts that 51 vehicles in the AM Peak and 38 Vehicles in the PM peak will be added to Junction 1. As shown in Figure 4.5, the existing AM peak has 1313 vehicles and the PM peak has 1270 vehicles passing through this junction.

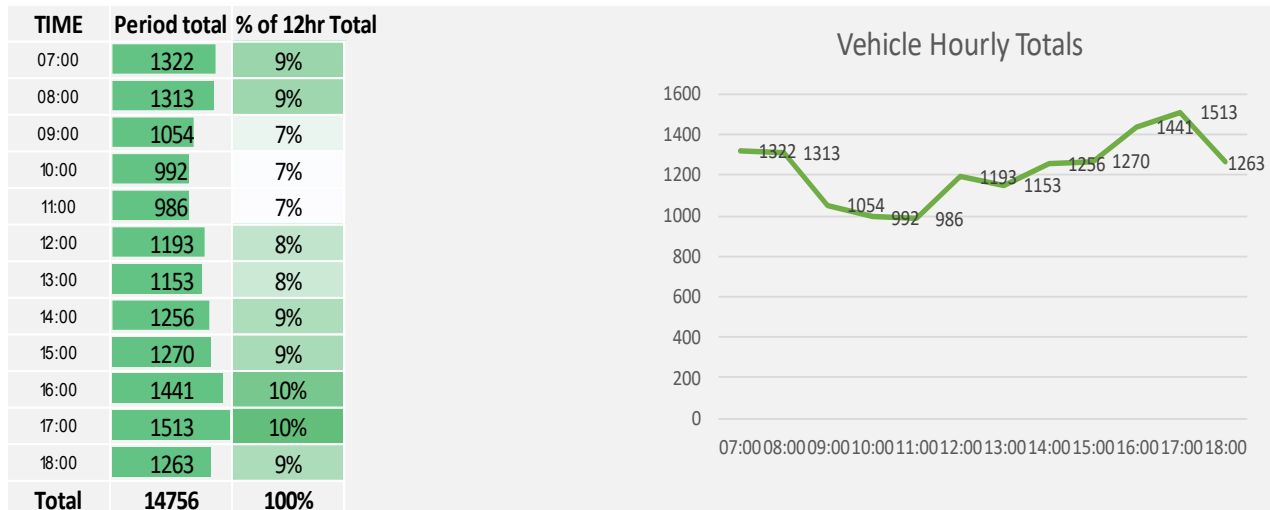


Figure 4.4 Network Traffic Profile for Mungret Gate /R510 Peak Flow

When the development is complete the traffic will only add approximately 3.9% in AM Peak & 3.0% of the PM of the traffic flow through the Mungret Gate and R510 junction. This increase in Traffic in Both the AM and PM is below the threshold to carry out a traffic and transport assessment as per TII document PE-PDV02045.

Based on these factors and the distance the junction is from the development location (1.4km), this Junction was not deemed necessary to be modelled.

It should also be noted that this junction is a Signalised MOVA Junction. Mova junctions are designed for isolated junctions, using loops to minimize delay and maximize capacity, particularly efficient during under-saturated condition

4.5 Trip Distribution

The current traffic distribution pattern was used to determine directional split to and from the proposed development. This peak hour directional split pattern is assumed to remain constant with the passage of time. The "Guidelines for Traffic and Transportation Assessments" state that for a residential development, the busiest hours are between 08:00-09:00 in the mornings and from 17:00 to 18:00 in the evenings.

Having reviewed the existing measured traffic flows at both existing junctions, it was determined that the most heavily trafficked peak hours were 08:00-09:00 and 15:15-16:15 for the working week.

4.6 Traffic Volumes

Traffic counts taken at the assessed junction was used as the basis of the modelling, producing morning and evening O/D Matrices. The traffic flows through Junctions 1 & 2 as recorded in the traffic counts are shown in the following figures.



Figure 4.5 : 2025 AM Turning Counts for Junction 1



Figure 4.6 : 2025 PM Turning Counts for Junction 1

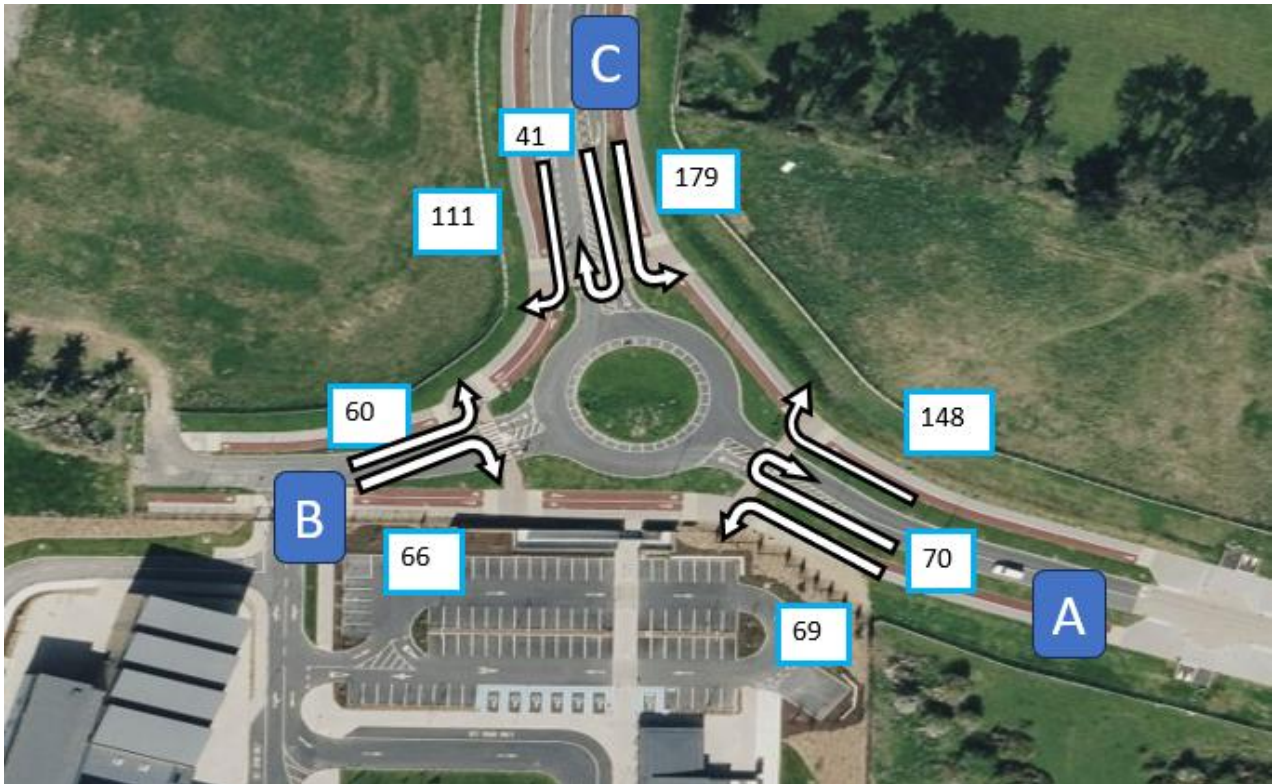


Figure 4.7 : 2025 AM Turning Counts for Junction 2

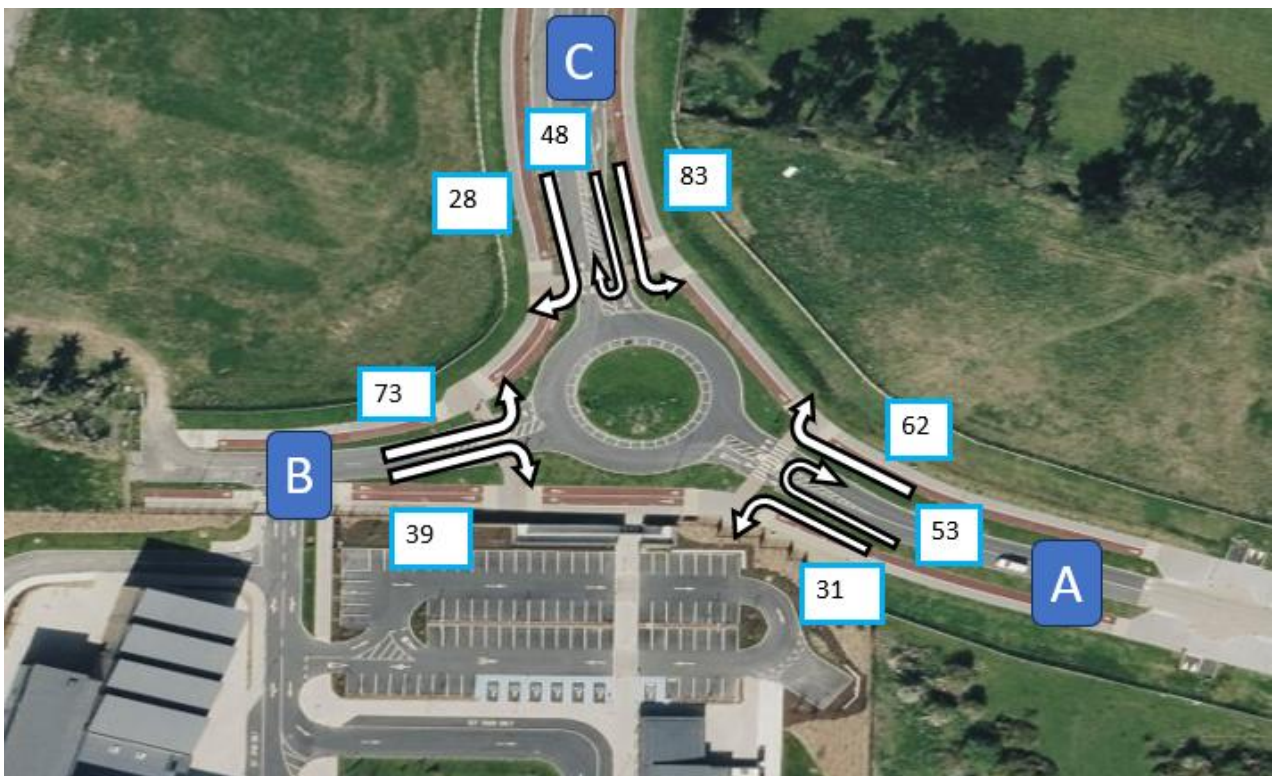


Figure 4.8 : 2025 PM Turning Counts for Junction 2

5 TRAFFIC ASSESSMENT

The base year is taken as 2025 the year the traffic counts were undertaken. It is anticipated that the first year of operation, subject to a positive outcome from the planning process would be 2028. In accordance with the Guidelines for Traffic and Transportation Assessments as published by the TII, a traffic analysis is required to be undertaken for the Opening Year, Opening Year plus five years and Opening Year plus fifteen years.

The TII publication "Project Appraisal Guidelines for National Routes Unit 5.3 – Travel Demand Projections" was used to calculate growth factors for the road network traffic. Table 5.1 below shows the calculated growth factors:

	Cars/LGV	HGV	Combined
Count %	96%	4%	100%
2025 to 2028	1.113	1.067	1.111
2025 to 2033	1.248	1.146	1.244
2025 to 2043	1.465	1.270	1.457

TII Project Appraisal Guidelines for National Roads Unit 5.3
Travel Demand Projections (PE-PAG-0217-02)

Figure 5.1 Future Projected Growth Rates

The client has proposed to build the scheme in 2 phases but for the purposes of this report, we have modelled the worst-case scenario, namely the whole scheme was built in one phase.

The effects of traffic growth on the existing network plus the additional traffic generated by the proposed development, have been compiled to build junction diagrams of the junctions.

6 TRAFFIC MODELLING

6.1 Linsig Analysis of Junction 1

Linsig analysis software was used to assess the capacity of Junction 1.

LINSIG is a computer software program dealing with capacities, mean max queue lengths (pcu) and delays at uncontrolled and signalised junctions. The output results sheets from LINSIG consist of tables of demand flow, capacities, queues and delays for the morning and evening peak hour analysis, for each arm of the junction. These tables contain start and finish times for each arm, traffic demand, %Degree of Saturated Flow (DOS), start queue length and queuing delay.

The DOS provides the basis for judging the acceptability of junction design and the capacity of existing junctions. In general, a DOS of 85% is deemed acceptable for uncontrolled junctions and a DOS of 90% is acceptable for signalised junctions.

A DOS of this value would indicate that at peak times the junction is at 85% of its operational capacity and therefore has a practical reserve capacity of 15%. This reserve capacity of 15% is considered by traffic engineers to be the level of reserve capacity at a junction required to cater for periods of unusually high traffic flows, such as bank holiday weekends, public entertainment, and sporting events etc.

The table below shows the various traffic models for the junction for the traffic counts conducted in October 2025. (See Appendix for the full LINSIG output data).

Junction 1: R859/Moore's Road/Mungret Park.

Junction 1		Without Development		With Development	
		DOS %	Queue (pcu)	DOS %	Queue (pcu)
2025	AM	82.2	9.8	-	-
	PM	57.7	6.8	-	-
2028	AM	90.3	11.6	97.7	17.4
	PM	64.1	7.9	67.7	8.5
2033	AM	101.3	18.4	110.2	25.1
	PM	71.8	9.3	75.6	10
2043	AM	118.5	51.3	129.1	69.3
	PM	84.1	12.5	88.8	13.3

Figure 6.1: Junction 1 – Summary Table

Based on the traffic counts undertaken in October 2026, the existing AM DOS is 82.2% and the PM DOS value is 57.7%. Therefore this means that the junction is presently operating just under capacity in the AM peak. A maximum RFC of 129.1% occurs for traffic approaching the junction from the City during the AM peak of the 2043 With Development Scenario. The greatest

queue experienced at the junction is 69.3 pcu's and occurs on the R859 for vehicles approaching the junction from Limerick City Centre.

In the PM peak, the junction operates below capacity for all design scenarios except for the 2043 with Development scenario.

The measured que lengths on all arms in the AM peak were longer than that produced by the Linsig model.

Therefore there may be some scope within the traffic signal timing to increase the efficiency of the lights based on the Traffic volumes. The measures PM peak que lengths are very similar to that produced by the model.

6.2 Junctions 10 Analysis of Junction 2

The purpose of this Traffic and Transport Assessment is to determine if the capacity of the existing road network is sufficient to cater for the traffic generated by the proposed development.

In order to assess the capacity of the proposed development and the adjoining network, traffic models for the roundabout junction was produced using the ARCHDY traffic modelling software.

The output movements from the models are based on the assigned junction arms. The arms are designated A to C for the Development Junction/Munget Link Road and Mungret Park Road

The output result sheets from the traffic modelling software consist of tables of demand flow, capacities, queues, and delays for each 15-minute time segment of the peak hour analysis.

The Arcady output table contains information on maximum queue length, delay, and Ratio of Flow to Capacity (RFC). The RFC provides the basis for judging the acceptability of junction design and the capacity of existing junctions. Generally, an RFC of 0.85 or less is considered acceptable during the peak period. An RFC of this value indicates that at peak times the junction is at 85% of its operational capacity and therefore has a practical reserve capacity at a junction required to cater for periods of unusually high traffic flow, such as bank holiday weekends, etc. The degree of saturation of a junction is a measure of the capacity of the junction. A junction with an RFC of 0.85 would be considered to be operating at a degree of saturation of 100%.

The following summary junction performance tables for describes each of the junctions RFC's, Delay and Queue values for both morning and evening peaks for all design scenarios as well as the Level of Service for the junction.

Junction 2 – The Roundabout on Mungret Park Road to the Development Entrance.

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 - Base Year											
Arm A	D1	0.3	3.89	0.25	A	140 % [Arm C]	D2	0.1	3.19	0.12	A	366 % [Arm C]
Arm B		0.2	4.05	0.14	A			0.1	3.75	0.11	A	
Arm C		0.5	5.09	0.34	A			0.2	3.90	0.16	A	
	2028 - Opening Year Without Dev											
Arm A	D3	0.4	4.09	0.29	A	115 % [Arm C]	D4	0.2	3.26	0.14	A	320 % [Arm C]
Arm B		0.2	4.21	0.15	A			0.1	3.85	0.13	A	
Arm C		0.6	5.47	0.38	A			0.2	4.01	0.18	A	
	2028 - Opening Year With Dev											
Arm A	D5	0.4	4.27	0.30	A	95 % [Arm C]	D6	0.2	3.38	0.16	A	260 % [Arm C]
Arm B		0.3	4.70	0.24	A			0.2	4.03	0.17	A	
Arm C		0.7	5.93	0.42	A			0.3	4.21	0.21	A	
	2033 Without Dev											
Arm A	D7	0.5	4.36	0.32	A	92 % [Arm C]	D8	0.2	3.35	0.16	A	273 % [Arm C]
Arm B		0.2	4.40	0.17	A			0.2	3.97	0.15	A	
Arm C		0.8	6.00	0.43	A			0.3	4.16	0.20	A	
	2033 With Dev											
Arm A	D9	0.5	4.56	0.34	A	76 % [Arm C]	D10	0.2	3.48	0.18	A	225 % [Arm C]
Arm B		0.4	4.95	0.27	A			0.2	4.17	0.19	A	
Arm C		0.9	6.56	0.47	A			0.3	4.37	0.23	A	
	2043 Without Dev											
Arm A	D11	0.6	4.88	0.38	A	64 % [Arm C]	D12	0.2	3.48	0.18	A	219 % [Arm C]
Arm B		0.3	4.76	0.21	A			0.2	4.18	0.17	A	
Arm C		1.0	7.13	0.51	A			0.3	4.40	0.24	A	
	2043 With Dev											
Arm A	D13	0.7	5.13	0.41	A	52 % [Arm C]	D14	0.3	3.63	0.21	A	183 % [Arm C]
Arm B		0.4	5.41	0.30	A			0.3	4.40	0.21	A	
Arm C		1.2	7.93	0.55	A			0.4	4.64	0.27	A	

Figure 6.2: Junction 2 – Summary Table

A maximum RFC of 55% occurs in the AM peak for the 2043 With Development scenario. This occurs on Arm C. A delay of approximately 8 seconds will be experienced along all arms of the Junction. The analysis shows that the junction is operating well below capacity for all scenarios up to and including the 2043 with development scenarios and any delays are minimal.

It has to noted that a maximum RFC of 51% occurs in the AM peak for the 2043 **Without** Development scenario. This also occurs on Arm C. A delay of approximately 7 seconds will be experienced along this arm of the junction, while a 5 second delay will also be experienced for vehicles exiting the development. The analysis shows that the junction is operating below capacity for all scenarios up to and including the 2043 with development scenarios.

6.3 Cumulative Impact

The cumulative impact of the scheme on the surrounding roads network for future years is determined by modelling future scenarios on existing traffic data and allowing for committed infrastructure projects in the proximity of the scheme as well. In this instance, the network was tested to 2043 by adding development trip generated traffic to the analysed scenarios along the surrounding road network, and growth rates on existing traffic flows to 2043. No allowance has been made for modal shift in the presented analysis, thus providing a worst-case scenario.

The overall impact of this proposed development on Mungret and the assessed junctions is to increase traffic %RFC by a maximum of 11% at Junction 1 (New Junction) and 4% at Junction 2

7 ROAD SAFETY

Please refer to the Stage 1 Road Safety Report (RSA) submitted as part of this planning submission.

8 INTERNAL LAYOUT & PARKING PROVISION

The site is to have a hard tarmac or concrete surface with adequate foundation to withstand the wheel loads involved. The overall drainage of the site should be adequate to cope with storm water. The whole site is to be well lit to ensure the safe execution of manoeuvres, the safety of passengers and the security of vehicles and their contents. The lighting should be from a high level to prevent glare during manoeuvres and reduce the potential for vandalism. The layout of the site is to be designed to reduce the need for reversing manoeuvres. Where these are unavoidable, there should be an adequate area to safely execute the reversing or turning manoeuvres necessary. All parking spaces provided are required to be a minimum 2.4m x 4.9m in size.

It is proposed to provide a total of 287 no. surface car parking spaces for the residential development. It is also proposed to provide 159 no. bicycle parking spaces in secure facilities for the units. In addition to this, the Housing units will store their bikes in rear gardens of each unit.

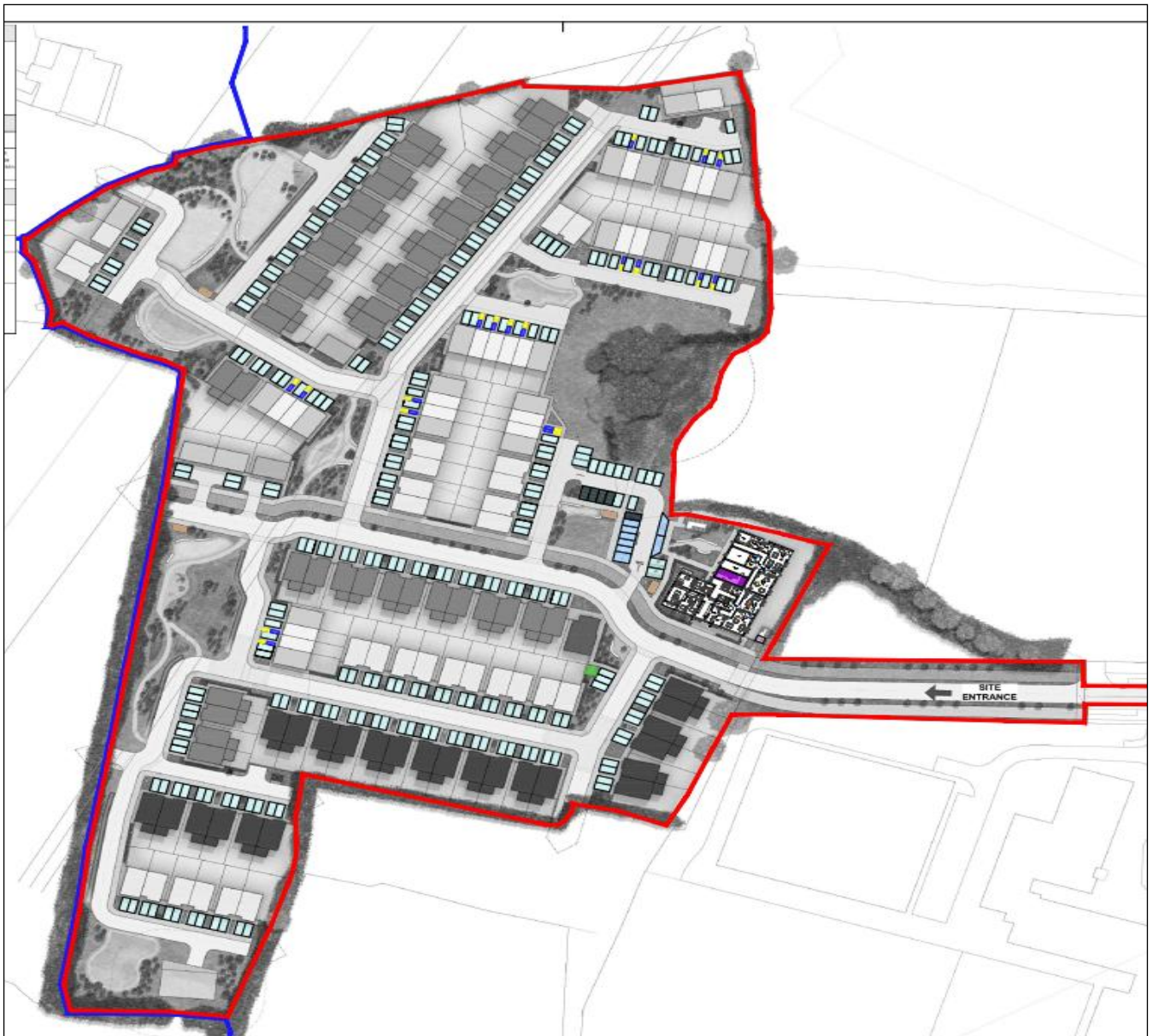


Figure 8.1 Site layout showing parking proposals (Credit: Deady Gahan Architects)

9 PEDESTRIAN / CYCLIST / DISABILITY

All internal footpaths should be dished at all entrances and crossings with tapered/dropped kerbs and tactile paving used on approaches in accordance with the design guidelines for use with tactile paving. This is to accommodate wheelchair access and guide the visually impaired users safely through the development.

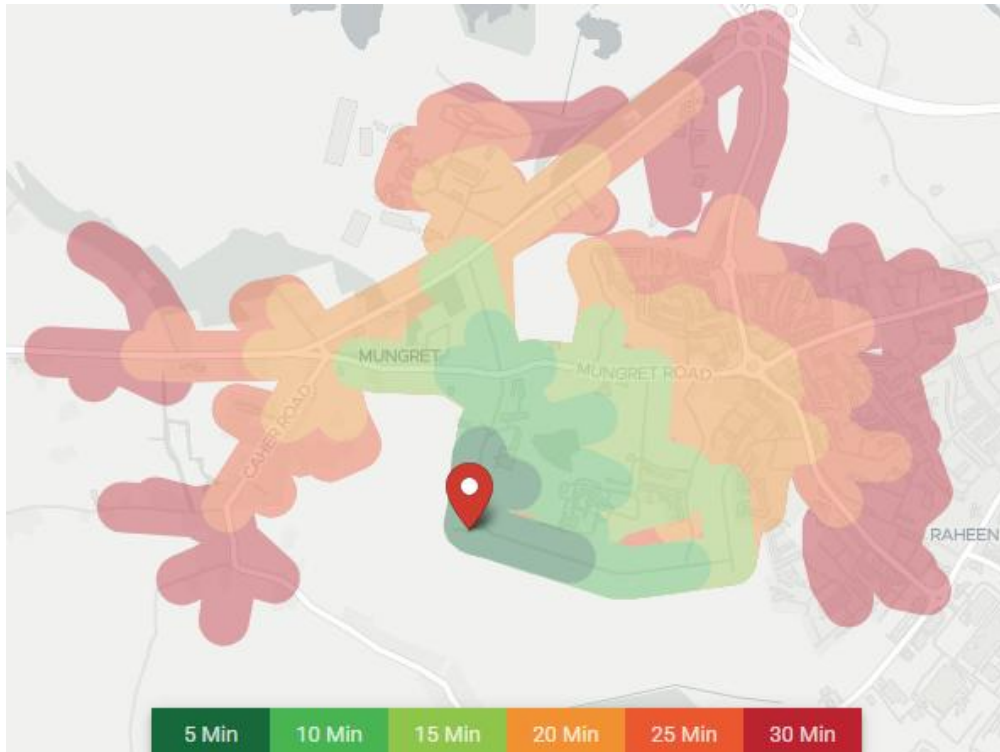


Figure 9.1: 30min Walking Distance from Site

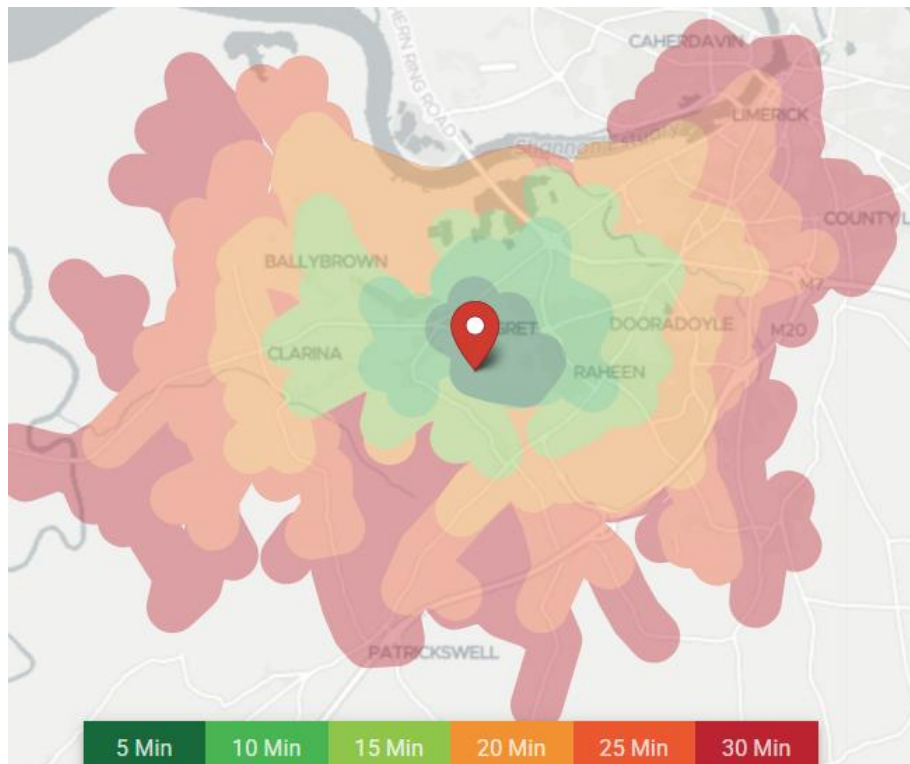


Figure 9.2: 30min Cycle Distance from Site

10 SUMMARY CONCLUSION

In accordance with the TII's "Traffic and Transport Assessment Guidelines", the traffic analysis was undertaken for the **Opening Year (2028)**, **Opening Year +5 (2033)** and fifteen years from this date i.e., the **Opening Year+15 (2043)**.

In summary, the TTA assessment focused on the 2 no. nearby traffic junction for this application. The Signalised Crossroads Junction of Mungret Park Road and R859 was assessed as well as the development access roundabout junction.

The traffic modelling analysis carried out for these design year scenarios shows that:

- Junctions 2 operating below capacity for all design years up to 2043 for both morning and evening peaks respectively.
- Junction 1 is currently operating just under capacity at an RFC of 82.2% in the 2025 AM
- Junction 1 reaches a maximum of 129.1% in the 2043 AM with development scenario but without the development a max RFC of 118.5% will be reached in 2043.
- Junction 1 reaches a maximum RFC of 88.8% in the 2043 PM with development scenario but without the development a max RFC of 84.1% will be reached in 2043.
- The AM peak que lengths measured on Arm A & B were longer than that produced by the model. There may be some capacity to modify the Traffic Signals on the ground to increase the efficiency of the signal timings.
- Due to the urban nature and proximity to schools and Bus Routes of both Junction 1 and the development, a certain level of congestion is to be expected during peak times and the proposed traffic volumes at this signalised junction are considered within the norms of a busy urban environment.

Comparing the analysis of the traffic models, the development will not have a significant negative impact on the operation of these junctions from a capacity point-of-view.

11 REFERENCES

- TII. Traffic and Transport Assessment Guidelines, PE-PDV-02045
- National Roads Authority (2014) Traffic and Transport Assessment Guidelines
- Institution of Highways & Transportation (1994) Guidelines for Traffic Impact Assessment IHT, London
- National Roads Authority (2000) Road Geometry Handbook NRA, Dublin
- National Roads Authority Design Manual for Roads and Bridges NRA, Dublin
- Design Manual for Urban Roads and Streets
- Transport for Ireland (Oct 2016) Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts
- Transport for Ireland 2017. Geometric Design of Junctions, DN-GEO-03060
- Transport for Ireland 2017. Rural Road Link Design, DN-GEO-03031
- National Disability Authority (NDA) guidelines – Towards Best Practice in Provision of Transport Services
- TII approved junction simulation modelling program, Junctions 9
- Trip Rate Information Computer System (TRICS)
- Traffic Surveys: Traffinomics
- PCU (passenger carrying units) factors, Transport in The Urban Environment, The Institution of highways and Transportation.
- Google Maps
- Openstreetmaps

12 APPENDIX

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13 TRAFFIC COUNT DATA

(Traffic Count Data Available Upon Request)

14 TRICS

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Audit Code: 3b3bcc85-2dca-45f3-9840-ac9f0adaa66a

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

Total Vehicles

Calculation factor: 1 PUPILS

Estimated TRIP rate value per 70 PUPILS shown in shaded columns

*BOLD print indicates peak (busiest) period

Period	Trips per 1 PUPILS PUPILS		
	Inbound	Outbound	Total
08:00-09:00	0.250	0.193	0.443
17:00-18:00	0.176	0.207	0.383
15:00-16:00	0.064	0.084	0.148

Time Range	No. Days	Ave. PUPILS	Arrivals	Estimated Trip Rate	Departures	Estimated Trip Rate	Totals	Estimated Trip Rate
00:00-01:00								
01:00-02:00								
02:00-03:00								
03:00-04:00								
04:00-05:00								
05:00-06:00								
06:00-07:00	2	59	0.000	0.000	0.000	0.000	0.000	0.000
07:00-08:00	50	90	0.104	7.266	0.056	3.935	0.160	11.201
08:00-09:00	53	89	0.250	17.515	0.193	13.509	0.443	31.024
09:00-10:00	53	89	0.121	8.460	0.133	9.279	0.254	17.739
10:00-11:00	53	89	0.031	2.189	0.028	1.951	0.059	4.140
11:00-12:00	53	89	0.070	4.930	0.066	4.647	0.136	9.577
12:00-13:00	53	89	0.100	7.000	0.103	7.194	0.203	14.194
13:00-14:00	53	89	0.067	4.662	0.081	5.689	0.148	10.351
14:00-15:00	53	89	0.054	3.798	0.046	3.217	0.100	7.015
15:00-16:00	53	89	0.064	4.513	0.084	5.853	0.148	10.366
16:00-17:00	52	89	0.099	6.957	0.105	7.337	0.204	14.294
17:00-18:00	52	89	0.176	12.350	0.207	14.507	0.383	26.857
18:00-19:00	49	91	0.015	1.078	0.051	3.577	0.066	4.655
19:00-20:00								
20:00-21:00								
21:00-22:00								
22:00-23:00								
23:00-00:00								
Total Rates:			1.151	80.718	1.153	80.696	2.304	161.414

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Audit Code: 3b3bcc85-2dca-45f3-9840-ac9f0adaa66a

Parameter Summary:

Trip rate parameter range selected:	4 - 4334 (units: PUPILS)
Survey date date range:	17/12/1997 - 26/06/2023
Number of weekdays (Monday-Friday):	53
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	9
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Audit Code: 58c29663-f5dd-4250-9399-afd0913adac3

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Total Vehicles

Calculation factor: 1 DWELLS

Estimated TRIP rate value per 182 DWELLS shown in shaded columns

**BOLD print indicates peak (busiest) period*

Period	Trips per 1 DWELLS DWELLS		
	Inbound	Outbound	Total
08:00-09:00	0.156	0.391	0.547
17:00-18:00	0.377	0.208	0.585
15:00-16:00	0.261	0.198	0.459

Time Range	No. Days	Ave. DWELLS	Arrivals	Estimated Trip Rate	Departures	Estimated Trip Rate	Totals	Estimated Trip Rate
00:00-01:00	37	235	0.056	10.120	0.033	6.014	0.089	16.134
01:00-02:00	37	235	0.027	4.861	0.019	3.541	0.046	8.402
02:00-03:00	37	235	0.014	2.514	0.010	1.865	0.024	4.379
03:00-04:00	37	235	0.009	1.655	0.007	1.299	0.016	2.954
04:00-05:00	37	235	0.008	1.425	0.007	1.257	0.015	2.682
05:00-06:00	37	235	0.011	1.928	0.025	4.505	0.036	6.433
06:00-07:00	45	220	0.032	5.818	0.074	13.417	0.106	19.235
07:00-08:00	425	155	0.074	13.438	0.272	49.540	0.346	62.978
08:00-09:00	430	154	0.156	28.335	0.391	71.117	0.547	99.452
09:00-10:00	430	154	0.149	27.102	0.199	36.195	0.348	63.297
10:00-11:00	430	154	0.137	25.018	0.169	30.700	0.306	55.718
11:00-12:00	430	154	0.155	28.274	0.168	30.621	0.323	58.895
12:00-13:00	430	154	0.192	34.955	0.175	31.825	0.367	66.780
13:00-14:00	430	154	0.183	33.358	0.181	32.939	0.364	66.297
14:00-15:00	430	154	0.186	33.830	0.188	34.238	0.374	68.068
15:00-16:00	430	154	0.261	47.480	0.198	35.989	0.459	83.469
16:00-17:00	430	154	0.295	53.695	0.189	34.310	0.484	88.005
17:00-18:00	430	154	0.377	68.567	0.208	37.808	0.585	106.375
18:00-19:00	430	154	0.299	54.351	0.207	37.624	0.506	91.975
19:00-20:00	50	212	0.284	51.694	0.230	41.893	0.514	93.587
20:00-21:00	46	217	0.211	38.469	0.176	31.985	0.387	70.454
21:00-22:00	44	225	0.160	29.161	0.123	22.405	0.283	51.566
22:00-23:00	37	235	0.128	23.279	0.090	16.302	0.218	39.581
23:00-00:00	37	235	0.090	16.385	0.051	9.324	0.141	25.709
Total Rates:			3.494	635.715	3.390	616.713	6.884	1252.428

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Audit Code: 58c29663-f5dd-4250-9399-afd0913adac3

Parameter Summary:

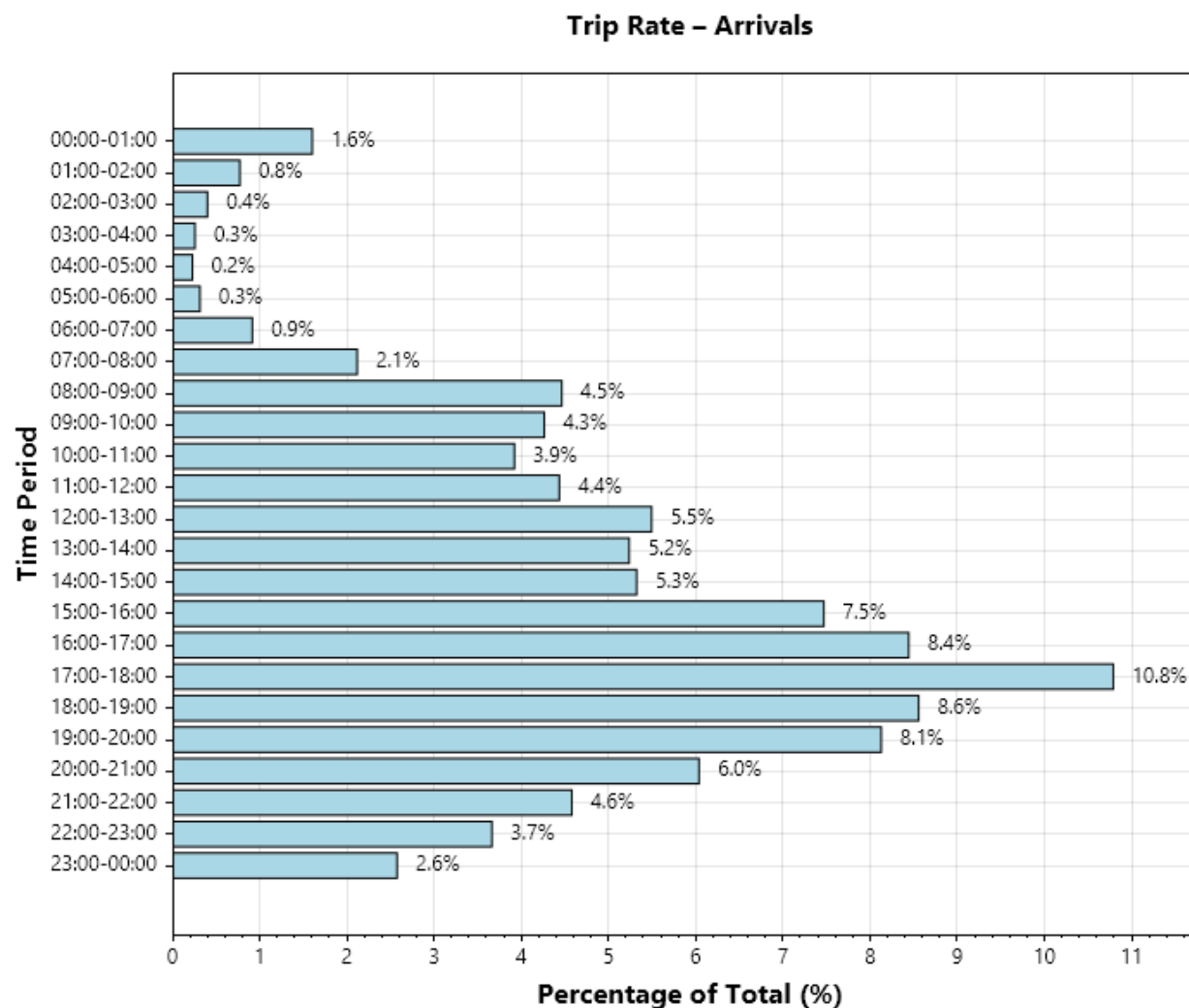
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Survey date date range:	05/05/1987 - 30/06/2025
Number of weekdays (Monday-Friday):	390
Number of Saturdays:	8
Number of Sundays:	32
Surveys automatically removed from selection:	348
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Audit Code: 58c29663-f5dd-4250-9399-afd0913adac3

Trip Rate Total Vehicles – Arrivals

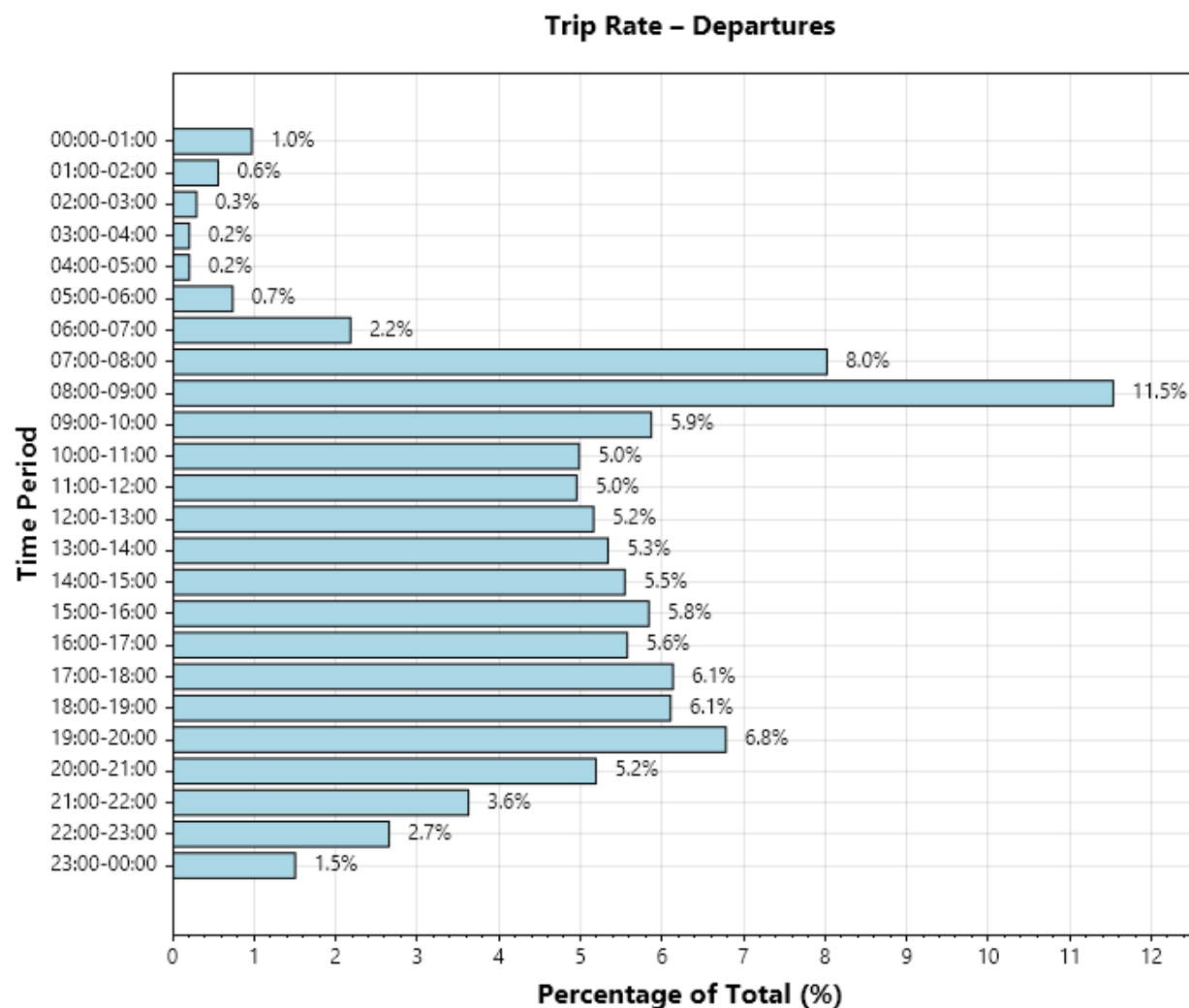


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Generated on: 2026-03-03 14:42

Audit Code: 58c29663-f5dd-4250-9399-afd0913adac3

Trip Rate Total Vehicles - Departures

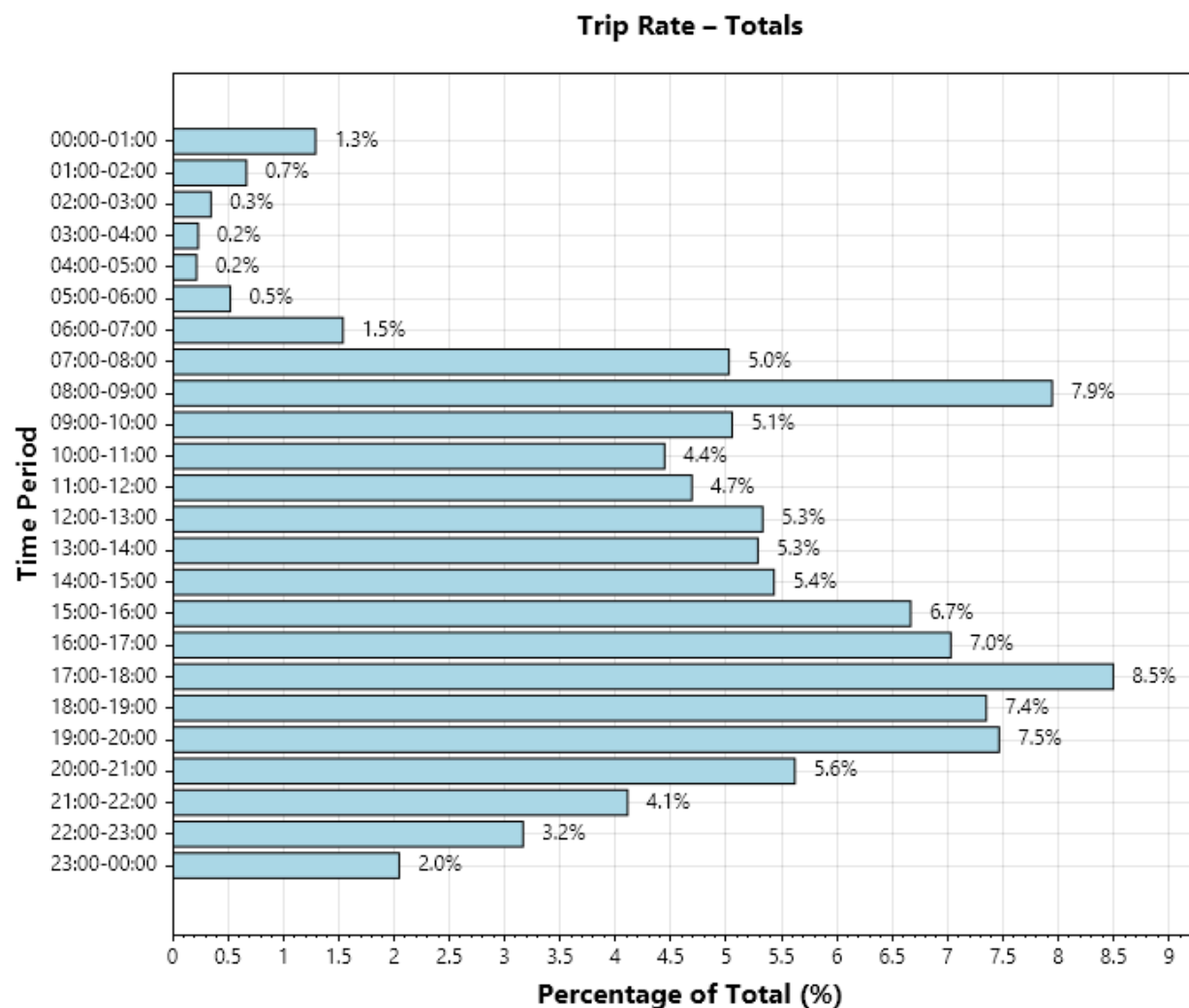


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Generated on: 2026-03-03 14:42

Audit Code: 58c29663-f5dd-4250-9399-afd0913adac3

Trip Rate Total Vehicles - Totals



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Generated on: 2026-03-03 14:42

15 LINSIG MODELLING RESULTS

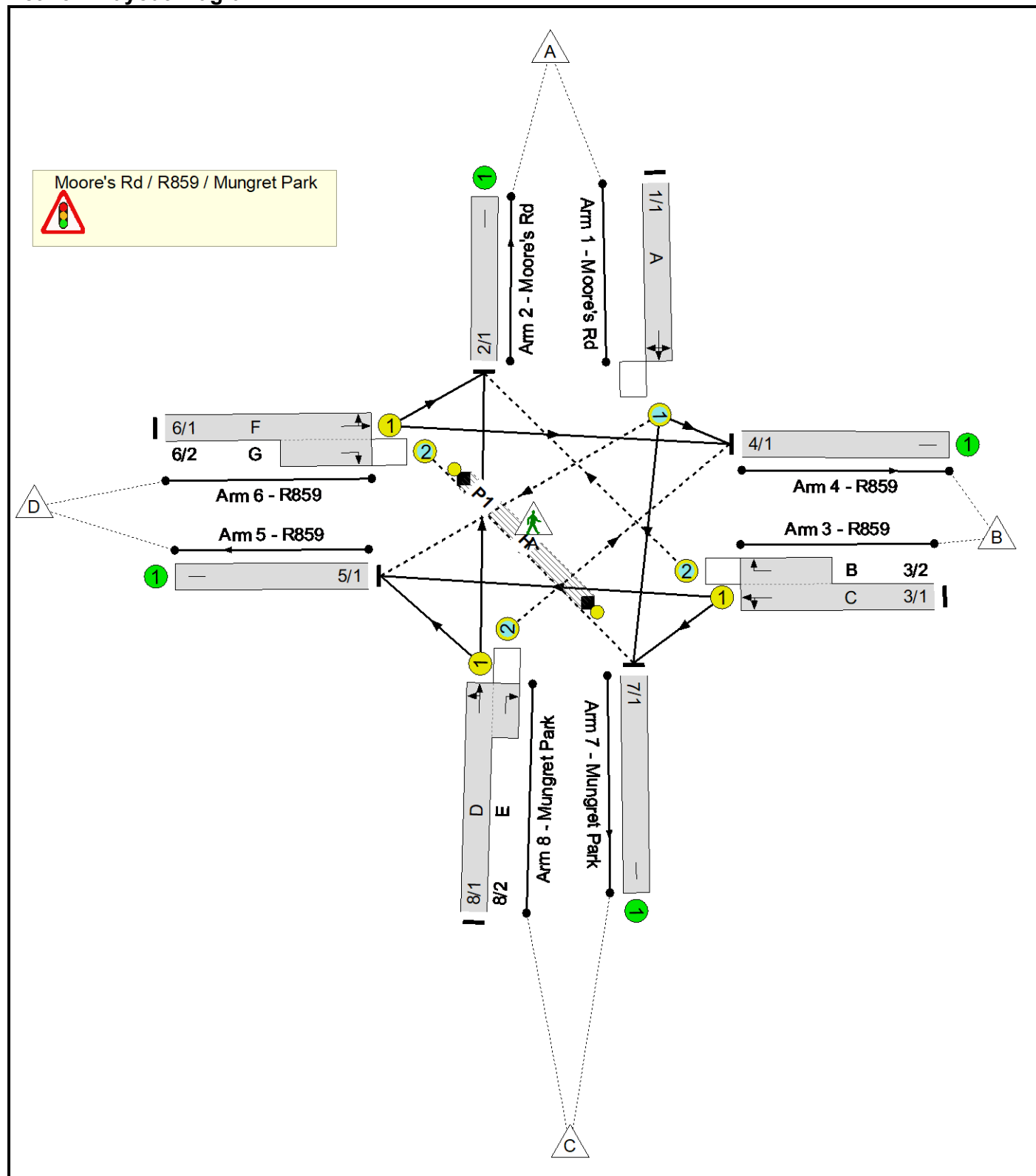
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Detailed Traffic Flow Data
Detailed Traffic Flow Data

User and Project Details

Project:	25124TT
Title:	Caheranardish LRD Limerick
Location:	
Additional detail:	
File name:	New LinSig Model 1.lsg3x
Author:	
Company:	MHL
Address:	
Linsig Version:	3, 3, 1, 0

Network Layout Diagram



Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Base Year 2024 - AM '	08:00	09:00	01:00	
2: 'Base Year 2024 - PM '	15:15	16:15	01:00	
3: '2028 Op Year Without Dev - AM '	08:00	09:00	01:00	
4: '2028 Op Year Without Dev - PM '	15:15	16:15	01:00	
5: '2028 Op Year With Dev - AM '	08:00	09:00	01:00	
6: '2028 Op Year With Dev - PM '	15:15	16:15	01:00	
7: '2033 Without Dev - AM '	08:00	09:00	01:00	
8: '2033 Without Dev - PM '	15:15	16:15	01:00	
9: '2033 With Dev - AM '	08:00	09:00	01:00	
10: '2033 With Dev - PM '	15:15	16:15	01:00	
11: '2043 Without Dev - AM '	08:00	09:00	01:00	
12: '2043 Without Dev - PM '	15:15	16:15	01:00	
13: '2043 With Dev - AM '	08:00	09:00	01:00	
14: '2043 With Dev - PM '	15:15	16:15	01:00	

Traffic Flows, Desired**FG1: 'Base Year 2024 - AM '****Desired Flow :**

Origin	Destination					
		A	B	C	D	Tot.
	A	0	56	169	3	228
	B	16	0	231	88	335
	C	53	234	0	1	288
	D	24	201	107	0	332
	Tot.	93	491	507	92	1183

Detailed Traffic Flow Data

FG2: 'Base Year 2024 - PM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	13	58	7	78
	B	17	0	91	191	299
	C	94	141	0	53	288
	D	13	136	23	0	172
	Tot.	124	290	172	251	837

FG3: '2028 Op Year Without Dev - AM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	62	188	3	253
	B	18	0	257	98	373
	C	59	260	0	1	320
	D	27	223	119	0	369
	Tot.	104	545	564	102	1315

FG4: '2028 Op Year Without Dev - PM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	14	64	8	86
	B	19	0	101	212	332
	C	104	157	0	59	320
	D	14	151	26	0	191
	Tot.	137	322	191	279	929

FG5: '2028 Op Year With Dev - AM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	62	188	5	255
	B	18	0	257	122	397
	C	59	260	0	4	323
	D	29	263	124	0	416
	Tot.	106	585	569	131	1391

Detailed Traffic Flow Data

FG6: '2028 Op Year With Dev - PM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	14	64	9	87
	B	19	0	101	237	357
	C	104	157	0	62	323
	D	16	170	28	0	214
	Tot.	139	341	193	308	981

FG7: '2033 Without Dev - AM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	70	210	4	284
	B	20	0	287	109	416
	C	66	291	0	1	358
	D	30	250	133	0	413
	Tot.	116	611	630	114	1471

FG8: '2033 Without Dev - PM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	16	72	9	97
	B	21	0	113	238	372
	C	117	175	0	66	358
	D	16	169	29	0	214
	Tot.	154	360	214	313	1041

FG9: '2033 With Dev - AM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	70	210	5	285
	B	20	0	287	134	441
	C	66	291	0	5	362
	D	33	290	133	0	456
	Tot.	119	651	630	144	1544

Detailed Traffic Flow Data

FG10: '2033 With Dev - PM '

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	16	72	10	98
	B	21	0	113	263	397
	C	117	175	0	69	361
	D	18	188	31	0	237
	Tot.	156	379	216	342	1093

FG11: '2043 Without Dev - AM '

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	82	246	4	332
	B	23	0	337	128	488
	C	77	341	0	1	419
	D	35	293	156	0	484
	Tot.	135	716	739	133	1723

FG12: '2043 Without Dev - PM '

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	19	84	10	113
	B	25	0	133	278	436
	C	137	205	0	77	419
	D	19	198	34	0	251
	Tot.	181	422	251	365	1219

FG13: '2043 With Dev - AM '

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	82	246	6	334
	B	23	0	337	153	513
	C	77	341	0	5	423
	D	38	333	156	0	527
	Tot.	138	756	739	164	1797

Detailed Traffic Flow Data

FG14: '2043 With Dev - PM '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	19	84	11	114
	B	25	0	133	303	461
	C	137	205	0	81	423
	D	20	217	36	0	273
	Tot.	182	441	253	395	1271

Scenario 1: 'Base Year 2024 - AM' (FG1: 'Base Year 2024 - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	56	169	3	228
	B	16	0	231	88	335
	C	53	234	0	1	288
	D	24	201	107	0	332
	Tot.	93	491	507	92	1183

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 2: 'Base Year 2024 - PM' (FG2: 'Base Year 2024 - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	13	58	7	78
	B	17	0	91	191	299
	C	94	141	0	53	288
	D	13	136	23	0	172
	Tot.	124	290	172	251	837

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 3: '2028 Without Dev AM' (FG3: '2028 Op Year Without Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	62	188	3	253
	B	18	0	257	98	373
	C	59	260	0	1	320
	D	27	223	119	0	369
	Tot.	104	545	564	102	1315

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 4: '2028 Without Dev PM' (FG4: '2028 Op Year Without Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	14	64	8	86
	B	19	0	101	212	332
	C	104	157	0	59	320
	D	14	151	26	0	191
	Tot.	137	322	191	279	929

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 5: '2028 with Dev AM' (FG5: '2028 Op Year With Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	62	188	5	255
	B	18	0	257	122	397
	C	59	260	0	4	323
	D	29	263	124	0	416
	Tot.	106	585	569	131	1391

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 6: '2028 with Dev PM' (FG6: '2028 Op Year With Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	14	64	9	87
	B	19	0	101	237	357
	C	104	157	0	62	323
	D	16	170	28	0	214
	Tot.	139	341	193	308	981

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 7: '2033 without Dev AM' (FG7: '2033 Without Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	70	210	4	284
	B	20	0	287	109	416
	C	66	291	0	1	358
	D	30	250	133	0	413
	Tot.	116	611	630	114	1471

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 8: '2033 without Dev PM' (FG8: '2033 Without Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	16	72	9	97
	B	21	0	113	238	372
	C	117	175	0	66	358
	D	16	169	29	0	214
	Tot.	154	360	214	313	1041

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 9: '2033 with Dev AM' (FG9: '2033 With Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	70	210	5	285
	B	20	0	287	134	441
	C	66	291	0	5	362
	D	33	290	133	0	456
	Tot.	119	651	630	144	1544

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 10: '2033 with Dev PM' (FG10: '2033 With Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	16	72	10	98
	B	21	0	113	263	397
	C	117	175	0	69	361
	D	18	188	31	0	237
	Tot.	156	379	216	342	1093

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 11: '2043 without Dev AM' (FG11: '2043 Without Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	82	246	4	332
	B	23	0	337	128	488
	C	77	341	0	1	419
	D	35	293	156	0	484
	Tot.	135	716	739	133	1723

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 12: '2043 without Dev PM' (FG12: '2043 Without Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	19	84	10	113
	B	25	0	133	278	436
	C	137	205	0	77	419
	D	19	198	34	0	251
	Tot.	181	422	251	365	1219

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 13: '2043 with Dev AM' (FG13: '2043 With Dev - AM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	82	246	6	334
	B	23	0	337	153	513
	C	77	341	0	5	423
	D	38	333	156	0	527
	Tot.	138	756	739	164	1797

Traffic Flows, Difference

Difference :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Scenario 14: '2043 with Dev PM' (FG14: '2043 With Dev - PM ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

Actual Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	19	84	11	114
	B	25	0	133	303	461
	C	137	205	0	81	423
	D	20	217	36	0	273
	Tot.	182	441	253	395	1271

Detailed Traffic Flow Data

Traffic Flows, Difference

Difference :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	0	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	0	0	0	0

Traffic Lane Flows

Lane	Scenario 1: Base Year 2024 - AM	Scenario 2: Base Year 2024 - PM	Scenario 3: 2028 Without Dev AM	Scenario 4: 2028 Without Dev PM	Scenario 5: 2028 with Dev AM	Scenario 6: 2028 with Dev PM
Junction: Moore's Rd / R859 / Mungret Park						
1/1	228	78	253	86	255	87
2/1	93	124	104	137	106	139
3/1 (with short)	335(In) 319(Out)	299(In) 282(Out)	373(In) 355(Out)	332(In) 313(Out)	397(In) 379(Out)	357(In) 338(Out)
3/2 (short)	16	17	18	19	18	19
4/1	491	290	545	322	585	341
5/1	92	251	102	279	131	308
6/1 (with short)	332(In) 225(Out)	172(In) 149(Out)	369(In) 250(Out)	191(In) 165(Out)	416(In) 292(Out)	214(In) 186(Out)
6/2 (short)	107	23	119	26	124	28
7/1	507	172	564	191	569	193
8/1 (with short)	288(In) 54(Out)	288(In) 147(Out)	320(In) 60(Out)	320(In) 163(Out)	323(In) 63(Out)	323(In) 166(Out)
8/2 (short)	234	141	260	157	260	157

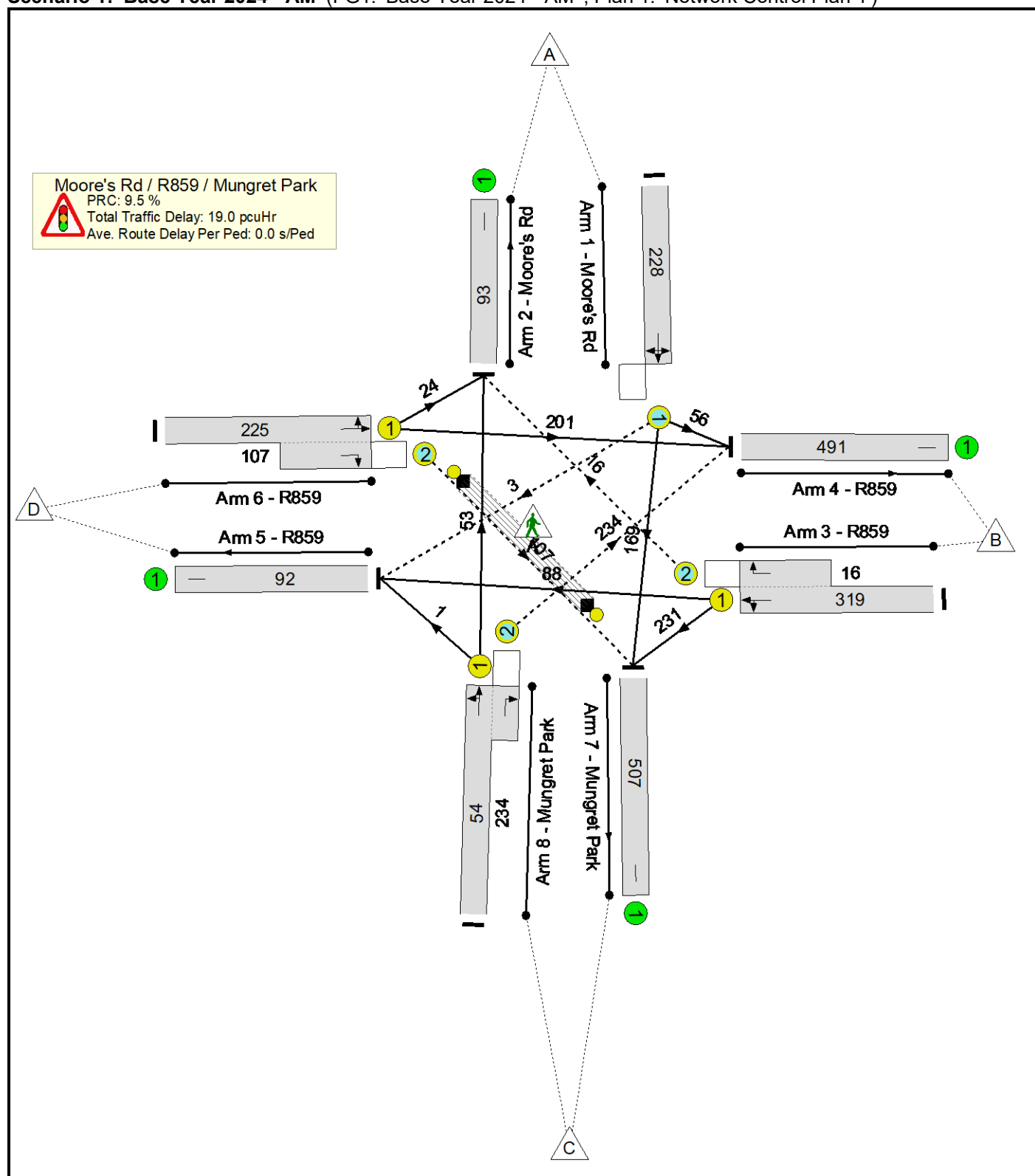
Detailed Traffic Flow Data

Lane	Scenario 7: 2033 without Dev AM	Scenario 8: 2033 without Dev PM	Scenario 9: 2033 with Dev AM	Scenario 10: 2033 with Dev PM	Scenario 11: 2043 without Dev AM	Scenario 12: 2043 without Dev PM
Junction: Moore's Rd / R859 / Mungret Park						
1/1	284	97	285	98	332	113
2/1	116	154	119	156	135	181
3/1 (with short)	416(In) 396(Out)	372(In) 351(Out)	441(In) 421(Out)	397(In) 376(Out)	488(In) 465(Out)	436(In) 411(Out)
3/2 (short)	20	21	20	21	23	25
4/1	611	360	651	379	716	422
5/1	114	313	144	342	133	365
6/1 (with short)	413(In) 280(Out)	214(In) 185(Out)	456(In) 323(Out)	237(In) 206(Out)	484(In) 328(Out)	251(In) 217(Out)
6/2 (short)	133	29	133	31	156	34
7/1	630	214	630	216	739	251
8/1 (with short)	358(In) 67(Out)	358(In) 183(Out)	362(In) 71(Out)	361(In) 186(Out)	419(In) 78(Out)	419(In) 214(Out)
8/2 (short)	291	175	291	175	341	205

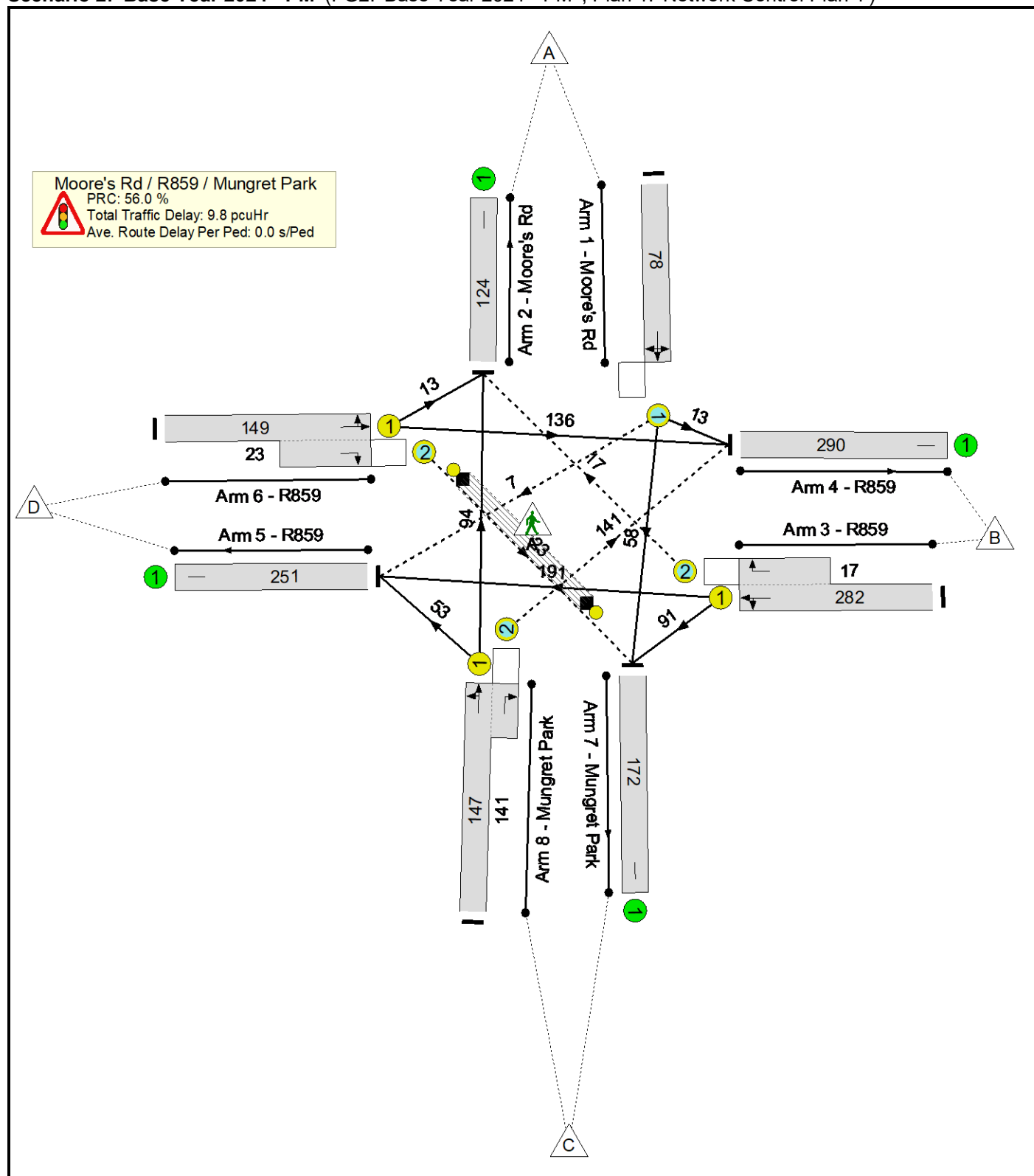
Lane	Scenario 13: 2043 with Dev AM	Scenario 14: 2043 with Dev PM
Junction: Moore's Rd / R859 / Mungret Park		
1/1	334	114
2/1	138	182
3/1 (with short)	513(In) 490(Out)	461(In) 436(Out)
3/2 (short)	23	25
4/1	756	441
5/1	164	395
6/1 (with short)	527(In) 371(Out)	273(In) 237(Out)
6/2 (short)	156	36
7/1	739	253
8/1 (with short)	423(In) 82(Out)	423(In) 218(Out)
8/2 (short)	341	205

Network Layout Diagram

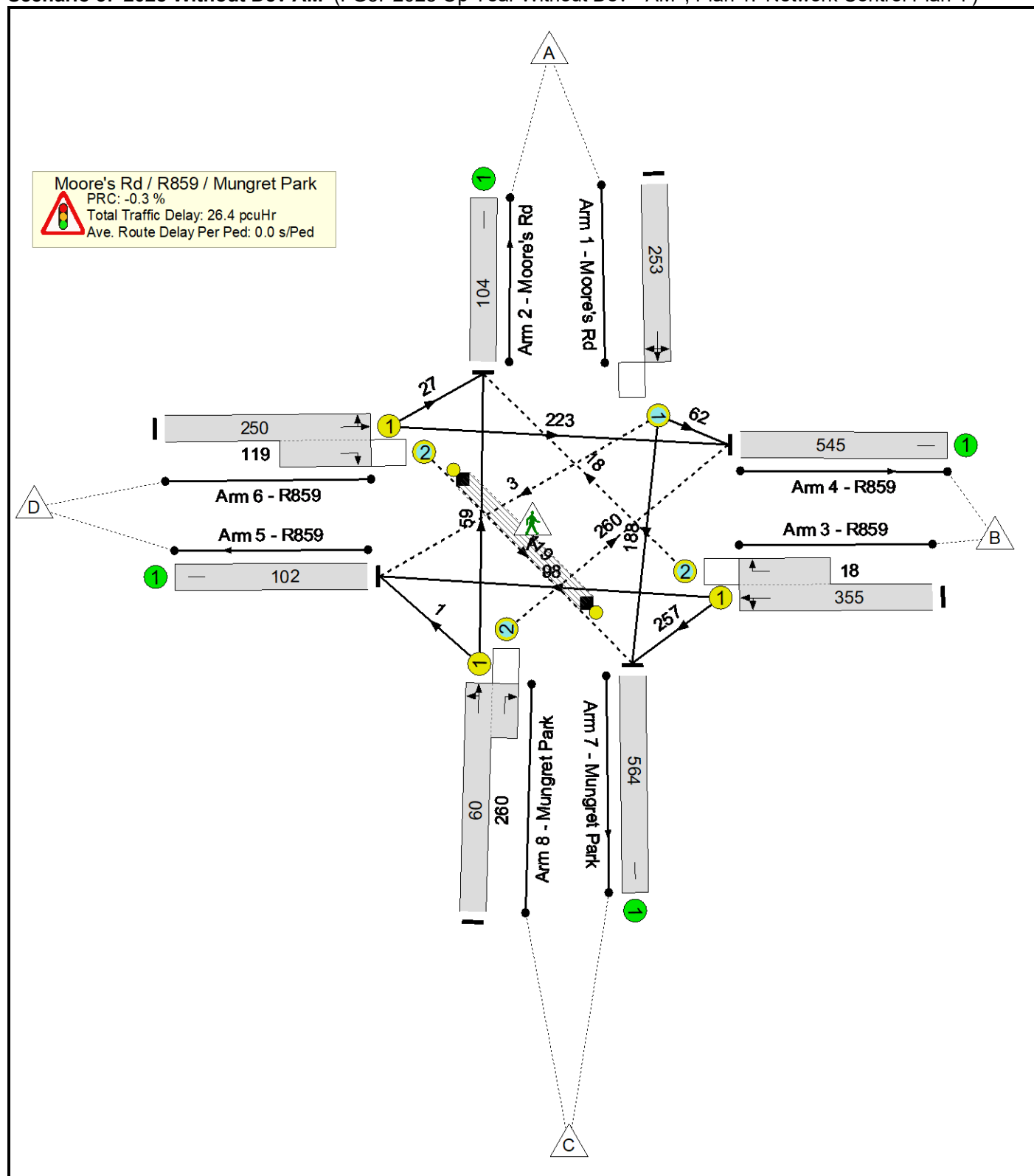
Scenario 1: 'Base Year 2024 - AM' (FG1: 'Base Year 2024 - AM', Plan 1: 'Network Control Plan 1')



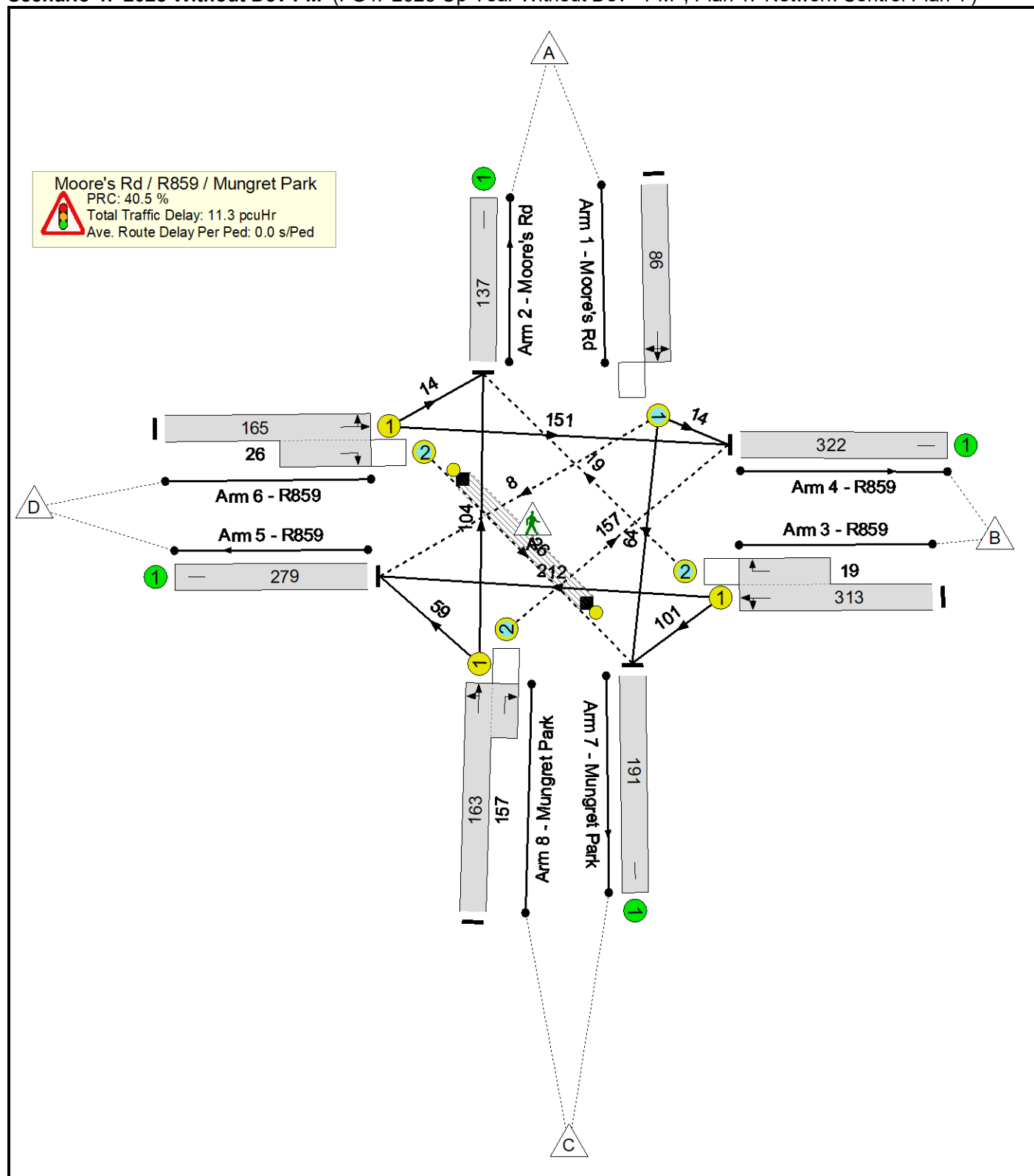
Scenario 2: 'Base Year 2024 - PM' (FG2: 'Base Year 2024 - PM ', Plan 1: 'Network Control Plan 1')



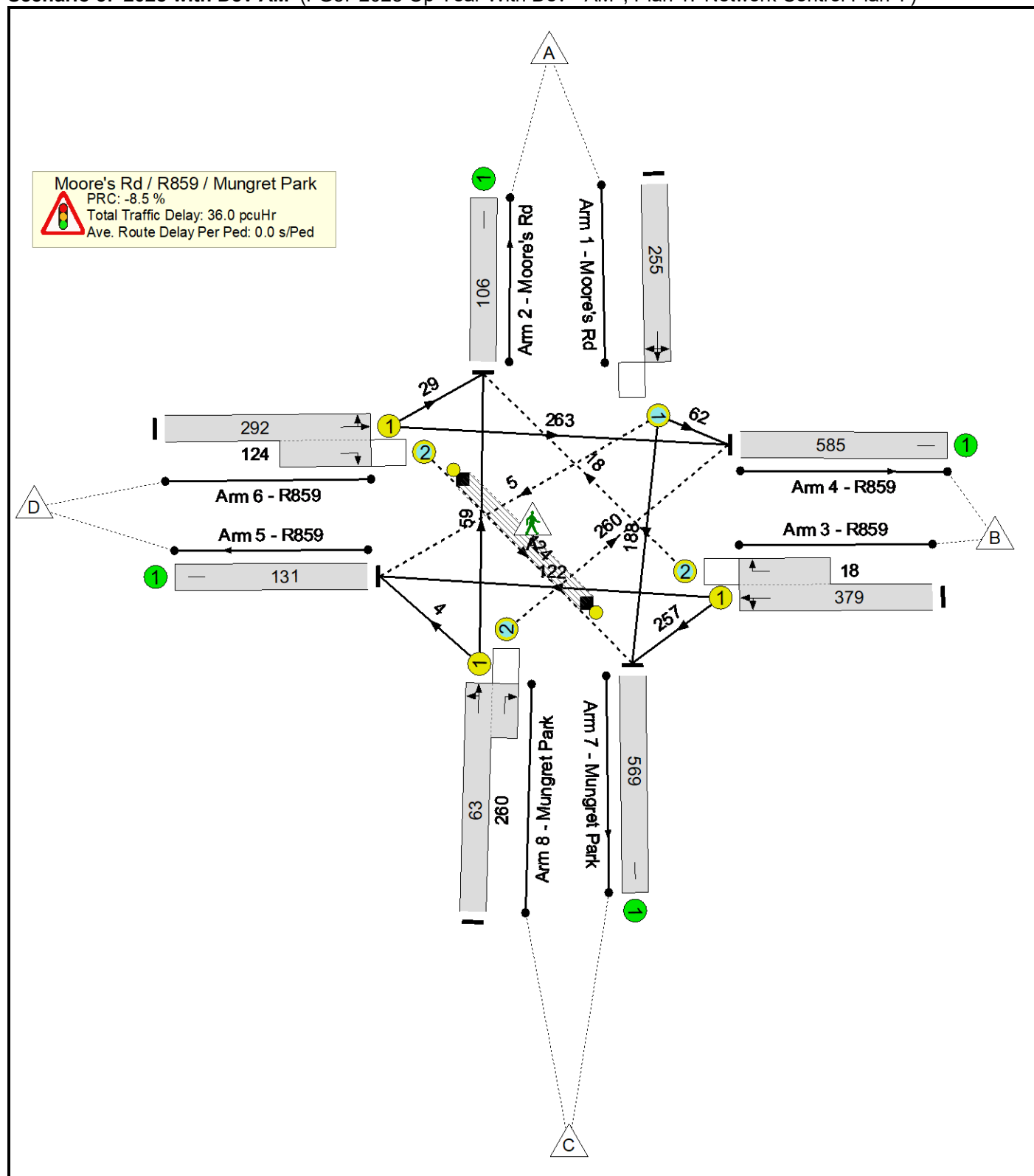
Scenario 3: '2028 Without Dev AM' (FG3: '2028 Op Year Without Dev - AM ', Plan 1: 'Network Control Plan 1')



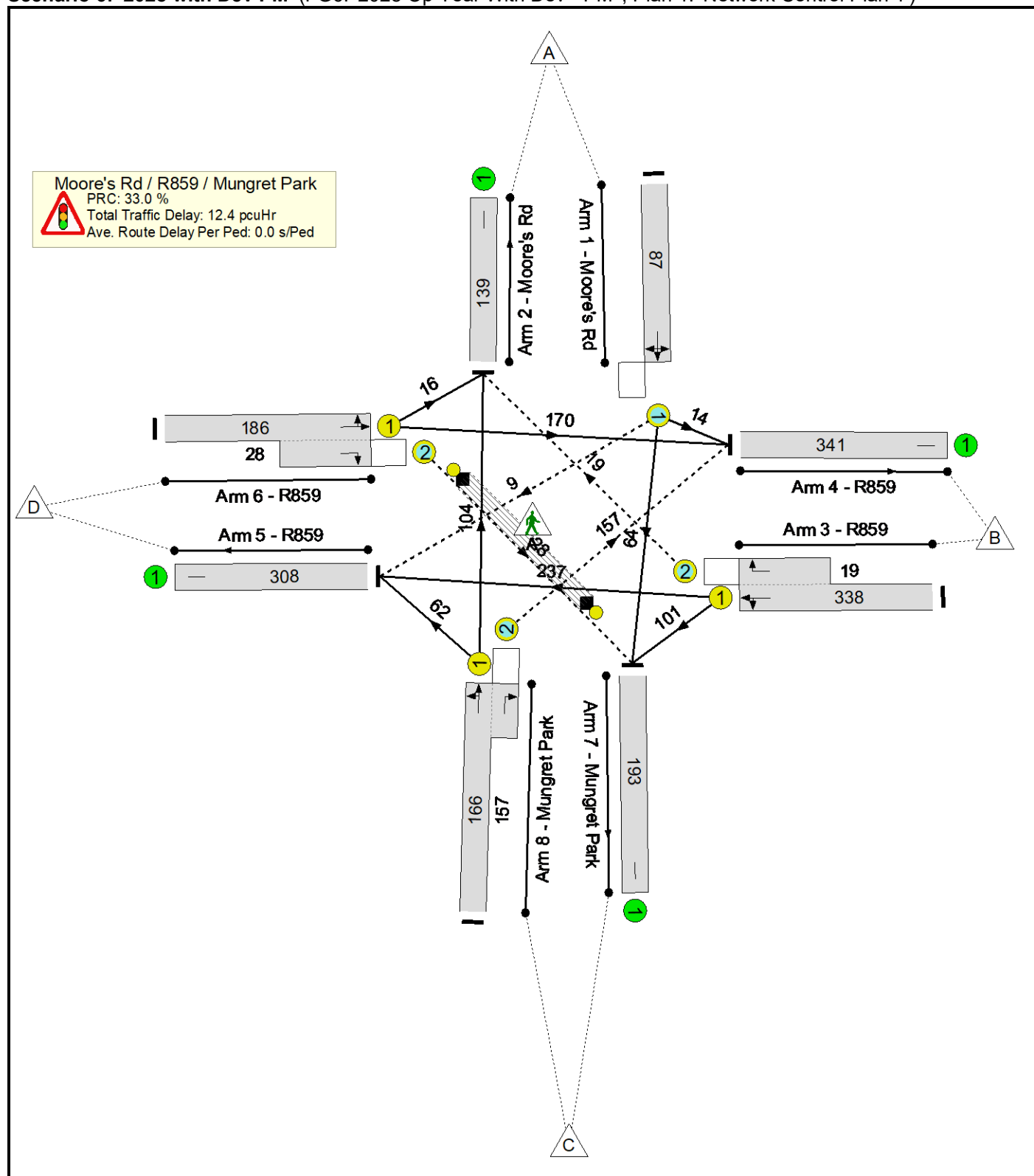
Scenario 4: '2028 Without Dev PM' (FG4: '2028 Op Year Without Dev - PM ', Plan 1: 'Network Control Plan 1')



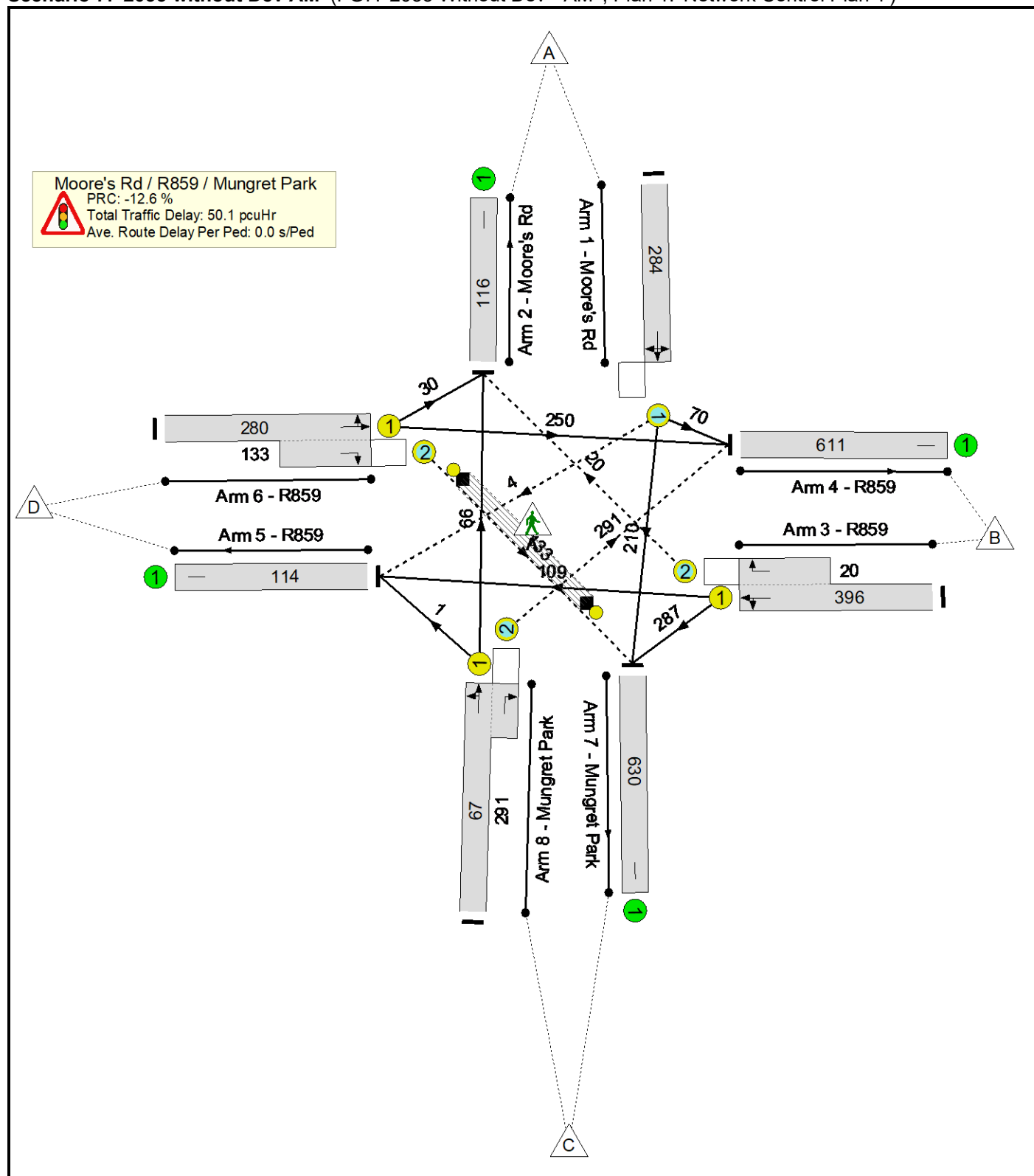
Scenario 5: '2028 with Dev AM' (FG5: '2028 Op Year With Dev - AM ', Plan 1: 'Network Control Plan 1')



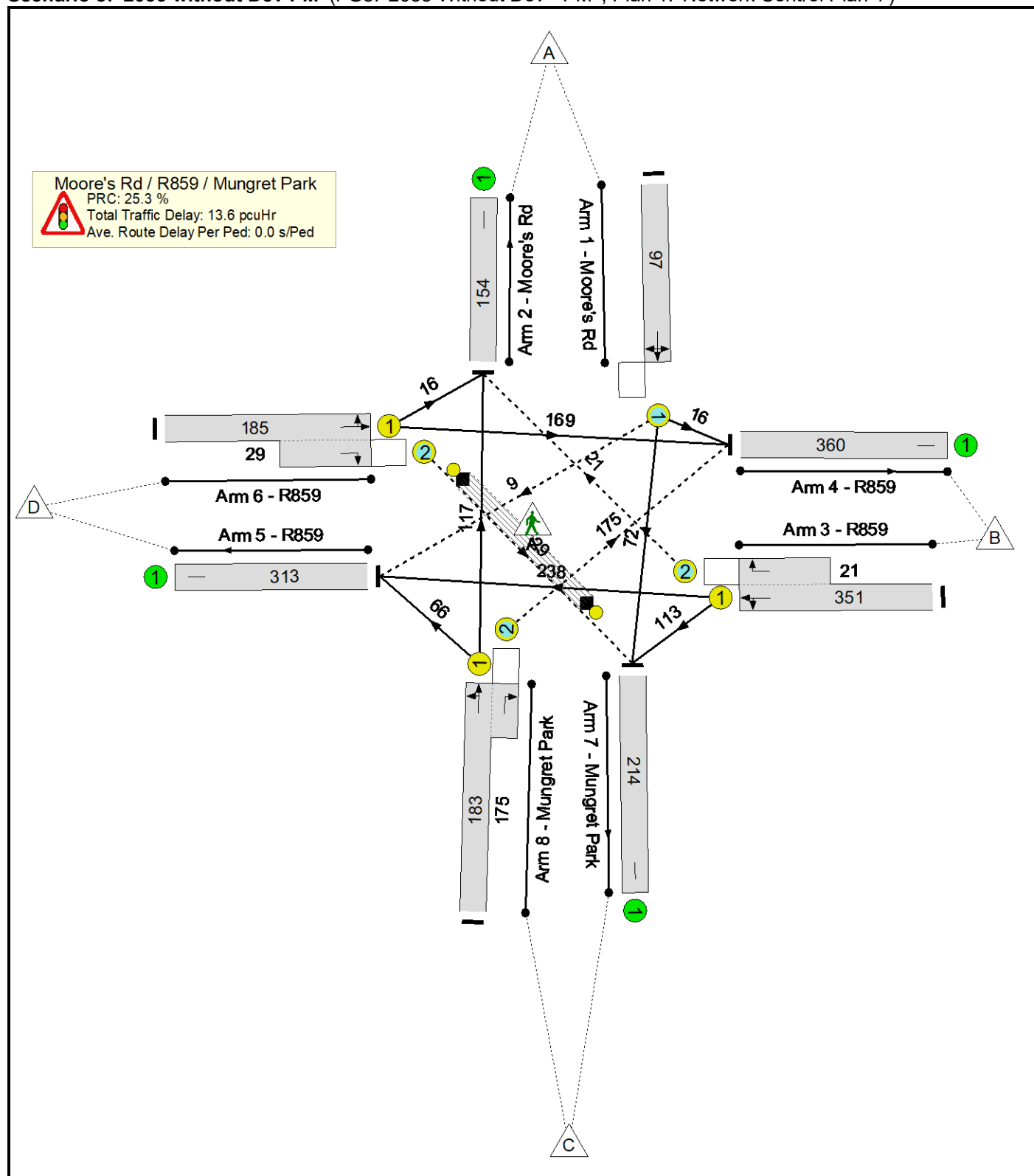
Scenario 6: '2028 with Dev PM' (FG6: '2028 Op Year With Dev - PM ', Plan 1: 'Network Control Plan 1')



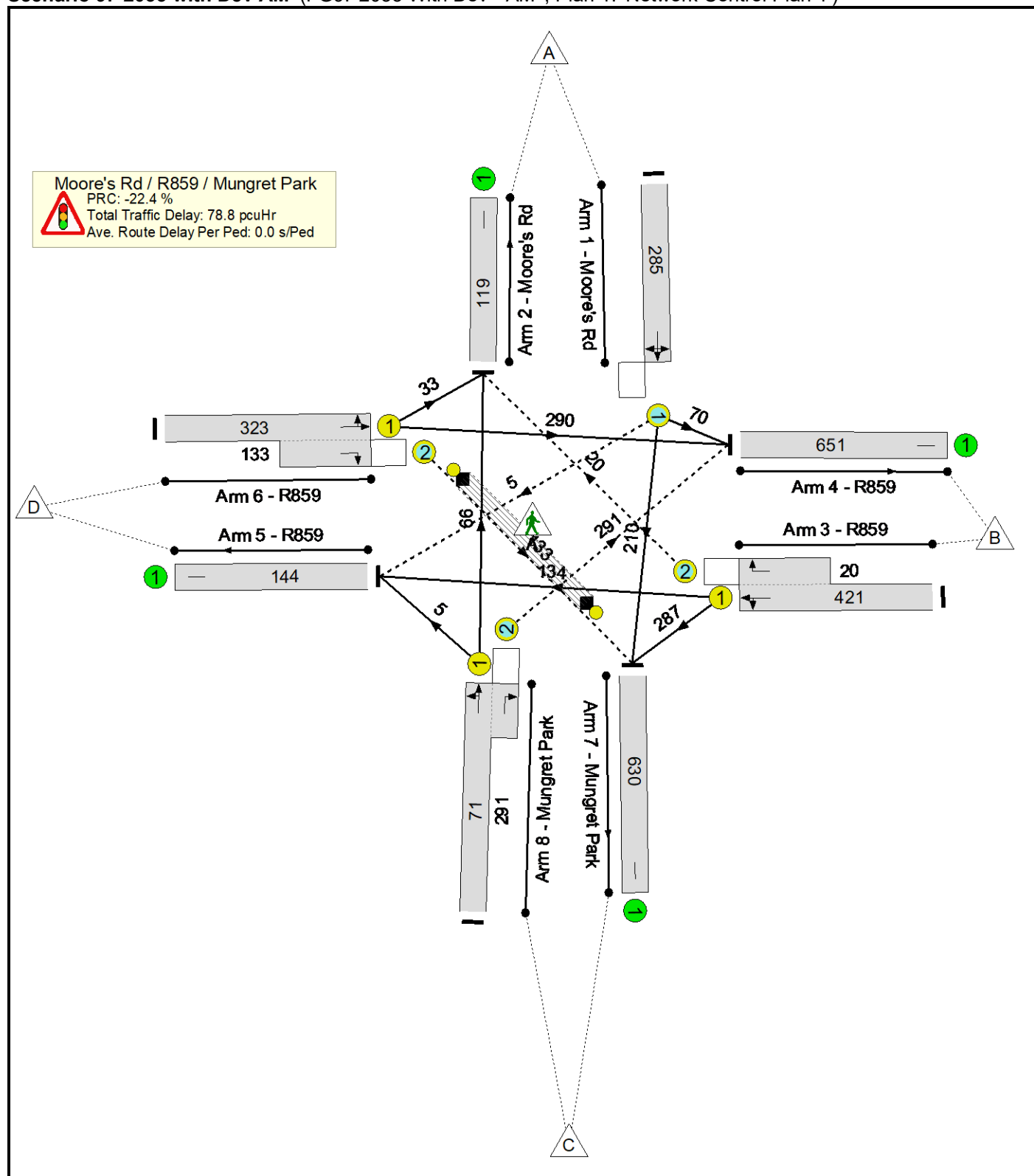
Scenario 7: '2033 without Dev AM' (FG7: '2033 Without Dev - AM ', Plan 1: 'Network Control Plan 1')



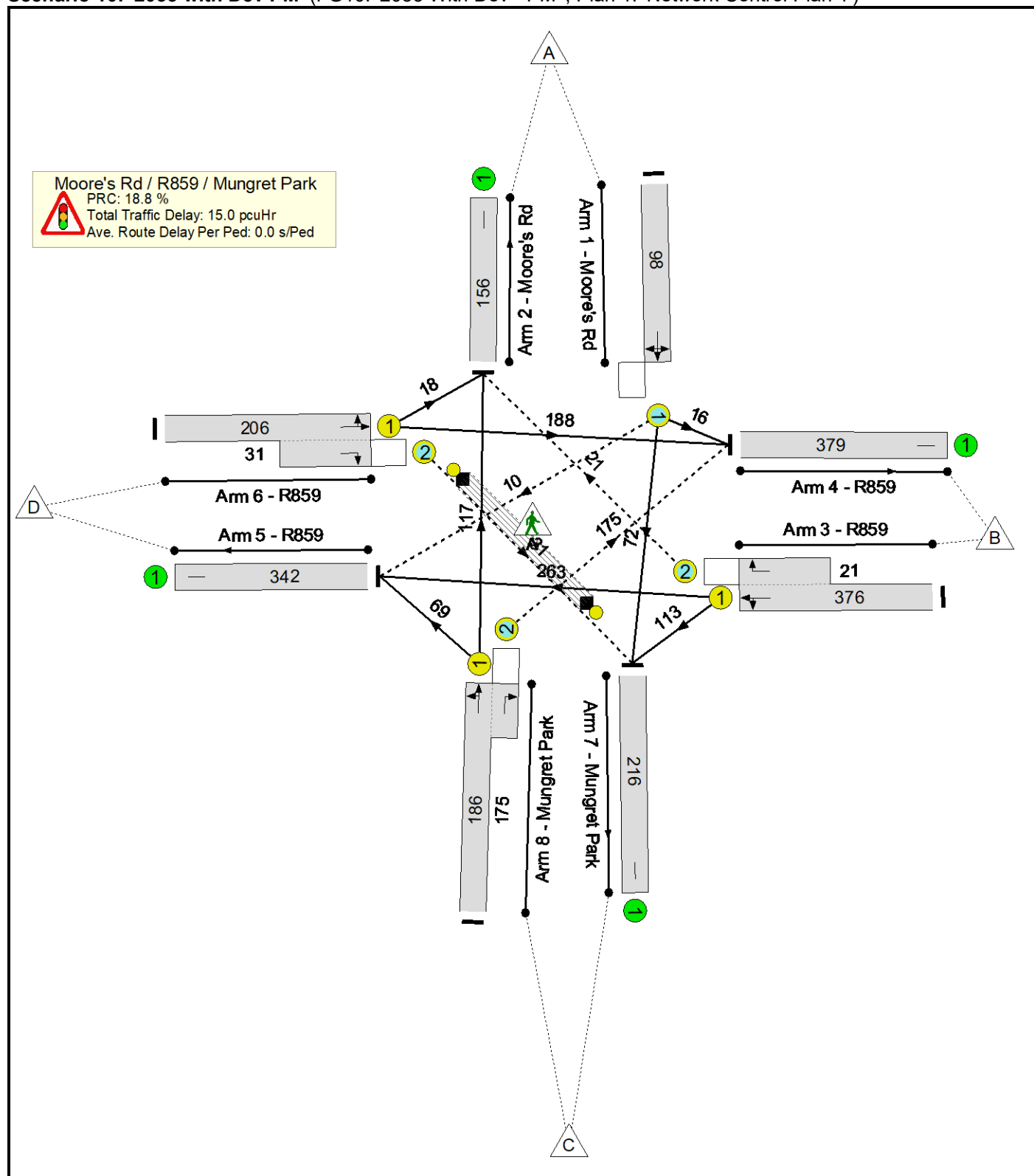
Scenario 8: '2033 without Dev PM' (FG8: '2033 Without Dev - PM ', Plan 1: 'Network Control Plan 1')



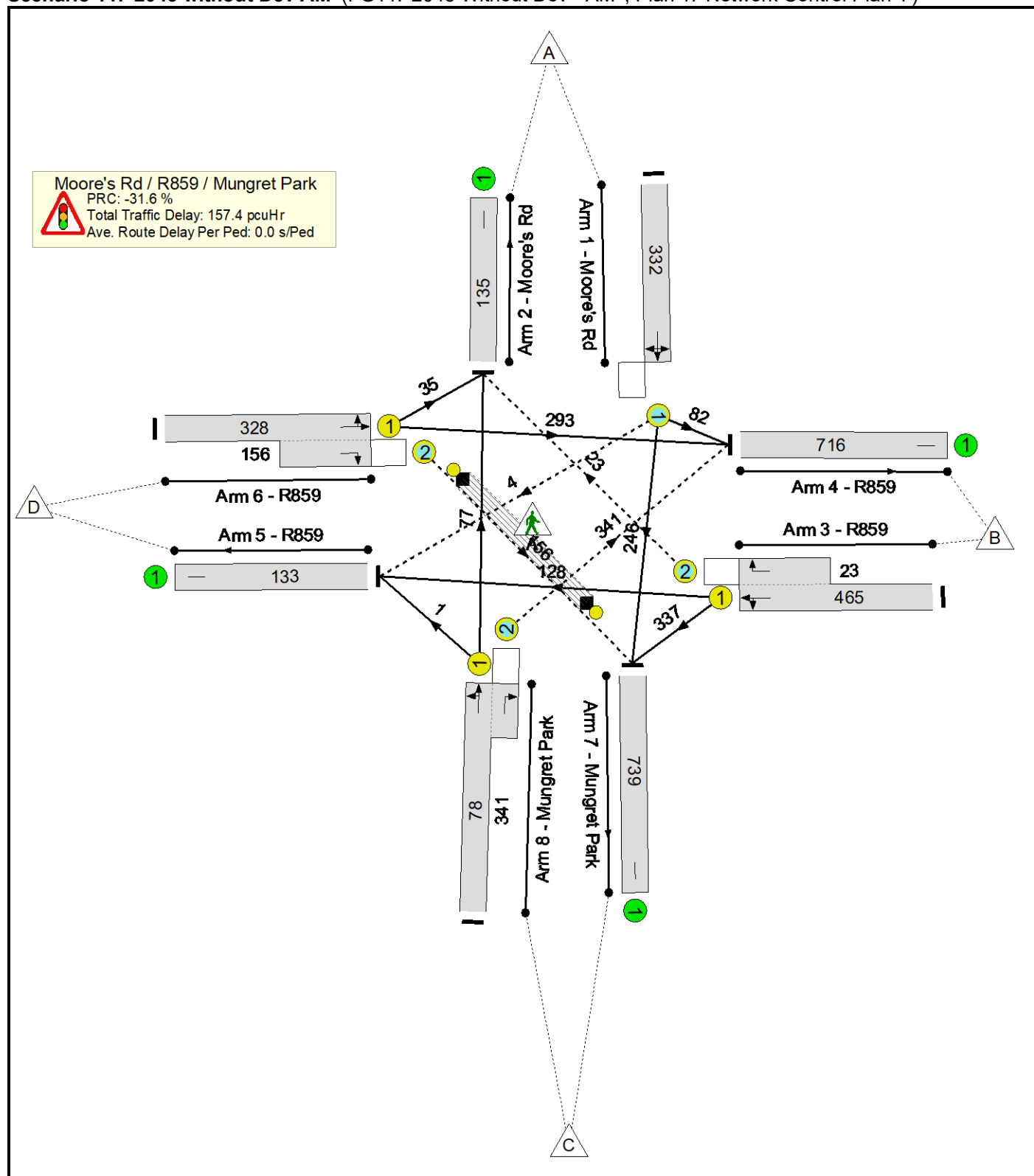
Scenario 9: '2033 with Dev AM' (FG9: '2033 With Dev - AM ', Plan 1: 'Network Control Plan 1')



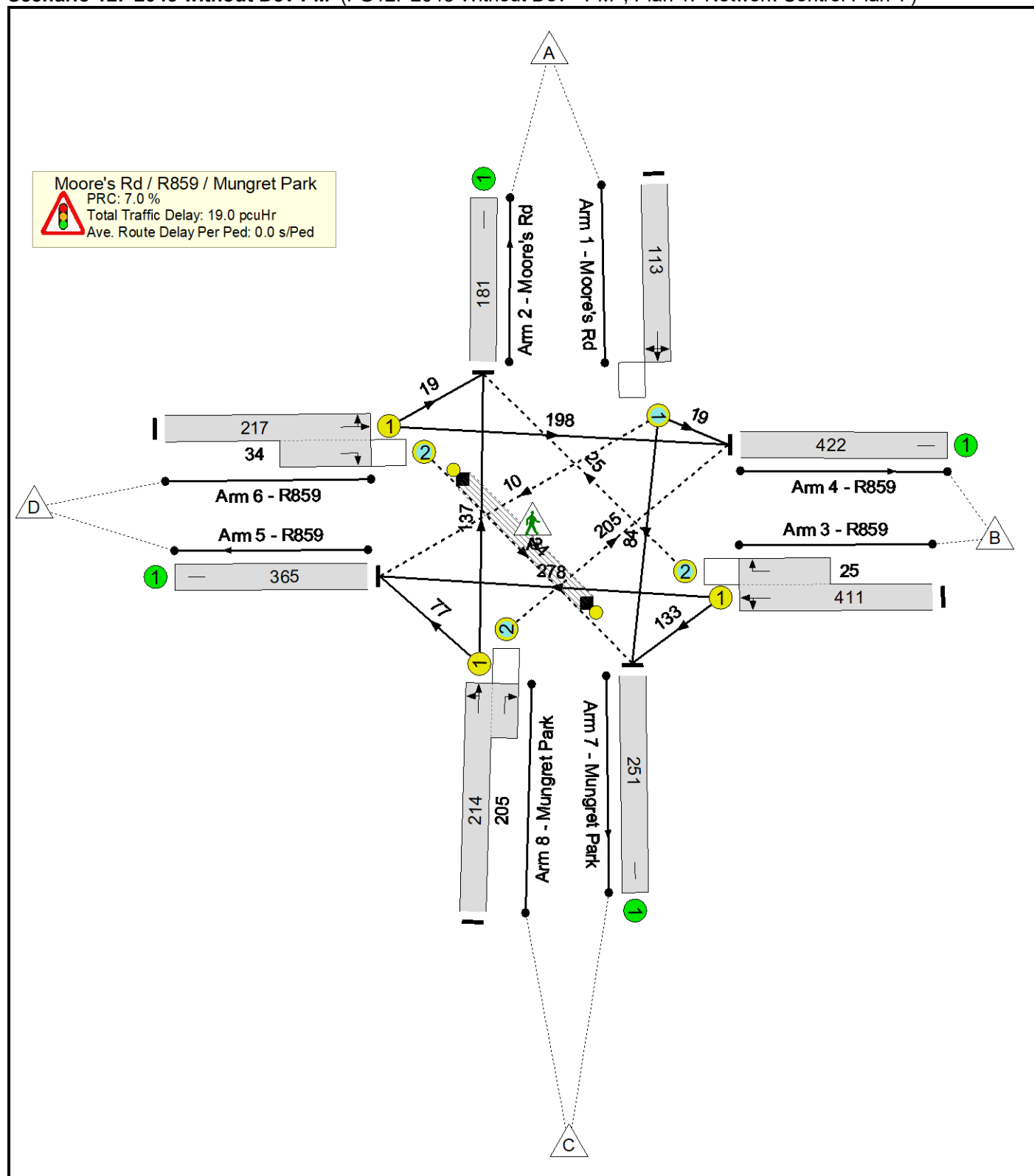
Scenario 10: '2033 with Dev PM' (FG10: '2033 With Dev - PM ', Plan 1: 'Network Control Plan 1')



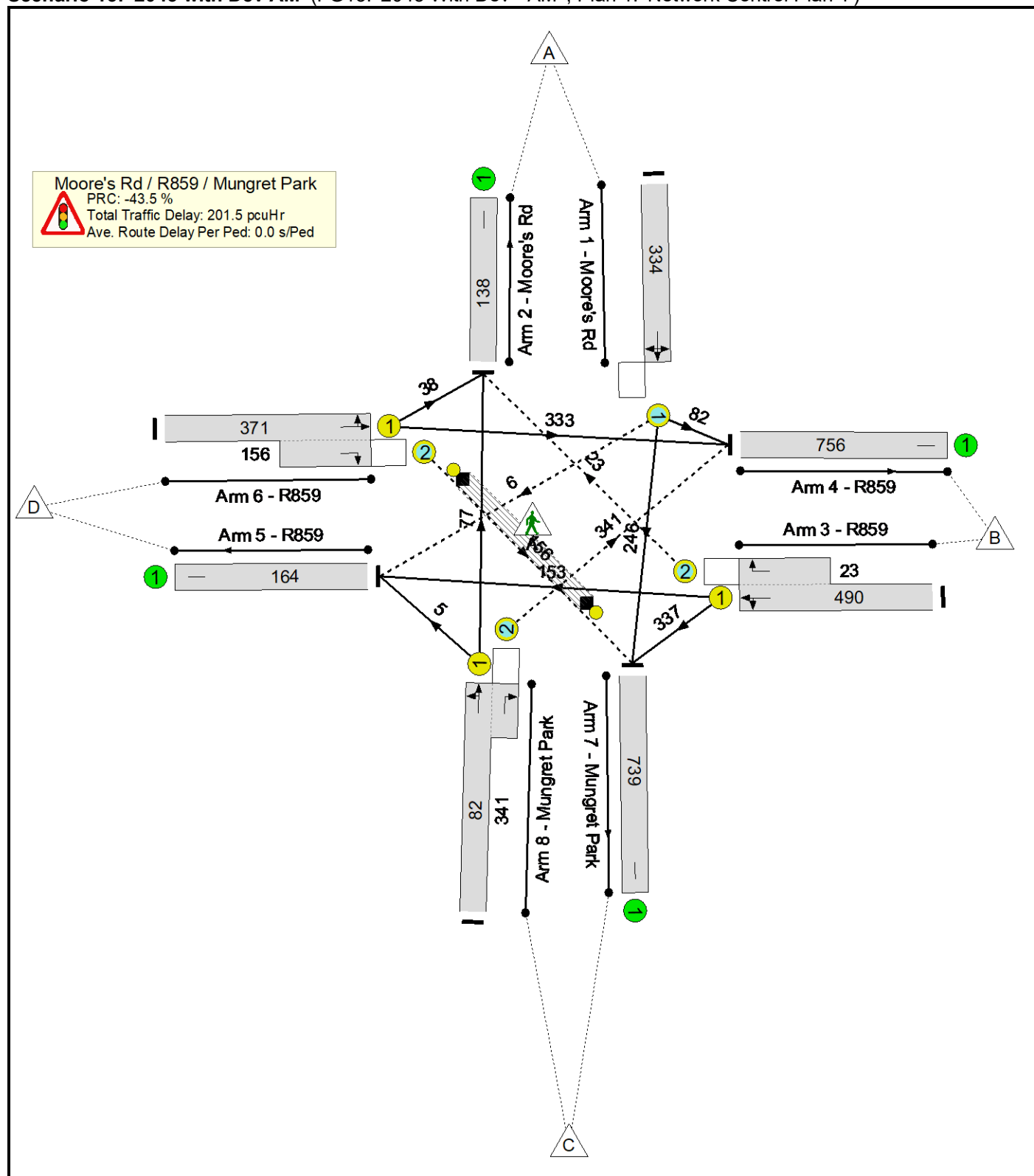
Scenario 11: '2043 without Dev AM' (FG11: '2043 Without Dev - AM ', Plan 1: 'Network Control Plan 1')



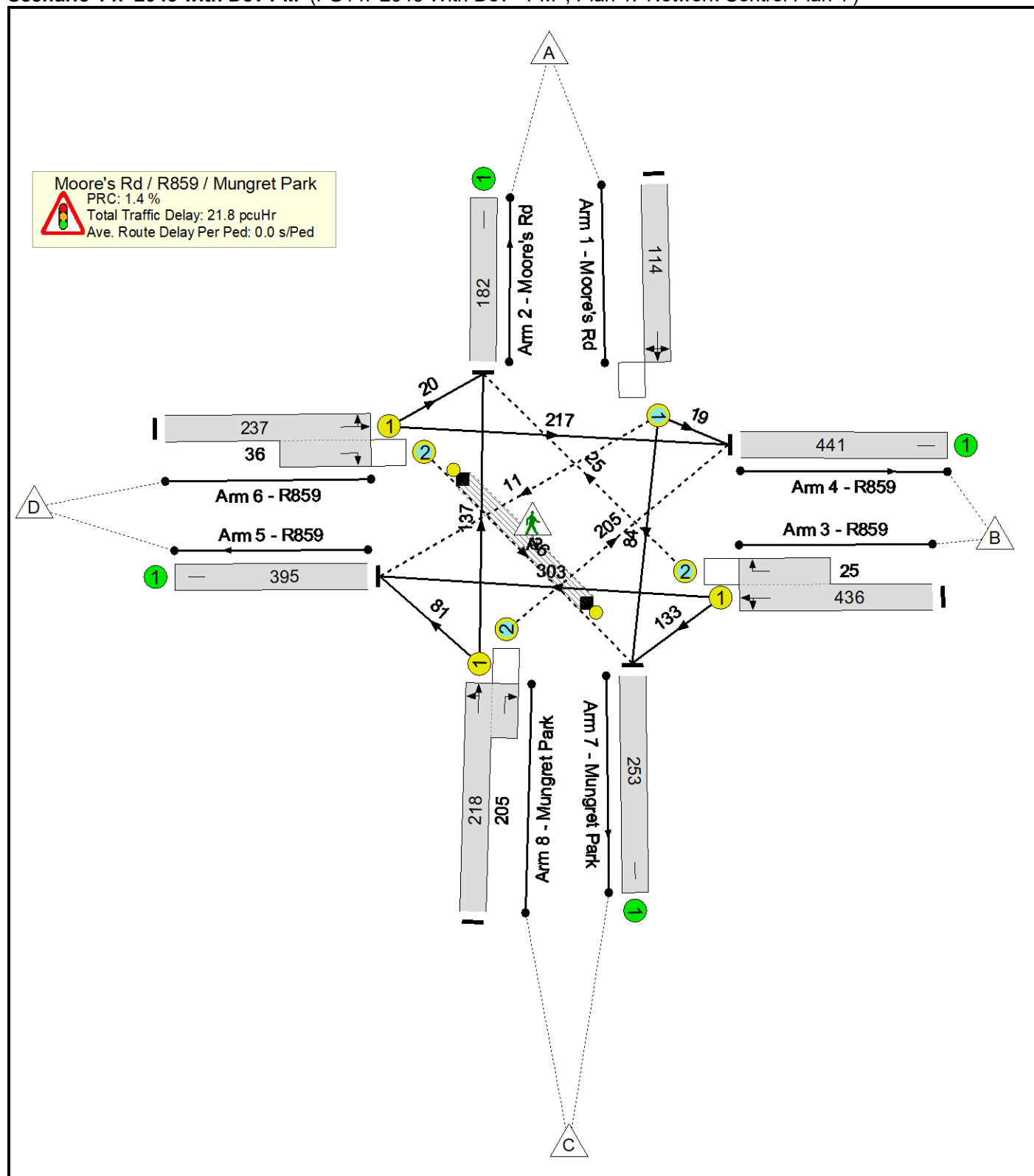
Scenario 12: '2043 without Dev PM' (FG12: '2043 Without Dev - PM ', Plan 1: 'Network Control Plan 1')



Scenario 13: '2043 with Dev AM' (FG13: '2043 With Dev - AM ', Plan 1: 'Network Control Plan 1')



Scenario 14: '2043 with Dev PM' (FG14: '2043 With Dev - PM ', Plan 1: 'Network Control Plan 1')



Detailed Traffic Flow Data

Traffic Route Flows

Route Num	Org Zone	Org Lane	Dest Zone	Dest Lane	Scenario 1: Base Year 2024 - AM	Scenario 2: Base Year 2024 - PM	Scenario 3: 2028 Without Dev AM	Scenario 4: 2028 Without Dev PM	Scenario 5: 2028 with Dev AM	Scenario 6: 2028 with Dev PM
1	A	1/1	B	4/1	56	13	62	14	62	14
3	A	1/1	C	7/1	169	58	188	64	188	64
6	A	1/1	D	5/1	3	7	3	8	5	9
2	B	3/1	A	2/1	16	17	18	19	18	19
12	B	3/1	C	7/1	231	91	257	101	257	101
7	B	3/1	D	5/1	88	191	98	212	122	237
4	C	8/1	A	2/1	53	94	59	104	59	104
5	C	8/1	B	4/1	234	141	260	157	260	157
8	C	8/1	D	5/1	1	53	1	59	4	62
9	D	6/1	A	2/1	24	13	27	14	29	16
10	D	6/1	B	4/1	201	136	223	151	263	170
11	D	6/1	C	7/1	107	23	119	26	124	28

Route Num	Org Zone	Org Lane	Dest Zone	Dest Lane	Scenario 7: 2033 without Dev AM	Scenario 8: 2033 without Dev PM	Scenario 9: 2033 with Dev AM	Scenario 10: 2033 with Dev PM	Scenario 11: 2043 without Dev AM	Scenario 12: 2043 without Dev PM
1	A	1/1	B	4/1	70	16	70	16	82	19
3	A	1/1	C	7/1	210	72	210	72	246	84
6	A	1/1	D	5/1	4	9	5	10	4	10
2	B	3/1	A	2/1	20	21	20	21	23	25
12	B	3/1	C	7/1	287	113	287	113	337	133
7	B	3/1	D	5/1	109	238	134	263	128	278
4	C	8/1	A	2/1	66	117	66	117	77	137
5	C	8/1	B	4/1	291	175	291	175	341	205
8	C	8/1	D	5/1	1	66	5	69	1	77
9	D	6/1	A	2/1	30	16	33	18	35	19
10	D	6/1	B	4/1	250	169	290	188	293	198
11	D	6/1	C	7/1	133	29	133	31	156	34

Detailed Traffic Flow Data

Route Num	Org Zone	Org Lane	Dest Zone	Dest Lane	Scenario 13: 2043 with Dev AM	Scenario 14: 2043 with Dev PM
1	A	1/1	B	4/1	82	19
3	A	1/1	C	7/1	246	84
6	A	1/1	D	5/1	6	11
2	B	3/1	A	2/1	23	25
12	B	3/1	C	7/1	337	133
7	B	3/1	D	5/1	153	303
4	C	8/1	A	2/1	77	137
5	C	8/1	B	4/1	341	205
8	C	8/1	D	5/1	5	81
9	D	6/1	A	2/1	38	20
10	D	6/1	B	4/1	333	217
11	D	6/1	C	7/1	156	36

16 JUNCTION 10 MODELLING RESULTS

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Junctions 10	
ARCADY 10 - Roundabout Module	
Version: 10.1.1.1905	
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For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com	
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution	

Filename: Junction 2.j10

Path: N:\TIA\25124TT Caheranardrish LRD Limerick\TTA\Traffic Modelling

Report generation date: 3/4/2026 5:01:26 PM

-
- »2025 - Base Year, AM
 - »2025 - Base Year, PM
 - »2028 - Opening Year Without Dev, AM
 - »2028 - Opening Year Without Dev, PM
 - »2028 - Opening Year With Dev, AM
 - »2028 - Opening Year With Dev, PM
 - »2033 Without Dev, AM
 - »2033 Without Dev, PM
 - »2033 With Dev, AM
 - »2033 With Dev, PM
 - »2043 Without Dev, AM
 - »2043 Without Dev, PM
 - »2043 With Dev, AM
 - »2043 With Dev, PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 - Base Year											
Arm A	D1	0.3	3.89	0.25	A	140 % [Arm C]	D2	0.1	3.19	0.12	A	366 % [Arm C]
Arm B		0.2	4.05	0.14	A			0.1	3.75	0.11	A	
Arm C		0.5	5.09	0.34	A			0.2	3.90	0.16	A	
	2028 - Opening Year Without Dev											
Arm A	D3	0.4	4.09	0.29	A	115 % [Arm C]	D4	0.2	3.26	0.14	A	320 % [Arm C]
Arm B		0.2	4.21	0.15	A			0.1	3.85	0.13	A	
Arm C		0.6	5.47	0.38	A			0.2	4.01	0.18	A	
	2028 - Opening Year With Dev											
Arm A	D5	0.4	4.27	0.30	A	95 % [Arm C]	D6	0.2	3.38	0.16	A	260 % [Arm C]
Arm B		0.3	4.70	0.24	A			0.2	4.03	0.17	A	
Arm C		0.7	5.93	0.42	A			0.3	4.21	0.21	A	
	2033 Without Dev											
Arm A	D7	0.5	4.36	0.32	A	92 % [Arm C]	D8	0.2	3.35	0.16	A	273 % [Arm C]
Arm B		0.2	4.40	0.17	A			0.2	3.97	0.15	A	
Arm C		0.8	6.00	0.43	A			0.3	4.16	0.20	A	
	2033 With Dev											
Arm A	D9	0.5	4.56	0.34	A	76 % [Arm C]	D10	0.2	3.48	0.18	A	225 % [Arm C]
Arm B		0.4	4.95	0.27	A			0.2	4.17	0.19	A	
Arm C		0.9	6.56	0.47	A			0.3	4.37	0.23	A	
	2043 Without Dev											
Arm A	D11	0.6	4.88	0.38	A	64 % [Arm C]	D12	0.2	3.48	0.18	A	219 % [Arm C]
Arm B		0.3	4.76	0.21	A			0.2	4.18	0.17	A	
Arm C		1.0	7.13	0.51	A			0.3	4.40	0.24	A	
	2043 With Dev											
Arm A	D13	0.7	5.13	0.41	A	52 % [Arm C]	D14	0.3	3.63	0.21	A	183 % [Arm C]
Arm B		0.4	5.41	0.30	A			0.3	4.40	0.21	A	
Arm C		1.2	7.93	0.55	A			0.4	4.64	0.27	A	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	3/4/2026
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MHL\szare
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 - Base Year	AM	ONE HOUR	00:00	01:30	15	✓
D2	2025 - Base Year	PM	ONE HOUR	15:15	16:45	15	✓
D3	2028 - Opening Year Without Dev	AM	ONE HOUR	00:00	01:30	15	✓
D4	2028 - Opening Year Without Dev	PM	ONE HOUR	15:15	16:45	15	✓
D5	2028 - Opening Year With Dev	AM	ONE HOUR	00:00	01:30	15	✓
D6	2028 - Opening Year With Dev	PM	ONE HOUR	15:15	16:45	15	✓
D7	2033 Without Dev	AM	ONE HOUR	00:00	01:30	15	✓
D8	2033 Without Dev	PM	ONE HOUR	15:15	16:45	15	✓
D9	2033 With Dev	AM	ONE HOUR	00:00	01:30	15	✓
D10	2033 With Dev	PM	ONE HOUR	15:15	16:45	15	✓
D11	2043 Without Dev	AM	ONE HOUR	00:00	01:30	15	✓
D12	2043 Without Dev	PM	ONE HOUR	15:15	16:45	15	✓
D13	2043 With Dev	AM	ONE HOUR	00:00	01:30	15	✓
D14	2043 With Dev	PM	ONE HOUR	15:15	16:45	15	✓

Analysis Set Details

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

2025 - Base Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	4.45	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	140	Arm C	4.45	A

Arms

Arms

Arm	Name	Description	No give-way line
A	untitled		
B	untitled		
C	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.50	5.00	30.0	7.5	35.0	30.0		
B	3.20	4.20	23.5	7.5	35.0	20.0		
C	3.00	4.20	40.0	8.0	35.0	30.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.552	1334
B	0.531	1178
C	0.518	1150

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 - Base Year	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	287	100.000
B		ONE HOUR	✓	126	100.000
C		ONE HOUR	✓	331	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	70	69	148
	B	66	0	60
	C	179	111	41

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.25	3.89	0.3	A	263	395
B	0.14	4.05	0.2	A	116	173
C	0.34	5.09	0.5	A	304	456

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	216	54	114	1271	0.170	215	236	0.0	0.2	3.408	A
B	95	24	194	1075	0.088	94	135	0.0	0.1	3.668	A
C	249	62	102	1097	0.227	248	187	0.0	0.3	4.236	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	258	65	136	1259	0.205	258	283	0.2	0.3	3.597	A
B	113	28	233	1055	0.107	113	162	0.1	0.1	3.822	A
C	298	74	122	1087	0.274	297	224	0.3	0.4	4.559	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	316	79	167	1242	0.255	316	346	0.3	0.3	3.887	A
B	139	35	285	1027	0.135	139	198	0.1	0.2	4.052	A
C	364	91	150	1072	0.340	364	274	0.4	0.5	5.082	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	316	79	167	1242	0.255	316	347	0.3	0.3	3.889	A
B	139	35	285	1027	0.135	139	198	0.2	0.2	4.053	A
C	364	91	150	1072	0.340	364	274	0.5	0.5	5.085	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	258	65	137	1258	0.205	258	284	0.3	0.3	3.600	A
B	113	28	233	1055	0.107	113	162	0.2	0.1	3.827	A
C	298	74	122	1086	0.274	298	224	0.5	0.4	4.571	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	216	54	115	1271	0.170	216	237	0.3	0.2	3.414	A
B	95	24	195	1075	0.088	95	136	0.1	0.1	3.676	A
C	249	62	102	1097	0.227	250	188	0.4	0.3	4.250	A

2025 - Base Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	3.61	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	366	Arm C	3.61	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 - Base Year	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	146	100.000
B		ONE HOUR	✓	112	100.000
C		ONE HOUR	✓	159	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	53	31	62
	B	39	0	73
	C	83	28	48

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.12	3.19	0.1	A	134	201
B	0.11	3.75	0.1	A	103	154
C	0.16	3.90	0.2	A	146	219

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	110	27	57	1302	0.084	110	131	0.0	0.1	3.018	A
B	84	21	122	1113	0.076	84	44	0.0	0.1	3.497	A
C	120	30	69	1114	0.107	119	137	0.0	0.1	3.616	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	131	33	68	1296	0.101	131	157	0.1	0.1	3.089	A
B	101	25	146	1101	0.091	101	53	0.1	0.1	3.599	A
C	143	36	83	1107	0.129	143	164	0.1	0.1	3.733	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	161	40	84	1288	0.125	161	193	0.1	0.1	3.193	A
B	123	31	179	1083	0.114	123	65	0.1	0.1	3.749	A
C	175	44	101	1097	0.160	175	201	0.1	0.2	3.903	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	161	40	84	1288	0.125	161	193	0.1	0.1	3.193	A
B	123	31	179	1083	0.114	123	65	0.1	0.1	3.750	A
C	175	44	101	1097	0.160	175	201	0.2	0.2	3.903	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	131	33	68	1296	0.101	131	157	0.1	0.1	3.092	A
B	101	25	147	1100	0.091	101	53	0.1	0.1	3.600	A
C	143	36	83	1107	0.129	143	165	0.2	0.1	3.737	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	110	27	57	1302	0.084	110	132	0.1	0.1	3.021	A
B	84	21	123	1113	0.076	84	44	0.1	0.1	3.498	A
C	120	30	69	1114	0.107	120	138	0.1	0.1	3.621	A

2028 - Opening Year Without Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	4.72	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	115	Arm C	4.72	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2028 - Opening Year Without Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	319	100.000
B		ONE HOUR	✓	140	100.000
C		ONE HOUR	✓	368	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	78	77	164
	B	73	0	67
	C	199	123	46

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.29	4.09	0.4	A	293	439
B	0.15	4.21	0.2	A	128	193
C	0.38	5.47	0.6	A	338	507

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	240	60	127	1264	0.190	239	262	0.0	0.2	3.509	A
B	105	26	216	1064	0.099	105	150	0.0	0.1	3.752	A
C	277	69	113	1091	0.254	276	208	0.0	0.3	4.407	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	287	72	152	1250	0.229	287	314	0.2	0.3	3.735	A
B	126	31	259	1041	0.121	126	180	0.1	0.1	3.933	A
C	331	83	136	1080	0.306	330	249	0.3	0.4	4.803	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	351	88	186	1231	0.285	351	385	0.3	0.4	4.086	A
B	154	39	317	1010	0.153	154	220	0.1	0.2	4.203	A
C	405	101	166	1064	0.381	404	305	0.4	0.6	5.454	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	351	88	186	1231	0.285	351	385	0.4	0.4	4.090	A
B	154	39	317	1010	0.153	154	220	0.2	0.2	4.206	A
C	405	101	166	1064	0.381	405	305	0.6	0.6	5.466	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	287	72	152	1250	0.229	287	315	0.4	0.3	3.743	A
B	126	31	259	1041	0.121	126	180	0.2	0.1	3.938	A
C	331	83	136	1079	0.306	331	249	0.6	0.4	4.819	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	240	60	127	1264	0.190	240	264	0.3	0.2	3.521	A
B	105	26	217	1063	0.099	106	151	0.1	0.1	3.762	A
C	277	69	114	1091	0.254	277	209	0.4	0.3	4.429	A

2028 - Opening Year Without Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	3.70	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	320	Arm C	3.70	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2028 - Opening Year Without Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	162	100.000
B		ONE HOUR	✓	124	100.000
C		ONE HOUR	✓	176	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	59	34	69
	B	43	0	81
From	C	92	31	53

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.14	3.26	0.2	A	149	223
B	0.13	3.85	0.1	A	114	171
C	0.18	4.01	0.2	A	162	242

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	122	30	63	1299	0.094	122	145	0.0	0.1	3.057	A
B	93	23	136	1106	0.084	93	49	0.0	0.1	3.553	A
C	133	33	77	1110	0.119	132	152	0.0	0.1	3.678	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	146	36	75	1292	0.113	146	174	0.1	0.1	3.138	A
B	111	28	163	1092	0.102	111	58	0.1	0.1	3.670	A
C	158	40	92	1102	0.144	158	182	0.1	0.2	3.812	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	178	45	92	1283	0.139	178	213	0.1	0.2	3.258	A
B	137	34	199	1073	0.127	136	72	0.1	0.1	3.845	A
C	194	48	112	1092	0.178	194	223	0.2	0.2	4.007	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	178	45	92	1283	0.139	178	214	0.2	0.2	3.258	A
B	137	34	199	1073	0.127	137	72	0.1	0.1	3.845	A
C	194	48	112	1092	0.178	194	224	0.2	0.2	4.009	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	146	36	76	1292	0.113	146	175	0.2	0.1	3.139	A
B	111	28	163	1092	0.102	112	58	0.1	0.1	3.672	A
C	158	40	92	1102	0.144	158	183	0.2	0.2	3.814	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	122	30	63	1299	0.094	122	146	0.1	0.1	3.058	A
B	93	23	136	1106	0.084	93	49	0.1	0.1	3.554	A
C	133	33	77	1110	0.119	133	153	0.2	0.1	3.685	A

2028 - Opening Year With Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	5.06	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	95	Arm C	5.06	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2028 - Opening Year With Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	336	100.000
B		ONE HOUR	✓	222	100.000
C		ONE HOUR	✓	397	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	78	94	164
	B	107	0	115
	C	199	152	46

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.30	4.27	0.4	A	308	462
B	0.24	4.70	0.3	A	204	306
C	0.42	5.93	0.7	A	364	546

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	253	63	148	1252	0.202	252	288	0.0	0.3	3.596	A
B	167	42	216	1064	0.157	166	184	0.0	0.2	4.008	A
C	299	75	139	1078	0.277	297	244	0.0	0.4	4.604	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	302	76	178	1236	0.244	302	345	0.3	0.3	3.853	A
B	200	50	259	1041	0.192	199	221	0.2	0.2	4.276	A
C	357	89	166	1064	0.336	356	292	0.4	0.5	5.086	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	370	92	218	1214	0.305	369	422	0.3	0.4	4.262	A
B	244	61	317	1010	0.242	244	270	0.2	0.3	4.697	A
C	437	109	203	1044	0.419	436	357	0.5	0.7	5.910	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	370	92	218	1214	0.305	370	423	0.4	0.4	4.267	A
B	244	61	317	1010	0.242	244	271	0.3	0.3	4.702	A
C	437	109	204	1044	0.419	437	358	0.7	0.7	5.927	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	302	76	178	1235	0.245	303	346	0.4	0.3	3.862	A
B	200	50	259	1041	0.192	200	222	0.3	0.2	4.285	A
C	357	89	167	1064	0.336	358	293	0.7	0.5	5.105	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	253	63	149	1251	0.202	253	290	0.3	0.3	3.609	A
B	167	42	217	1063	0.157	167	185	0.2	0.2	4.021	A
C	299	75	139	1078	0.277	299	245	0.5	0.4	4.630	A

2028 - Opening Year With Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	3.88	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	260	Arm C	3.88	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2028 - Opening Year With Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	183	100.000
B		ONE HOUR	✓	163	100.000
C		ONE HOUR	✓	206	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	59	55	69
	B	59	0	104
	C	92	61	53

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.16	3.38	0.2	A	168	252
B	0.17	4.03	0.2	A	150	224
C	0.21	4.21	0.3	A	189	284

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	138	34	85	1287	0.107	137	157	0.0	0.1	3.130	A
B	123	31	136	1106	0.111	122	87	0.0	0.1	3.656	A
C	155	39	89	1104	0.140	154	169	0.0	0.2	3.790	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	165	41	102	1277	0.129	164	189	0.1	0.1	3.234	A
B	147	37	163	1092	0.134	146	104	0.1	0.2	3.806	A
C	185	46	106	1095	0.169	185	203	0.2	0.2	3.957	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	201	50	125	1265	0.159	201	231	0.1	0.2	3.385	A
B	179	45	199	1073	0.167	179	128	0.2	0.2	4.028	A
C	227	57	130	1083	0.210	227	249	0.2	0.3	4.204	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	201	50	126	1265	0.159	201	231	0.2	0.2	3.385	A
B	179	45	199	1073	0.167	179	128	0.2	0.2	4.030	A
C	227	57	130	1083	0.210	227	249	0.3	0.3	4.206	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	165	41	103	1277	0.129	165	189	0.2	0.1	3.237	A
B	147	37	163	1092	0.134	147	104	0.2	0.2	3.808	A
C	185	46	106	1095	0.169	185	203	0.3	0.2	3.961	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	138	34	86	1286	0.107	138	158	0.1	0.1	3.133	A
B	123	31	136	1106	0.111	123	87	0.2	0.1	3.661	A
C	155	39	89	1104	0.141	155	170	0.2	0.2	3.795	A

2033 Without Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	5.10	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	92	Arm C	5.10	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2033 Without Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	357	100.000
B		ONE HOUR	✓	157	100.000
C		ONE HOUR	✓	412	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	87	86	184
	B	82	0	75
From	C	223	138	51

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.32	4.36	0.5	A	328	491
B	0.17	4.40	0.2	A	144	216
C	0.43	6.00	0.8	A	378	567

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	269	67	142	1256	0.214	268	294	0.0	0.3	3.640	A
B	118	30	241	1050	0.113	118	168	0.0	0.1	3.859	A
C	310	78	127	1084	0.286	309	232	0.0	0.4	4.632	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	321	80	170	1240	0.259	321	352	0.3	0.3	3.914	A
B	141	35	289	1025	0.138	141	201	0.1	0.2	4.073	A
C	370	93	152	1071	0.346	370	278	0.4	0.5	5.130	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	393	98	208	1219	0.322	393	431	0.3	0.5	4.352	A
B	173	43	354	990	0.175	173	246	0.2	0.2	4.402	A
C	454	113	186	1054	0.431	453	341	0.5	0.7	5.983	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	393	98	208	1219	0.322	393	432	0.5	0.5	4.358	A
B	173	43	355	990	0.175	173	247	0.2	0.2	4.405	A
C	454	113	186	1053	0.431	454	341	0.7	0.8	6.001	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	321	80	170	1240	0.259	321	353	0.5	0.4	3.921	A
B	141	35	290	1024	0.138	141	202	0.2	0.2	4.079	A
C	370	93	152	1071	0.346	371	279	0.8	0.5	5.152	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	269	67	143	1255	0.214	269	296	0.4	0.3	3.650	A
B	118	30	243	1049	0.113	118	169	0.2	0.1	3.868	A
C	310	78	127	1084	0.286	311	234	0.5	0.4	4.660	A

2033 Without Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	3.82	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	273	Arm C	3.82	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2033 Without Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	182	100.000
B		ONE HOUR	✓	140	100.000
C		ONE HOUR	✓	198	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	66	39	77
	B	49	0	91
	C	103	35	60

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.16	3.35	0.2	A	167	251
B	0.15	3.97	0.2	A	128	193
C	0.20	4.16	0.3	A	182	273

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	137	34	71	1295	0.106	137	163	0.0	0.1	3.106	A
B	105	26	152	1097	0.096	105	56	0.0	0.1	3.624	A
C	149	37	86	1105	0.135	148	171	0.0	0.2	3.761	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	164	41	85	1287	0.127	164	196	0.1	0.1	3.204	A
B	126	31	182	1082	0.116	126	66	0.1	0.1	3.766	A
C	178	44	103	1096	0.162	178	205	0.2	0.2	3.920	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	200	50	104	1276	0.157	200	240	0.1	0.2	3.345	A
B	154	39	223	1060	0.145	154	81	0.1	0.2	3.975	A
C	218	55	127	1084	0.201	218	251	0.2	0.3	4.153	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	200	50	105	1276	0.157	200	240	0.2	0.2	3.345	A
B	154	39	224	1060	0.145	154	81	0.2	0.2	3.975	A
C	218	55	127	1084	0.201	218	251	0.3	0.3	4.155	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	164	41	86	1287	0.127	164	196	0.2	0.1	3.208	A
B	126	31	183	1081	0.116	126	67	0.2	0.1	3.770	A
C	178	44	103	1096	0.162	178	205	0.3	0.2	3.922	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	137	34	72	1294	0.106	137	164	0.1	0.1	3.110	A
B	105	26	153	1097	0.096	106	56	0.1	0.1	3.632	A
C	149	37	87	1105	0.135	149	172	0.2	0.2	3.769	A

2033 With Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	5.49	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	76	Arm C	5.49	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2033 With Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	374	100.000
B		ONE HOUR	✓	239	100.000
C		ONE HOUR	✓	441	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	87	103	184
	B	116	0	123
	C	223	167	51

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.34	4.56	0.5	A	343	515
B	0.27	4.95	0.4	A	219	329
C	0.47	6.56	0.9	A	405	607

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	282	70	163	1244	0.226	280	319	0.0	0.3	3.731	A
B	180	45	241	1050	0.171	179	202	0.0	0.2	4.130	A
C	332	83	152	1071	0.310	330	268	0.0	0.4	4.848	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	336	84	196	1226	0.274	336	382	0.3	0.4	4.045	A
B	215	54	289	1025	0.210	215	242	0.2	0.3	4.442	A
C	396	99	182	1055	0.376	396	321	0.4	0.6	5.454	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	412	103	239	1202	0.343	411	468	0.4	0.5	4.551	A
B	263	66	354	990	0.266	263	297	0.3	0.4	4.946	A
C	486	121	223	1034	0.469	484	394	0.6	0.9	6.534	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	412	103	240	1201	0.343	412	469	0.5	0.5	4.558	A
B	263	66	355	990	0.266	263	297	0.4	0.4	4.952	A
C	486	121	224	1034	0.470	486	394	0.9	0.9	6.562	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	336	84	197	1225	0.274	337	384	0.5	0.4	4.053	A
B	215	54	290	1024	0.210	215	243	0.4	0.3	4.451	A
C	396	99	183	1055	0.376	398	322	0.9	0.6	5.485	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	282	70	164	1243	0.227	282	321	0.4	0.3	3.745	A
B	180	45	243	1049	0.171	180	204	0.3	0.2	4.143	A
C	332	83	153	1071	0.310	333	270	0.6	0.5	4.882	A

2033 With Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	4.01	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	225	Arm C	4.01	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2033 With Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	203	100.000
B		ONE HOUR	✓	179	100.000
C		ONE HOUR	✓	228	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	66	60	77
	B	65	0	114
	C	103	65	60

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.18	3.48	0.2	A	186	279
B	0.19	4.17	0.2	A	164	246
C	0.23	4.37	0.3	A	209	314

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	153	38	94	1282	0.119	152	175	0.0	0.1	3.184	A
B	135	34	152	1098	0.123	134	94	0.0	0.1	3.735	A
C	172	43	98	1099	0.156	171	188	0.0	0.2	3.873	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	182	46	112	1272	0.143	182	210	0.1	0.2	3.303	A
B	161	40	182	1082	0.149	161	112	0.1	0.2	3.910	A
C	205	51	118	1089	0.188	205	225	0.2	0.2	4.071	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	224	56	137	1258	0.178	223	257	0.2	0.2	3.479	A
B	197	49	223	1060	0.186	197	137	0.2	0.2	4.171	A
C	251	63	144	1075	0.233	251	276	0.2	0.3	4.366	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	224	56	138	1258	0.178	224	258	0.2	0.2	3.479	A
B	197	49	224	1060	0.186	197	138	0.2	0.2	4.173	A
C	251	63	144	1075	0.234	251	276	0.3	0.3	4.368	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	182	46	113	1272	0.143	183	211	0.2	0.2	3.305	A
B	161	40	183	1081	0.149	161	113	0.2	0.2	3.914	A
C	205	51	118	1089	0.188	205	226	0.3	0.2	4.075	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	153	38	94	1282	0.119	153	176	0.2	0.1	3.188	A
B	135	34	153	1097	0.123	135	94	0.2	0.1	3.743	A
C	172	43	99	1099	0.156	172	189	0.2	0.2	3.884	A

2043 Without Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	5.86	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	64	Arm C	5.86	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2043 Without Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	419	100.000
B		ONE HOUR	✓	183	100.000
C		ONE HOUR	✓	483	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A	B	C
	A	102	101	216
	B	96	0	87
	C	261	162	60

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	4.88	0.6	A	384	577
B	0.21	4.76	0.3	A	168	252
C	0.51	7.13	1.0	A	443	665

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	315	79	166	1242	0.254	314	344	0.0	0.3	3.873	A
B	138	34	283	1028	0.134	137	197	0.0	0.2	4.039	A
C	364	91	148	1073	0.339	362	272	0.0	0.5	5.047	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	377	94	199	1224	0.308	376	412	0.3	0.4	4.245	A
B	165	41	339	998	0.165	164	236	0.2	0.2	4.317	A
C	434	109	178	1058	0.411	433	326	0.5	0.7	5.758	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	461	115	244	1199	0.385	461	504	0.4	0.6	4.870	A
B	201	50	415	958	0.210	201	289	0.2	0.3	4.758	A
C	532	133	218	1037	0.513	530	399	0.7	1.0	7.084	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	461	115	244	1199	0.385	461	505	0.6	0.6	4.880	A
B	201	50	416	957	0.210	201	290	0.3	0.3	4.763	A
C	532	133	218	1037	0.513	532	400	1.0	1.0	7.125	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	377	94	200	1223	0.308	377	414	0.6	0.4	4.260	A
B	165	41	341	997	0.165	165	237	0.3	0.2	4.324	A
C	434	109	178	1057	0.411	436	327	1.0	0.7	5.803	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	315	79	167	1241	0.254	316	346	0.4	0.3	3.891	A
B	138	34	285	1027	0.134	138	198	0.2	0.2	4.051	A
C	364	91	149	1072	0.339	364	274	0.7	0.5	5.088	A

2043 Without Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	4.02	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	219	Arm C	4.02	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2043 Without Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	212	100.000
B		ONE HOUR	✓	163	100.000
C		ONE HOUR	✓	232	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A	B	C
	A	77	45	90
	B	57	0	106
	C	121	41	70

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.18	3.48	0.2	A	195	292
B	0.17	4.18	0.2	A	150	224
C	0.24	4.40	0.3	A	213	319

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	160	40	83	1288	0.124	159	191	0.0	0.1	3.187	A
B	123	31	178	1084	0.113	122	64	0.0	0.1	3.741	A
C	175	44	100	1098	0.159	174	199	0.0	0.2	3.893	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	191	48	100	1279	0.149	190	229	0.1	0.2	3.307	A
B	147	37	213	1065	0.138	146	77	0.1	0.2	3.918	A
C	209	52	120	1087	0.192	208	239	0.2	0.2	4.094	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	233	58	122	1267	0.184	233	280	0.2	0.2	3.483	A
B	179	45	261	1040	0.173	179	95	0.2	0.2	4.182	A
C	255	64	147	1073	0.238	255	293	0.2	0.3	4.398	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	233	58	122	1266	0.184	233	281	0.2	0.2	3.484	A
B	179	45	261	1040	0.173	179	95	0.2	0.2	4.184	A
C	255	64	148	1073	0.238	255	293	0.3	0.3	4.400	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	191	48	100	1279	0.149	191	230	0.2	0.2	3.311	A
B	147	37	213	1065	0.138	147	77	0.2	0.2	3.922	A
C	209	52	121	1087	0.192	209	239	0.3	0.2	4.100	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	160	40	84	1288	0.124	160	192	0.2	0.1	3.193	A
B	123	31	179	1084	0.113	123	65	0.2	0.1	3.749	A
C	175	44	101	1097	0.159	175	200	0.2	0.2	3.902	A

2043 With Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	6.37	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	52	Arm C	6.37	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2043 With Dev	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	436	100.000
B		ONE HOUR	✓	265	100.000
C		ONE HOUR	✓	512	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A	B	C
	A	102	118	216
	B	130	0	135
	C	261	191	60

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.41	5.13	0.7	A	400	600
B	0.30	5.41	0.4	A	243	365
C	0.55	7.93	1.2	A	470	705

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	328	82	188	1230	0.267	327	369	0.0	0.4	3.978	A
B	200	50	283	1028	0.194	199	231	0.0	0.2	4.337	A
C	385	96	174	1060	0.364	383	308	0.0	0.6	5.304	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	392	98	225	1210	0.324	391	443	0.4	0.5	4.399	A
B	238	60	339	998	0.239	238	277	0.2	0.3	4.736	A
C	460	115	208	1042	0.442	459	369	0.6	0.8	6.171	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	480	120	276	1182	0.406	479	541	0.5	0.7	5.119	A
B	292	73	415	958	0.305	291	339	0.3	0.4	5.399	A
C	564	141	255	1018	0.554	562	452	0.8	1.2	7.867	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	480	120	276	1181	0.406	480	543	0.7	0.7	5.133	A
B	292	73	416	957	0.305	292	340	0.4	0.4	5.409	A
C	564	141	255	1018	0.554	564	453	1.2	1.2	7.929	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	392	98	226	1209	0.324	393	444	0.7	0.5	4.416	A
B	238	60	341	997	0.239	239	279	0.4	0.3	4.747	A
C	460	115	209	1042	0.442	462	370	1.2	0.8	6.231	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	328	82	189	1229	0.267	329	372	0.5	0.4	4.000	A
B	200	50	285	1027	0.194	200	233	0.3	0.2	4.353	A
C	385	96	175	1059	0.364	386	310	0.8	0.6	5.359	A

2043 With Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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		A, B, C	4.23	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	183	Arm C	4.23	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2043 With Dev	PM	ONE HOUR	15:15	16:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	233	100.000
B		ONE HOUR	✓	202	100.000
C		ONE HOUR	✓	262	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	77	66	90
	B	73	0	129
	C	121	71	70

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To		
	A	B	C
	0	0	0
	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.21	3.63	0.3	A	214	321
B	0.21	4.40	0.3	A	185	278
C	0.27	4.64	0.4	A	240	361

Main Results for each time segment

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	175	44	106	1276	0.138	175	203	0.0	0.2	3.268	A
B	152	38	178	1084	0.140	151	103	0.0	0.2	3.858	A
C	197	49	112	1092	0.181	196	217	0.0	0.2	4.019	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	209	52	127	1264	0.166	209	243	0.2	0.2	3.412	A
B	182	45	213	1065	0.170	181	123	0.2	0.2	4.073	A
C	236	59	135	1080	0.218	235	260	0.2	0.3	4.260	A

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	257	64	155	1248	0.206	256	298	0.2	0.3	3.628	A
B	222	56	261	1040	0.214	222	151	0.2	0.3	4.401	A
C	288	72	165	1064	0.271	288	318	0.3	0.4	4.635	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	257	64	155	1248	0.206	257	298	0.3	0.3	3.629	A
B	222	56	261	1040	0.214	222	151	0.3	0.3	4.404	A
C	288	72	165	1064	0.271	288	318	0.4	0.4	4.639	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	209	52	127	1264	0.166	210	244	0.3	0.2	3.415	A
B	182	45	213	1065	0.171	182	123	0.3	0.2	4.077	A
C	236	59	135	1080	0.218	236	260	0.4	0.3	4.268	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	175	44	106	1275	0.138	176	204	0.2	0.2	3.273	A
B	152	38	179	1084	0.140	152	103	0.2	0.2	3.867	A
C	197	49	113	1091	0.181	197	218	0.3	0.2	4.028	A

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