

# APPENDIX 05

## Material Assets – Traffic & Transportation

- Appendix 5-1 – Traffic & Transport Assessment – MHL & Associates







## TRAFFIC & TRANSPORT ASSESSMENT

# Cloghroe Development Cloghroe Cork December 2021

FOR: LONGVIEW ESTATES LTD.



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## 1.0 INTRODUCTION

### 1.1 INTRODUCTION

1.1.1 MHL Consulting Engineers has been instructed by Cloghroe Development Ltd. to prepare a Traffic & Transport Assessment (TTA) in support of a planning application for the proposed strategic housing development [SHD] on lands at Cloghroe, Tower, Cork.

1.1.2 The proposed SHD consists of the construction of a mixed-use residential and retail development and all ancillary site development works, including the demolition of 2 no. existing agricultural structures at Coolflugh, Cloghroe, Tower, Cork. The proposed residential development comprises the construction of 198 no. residential units, two storey creche, two storey café building and single storey retail food store. The proposed development provides for 117 no. dwelling houses consisting of 5 no. 4 bedroom detached houses, 44 no. 4 bedroom semi-detached houses, 8 no. 4 bedroom townhouses, 14 no. 3 bedroom semi-detached houses, 24 no. 3 bedroom townhouses and 22 no. 2 bedroom townhouses. The proposed development includes 81 no. apartment/duplex units consisting of 2 no. 3 bedroom, 35 no. 2 bedroom and 44 no. 1 bedroom units. 79 no. of the proposed apartment/duplex units will be provided in 6 no. 3 storey apartment buildings with ancillary communal areas and bicycle parking facilities. 2 no. apartment units will be provided at first floor level of a proposed café building to the south of the site.

The proposed retail development consists of a single storey retail food store with a net sales area of 1,315 m<sup>2</sup> (which includes the sale of alcohol for consumption off premises) with ancillary signage, surface car park, servicing areas and bicycle parking facilities. The proposed development includes a proposed two storey café building with café on ground floor and 2 no. apartments at first floor level.

Access to the proposed development will be via 2 no. entrances from the R617, one which will serve the proposed residential development and one to serve the proposed retail development. A separate pedestrian entrance is to be provided from the existing cul-de-sac to the north-east of the site. The proposed development makes provision for the upgrade of the R617, including the installation of footpath/cycle infrastructure, signalised pedestrian crossing and the relocation of the existing public bus stop to the west of the R617. Ancillary site development works include flood defence works, public realm upgrades, amenity walks, public open spaces and an urban plaza to the east of the proposed retail unit.

1.1.3 This TTA appraises the manner in which the proposed development will impact the surrounding roads network and considers appropriate access arrangements and the transport choices available to future users of the development site and the manner in which the existing/proposed transport infrastructure surrounding the site will influence that choice. The impact of traffic demand generated by the proposals will be considered and quantified.

1.1.4 The scope of this study has been agreed with Cork City Council's Traffic & Transportation Department. Technical Notes have been produced to confirm the key parameters relating to the traffic modelling carried out including, junctions to be assessed, trip generation, modal shift targets, trip distribution, assessment years and the presentation of results.

1.1.5 The key junctions in the area surrounding the proposed development are shown in **Figure 1.1** and are as follows:

- Junction 1: The junction of the R617/R579.
- Junction 2. Proposed Residential Development access
- Junction 3: Proposed Retail Development Access

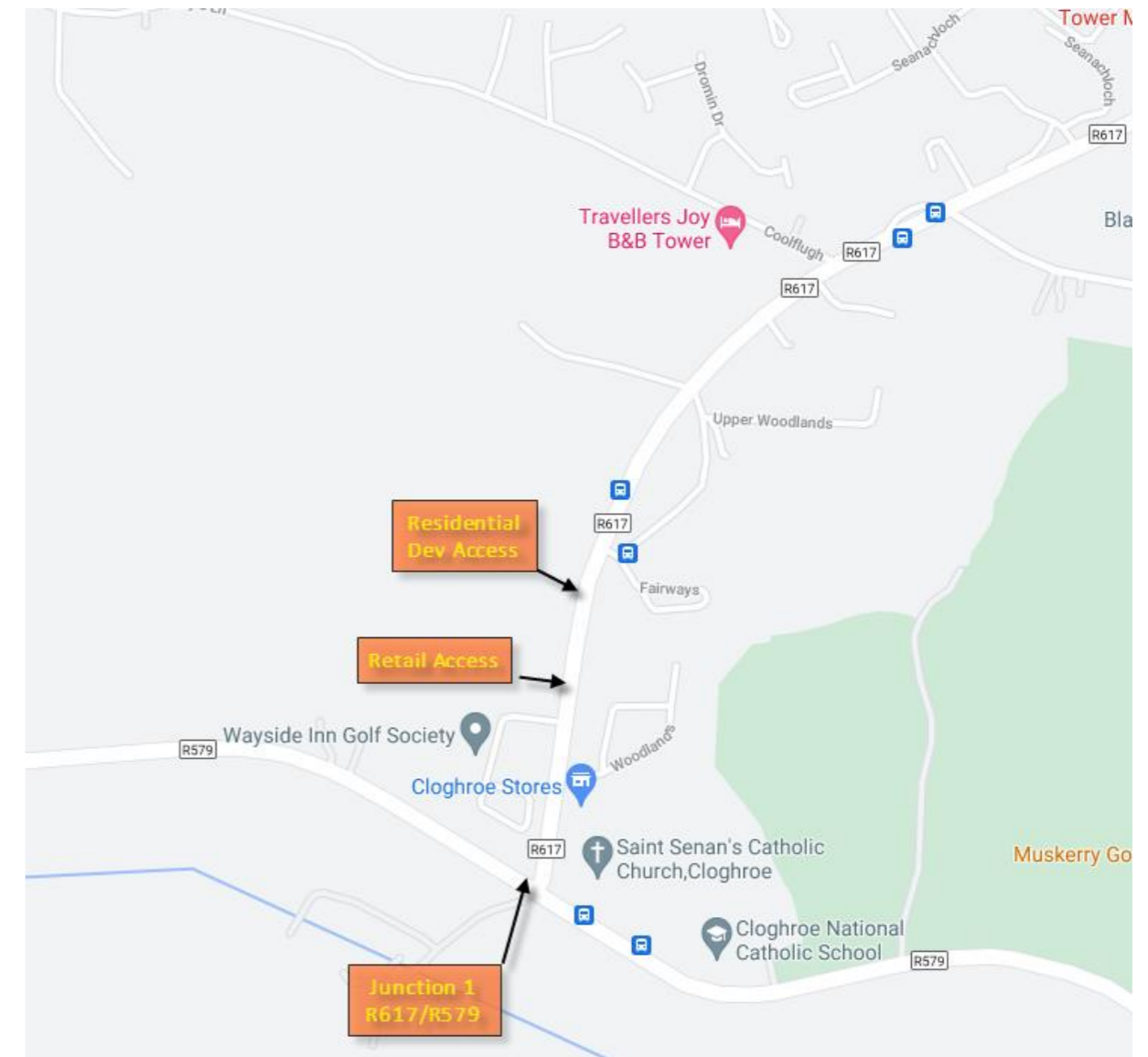


Figure 1.1: Junction Locations

### 1.2 CONSULTATION

1.2.1 The Design Team has engaged with various departments within Cork City Council with a view to consider the respective issues raised as part of the design process of the scheme.

1.2.2 These engagements have informed the final layout of the scheme including access arrangements for vehicular, pedestrian and cycle modes of transport.

### 1.3 DOCUMENT STRUCTURE

1.3.1 A TTA is an appropriate form of assessment for the scale of the proposed development and the scope has been agreed with the local authority. The structure of this TTA is in accordance with TII (Transport Infrastructure Ireland) Document, Traffic and Transport Assessment Guidelines, 2014.

The aim of this TTA is to identify the characteristics of the application site and surrounding area, examine the likely transport implications, ensure sustainable accessibility is maximised and appropriate infrastructure provided.

The key issues that need to be addressed within this TTA, with reference to the size and location of the development proposal, are as follows:

- Review of the site location, composition and local roads network.
- Analysis of Road Safety data for the most recent five-year period available.
- Accessibility critique reviewing pedestrian, cycle and public transport access to the site, plus any infrastructure currently available to promote travel by sustainable means.
- A review of the relevant planning and transport policy.
- Description of the development proposal.
- Description and justification for the proposed access arrangement, internal layout, parking provision, public transport provision, fire tender/service/delivery access, including all necessary swept-path assessments and visibility splays.
- Forecast multi-modal trip rates and trip generation as agreed with the Local Authority.
- Modal split assumptions used in the trip generation process.
- The use of appropriate and agreed traffic modelling software for the assessment of individual junctions.
- Provide With/Without Development assessment for each of the critical junctions.
- Assess significance of development generated traffic upon the surrounding transport infrastructure and identify any necessary mitigation.

## 2.0 NON-TECHNICAL SUMMARY

- 2.1 This TTA has been prepared in support of an application to An Bord Pleanála for permission in respect of the proposed Cloghroe SHD, comprising 198 no. residential units, two storey creche, two storey café building and single storey retail food store.
- 2.2 The TTA has demonstrated the following:
- (i) The proposed Cloghroe SHD is in accordance with the traffic and transportation policies and objectives of the Local Area Plan and forms an important continuation in the delivery of planned growth in the area.
  - (ii) A review of the existing roads network and collision data in the vicinity of the site indicates that there are no significant impacts on road safety.
  - (iii) Junction 1: R617/R579 is shown to currently operate within capacity during morning & evening peaks with some delay occurring. The modelling results for future years show the junction reaching capacity in the design year 2024 and degrading, both with and without development traffic, up to design year 2039. There are a number of remedial measures that can be implemented such as the addition of right turn lanes on the various approaches and ultimately the signalisation of the junction. An assessment of the signalisation of this junction shows that it can operate within capacity up to and including the design year 2039.
 

The findings of the traffic modelling were discussed with Cork City Council Traffic & Transportation Department, and it was agreed that the operation of the junction in future years will be monitored to determine if and when remedial works become necessary. Future upgrade works to be delivered as part of Bus Connects may positively impact on this junction's capacity.
  - (iv) Junction 2: Retail Access onto the R617 will operate within capacity up to and including the design year 2039.
  - (v) Junction 3: Residential Access onto the R617 will operate within capacity up to and including the design year 2039.
  - (vi) The proposed site layout is permeable to the roads network and is well connected to existing pedestrian linkages, to public transport offerings, schools, retail and amenity destinations.
  - (vii) The proposed new access arrangements are safe and suitable and are in accordance with the Design Manual for Roads & Bridges (DMRB) and the Design Manual for Urban Roads & Streets (DMURS).
  - (viii) The site benefits from being in close proximity to regular transport provision, within walking distance of the site, which enables journeys throughout Cork City. Car parking provision within the site is at the lower end of the scale in order to encourage the use of sustainable transport modes.
- 2.4 A modal shift of 20% (implying an anticipated increase in public transport usage or active travel in the immediate area of 15%) for future year models is deemed to be reasonable. This modal shift increase, of 15% has been applied to proposed development traffic from the opening year (when the development is fully completed) 2024, up to the design year 2039. This same modal shift increase, of 15% has not been applied to the background traffic of the modelled junctions, ensuring that a conservative (worst-case) analysis has been carried out.
- 2.5 Following detailed discussions with Cork City Council Traffic & Transportation Department the boundary treatment on the R617 was agreed. As part of the development of the scheme the R617 will be upgraded to include a 2.0m cycle track, a 1.0m planted verge, a 2.0m pedestrian footpath and a reservation of 3.25m for a future Bus Lane as part of Bus Connects. The



following cross section details the proposed cross section. In the interim the bus reservation area will be grassed as an inner verge.

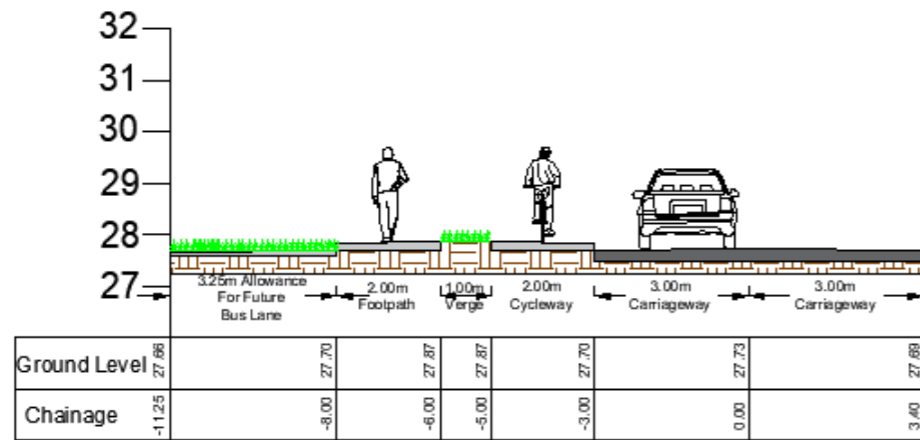


Figure 2.1: Proposed Cross Section on the R617

2.6 In line with the proposed upgrade works on the R671, the existing 215 Bus Stop is to be upgraded with the provision of a Bus Shelter and a colour contrasted paved stop area. The developed scheme will provide universal footpath access to the bus stop as well as more direct stepped access. The provision of the controlled pedestrian crossing to the north of the bus stop will facilitate safe and controlled access for existing residents in the area.

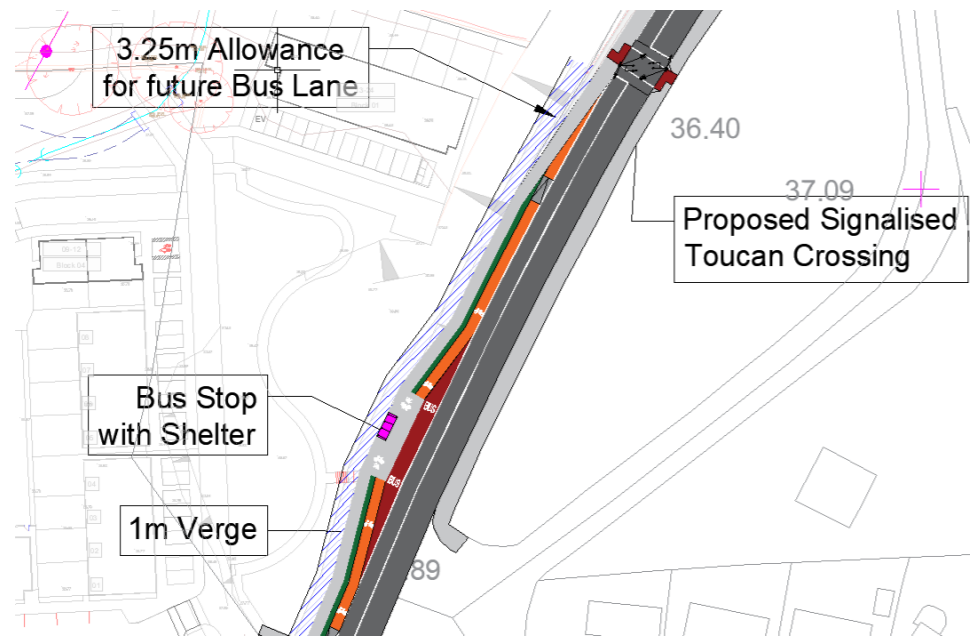


Figure 2.2: Proposed Upgraded Bus Stop with Shelter on the R617

### 3.0 EXISTING CONDITIONS

#### 3.1 INTRODUCTION

3.1.1 This section describes the base data used to develop the junction models, the critical links and junctions as agreed with the Local Authority, committed transport proposals to the area and other surrounding proposed development.

#### 3.2 BASELINE TRAFFIC CONDITIONS

3.2.1 A variety of different data sources have been used, including:

- 12-hour classified turning counts (3 sites, refer **Figure 3.1** below);
- Background OS Mapping and aerial photography;
- On-site junction measurements including saturation flows, link speeds, queue length measurements, pedestrian movements at signalled crossings and geometric data for each of the modelled junctions;

3.2.2 A total of 3 no. turning count surveys were undertaken as part of the study on Thursday 6<sup>th</sup> May 2021, as outlined in the following figure; these surveys were carried out simultaneously using video cameras at each of the junctions for a 12-hour period.

3.2.3 On-site measurements including lane widths, junction turning radii, lane lengths and saturation flows were undertaken by MHL and were incorporated in the constructed models.



Figure 3.1: Traffic Count Survey Locations

3.2.4 The following figures present the recorded 12-hour traffic profile, percentage of classified vehicles and turning movements for each of the modelled junctions carried out on Thursday 5<sup>th</sup> of May 2021:



Figure 3.2: Junction 1: R617/R579.

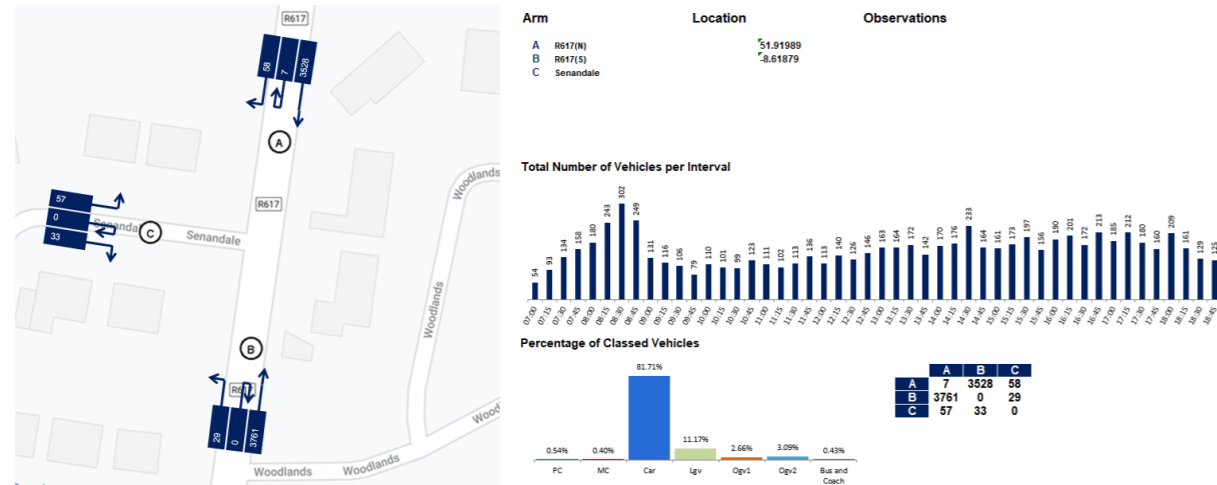


Figure 3.3: Junction 2: Senandale Junction

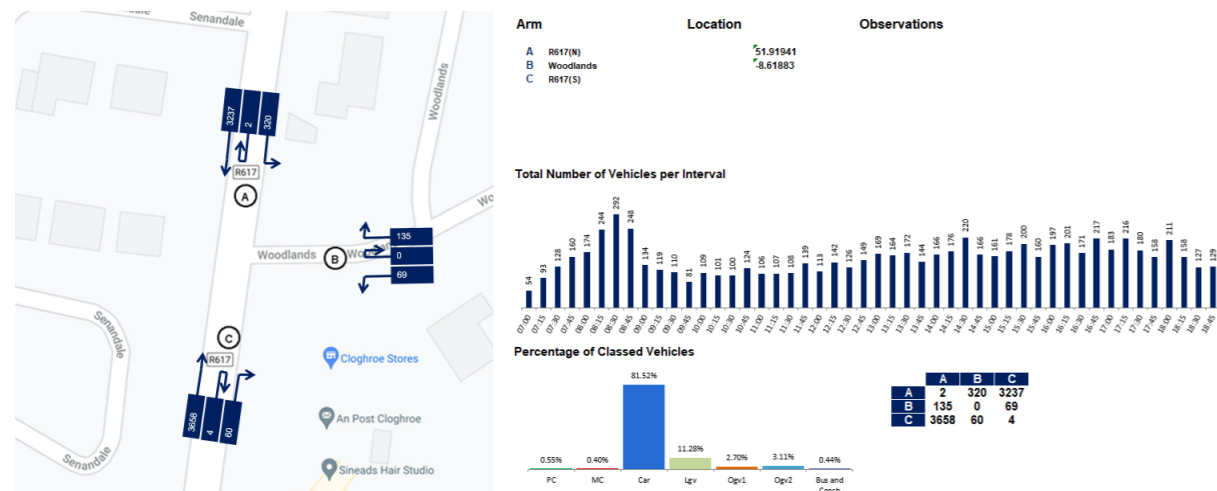


Figure 3.4: Junction 3: Woodlands Junction

3.2.5 The data presented in the above figures shows the peak hour traffic periods for both morning and evening respectively at each junction as follows:

- Junction 1: 08:00 – 09:00 and 17:00 – 18:00
- Junction 2: 08:00 – 09:00 and 17:00 – 18:00
- Junction 3: 08:00 – 09:00 and 17:00 – 18:00

For the purpose of the modelling analysis, each of the above peak hour traffic periods are included in order to obtain the worst-case traffic build-up results. This ensures a robust analysis of the road network is conducted.

3.2.6 The percentage of classified vehicles was used within the generated traffic models to accurately reflect existing conditions.

3.2.7 The following graph, produced by Transport Infrastructure Ireland (TII), compares 2019, 2020 and 2021 traffic patterns in Cork for the purpose of deriving a Covid Factor. In this instance when May 2021 is compared to May 2019 a reduction of 12.8% is seen. Traffic counts carried out in May 2021 as part of this assessment will be increased by this factor to represent 'normal' flows. It should be noted that following Covid there is an expectation that 'normal' travel behaviour will change hence the use of this factor will produce conservative results until the new norm is found.

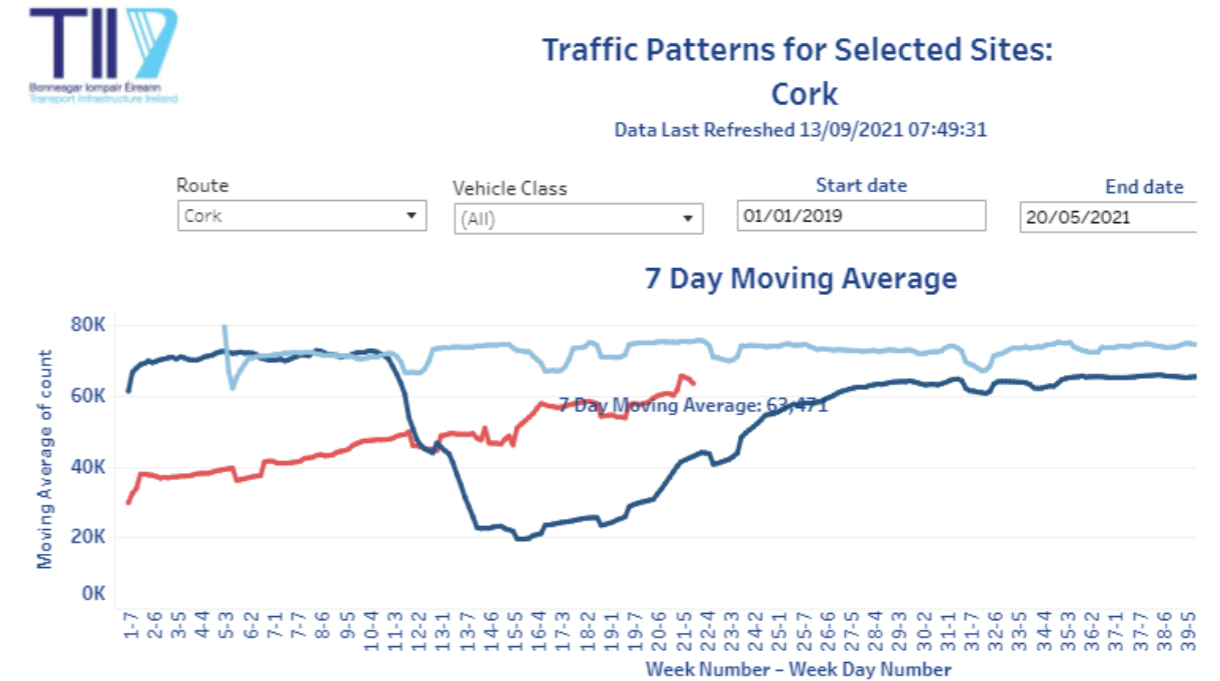


Figure 3.5: TII, Comparison of Traffic Patterns, Cork.

3.2.8 As a result of the time lapse between the original traffic survey, May 2021, and the date of lodging the full application to An Bord Pleanala, it was deemed appropriate to procure more up to date traffic counts for the main R617/R579 junction. Traffinomics Ltd were engaged to carry out 12-hour (07:00-19:00) manual classified junction turning counts on the 30<sup>th</sup> November 2021. The following graph presents a comparison between the recorded turning count movements during the peak periods for May 2021 and November 2021. The results between the two dates are negligible.

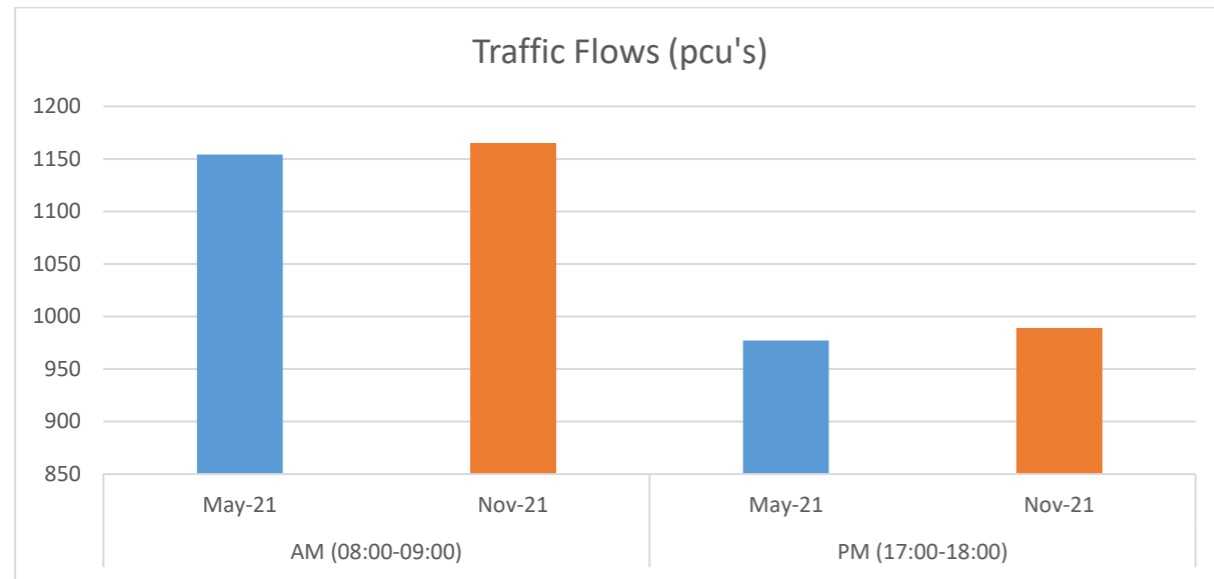


Figure 3.6: Comparison of Traffic Count Data May 2021/Nov 2021

3.2.9 The traffic modelling carried out as part of this assessment is based on the May 2021 figures, increased by the 'Covid Factor' of 12.8%. This is considered to provide a robust assessment of the identified critical junctions as travel patterns after Covid may not return to pre-Covid levels.

### 3.3 SITE LOCATION AND COMPOSITION

3.3.1 The application site is located on the R617 Blarney Road in the village of Cloghroe within a 50kph speed limit zone. The site is bounded by the residential estate of Senandale to the south with no existing footpath provision serving the development lands.

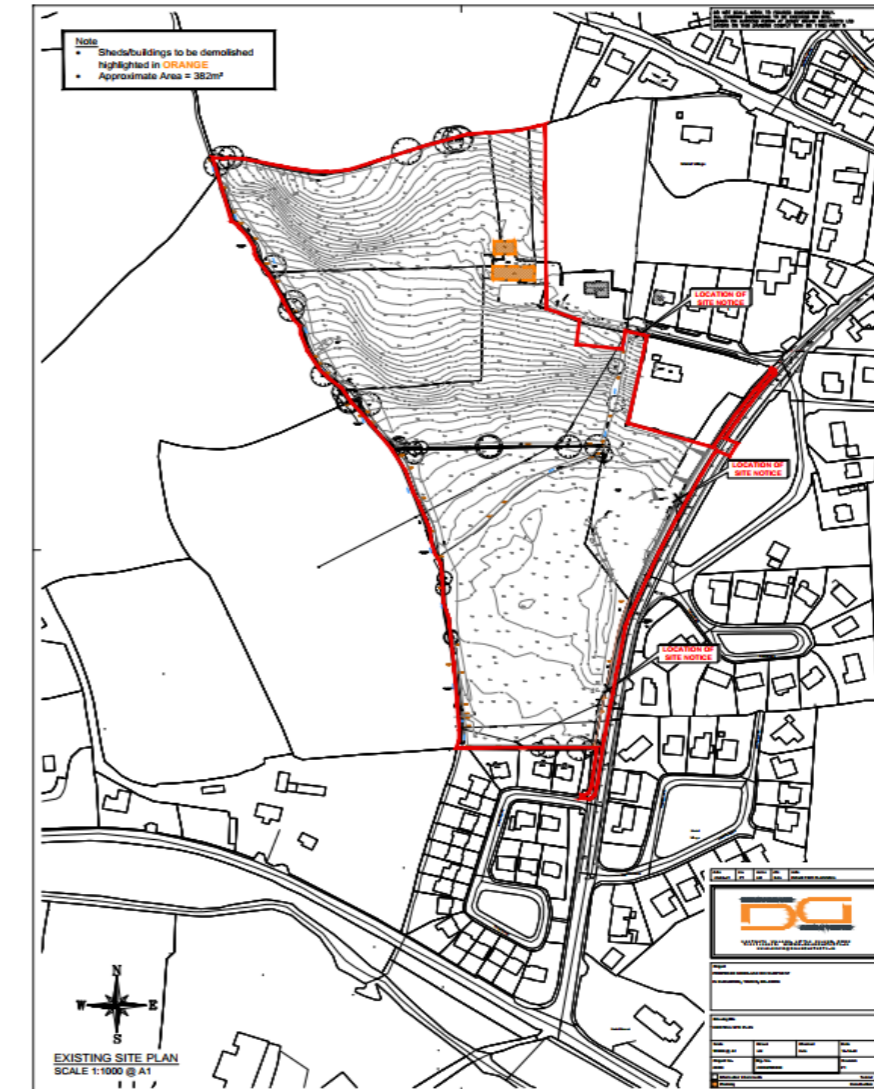


Figure 3.5: Existing Site Boundary

### 3.4 LOCAL ROADS NETWORK

3.4.1 *Junction 1: R617/R579 Cloghroe Junction*

This junction serves as an important vehicular access between north/west Cork and the greater Cork City urban area including its use as a link to the N20 Cork/Limerick Road. The measured two-way AADT (Annual Average Daily Traffic) on the R579 is 7,500.





Image 3.4.1: Image of R617/R579 Priority Junction

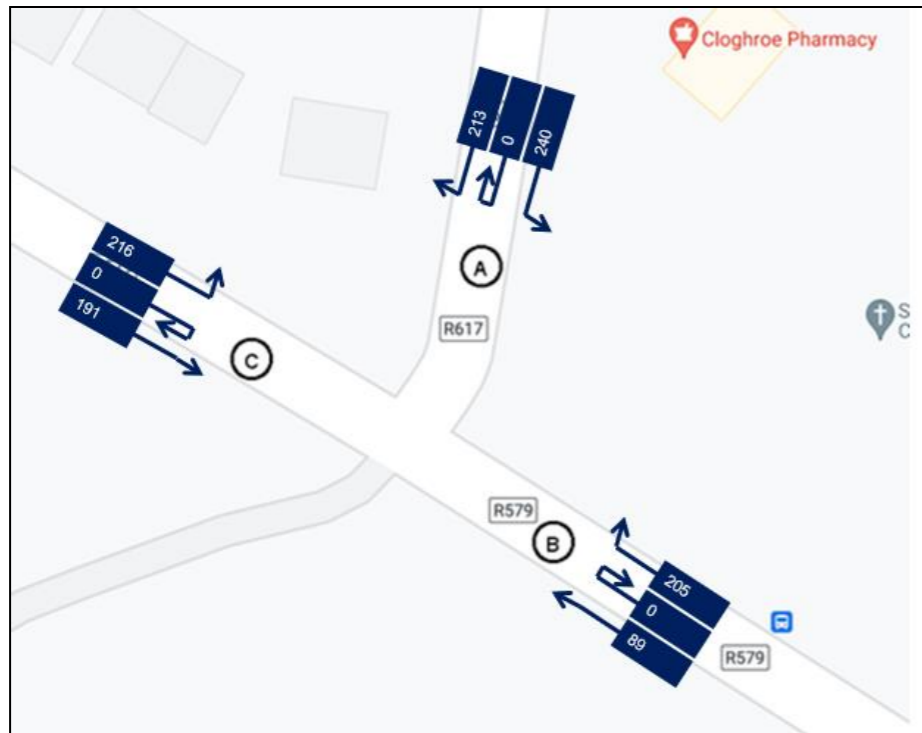


Fig 3.4.1: R617/R579 – AM Peak Hour Flows



Fig 3.4.2: R617/R579 – PM Peak Hour Flows

3.4.2 Junction 2: Access to Senandale Residential Development

This Priority Junction serves a 22-unit development accessing directly onto the R617 Tower Road.



Image 3.4.2: Image of Junction 2: R617/Senandale Access Junction.



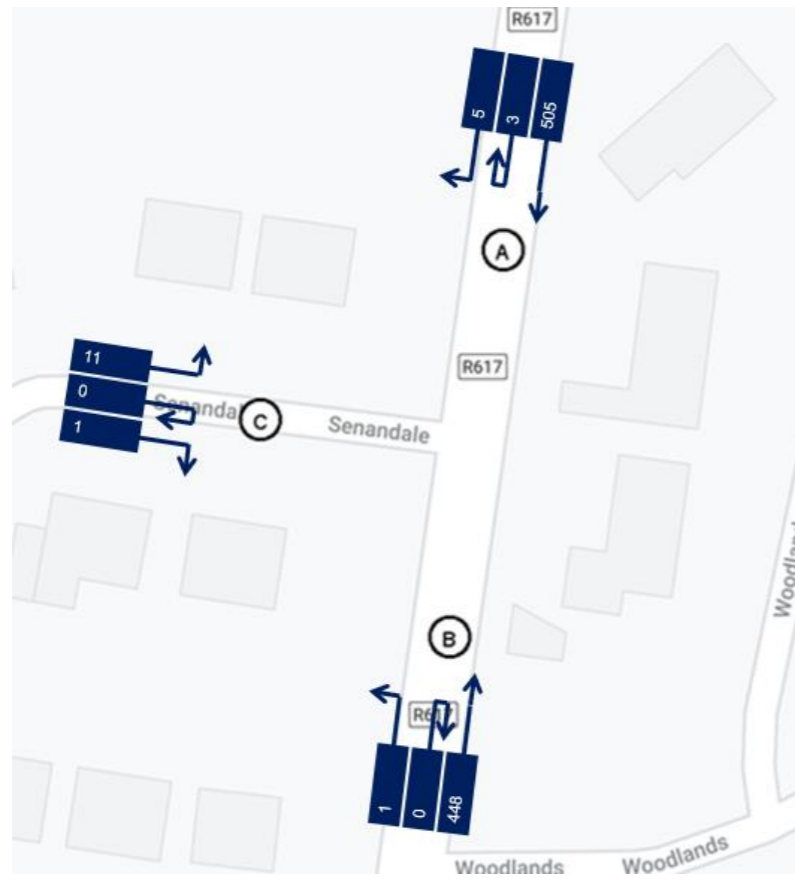


Fig 3.4.3: R617 Senandale Junction – AM Peak Hour Flows

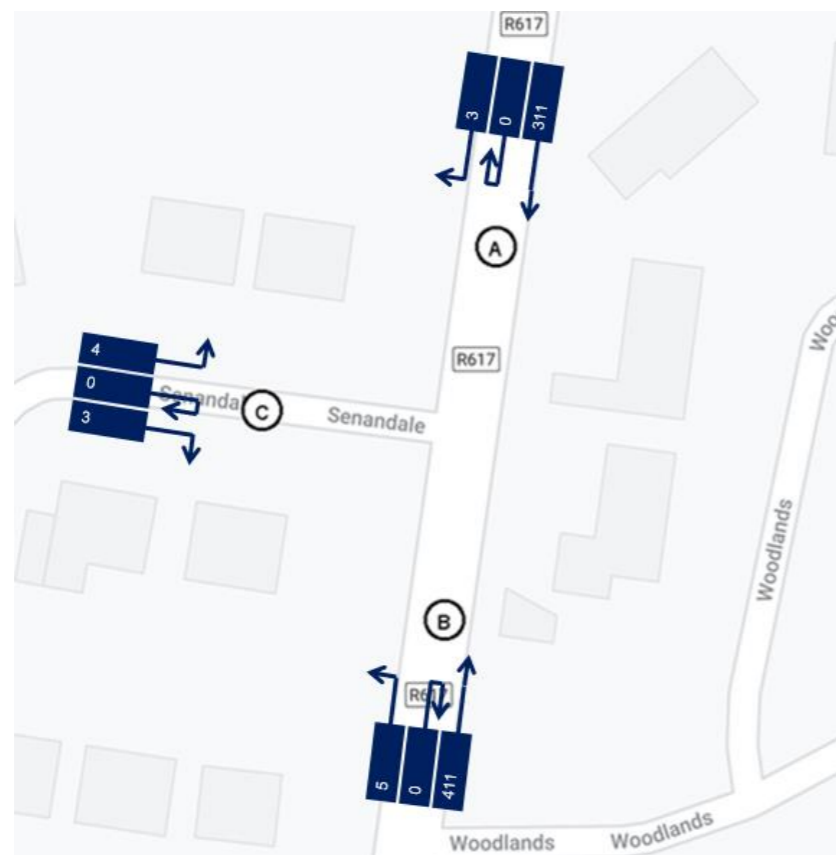


Fig 3.4.4: R617 Senandale Junction - PM Peak Hour Flows

3.4.3 Junction 3: Priority Controlled Junction on the R617 serving the Woodlands Residential Development.

This priority-controlled junction serves a 15-unit residential development as well as providing a secondary access to a retail offering which includes Cloghroe Stores, Post Office, Pharmacy and hairdresser.



Image 3.4.3: R617 Woodlands Junction

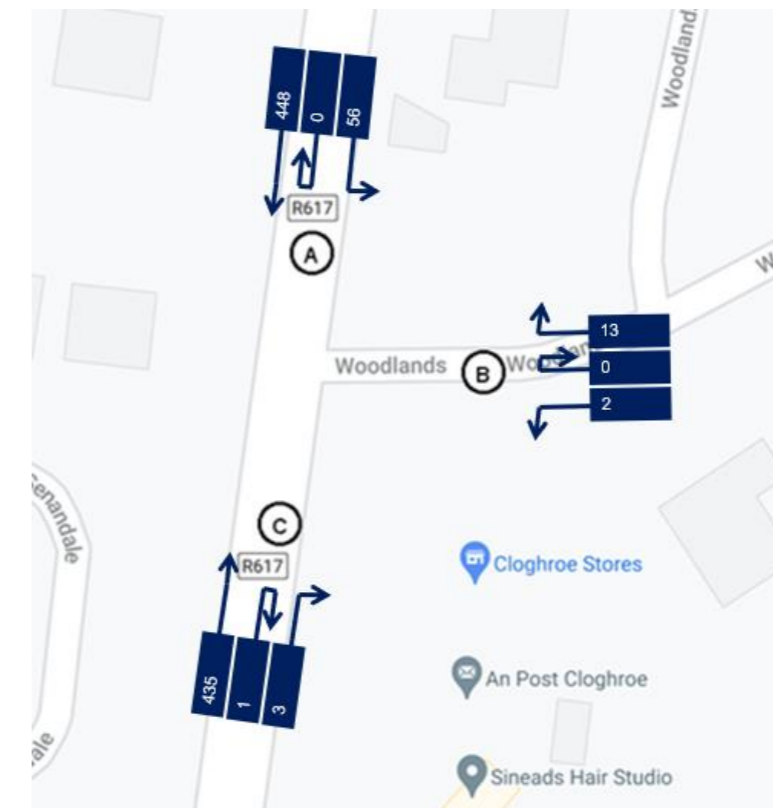


Fig 3.4.5: R617 Woodlands Junction. – AM Peak Hour Flows

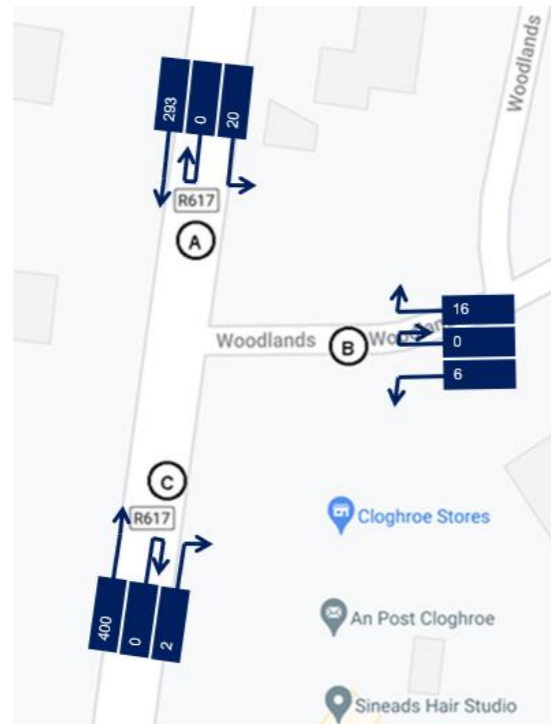


Fig 3.4.6: R617 Woodlands Junction. – PM Peak Hour Flows

### 3.5 COMMITTED TRANSPORT PROPOSALS

3.5.1 The publication of the CMATS (Cork Metropolitan Area Transport Study) document proposes major upgrades to public transport provision to serve the City Public Transport Network. These measures will contribute to an expected increase in modal shift towards sustainable travel resulting in a reduction in traffic generation from residential developments. Figure 3.5.1 outlines the 9 measures proposed to achieve this aim.

As part of this assessment, allowance was made for a modal shift of 20% (current sustainable travel usage in the area as per 2016 census was 5%) for development traffic only, in the Base Year 2022. This represents a 15% increase in modal shift over current levels and has been applied to 'new development traffic' only. The use of an increase modal shift for development traffic is justified based on current demographics in the Cloghroe Area (older population) and the type of current residential provision which includes detached/semi-detached units with little or no apartments. The proposed development will result in an increase in density with a younger demographic anticipated.

The resulting reduction in traffic generation from the site has not been applied to background traffic flows, refer to Chapter 6.0 of this report for further details.

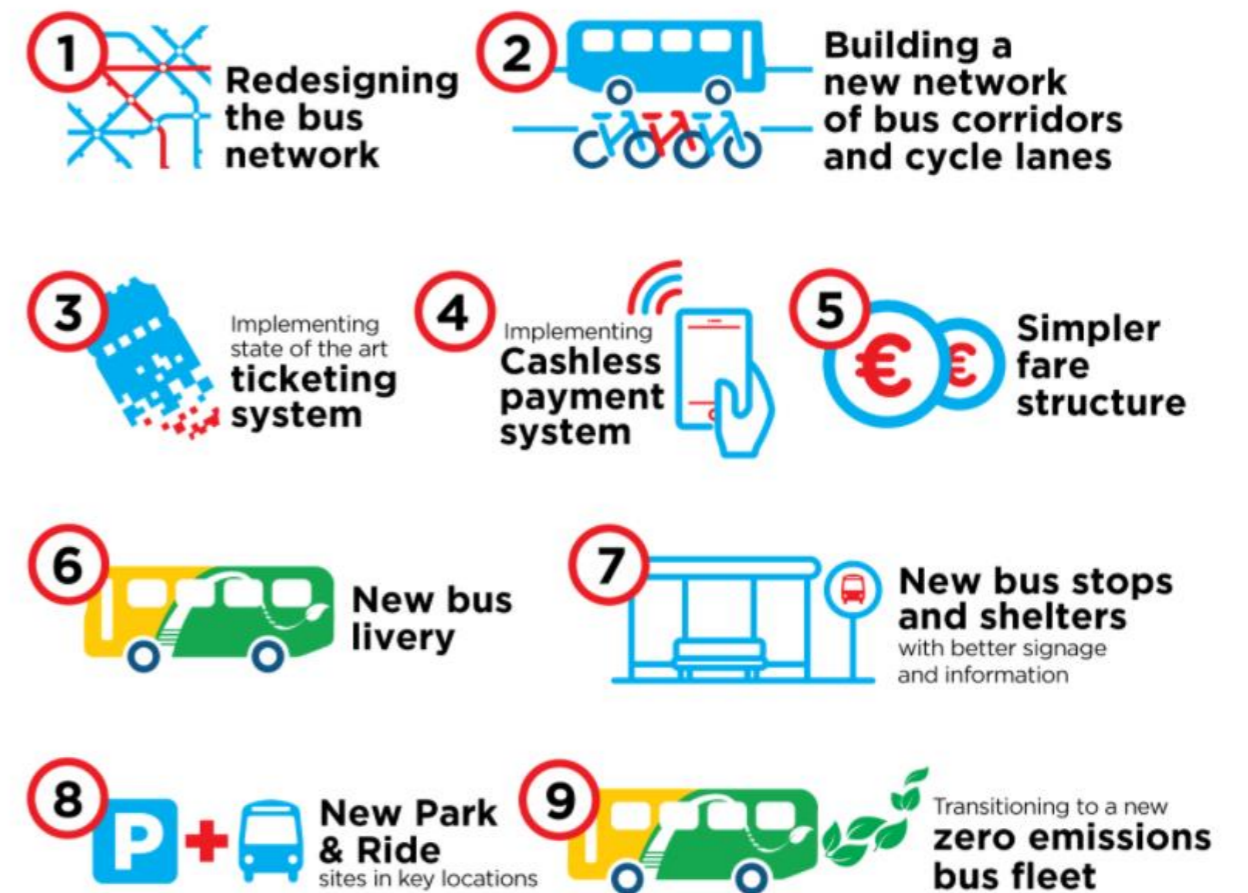


Fig 3.5.1: BusConnects Cork – Measures proposed to increase public transport usage.



**4.0 PROPOSED DEVELOPMENT**

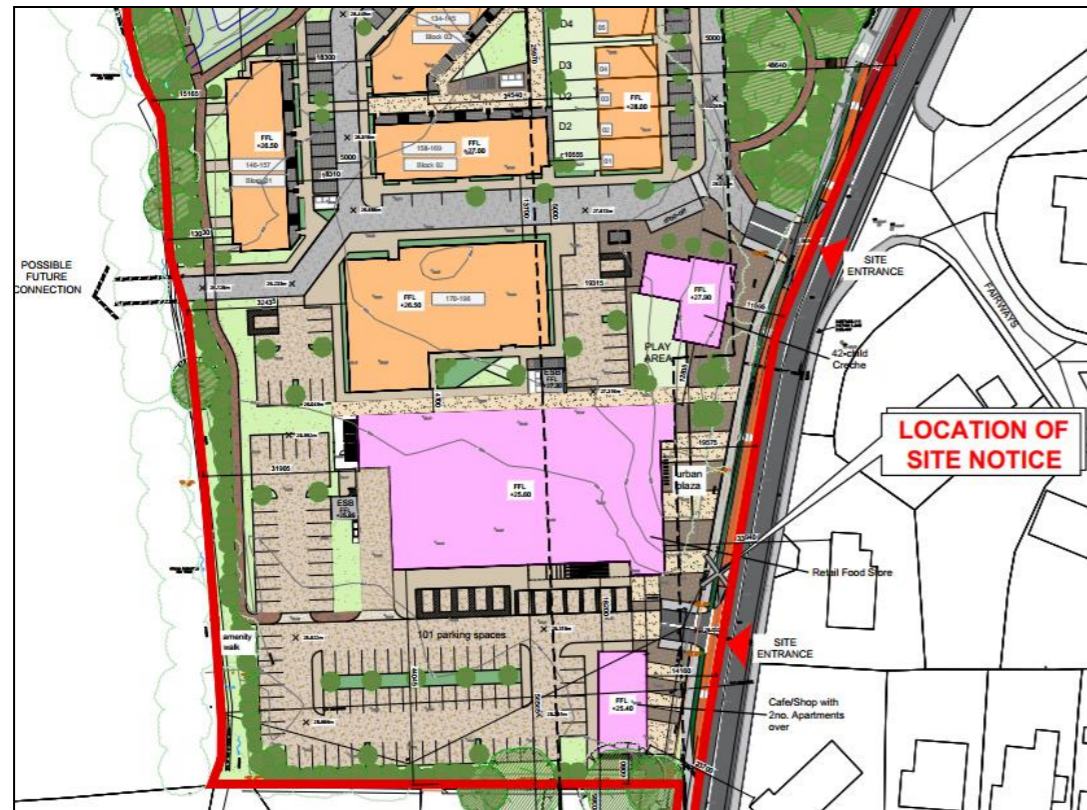
**4.1 INTRODUCTION**

4.1.1 The proposed Cloghroe SHD is consistent with the zoning in the local area plan for medium density housing with a creche and a retail provision.

4.1.2 The proposed development provides for 117 no. dwelling houses consisting of 5 no. 4 bedroom detached houses, 44 no. 4 bedroom semi-detached houses, 8 no. 4 bedroom townhouses, 14 no. 3 bedroom semi-detached houses, 24 no. 3 bedroom townhouses and 22 no. 2 bedroom townhouses. The proposed development includes 81 no. apartment/duplex units consisting of 2 no. 3 bedroom, 35 no. 2 bedroom and 44 no. 1 bedroom units. 79 no. of the proposed apartment/duplex units will be provided in 6 no. 3 storey apartment buildings with ancillary communal areas and bicycle parking facilities. 2 no. apartment units will be provided at first floor level of a proposed café building to the south of the site.

The proposed retail development consists of a single storey retail food store with a net sales area of 1,315 m<sup>2</sup> (which includes the sale of alcohol for consumption off premises) with ancillary signage, surface car park, servicing areas and bicycle parking facilities. The proposed development includes a proposed two storey café building with café on ground floor and 2 no. apartments at first floor level.

- 4.1.3 The proposed primary access to the site is from the R617 Tower/Blarney Road.
- 4.1.4 The proposed development includes pedestrian access to upgraded public realm footpaths and a controlled pedestrian crossing on the R617.
- 4.1.5 The scheme proposes residential parking at 1.5 spaces per unit and 101 car spaces for the Mixed-Use Units ~ (retail elements).
- 4.1.6 For full details of the scheme please refer to the planning application documentation.



**Fig 4.1.1: Site Entrance Details**



**Fig 4.1.2: Proposed Site Layout**

**4.2 PHASING**

4.2.1 The proposed SHD will be completed in two phases, with indicative commencement date in 2022 and finishing by 2024. The retail elements of the scheme will also be delivered in this timeframe. The Traffic Impact Assessment includes the proposed opening year of 2024, the opening year +5 (2029) and the design year +15 (2039).



#### 4.3 CONSTRUCTION STAGE TRAFFIC IMPACT

4.3.1 The construction stage of the proposed development will be phased as described above in section 4.2.2.

It is envisaged that working hours will be from 07:00 to 18:00, Monday to Friday (08:00 to 14:00 Saturday) for construction personnel through each phase of the development. Generally, construction workers will travel to site before the measured peak hour of 08:00 – 09:00, to be on site for an 07:00 start-time. A very limited number of construction employees are likely to travel to the site during peak hours.

It is anticipated that heavy goods vehicles, HGV's, will be restricted to movements on the local road network during the off-peak periods. It is estimated that truck movements and general deliveries would arrive/leave at a steady rate during the course of the day.

In general, the impact of construction traffic will be temporary in nature and less significant than the final development operational stage.

4.3.4 The construction stage elements of the Traffic Management Plan submitted with this application, including identified haulage routes, will be implemented.

The surrounding road network is suitable to accommodate the construction traffic associated with the proposed development and the Traffic Management Plan includes a range of mitigating measures to ensure the safety of the workforce on the site and accessing the site, and the public on the surrounding roads and to minimise construction traffic generation and disruption on the surrounding road network.

#### 5.0 TRAFFIC GENERATION

5.1.1 Trip generation from the proposed development was garnered via the TRICS database. MHL is 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. 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 use the busiest hours are between 08:00-09:00 and 17:00-18:00. Traffic counts conducted on the 5<sup>th</sup> May 2021 by Tracsis were utilised to establish the actual AM & PM Peak traffic hours for the local road network for the purposes of this assessment.

5.1.2 Sites from Greater Dublin Area, Galway, Louth, Waterford, Antrim and Monaghan were included from the TRICS database to determine the trip rates as shown in Table 5.1 below.

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	19	61	0.050	19	61	0.182	19	61	0.232
08:00 - 09:00	19	61	0.170	19	61	0.532	19	61	0.702
09:00 - 10:00	19	61	0.239	19	61	0.278	19	61	0.517
10:00 - 11:00	19	61	0.173	19	61	0.200	19	61	0.373
11:00 - 12:00	19	61	0.179	19	61	0.223	19	61	0.402
12:00 - 13:00	19	61	0.259	19	61	0.260	19	61	0.519
13:00 - 14:00	19	61	0.285	19	61	0.276	19	61	0.561
14:00 - 15:00	19	61	0.318	19	61	0.318	19	61	0.636
15:00 - 16:00	19	61	0.361	19	61	0.280	19	61	0.641
16:00 - 17:00	19	61	0.341	19	61	0.235	19	61	0.576
17:00 - 18:00	19	61	0.454	19	61	0.276	19	61	0.730
18:00 - 19:00	19	61	0.361	19	61	0.284	19	61	0.645
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			3.190			3.344			6.534

Table 5.1 Trip Generation Per Residential Unit (TRICS)

5.1.3 In the following chapter reference is made to the current (2016) Modal Shift by means of travel to work, school or college and is based on 2016 Census Data. The site is located in the Electoral Division of 'Matehy', ref. **Table 6.1**, with 2016-year figures implying just 5% of persons in the area use sustainable means of travel.

5.1.4 Trip Generation from the proposed 42 pupil creche was derived using the TRICS database. The following table presents the peak hour trip rates for a standalone creche.

In this instance, it is assumed that the creche will serve both the proposed scheme and the wider area. It is anticipated that the creche will add to traffic entering and exiting the development during the morning/evening peak hours over and above 'pass-by' traffic (traffic already accounted for on the network).

Time Range	ARRIVALS				DEPARTURES				TOTALS			
	No. Days	Ave. PUPILS	Trip Rate	Estimated Trip Rate	No. Days	Ave. PUPILS	Trip Rate	Estimated Trip Rate	No. Days	Ave. PUPILS	Trip Rate	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												
07:00 - 08:00	2	79	0.032	0.000	2	79	0.019	0.000	2	79	0.051	0.000
08:00 - 09:00	2	79	0.380	0.000	2	79	0.209	0.000	2	79	0.589	0.000
09:00 - 10:00	2	79	0.361	0.000	2	79	0.399	0.000	2	79	0.760	0.000
10:00 - 11:00	2	79	0.025	0.000	2	79	0.051	0.000	2	79	0.076	0.000
11:00 - 12:00	2	79	0.101	0.000	2	79	0.025	0.000	2	79	0.126	0.000
12:00 - 13:00	2	79	0.209	0.000	2	79	0.285	0.000	2	79	0.494	0.000
13:00 - 14:00	2	79	0.127	0.000	2	79	0.127	0.000	2	79	0.254	0.000
14:00 - 15:00	2	79	0.146	0.000	2	79	0.082	0.000	2	79	0.228	0.000
15:00 - 16:00	2	79	0.057	0.000	2	79	0.127	0.000	2	79	0.184	0.000
16:00 - 17:00	2	79	0.127	0.000	2	79	0.133	0.000	2	79	0.260	0.000
17:00 - 18:00	2	79	0.241	0.000	2	79	0.323	0.000	2	79	0.564	0.000
18:00 - 19:00	2	79	0.000	0.000	2	79	0.051	0.000	2	79	0.051	0.000
19:00 - 20:00												
20:00 - 21:00												
21:00 - 22:00												
22:00 - 23:00												
23:00 - 24:00												
<b>Total Rates:</b>			1.806	0.000			1.831	0.000			3.637	0.000

**Table 5.2 Trip Generation Per Pupil – Creche (TRICS)**

5.1.5 Trip Generation from the proposed 1,895sq.m Discount Retail Store was derived using the TRICS database. The following table presents the peak hour trip rates for the retail store and includes the proposed café.

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	1642	0.579	4	1642	0.183	4	1642	0.762
08:00 - 09:00	9	1619	1.660	9	1619	0.919	9	1619	2.579
09:00 - 10:00	9	1619	4.137	9	1619	2.998	9	1619	7.135
10:00 - 11:00	9	1619	4.707	9	1619	3.760	9	1619	8.467
11:00 - 12:00	9	1619	5.949	9	1619	5.619	9	1619	11.568
12:00 - 13:00	9	1619	6.189	9	1619	6.257	9	1619	12.446
13:00 - 14:00	9	1619	6.244	9	1619	6.340	9	1619	12.584
14:00 - 15:00	9	1619	6.003	9	1619	6.086	9	1619	12.089
15:00 - 16:00	9	1619	6.690	9	1619	6.765	9	1619	13.455
16:00 - 17:00	9	1619	6.765	9	1619	7.376	9	1619	14.141
17:00 - 18:00	9	1619	5.997	9	1619	6.449	9	1619	12.446
18:00 - 19:00	9	1619	4.583	9	1619	5.276	9	1619	9.859
19:00 - 20:00	9	1619	3.568	9	1619	3.863	9	1619	7.431
20:00 - 21:00	9	1619	2.346	9	1619	2.991	9	1619	5.337
21:00 - 22:00	9	1619	0.720	9	1619	1.002	9	1619	1.722
22:00 - 23:00	2	1417	0.071	2	1417	0.353	2	1417	0.424
23:00 - 24:00									
<b>Total Rates:</b>			66.208			66.237			132.445

**Table 5.3 Trip Generation Per 100 sq.m – Discount Retail Store (TRICS)**

**6.0 MODAL SPLIT**

- 6.1.1 This section describes the current level of modal shift (the use of sustainable modes of travel) based on available data and compares these to national targets.
- 6.1.2 The 2016 Census online SAP data was used to assess current modal shift patterns in the Matehy Area which encompasses the site. 5% of people in this area said they were commuting on foot, bike or using public transport.

Population aged 5 years and over by means of travel to work, school or college			
Means of Travel	Work	School or College	Total
On foot	33	33	66
Bicycle	5	3	8
Bus, minibus or coach	28	53	81
Train, DART or LUAS	2	0	2
Motorcycle or scooter	9	1	10
Car driver	948	75	1,023
Car passenger	52	551	603
Van	112	2	114
Other (incl. lorry)	9	0	9
Work mainly at or from home	58	0	58
Not stated	73	25	98
<b>Total</b>	<b>1,329</b>	<b>743</b>	<b>2,072</b>

**Table 6.1: 2016 Modal Shift by means of travel to work, school or college. (Electoral Division of Matehy)**

- 6.1.3 Future national targets in the range of 45% are being pursued by all Local Authorities and the Cloghroe Area is part of future public transport upgrade proposals. Given the location of the proposed development and based on the increased density of development, a limited increase in sustainable transport is expected. A change in the local demographic to a younger population will also facilitate this change.
- 6.1.4 A modal shift of 20% (implying an anticipated increase in public transport or active travel in the immediate area of 15%) for future year models is deemed to be reasonable. This modal shift increase of 15% will be applied to proposed development traffic from the opening year (when the development is fully completed) 2024, up to the design year 2039. It will not be applied to background network traffic.



**7.0 TRAFFIC GENERATION / FORECASTING**

7.1.1 This section describes the traffic generation from the development as outlined in Section 5 and accounts for future modal shift targets as described in Section 6.

7.1.2 Based on the above trip generation rates the following table presents residential development traffic for future years. This traffic has been added to existing background flows and distributed through the network to model each of the identified junctions. The results are presented in Section 9 of this report.

Cloghroe Retail & Residential Scheme		AM PEAK		PM PEAK	
		Arrivals	Departures	Arrivals	Departures
<b>Discount Food Store &amp; Cafe Trip Generation - based on TRICs database (per 100sq.m)</b>					
21	Peak Trips Trip Rates Per Unit	1.660	0.919	5.997	6.449
	Peak Trips	35	19	125	134
	TOTAL	54		259	
<b>New Residential Trip Generation - based on TRICs database (per unit)</b>					
198	Peak Trips Trip Rates Per Unit	0.170	0.532	0.454	0.276
	Peak Trips No. Units	34	105	90	55
	TOTAL	139		145	
<b>New Creche Trip Generation - traffic external to new development</b>					
	Factor of creche traffic external to dev.	0.6			
	Peak Trips	5	4	4	4
	TOTAL	9		8	

**Table 7.1 Proposed Development Traffic in 2022**

7.1.3 As the proposed development site currently generates no traffic, no reduction has been applied to account for pass-by trips, transfer trips or combined trips from the residential element of the scheme.

7.1.4 It is assumed that a portion of the Creche demand will be derived from the proposed development, however, in order to carry out a robust assessment of the roads network it is assumed that 60% of traffic that would be generated by a standalone creche will be attracted to the proposed development.

7.1.5 It should be noted that the traffic volumes relating to the proposed discount food store used in this assessment should not be considered as wholly new to the surrounding road network.

This is because elements of this traffic will already be on the local road network and will divert into the development site. The TRICS Research Report 14/1 – ‘Pass By & Diverted Traffic A Resume’ identifies that existing traffic on the road network could be Transfer Trips, Pass By Trips or Diverted Trips to a new food retail development. These different types of trips can be defined as follows:

- Primary transferred: a trip that was previously made to another retail shopping outlet but has transferred to the new development. Although “new” to the road network around the store, these trips will have existed on the wider network previously.
- Non-primary Pass By: these are un-diverted linked trips via the retail centre that is a stop on the normal route.
- Non-primary pass diverted:-similar to pass by but involve a diversion from the normal route that would be followed.

Current research indicates that only 30% of these trips would be new to the network during the PM peak period, as the remaining 70% of these trips exist and are already on the adjacent road network and would be passing the development site in any event. Similarly, the

distribution of traffic from the retail site in particular may not follow the current pattern. In this instance it would be reasonable to assume that Primary Transferred trips would likely come from Tower and Blarney thereby not affect Junction 1 during the PM Peak. No allowance for this has been made which will represent a worst-case scenario for Junction1.

However, in order to ensure that a robust assessment of Junction 1 is carried out, a Pass-By percentage of 40% is deemed appropriate (not 70%) which will be applied as a reduction to traffic generated by the retail element of the scheme as it impacts on Junction 1. The remaining 60% of the traffic generated by the retail offering will be applied as wholly new traffic and will follow the current traffic distribution on the R617.

7.1.6 In addition to development traffic, recorded background traffic was factored using TII (Transport Infrastructure Ireland) Project Appraisal Guidelines (PE-PAG-02017) for use in future year scenarios. The following table presents the factors used on recorded vehicle counts based on Link Based Growth Rates (Central Growth) for the Cork Metropolitan Area.

		Cars/LGV	HGV	Combined
Count %		98%	2%	100%
2020	to 2024	1.069	1.123	1.070
2020	to 2029	1.163	1.298	1.166
2020	to 2039	1.266	1.478	1.271

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

**Table 7.2 Background Traffic Growth Rates Per Annum**

**8.0 TRIP ATTRACTION AND DISTRIBUTION**

8.1.1 This section describes the methodology used in the distribution of development specific traffic onto the modelled network. **Figure 3.1** outlines the location of each of the junctions where turning count movements were recorded over a 12-hour timeframe. This ‘snapshot’ of existing traffic movements provides a basis for determining desire lines which can be used to assign development traffic at each of the modelled junctions.

8.1.2 Traffic flow matrices have been developed for each Junction for the following scenarios:

- 2024 AM/PM With/Without Dev (Full scheme)
- 2029 AM/PM With/Without Dev
- 2039 AM/PM With/Without Dev

8.1.3 Junction 1: R617/R579

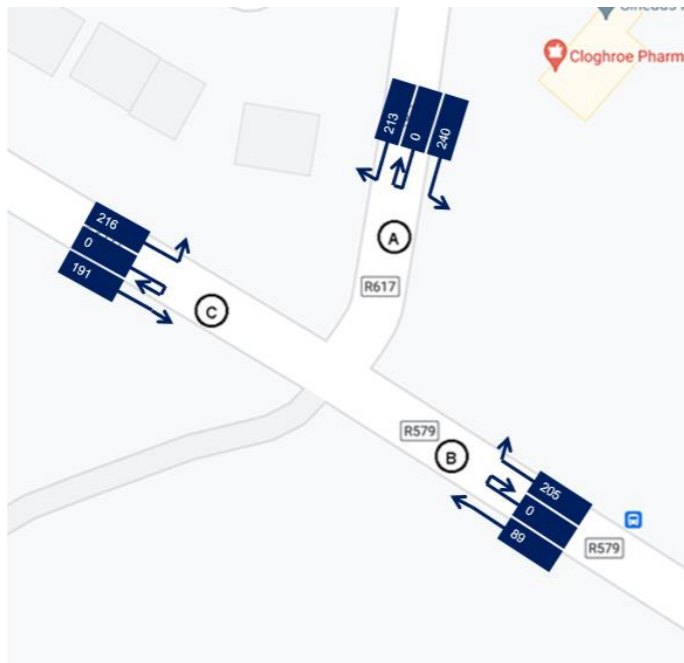


Fig 8.1.3: Junction 1 Arm Designation

		Destination			
		A	B	C	Tot
Origin	A	0	271	240	511
	B	231	0	100	332
	C	244	215	0	459
	Total	475	486	341	1302

Table 8.1 Junction 1: 2021 Existing AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	108	232	341
	B	252	0	219	470
	C	219	72	0	291
	Total	470	180	451	1102

		Destination			
		A	B	C	Tot
Origin	A	0	290	257	547
	B	248	0	107	355
	C	261	231	0	491
	Total	508	520	365	1393

Table 8.2 Junction 1: 2024 Without Development AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	116	249	365
	B	269	0	234	503
	C	234	77	0	312
	Total	503	193	483	1180

		Destination			
		A	B	C	Tot
Origin	A	0	320	283	603
	B	263	0	107	370
	C	277	231	0	507
	Total	539	550	391	1480

		Destination			
		A	B	C	Tot
Origin	A	0	138	295	433
	B	326	0	234	560
	C	285	77	0	363
	Total	611	215	529	1356

Table 8.3 Junction 1: 2024 With Development AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	316	280	596
	B	270	0	117	387
	C	284	251	0	535
	Total	553	567	397	1517

		Destination			
		A	B	C	Tot
Origin	A	0	126	271	397
	B	293	0	255	548
	C	255	84	0	339
	Total	548	210	526	1284

Table 8.4 Junction 1: 2029 Without Development AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	346	306	652
	B	285	0	117	402
	C	300	251	0	551
	Total	584	597	423	1604

		Destination			
		A	B	C	Tot
Origin	A	0	148	317	465
	B	350	0	255	605
	C	306	84	0	390
	Total	656	232	572	1460

Table 8.5 Junction 1: 2029 With Development AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	344	305	649
	B	294	0	128	421
	C	310	274	0	583
	Total	603	618	433	1654

		Destination			
		A	B	C	Tot
Origin	A	0	138	295	433
	B	320	0	278	598
	C	278	92	0	370
	Total	598	229	573	1400

Table 8.6 Junction 1: 2039 Without Development AM/PM Peak Hour Traffic Movements

		Destination			
		A	B	C	Tot
Origin	A	0	374	331	705
	B	309	0	128	436
	C	326	274	0	599
	Total	634	648	459	1741

		Destination			
		A	B	C	Tot
Origin	A	0	160	341	501
	B	377	0	278	655
	C	329	92	0	421
	Total	706	251	619	1576

Table 8.7 Junction 1: 2039 With Development AM/PM Peak Hour Traffic Movements

8.1.4 Junction 2: Proposed Retail Access onto R617



Fig 8.1.4: Junction 2 Retail Access

AM		Destination			
		A	B	C	Tot
Origin	A	0	17	450	467
	B	10	0	9	19
	C	485	18	0	503
Total		495	35	459	989

PM		Destination			
		A	B	C	Tot
Origin	A	0	73	553	626
	B	56	0	78	134
	C	323	52	0	375
Total		379	125	631	1135

Table 8.8 Junction 2: 2024 With Development AM/PM Peak Hour Traffic Movements

AM		Destination			
		A	B	C	Tot
Origin	A	0	17	491	508
	B	10	0	9	19
	C	528	18	0	546
Total		538	35	500	1073

PM		Destination			
		A	B	C	Tot
Origin	A	0	73	603	676
	B	56	0	78	134
	C	352	52	0	404
Total		408	125	681	1214

Table 8.9 Junction 2: 2029 With Development AM/PM Peak Hour Traffic Movements

AM		Destination			
		A	B	C	Tot
Origin	A	0	17	512	529
	B	10	0	9	19
	C	576	18	0	594
Total		586	35	521	1142

PM		Destination			
		A	B	C	Tot
Origin	A	0	73	657	730
	B	56	0	78	134
	C	384	52	0	436
Total		440	125	735	1300

Table 8.10 Junction 2: 2039 With Development AM/PM Peak Hour Traffic Movements

8.1.5 Junction 3: Proposed Residential Access onto R617



Fig 8.1.5: Junction 3 Residential Access

AM		Destination			
		A	B	C	Tot
Origin	A	0	20	450	470
	B	56	0	52	108
	C	485	18	0	503
Total		541	38	502	1081

PM		Destination			
		A	B	C	Tot
Origin	A	0	54	553	607
	B	24	0	34	58
	C	323	39	0	362
Total		347	93	587	1027

Table 8.11 Junction 3: 2024 With Development AM/PM Peak Hour Traffic Movements

AM		Destination			
		A	B	C	Tot
Origin	A	0	20	491	511
	B	56	0	52	108
	C	528	18	0	546
Total		584	38	543	1165

PM		Destination			
		A	B	C	Tot
Origin	A	0	54	603	657
	B	24	0	34	58
	C	352	39	0	391
Total		376	93	637	1106

Table 8.12 Junction 3: 2029 With Development AM/PM Peak Hour Traffic Movements

AM		Destination			
		A	B	C	Tot
Origin	A	0	20	512	532
	B	56	0	52	108
	C	576	18	0	594
Total		632	38	564	1234

PM		Destination			
		A	B	C	Tot
Origin	A	0	54	657	711
	B	24	0	34	58
	C	384	39	0	423
Total		408	93	691	1192

Table 8.13 Junction 3: 2039 With Development AM/PM Peak Hour Traffic Movements



## 9.0 NETWORK MODELLING RESULTS

### 9.1 INTRODUCTION

9.1.1 This section presents the results of the traffic modelling of the three identified junctions with the existing R617/R579 Junction presented both with/without development in place for the future year scenarios. Junctions 2 & 3 development access results are presented for both morning and evening peak periods. The complete results sheets of the generated models are provided as an appendix (Appendix A).

9.1.2 The Junctions 9: PICADY modelling software produces an RFC % (Ratio of Flow to Capacity), a Delay figure measured in seconds and a LOS (Level of Service) which are used to compare the effects the development will have on the junction being modelled. An RFC of 85% on a roundabout junction implies that the junction has reached capacity but is still operational with delay incurred. The following table describes the different LOS and the implications for the junction being assessed.

Level of Service A	Free-Flow
Level of Service B	Reasonably Free-Flow (no delay incurred)
Level of Service C	Stable Operation (busy but operational with acceptable delay incurred)
Level of Service D	Borderline Unstable (Junctions reaching capacity – but still operational-delay incurred)
Level of Service E	Extremely Unstable (Junctions at capacity or over, any incident will cause a grid-lock situation- significant delay incurred)
Level of Service F	Breakdown (Junctions over capacity, unacceptable delay traffic at a standstill)

Table 9.1 Level of Service

### 9.2 Junction 1: R617/R579

9.2.1 The Picady results for the junction both with/without development are presented in **Table 9.2** below.

9.2.2 The current year (2021) results are based on 2021 traffic data factored by 12.8% and are representative of how the junction currently operates during peak periods, September 2021 when the schools are back. This is borne out in terms of average measured queue lengths and observed delay recorded as part of the data collection process. The constructed model is deemed to be fit for purpose.

9.2.3 The results indicate that the junction currently operates within capacity for both AM & PM peak with measured RFC %'s (Ratio of Flow to Capacity) of 64% & 56% respectively. The junction is working at a Level of Service D.

9.2.4 Future year results, both with and without development, show a steady degradation in capacity at the junction with significant delay occurring.

Junction 1: R617/R579		No Development			With Development		
		RFC %	Delay (s)	Level of Service	RFC %	Delay (s)	Level of Service
2021	AM	64.0	30.3	D	N/A	N/A	N/A
	PM	56.0	22.1	C	N/A	N/A	N/A
2024	AM	72.0	39.7	E	83.0	63.2	F
	PM	62.0	26.3	D	80.0	50.1	F
2029	AM	85.0	72.2	F	100.0	148.3	F
	PM	70.0	34.5	D	89.0	82.4	F
2039	AM	103.0	167.9	F	114.0	271.7	F
	PM	80.0	52.8	F	103.0	203.5	F

Table 9.2: Junction 1: R617/R579

### 9.3 Junction 2: Retail Access onto the R617

9.3.1 The PICADY results for Junction 2 with development are presented in **Table 9.3** below.

9.3.2 The results indicate that the junction will operate within capacity during both AM & PM peak for all future years.

Junction 2: Retail Access onto R617		No Development			With Development		
		RFC %	Delay (s)	Level of Service	RFC %	Delay (s)	Level of Service
2024	AM	N/A	N/A	N/A	6.0	11.2	B
	PM	N/A	N/A	N/A	40.0	17.6	C
2029	AM	N/A	N/A	N/A	6.0	11.8	B
	PM	N/A	N/A	N/A	42.0	19.1	C
2039	AM	N/A	N/A	N/A	6.0	12.2	B
	PM	N/A	N/A	N/A	44.0	21.0	C

Table 9.3: Junction 2: Retail Access onto R617

### 9.4 Junction 3: Residential Access onto the R617

9.4.1 The PICADY results for Junction 3 with development are presented in **Table 9.4** below.

9.4.2 The results indicate that the junction will operate within capacity during both AM & PM peak for all future years.

Junction 3: Residential Access onto R617		No Development			With Development		
		RFC %	Delay (s)	Level of Service	RFC %	Delay (s)	Level of Service
2024	AM	N/A	N/A	N/A	32.0	15.4	C
	PM	N/A	N/A	N/A	17.0	12.6	B
2029	AM	N/A	N/A	N/A	33.0	16.5	C
	PM	N/A	N/A	N/A	18.0	13.3	B
2039	AM	N/A	N/A	N/A	34.0	17.4	C
	PM	N/A	N/A	N/A	19.0	14.2	B

Table 9.4 Junction 3: Residential Access onto R617

### 9.5 TRAFFIC MODELLING CONCLUSIONS

9.5.1 The traffic modelling results show that both proposed junctions serving the development (Junctions 2 & 3) operate within capacity up to and including the design year 2039.

Analysis of Junction 1: R617/R579 shows that the junction currently operates within capacity with a level of service D during the morning peak hour. With the addition of standard growth rates on existing traffic flows, the level of service for 2024 goes to E for the AM time period. When development traffic is added, the Junction LOS goes to F. The conclusion from the modelling is that the junction will deteriorate over time both with/without development taking place. To resolve this issue, it will be necessary to carry out remedial works, such as the signalisation of the junction, in future years. Other interim measures, such as developing right turn lanes on approach roads, will also have a positive benefit. The delivery of Bus Connects will include modifications to junctions to prioritise public transport and it may be that this junction will fall into this category.

A LinSig traffic model of the junction was constructed both with/without development traffic which shows that the junction can operate within capacity up to the Design Year 2039 if the junction is signalised. Table 9.5 shows the results of the Traffic Signal Controlled junction. An

increase in cycle time from 60 seconds to 90 seconds in 2029 is warranted given the continued increase in traffic volumes based on TII (Transport Infrastructure Ireland) growth rates.

Number	Scenario Name	Flow Group	Network Control Plan	Flows	Time	Cycle Time (s)	PRC (%)	Delay (pouHr)	Status	Mark
1	AM 2021	2021 AM	Network Control Plan 1	Assign Flows...	08:00 - 09:00	60	33.5	5.74	Calculated	
2	PM 2021	2021 PM	Network Control Plan 1	Assign Flows...	17:00 - 18:00	60	53.6	3.98	Calculated	
3	AM 2024 No Dev	2024 AM No Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	60	29.9	6.52	Calculated	
4	PM 2024 No Dev	2024 PM No Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	60	43.2	4.45	Calculated	
5	AM 2024 With Dev	2024 AM With Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	60	22.2	7.45	Calculated	
6	PM 2024 With Dev	2024 PM With Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	60	32.7	5.77	Calculated	
7	AM 2029 No Dev	2029 AM No Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	60	19.3	7.90	Calculated	
8	PM 2029 No Dev	2029 PM No Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	60	39.1	5.06	Calculated	
9	AM 2029 With Dev	2029 AM With Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	90	13.0	11.49	Calculated	
10	PM 2029 With Dev	2029 PM With Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	90	27.4	8.23	Calculated	
11	AM 2039 No Dev	2039 AM No Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	90	7.7	12.44	Calculated	
12	PM 2039 No Dev	2039 PM No Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	90	29.2	7.39	Calculated	
13	AM 2039 With Dev	2039 AM With Dev	Network Control Plan 1	Assign Flows...	08:00 - 09:00	90	4.3	14.95	Calculated	
14	PM 2039 With Dev	2039 PM With Dev	Network Control Plan 1	Assign Flows...	17:00 - 18:00	90	18.3	9.60	Calculated	

Table 9.5 Junction 1: LinSig Signalisation of Junction

10.0 CUMULATIVE IMPACT

10.1.1 As outlined in Section 7.0 of this report, industry standard growth rates have been applied to background traffic for future year assessments (to account for further development within the area). These growth rates make allowance for modal shift targets as set by national policy but do not take account of site-specific measures that may be implemented to mitigate against traffic generation from a particular development. In this instance the development of strategic transport corridors in-line with the CMATS study and Bus Connects. A modest increase in modal shift from the recorded 5% level to 20% for future years has been applied. The 20% figure falls well short of the national target of 45% implying that the analysis presented is robust.

10.1.2 Per the Cork Metropolitan Area Transport Strategy (CMATS), future road infrastructural projects such as the Northern Distributor Road and the Outer Ring Road will have a fundamental effect on traffic in this area. At present the R579/R617 to Blarney is used as a bypass of the City Centre for vehicles wishing to travel north on the N20 from the western suburbs. With the delivery of these road schemes, traffic volumes on this route will fall dramatically.

10.1.3 The local primary school, and retail offerings in Tower are all within walking distance of the site. Muskerry Golf Club is also within walking distance.

11.0 ROAD SAFETY

11.1.1 Existing Road Network Safety

The R617 adjacent to the site operates at a 50kph speed limit and comprises a wide 6.0m carriageway with a hard shoulder of 2.5m on the western side. There are no cycle lane facilities on this stretch of road. The existing footpath runs on the opposite side of the development (eastern side) and varies in width along its length. There is a 5% vertical gradient on the upper stretch of the R617 before it flattens out on its approach to the proposed development access points. The observed speed on this stretch of road is in excess of the posted speed limit which is attributed to the wide carriageway width and the downhill gradient.

A Zebra Controlled crossing has been recently installed on the R617 as shown in Figure 11.1 below. This provides pedestrian links to the existing retail offering, The Church and to the school.



Fig 11.1: Existing Zebra Crossing on the R617

11.1.2 Road Collision Database

A review of the RSA Road Collision Statistics was undertaken for the area in the vicinity of the applicants' site.

A number of minor collisions occurred in the wider area over the available 11-year period as shown in Figure 11.2.

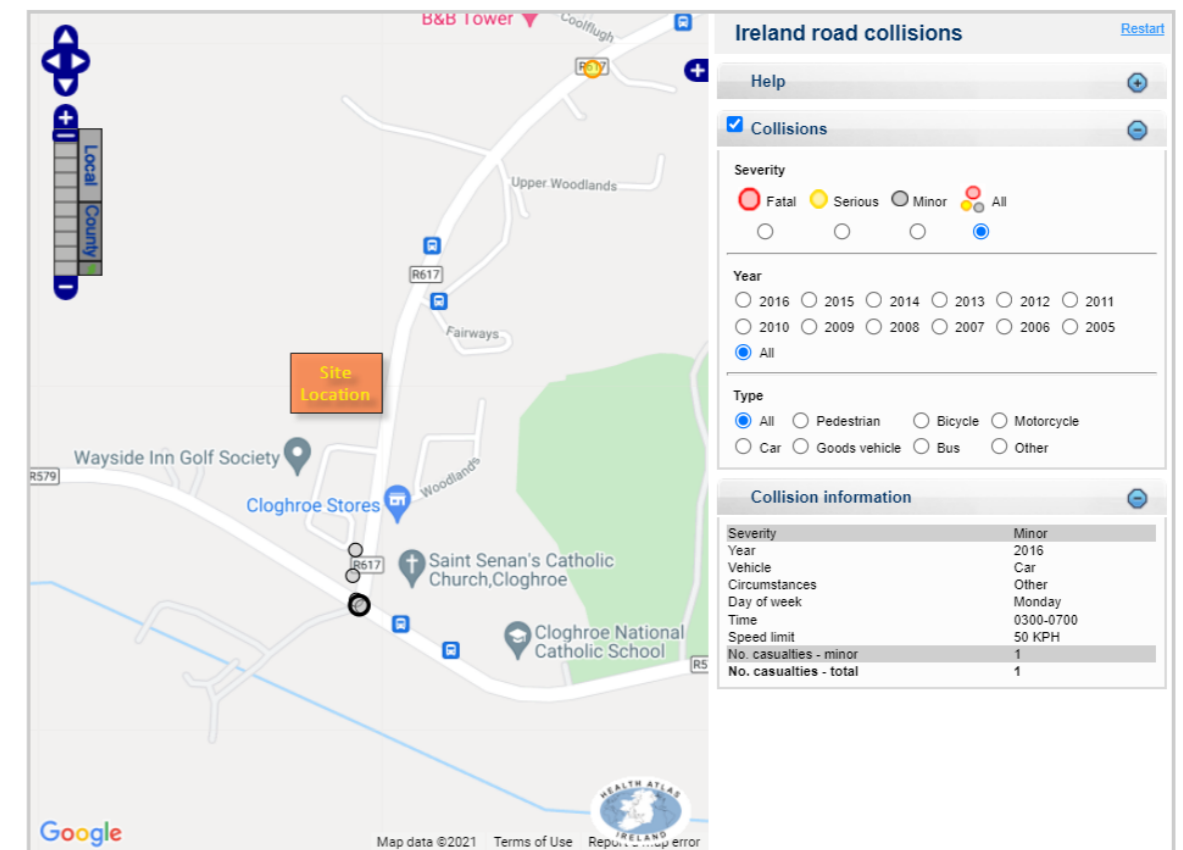


Fig 11.2: Collision statistics for Roads in the vicinity of the site



### 11.1.3 Proposed Road Safety Mitigation Measures

The proposed development will include a number of measures that are deemed necessary to improve road safety in the area. Internally within the scheme, raised junctions, colour contrasted surfaces and minimal junction radii will create a low-speed regime where pedestrians will have the priority.

External to the site, a number of public realm improvement works are proposed which will address the issue of speed on the R617 at this location. These measures include the narrowing of the carriageway width to 6.0m, the provision of a raised footpath and cycle lane along the development boundary, a traffic signal-controlled pedestrian crossing as well as providing for a possible future Bus Connects Lane. The full extent of works proposed are detailed in the submitted planning drawings.

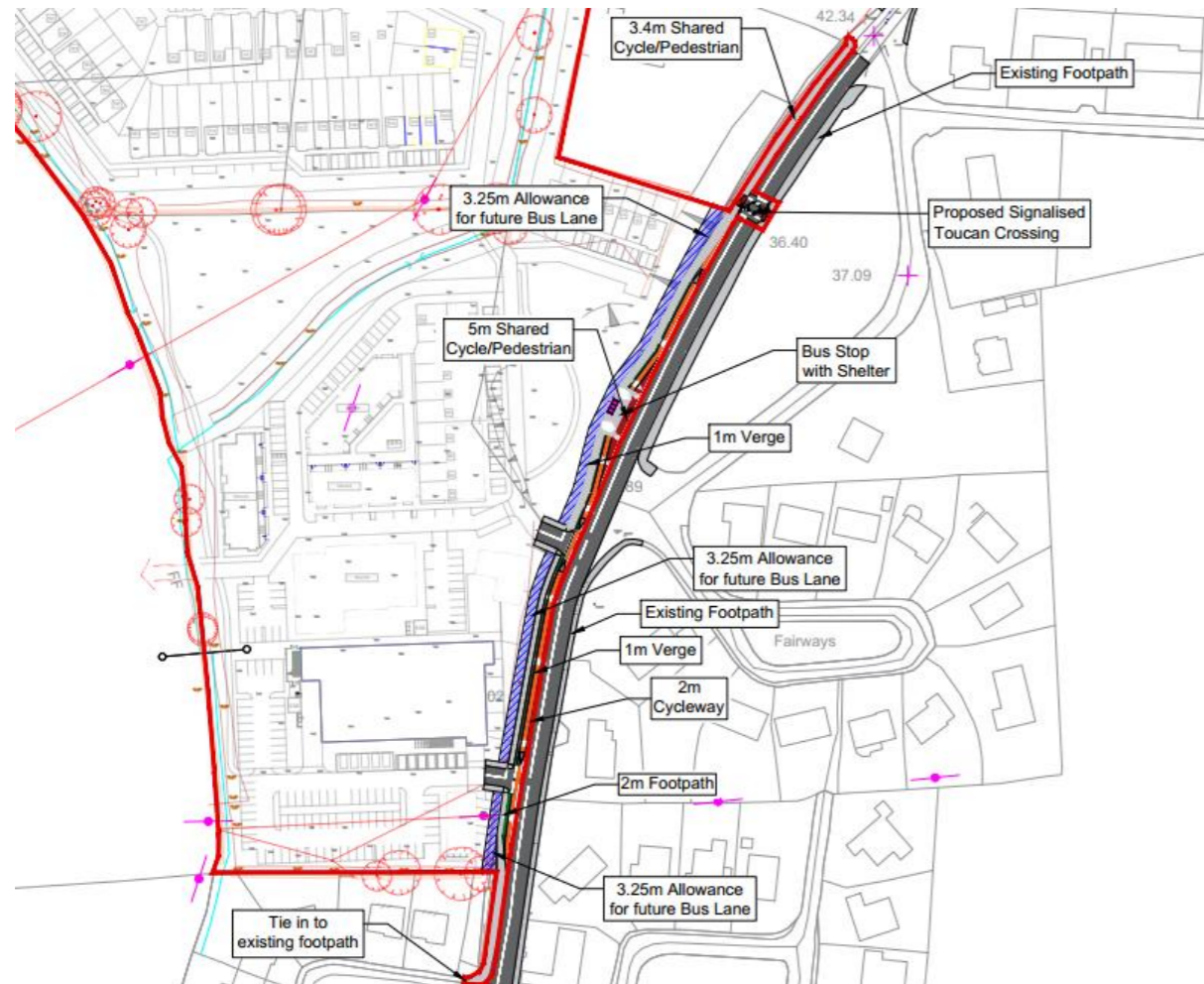


Fig 11.3: Proposed Public Realm Works on the R617

### 12.0 ENVIRONMENTAL IMPACT

12.1 The proposed development has been designed in accordance with the principles of DMURS (Design Manual for Urban Roads and Streets) with all internal roads having a gradient of not greater than 5% and good pedestrian connectivity throughout.

12.2 The close proximity to current public transport facilities, via connection to the existing footpath network and proposed links, in conjunction with the continued development of the Strategic Transport Corridors, should result in the scheme moving closer to the target modal split as set out by Government (45%).

12.3 The construction stage of the scheme proposes to re-use / relocate the bulk of the excavation within the site, thereby resulting in a significant reduction in construction traffic generated to and from the site. There is a requirement for the importation of construction materials over and above what can be re-used on-site. The importation of these materials will be carried out in accordance with the developed Construction Environmental Management Plan (CEMP). This will minimise the impact the construction phase of the development will have on the existing roads network.

### 13.0 INTERNAL LAYOUT & PARKING PROVISION

13.1 **Figure 4.1.1** presents the proposed layout which includes the provision of on-street and own curtilage parking, shared cycle/footpaths, pedestrian/cycle permeability throughout the site on designated off-road routes, and a raised shared surface serving as a speed control measure.

13.2 A total of 397 no. car parking spaces are proposed for the proposed development, which are allocated on the basis of housing type and likely demands of future residents. The proposed parking provision is below the Development Plan minimum standard of 2 spaces per house and 1.25 spaces per apartment.

### 14.0 PUBLIC TRANSPORT

14.1 The 215-bus service runs a 30min service with Cloghroe as its terminus and serves Blarney, Cork City Centre and Mahon Point. This service runs 7 days a week. An existing 215 bus stop is located on the R617 as shown in the following image.

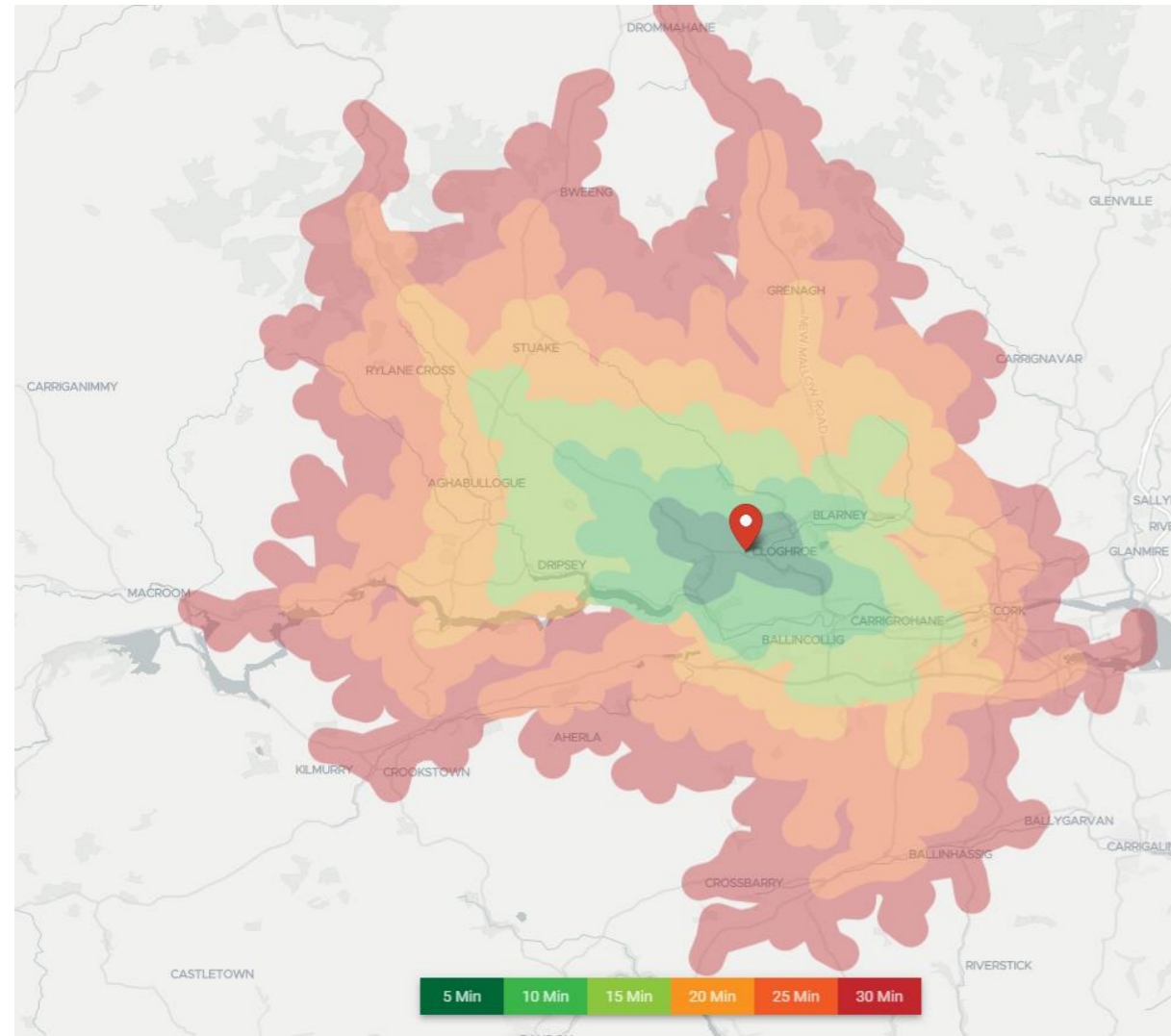


Fig 14.1: Location of existing 215 bus stop on the R617

14.2 The Cork Metropolitan Area Transport Strategy 2040 (CMATS) proposes significant improvements to the public transport facilities over and above what is currently available. With the provision of these facilities and other incentives as part of national policy, it is anticipated that a shift to public transport will occur before the operational phase of this scheme. CMATS has provided more certainty for the delivery of these enhancements. The LAP states that is an objective of the plan to *Support the achievement of high levels of modal shift by collaborating*

*with other agencies to improve public transport services and influence patterns of employment development to support use of sustainable modes and travel by public transport”.*

- 14.3 The following isochrone map shows the areas currently accessible by public transport based on time of travel from the site.  
 Note: The distances include transfers to different services so are indicative only (delay may be experienced during transfer)



**Fig 14.2: Time of travel by Public Transport Options**

- 14.4 It is evident from the figure that current bus provision in the area allows travel to a wide area within 30 mins, with many of the main employment centres being within the 20 mins range. This is significantly shorter than CSO figures for other areas such as Dublin City 28.9 mins, South Dublin 30.6 mins, Waterford City & County 22.4 mins, Limerick City & County 24.2 mins.

A commute time by public transport in excess of 45 mins results in a change in behavioural preference away from public transport. It can be concluded that the proposed development site by its location will encourage the use of public transport in-line with national policy.

- 14.5 The aforementioned travel times will significantly improve as a result of CMATS which will include bus priority at junctions, additional on-road facilities such as covered shelters, real-time arrival departure boards and an increase in frequency of service. These measures, scheduled for delivery in 2023, will require the density of population in the area served, to justify this expenditure by the NTA. The village of Tower is on a Bus Priority Route as defined in CMATS and based on this Cork City Council requested that the proposed development make provision

for a future dedicated bus lane. As outlined in Figure 2.1 a 3.25m reservation has been included which will form part of the hard/soft landscaping of the scheme.



## 15.0 ACCESSIBILITY AND INTEGRATION

15.1 A desktop assessment of permeability for cyclists and pedestrians from the site was carried out. Presented in the following isochrone maps are the range of distances, for both pedestrians and cyclists, based on travel time. Pedestrians have the benefit of footpaths, but cyclists are required to use the existing regional roads and share with other vehicles.



Fig 15.1: Proposed Development: Walking distance to local area

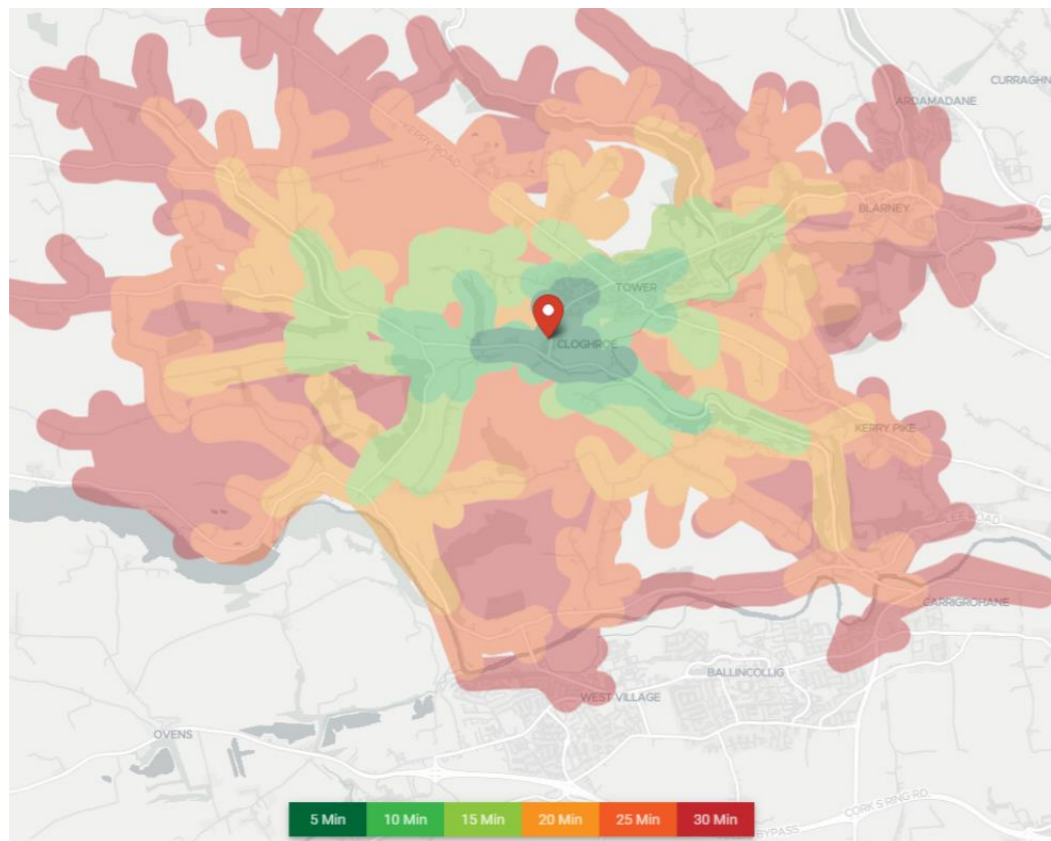


Fig 15.2: Proposed Development: Cycle distance to local area

15.2 Within 10 mins walk time from the site:

- Cloghroe Retail Park
- Cloghroe Church
- Cloghroe National Primary School
- Muskerry Golf Course

Within 20 mins walk time from the site:

- SuperValu Tower
- Tower Medical Centre
- DayBreak Circle K Tower
- Aunties Bar
- The Hunstman

15.3 The cycle range is presented in similar terms and relates to the average distance travelled in a specific time (16-19 kmh). Blarney and Ballincollig both fall within the 20 min category based on unrestricted flow through junctions.

*Note: The travel speed used is on the low side, an experienced cyclist would have a 26-30kph average speed, however the speed used is more reflective of the topography in and around Tower.*

15.4 As part of the proposed development, the R617 will be upgraded to include a 2.0m cycle track, a 1.0m planted verge, a 2.0m pedestrian footpath and a reservation of 3.25m for a future Bus Lane as part of Bus Connects. An additional controlled pedestrian crossing on the R617 is also included which will significantly improve connectivity to and from the development site as well as serving the 215-bus stop for all local residents.

## 16.0 ACCESS FOR PEOPLE WITH DISABILITIES

16.1 The internal layout of the development is designed to accommodate all road users and will adhere to national guidelines regarding people with disabilities. Proposed works to the public realm in the vicinity of the site will benefit all road users encouraging walking and cycling as well as the use of public transport. All pedestrian crossings as well as footpath/cycle lane crossings will include the appropriate tactile paving in accordance with the design guidelines for use of tactile paving.

## 17.0 MOBILITY MANAGEMENT PLAN (SUSTAINABLE ACCESS STRATEGY)

17.1 As outlined previously, there will be significant connectivity between the development site and local services and public transport options. A 'Mobility Management Plan/Travel Plan' is a strategy for managing multi-modal access to a site or development, focusing on promoting access by sustainable modes. The objective of national and local policy is to reduce reliance on the car for travel. Inducements and encouragement should be applied in order to influence change, and this can be achieved through the delivery of 'Mobility Management Plans'.

17.2 A mobility management plan relating to a residential development has been prepared and is submitted with the application documentation and highlights the proximity of local services, public transport provision, schools and walking/cycle distances to same. The proposed 'hard measures' that will facilitate safer pedestrian, cycle and public bus access will be provided in the event that permission is granted and will be further complimented by scheduled Local Authority Works (CMATS).

17.3 An overview of the sustainable infrastructure proposed is as follows:

- Connection to existing pedestrian footpath network provides linkage to public transport offerings, schools, retail, and amenity destinations.
- Car parking provision within the site is at the lower end of the scale in order to encourage the use of sustainable transport modes.
- Provision of bicycle parking facilities allowing ease of access and protection against the weather.

---

## 18.0 REFERENCES

- National Roads Authority (May 2014) Traffic and Transport Assessment Guidelines NRA, Dublin
- Institution of Highways & Transportation (1994) Guidelines for Traffic Impact Assessment IHT, London
- National Roads Authority (2000) Road Geometry Handbook NRA, Dublin
- National Roads Authority (revised 2003) Design Manual For Roads and Bridges NRA, Dublin
- National Roads Authority (November 2004) Draft Traffic and Transport Assessment Guidelines NRA, Dublin
- RSA Ireland Road Collisions  
<http://www.rsa.ie/RSA/Road-Safety/Our-Research/Ireland-Road-Collisions/>

## APPENDIX A: TRAFFIC MODEL OUTPUTS – PICADY



<b>Junctions 9</b>
<b>PICADY 9 - Priority Intersection Module</b>
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
<b>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</b>

Filename: 19083HD Junction 9 Assessment.j9  
 Path: N:\HOUS\_DEV\19083HD\_Cloghroe\_BMOR\Traffic Modelling  
 Report generation date: 15/06/2021 17:34:27

- »2021, AM
- »2021, PM
- »2024 Do Nothing, AM
- »2024 Do Nothing, PM
- »2024 With Dev, AM
- »2024 With Dev, PM
- »2029 Do Nothing, AM
- »2029 Do Nothing, PM
- »2029 With Dev, AM
- »2029 With Dev, PM
- »2039 Do Nothing, AM
- »2039 Do Nothing, PM
- »2039 With Dev, AM
- »2039 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
<b>2021</b>												
Junction 1 - Stream B-C	D1	1.4	19.16	0.56	C	1 % [Junction 1 - Stream B-A]	D2	0.3	10.93	0.23	B	14 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		2.1	34.06	0.67	D			1.5	23.68	0.58	C	
Junction 1 - Stream C-AB		0.9	11.19	0.43	B			1.2	10.09	0.47	B	
Junction 2 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 2 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
<b>2024 Do Nothing</b>												
Junction 1 - Stream B-C	D3	2.0	27.03	0.66	D	-6 % [Junction 1 - Stream B-A]	D4	0.4	12.07	0.26	B	7 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		3.1	47.28	0.76	E			1.9	28.49	0.64	D	
Junction 1 - Stream C-AB		1.1	12.05	0.47	B			1.4	10.91	0.51	B	
Junction 2 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 2 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
<b>2024 With Dev</b>												
Junction 1 - Stream B-C		8.0	93.54	0.95	F	-13 %		1.0	26.34	0.48	D	-11 %
Junction 1 - Stream B-A		7.6	104.00	0.93	F			4.7	62.65	0.84	F	
Junction 1 - Stream C-AB		1.2	13.02	0.51	B			2.4	15.53	0.65	C	

Junction 2 - Stream B-AC	D5	0.1	11.18	0.06	B	[Junction 1 - Stream B-A]	D6	0.7	17.60	0.40	C	[Junction 1 - Stream B-A]
Junction 2 - Stream C-AB		0.1	5.06	0.05	A			0.4	6.37	0.15	A	
Junction 3 - Stream B-AC		0.5	15.38	0.32	C			0.2	12.58	0.17	B	
Junction 3 - Stream C-AB		0.1	4.99	0.05	A			0.3	5.97	0.11	A	
<b>2029 Do Nothing</b>												
Junction 1 - Stream B-C	D7	7.8	93.29	0.95	F	-14 % [Junction 1 - Stream B-A]	D8	0.5	14.73	0.31	B	-2 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		7.4	104.11	0.93	F			2.7	38.31	0.72	E	
Junction 1 - Stream C-AB		1.4	13.58	0.53	B			1.8	12.31	0.57	B	
Junction 2 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 2 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
<b>2029 With Dev</b>												
Junction 1 - Stream B-C	D9	19.4	204.26	1.07	F	-20 % [Junction 1 - Stream B-A]	D10	5.8	138.25	0.96	F	-17 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		17.5	209.65	1.06	F			9.0	110.04	0.95	F	
Junction 1 - Stream C-AB		1.6	14.86	0.56	B			3.3	18.86	0.71	C	
Junction 2 - Stream B-AC		0.1	11.75	0.06	B			0.8	19.08	0.42	C	
Junction 2 - Stream C-AB		0.1	4.96	0.06	A			0.4	6.32	0.16	A	
Junction 3 - Stream B-AC		0.5	16.47	0.33	C			0.2	13.31	0.18	B	
Junction 3 - Stream C-AB		0.1	4.90	0.06	A			0.3	5.91	0.12	A	
<b>2039 Do Nothing</b>												
Junction 1 - Stream B-C	D11	20.5	218.31	1.08	F	-21 % [Junction 1 - Stream B-A]	D12	0.9	24.75	0.46	C	-10 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		18.5	223.35	1.07	F			4.5	61.02	0.83	F	
Junction 1 - Stream C-AB		1.8	15.77	0.59	C			2.4	14.52	0.64	B	
Junction 2 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 2 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream B-AC		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Junction 3 - Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
<b>2039 With Dev</b>												
Junction 1 - Stream B-C	D13	37.2	373.40	1.21	F	-26 % [Junction 1 - Stream B-A]	D14	11.1	265.11	1.09	F	-23 % [Junction 1 - Stream B-A]
Junction 1 - Stream B-A		33.2	377.00	1.20	F			20.7	216.52	1.08	F	
Junction 1 - Stream C-AB		2.1	17.56	0.63	C			4.8	25.25	0.79	D	
Junction 2 - Stream B-AC		0.1	12.19	0.06	B			0.8	21.03	0.44	C	
Junction 2 - Stream C-AB		0.1	4.84	0.06	A			0.5	6.27	0.17	A	
Junction 3 - Stream B-AC		0.6	17.36	0.34	C			0.2	14.22	0.19	B	
Junction 3 - Stream C-AB		0.1	4.78	0.06	A			0.3	5.85	0.12	A	

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	Cloghroe HD - BMOR
Location	Cloghroe, Blarney
Site number	
Date	14/06/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	19083HD
Enumerator	MHL\bmurphy
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

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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)
D1	2021	AM	ONE HOUR	08:00	09:30	15
D2	2021	PM	ONE HOUR	08:00	09:30	15
D3	2024 Do Nothing	AM	ONE HOUR	08:00	09:30	15
D4	2024 Do Nothing	PM	ONE HOUR	08:00	09:30	15
D5	2024 With Dev	AM	ONE HOUR	08:00	09:30	15
D6	2024 With Dev	PM	ONE HOUR	08:00	09:30	15
D7	2029 Do Nothing	AM	ONE HOUR	08:00	09:30	15
D8	2029 Do Nothing	PM	ONE HOUR	08:00	09:30	15
D9	2029 With Dev	AM	ONE HOUR	08:00	09:30	15
D10	2029 With Dev	PM	ONE HOUR	08:00	09:30	15
D11	2039 Do Nothing	AM	ONE HOUR	08:00	09:30	15
D12	2039 Do Nothing	PM	ONE HOUR	08:00	09:30	15
D13	2039 With Dev	AM	ONE HOUR	08:00	09:30	15
D14	2039 With Dev	PM	ONE HOUR	08:00	09:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

# 2021, AM

Data Errors and Warnings

No errors or warnings

## Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		12.57	B
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	1	Junction 1 - Stream B-A

## Arms

Arms

Junction	Arm	Name	Description	Arm type
1	A	R579 To Banteer		Major
	B	R617 To Blarney		Minor
	C	R579 To City		Major
2	A	R579 To Banteer		Major
	B	R617 To Blarney		Minor
	C	R579 To City		Major
3	A	R579 To Banteer		Major
	B	R617 To Blarney		Minor
	C	R579 To City		Major

Major Arm Geometry

Junction	Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
1	C	6.30			165.0	✓	0.00
2	C	6.00			120.0	✓	0.00
3	C	6.00			145.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Junction	Arm	Minor arm type	Lane width (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
1	B	One lane plus flare		8.00	6.00	4.00	3.50	3.25		3.50	40	35
2	B	One lane	3.00								25	30
3	B	One lane	3.00								25	30

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Left) (PCU)	Space between crossing and junction entry (Right / All) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
1	B	14.00	10.00	10.00	✓	Distance	3.00	2.14	3.00	2.14



Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	523	0.094	0.237	0.149	0.339
	B-C	692	0.105	0.265	-	-
	C-B	670	0.256	0.256	-	-

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
2	B-A	500	0.091	0.230	0.145	0.329
	B-C	643	0.099	0.249	-	-
	C-B	643	0.249	0.249	-	-

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
3	B-A	500	0.091	0.230	0.145	0.329
	B-C	643	0.099	0.249	-	-
	C-B	658	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.  
Streams may be combined, in which case capacity will be adjusted.  
Values are shown for the first time segment only; they may differ for subsequent time segments.

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)
D1	2021	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	407	100.000
	B		✓	453	100.000
	C		✓	294	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	
Junction 1	From	A	0	216	191
		B	213	0	240
		C	89	205	0

Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	0	0
		B	0	0	0
		C	0	0	0

Demand (PCU/hr)

		To			
		A	B	C	
Junction 3	From	A	0	0	0
		B	0	0	0
		C	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	
Junction 1	From	A	10	10	10
		B	10	10	10
		C	10	10	10

Heavy Vehicle Percentages

		To			
		A	B	C	
Junction 2	From	A	10	10	10
		B	10	10	10
		C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.56	19.16	1.4	C
	B-A	0.67	34.06	2.1	D
	C-AB	0.43	11.19	0.9	B
	C-A				
	A-B				
2	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
3	A-B				
	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A

2021, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		9.15	A
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	14	Junction 1 - Stream B-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)
D2	2021	PM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	258	100.000
	B		✓	302	100.000
	C		✓	417	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	194	64
	B	206	0	96
	C	194	223	0

Demand (PCU/hr)

Junction 2

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

Demand (PCU/hr)

Junction 3

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

## Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.23	10.93	0.3	B
	B-A	0.58	23.68	1.5	C
	C-AB	0.47	10.09	1.2	B
	C-A				
	A-B				
2	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

# 2024 Do Nothing, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		16.87	C
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-6	Junction 1 - Stream B-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)
D3	2024 Do Nothing	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	435	100.000
	B		✓	485	100.000
	C		✓	314	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Demand (PCU/hr)

#### Junction 1

		To		
		A	B	C
From	A	0	231	204
	B	228	0	257
	C	95	219	0

### Demand (PCU/hr)

#### Junction 2

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

### Demand (PCU/hr)

#### Junction 3

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

## Vehicle Mix

### Heavy Vehicle Percentages

#### Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10



## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.66	27.03	2.0	D
	B-A	0.76	47.28	3.1	E
	C-AB	0.47	12.05	1.1	B
	C-A				
	A-B				
2	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

## 2024 Do Nothing, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		10.61	B
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	7	Junction 1 - Stream B-A

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2024 Do Nothing	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	277	100.000
	B		✓	324	100.000
	C		✓	447	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	208	69
	B	221	0	103
	C	208	239	0

Demand (PCU/hr)

Junction 2

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

Demand (PCU/hr)

Junction 3

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

## Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.26	12.07	0.4	B
	B-A	0.64	28.49	1.9	D
	C-AB	0.51	10.91	1.4	B
	C-A				
	A-B				
2	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				



# 2024 With Dev, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		43.02	E
2	R617 Retail Entrance	T-Junction	Two-way		0.41	A
3	R617 Residential Entrance	T-Junction	Two-way		1.72	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-13	Junction 1 - Stream B-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)
D5	2024 With Dev	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	451	100.000
	B		✓	541	100.000
	C		✓	329	100.000
2	A		✓	467	100.000
	B		✓	19	100.000
	C		✓	503	100.000
3	A		✓	470	100.000
	B		✓	108	100.000
	C		✓	503	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Demand (PCU/hr)

#### Junction 1

		To		
		A	B	C
From	A	0	247	204
	B	254	0	287
	C	95	234	0

### Demand (PCU/hr)

#### Junction 2

		To		
		A	B	C
From	A	0	17	450
	B	10	0	9
	C	485	18	0

### Demand (PCU/hr)

#### Junction 3

		To		
		A	B	C
From	A	0	20	450
	B	56	0	52
	C	485	18	0

## Vehicle Mix

### Heavy Vehicle Percentages

#### Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.95	93.54	8.0	F
	B-A	0.93	104.00	7.6	F
	C-AB	0.51	13.02	1.2	B
	C-A				
	A-B				
2	B-AC	0.06	11.18	0.1	B
	C-AB	0.05	5.06	0.1	A
	C-A				
	A-B				
3	B-AC	0.32	15.38	0.5	C
	C-AB	0.05	4.99	0.1	A
	C-A				
	A-B				
	A-C				

## 2024 With Dev, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		21.54	C
2	R617 Retail Entrance	T-Junction	Two-way		2.59	A
3	R617 Residential Entrance	T-Junction	Two-way		1.10	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-11	Junction 1 - Stream B-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)
D6	2024 With Dev	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	328	100.000
	B		✓	392	100.000
	C		✓	504	100.000
2	A		✓	626	100.000
	B		✓	134	100.000
	C		✓	375	100.000
3	A		✓	607	100.000
	B		✓	58	100.000
	C		✓	362	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	259	69
	B	267	0	125
	C	208	296	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	73	553
	B	56	0	78
	C	323	52	0

Demand (PCU/hr)

Junction 3

		To		
		A	B	C
From	A	0	54	553
	B	24	0	34
	C	323	39	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.48	26.34	1.0	D
	B-A	0.84	62.65	4.7	F
	C-AB	0.65	15.53	2.4	C
	C-A				
	A-B				
2	A-C				
	B-AC	0.40	17.60	0.7	C
	C-AB	0.15	6.37	0.4	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.17	12.58	0.2	B
	C-AB	0.11	5.97	0.3	A
	C-A				
	A-B				

# 2029 Do Nothing, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		41.46	E
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-14	Junction 1 - Stream B-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)
D7	2029 Do Nothing	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	475	100.000
	B		✓	528	100.000
	C		✓	343	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Demand (PCU/hr)

#### Junction 1

		To		
		A	B	C
From	A	0	252	223
	B	248	0	280
	C	104	239	0

### Demand (PCU/hr)

#### Junction 2

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

### Demand (PCU/hr)

#### Junction 3

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

## Vehicle Mix

### Heavy Vehicle Percentages

#### Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.95	93.29	7.8	F
	B-A	0.93	104.11	7.4	F
	C-AB	0.53	13.58	1.4	B
	C-A				
	A-B				
2	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

## 2029 Do Nothing, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		13.49	B
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-2	Junction 1 - Stream B-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)
D8	2029 Do Nothing	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	301	100.000
	B		✓	352	100.000
	C		✓	486	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	226	75
	B	240	0	112
	C	226	260	0

Demand (PCU/hr)

Junction 2

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

Demand (PCU/hr)

Junction 3

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

## Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.31	14.73	0.5	B
	B-A	0.72	38.31	2.7	E
	C-AB	0.57	12.31	1.8	B
	C-A				
	A-B				
2	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

# 2029 With Dev, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		87.41	F
2	R617 Retail Entrance	T-Junction	Two-way		0.40	A
3	R617 Residential Entrance	T-Junction	Two-way		1.70	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-20	Junction 1 - Stream B-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)
D9	2029 With Dev	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	491	100.000
	B		✓	584	100.000
	C		✓	358	100.000
2	A		✓	508	100.000
	B		✓	19	100.000
	C		✓	546	100.000
3	A		✓	511	100.000
	B		✓	108	100.000
	C		✓	546	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Demand (PCU/hr)

#### Junction 1

		To		
		A	B	C
From	A	0	268	223
	B	274	0	310
	C	104	254	0

### Demand (PCU/hr)

#### Junction 2

		To		
		A	B	C
From	A	0	17	491
	B	10	0	9
	C	528	18	0

### Demand (PCU/hr)

#### Junction 3

		To		
		A	B	C
From	A	0	20	491
	B	56	0	52
	C	528	18	0

## Vehicle Mix

### Heavy Vehicle Percentages

#### Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	1.07	204.26	19.4	F
	B-A	1.06	209.65	17.5	F
	C-AB	0.56	14.86	1.6	B
	C-A				
	A-B				
2	B-AC	0.06	11.75	0.1	B
	C-AB	0.06	4.96	0.1	A
	C-A				
	A-B				
3	B-AC	0.33	16.47	0.5	C
	C-AB	0.06	4.90	0.1	A
	C-A				
	A-B				
	A-C				

## 2029 With Dev, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		44.49	E
2	R617 Retail Entrance	T-Junction	Two-way		2.61	A
3	R617 Residential Entrance	T-Junction	Two-way		1.08	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-17	Junction 1 - Stream B-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)
D10	2029 With Dev	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	352	100.000
	B		✓	420	100.000
	C		✓	543	100.000
2	A		✓	676	100.000
	B		✓	134	100.000
	C		✓	404	100.000
3	A		✓	657	100.000
	B		✓	58	100.000
	C		✓	391	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	277	75
	B	286	0	134
	C	226	317	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	73	603
	B	56	0	78
	C	352	52	0

Demand (PCU/hr)

Junction 3

		To		
		A	B	C
From	A	0	54	603
	B	24	0	34
	C	352	39	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.96	138.25	5.8	F
	B-A	0.95	110.04	9.0	F
	C-AB	0.71	18.86	3.3	C
	C-A				
	A-B				
2	A-C				
	B-AC	0.42	19.08	0.8	C
	C-AB	0.16	6.32	0.4	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.18	13.31	0.2	B
	C-AB	0.12	5.91	0.3	A
	C-A				
	A-B				

# 2039 Do Nothing, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		90.09	F
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-21	Junction 1 - Stream B-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)
D11	2039 Do Nothing	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	517	100.000
	B		✓	576	100.000
	C		✓	373	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Junction 1 Demand (PCU/hr)

		To		
		A	B	C
From	A	0	274	243
	B	271	0	305
	C	113	260	0

### Junction 2 Demand (PCU/hr)

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

### Junction 3 Demand (PCU/hr)

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

## Vehicle Mix

### Junction 1 Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Junction 2 Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Junction 3 Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	1.08	218.31	20.5	F
	B-A	1.07	223.35	18.5	F
	C-AB	0.59	15.77	1.8	C
	C-A				
	A-B				
2	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

## 2039 Do Nothing, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		20.14	C
2	R617 Retail Entrance	T-Junction	Two-way		0.00	F
3	R617 Residential Entrance	T-Junction	Two-way		0.00	F

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-10	Junction 1 - Stream B-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)
D12	2039 Do Nothing	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	328	100.000
	B		✓	384	100.000
	C		✓	530	100.000
2	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000
3	A		✓	0	100.000
	B		✓	0	100.000
	C		✓	0	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	247	81
	B	262	0	122
	C	247	283	0

Demand (PCU/hr)

Junction 2

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

Demand (PCU/hr)

Junction 3

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

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	0.46	24.75	0.9	C
	B-A	0.83	61.02	4.5	F
	C-AB	0.64	14.52	2.4	B
	C-A				
	A-B				
2	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.00	0.00	0.0	A
	C-AB	0.00	0.00	0.0	A
	C-A				
	A-B				

# 2039 With Dev, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		156.42	F
2	R617 Retail Entrance	T-Junction	Two-way		0.40	A
3	R617 Residential Entrance	T-Junction	Two-way		1.69	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-26	Junction 1 - Stream B-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)
D13	2039 With Dev	AM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	533	100.000
	B		✓	632	100.000
	C		✓	388	100.000
2	A		✓	529	100.000
	B		✓	19	100.000
	C		✓	594	100.000
3	A		✓	532	100.000
	B		✓	108	100.000
	C		✓	594	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	20.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data

### Demand (PCU/hr)

#### Junction 1

		To		
		A	B	C
From	A	0	290	243
	B	297	0	335
	C	113	275	0

### Demand (PCU/hr)

#### Junction 2

		To		
		A	B	C
From	A	0	17	512
	B	10	0	9
	C	576	18	0

### Demand (PCU/hr)

#### Junction 3

		To		
		A	B	C
From	A	0	20	512
	B	56	0	52
	C	576	18	0

## Vehicle Mix

### Heavy Vehicle Percentages

#### Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

### Heavy Vehicle Percentages

#### Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

## Results

### Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	1.21	373.40	37.2	F
	B-A	1.20	377.00	33.2	F
	C-AB	0.63	17.56	2.1	C
	C-A				
	A-B				
2	B-AC	0.06	12.19	0.1	B
	C-AB	0.06	4.84	0.1	A
	C-A				
	A-B				
3	B-AC	0.34	17.36	0.6	C
	C-AB	0.06	4.78	0.1	A
	C-A				
	A-B				

## 2039 With Dev, PM

### Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	R579 / R617 T Junction	T-Junction	Two-way		82.89	F
2	R617 Retail Entrance	T-Junction	Two-way		2.67	A
3	R617 Residential Entrance	T-Junction	Two-way		1.07	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-23	Junction 1 - Stream B-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)
D14	2039 With Dev	PM	ONE HOUR	08:00	09:30	15

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

### Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		✓	379	100.000
	B		✓	452	100.000
	C		✓	587	100.000
2	A		✓	730	100.000
	B		✓	134	100.000
	C		✓	436	100.000
3	A		✓	711	100.000
	B		✓	58	100.000
	C		✓	423	100.000

### Demand overview (Pedestrians)

Junction	Arm	Average pedestrian flow (Ped/hr)
1	A	
	B	18.00
	C	
2	A	
	B	
	C	
3	A	
	B	
	C	

## Origin-Destination Data



Demand (PCU/hr)

Junction 1

		To		
		A	B	C
From	A	0	298	81
	B	308	0	144
	C	247	340	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	73	657
	B	56	0	78
	C	384	52	0

Demand (PCU/hr)

Junction 3

		To		
		A	B	C
From	A	0	54	657
	B	24	0	34
	C	384	39	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Heavy Vehicle Percentages

Junction 3

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	B-C	1.09	265.11	11.1	F
	B-A	1.08	216.52	20.7	F
	C-AB	0.79	25.25	4.8	D
	C-A				
	A-B				
2	A-C				
	B-AC	0.44	21.03	0.8	C
	C-AB	0.17	6.27	0.5	A
	C-A				
	A-B				
3	A-C				
	B-AC	0.19	14.22	0.2	B
	C-AB	0.12	5.85	0.3	A
	C-A				
	A-B				

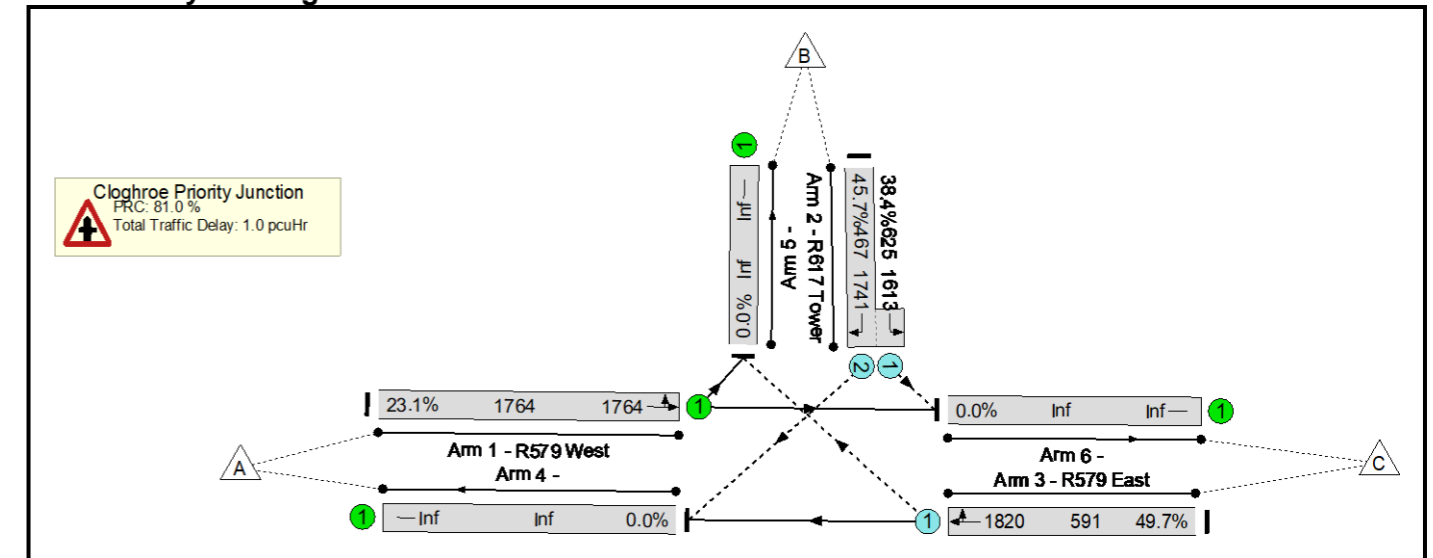
Basic Results Summary  
**Basic Results Summary**

**User and Project Details**

<b>Project:</b>	<b>Cloghroe</b>
<b>Title:</b>	<b>Cloghroe Residential</b>
<b>Location:</b>	
<b>Client:</b>	BMOR
<b>Additional detail:</b>	
<b>File name:</b>	Cloghroe Junction 40% passby.lsg3x
<b>Author:</b>	Ken Manley
<b>Company:</b>	
<b>Address:</b>	

Scenario 1: 'AM 2021' (FG1: '2021 AM', Plan 1: 'Network Control Plan 1')

**Network Layout Diagram**

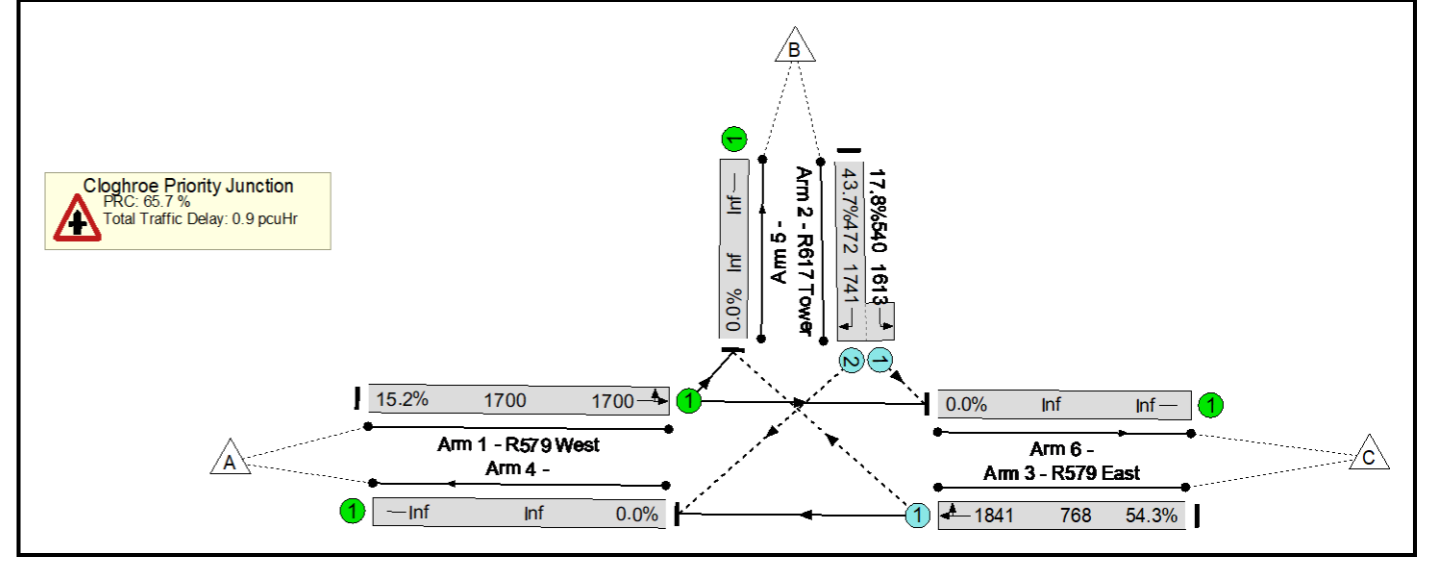


**APPENDIX B: TRAFFIC MODEL OUTPUTS – LINSIG**

Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	49.7%	1111	0	0	1.0	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	49.7%	1111	0	0	1.0	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	407	1764	1764	23.1%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	453	1741:1613	467+625	45.7 : 38.4%	906	0	0	0.4	2.8	0.4
3/1	R579 East Ahead Right	O	-	-	-	-	-	294	1820	591	49.7%	205	0	0	0.5	6.0	0.5
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.00				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	81.0				

Basic Results Summary  
Scenario 2: 'PM 2021' (FG2: '2021 PM', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram

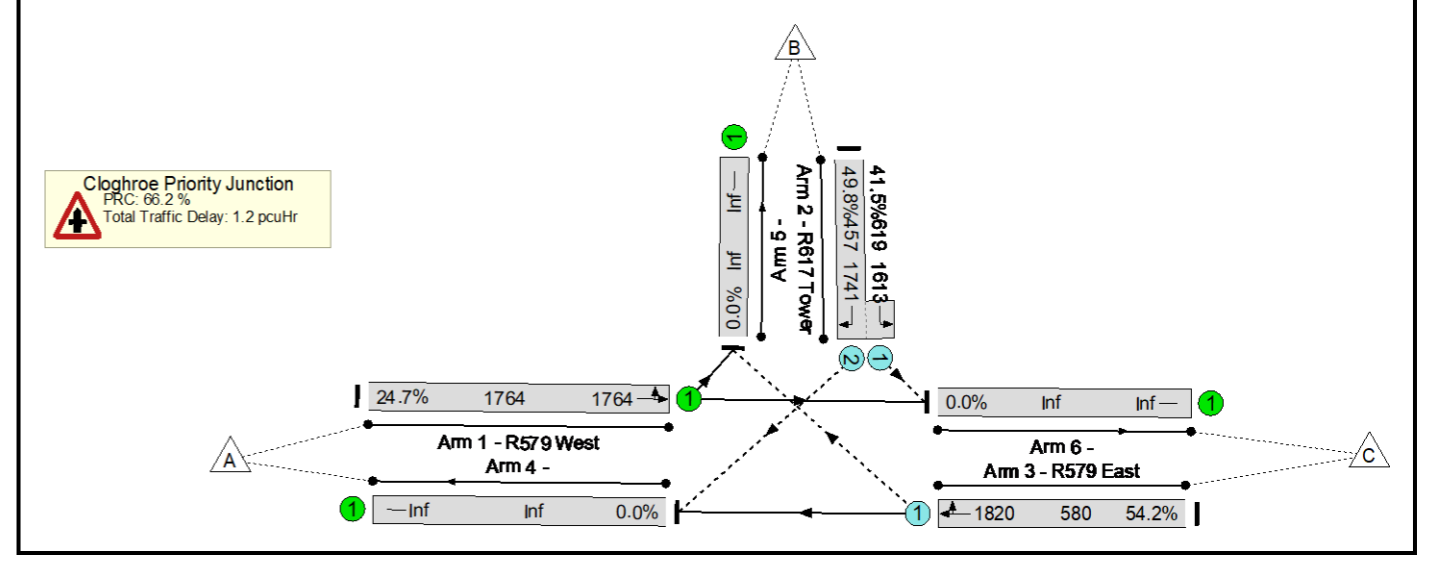


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	54.3%	827	0	0	0.9	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	54.3%	827	0	0	0.9	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	258	1700	1700	15.2%	-	-	-	0.1	1.2	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	302	1741:1613	472+540	43.7 : 17.8%	604	0	0	0.2	2.5	0.2
3/1	R579 East Ahead Right	O	-	-	-	-	-	417	1841	768	54.3%	223	0	0	0.6	5.1	0.6
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	0.89				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	65.7				

Basic Results Summary  
Scenario 3: 'AM 2024 No Dev' (FG3: '2024 AM No Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



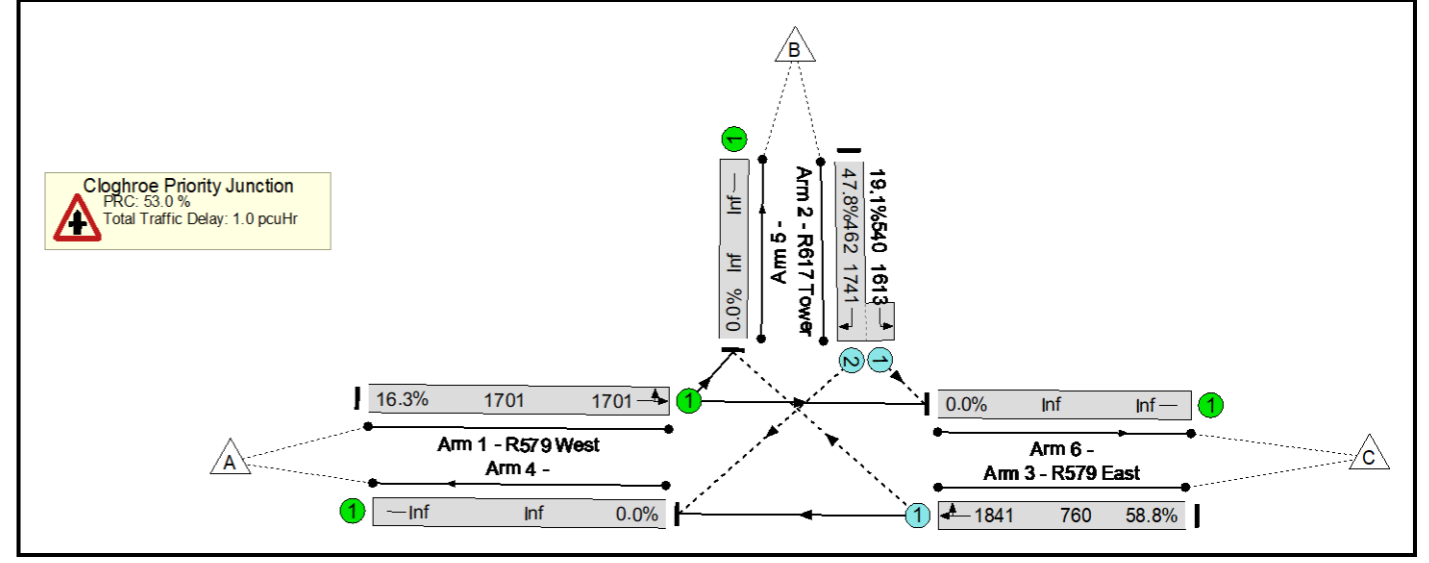


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	54.2%	1189	0	0	1.2	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	54.2%	1189	0	0	1.2	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	435	1764	1764	24.7%	-	-	-	0.2	1.4	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	485	1741:1613	457+619	49.8 : 41.5%	970	0	0	0.4	3.0	0.4
3/1	R579 East Ahead Right	O	-	-	-	-	-	314	1820	580	54.2%	219	0	0	0.6	6.7	0.6
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.16				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	66.2				
												C1					

Basic Results Summary  
Scenario 4: 'PM 2024 No Dev' (FG4: '2024 PM No Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram

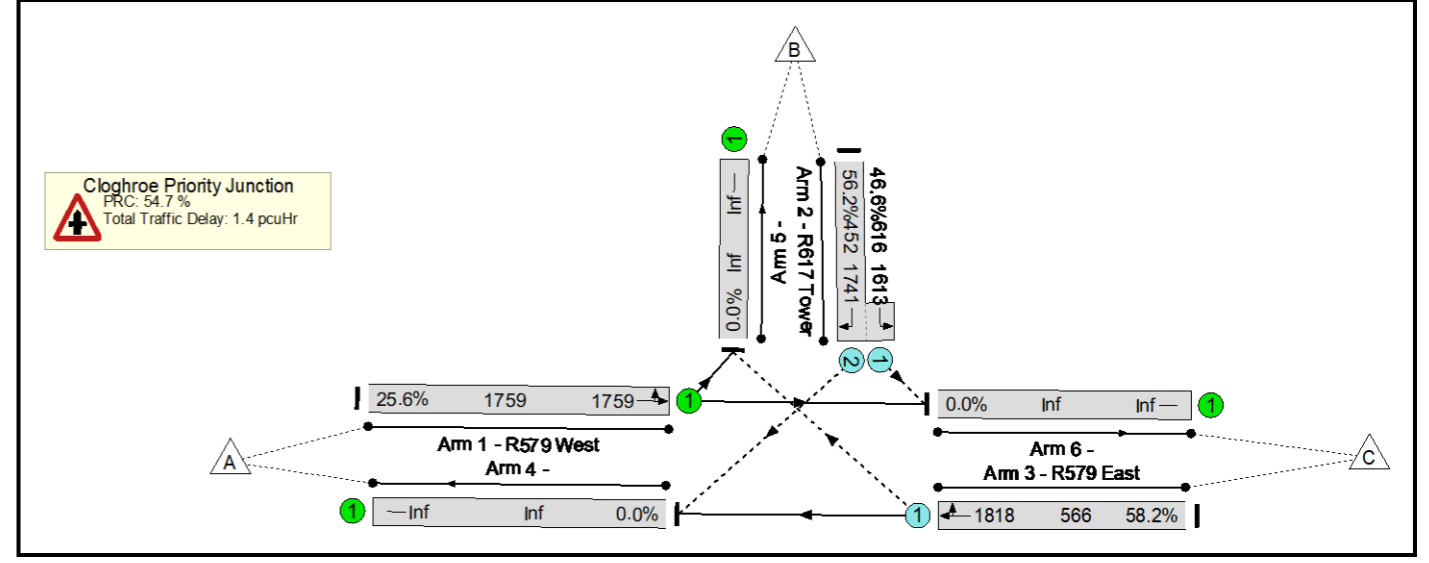


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	58.8%	887	0	0	1.0	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	58.8%	887	0	0	1.0	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	277	1701	1701	16.3%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	324	1741:1613	462+540	47.8:19.1%	648	0	0	0.2	2.7	0.2
3/1	R579 East Ahead Right	O	-	-	-	-	-	447	1841	760	58.8%	239	0	0	0.7	5.7	0.7
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.05				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	53.0				

Basic Results Summary  
Scenario 5: 'AM 2024 With Dev' (FG5: '2024 AM With Dev', Plan 1: 'Network Control Plan 1')

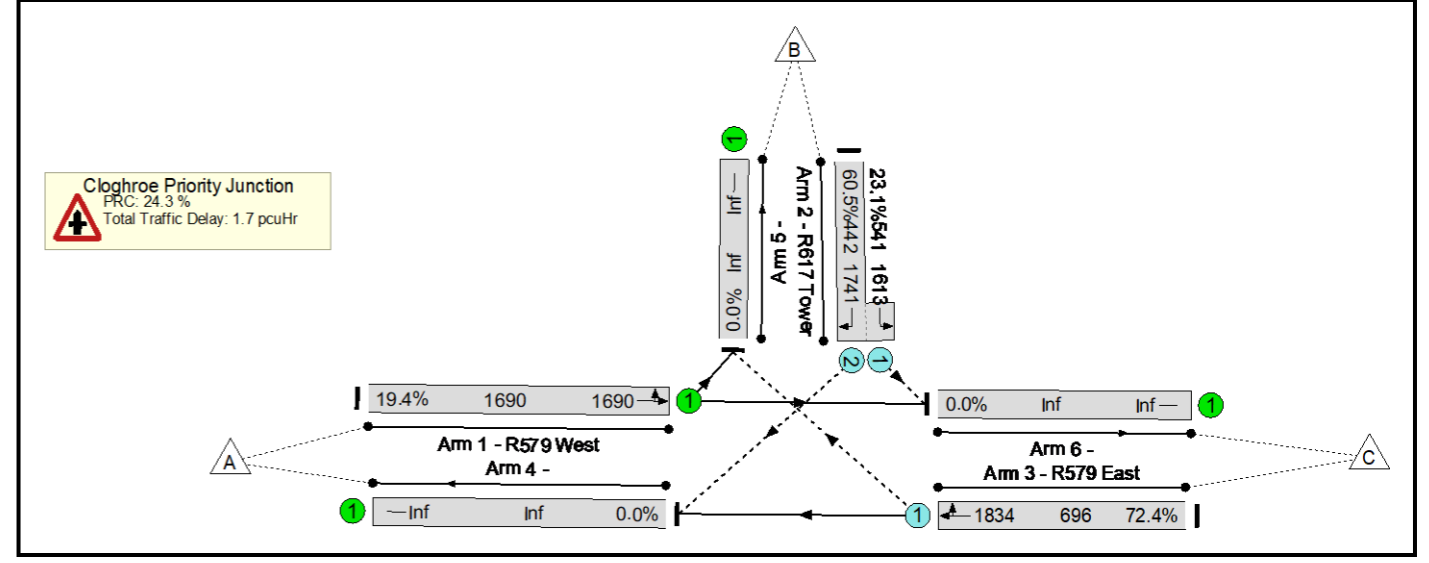
Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	58.2%	1316	0	0	1.4	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	58.2%	1316	0	0	1.4	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	451	1759	1759	25.6%	-	-	-	0.2	1.4	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	541	1741:1613	452+616	56.2 : 46.6%	1082	0	0	0.5	3.4	0.5
3/1	R579 East Ahead Right	O	-	-	-	-	-	329	1818	566	58.2%	234	0	0	0.7	7.6	0.7
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.38				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	54.7				
C1																	

Basic Results Summary  
Scenario 6: 'PM 2024 With Dev' (FG6: '2024 PM With Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram

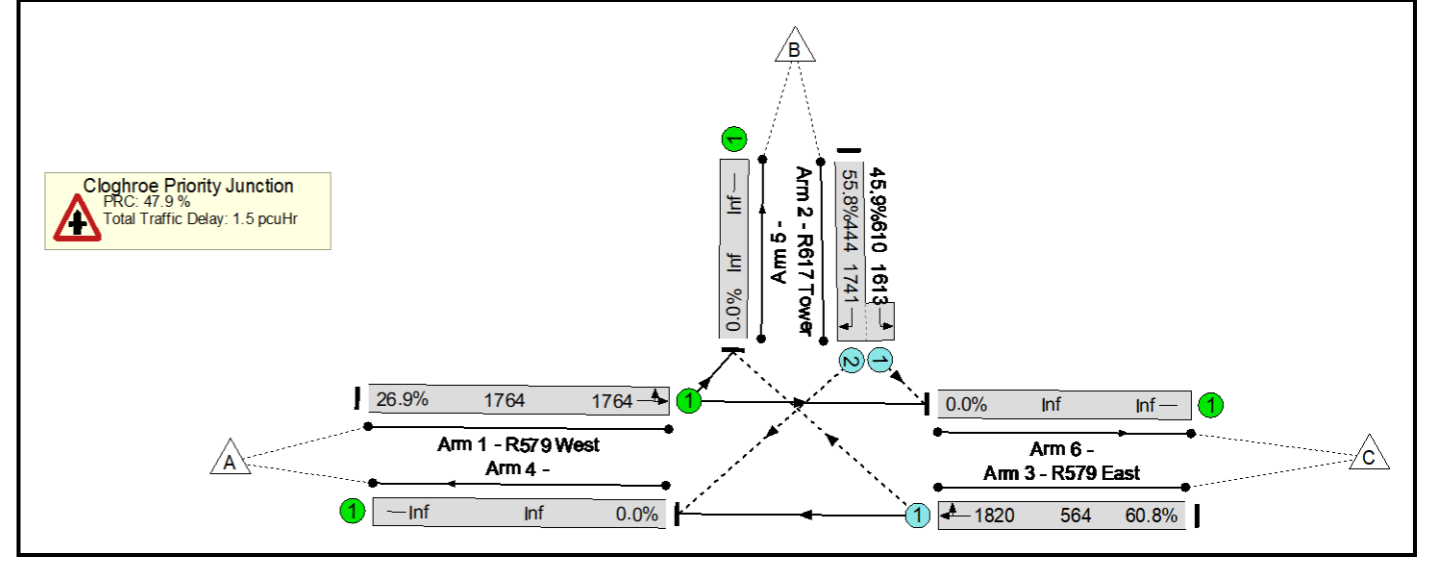


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	72.4%	1080	0	0	1.7	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	72.4%	1080	0	0	1.7	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	328	1690	1690	19.4%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	392	1741:1613	442+541	60.5 : 23.1%	784	0	0	0.3	3.0	0.3
3/1	R579 East Ahead Right	O	-	-	-	-	-	504	1834	696	72.4%	296	0	0	1.3	9.2	1.3
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.74				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	24.3				

Basic Results Summary  
Scenario 7: 'AM 2029 No Dev' (FG7: '2029 AM No Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



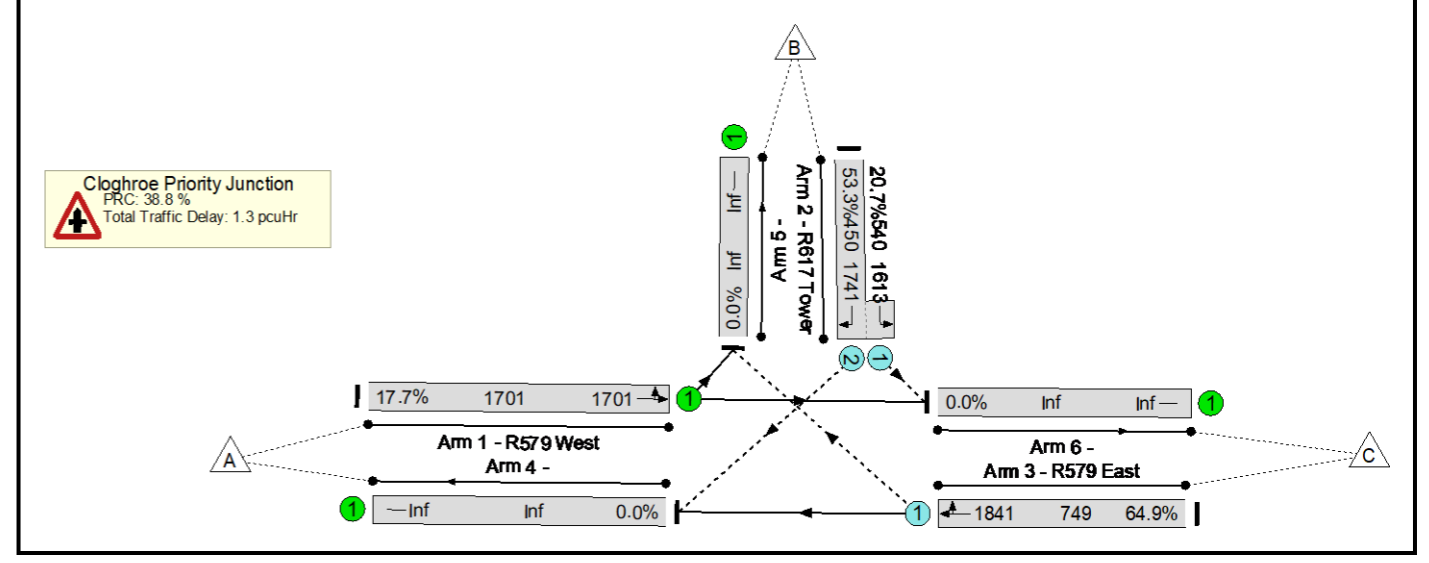


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	60.8%	1295	0	0	1.5	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	60.8%	1295	0	0	1.5	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	475	1764	1764	26.9%	-	-	-	0.2	1.4	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	528	1741:1613	444+610	55.8 : 45.9%	1056	0	0	0.5	3.4	0.5
3/1	R579 East Ahead Right	O	-	-	-	-	-	343	1820	564	60.8%	239	0	0	0.8	8.1	0.8
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.46				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	47.9				

Basic Results Summary  
Scenario 8: 'PM 2029 No Dev' (FG8: '2029 PM No Dev', Plan 1: 'Network Control Plan 1')

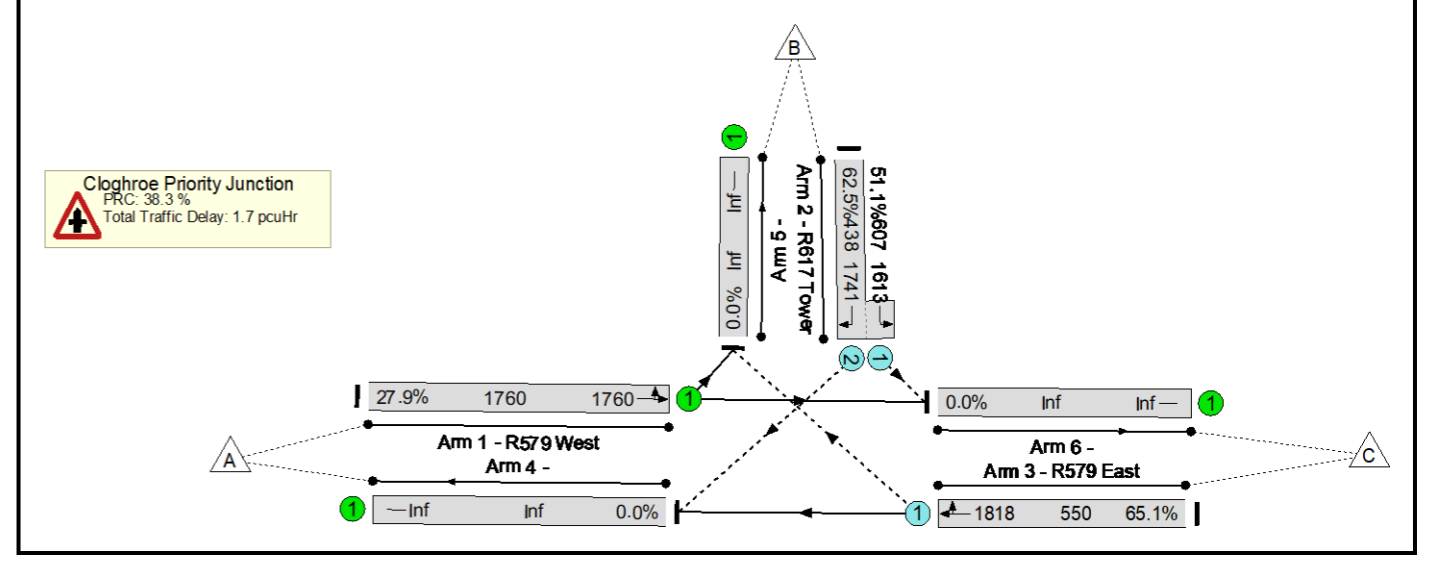
Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	64.9%	964	0	0	1.3	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	64.9%	964	0	0	1.3	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	301	1701	1701	17.7%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	352	1741:1613	450+540	53.3 : 20.7%	704	0	0	0.3	2.8	0.3
3/1	R579 East Ahead Right	O	-	-	-	-	-	486	1841	749	64.9%	260	0	0	0.9	6.8	0.9
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.30				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	38.8				

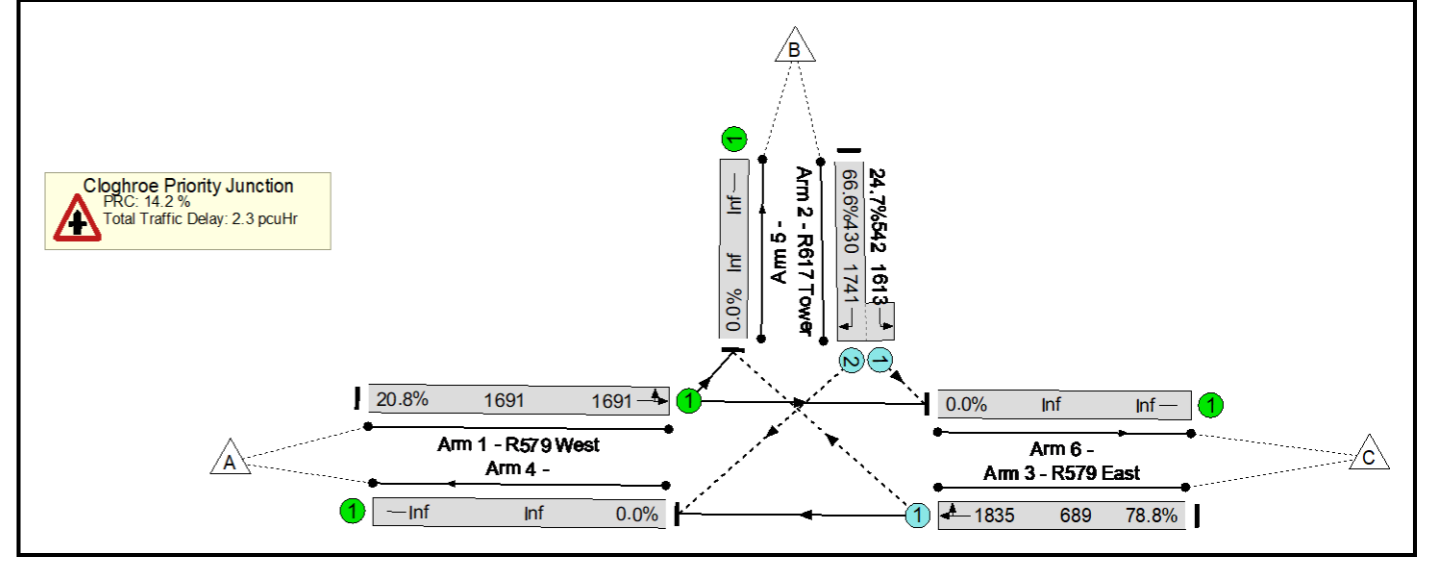
Basic Results Summary  
Scenario 9: 'AM 2029 With Dev' (FG9: '2029 AM With Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	65.1%	1422	0	0	1.7	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	65.1%	1422	0	0	1.7	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	491	1760	1760	27.9%	-	-	-	0.2	1.4	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	584	1741:1613	438+607	62.5 : 51.1%	1168	0	0	0.6	3.9	0.6
3/1	R579 East Ahead Right	O	-	-	-	-	-	358	1818	550	65.1%	254	0	0	0.9	9.3	0.9
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.75				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	38.3				
												C1					

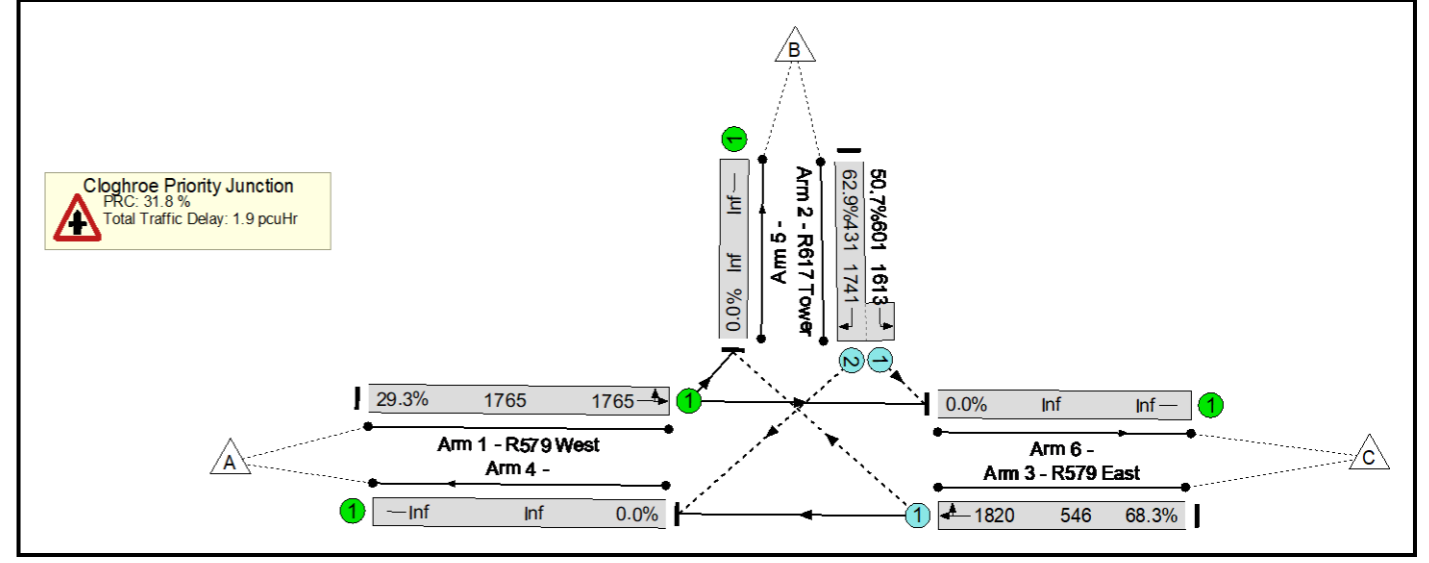
Basic Results Summary  
Scenario 10: 'PM 2029 With Dev' (FG10: '2029 PM With Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	78.8%	1157	0	0	2.3	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	78.8%	1157	0	0	2.3	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	352	1691	1691	20.8%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	420	1741:1613	430+542	66.6 : 24.7%	840	0	0	0.4	3.3	0.4
3/1	R579 East Ahead Right	O	-	-	-	-	-	543	1835	689	78.8%	317	0	0	1.8	12.0	1.8
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	2.33				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	14.2				

Basic Results Summary  
Scenario 11: 'AM 2039 No Dev' (FG11: '2039 AM No Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram



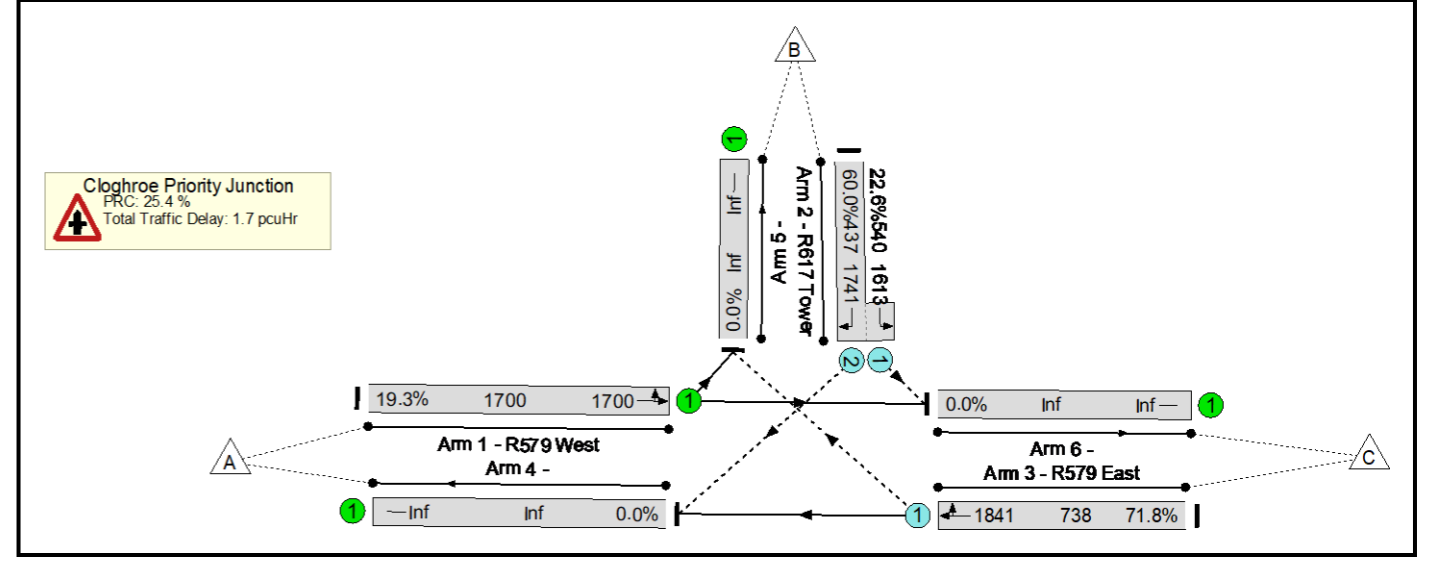


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	68.3%	1412	0	0	1.9	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	68.3%	1412	0	0	1.9	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	517	1765	1765	29.3%	-	-	-	0.2	1.4	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	576	1741:1613	431+601	62.9: 50.7%	1152	0	0	0.6	3.9	0.6
3/1	R579 East Ahead Right	O	-	-	-	-	-	373	1820	546	68.3%	260	0	0	1.1	10.3	1.1
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.90				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	31.8				

Basic Results Summary  
Scenario 12: 'PM 2039 No Dev' (FG12: '2039 PM No Dev', Plan 1: 'Network Control Plan 1')

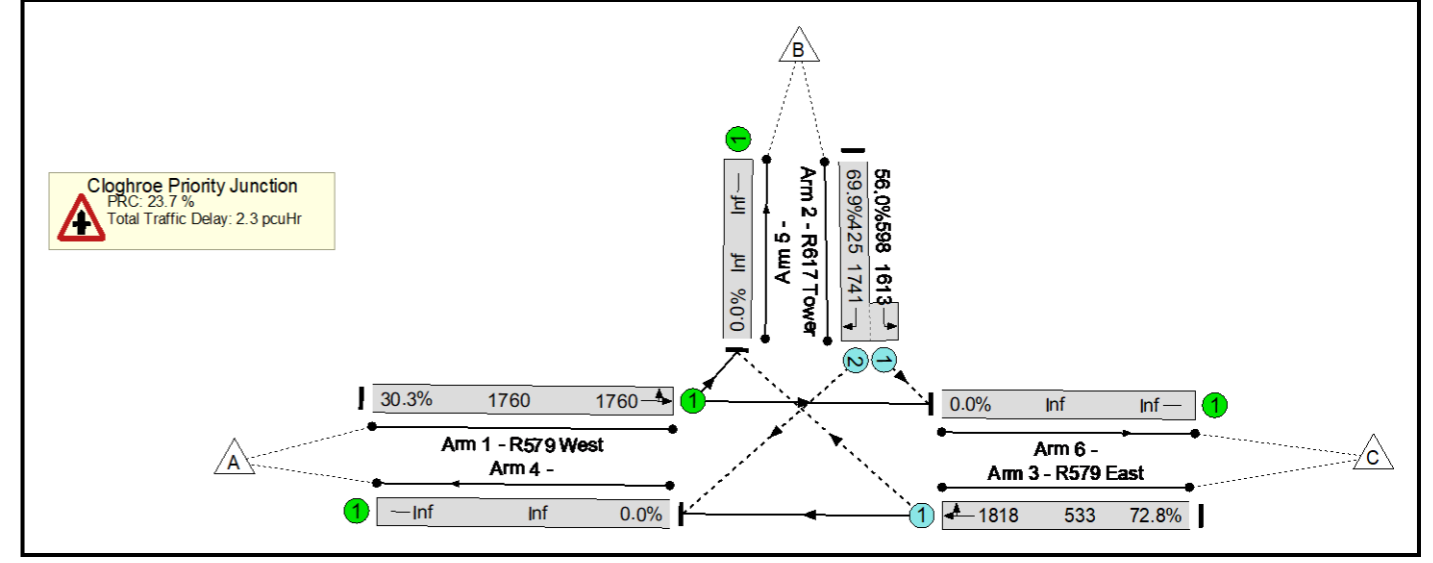
Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	71.8%	1051	0	0	1.7	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	71.8%	1051	0	0	1.7	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	328	1700	1700	19.3%	-	-	-	0.1	1.3	0.1
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	384	1741:1613	437+540	60.0 : 22.6%	768	0	0	0.3	3.0	0.3
3/1	R579 East Ahead Right	O	-	-	-	-	-	530	1841	738	71.8%	283	0	0	1.3	8.5	1.3
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	1.70				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	25.4				

Basic Results Summary  
Scenario 13: 'AM 2039 With Dev' (FG13: '2039 AM With Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram

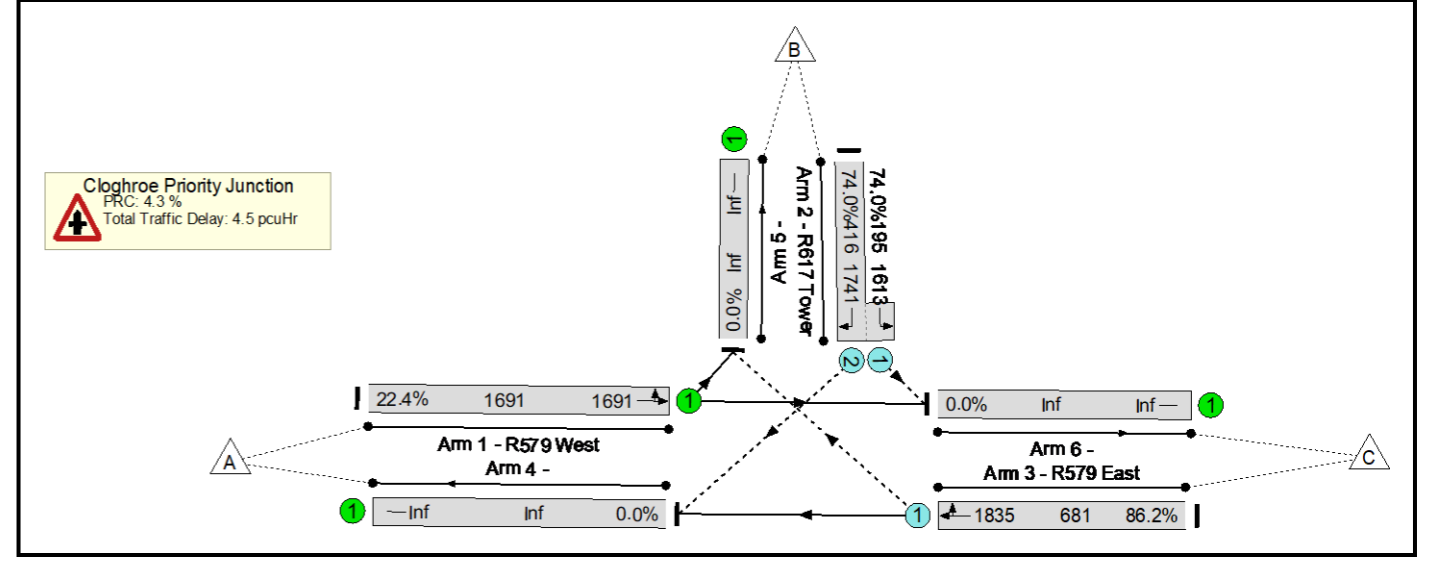


Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	72.8%	1539	0	0	2.3	-	-
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	72.8%	1539	0	0	2.3	-	-
1/1	R579 West Left Ahead	U	-	-	-	-	-	533	1760	1760	30.3%	-	-	-	0.2	1.5	0.2
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	632	1741:1613	425+598	69.9 : 56.0%	1264	0	0	0.8	4.6	0.8
3/1	R579 East Ahead Right	O	-	-	-	-	-	388	1818	533	72.8%	275	0	0	1.3	12.2	1.3
												Cycle Time (s):	1				
												Total Delay for Signalled Lanes (pcuHr):	0.00				
												Total Delay Over All Lanes (pcuHr):	2.34				
												PRC for Signalled Lanes (%):	0.0				
												PRC Over All Lanes (%):	23.7				

Basic Results Summary  
Scenario 14: 'PM 2039 With Dev' (FG14: '2039 PM With Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary  
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)		
Network: Cloghroe Residential	-	-	-	-	-	-	-	-	-	-	86.2%	1244	0	0	4.5	-	-		
Cloghroe Priority Junction	-	-	-	-	-	-	-	-	-	-	86.2%	1244	0	0	4.5	-	-		
1/1	R579 West Left Ahead	U	-	-	-	-	-	379	1691	1691	22.4%	-	-	-	0.1	1.4	0.1		
2/2+2/1	R617 Tower Right Left	O	-	-	-	-	-	452	1741:1613	416+195	74.0 : 74.0%	904	0	0	1.4	11.1	1.4		
3/1	R579 East Ahead Right	O	-	-	-	-	-	587	1835	681	86.2%	340	0	0	2.9	18.1	2.9		
C1																			
PRC for Signalised Lanes (%): 0.0												PRC Over All Lanes (%): 4.3		Total Delay for Signalised Lanes (pcuHr): 0.00		Total Delay Over All Lanes (pcuHr): 4.49		Cycle Time (s): 60	

APPENDIX C: TRICS



Calculation Reference: AUDIT-761701-210614-0615

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

12	CONNAUGHT	
	CS SLIGO	2 days
	LT LEITRIM	2 days
	RO ROSCOMMON	2 days
13	MUNSTER	
	WA WATERFORD	1 days
14	LEINSTER	
	CC CARLOW	1 days
	WC WICKLOW	2 days
15	GREATER DUBLIN	
	DL DUBLIN	1 days
16	ULSTER (REPUBLIC OF IRELAND)	
	CV CAVAN	2 days
	DN DONEGAL	6 days

*This section displays the number of survey days per TRICS® sub-region in the selected set*

Primary Filtering selection:

*This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

Parameter: No of Dwellings  
 Actual Range: 6 to 280 (units: )  
 Range Selected by User: 4 to 437 (units: )

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 30/09/20

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*

Selected survey days:

Monday	6 days
Tuesday	1 days
Wednesday	6 days
Thursday	3 days
Friday	3 days

*This data displays the number of selected surveys by day of the week.*

Selected survey types:

Manual count	19 days
Directional ATC Count	0 days

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.*

Selected Locations:

Edge of Town Centre	3
Suburban Area (PPS6 Out of Centre)	4
Edge of Town	10
Neighbourhood Centre (PPS6 Local Centre)	2

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*

Selected Location Sub Categories:

Residential Zone	13
Village	2
No Sub Category	4

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.*

Secondary Filtering selection:

Use Class:

C3 19 days

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.*

Population within 500m Range:

All Surveys Included	
<u>Population within 1 mile:</u>	
1,000 or Less	2 days
1,001 to 5,000	7 days
5,001 to 10,000	5 days
10,001 to 15,000	5 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*

Population within 5 miles:

5,000 or Less	4 days
5,001 to 25,000	12 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	9 days
1.6 to 2.0	4 days

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*

Travel Plan:

No 19 days

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

PTAL Rating:

No PTAL Present 19 days

*This data displays the number of selected surveys with PTAL Ratings.*

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	CC-03-A-01 R417 ANTHY ROAD CARLOW	DETACHED HOUSES	CARLOW
	Edge of Town Residential Zone Total No of Dwellings: 23		
	<i>Survey date: WEDNESDAY 25/05/16</i>		<i>Survey Type: MANUAL</i>
2	CS-03-A-03 TOP ROAD STRANDHILL STRANDHILL	MIXED HOUSES	SLIGO
	Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 30		
	<i>Survey date: THURSDAY 27/10/16</i>		<i>Survey Type: MANUAL</i>
3	CS-03-A-04 R292 STRANDHILL	DETACHED & SEMI -DETACHED	SLIGO
	Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 63		
	<i>Survey date: THURSDAY 27/10/16</i>		<i>Survey Type: MANUAL</i>
4	CV-03-A-02 R212 DUBLIN ROAD CAVAN	DETACHED & SEMI DETACHED	CAVAN
	KILLYNEBBER Edge of Town No Sub Category Total No of Dwellings: 80		
	<i>Survey date: MONDAY 22/05/17</i>		<i>Survey Type: MANUAL</i>
5	CV-03-A-03 R212 DUBLIN ROAD CAVAN	DETACHED HOUSES	CAVAN
	PULLAMORE NEAR Edge of Town No Sub Category Total No of Dwellings: 37		
	<i>Survey date: MONDAY 22/05/17</i>		<i>Survey Type: MANUAL</i>
6	DL-03-A-10 R124 MALAHIDE SAINT HELENS	SEMI DETACHED & DETACHED	DUBLIN
	Edge of Town Residential Zone Total No of Dwellings: 65		
	<i>Survey date: WEDNESDAY 20/06/18</i>		<i>Survey Type: MANUAL</i>
7	DN-03-A-03 THE GRANGE LETTERKENNY GLENCAR IRISH	DETACHED/SEMI -DETACHED	DONEGAL
	Edge of Town Residential Zone Total No of Dwellings: 50		
	<i>Survey date: MONDAY 01/09/14</i>		<i>Survey Type: MANUAL</i>
8	DN-03-A-04 GORTLEE ROAD LETTERKENNY GORTLEE	SEMI -DETACHED	DONEGAL
	Edge of Town Residential Zone Total No of Dwellings: 83		
	<i>Survey date: FRIDAY 26/09/14</i>		<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

9	DN-03-A-05 GORTLEE ROAD LETTERKENNY GORTLEE	DETACHED/SEMI -DETACHED	DONEGAL
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 146		
	<i>Survey date: WEDNESDAY 03/09/14</i>		<i>Survey Type: MANUAL</i>
10	DN-03-A-06 GLENFIN ROAD BALLYBOFEY	DETACHED HOUSING	DONEGAL
	Edge of Town Residential Zone Total No of Dwellings: 6		
	<i>Survey date: WEDNESDAY 10/10/18</i>		<i>Survey Type: MANUAL</i>
11	DN-03-A-07 ST ORANS ROAD BUNCRANA	DETACHED & SEMI -DETACHED	DONEGAL
	Edge of Town Centre Residential Zone Total No of Dwellings: 9		
	<i>Survey date: WEDNESDAY 29/05/19</i>		<i>Survey Type: MANUAL</i>
12	DN-03-A-08 CHURCH ROAD CARNDONAGH	SEMI DETACHED & DETACHED	DONEGAL
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 36		
	<i>Survey date: WEDNESDAY 30/09/20</i>		<i>Survey Type: MANUAL</i>
13	LT-03-A-01 ARD NA SI CARRICK-ON-SHANNON ATTIRORY	SEMI -DETACHED & DETACHED	LEITRIM
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 90		
	<i>Survey date: FRIDAY 24/04/15</i>		<i>Survey Type: MANUAL</i>
14	LT-03-A-02 ARD ALAINN CARRICK-ON-SHANNON GALLOW'S HILL	BUNGALOWS	LEITRIM
	Edge of Town Centre Residential Zone Total No of Dwellings: 10		
	<i>Survey date: MONDAY 22/05/17</i>		<i>Survey Type: MANUAL</i>
15	RO-03-A-03 N61 BOYLE GREATMEADOW	DETACHED HOUSES	ROSCOMMON
	Edge of Town No Sub Category Total No of Dwellings: 23		
	<i>Survey date: THURSDAY 25/09/14</i>		<i>Survey Type: MANUAL</i>
16	RO-03-A-04 EAGLE COURT ROSCOMMON ARDNANAGH	SEMI DET. & BUNGALOWS	ROSCOMMON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 39		
	<i>Survey date: FRIDAY 26/09/14</i>		<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

17	WA-03-A-04 MAYPARK LANE WATERFORD	DETACHED		WATERFORD
	Edge of Town Residential Zone Total No of Dwellings: 280 Survey date: <b>TUESDAY</b> 24/06/14			Survey Type: <b>MANUAL</b>
18	WC-03-A-01 STATION ROAD WICKLOW CORPORATION MURRAGH	DETACHED HOUSES		WICKLOW
	Edge of Town No Sub Category Total No of Dwellings: 50 Survey date: <b>MONDAY</b> 28/05/18			Survey Type: <b>MANUAL</b>
19	WC-03-A-02 MARLTON ROAD WICKLOW FRIARSHILL	DETACHED HOUSES		WICKLOW
	Edge of Town Centre Residential Zone Total No of Dwellings: 45 Survey date: <b>MONDAY</b> 28/05/18			Survey Type: <b>MANUAL</b>

*This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.*

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	19	61	0.050	19	61	0.182	19	61	0.232
08:00 - 09:00	19	61	0.170	19	61	0.532	19	61	0.702
09:00 - 10:00	19	61	0.239	19	61	0.278	19	61	0.517
10:00 - 11:00	19	61	0.173	19	61	0.200	19	61	0.373
11:00 - 12:00	19	61	0.179	19	61	0.223	19	61	0.402
12:00 - 13:00	19	61	0.259	19	61	0.260	19	61	0.519
13:00 - 14:00	19	61	0.285	19	61	0.276	19	61	0.561
14:00 - 15:00	19	61	0.318	19	61	0.318	19	61	0.636
15:00 - 16:00	19	61	0.361	19	61	0.280	19	61	0.641
16:00 - 17:00	19	61	0.341	19	61	0.235	19	61	0.576
17:00 - 18:00	19	61	0.454	19	61	0.276	19	61	0.730
18:00 - 19:00	19	61	0.361	19	61	0.284	19	61	0.645
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			3.190			3.344			6.534

*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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Parameter summary

Trip rate parameter range selected:	6 - 280 (units: )
Survey date date range:	01/01/13 - 30/09/20
Number of weekdays (Monday-Friday):	19
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
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.*

Calculation Reference: AUDIT-761701-210614-0651

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

04	EAST ANGLIA	
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
	WK WARWICKSHIRE	1 days
09	NORTH	
	TV TEES VALLEY	1 days
10	WALES	
	BG BRIDGEND	1 days
11	SCOTLAND	
	DU DUNDEE CITY	1 days
	SR STIRLING	1 days
12	CONNAUGHT	
	RO ROSCOMMON	2 days

*This section displays the number of survey days per TRICS® sub-region in the selected set*

Primary Filtering selection:

*This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

Parameter: Gross floor area  
 Actual Range: 150 to 750 (units: sqm)  
 Range Selected by User: 109 to 2350 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 27/09/19

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*

Selected survey days:

Monday	3 days
Tuesday	1 days
Wednesday	2 days
Friday	4 days

*This data displays the number of selected surveys by day of the week.*

Selected survey types:

Manual count	10 days
Directional ATC Count	0 days

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.*

Selected Locations:

Edge of Town Centre	3
Suburban Area (PPS6 Out of Centre)	2
Edge of Town	5

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*

Selected Location Sub Categories:

Industrial Zone	1
Residential Zone	8
No Sub Category	1

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.*

Secondary Filtering selection:

Use Class:

E(f) 10 days

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.*

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	3 days
10,001 to 15,000	1 days
15,001 to 20,000	3 days
20,001 to 25,000	1 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*

Population within 5 miles:

5,001 to 25,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	5 days
125,001 to 250,000	2 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	3 days
1.1 to 1.5	6 days

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*

Travel Plan:

No 10 days

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

PTAL Rating:

No PTAL Present 10 days

*This data displays the number of selected surveys with PTAL Ratings.*

LIST OF SITES relevant to selection parameters

1	BG-04-D-01 NURSERY GEORGE STREET BRIDGEND BRIDGEND IND. ESTATE Edge of Town Industrial Zone Total Gross floor area: 210 sqm <i>Survey date: MONDAY 13/10/14</i>	BRIDGEND	<i>Survey Type: MANUAL</i>
2	DU-04-D-01 NURSERY LONGTOWN TERRACE DUNDEE  Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 325 sqm <i>Survey date: MONDAY 24/04/17</i>	DUNDEE CITY	<i>Survey Type: MANUAL</i>
3	LN-04-D-01 NURSERY NEWARK ROAD LINCOLN SWALLOW BECK Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 600 sqm <i>Survey date: TUESDAY 31/10/17</i>	LINCOLNSHIRE	<i>Survey Type: MANUAL</i>
4	RO-04-D-01 NURSERY PARK VIEW ROSCOMMON CRUBY HILL Edge of Town Residential Zone Total Gross floor area: 500 sqm <i>Survey date: FRIDAY 26/09/14</i>	ROSCOMMON	<i>Survey Type: MANUAL</i>
5	RO-04-D-02 NURSERY CIRCULAR ROAD ROSCOMMON BALLYPHEASAN Edge of Town Centre Residential Zone Total Gross floor area: 509 sqm <i>Survey date: FRIDAY 27/04/18</i>	ROSCOMMON	<i>Survey Type: MANUAL</i>
6	SF-04-D-03 NURSERY CAMP ROAD LOWESTOFT  Edge of Town Centre Residential Zone Total Gross floor area: 750 sqm <i>Survey date: WEDNESDAY 10/12/14</i>	SUFFOLK	<i>Survey Type: MANUAL</i>
7	SH-04-D-01 NURSERY OLD COLEHAM SHREWSBURY  Edge of Town Centre Residential Zone Total Gross floor area: 326 sqm <i>Survey date: WEDNESDAY 28/05/14</i>	SHROPSHIRE	<i>Survey Type: MANUAL</i>
8	SR-04-D-01 NURSERY HENDERSON STREET STIRLING BRIDGE OF ALLAN Edge of Town No Sub Category Total Gross floor area: 250 sqm <i>Survey date: MONDAY 16/06/14</i>	STIRLING	<i>Survey Type: MANUAL</i>
9	TV-04-D-01 NURSERY COTSWOLD DRIVE REDCAR  Edge of Town Residential Zone Total Gross floor area: 150 sqm <i>Survey date: FRIDAY 19/05/17</i>	TEES VALLEY	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

10	WK-04-D-01 NURSERY THE RIDGEWAY STRATFORD UPON AVON  Edge of Town Residential Zone Total Gross floor area: 340 sqm <i>Survey date: FRIDAY 29/06/18</i>	WARWICKSHIRE	<i>Survey Type: MANUAL</i>
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*This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.*



TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY  
 TOTAL VEHICLES  
 Calculation factor: 100 sqm  
 BOLD print indicates peak (busiest) period

Calculation Reference: AUDIT-761701-210614-0652

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	396	1.338	10	396	0.530	10	396	1.868
08:00 - 09:00	10	396	4.596	10	396	3.182	10	396	7.778
09:00 - 10:00	10	396	2.500	10	396	2.500	10	396	5.000
10:00 - 11:00	10	396	0.707	10	396	0.581	10	396	1.288
11:00 - 12:00	10	396	0.884	10	396	0.505	10	396	1.389
12:00 - 13:00	10	396	1.742	10	396	2.424	10	396	4.166
13:00 - 14:00	10	396	1.061	10	396	1.439	10	396	2.500
14:00 - 15:00	10	396	0.960	10	396	0.783	10	396	1.743
15:00 - 16:00	10	396	0.884	10	396	1.237	10	396	2.121
16:00 - 17:00	10	396	1.717	10	396	1.717	10	396	3.434
17:00 - 18:00	10	396	3.131	10	396	3.965	10	396	7.096
18:00 - 19:00	9	423	0.131	9	423	0.945	9	423	1.076
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			<b>19.651</b>			<b>19.808</b>			<b>39.459</b>

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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Parameter summary

Trip rate parameter range selected: 150 - 750 (units: sqm)  
 Survey date range: 01/01/13 - 27/09/19  
 Number of weekdays (Monday-Friday): 10  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL  
 Category : C - DISCOUNT FOOD STORES  
 TOTAL VEHICLES

Selected regions and areas:

12	CONNAUGHT	
	LT LEITRIM	1 days
13	MUNSTER	
	KE KERRY	1 days
14	LEINSTER	
	LU LOUTH	1 days
	WC WICKLOW	1 days
15	GREATER DUBLIN	
	DL DUBLIN	1 days
16	ULSTER (REPUBLIC OF IRELAND)	
	DN DONEGAL	1 days
	MG MONAGHAN	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	1 days
	TY TYRONE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area  
 Actual Range: 1325 to 2163 (units: sqm)  
 Range Selected by User: 1266 to 2163 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 07/11/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Wednesday	4 days
Thursday	2 days
Saturday	2 days
Sunday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Town Centre	1
Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	2
Edge of Town	3
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	2
Development Zone	1
Residential Zone	1
No Sub Category	5

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:  
 E(a) 9 days

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS@.*

Population within 500m Range:  
 All Surveys Included  
Population within 1 mile:  
 1,000 or Less 1 days  
 1,001 to 5,000 3 days  
 5,001 to 10,000 2 days  
 10,001 to 15,000 2 days  
 15,001 to 20,000 1 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*

Population within 5 miles:  
 5,001 to 25,000 3 days  
 25,001 to 50,000 4 days  
 75,001 to 100,000 2 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*

Car ownership within 5 miles:  
 0.6 to 1.0 2 days  
 1.1 to 1.5 3 days  
 1.6 to 2.0 4 days

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*

Petrol filling station:  
 Included in the survey count 0 days  
 Excluded from count or no filling station 9 days

*This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.*

Travel Plan:  
 No 9 days

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

PTAL Rating:  
 No PTAL Present 9 days

*This data displays the number of selected surveys with PTAL Ratings.*

Covid-19 Restrictions Yes At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1	AN-01-C-02 BELFAST ROAD CARRICKFERGUS	LIDL		ANTRIM
	Edge of Town Development Zone Total Gross floor area: 1325 sqm Survey date: WEDNESDAY 12/10/16			Survey Type: MANUAL
2	DL-01-C-01 SALLYNOGGIN ROAD DUBLIN THOMASTOWN Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 2163 sqm Survey date: WEDNESDAY 20/06/18	LIDL		DUBLIN
	Edge of Town Centre No Sub Category Total Gross floor area: 1480 sqm Survey date: WEDNESDAY 29/05/19			Survey Type: MANUAL
3	DN-01-C-01 MCCARTERS ROAD BUNCRANA	ALDI		DONEGAL
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area: 1354 sqm Survey date: THURSDAY 17/10/19			Survey Type: MANUAL
4	KE-01-C-01 DEERPARK ROAD KILLARNEY	ALDI		KERRY
	Edge of Town No Sub Category Total Gross floor area: 1755 sqm Survey date: SUNDAY 19/04/15			Survey Type: MANUAL
5	LT-01-C-01 BOYLE ROAD CARRICK-ON-SHANNON CORTOBER Edge of Town No Sub Category Total Gross floor area: 1746 sqm Survey date: SATURDAY 07/11/20	LIDL		LEITRIM
	Edge of Town Centre Industrial Zone Total Gross floor area: 1680 sqm Survey date: WEDNESDAY 16/11/16			Survey Type: MANUAL
6	LU-01-C-01 NEWRY ROAD DUNDALK	ALDI		LOUTH
	Edge of Town Centre Industrial Zone Total Gross floor area: 1400 sqm Survey date: THURSDAY 21/03/19			Survey Type: MANUAL
7	MG-01-C-01 NORTH ROAD MONAGHAN	LIDL		MONAGHAN
	Edge of Town Centre Industrial Zone Total Gross floor area: 1680 sqm Survey date: WEDNESDAY 16/11/16			Survey Type: MANUAL
8	TY-01-C-02 MOLESWORTH STREET COOKSTOWN STATION SQUARE RET. PK Town Centre No Sub Category Total Gross floor area: 1400 sqm Survey date: THURSDAY 21/03/19	LIDL		TYRONE
	Edge of Town Centre Industrial Zone Total Gross floor area: 1400 sqm Survey date: THURSDAY 21/03/19			Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 WC-01-C-01 ALDI WICKLOW  
 PINWOOD CLOSE  
 BRAY

Suburban Area (PPS6 Out of Centre)

No Sub Category

Total Gross floor area: 1672 sqm

Survey date: SATURDAY

05/10/19

Survey Type: MANUAL

*This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.*

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	1642	0.579	4	1642	0.183	4	1642	0.762
08:00 - 09:00	9	1619	1.660	9	1619	0.919	9	1619	2.579
09:00 - 10:00	9	1619	4.137	9	1619	2.998	9	1619	7.135
10:00 - 11:00	9	1619	4.707	9	1619	3.760	9	1619	8.467
11:00 - 12:00	9	1619	5.949	9	1619	5.619	9	1619	11.568
12:00 - 13:00	9	1619	6.189	9	1619	6.257	9	1619	12.446
13:00 - 14:00	9	1619	6.244	9	1619	6.340	9	1619	12.584
14:00 - 15:00	9	1619	6.003	9	1619	6.086	9	1619	12.089
15:00 - 16:00	9	1619	6.690	9	1619	6.765	9	1619	13.455
16:00 - 17:00	9	1619	6.765	9	1619	7.376	9	1619	14.141
17:00 - 18:00	9	1619	5.997	9	1619	6.449	9	1619	12.446
18:00 - 19:00	9	1619	4.583	9	1619	5.276	9	1619	9.859
19:00 - 20:00	9	1619	3.568	9	1619	3.863	9	1619	7.431
20:00 - 21:00	9	1619	2.346	9	1619	2.991	9	1619	5.337
21:00 - 22:00	9	1619	0.720	9	1619	1.002	9	1619	1.722
22:00 - 23:00	2	1417	0.071	2	1417	0.353	2	1417	0.424
23:00 - 24:00									
<b>Total Rates:</b>			<b>66.208</b>			<b>66.237</b>			<b>132.445</b>

*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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Parameter summary

Trip rate parameter range selected: 1325 - 2163 (units: sqm)  
 Survey date date range: 01/01/13 - 07/11/20  
 Number of weekdays (Monday-Friday): 6  
 Number of Saturdays: 2  
 Number of Sundays: 1  
 Surveys automatically removed from selection: 0  
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*