Sector 3, Aikens Village, Stepaside, Co. Dublin

Traffic and Transport Assessment

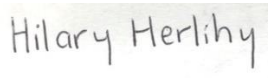
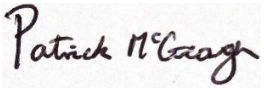
Ironborn Real Estate Ltd.

Project number: 60610462

August 2022

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
			
Hilary Herlihy Graduate Consultant	Patrick McGeough Consultant	Paul Beatty Associate Director	Paul Beatty Associate Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	10.12.2021	Stage 2 Submission to ABP	ZC	Zachary Cave	Senior Consultant
01	05.08.2022	Stage 2 Resubmission to ABP	PB	Paul Beatty	Associate Director

Prepared by:

AECOM Ireland Limited
4th Floor
Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin A96 T927
Ireland

T: +353 1 238 3100
aecom.com

Executive Summary

This Traffic and Transport Assessment (TTA) has been prepared by AECOM to accompany a Strategic Housing Development application for a proposed residential development comprising of 438 residential units, creche facility and residential facilities at a brownfield site located in Aikens Village, Stepaside, Sandyford, Co. Dublin.

Based upon the information and analysis presented within this TTA, the assessment demonstrates how the scheme has been designed from a traffic and transportation perspective, to integrate within the existing network and to minimise any potential traffic impacts.

Planning History

There are three known planning applications for the site:

Planning Ref: D16A/0511, Planning permission was previously granted on the site by Dun Laoghaire Rathdown County Council in 2016 for 243 no. apartments across 11 no. residential blocks. The scheme also included a creche, residents sports hall and a community room totalling 1,017 sq. m. Car parking was proposed at basement level, with two separate basements, comprising a total of 342 no. car parking spaces.

Planning Ref: ABP-306471-20, Planning permission was refused on the site by ABP in 2020 for 444 apartments across 9 no. residential blocks. The scheme also included for a creche and residential amenities on the site. Car parking was proposed at basement level, with two separate basements, comprising a total of 455 no car parking spaces.

Planning Ref: ABP-309828-21, Planning permission was granted by ABP in 2021 for 445 no. Build to Rent apartments across 9 no. residential blocks. The scheme also included for a creche and residential amenities on site. Car parking was proposed at basement level, with two separate basements, comprising a total of 354 no. car parking spaces. This decision is currently being challenged by way of judicial review in the High Court.

Proposed Development

The proposed development will consist of:-

- 438no. 'Build-to-Rent' apartment units (154no. 1 bedroom units and 284no. 2 bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements;
- Provision on 1no. childcare facility (c 514.9 sq. m gross floor area) in Block D; and
- Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area)

Proposed Site Access

Two vehicular accesses are proposed with access to/from Basement 1 off Atkinson Drive and access to/from Basement 2 from Thornberry Road. There are a number of pedestrian access points located throughout the site facilitating pedestrian permeability. These are located along the perimeter of the site on all four sides. There are also segregated pedestrian/cycling access points to the Basement parking areas.

Proposed Car Parking

It is proposed to provide a total of 350 no. car parking spaces to serve the proposed development. The proposed development provides 343 no. car parking spaces within the basement for residential car parking with 7 no. surface car parking spaces for the creche, visitors and servicing. The basement car park provision also includes 5 no. car club spaces and 2 no. creche/staff car parking.

It is proposed to provide 17 no. mobility impaired parking bays and 70 no. electric vehicle spaces within the basement car parking, which are inclusive of the 350 no. car parking spaces.

Proposed Cycle Parking

It is proposed to provide a total of 669 cycle parking spaces to serve the proposed development. The proposed development provides 597 cycle parking spaces within the basement, in total it is proposed to provide 460 long stay spaces and 106 short stay spaces, as well as 31 cargo bike spaces. A total of 72 cycle parking spaces at surface level (61 short stay spaces and 11 spaces for the creche).

Pedestrian access to the site is located along all boundaries of the site, encouraging pedestrian and cyclist permeability throughout. Access to the basement cycle parking will be provided via an advisory cycle lane on the access ramps, as well as a segregated pedestrian/cycle entrance into each basement.

Accessibility

The site benefits from being accessible for walking, cycling and public transport. Excellent pedestrian infrastructure facilities and street lighting connect the site to an array of existing services and amenities in Sandyford Hall and Belarmine including shops, restaurants and medical facilities. The Glencairn Luas Greenline stop is situated approximately 900m from the site, which provides frequent services to and from Dublin City Centre, which will assist to promote accessible travel to and from the site.

Accessibility to the site will be further enhanced by the new extended trams along the Luas Green line. A large majority of the trams have been introduced with new dimensions from 40m to 55m, increasing the capacity of the Luas. Furthermore the emerging MetroLink proposals will introduce a Metro from 2027 connecting Charlemont to Estuary via Dublin City Centre and Dublin Airport. The Charlemont stop is approximately 25mins journey time from the subject site.

Trip Generation

The overall development will generate approximately 159 and 144 two-way movements during the AM and PM peak hours respectively. These figures were obtained using the Trip Rate Information Computer System (TRICS 7.7.1).

Cumulative Impacts

The TII Guidelines for Transport Assessments state that the Traffic and Transport Assessment should consider all committed developments within the vicinity of the site. At the time of the traffic surveys, three developments were identified as having extant planning approval and were either under construction or had yet to be commenced. These were:

- Woodside Residential Development, Village Road, comprising of 155 no. dwellings. 125 no. apartments and 30 no. houses (Fully operational and occupied August 2022);
- Dun Gaoithe Residential Development, Village Road, comprising of 56 no. units, 17 no. apartments and 39 no. houses; and
- Whinsfield residential development, comprising of 67 no apartment units.

In order to provide a robust assessment of the cumulative impacts of all committed development plus the proposed development, the predicted traffic flows from these developments were taken account of and included in the base traffic flows.

Traffic Analysis

The TII Guidelines for Transport Assessments state that the thresholds for junction analysis in Transport Assessments are as follows:

- *'Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway.'*
- *'Traffic to and from the development exceeds 5% of the existing two-way flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations.'*

For the purposes of this TTA the 5% threshold was considered. This resulted in a total of 4 junctions being considered for further analysis, including:

- R117 Enniskerry Road / Village Road signalised junction (Junction 2);
- Belmont Drive / Village Road 3-arm priority-controlled junction (Junction 3);
- Atkinson Drive / Village Road / Cluain Shee 4-arm priority-controlled junction (Junction 4); and
- R117 / Belarmine Avenue 3-arm roundabout (Junction 5).

The results of the analysis, outlined in Section 7 of this report, indicates that the assessed junctions will continue to operate within capacity within the assessment years. At junction 2 this is achieved via minor revisions to the signal cycle timings to achieve a nil net detriment scenario over the baseline situation in the future PM peak.

Public Transport Capacity Analysis

A Public Transport Capacity Assessment has been undertaken as part of this study. The empirical data collected by AECOM with regards to current patronage levels on relevant bus and Luas services in the vicinity of the

proposed development, coupled with the derived potential peak hour public transport demand from the proposed development and the relevant committed developments, has demonstrated that both bus and Luas services, in their current configuration, exhibit sufficient capacity to accommodate the cumulative total of existing and predicted development related demand. This conclusion has been reached despite a number of worst-case assumptions including the maximum potential bedroom occupancy at the proposed development, as well as only considering seated capacity only for the bus services.

Table of Contents

Figures

Tables

1. Introduction

1.1 Background

AECOM has been commissioned by Ironborn Real Estate Limited to prepare a Traffic and Transport Assessment (TTA) in support of a Strategic Housing Development (SHD) application to An Bord Pleanala (ABP) on a brownfield site located in Sandyford, Dublin 18.

The site for proposed residential development is bounded by Thornberry Road to the north, by Atkinson Drive and adjoining open space lands to the west, Sandyford Hall residential development adjacent Ferncarraig Avenue to the east and Village Road and Griannan Fidh residential development to the south (Townland of Woodside). The site proposed for a below ground wastewater storage tank is on open space lands generally bounded Griannan Fidh residential development to the north, Sandyford Hall residential development to the east and open space lands (including detention basin) to the south and west (Townland of Kilgobbin). The site location with respect to Dublin City Centre is illustrated in Figure 1.1

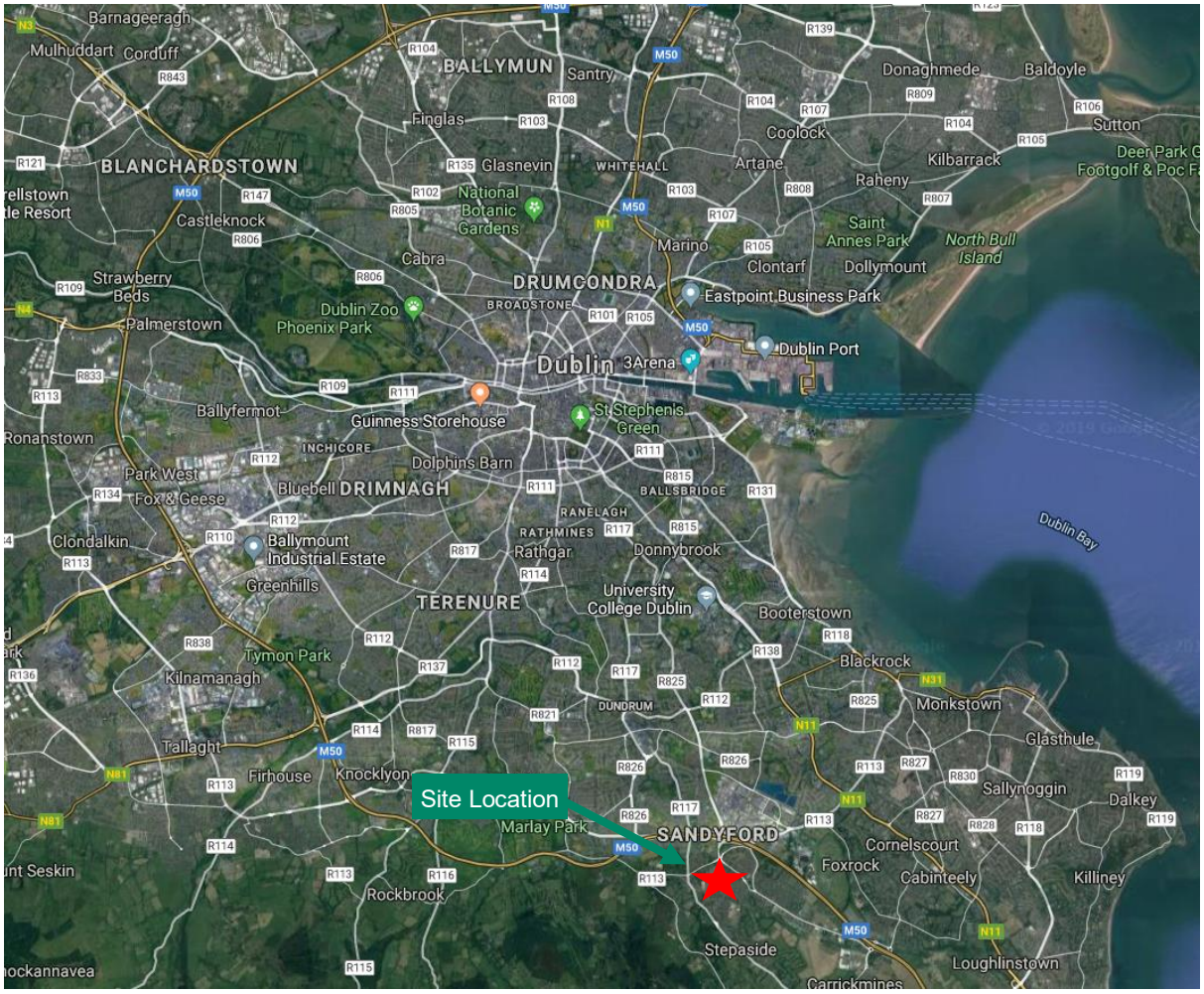


Figure 1.1 – Site Location in Relation to Dublin City (Source: Google Maps)

The development will consist of: -

438no. 'Build-to-Rent' apartment units (154no. 1-bedroom units and 284no. 2-bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements. Private patios / terraces and balconies are provided for some apartment units (not all units have a patio, terrace or balcony). Upper-level balconies are proposed on elevations of all multi-aspect apartment buildings.

- Blocks A – D are located above Basement 1 (c. 6,002 sq. m gross floor area) and Blocks F – J are above Basement 2 (c. 5,058 sq. m gross floor area).
- Provision 1no. childcare facility (c. 514.9 sq. m gross floor area) in Block D.

- Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area) in Block C and Block G.

And all associated and ancillary site development, infrastructural, landscaping and boundary treatment works including: -

- New vehicular access to / from Basement 1 from Atkinson Drive and new vehicular access to / from Basement 2 from Thornberry Road.
- Provision of c. 9,799 sq. m public open space, including a public plaza onto Village Road and improvement works to existing open space area to the north of existing Griannan Fidh residential development.
- Provision of 350no. car parking spaces including basement parking, set down spaces for proposed childcare facility and repositioning of set down area on Atkinson Drive.
- Provision of 669no. bicycle parking spaces.
- Provision of 14no. motorcycle parking spaces.
- Communal bin storage and plant provided at basement level and additional plant provided at roof level.
- Provision of below ground wastewater storage tank (c. 500m3) and associated connection to the wastewater networks including ancillary above ground kiosk and appropriate landscaping on open space lands to the south of Griannan Fidh residential development.

1.2 Planning History

There is previous planning history attached to this site, the three known applications are as follows:

Planning Ref: D16A/0511, Planning permission was previously granted on the site by Dun Laoghaire Rathdown County Council in 2016 for 243 no. apartments across 11 no. residential blocks. The scheme also included a creche, residents sports hall and a community room totalling 1,017 sq. m. Car parking was proposed at basement level, with two separate basements, comprising a total of 342 no. car parking spaces.

Planning Ref: ABP-306471-20, Planning permission was refused on the site by ABP in 2020 for 444 apartments across 9 no. residential blocks. The scheme also included for a creche and residential amenities on the site. Car parking was proposed at basement level, with two separate basements, comprising a total of 455 no car parking spaces.

Planning Ref: ABP-309828-21, Planning permission was granted by ABP in 2021 for 445 no. Build to Rent apartments across 9 no. residential blocks. The scheme also included for a creche and residential amenities on site. Car parking was proposed at basement level, with two separate basements, comprising a total of 354 no. car parking spaces. This decision is currently being challenged by way of judicial review in the High Court.

1.3 Objectives

The main objective of this assessment is to examine the traffic impact of the proposed development and its access arrangements on the local road network.

The net change in traffic on the network due to additional traffic has been calculated and its influence on the local road network has been investigated.

In order to complete this report, AECOM has made reference to the following documents:

- Sustainable Urban Housing: Design Standards for New Apartments –Guidelines for Planning Authorities (December 2020);
- Dun Laoghaire Rathdown Development Plan (2022 – 2028);
- Design Manual for Urban Roads and Streets, DMURS, May 2019 (Dept of Transport, Tourism and Sport/ Dept of Environment, Community & Local Govt);
- Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions), DN-GEO-03060, (TII, June 2017);

- Design recommendations for multi-storey and underground car parks (Institution of Structural Engineers, March 2011);
- The Traffic Management Assessment Guidelines (TII, September 2019);
- Greater Dublin Area Cycle Network Plan (National Transport Authority);
- National Cycle Manual (National Transport Authority, 2011).

1.4 Structure of the Report

Section 3.3 of the TII publication 'Traffic and Transport Assessment Guidelines' outlines the sections that the TTA should include within its report. It is from these guidelines that AECOM have devised the following report structure.

The remainder of this report is divided into the following sections:

- Section 2 will provide a response to the DLRCC Transportation Division Opinion on the Proposed Development previously submitted
- Section 3 will consider the location of the site and the surrounding conditions;
- Section 4 discusses the proposed development as part of this application and gives a brief outline of the proposed internal road network and site layout;
- Section 5 sets out the DMURS Statement of Compliance
- Section 6 considers the proposed trip generation, distribution and traffic impact of the proposed development with reference to the permitted scheme on the site;
- Section 7 details the junction modelling assessment undertaken and the results of the analysis;
- Section 8 details the Public Transport Capacity Assessment associated with the proposed development;
- Section 9 reviews the Outline Construction Traffic Management requirements;
- Section 10 outlines the Mobility Management Plan for perspective residents of the site; and
- Section 11 provides a Summary and Conclusions.

2. Response to Previous DLRCC Transportation Division Opinion

This section outlines AECOM's response to the DLRCC Transportation Division's Option on the Proposed Development.

2.1 AECOM Responses to DLRCC Opinion

2.1.1 Item 1 – Limitations to Public Transport in the area

"On the basis of the walking distances/times to the Luas and bus services, and the lack of frequency of bus services, Transportation Planning do not consider that the proposed site location is well served/connected/in close proximity to public transport services with associated ease of access, as the Applicant has purported in the submitted planning application."

2.1.2 AECOM Response

Section 3.4 of this report demonstrates that the site is located in close proximity to a number of bus stops. This section also demonstrates that the Glencairn Luas stop is located only 900m (approximately a 10 minute walk) from the site boundary. Furthermore, Section 8 of this report demonstrates that the existing public transport provision across the relevant bus and Luas services exhibit sufficient spare capacity to accommodate the potential demand for public transport from the proposed development.

2.1.3 Item 2 – Pedestrian / Cyclist Crossing Points

"The Applicant shall provide pedestrian/cyclist crossing points across Thornberry Road to/from the development at Thornberry Close and Thornberry Drive and the east end of the development to meet pedestrian/cyclist desire lines/routes from the north through the development to access public open space to the south of the site which provides a pedestrian/cyclist route to the Glencairn LUAS Stop. The Applicant shall ensure that the required appropriate dropped kerbs and tactile paving are provided, at the Applicant's own expense, on the north side of Thornberry Road for these road crossings. The Applicant shall liaise with the required third party as necessary to carry out these works."

2.1.4 AECOM Response

We would propose that this item be dealt with at detailed design stage and confirm that the Applicant would welcome a condition to agree the detail as part of a grant of planning permission.

2.1.5 Item 3 – Stage 1 Road Safety Audit

"The Applicant shall procure an independent consultant to conduct a Stage 1 Road Safety Audit and Quality Audit recommendations as accepted by the design team in the submitted Audit Feedback Forms for the development, there shall be emphasis on cycle access and walking in this report covering all access points including the basement parking. The Applicant shall liaise with the planning authority, or any other required third party, as necessary to carry out the Road Safety Audit and Quality Audit recommendations and actions."

2.1.6 AECOM Response

Please refer to the Quality Audit prepared by AECOM's independent auditing team as part of the final submission to An Bord Pleanala. A Designers Response and amendments to the site layout have also been included in response to the items raised within the Quality and Safety Audit.

2.1.7 Item 4 – Junction Assessment

"The Applicant is required to demonstrate the following junctions have capacity for this development following completion of the developments currently under construction on Village Road. Enniskerry Road and Village Road Junction R117/R113."

2.1.8 AECOM Response

Section 6.8 of this report outlines that the Impact Assessment of the proposed development traffic has been analysed in line with TII Guidelines and has demonstrated that the percentage impact of the proposed development

traffic does not meet the threshold for additional modelling at Junction 1 (R117/R113). However, the percentage impact of the proposed development does meet the threshold for additional modelling at Junction 2 (R117/Village Road), with the results of that analysis outlined in Section 7 of this report.

2.1.9 Item 5 – Car Parking

"The Applicant shall provide a minimum of 5 No. Car Club spaces in the basement, as proposed. The Applicant shall also provide a minimum of 7 No. surface Servicing/Drop Off/Pick Up/Visitor/Creche car parking spaces, as proposed and ensure that the car parking spaces shall be so allocated and clearly demarcated/designated as such by a suitably sized and coloured thermoplastic road marking."

2.1.10 AECOM Response

As outlined in Section 4.5 and in Table 4.4, the car parking proposals do include 5 Car Club spaces in the basement, as well as 7 No. surface spaces.

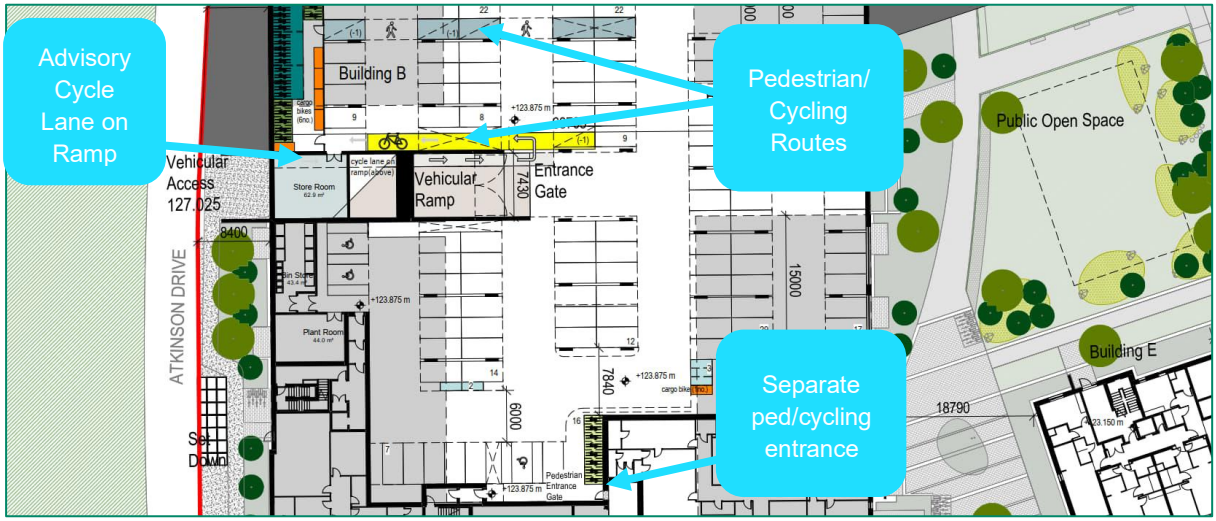
2.1.11 Item 6 – Basement Layouts

"The Applicant is requested to do a complete overhaul and redesign of the underground car parks in accordance with the standards noted in this report and under CDP 8.2.4.10 Underground Car Parks CDP and DLR Cycle Parking Standards including but not limited to segregated access ramps, sections and accessible routes and wayfinding for pedestrians and cyclists, removal of long cul de sacs".

2.1.12 AECOM Response

** Section 12.4.9 of the current Dun Laoghaire-Rathdown County Development Plan 2022-2028 is the relevant corresponding section of the superseded Development Plan as referenced in the DLRCC Opinion, thus fully considered in the proposed development.*

Revised basement layouts have been developed as outlined in Section 4.3 and on AECOM Drawing PR-424832-ACM-00-B1-DR-CE-10-0002 in Appendix B. It should be noted that an advisory cycle lane has been included on the ramp accesses to both basements. In addition, separate pedestrian/cycling access points are included in the layouts. The previous layouts have been altered to remove the long cul de sacs previously referred to and provide additional pedestrian and cycle routes within the basement, for example as illustrated below for basement 1.



2.1.13 Item 7 – Basement Car Parking

"If basement car parking spaces are not taken up for rental by residents, they shall be made available as visitor car parking spaces and clearly demarcated/designated as such by a suitable sized and coloured thermoplastic road marking."

2.1.14 AECOM Response

The quantum of resident parking take up would obviously not be known until the proposed development is fully occupied but the Applicant would welcome a condition to agree this as part of a grant of planning permission.

2.1.15 Item 8 – Electric Vehicle Charging Spaces

"The Applicant shall provide Electric Vehicle Charging Spaces in accordance with the DLR County Development Plan 2016-2022, Section 8.2.4.12. The Applicant shall also provide all required electrical infrastructure/ducting from distribution boards etc., to the other basement car parking spaces of the development to readily allow the future conversion of these spaces to Electric Vehicle Charging Spaces. This shall be demonstrated on an electrical ducting drawing."

2.1.16 AECOM Response

** Section 12.4.11 of the current Dun Laoghaire-Rathdown County Development Plan 2022-2028 is the relevant corresponding section of the superseded Development Plan as referenced in the DLRCC Opinion, thus fully considered in the proposed development.*

It can be seen in Section 4.5.2 of this report that there a 70 Electric Vehicle Charging Spaces proposed in the basement which represents 20% of the overall basement parking in line with the requirements of the DLRCC County Development Plan 2022-2028.

2.1.17 Item 9 – Cycle Parking Spaces

"The Applicant shall increase the provision of cycle parking for surface parking and demonstrate on an appropriate and details drawing more in line with the numbers required in accordance with The Sustainable Urban Hosing Design of New Apartment Guidelines (2018) an maximise the provision of resident cycle parking spaces as 'Sheffield' stand cycle parking spaces in the development."

2.1.18 AECOM Response

It can be seen in Section 4.6 that 669 cycle parking spaces area proposed within the site layout to cater for the proposed development. This is an increase of 31 spaces from the previous application for the site and includes a mix of Sheffield Stands, Stacked Stands and Cargo Bike Spaces.

This quantum of provision is in excess of the DLRCC Standards and below the Design Standards for New Apartment Guidelines.

It is proposed within the Mobility Management Plan (part of the Traffic and Transport Assessment) to monitor the usage of the cycle stands following the opening of the proposed development. Should demand meet the proposed level of cycle parking, the management company intend to allocate additional cycle parking for the development i.e. increasing the number of cycle stands. The current design of the scheme is premised on finding a balance between providing suitable levels of cycle parking and meeting DLRCC request to provide a higher ratio of car parking for a site which benefits from high levels of accessibility. Additional cycle parking can easily be incorporated at surface level without diminishing the quality of the public realm.

Notwithstanding, it is noted that the DLRCC preference for cycle parking is to provide Sheffield stands (of which 80 are proposed as Basement resident spaces). If the Board are minded, the Applicant would welcome a condition to omit the Sheffield stands and provide all Basement cycle parking using stackers which would increase overall provision to 749 cycle parking spaces.

Furthermore, our client has significant experience in managing similar rental schemes (the most recent of which is One Three in Clongriffen) where the take up of car parking has been significantly less than the parking provided for. This would have the potential to allow a number of the car parking spaces to be converted to additional bike parking spaces should the need arise over time. The car parking provision in the current scheme subject of this planning application is circa 0.8 spaces per unit. It is anticipated that the uptake of car parking will be lower than this, similar to the Applicant's experience elsewhere. In order to cater for future additional demand for cycle parking, the Applicant would welcome a condition where cycle parking can be increased further where it can be demonstrated to the satisfaction of the Planning Authority that there is a low uptake on car parking within the scheme such that additional cycle parking can be provided in lieu of car parking.

2.1.19 Item 10 – Existing Open Space

"To take account of increased cyclist/pedestrian numbers through the adjacent Existing Open Space resulting from the proposed development, the Applicant shall increase the width of the existing cyclist/pedestrian link adjacent to the Pumping Station, at the Applicant's own expense, to accommodate a separate pedestrian link and a delineated two-way cyclist link, because cyclist travelling along the link have restricted forward visibility, which is obstructed

by the Pumping Station palisade fencing, resulting in a risk of collisions between cyclists and pedestrians/cyclists in the current/existing situation."

2.1.20 AECOM Response

We would propose that this item be dealt with at detailed design stage and confirm that the Applicant would welcome a condition to agree the detail as part of a grant of planning permission.

2.1.21 Item 11 – Taking in Charge

"The Applicant shall ensure that all development works, both on the public road and within taken in charge lands/areas, (I.e. road carriageways, kerbs (which must be insitu), footpaths, street lighting, signs etc) are designed and constructed at the Applicant's own expense, to meet DLRCC's 'Taking-in-Charge' requirements and 'Taking in Charge Policy Document (April 2016)' http://www.dlrcoco.ie/en/planning/building-control/taking-charge and 'Taking in Charge Procedure Document' and all to the satisfaction of the Planning Authority (Municipal Services Department)."

2.1.22 AECOM Response

We would refer DLRCC to the Ferreira Architects drawing number 1909-SITE-0505 Taking in Charge Map – Site Plan which accompanies the planning application and outlines the Taking in Charge requirements for the proposed development.

2.1.23 Item 12 – Mobility Management Plan

"The Applicant shall provide a Mobility Management Plan in accordance with DLRCC CDP 2016-2022 Section 8.2.4.3 to the Transportation Planning Section, detailing:

A. Baseline Data showing the travel trends of residents and visitors in terms of percentages travelling to and from the proposed development by the various travel modes (e.g. walking, cycling, bus, luas, car, car share etc)

B. Proposed measures to encourage the use of sustainable transport modes and reduce reliance on the private car as a means of transport to and from the development;

C. The appointment of a Travel Plan Manager;

D. Methods to monitor the progress of the Travel Plan to meet the Mobility Management Plan targets."

2.1.24 AECOM Response

** Section 12.4.3 of the current Dun Laoghaire-Rathdown County Development Plan 2022-2028 is the relevant corresponding section of the superseded Development Plan as referenced in the DLRCC Opinion, thus fully considered in the proposed development.*

Subject to receipt of grant of the application for the scheme, a detailed Mobility Management Plan (MMP) will be prepared by the management company for the development. A mobility management coordinator will be appointed by the management company and will be responsible for carrying out travel surveys of the residents to determine the baseline modal split for the development. This baseline analysis will then inform the modal split targets for the development. The plan will encourage the use of active (walking and cycling) and sustainable modes of transport over private vehicle trips. An outline MMP has been prepared and included within this report (Section 10).

2.1.25 Item 13 – Construction Management Plan

"The Applicant/Contractor shall outline in their Construction Traffic Management Plan,

A. How it is intended to avoid conflict between construction traffic/activities and traffic/road users, particularly pedestrians and cyclists, on Village Road, Atkinson Drive and Thornberry Road, Stepaside, during construction works;

B. Full and comprehensive Traffic Management Plan, produced by a competent designer in accordance with Chapter 8 of the Traffic Signs Manual, including construction vehicular access to site in particular, to avoid conflict between construction traffic/activities and traffic/road users, particularly pedestrians and cyclists, on the adjacent local roads and surrounding road network during construction works;

C. An access route to site for construction traffic/vehicles, which shall not include the R113 Hillcrest Road which is subject to a three ton vehicular weight limit, to be agreed with DLRCC Traffic Section, Municipal Services Department;

D. How/when it is intended to provide a site compound including materials storage and staff welfare facilities;

E. How it is intended to provide for delivery vehicles manoeuvres, in that vehicles should enter and exit the site/compound/materials storage area in a forward gear;

F. Where it is intended to provide for site staff car parking during construction in that it is not acceptable to have any long-term site staff car parking in the nearby road network/residential areas;

G. How it is intended to provide suitable facilities for vehicle cleansing and wheel washing on site;

H. Proposed measures to minimise/eliminate nuisance caused by noise and dust, proposed working hours and measures to minimise/prevent transfer of dirt to the public road with associated measures to clean the public roads/gullies etc in the vicinity of the site and continuing replacement of road line markings resulting therefrom."

2.1.26 AECOM Response

Subject to receipt of grant of the application for the scheme, a detailed Construction Management Plan will be prepared by the appointed contractor. The appointed contractor will be responsible for preparing and seeking agreement with DLRCC and ensuring that DLRCC's requirements are met, prior to undertaking the works on the site. Further to this, an outline Construction Traffic Management Plan has been included within this report (Section 9).

3. Existing Conditions

3.1 Introduction

This chapter includes a review of the existing baseline conditions of the site including public transport, walking and cycling facilities and the current operation of the surrounding public road network. AECOM undertook numerous site audits to identify the existing conditions in the vicinity of the site. The vicinity of the site is defined as the area affected by the proposed additional traffic flows on the road network and people movement on surrounding Public Transport. The findings from AECOM's analysis are presented within this chapter.

3.1.1 Dun Laoghaire Rathdown County Development Plan

The site is zoned as 'Objective A' and 'Objective F' within the Dun Laoghaire Rathdown Development Plan. The zoning objective of 'A' is '*To provide residential development and improve residential amenity while protecting the existing residential amenities'* and the zoning objective of 'F' is '*To preserve and provide for open space with ancillary active residential amenities*'. Figure 3.1 below shows the zoning of the subject site.

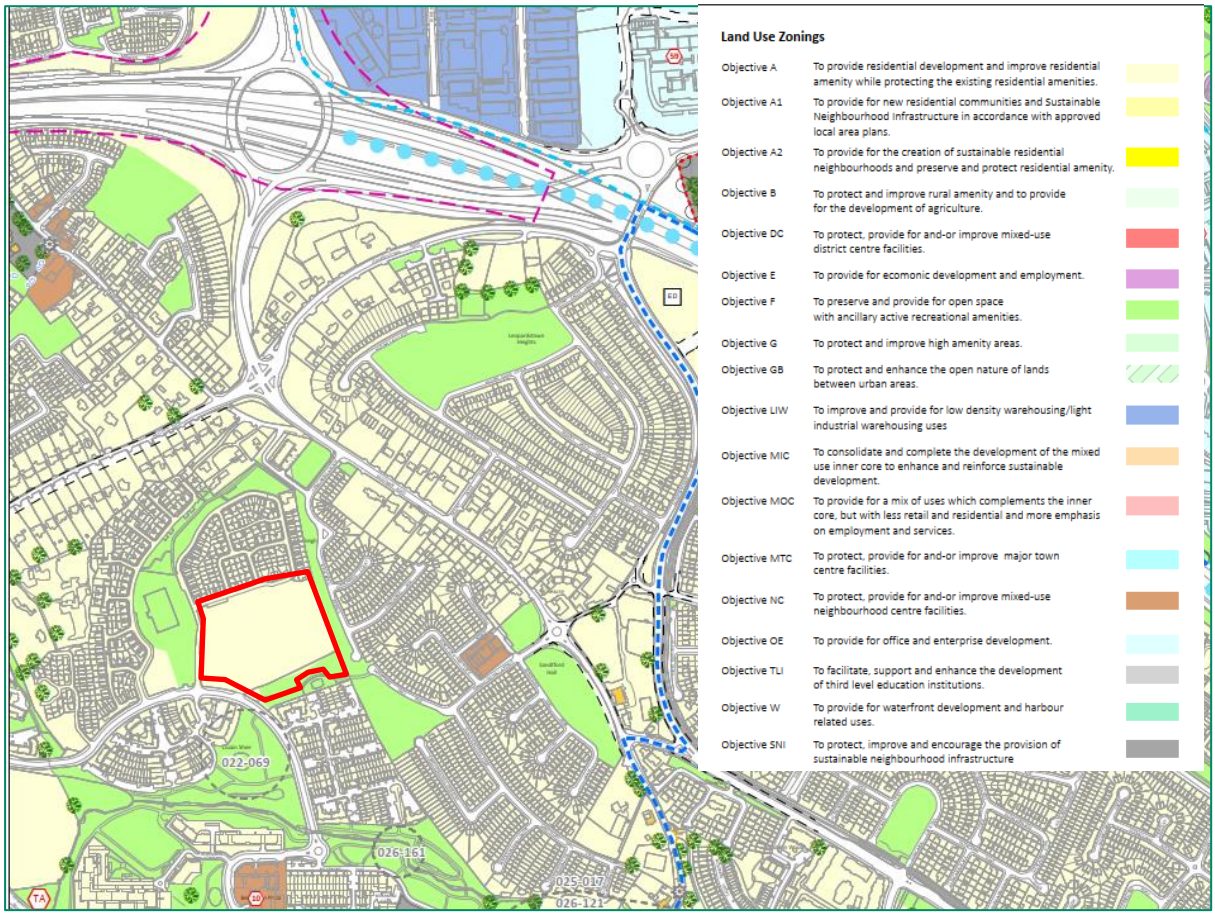


Figure 3.1 – Site Zoning (Source: Dun Laoghaire Rathdown County Development Plan)

3.2 Existing Site Information

The development is on a brownfield site, which is currently bordered up with temporary fencing. The site is bound to the north by an existing housing estate, fronting onto Thornberry Road, to the east by preserved open space and an existing housing estate Ferncarrig Avenue, to the west by Atkinson Drive and to the southeast by Village Road and to the southwest by an existing residential development, Grianan Fidh.

Figure 3.2 details the site in relation to the local road network.

Figure 3.2 – Site Location in Relation to Local Road Network (Source: Google Maps)

3.3 Existing Accesses

At present there is one gated vehicular access point into the site, provided along Village Road, to the south of the development as shown in Figure 3.3 and Figure 3.4 below.

Figure 3.3 – Site Access from Village Road

Figure 3.4 – Site Access Visibility from Village Road, Facing East

3.4 Public Transport

3.4.1 Bus

The site is situated within relatively close proximity to a number of bus stops, these stops are operated by Dublin Bus and their locations are outlined in relation to the site in Figure 3.5, with route numbers and service frequency outlined in Table 3.1 below.

Figure 3.5 Bus Stop Accessibility from the Site (Source: Bing Maps)

Table 3.1 – Bus Services

Bus No.	Route	Nearest Bus Stop	Frequency		
			Monday to Friday	Saturday	Sunday
44	Powerscourt NS – DCU Helix	670m	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)
44b	Ballybrack Road – Dundrum Luas	730m	5 services a day	No service	No service
47	Belarmine – Poolbeg Street	375m	Every 60 mins (Off-peak) Every 30 mins (Peak)	Every 60 mins (Off/on peak)	Every 60 mins (Off/on peak)
114	Ticknock – Blackrock Station	730m	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)	No service

3.4.2 Luas

The existing site is located in close proximity to two Luas stops along the Green line, as outlined in Figure 3.6. These stations are serviced approximately every 8 minutes during peak periods and every 15 minutes during the off-peak period of the Green Line and are approximately a 10 and 14 minute walk from the development to the Glencairn and Gallops stops respectively.

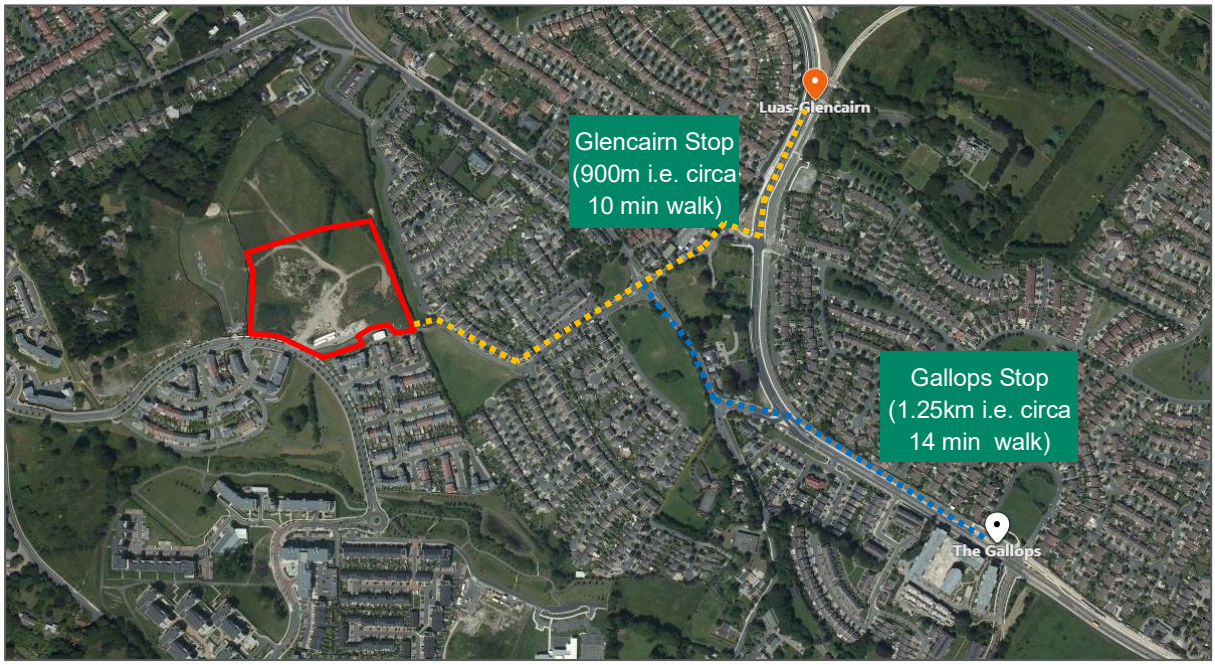


Figure 3.6 – Luas Accessibility from the site (Source: Bing Maps)

In order to demonstrate that the existing public transport network can accommodate the potential demand for public transport trips from the proposed development, a public transport capacity assessment was undertaken which is outlined in more detail in Section 8 of this report.

3.5 Pedestrian/ Cycle Facilities

3.5.1 Thornberry Road / Atkinson Drive

Footpaths are located on both the Thornberry Road and Atkinson Drive on one side of the carriageway which ties into the Village Road. Lighting is provided opposite the existing site although on Thornberry Road there appears to be areas lacking appropriate lighting. Figure 3.7 and Figure 3.8 shows the existing pedestrian infrastructure in the vicinity of the site. The posted speed limit is 20km/h within Thornberry Road and Atkinson Drive, which is denoted by signage and existing raised tables.

Figure 3.7 – Atkinson Drive (Western Boundary)

Figure 3.8 – Thornberry Road (Northern Boundary)

3.5.2 Village Road

The Village Road has shared footpaths and cycleways throughout the estate with dropped kerbs and tactile paving provided at all crossing points/ junctions which is illustrated in Figure 3.9 and Figure 3.10. Street lighting is located primarily on the south side of the Village Road in the vicinity of the subject site. The posted speed limit is 50kph.

Figure 3.9 – Village Road (Eastern Approach)

Figure 3.10 – Village Road (Western Approach)

Figure 3.11 shows the proposed cycle network in the vicinity of the subject site. These proposals include a feeder cycle lane along Village Road to the south of the site, which will link the site directly to the R113 to the west and Kilglobbin Road to the east. It should be noted that the proposed development has been designed to cater for the feeder link along the southern boundary of the site.

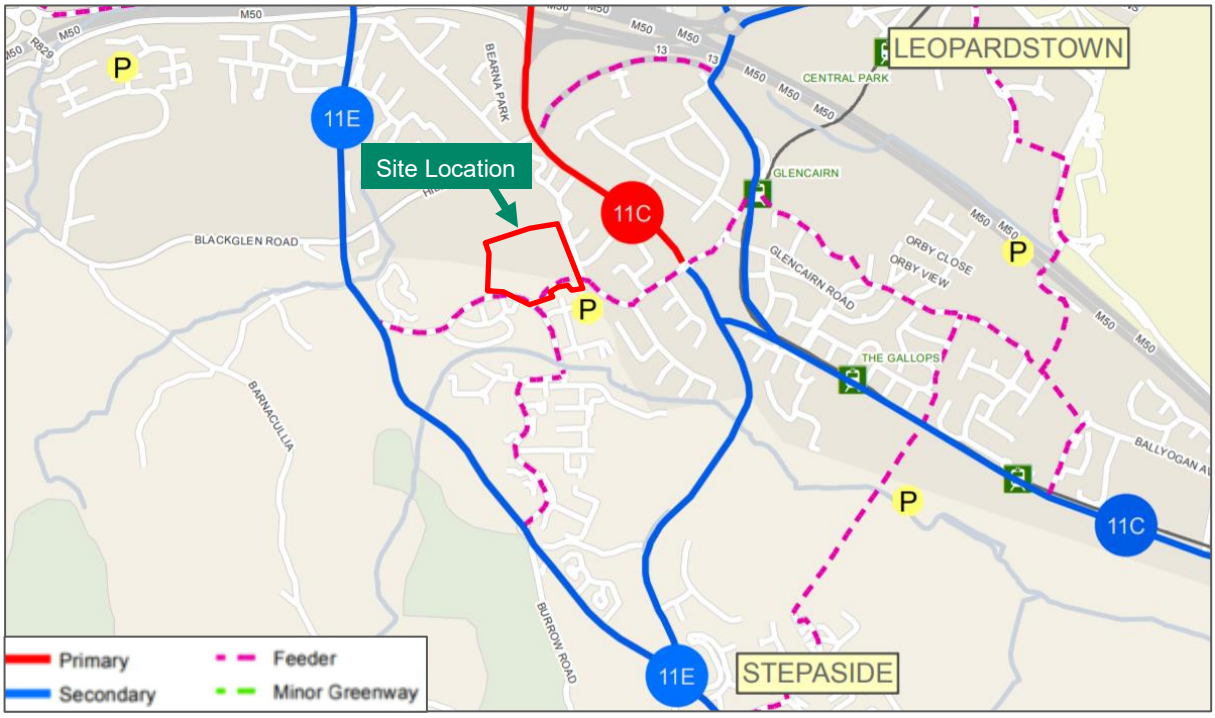


Figure 3.11 – Proposed Cycle Facilities (Source: National Transport Authority)

3.6 Road Collision Statistics

As part of the road network analysis a review of the Road Safety Authority (RSA) traffic collision database was to be undertaken for the road network in the vicinity of the proposed site to identify any collision trends. This review is aimed to assist to identify any potential safety concerns in relation to the existing road network. A review of the Road Safety Authority (RSA) traffic collision database has been undertaken for the road network in the vicinity of the proposed site to identify any collision trends. This review will assist to identify any potential safety concerns in relation to the existing road network. The RSA website has been offline due to GDPR issues and it is unclear when the site will be updated and back up and running for use and therefore it is not possible to present more recent data than 2016 at this stage.

The incidents are categorised into class of severity, which includes minor serious and fatal collisions. The analysis is shown in Figure 3.12.

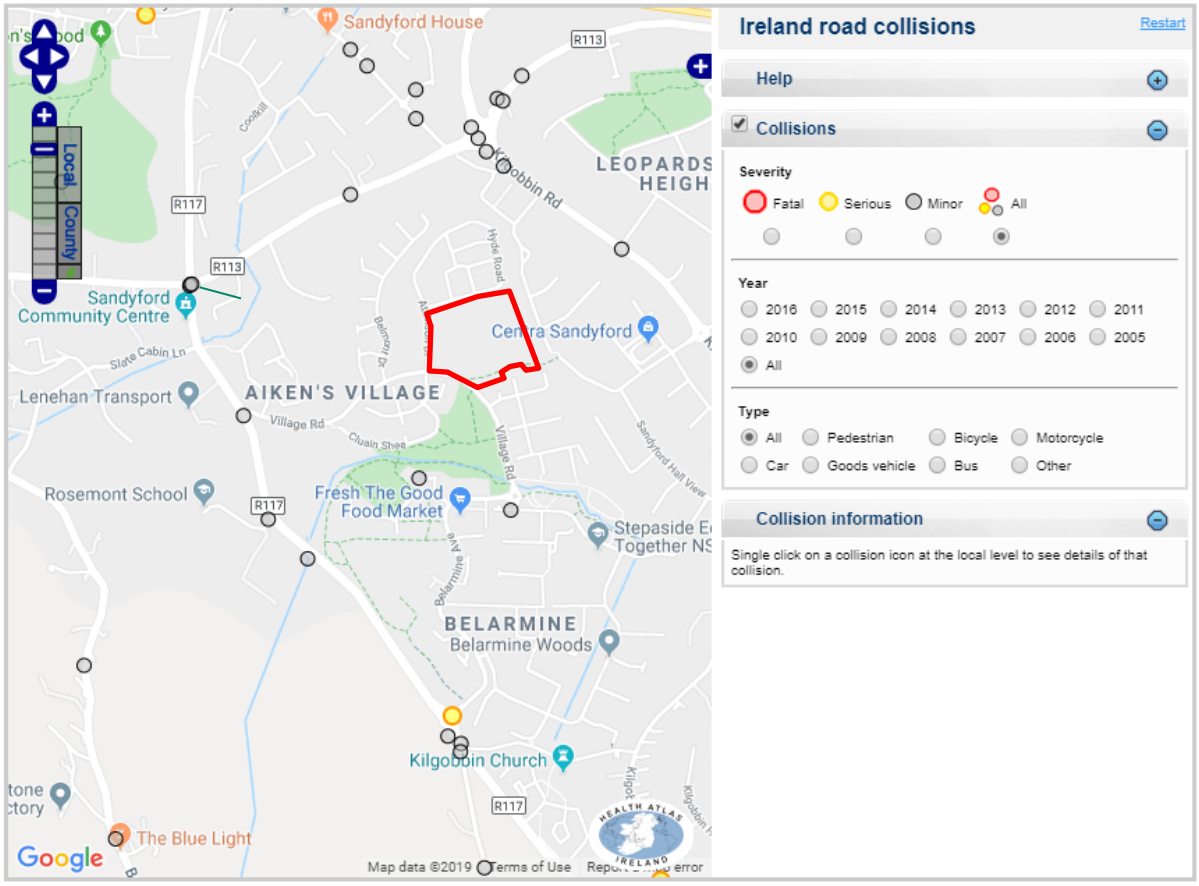


Figure 3.12 – Road Collisions (Source: RSA Website)

Upon review here have been no reported collisions along the Village Road in the vicinity of the subject site between 2005 and 2016. The results indicate no apparent clusters or collision hotspots which would indicate safety concerns with the existing road network.

3.7 Existing Travel Patterns

Census 2016 figures obtained from the Central Statistics Office (CSO) detail the means of travel to work, school or college (i.e. on foot, bicycle, car driver etc.) for people aged 5 years and over for the electoral division of Glencullen, in which the development site falls. A number of areas were selected in the Small Area population map surrounding the site to represent the local areas. These selected sites are located below in Figure 3.13 The results of the analysis of the small area population study is shown in Table 2.2 together with mode shares of each of the means of travel.

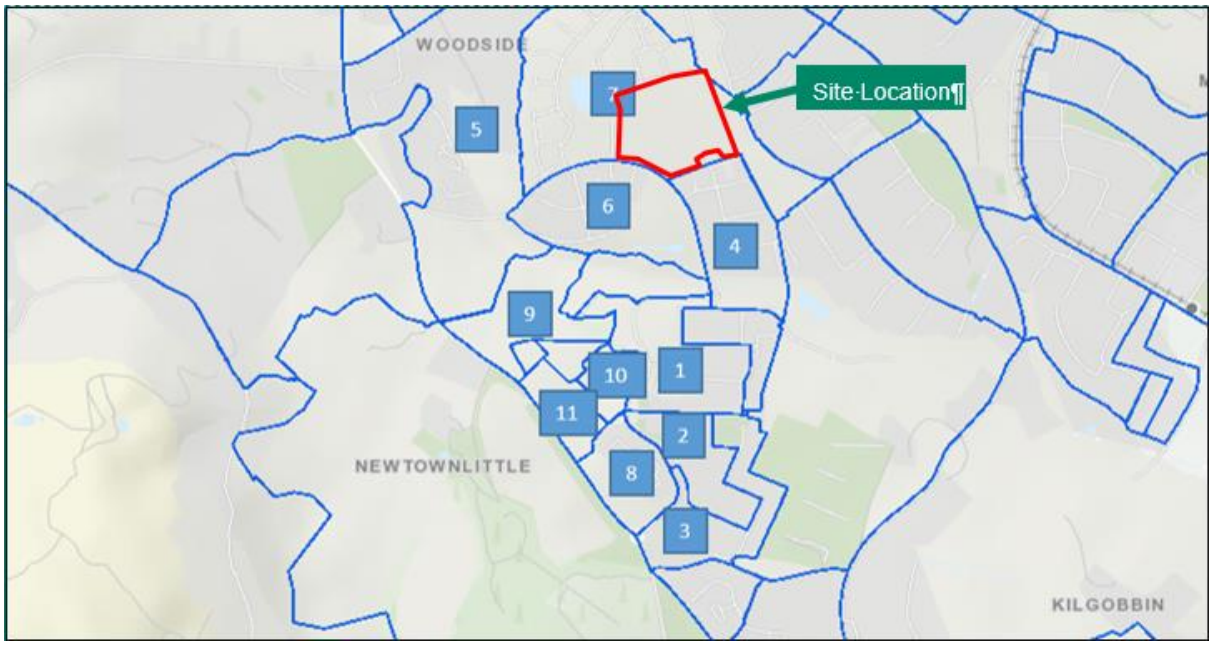


Figure 3.13 Extent of Small Areas within the vicinity of the Subject Site

Table 3.2 – Mode Shares - Glencullen

Means of Travel	Work	School or College	Total	Mode Share (%)
On foot	66	105	171	7%
Bicycle	91	13	104	4%
Bus, minibus or coach	67	74	141	6%
Train, DART or LUAS	369	58	427	17%
Motorcycle or scooter	16	1	17	1%
Car driver	1,058	14	1,072	43%
Car passenger	50	357	407	16%
Van	34	0	34	1%
Other (incl. lorry)	1	0	1	0%
Work mainly at or from home	41	0	41	2%
Not stated	40	29	69	3%
Total	**1,833**	**651**	**2,484**	**100%**

Table 2.2 demonstrates that 43% of individuals surveyed drive to their place of work / education and approximately 17% take the Train, DART or Luas. It is important to note, that 7% of commuters walk to their place of work or education while 4% cycle. This would further indicate that the proposed development is well situated to take advantage of the existing sustainable travel infrastructure in the area.

3.8 Traffic Volume Trends

It in noted that the impacts of the Covid-19 pandemic and the subsequent travel restrictions that were put in place over that period, have had a significant impact on working patterns, travel behaviours and subsequent traffic volumes on the road network. Indeed, the recent CSO Transport Bulletin for August 2022 states that, whilst traffic has increased since the lifting of Covid-19 restrictions, traffic count data remained below 2019 figures (pre Covid-19 pandemic). With specific regard to car traffic volumes in Dublin, these were recorded as being 12% lower for the last week of July 2022 than for the same week in 2019. This is illustrated in Figure 3.14 and clearly shows a similar pattern for the vast majority of 2022 to date.

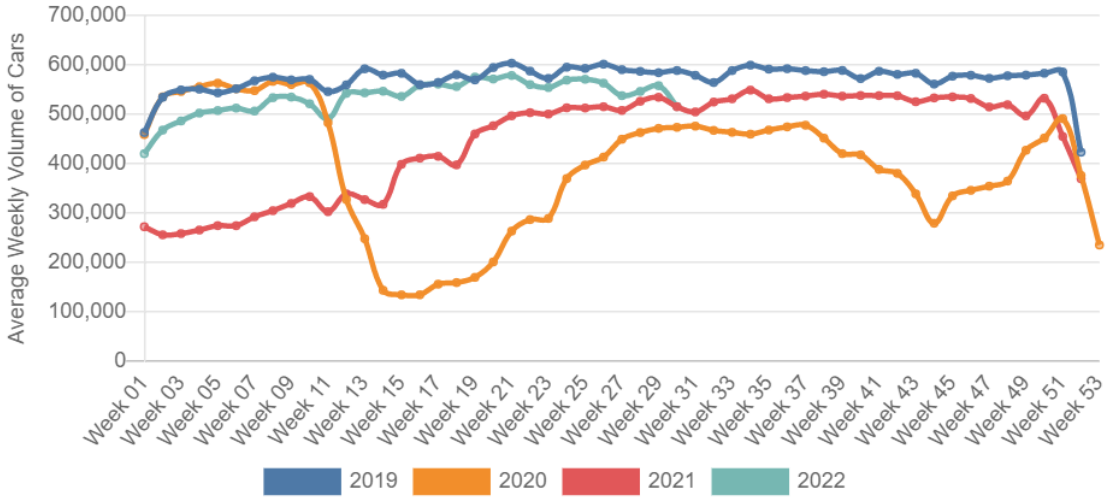


Figure 3.14 Average Weekly Volume of Cars at Selected Dublin Sites, 2019 to 2022 (Source: Central Statistics Office)

3.9 Summary

The Sustainable Urban Housing Design of New Apartments guidelines (December 2020) identify 3 different location categories, having regard to the proximity and accessibility of a site. Of particular relevance is the Intermediate Urban Location category, which is given to locations "within easy walking distance (i.e. up to 5 minutes or 400 – 500m) of reasonably frequent (min 15-minute peak hour frequency) urban bus services." Based on the assessment outlined within this Chapter, it is evident that the proposed site location benefits from existing sustainable transport infrastructure including:

- Walking, an existing footpath on both sides of all roads surrounding the proposed development, providing connectivity from the site to surrounding Dublin Bus stops, Luas stations, employment and urban centres;
- Dublin Bus stops located on the surrounding local road which provide connection to local urban centres;
- Cycling, both existing and proposed facilities for cyclists in the area provide connection to urban centres, Luas stations, employment locations etc. in the vicinity of the site.

The sustainable travel infrastructure which surrounds the site, demonstrates that the site is considered to fall into the "Intermediate Urban Location" category. Sustainable travel to the site is currently evident and will most likely continue to be a viable mode of travel, thus reducing the reliance on private vehicular modes to access the site, as set out in the Apartment Guidelines (2020).

4. Proposed Development

4.1 Introduction

The following section describes the scale and nature of the proposed development and includes a review of such items as the schedule of accommodation, access arrangements and parking provision.

4.2 Proposed Development

The proposed development is a mixed-use residential development consisting of 9 No. Residential blocks with a creche (Block D) and additional residential amenities (Block C and G). Parking will be provided primarily at basement level with 350 car parking spaces being provided throughout the development. The proposed site layout is shown in Figure 3.1 and included as AECOM Drawing PR-424832-ACM-00-GF-DR-CE-10-0001 in Appendix A.

Figure 4.1 – Proposed Site Layout (AECOM Drawing: PR-424832-ACM-00-GF-DR-CE-10-0001)

The schedule of accommodation is shown in Table 4.1

Table 4.1 – Proposed Schedule of Accommodation

Total Units	1 Bedroom	2 Bedrooms	Total
	154	284	438
Bedrooms Provided	154	568	722
Creche	514.9 sqm (Block D)		
Communal Facilities	1,455.7 sqm (Block C and Block G)		

4.3 Proposed Site Access

There will be two site accesses as part of this development as discussed below.

Access 1 is to be located at the western boundary of the site with Access 2 to be located along the northern boundary of the site. Figure 4.2 shows the access arrangements with the proposed development with the following figures illustrating the surrounding road layout in the vicinity of these junctions. The entrances will provide access to a basement level car and cycle parking area via an advisory cycle lane on the ramps, as per AECOM Drawing PR-424832-ACM-00-B1-DR-CE-10-0002 in Appendix B.

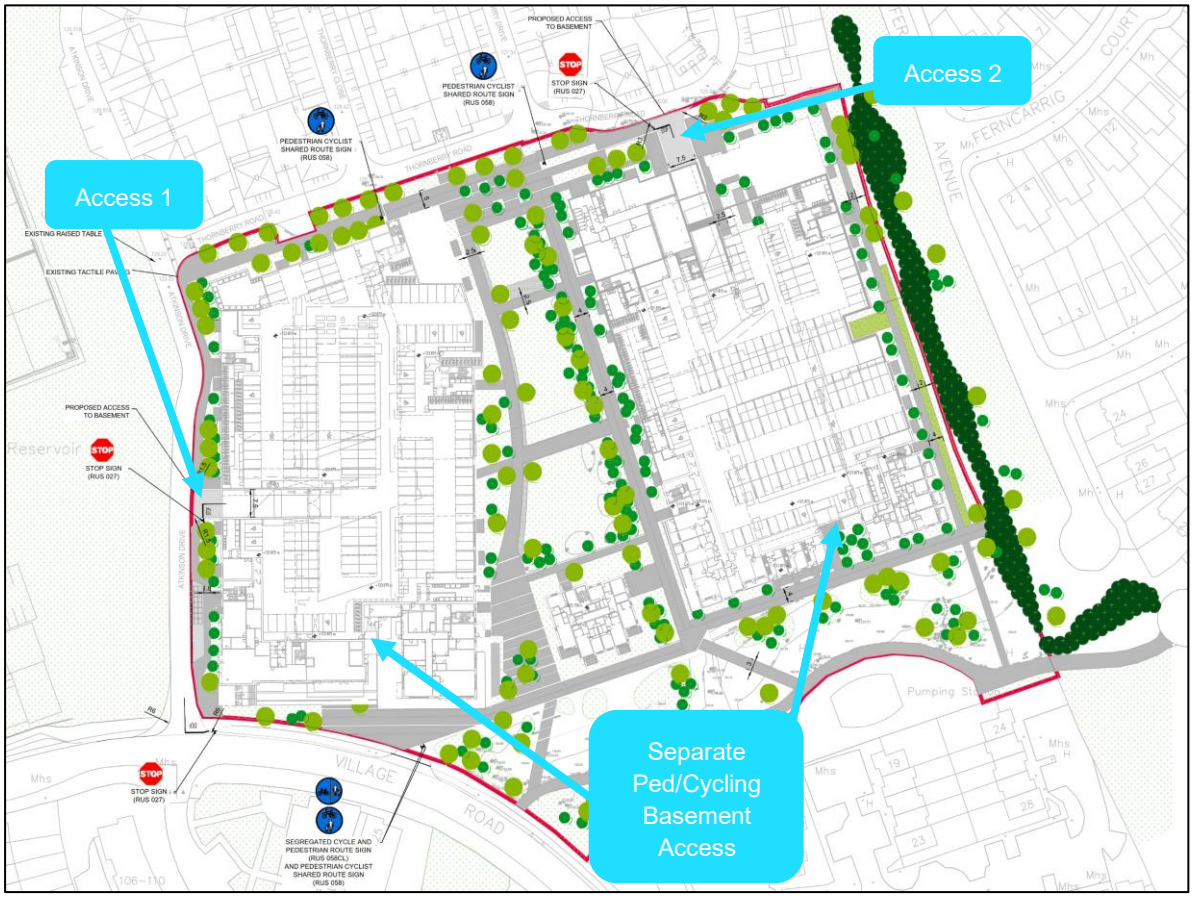


Figure 4.2 Proposed Access Arrangement (AECOM Drawing PR-424832-ACM-00-B1-DR-CE-10-0002)

In addition to the ramp access, there are separate pedestrian/cycling access points to the basement parking provided segregated access to the basement for walking and cycling.

Figure 4.3 – Access 1 Northern Approach

Figure 4.4 – Access 1 Southern Approach

Figure 4.5 – Access 2 Eastern Approach

Figure 4.6 – Access 2 Western Approach

4.3.1 Visibility

A visibility assessment has been undertaken on the 2 no. vehicular access points into the development:

- **Thornberry Road Car Park 1 Access:** The speed limit along Thornberry Road is 20 km / h. Having regard to this, a sightline of 23m has been designed in each direction at a setback of 2.4m, as per DMURS (Design Manual for Urban Roads and Streets. A visibility splay requirement of 23m x 2.4m has been achieved at the location of the proposed access into the development, as illustrated in AECOM drawing PR-424832-ACM-00-GF-DR-CE-10-0101 in Appendix C, and below in Figure 4.7.

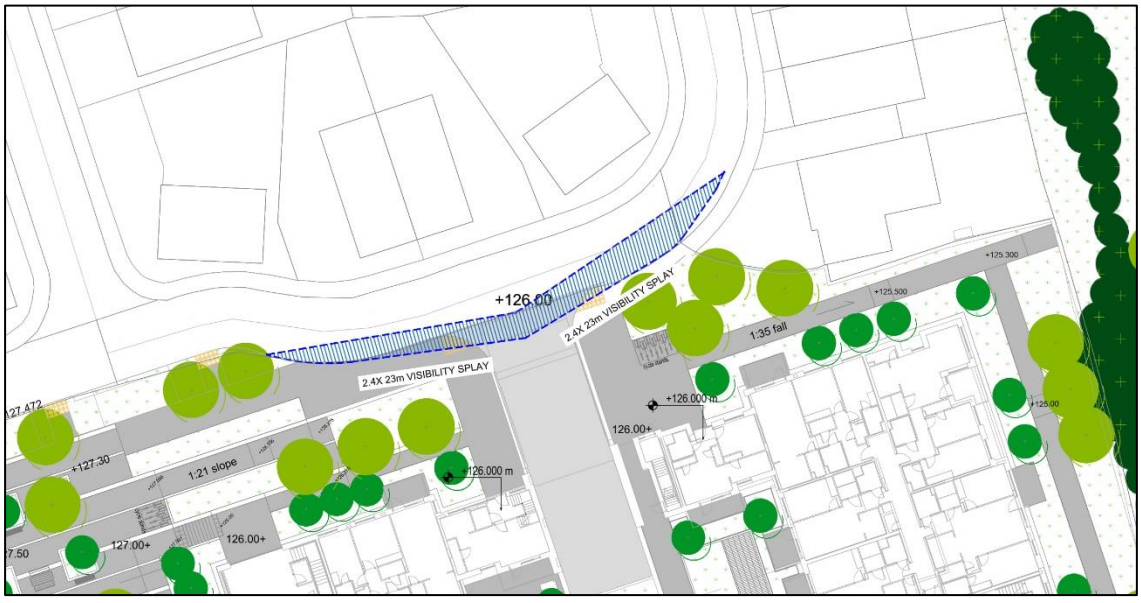


Figure 4.7 Thornberry Road Access Sightlines

- **Atkinson Drive Car Park 2 Access:** The speed limit along Atkinson Drive is 30 km / h. Having regard to this, a sightline of 23m is required in each direction at a setback of 2.4m, as per DMURS. A visibility splay requirement of 23m x 2.4m has been achieved at the location of the proposed access into the development, as illustrated in AECOM drawing PR-424832-ACM-00-GF-DR-CE-10-0101 in Appendix C, and below in Figure 4.8.

Figure 4.8 Atkinson Drive Access Sightlines

4.4 Layby

There is a proposed layby area to the west of the site with capacity for 3 no. car parking spaces. This layby will cater for parking for the proposed creche and also be utilised by servicing vehicles e.g. bin lorries, vehicular pick up, drop off and taxis etc.

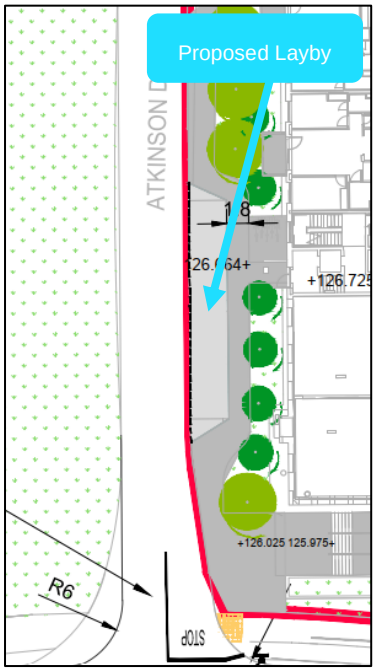


Figure 4.9 – Proposed Lay by Area (AECOM Drawing PR-424832-ACM-00-B1-DR-CE-10-0002)

4.4.1 Servicing

An AutoTrack analysis has been carried out for the proposed layout to demonstrate the proposed developments can cater for a fire tender and refuse lorry. The scheme has been designed to cater for a fire tender to manoeuvre within the site, as demonstrated in AECOM Drawing No. PR-424832-ACM-00-GF-DR-CE-00-0102 in Appendix D and below in Figure 4.10.

Figure 4.10 Fire Tender Autotrack

Bin stores are located at basement level adjacent to lift and stair cores servicing the apartments above, offering a safe and secure location for waste storage prior to collection. The refuse and servicing strategy will allow for bins to be wheeled to the surface for collection with the proposed laybys off Atkinson Drive and Thornberry Road. Please refer to AECOM drawing PR-424832-ACM-00-GF-DR-CE-00-0102 in Appendix D and below in Figure 4.11.

Figure 4.11 Refuse Vehicle Autotrack (AECOM Drawing PR-424832-ACM-00-GF-DR-CE-10-0102)

4.5 Car Parking

4.5.1 Car Parking Standards

The proposed development site sits on the boundary of Parking Zones 2 and 3 in the DLRCC Development Plan 2022-2028, as outlined in Figure 4.12.

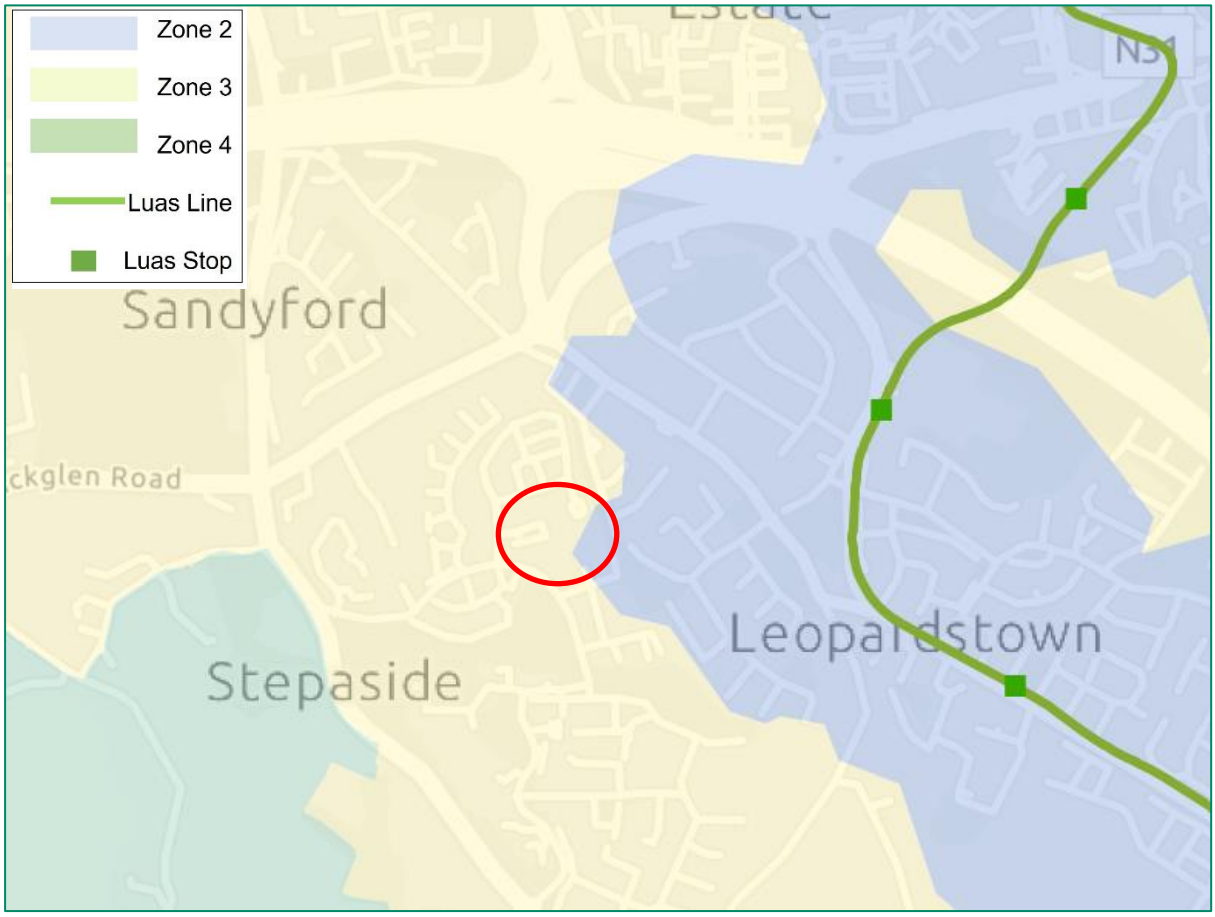


Figure 4.12 – DLRCC Development Plan 2022-2028 Parking Zones

The Parking standards for both Zones 2 and 3 and the associated parking provision requirement at the proposed development are outlined in Table 4.2, with the subsequent parking requirements based on the standards, outlined in Table 4.3

Table 4.2 – DLRCC Development Plan 2022-2028 Parking Standards

Land Use	Criterion	Zone 2 Near Public Transport	Zone 3 Remainder of County (Non-Rural)
Apt 1 Bed	Unit	1	1*
Apt 2 Bed	Unit	1	1*

* plus 1 in 10 visitor parking for apartments in zone 3

Table 4.3 – Parking Requirements based on DLRCC Parking Standards

Land Use	Zone 2 Near Public Transport	Zone 3 Remainder of County (Non-Rural)
Apt 1 Bed	154	154
Apt 2 Bed	284	284
Visitor	0	44
Total	**438**	**482**

As outlined in Section 3.7, the 2016 census figures obtained from the Central Statistics Office (CSO) detail the means of travel to work, school or college (i.e. on foot, bicycle, car driver etc.) for people aged 5 years and over for the electoral division of Glencullen, in which the development site falls.

On the basis of this information on travel patterns in the area, and in order to encourage the use of sustainable travel modes, it is proposed to provide a reduced car parking provision as part of the overall proposed development. The proposed development will comprise of 350 car parking spaces, with 343 car parking spaces at basement level (including 5 no. Car Club spaces and 2 allocated creche spaces) and 7 car parking spaces for visitors at surface level, as outlined in Table 4.4.

Table 4.4 – Proposed Car Parking Provision

	No. Spaces	Ratio	Incl. disabled no.	Incl. electric vehicle charging points no.
P1 - Block A-D	179		9	35
P1 - Creche/Staff	2			
P1 – Car Club	3			
P2 – Block E-J	157		8	35
P2 – Creche/Staff	0			
P2 – Car Club	2			
Total Basement	**343**	**0.8**	**17**	**70**
Surface Spaces	7			
Total	**350**			

The 343 basement parking spaces will be allocated to residents, with a ratio of 0.8 space allocated per unit. The quantum of car parking is in accordance with the Department of Housing, Planning and Local Government 'Design Standards for New Apartments Guidelines' (December 2020) which request for planning authorities to "consider a reduced overall car parking standard and apply an appropriate maximum standard to the car parking provision."

Indeed, the DLRCC Development Plan 2022-2028 states that where a deviation from the maximum or standard rates is being proposed, the level of parking permitted and the acceptability of proposals, will be decided at the discretion of the Planning Authority, having regard to criteria as set out below:

- Proximity to public transport services and level of service and interchange available;
- Walking and cycling accessibility / permeability and any improvement to same;
- The need to safeguard investment in sustainable transport and encourage a modal shift;
- Availability of car sharing and bike / e-bike sharing facilities;
- Existing availability of parking and its potential for dual use;
- Particular nature, scale and characteristics of the proposed development (as noted above deviations may be more appropriate for smaller infill proposals);
- The range of services available within the area;
- Impact on traffic safety and the amenities of the area;
- Capacity of the surrounding road network;
- Urban design, regeneration and civic benefits including street vibrancy;
- Robustness of Mobility Management Plan to support the development;
- The availability of on-street parking controls in immediate vicinity; and
- Any specific sustainability measures being implemented including but not limited to:

- The provision of bespoke public transport services;
- The provision of bespoke mobility interventions.

In the context of the above, the proposed quantum of car parking is considered sufficient to cater for the proposed development when considering the following:

- Accessibility of the site via walking, cycling and public transport namely Bus and Luas;
- Proposed cycle parking infrastructure above the DLRCC Development Plan requirements; see section 2.1.18 for further justification regarding guidelines
- The enclosed Mobility Management Plan, which will include a package of measures to promote sustainable travel to and from the site;
- Proximity to Belarmine Centre village and the number of services in the vicinity of the site; and
- Provision of 5 no. Car Club spaces, which will assist to reduce the reliance on private vehicular modes.

4.5.2 Electric Vehicle Charging

It is proposed to provide a minimum 20% of electric vehicle charging parking spaces within the development to comply with the DLRCC Development Plan 2022-2028. In total 70 parking spaces within the basement have been designed for electric vehicle charging. Please refer to the submitted Architect's basement layout for further details.

4.5.3 Disabled Parking

In total, 17 parking spaces are designated within basement level for mobility impaired. This exceeds the DLRCC Development Plan 2022-2028 requirement for 4% of car parking provision to be suitable for use by disabled persons.

4.5.4 Car Club

It is also proposed to provide 5 no. car club spaces within the basement level car park. The car club spaces will be located within a central area within the basement, to ensure the car club spaces are clearly visible to future residents, which will assist to promote their uptake and usage. A letter of support from a Car Club provider, Go Car is included within Appendix H of this report.

4.5.5 Motorcycle Parking

Regarding motorcycle parking requirements, a review of the DLRCC Development Plan 2022–2028 has been referred to. As per Section 12.4.7 of the Development Plan, the required minimum provision for motorcycle parking spaces is 4 no. spaces per 100 car parking spaces. In accordance with the plan, 14 motorcycle parking stands are proposed to be located within the basement level car park.

4.5.6 Parking Management

The proposed development will be subjected to a Parking Management Plan and perspective residents will be made aware of the car parking arrangement. The management company will be responsible for enforcing the parking management arrangement. This will include measures such as the following:

- Regular car registration checks against assigned parking space and clamping enforcements.
- Internal warning signs to be erected to warn visitors of parking restrictions in place.
- Letters to be sent to all residents informing them of the agreed car parking strategy.
- Parking will only be permitted within designated parking bays, wheel clamping will be in force for any offending motorists.

4.6 Cycle Parking Provision

The proposed cycle parking provision has been developed with cognisance to the DLRCC Cycling Parking requirements and the standards within the 'Design Standards for New Apartments Guidelines' (December 2020). Table 4.5 provides a review of both guidelines.

Table 4.5 – Cycle Parking Guidance

National Standards	Cycle Parking Requirements	Minimum Cycle Parking Standards	Number of Cycle Parking Spaces Required	Total Number of Cycle Parking Spaces Required
Standards for Cycle Parking and Associated Cycling Facilities for New Development (2018 DLRCC)	Long Stay	1 space per unit	438	525
	Short Stay	1 space per 5 units	87	
The Sustainable Urban Housing Design of New Apartments Guidelines (2020)	Bedrooms	1 cycle space per bedroom	722	941
	Visitors	1 cycle space per 2 units	219	

It is proposed to provide a total of **669 cycle parking spaces** within the site layout to cater for the proposed development in order to promote cycling as a viable mode of travel. The proposed quantum of cycle parking spaces is in accordance with the DLRCC standards.

The cycle parking provision also includes for 31 cargo bike spaces within the Basements. The full breakdown of cycle parkin provision is outlined in Table 4.6. Access to the Basement cycle parking will be via either the proposed vehicular access ramp (via an advisory cycle lane), or via a segregated pedestrian/cycling access point in each Basement. The proposed location of the cycle parking and access points for each Basement are illustrated in AECOM Drawing PR-424832-ACM-00-B1-DR-CE-10-0002 in Appendix B.

Table 4.6 – Proposed Cycle Parking Provision

Location	Resident Spaces			Visitor Spaces	Total
	Stacked Stand	Sheffield Stand	Cargo Bike		
P1 Block A-D	220	80	15	16	**331**
P2 – Block E-J	240	-	16	10	**266**
Surface Space	-	-	-	61	**61**
Creche – Surface Spaces	-	-	-	11	**11**
Total	**460**	**80**	**31**	**98**	**669**

AECOM considers the proposed cycle parking provision to be appropriate when cognisance is given to the accessibility of the site to the existing and proposed walking and public transport facilities in the surrounding area.

It is proposed within the Mobility Management Plan (part of the Traffic and Transport Assessment) to monitor the usage of the cycle stands following the opening of the proposed development. Should demand meet the proposed level of cycle parking, the management company intend to allocate additional cycle parking for the development i.e. increasing the number of cycle stands. The current design of the scheme is premised on finding a balance between providing suitable levels of cycle parking and meeting DLRCC request to provide a higher ratio of car parking for a site which benefits from high levels of accessibility. Additional cycle parking can easily be incorporated at surface level without diminishing the quality of the public realm.

Notwithstanding, it is noted that the DLRCC preference for cycle parking is to provide Sheffield stands (of which 80 are proposed as Basement resident spaces). If the Board are minded, the Applicant would welcome a condition to omit the Sheffield stands and provide all Basement cycle parking using stackers which would increase overall provision to 749 cycle parking spaces.

Furthermore, our client has significant experience in managing similar rental schemes (the most recent of which is One Three in Clongriffen) where the take up of car parking has been significantly less than the parking provided for. This would have the potential to allow a number of the car parking spaces to be converted to additional bike parking spaces should the need arise over time. The car parking provision in the current scheme subject of this planning application is circa 0.8 spaces per unit. It is anticipated that the uptake of car parking will be lower that this, similar to the Applicant's experience elsewhere. In order to cater for future additional demand for cycle parking, the Applicant would welcome a condition where cycle parking can be increased further where it can be demonstrated to the satisfaction of the Planning Authority that there is a low uptake on car parking within the scheme such that additional cycle parking can be provided in lieu of car parking.

4.7 Pedestrian and Cycle Permeability

It is proposed to provide high quality pedestrian accesses throughout the site, from all boundaries of the site via public open space. This will ultimately enhance the permeability of the area.

Internal pedestrian and cyclist facilities will connect the proposed residential development with each block and the public open space in the centre of the development. This will provide a safe passage for pedestrian and cyclist movements for the development. Please refer to the Permeability Plan prepared by the Landscape Architects further showing the pedestrian and cyclist permeability to and from the scheme.

5. Statement of Compliance

5.1 Compliance with DMURS

AECOM have set out in the following sections how the proposed development is compliant with the DMURS guidelines.

5.2 Internal Road Network

The internal layout design is proven to comply with the DMURS guidelines. The following measures are examples of where compliance with the DMURS guidelines has been demonstrated:

- Internal footpaths have been provided at a minimum width of 1.8m, which is the space required to allow two wheelchairs to pass each other;
- The internal carriageway width within the basement level car parks is typically 6.0m to allow for manoeuvrability of vehicles accessing the perpendicular parking spaces;
- Pedestrian crossings are proposed which comprise of tactile paving and dropped kerbs to facilitate pedestrian movements;
- The proposed site access achieves a recommended visibility splay of 2.4m x 23m onto Village Road and 2.4m x 23m onto Atkinson Road and Thornberry Road, as per the DMURS guidelines for a 30km/h and 20 km/h speed limit respectively.
- The corner radii of the proposed junctions are 4 – 6m, as per Section 4.3.3 of DMURS.

5.3 Landscaping

Section 4.2.7 of DMURS recommends to provide softer landscaping areas in order to provide a sense of “place function” within the development. The site therefore provides a significant amount of landscaping, including trees located along the site access roads to provide a sense of enclosure. There’s public open space within the central portion of the development which also comprises of pedestrian and cycle way facilities. We refer the Board to the Landscape Report prepared by Mitchell + Associates.

5.4 Materials and Finishes

DMURS also gives guidance on the types of materials and finishes to be used in order to provide a sense of calm for traffic and improve legibility for vulnerable road users. The proposed shared surface carriageway and grass area will be of visually contrasting colour. The road markings will be flush so as to permit fire tenders manoeuvring within the development infrequently.

5.5 Signing and Lining

As per Section 4.2.4 of DMURS, signing and lining has been provided appropriately at the required locations throughout the development. However, the proposed development has been designed to have a self-regulating approach to increase the road safety in addition to relying on mandatory and warning signs.

6. Trip Generation and Distribution

6.1 General

The purpose of this section is to determine the overall number of trips that will be generated by the proposed development in terms of vehicular traffic.

To understand the potential vehicular trip generation associated with the site, AECOM has undertaken a review of the base and committed traffic upon the adjoining road network against the proposed trip generation, outlined in the subsequent sections.

6.2 Existing / Baseline Traffic Flows

In order to establish the existing local road networks traffic characteristics and subsequently enable the identification of the potential impact of the proposed residential development, traffic surveys were commissioned in October 2019.

The traffic surveys (weekday classified junction turning counts) were conducted by an independent survey company, IDASO over a 12-hr survey period from 07:00 – 19:00 on Thursday the 3rd of October 2019. This is in order to be able to identify a true peak time on the road network. The survey was undertaken at the following junctions:

- J1: R117 / R113 (Lambs Cross 4-arm Signalised Junction);
- J2: R117 / Village Road (Aikens Village 3-arm Signalised Junction);
- J3: Village Road / Belmont Drive (3-arm Priority Junction);
- J4: Village Road / Atkinson Drive (Site Access Road) / Cluain Shee (4-arm Priority Junction); and
- J5: R117 / Belarmine Avenue (3-arm Roundabout Junction).

The junction locations are illustrated in Figure 6.1.

Figure 6.1 – Traffic Survey Locations

The site is currently a brownfield site and has no associated trip generation associated with it. The existing traffic flows at the site access road from Village Road are illustrated in Figure 6.2. The AM and PM peak periods are denoted by green and orange, respectively. The full baseline traffic flows for the surrounding road network are shown in Appendix E.

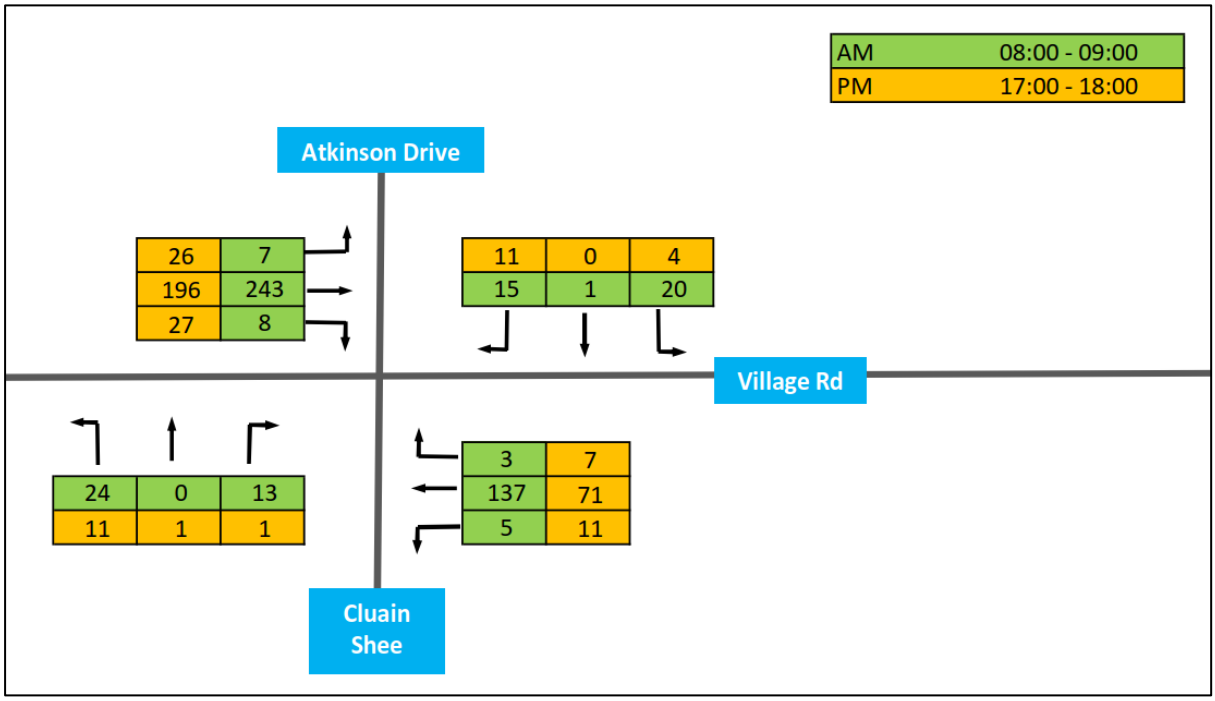


Figure 6.2 – Baseline Traffic Flows 2019 of Junction 4 (i.e. Atkinson Drive / Village Road / Cluain Shee)

6.3 Corroboration of Traffic Survey Data

Whilst the original traffic data collection for the purposes of this assessment was undertaken in 2019, it is considered that this traffic survey is still relevant for the purposes of this assessment. Traffic volumes in 2019 can reasonably be considered to have been heavier pre-Covid 19, due to the emergence and subsequent continuation of hybrid working patterns and the increasing popularity of more sustainable modes of travel over the course of the pandemic. It is therefore considered that the use of the 2019 survey data and the application of growth rates (outlined in the following Section 6.4), as well as committed development traffic flows (outlined in Section 6.5), assumes an extremely robust, worst-case scenario.

Indeed, in order to justify this assumption, AECOM undertook at peak hour junction count at the signalised junction of the R117 and Village Road on 16th August 2022. A comparison of this 2022 junction turning count with the 2019 survey data synthesised to 2022 using Central Growth Rates (as per those used in this TTA) is illustrated in Figure 6.3.

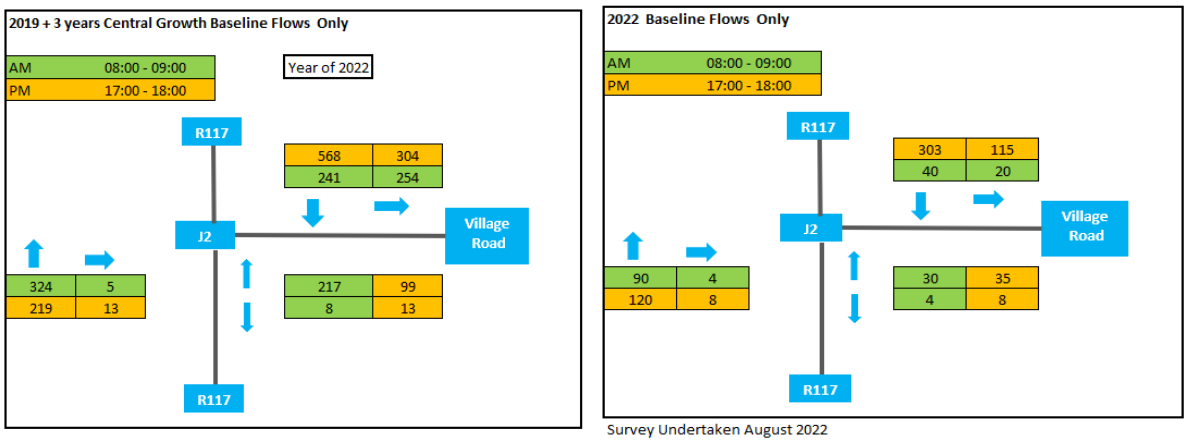


Figure 6.3 – Comparison of 2022 survey with synthesised 2022 flows from 2019 survey.

It can be seen that the traffic flows on all arms of the junction are significantly higher in the synthesised 2022 flows (based on the 2019 survey) when compared to the recent 2022 survey. This confirms the fact that the use of the 2019 survey data and Central Growth Rates is an extremely robust, worst-case scenario. This conclusion is further corroborated by the fact that the traffic associated with the Woodside Residential Development on Village Road

has been further added to the synthesised traffic (discussed further in Section 6.5), whilst this traffic generation is assumed to be included in the 2022 traffic survey data at the junction above as it was fully constructed and operational at the time of the 2022 traffic survey.

6.4 Traffic Growth

The TTA adopts an assumed Opening Design Year of 2025. In accordance with TII Guidance, Future Design years (+5 and +15 years) of 2030 and 2040 will therefore be adopted.

The Transport Infrastructure Ireland (TII) 'Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019)' sets out growth rates for forecasting future year traffic for use in scheme modelling and appraisal. It is noted that in respect of Aikens Village, which is in the 'Dublin Metropolitan Area', the growth during the period 2016 – 2030 is set at 1.62% per annum for Central Growth, reducing to 0.51% per annum from 2030 – 2040 (LV rates used).

The development has assessed the proposed opening year of the development (2025) and the two horizon year assessments (2030 and 2040), as per the TII Traffic Assessment Guidelines. The assessment years used for this assessment are as follows:

– 2019 to 2025 – 1.1012 (or 10.12%);

– 2019 to 2030 – 1.1934 (or 19.34%); and

– 2019 to 2040 – 1.2402 (or 24.02%).

6.5 Cumulative Assessment

The TII Guidelines for Transport Assessments state that the Traffic and Transport Assessment should consider all committed developments within the vicinity of the site. At the time of the traffic surveys, three developments were identified as having extant planning approval and were either under construction or had yet to be commenced. These were:

- Woodside Residential Development, Village Road, comprising of 155 no. dwellings. 125 no. apartments and 30 no. houses. Fully operational and occupied August 2022;
- Dun Gaoithe Residential Development, Village Road, comprising of 56 no. units, 17 no. apartments and 39 no. houses; and
- Whinsfield residential development consisting of 67 no apartment units.

In order to provide a robust assessment of the cumulative impacts of all committed development plus the proposed development, the predicted traffic flows from these developments were taken account of and included in the base traffic flows. It should be noted that only one of the committed developments outlined above (Dun Gaoithe) had a corresponding TTA available on the DLRCC Planning Portal (from which that development's trip generations were ascertained). Of the other two developments, one (Woodside) could not be located on the Planning Portal even though it was observed to be under construction, and the other (Whinsfield) did not have a TTA available as part of its supporting documentation. In these two cases we have used the TRICS database to replicate the predicted traffic generated by each.

6.6 Proposed Development Trip Generation

The latest version of the Trip Rate Information Computer System (TRICS) has been interrogated to calculate the quantum of vehicle trips likely to be generated by a development of the scale and type proposed. Trip generation data was calculated for the morning and evening peak hours (08:00 – 09:00 and 17:00 – 18:00, respectively), so as to determine the maximum impact of the proposed development on the surrounding road network.

The TRICS outputs are shown in Appendix F, whilst the proposed trip rates for the AM and PM peaks can be found on Table 6.1.

Table 6.1 Proposed Trip Rates

Development	Units	AM Peak Hour (08:00 – 09:00)		PM Peak Hour (17:00 – 18:00)	
		Arrivals	Departures	Arrivals	Departures
Creche	GFA per 100 sq. m	4.149	3.396	2.746	3.366
Apartments	Per dwelling	0.060	0.218	0.186	0.073

When the above trip rates are used in conjunction with the schedule of accommodation of the proposed development, the resulting trip generations are shown in Table 6.2.

Table 6.2 Proposed Trip Generation

Development	Quantum		AM Peak Hour (08:00 – 09:00)		PM Peak Hour (16:00 – 17:00)	
			Arrivals	Departures	Arrivals	Departures
Creche	514.9	Sq. m	21	17	14	17
Apartments	438	No. units	26	95	81	32
Peak Hour Totals			47	112	95	49
			159		**144**	

Table 6.2 outlines that the estimated total movements by the proposed development during the morning and evening peak hours is 159 and 144 two way flows respectively.

6.7 Proposed Development Trip Distribution

To understand the potential distribution of the trips arriving and departing the site, the base traffic survey results have been interrogated. The base traffic surveys indicate the direction that motorists currently travel to/from when arriving onto the immediate road network immediately adjacent the site during the typical peak periods. Figure 6.4 illustrates the proposed trip distribution patterns during the AM and PM Peak Hours, respectively. For traffic travelling to/from the subject development it has been assumed that they will arrive and depart the site in the same manner to how the existing travel arrives / departs the site.

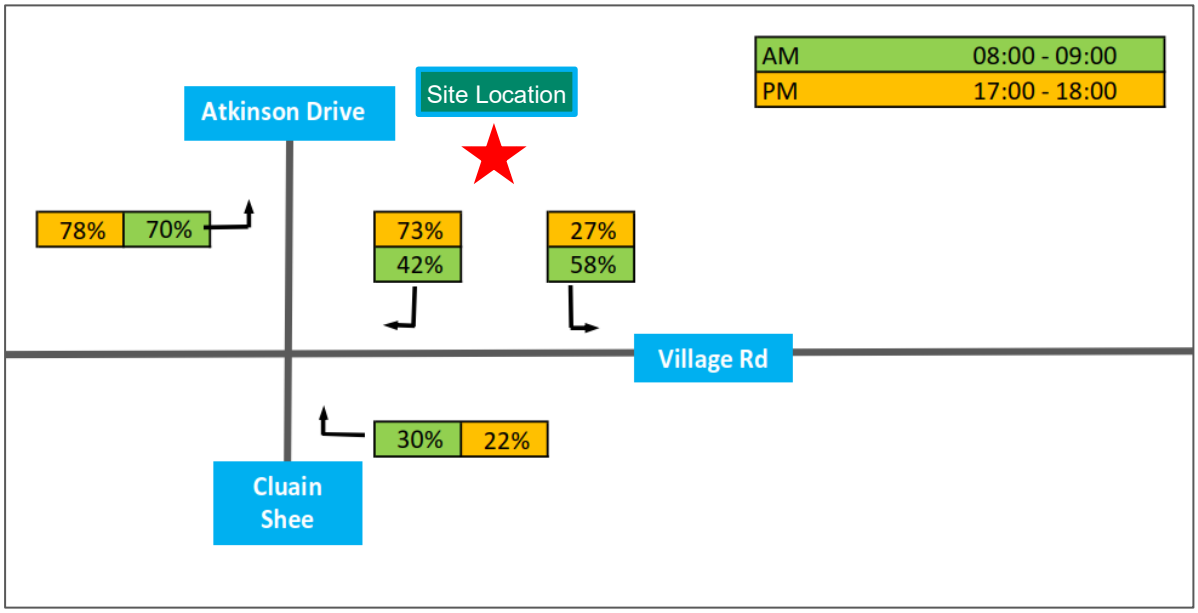


Figure 6.4 – Proposed Trip Distribution from the development

6.8 Percentage Impact Assessment

6.8.1 Transport Infrastructure Ireland Guidelines

The TII Guidelines for Transport Assessments state that the thresholds for junction analysis in Transport Assessments are as follows:

– *'Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway.'*

– *'Traffic to and from the development exceeds 5% of the existing two-way flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations.'*

In accordance with the above guidelines, an assessment has been undertaken of the net development impacts upon the surrounding road network, which is discussed in further detail in the subsequent sections.

6.8.2 Impact Assessment Methodology

A comparison was made between the existing baseline traffic flows including the relevant committed developments surrounding the proposed development site to identify the percentage impact of the development. The projected percentage impact of operational traffic on the surrounding road junctions in the year of opening (2025) is set out in Table 6.3.

Table 6.3 – Percentage Impact on Adjacent Road Network during Opening Year

Opening Year 2025						
Junction Location	**Time Period**	**Baseline Flows**	**Committed Dev Flows**	**Baseline plus Committed Flows**	**Proposed Dev Flows**	**Percentage Impact**
Junction 1 - R117 / R113	AM	1869	46	1915	31	2%
	PM	1785	61	1846	74	4%
Junction 2 - R117 / Village Road	AM	1126	52	1178	70	6%
	PM	1291	68	1358	105	8%
Junction 3 - Village Road / Belmont Drive	AM	504	29	533	80	15%
	PM	433	12	444	111	25%
Junction 4 - Village Road / Atkinson Drive	AM	524	27	551	159	29%
	PM	403	6	409	144	35%
Junction 5 - R117 / Belarmine Avenue	AM	1375	8	1382	80	6%
	PM	1070	8	1077	36	3%

It can be seen that the percentage impact of the proposed development's traffic flows is above the 5% threshold at Junctions 2, 3, 4 and 5 and in line with TII Guidelines, these junctions have been further analysed, as outlined in Section 7.

It is also noted that as the percentage impact at Junctions 1 and 5 is below the 5% threshold, the proposed development traffic has been considered to have dissipated sufficiently at these peripheral junctions to warrant the extent of the study area justified.

7. Junction Modelling Analysis

7.1 Introduction

This chapter presents the capacity analysis to identify the potential effects of the proposed development upon the surrounding road network. all junctions that were over the TII threshold of 5% were modelled. This includes all junctions bar Junction 1. Figure 7.1 shows the junctions analysed as part of this assessment.

Figure 7.1 – Junctions Analysed

7.1.1 Junction 2 – Village Road / R117 Signalised Junction

This junction has been modelled as a 3-arm signalised junction using the LINSIG modelling package with the results illustrated in Table 7.1.

Table 7.1 – Junction 2 Analysis Results

Assessment Year	Junction Arm	AM		PM	
		Mean Max Queue (PCU)	Degree of Sat (%)	Mean Max Queue (PCU)	Degree of Sat (%)
2019 Baseline	R117 Southbound Ahead and Left	9.9	59.5	11.3	50.6
	R117 Northbound Ahead and Right	4.7	31.4	5.6	28.9
	Village Road Left and Right	5.6	58.7	6.8	51.2
2025 Without	R117 Southbound Ahead and Left	12.1	69.2	32.2	89.9
	R117 Northbound Ahead and Right	5.4	35.9	3.4	20.3
	Village Road Left and Right	7.3	69.2	11.6	88.8
2025 With	R117 Southbound Ahead and Left	13.4	74.3	44.1	97.8
	R117 Northbound Ahead and Right	5.5	36.7	3.5	20.8
	Village Road Left and Right	8.8	76.1	14.6	94.2
2040 Without	R117 Southbound Ahead and Left	14.7	77.7	54.6	100.8
	R117 Northbound Ahead and Right	6.3	40.3	3.8	22.8
	Village Road Left and Right	8.6	76.7	17.1	98.8
2040 With	R117 Southbound Ahead and Left	16.4	83.1	92.8	108.9
	R117 Northbound Ahead and Right	6.4	41.2	4.0	23.3
	Village Road Left and Right	10.4	83.2	23.1	103.7

It can be seen from the results that in the AM peak the junction will operate within capacity for all scenarios up to and including the design year of 2040 including the proposed development traffic. In the PM peak the results show that the junction begins to operate above capacity in 2040 with just the base and committed development traffic, i.e. before the proposed development traffic is even considered. With the addition of the proposed development traffic in the 2040 PM peak, this situation is obviously exacerbated.

In order to ascertain a potential mitigation, we have assessed the junction in the PM peak with a slightly different signal sequence which calls the all red pedestrian phase every second cycle, rather than every cycle. The results for this test, in comparison to the 2040 without Development scenario (from above Table) are outlined in Table 7.2.

Table 7.2 – Junction 2 Analysis Results – 2040 Mitigation

Assessment Year	Junction Arm	PM	
		Mean Max Queue (PCU)	Degree of Sat (%)
2040 Without. Existing Cycle Timings	R117 Southbound Ahead and Left	54.6	100.8
	R117 Northbound Ahead and Right	3.8	22.8
	Village Road Left and Right	17.1	98.8
2040 With. Revised Cycle Timings	R117 Southbound Ahead and Left	52.0	97.6
	R117 Northbound Ahead and Right	3.7	21.2
	Village Road Left and Right	18.2	96.1

It can be seen from Table 7.2 that the revision of the cycle time as outlined previously leads to the junction operating slightly within capacity, with an improved operation on all arms when compared to the 2040 without the proposed development scenario. It can therefore be concluded that nil net detriment has been achieved at the junction.

It should again be noted at this point that the traffic volumes used in this assessment present and extremely robust worse case scenario, as outlined previously in Section 6.3, and in reality the queues and degrees of saturation presented in the Tables above will not be experienced as working patterns and travel behaviours change considerably in a post Covid-19 environment, and public transport provision constantly evolves and becomes a more attractive mode of travel.

7.1.2 Junction 3 – Village Road / Belmont Drive Priority Junction

This junction has been modelled as a 3-arm priority junction using the industry standard Junctions 9 modelling package (PICADY). The outputs for Junctions 9 present Ratio of Flow to Capacity (RFC) figures and queue lengths (PCU vehicles) as indicators of the operational efficiency of the junction. An RFC value of 0.85 indicates that the junction is operating at its theoretical capacity.

The Mean Maximum Queue (MMQ) represents the average maximum queue length reported from the model in the junction analysis in PCU.

A synopsis of the results of the of the Village Road / Belmont Drive priority junction is outlined in Table 7.3. The full traffic model results are shown in Appendix G.

Table 7.3 – Junction 3 Analysis Results

Assessment Year	Junction Arm	AM		PM	
		Queue (PCU)	RFC	Queue (PCU)	RFC
2019 Baseline	Belmont Drive	0.2	0.14	0.1	0.06
	Village Road (Eastern Arm)	0	0.02	0	0.02
2025 Without	Belmont Drive	0.2	0.15	0.1	0.07
	Village Road (Eastern Arm)	0	0.02	0	0.03
2025 With	Belmont Drive	0.2	0.16	0.1	0.07
	Village Road (Eastern Arm)	0	0.03	0	0.03
2030 Without	Belmont Drive	0.2	0.17	0.1	0.07
	Village Road (Eastern Arm)	0	0.03	0	0.03
2030 With	Belmont Drive	0.2	0.17	0.1	0.08
	Village Road (Eastern Arm)	0	0.03	0	0.03
2040 Without	Belmont Drive	0.2	0.17	0.1	0.08
	Village Road (Eastern Arm)	0	0.03	0	0.03
2040 With	Belmont Drive	0.2	0.18	0.1	0.08
	Village Road (Eastern Arm)	0	0.03	0	0.03

As can be observed from the junctions 9 analysis of this junction with and without the development in place, the impact is negligible with a 0.01 (1%) increase to the RFC and no increase to the number of PCU's during the 2040 PM assessment year.

7.1.3 Junction 4 – Atkinson Drive / Village Road 4 Arm Priority Junction

This junction has been modelled as a 4-arm priority junction using the industry standard Junctions 9 modelling package (PICADY). A synopsis of the results of the of the Atkinson Drive / Village Road priority junction is outlined in Table 7.4. The full traffic model results are shown in Appendix G.

Table 7.4 – Junction 4 Analysis Results

Assessment Year	Junction Arm	AM		PM	
		Queue (PCU)	RFC	Queue (PCU)	RFC
2019 Baseline	Village Road (Eastern Arm)	0.1	0.09	0	0.03
	Cluain-Shee	0	0.01	0	0.02
	Village Road (Western Arm)	0.1	0.09	0	0.04
	Atkinson Drive	0	0.02	0.1	0.06
2025 Without	Village Road (Eastern Arm)	0.1	0.10	0	0.03
	Cluain-Shee	0	0.01	0	0.02
	Village Road (Western Arm)	0.1	0.10	0.1	0.05
	Atkinson Drive	0	0.02	0.1	0.07
2025 With	Village Road (Eastern Arm)	0.1	0.1	0	0.03
	Cluain-Shee	0.1	0.04	0.1	0.07
	Village Road (Western Arm)	0.7	0.40	0.2	0.19
	Atkinson Drive	0	0.02	0.1	0.08
2030 Without	Village Road (Eastern Arm)	0.1	0.11	0	0.03
	Cluain-Shee	0	0.01	0	0.02
	Village Road (Western Arm)	0.1	0.11	0.1	0.05
	Atkinson Drive	0	0.02	0.2	0.08
2030 With	Village Road (Eastern Arm)	0.1	0.11	0	0.03
	Cluain-Shee	0.1	0.04	0.1	0.07
	Village Road (Western Arm)	0.7	0.41	0.2	0.19
	Atkinson Drive	0	0.03	0.2	0.08
2040 Without	Village Road (Eastern Arm)	0.1	0.11	0	0.03
	Cluain-Shee	0	0.01	0	0.02
	Village Road (Western Arm)	0.1	0.12	0.1	0.05
	Atkinson Drive	0	0.03	0.2	0.08
2040 With	Village Road (Eastern Arm)	0.1	0.12	0	0.03
	Cluain-Shee	0.1	0.05	0.1	0.07
	Village Road (Western Arm)	0.7	0.42	0.3	0.20
	Atkinson Drive	0	0.03	0.2	0.09

As can be observed from the junctions 9 analysis of this junction with and without the development in place, the anticipated impact on the Atkinson Drive arm will result in a 0.30 (30%) RFC increase and a 0.6 PCU increase in the morning peak period with an increase of 0.01 (1%) to the RFC and no PCU increase during the 2040 assessment year. Further to the results, the junction will continue to operate within capacity throughout the assessment years.

7.1.4 Junction 5 – R117 / Belarmine Avenue Roundabout

This junction has been modelled as a 3-arm roundabout using the industry standard Junctions 9 modelling package (ARCADY).

A synopsis of the results of the of the R117 / Belarmine Roundabout is outlined in Table 7.5. The full traffic model results are shown in Appendix G.

Table 7.5 – Junction 5 Analysis Results

Assessment Year	Junction Arm	AM		PM	
		Queue (PCU)	RFC	Queue (PCU)	RFC
2019 Baseline	R117 (South-Eastern Arm)	0.3	0.23	0.2	0.15
	R117 (North-Western Arm)	0.1	0.12	0.5	0.30
	Belarmine Avenue (North-Eastern Arm)	0.7	0.39	0.1	0.11
2025 Without	R117 (South-Eastern Arm)	0.4	0.26	0.2	0.17
	R117 (North-Western Arm)	0.2	0.13	0.5	0.33
	Belarmine Avenue (North-Eastern Arm)	0.9	0.44	0.2	0.12
2025 With	R117 (South-Eastern Arm)	0.4	0.27	0.2	0.18
	R117 (North-Western Arm)	0.2	0.13	0.6	0.34
	Belarmine Avenue (North-Eastern Arm)	1.0	0.48	0.2	0.13
2030 Without	R117 (South-Eastern Arm)	0.4	0.28	0.2	0.18
	R117 (North-Western Arm)	0.2	0.15	0.6	0.36
	Belarmine Avenue (North-Eastern Arm)	1.0	0.48	0.2	0.13
2030 With	R117 (South-Eastern Arm)	0.5	0.29	0.3	0.20
	R117 (North-Western Arm)	0.2	0.15	0.6	0.37
	Belarmine Avenue (North-Eastern Arm)	1.2	0.52	0.2	0.14
2040 Without	R117 (South-Eastern Arm)	0.5	0.29	0.3	0.19
	R117 (North-Western Arm)	0.2	0.15	0.7	0.38
	Belarmine Avenue (North-Eastern Arm)	1.1	0.50	0.2	0.14
2040 With	R117 (South-Eastern Arm)	0.5	0.31	0.3	0.20
	R117 (North-Western Arm)	0.2	0.16	0.7	0.39
	Belarmine Avenue (North-Eastern Arm)	1.3	0.54	0.2	0.15

As can be observed from the junctions 9 analysis of this junction with and without the development in place, the impact is nominal with a 0.04 (4%) RFC increase and 0.2 PCU increase in the morning peak period during the 2040 assessment year on the Belarmine Avenue arm of the roundabout. During the evening peak period there is an increase of 0.01 (1%) to the RFC and no PCU increase during the 2040 assessment year on the R117 (South-Eastern Arm). No arm within the above junction is operating over or close to 0.85 RFC

8. Public Transport Capacity Assessment

8.1 Existing Public Transport Network

As outlined previously in Section 3.4, the Aikens Village site is considerably well positioned between both bus routes and the Luas Green Line serving the inner city and beyond, in addition to the suburban neighbouring area.

8.1.1 Bus

The site is situated within relatively close proximity to several bus stops providing Dublin Bus services as outlined in Table 8.1. The locations of these stops in relation to the site are illustrated in Figure 8.1.

Table 8.1 Bus Services

Bus No.	Route	Nearest Bus Stop	Frequency		
			Monday to Friday	Saturday	Sunday
44	Powerscourt NS – DCU Helix	670m	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)
44b	Ballybrack Road – Dundrum Luas	730m	5 services a day	No service	No service
47	Belarmine – Poolbeg Street	375m	Every 60 mins (Off-peak) Every 30 mins (Peak)	Every 60 mins (Off/on peak)	Every 60 mins (Off/on peak)
114	Ticknock – Blackrock Station	730m	Every 60 mins (off/on peak)	Every 60 mins (off/on peak)	No Service

Figure 8.1 Proposed site location in relation to local Bus Network Source (Bing Maps)

8.1.2 Luas

The site is located in close proximity to two Luas stops along the Green Line, as illustrated in Figure 8.2. The Glencairn stop is located 900m from the site (approximately a 10 minute walk) and the Gallops stop is located 1.25km away (approximately a 14 minute walk). These stations are serviced approximately every 8 minutes during peak periods and every 15 minutes during the off-peak period of the Green Line.

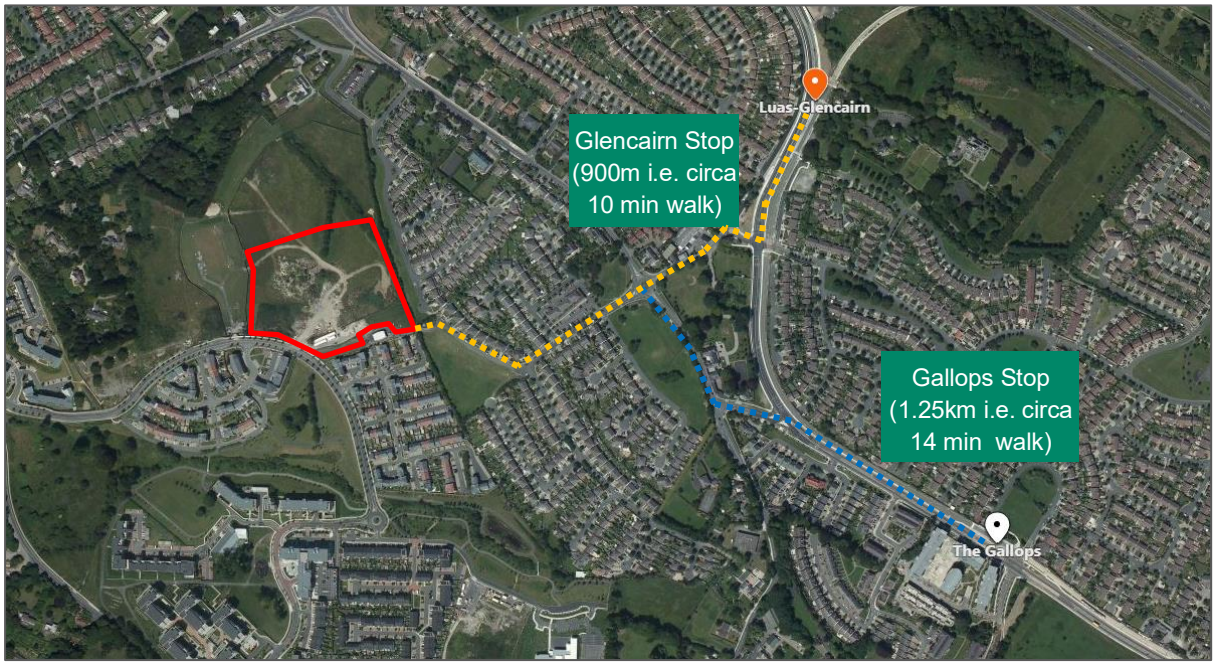


Figure 8.2 Proposed site location in relation to local Luas stops (Bing Maps)

8.2 Existing Travel Patterns

Census 2016 figures obtained from the Central Statistics Office (CSO) detail the means of travel to work, school or college (i.e., on foot, bicycle, public transport etc.) for people aged 5 years and over for the electoral division of Glencullen, within which the proposed development site is located. These figures are shown in Table 8.2 together with mode shares of each of the means of travel. It can be seen that while 43% of individuals surveyed drive to their place of work / education, approximately 17% take the Train, DART or Luas to their place of work / education, whilst 6% travel via bus, minibus or coach.

Table 8.2 Mode Shares - Glencullen

Means of Travel	Work	School or College	Total	Mode Share (%)
On foot	66	105	171	7%
Bicycle	91	13	104	4%
Bus, minibus or coach	67	74	141	6%
Train, DART or LUAS	369	58	427	17%
Motorcycle or scooter	16	1	17	1%
Car driver	1,058	14	1,072	43%
Car passenger	50	357	407	16%
Van	34	0	34	1%
Other (incl. lorry)	1	0	1	0%
Work mainly at or from home	41	0	41	2%
Not stated	40	29	69	3%
Total	**1,833**	**651**	**2,484**	**100%**

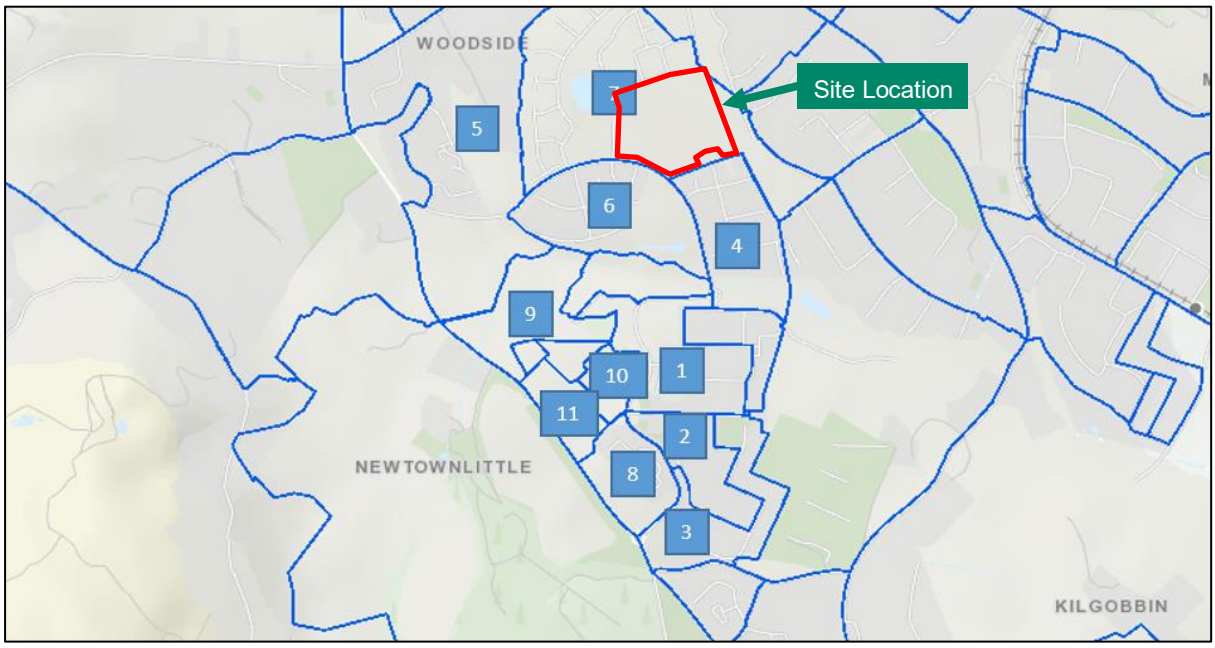


Figure 8.3 – Extent of Small Areas within the vicinity of the Subject Site

8.3 Future Passenger Demand

8.3.1 Proposed Development

As outlined previously, the proposed development comprises 438 no. residential apartments across 9 no. blocks (Block A – J) and a creche within Block D (c. 514.9 sq. m).

The proposed apartment units comprise of a mix of 1- and 2-bedroom units. A breakdown of the proposed 438 no. residential apartments is as follows:

- 154 no. one bedrooms; and
- 284 no. two bedrooms.

For the purpose of this assessment, we have carried out an estimation of the potential number of residents at the proposed development based on the projected number of bedrooms. It is estimated that the approximate figure of the number of residents living on the proposed site when complete will be c. 1,444 no. as detailed in Table 8.3. Note that this is considered a worst-case scenario as we have assumed that all 1 bedroom apartments would contain 2 no. residents and all 2 bedroom apartments would contain 4 no. residents.

Table 8.3 Proposed Development – Development Population Approximation

Unit Size	No. Of Units	Persons
1- Bed (2 person)	158	308
2 -Bed (4 Person)	284	1,136
Total	438	1,444

Based on the modal split from Table 8.2 , some 17% of the residential population, which is equivalent to 246 people are expected to use the Luas for their journey to work or education. In addition, the modal split indicates that 6% of the residential population will use a bus to get to either work or education. This equates to 87 people using the bus service. See Table 8.4 for further illustration.

These figures are not presented specifically for a peak hour, but it can be assumed that the standard commuting hours apply depending on the persons commuting distance based on their final destination.

Table 8.4 Census Mode Share – Development Population mode share

Means of Travel	Mode Share (%)	Persons
Train, DART or Luas	17	246
Bus, minibus or coach	6	87
Total	23	333

Having regard for the location of the proposed development, we have assumed that in the AM peak, which this assessment is focused on, 90% of these public transport users would travel in a citybound (northbound) direction. The resulting split of passenger direction is illustrated in Table 8.5.

Table 8.5 Public Transport Passenger Distribution (Proposed Development) – AM Peak

Means of Travel	Northbound	Southbound
Train, DART or Luas	221	25
Bus, minibus or coach	78	9

8.3.2 Committed Development

In order to undertake a cumulative assessment, the public transport demand from the previously identified committed developments has been taken into account also. It should be noted that at the time of the public transport surveys, outlined in the following Section 8.5, the Woodside Residential Development on Village Road had been completed and was fully operational. It was therefore determined that the public transport demand from this development was already included in the PT surveys. As a result, a calculation of the potential public transport demand from the other two committed developments, which are currently still under construction, has been undertaken in a similar way to the proposed development.

8.3.2.1 Dun Gaoithe Residential Development

An estimate of the Dun Gaoithe population has been undertaken as outlined in Table 8.6.

Table 8.6 Dun Gaoithe Development – Development Population Approximation

Unit Size	No. Of Units	Persons
1- Bed Apartment (2 person)	3	6
2-Bed Apartment (4 person)	13	52
3-Bed Apartment (6 person)	1	6
3-Bed house (6 person)	28	168
4-Bed House (8 person)	11	88
Total	56	320

8.3.2.2 Whinsfield Residential Development

An estimate of the Whinsfield population has been undertaken as outlined in Table 8.7.

Table 8.7 Whinsfield Development – Development Population Approximation

Unit Size	No. Of Units	Persons
1- Bed Apartment (2 person)	5	10
2-Bed Apartment (4 person)	48	192
3-Bed Apartment (6 person)	14	84
Total	67	286

8.3.2.3 Total Committed Development Public Transport Demand

The combined estimated committed development population is 606 persons and the resulting public transport demand, is outlined in Table 8.8.

Table 8.8 Census Mode Share – Committed Development Population mode share

Means of Travel	Mode Share (%)	Persons
Train, DART or Luas	17	103
Bus, minibus or coach	6	36
Total	23	139

As with the proposed development, having regard for the location of the committed developments, we have assumed that in the AM peak, which this assessment is focused on, 90% of these public transport users would travel in a citybound (northbound) direction. The resulting split of passenger direction is illustrated in Table 8.9.

Table 8.9 Public Transport Passenger Distribution (Committed Developments) – AM Peak

Means of Travel	Northbound	Southbound
Train, DART or Luas	93	10
Bus, minibus or coach	32	4

8.4 Total Future Public Transport Demand

The total combined northbound public transport demand from both the Committed Developments and the Proposed Development has been determined as:

Train, DART or Luas – 314;

Bus, Minibus or Coach – 110

8.5 Public Transport Capacity Assessment

The purpose of this public transport capacity assessment is to ascertain the available spare capacity in the current bus and Luas network in the vicinity of the proposed development and demonstrate that this capacity will be sufficient to accommodate the projected public transport demand from the proposed development. In order to ascertain the existing capacity on the public transport network in the vicinity of the proposed development, AECOM have undertaken a series of surveys at each of the relevant public transport stops.

8.5.1 Bus

8.5.1.1 Bus Surveys

A bus capacity survey was undertaken at the three identified bus stops during the AM peak (07:00-09:00) on Monday 9th May 2022. The results for each of the stops are outlined in Table 8.10, Table 8.11 and Table 8.12. It should be noted that bus capacity for the purposes of the analysis is taken as the seated capacity only, to ensure a robust assessment.

Table 8.10 Bus Stop 3488 no. in the AM Peak (Towards DCU)

Time	Route	Bus Type	Bus capacity seated	Passengers on Arriving Bus	Passengers Boarding at Stop	Spare Capacity on Bus leaving stop
07:30	44	Double	67	25	0	42

Table 8.11 Bus Stop 3494 no. in the AM peak (Towards Dundrum Luas)

Time	Route	Bus Type	Bus capacity seated	Passengers on Arriving Bus	Passengers Boarding at Stop	Spare Capacity on Bus leaving stop
08:25	44B	Single	40	4	0	36

Table 8.12 City Bound Buses Stop 5013 no. in the AM Peak (Towards Poolbeg Street)

Time	Route	Bus Type	Bus capacity seated	Passengers on Arriving Bus*	Passengers Boarding at Stop	Spare Capacity on Bus leaving stop
07:00	47	Double	67	0	8	59
08:00	47	Double	67	0	11	56
09:00	47	Double	67	0	6	61
Average			**67**	**0**	**8**	**59**

* Stop 5013 is the first stop on the inbound route for service 47 and therefore there were no existing passengers on any bus prior to arriving at the stop.

8.5.1.2 Bus Capacity Analysis

It can be seen that there is ample spare capacity across all current inbound AM peak services to accommodate the projected worst-case bus demand (110 passengers) from the committed developments and proposed development. It can be seen that across the entire AM peak period there is a total spare capacity of 254 seats which would easily accommodate the projected demand. As mentioned previously, this assessment also does not take into account standing spaces on each bus service which would contribute even more spare capacity to the bus service in the vicinity of the proposed development.

8.5.2 Luas

8.5.2.1 Luas Surveys

A capacity survey of the northbound Glencairn Luas stop (identified previously in Figure 8.2) was undertaken on Tuesday 10th May during the AM Peak (07:00-09:00). The Luas survey focused on the Glencairn stop as it is the closest to the proposed development and therefore likely to attract the most significant volume of Luas passengers from the proposed development when complete. The results are illustrated in Table 8.13. The Luas capacity per tram is taken to be the designated 408 spaces, incorporating both standing and seated capacity.

Table 8.13 Glencairn Luas Stop – AM peak Towards Parnell and Broombridge

Time	Route	Arriving Service Capacity	% Spare Capacity on Arriving Service (Approx.)	Approximate Spare Capacity (No.) on Arriving Service	Passengers boarding at Glencairn stop	Spare Capacity on Luas service leaving stop
07:00	Parnell	408	50%	204	15	189
07:13	Parnell	408	80%	326	20	306
07:25	Parnell	408	20%	82	22	60
07:33	Parnell	408	30%	122	33	89
07:43	Parnell	408	15%	61	18	43
08:30	Parnell	408	10%	41	25	16
08:39	Broombridge	408	70%	286	10	276
08:45	Parnell	408	30%	122	12	110
08:50	Broombridge	408	60%	245	9	236
08:55	Parnell	408	50%	204	6	198
Average		408	42%	169	17	152

8.5.2.2 Luas Capacity Analysis

It can be seen that, as with the bus services, there is ample spare capacity across the AM peak period to accommodate the projected peak direction Luas demand (314 passengers) from the committed developments and proposed development, with the total number of spare spaces observed across all services in the AM peak totalling circa 1,500.

8.6 Public Transport Capacity Conclusion

As can be seen from the findings in Section 8, the empirical data collected by AECOM with regards to current patronage levels on relevant bus and Luas services in the vicinity of the proposed development, coupled with the derived potential peak hour public transport demand from both committed developments and the proposed development, has demonstrated that both bus and Luas services, in their current configuration, exhibit sufficient capacity to accommodate the cumulative total of existing and predicted development related demand. This conclusion has been reached despite a number of worst-case assumptions including the maximum potential bedroom occupancy at the proposed development, as well as only considering seated capacity only for the bus services.

The public transport capacity assessment was carried out in the AM peak only as this is considered the most onerous peak period. Due to places of employment, education and health beginning their working days at 9am while in comparison there are varied times where these establishments finish their day and therefore it would be considered that there is less of a concentrated demand on the public transport in the PM 'peak'. By carrying out the public transport capacity assessment in the AM peak only this demonstrates a worst-case scenario and is therefore considered a robust rationale.

9. Outline Construction Traffic Management Plan

This chapter of the report deals directly with the impacts of construction of the subject development. As with any construction project, the contractor will be required to prepare a comprehensive traffic management plan for the construction phase. The purpose of such a plan is to outline measures to manage the expected construction traffic activity during the construction period.

This chapter will provide an overview of the likely routing of construction vehicles, based on a most likely scenario of construction. It should be noted that the impacts of the construction will be temporary and it will be the contractor's responsibility to prepare a Traffic Management Plan for the approval of Dun Laoghaire Rathdown County Council in advance of any works.

It should be noted that a detailed Construction Environmental Management Plan (CEMP) has been developed to support the planning application for the proposed development and this section should be considered in the context of that Plan.

9.1 Policy Guidance

Guidance for the temporary control of traffic at road works to facilitate the safety of the public during the works is provided below:

- Traffic Signs Manual Chapter 8 Temporary Traffic Measures and Signs for Roadworks (2019);
- Traffic Management Guidelines, Department of Transport (2003); and
- Requirements of Dun Laoghaire Rathdown County Council.

9.2 Construction Route

To minimise construction impacts upon the surrounding road network, it is recommended that all construction traffic accesses and exits the site from the M50 Junction 14 travelling down the Kilgobbin Road, turning right onto the R113 then turning left onto the R117 and onto the Village Road which will lead to the site, this route is approximately 1.77km in length and shown in Figure 9.1.

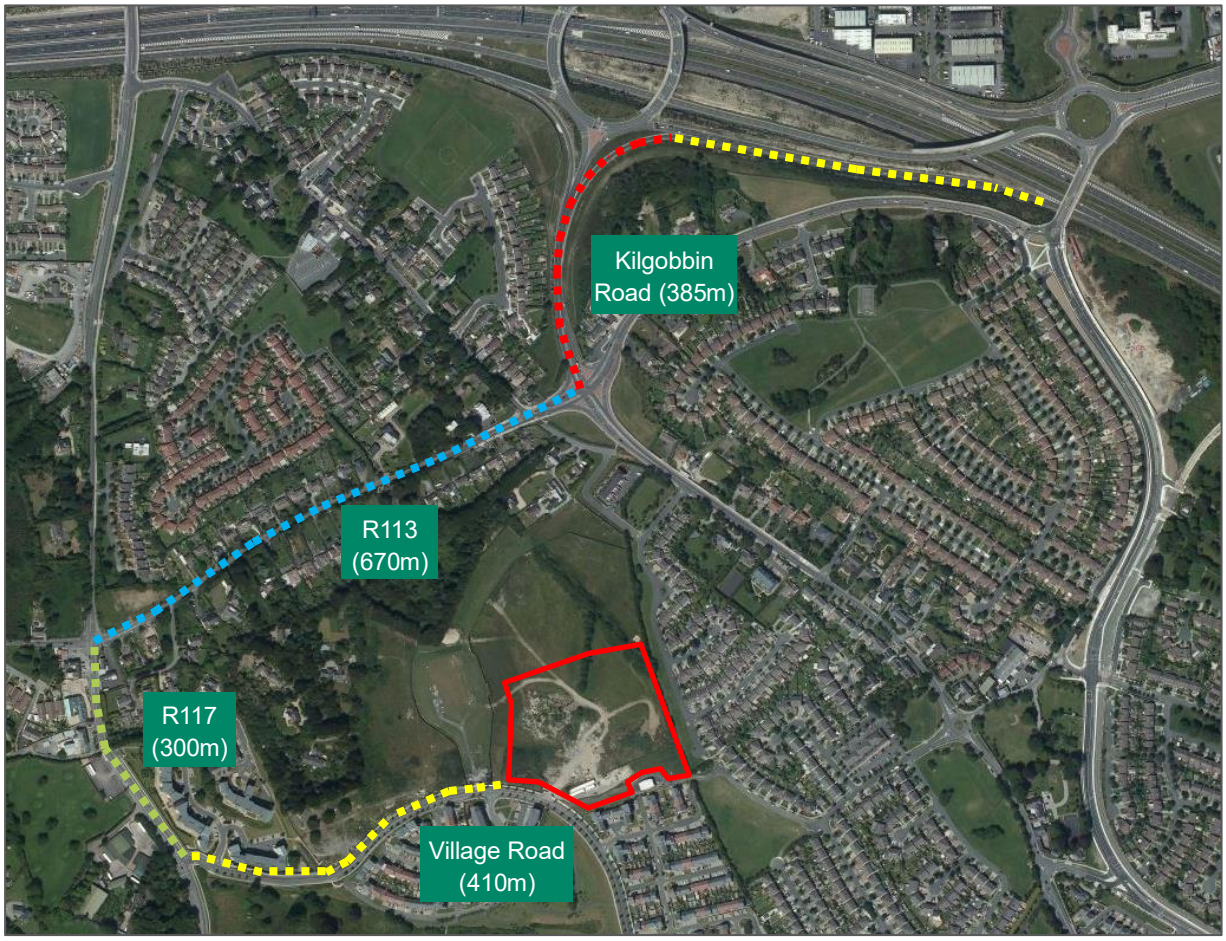


Figure 9.1 – Proposed Construction Traffic Route (Source: Bing Maps)

9.3 Parking

Consistent with the proposals in the CEMP, all contractor vehicles will park within the development site area, it is recommended that as part of the construction management plan the contactor designates an area within the confines of the site dedicated to operative car parking. There will be no parking permitted on the surrounding road network or estate roads by the contractor or site operatives.

9.4 Mitigation Measures

A construction management plan will be developed by the contractor prior to the commencement of work on site and will be prepared in consultation with Dun Laoghaire-Rathdown County Council.

Construction debris particularly site clearance, spoil removal and dirty water run off can have a significant impact on footpaths and roads adjoining a construction site, if not adequately dealt with, and measures will be put in place to minimise this risk.

9.5 Hours of Operation

Consistent with the proposals in the CEMP, site development and building works shall be carried out between the hours of operation recommended by DLRCC to safeguard the residential amenities of properties in the vicinity. The typical hours of operation are as follows:

- Monday to Friday, 7am – 7pm, Saturdays 8am – 4pm and no works on Sundays or Public holidays.

9.6 Traffic Management Measures

Below is a list of the proposed traffic management measures to be adopted during the construction works. Please note that this is not an exhaustive list, and that it will be the appointed contractor's responsibility to prepare a detailed construction management plan.

- Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction access locations;
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes;
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material;
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds within the site;
- Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with DLRCC;
- A road sweeper will be employed to clean the public roads adjacent to the site of any residual debris that may be deposited on the public roads leading away from the construction works;
- On site wheel washing will be undertaken for construction trucks and vehicles to remove any debris prior to leaving the site, to remove any potential debris on the local roads;
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Spill kits will be available on site. All scheduled maintenance carried out off-site will not be carried out on the public highway; and
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.

The mitigation measures will therefore ensure that the presence of construction traffic will not lead to any significant environmental degradation or safety concerns in the vicinity of the proposed works. Furthermore, it is in the interests of the construction programme that deliveries, particularly concrete deliveries are not unduly hampered by traffic congestion, and as a result continuous review of haulage routes, delivery timings and access arrangements will be undertaken as construction progresses to ensure smooth operation.

10. Outline Mobility Management Plan

10.1 General

This section will present an overview of the Mobility Management Measures for the proposed development. A review of the key measures and policies outlined in the existing DLRCC Development Plan (2022 – 2028) has been undertaken.

Upon completion of the development, when the scheme is occupied, it is recommended that an updated Mobility Management Plan is undertaken in unison with travel surveys for residents, staff and visitors, which will inform travel targets for site users.

10.2 Objectives

The objectives of this section are as follows:

- To discourage private car as a means of travel to and from the development;
- To increase and facilitate the number of people choosing to walk, cycle or travel by public transport to the development;
- To work with DLRCC, the National Transport Authority and public transport providers to support and encourage resident and staff up take;
- To achieve the above targets, measures have been proposed for the specific modes of transport. These are based on existing infrastructure and public transport systems. These objectives are preliminary and will be further developed in the light of ongoing monitoring as the proposed development is occupied and information becomes available on future travel behaviour of residents and staff.

An Action Plan Coordinator is proposed by the applicant, Mr Robbie Gray, as someone who will take ownership of implementing the measures. Table 10.1 presents a list of recommended measures and actions.

Table 10.1 – Recommended Mobility Management Measures and Actions

Walking		
Initiatives	**Responsibility / Ownership**	**Timescale**
Provision of details on how to access the site on foot. Details would include safe walking routes and location of the nearest bus stops/rail station for perspective residents. Promote walking events / lunchtime walks for perspective residents. Provide quarterly 'How to Travel' newsletter via email to residents. Distribute travel maps, leaflets and timetables, ensuring consistent accessible formats, health information for walking routes, signposting to website / apps. Provide umbrella for residents of development (in the apartment blocks) on wet days. As previously stated, the proposed design includes for a number of pedestrian facilities. A new pedestrian and cycling access will be provided at the south of the site, via Village Road, linking the development to the emerging cycle way link to the east.	The Action Plan Co-ordinator	To be commenced prior to occupation
Cycling		
Initiatives	**Responsibility / Ownership**	**Timescale**
Establish a Resident Bicycle User Group. Advertising the Bike to Work scheme for residents. Encourage establishment of a cycling club / society. Provision for cyclist equipment i.e. pump, allen keys, lights, puncture repairs. Display maps of local cycle network on resident notice boards. Participate in national cycle week. Survey and monitor cycle parking occupancy. Install good quality cycle parking provision on site.	The Action Plan Co-ordinator	To be commenced prior to occupation

Public Transport		
Initiatives	**Responsibility / Ownership**	**Timescale**
Provision of public transport maps and timetables in prominent locations on site. Information should be kept up to date. This information could also be available online. Provision of information to residents on savings that can be made by using Leap Card and details on where Leap Cards can be purchased. Re-advertise and promote the Tax saver monthly and annual commuter tickets for public transport to staff of the development. Display a local area map with public transport stops / route numbers marked. Publicise real time passenger information apps and websites where relevant. Publicise door-to-door multi modal journey planner website Liaise with public transport operators regarding service frequencies to the residential development. Provide attractive, good quality walking routes to the existing public transport infrastructure	The Action Plan Co-ordinator	To be commenced prior to occupation
Car Sharing		
Initiatives	**Responsibility / Ownership**	**Timescale**
Encouragement of residents and visitors of the development to use other modes of travel other than private car. Where it is necessary for car use to travel to and from work, residents and staff (of the apartment blocks) should be made aware of other people who are either within close proximity of their homes (for staff) or on their route into work (for residents). Hold a coffee morning / launch event for potential car sharers It is also proposed to provide 5 no. car club spaces	The Action Plan Co-ordinator	To be commenced prior to occupation
Construction Phase		
Initiatives	**Responsibility / Ownership**	**Timescale**
Provide a preliminary Construction Traffic Management Plan to provide detailed mitigation of construction traffic associated with the proposed development.	The Contractor / DLRCC Roads & Traffic Department	To be commenced prior to occupation

10.3 Monitoring

A critical part of any MMP is ongoing monitoring. It is proposed that an initial evaluation of the operation of the plan will take place one year into the operation.

On occupation of the development it would be proposed to undertake travel attitude surveys to establish baseline modal split of residents and staff. This would assist considerably in the setting of appropriate trip rate and modal share targets for the development.

It is suggested that an after study be undertaken following the operation of the MMP for a reasonable period of time. The two datasets could then be compared to review what changes are necessary after implementation of the various infrastructural measures and initiatives.

Campaigns and promotions would be run throughout the year to maintain public awareness of modes of travel other than the car and the benefits accrued to both the individual and the environment.

The occupiers of the proposed development will be encouraged to continually monitor the MMP initiatives in order to maximise on their success. Monitoring results could be included in the annual report or a separate environmental report. The results will also be forwarded to DLRCC at intervals to be determined by agreement.

11. Summary & Conclusion

11.1 Overview

AECOM has been commissioned to prepare a Traffic and Transport Assessment in support of a planning application to An Bord Pleanála (ABP) for a proposed Strategic Housing Development at a brownfield site located in Aikens Village, Stepaside, Sandyford, Co. Dublin.

The proposed development comprises 438 no. residential apartments, 350 no. car parking spaces and 669 cycle parking spaces across 9 no. blocks (Block A – J). The scheme comprises 154 no. one bedroom and 284 two bedroom apartments. It is also proposed to provide communal facilities within Block C and G (c. 918.7 sq. m and 537.0 sq. m respectively) and a creche within Block D (c. 514.9 sq. m).

Two vehicular accesses are proposed into the basements, with an access off Atkinson Drive and a separate vehicular access to the north off Thornberry Road. Access to the basement cycle parking will be available via an advisory cycle lane on the vehicle access points, as well as a separate pedestrian/bike access to each basement. It is proposed for the site that a number of pedestrian access routes on all four sides of the site will encourage pedestrian permeability through the site.

The purpose of this TTA is to quantify the existing transport environment and to detail the results of the assessment to identify the potential level of traffic impact generated by the proposed development.

Based upon the information and analysis presented within this TTA the following subsections demonstrate how the scheme has been designed from a traffic and transport perspective to integrate within the existing network and to minimise potential impacts.

11.1.1 Vehicular Access

AECOM drawing no. PR-424832-ACM-00-GF-DR-CE-00-0001 illustrates the proposed access arrangements. Two vehicular accesses are proposed into the basements, with an access off Atkinson Drive and a separate vehicular access to the north off Thornberry Road.

11.1.2 Accessibility

The site benefits from being accessible for walking, cycling and public transport. Excellent pedestrian infrastructure facilities and street lighting connect the site to an array of existing services and amenities in Sandyford Hall and Belarmine including shops, restaurants and medical facilities.

The Glencairn Luas Green line stop is situated approximately 900m from the site, which provides frequent services to and from Dublin City Centre, which will assist to promote accessible travel to and from the site.

The site is situated within an 800m walking catchment of four bus stops, two of which provides 1 to 2 services per hour to Dublin City Centre, which will assist to promote accessible travel to and from the site.

11.1.3 Car Parking

It is proposed to provide a total of 350 no. car parking spaces to serve the proposed development. The proposed development provides 343 no. car parking spaces within the basement for residential car parking with 7 no. surface car parking spaces for the creche, visitors and servicing. The basement car park also provides 5 no. car club spaces and 2 no. creche/staff car parking.

It is proposed to provide 17 no. mobility impaired parking bays and 70 no. electric vehicle spaces within the basement car parking, which are inclusive of the 350 no. car parking spaces.

11.1.4 Cycle Parking

It is proposed to provide a total of 669 cycle parking spaces to serve the respective development. The proposed development provides 597 cycle parking spaces within the basement, in total it is proposed to provide 460 long stay spaces and 106 short stay spaces, as well as 31 cargo bike spaces. A total of 72 cycle parking spaces at surface level (61 short stay spaces and 11 spaces for the creche).

11.1.5 Servicing

Refuse vehicles will be required to access the proposed land uses. A swept path assessment demonstrates that a refuse vehicle will be able to safely manoeuvre within the internal site road network.

11.1.6 Trip Generation

The overall development will generate approximately 159 and 144 two-way movements during the AM and PM peak hours respectively. These figures were obtained using the Trip Rate Information Computer System (TRICS 7.7.1). The traffic generated by the proposed development is more than the 5% impact on a number of the surrounding junctions in the study area and as a result, further analysis was undertaken at these junctions.

11.1.7 Operational Assessment

AECOM has undertaken detailed junction modelling analysis of all relevant junctions. The assumed Opening Year (2025) and Future Year scenarios (2030 and 2040) were calculated using Central Sensitivity growth rates from TII's Travel Demand Projections (Unit 5.3), as well as traffic associated with committed developments in the immediate vicinity of the development. The results of the analysis indicates that the assessed junctions will continue to operate within capacity within the assessed years. At junction 2 this is achieved via minor revisions to the signal cycle timings to achieve a nil net detriment scenario over the baseline situation in the future PM peak.

11.1.8 Public Transport Capacity Assessment

A Public Transport Capacity Assessment has been undertaken as part of this study. The empirical data collected by AECOM with regards to current patronage levels on relevant bus and Luas services in the vicinity of the proposed development, coupled with the derived potential peak hour public transport demand from both committed developments and the proposed development, has demonstrated that both bus and Luas services, in their current configuration, exhibit sufficient capacity to accommodate the cumulative total of existing and predicted development related demand. This conclusion has been reached despite a number of worst-case assumptions including the maximum potential bedroom occupancy at the proposed development, as well as only considering seated capacity only for the bus services.

11.1.9 Outline Construction Traffic Management Plan

An Outline Construction Management Plan has been submitted within this TTA in order to provide a range of key measures to be undertaken by the contractor in order to manage the expected construction traffic activity during the construction period. This Plan addresses such items as construction vehicle parking, mitigation measures and hours of operation in order to mitigate degradation to the surrounding environment and disruption to the surrounding road network, local residents of the existing developments in the local area.

It should be noted that the impacts of the construction will be the contractor's responsibility to prepare a Traffic Management Plan for the approval of Dun Laoghaire-Rathdown County Council in advance of any works.

11.1.10 Mobility Management Plan

A Mobility Management Plan has been submitted within this TTA. The Plan presents the key measures and policies to be undertaken by the Applicant in order to reduce the reliance on private vehicular modes of transport for future residents. Given that the site improves the accessibility via walking, cycling and public transport, the proposed development is well placed to promote sustainable travel from the onset.

11.2 Overall Conclusions

The TTA has considered the transport implications of the proposed development. It demonstrates that the location of the development benefits from existing public transport infrastructure within the vicinity of the site.

The proposed roads layout and access arrangements have been designed and outlined within this report to comply with DMURS, TII and DLRCC requirements.

The proposed parking provision has been reviewed and has taken cognisance of the Sustainable Urban Housing Design of New Apartments guidelines (December 2020).

Based upon the information and analysis presented within this TTA, It is concluded that the proposals will not result in a material deterioration of existing road conditions and will encourage travel by more sustainable means and as a result there are no significant traffic or transportation related reasons that should prevent the granting of planning permission for the proposed development

Appendix A Proposed General Arrangement Drawing

EXISTING RAMP

EXISTING RAMP AND TACTILE PAVING

PROPOSED ACCESS TO BASEMENT

STOP SIGN (RUS 027)

PEDESTRIAN CYCLIST SHARED ROUTE SIGN (RUS 058)

POSITION OF CROSSING TO BE AGREED WITH DLRCC AT DESIGN STAGE.

SEGREGATED CYCLE AND PEDESTRIAN ROUTE SIGN (RUS 058CL) AND PEDESTRIAN CYCLIST SHARED ROUTE SIGN (RUS 058)

THORNBERRY ROAD

THORNBERRY DRIVE

THORNBERRY CLOSE

ATKINSON DRIVE

FERNCARRIG AVENUE

FERNCARRIG COURT

VILLAGE ROAD

PODIUM LEVEL+128.00

PODIUM LEVEL+126.00

Pumping Station

Under const.

Reservoir

Existing Pathlevel

A	PROPOSED GENERAL ARRANGEMENT
0001	Scale: 1:500

AECOM

PROJECT

SECTOR 3, AIKEN'S VILLAGE, STEPASIDE, DUBLIN 18.

CLIENT

IRONBORN REAL ESTATE LTD.

CONSULTANT

AECOM
4th Floor Adelphi Plaza,
George's Street Upper,
Dun Laoghaire,
Co Dublin
Tel:+353 (0)1 2383100
Fax:+353(0)1 2383199
www.aecom.com

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
2. ALL DIMENSIONS TO BE CHECKED BY THE CONTRACTOR ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORKS ON SITE.
4. DIMENSIONS OF ALL BOUNDARIES AND ADJOINING ROADS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.

LEGEND

- ROAD SURFACE
- PROPOSED FOOTWAY/ SHARED SURFACE
- LANDSCAPED AREA
- PROPOSED GRASS CRETE
- PROPOSED VENTILATION
- PROPOSED GRAVEL AREA
- VEGETATION/ TREES
- PROPOSED TACTILE PAVING
- RED LINE BOUNDARY

AECOM PLANNING

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	12/08/2022	RESUBMISSION TO ABP
0	10/12/2021	STAGE 2 SUBMISSION TO ABP

PROJECT NUMBER

60610462

SHEET TITLE

PROPOSED
GENERAL ARRANGEMENT

SHEET NUMBER

PR-424832-ACM-00-GF-DR-CE-10-0001

Appendix B Proposed Basement Arrangement

PROPOSED ACCESS TO BASEMENT

STOP SIGN (RUS 027)

PEDESTRIAN CYCLIST SHARED ROUTE SIGN (RUS 058)

PEDESTRIAN CYCLIST SHARED ROUTE SIGN (RUS 058)

STOP SIGN (RUS 027)

EXISTING RAISED TABLE

PROPOSED ACCESS TO BASEMENT

Existing Public Open Space

STOP SIGN (RUS 027)

STOP SIGN (RUS 027)

SEGREGATED CYCLE AND PEDESTRIAN ROUTE SIGN (RUS 058CL) AND PEDESTRIAN CYCLIST SHARED ROUTE SIGN (RUS 058)

CLUAIN SHEE Residential Development

Existing Public Open Space

GRIANAN FIDH Residential Development

Existing Public Open Space

Note: Buildings above shown shaded.

Existing Public Open Space

Underground reservoir

Carparking

Carparking

Building A

Building B

Building C

Building D

Building E

Building F

Building G

Building H

Building J

Public Open Space

Vehicular Ramp

Entrance Gate

Vehicular Ramp

Vehicular Access

Pedestrian Gate

Pedestrian Entrance Gate

Sit Down

THORNBERRY ROAD

THORNBERRY DRIVE

THORNBERRY CLOSE

ATKINSON DRIVE

FERNCARRIG AVENUE

FERNCARRIG COURT

VILLAGE ROAD

Pumping Station

A PROPOSED BASEMENT ARRANGEMENT

0002 Scale: 1:500

AECOM

PROJECT

SECTOR 3, AIKEN'S VILLAGE, STEPASIDE, DUBLIN 18.

CLIENT

IRONBORN REAL ESTATE LTD.

CONSULTANT

AECOM
4th Floor Adelphi Plaza,
George's Street Upper,
Dun Laoghaire,
Co Dublin
Tel:+353 (0)1 2383100
Fax:+353(0)1 2383199
www.aecom.com

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
2. ALL DIMENSIONS TO BE CHECKED BY THE CONTRACTOR ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORKS ON SITE.
4. DIMENSIONS OF ALL BOUNDARIES AND ADJOINING ROADS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.

LEGEND

- ROAD SURFACE
- PROPOSED FOOTWAY/ SHARED SURFACE
- LANDSCAPED AREA
- PROPOSED GRASS CRETE
- PROPOSED VENTILATION
- PROPOSED GRAVEL AREA
- VEGETATION/ TREES
- PROPOSED TACTILE PAVING
- RED LINE BOUNDARY

AECOM PLANNING

ISSUE/REVISION

1	12/08/2022	RESUBMISSION TO ABP
0	10/12/2021	STAGE 2 SUBMISSION TO ABP
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60610462

SHEET TITLE

PROPOSED
BASEMENT ARRANGEMENT

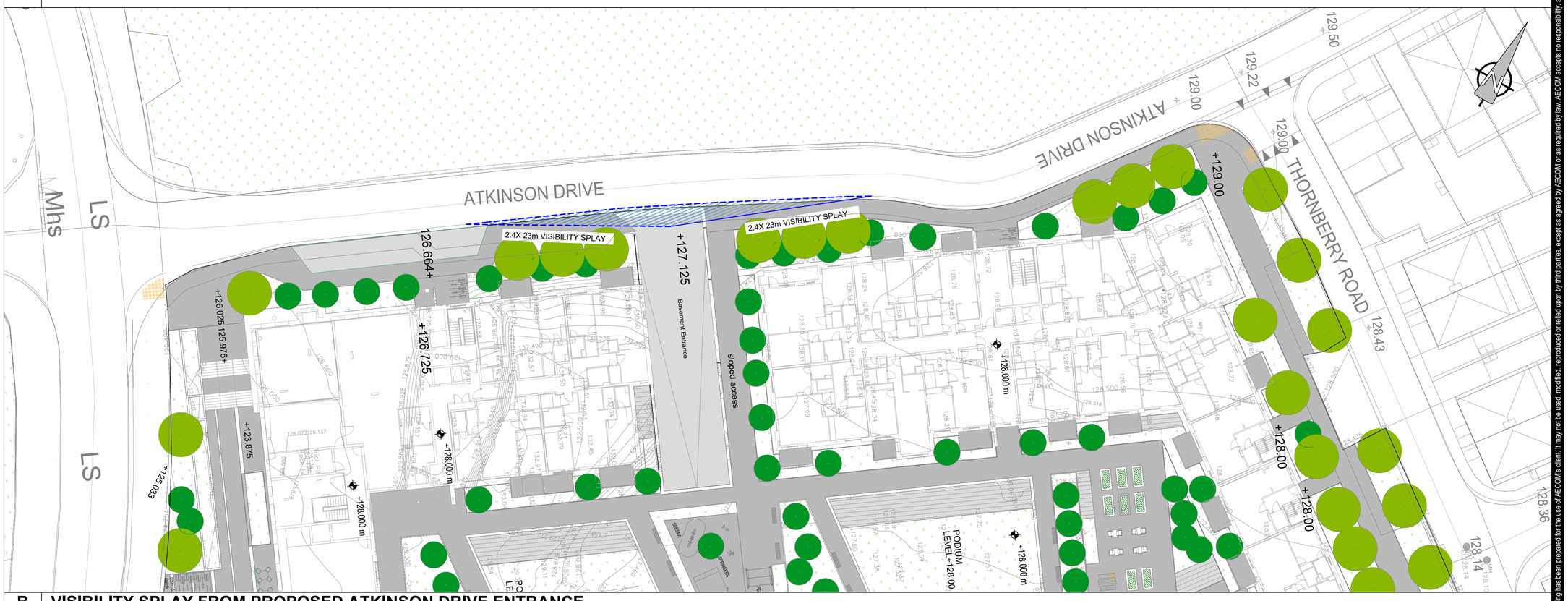
SHEET NUMBER

PR-424832-ACM-00-B1-DR-CE-10-0002

Appendix C Proposed Access Visibility Splays

A **VISIBILITY SPLAY FROM PROPOSED THORNBERRY ROAD ENTRANCE**

0101 Scale: 1:250



B **VISIBILITY SPLAY FROM PROPOSED ATKINSON DRIVE ENTRANCE**

0101 Scale: 1:250

AECOM

PROJECT

SECTOR 3, AIKEN'S VILLAGE, STEPASIDE, DUBLIN 18.

CLIENT

IRONBORN REAL ESTATE LTD.

CONSULTANT

AECOM
4th Floor Adelphi Plaza,
George's Street Upper,
Dun Laoghaire,
Co Dublin
Tel:+353 (0)1 2383100
Fax:+353(0)1 2383199
www.aecom.com

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
2. ALL DIMENSIONS TO BE CHECKED BY THE CONTRACTOR ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORKS ON SITE.
4. DIMENSIONS OF ALL BOUNDARIES AND ADJOINING ROADS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
5. VISIBILITY SPLAY HAS BEEN VERIFIED IN ACCORDANCE WITH THE DESIGN MANUAL FOR URBAN ROADS AND STREETS (DMURS) REQUIREMENTS.

Forward Visibility Table (Extract from the Design Manual for Urban Roads and Streets, DMURS)	
Design Speed (km/h)	Stopping Sight Distances (SSD) Standard (m)
10	7
20	14
30	23
40	33
50	45
60	59

AECOM
PLANNING

ISSUE/REVISION

1	12/08/2022	RESUBMISSION TO ABP
0	10/12/2021	STAGE 2 SUBMISSION TO ABP
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60610462

SHEET TITLE

PROPOSED
VISIBILITY SPLAY

SHEET NUMBER

PR-424832-ACM-00-GF-DR-CE-10-0101

Appendix D Autotrack Analysis

Project Management Initials: Designer: NO Checked: HH Approved: PB ISO A1 594mm x 841mm

Last saved by: ORRN (2022-07-29) Last Plotted: 2022-08-12

Filename: \\NA.AECOMNET.COM\LFS\EMEA\DUBLIN-IEDBL2\LEGACY\IEDBL2FP0011UF\JOBS\PR-424832_AIKENS_VILLAGE_ STEPASIDE\900_CAD_GIS\904_CE\01_WIP\02_SHEETS\PR-424832-ACM-00-GF-DR-CE-10-0102.DWG

A **AUTOTRACK ANALYSIS WITH REFUSED VEHICLE**

0102 Scale: 1:250

B **AUTOTRACK ANALYSIS WITH FIRE TENDER**

0102 Scale: 1:250

AECOM

PROJECT

SECTOR 3, AIKEN'S VILLAGE, STEPASIDE, DUBLIN 18.

CLIENT

IRONBORN REAL ESTATE LTD.

CONSULTANT

AECOM
4th Floor Adelphi Plaza,
George's Street Upper,
Dun Laoghaire,
Co Dublin
Tel:+353 (0)1 2383100
Fax:+353(0)1 2383199
www.aecom.com

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
2. ALL DIMENSIONS TO BE CHECKED BY THE CONTRACTOR ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORKS ON SITE.
4. DIMENSIONS OF ALL BOUNDARIES AND ADJOINING ROADS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.

LEGEND:

SWEPT PATH FORWARDS MOVEMENT

SWEPT PATH BACKWARDS MOVEMENT

AECOM PLANNING

ISSUE/REVISION

1	12/08/2022	RESUBMISSION TO ABP
0	10/12/2021	STAGE 2 SUBMISSION TO ABP
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60610462

SHEET TITLE

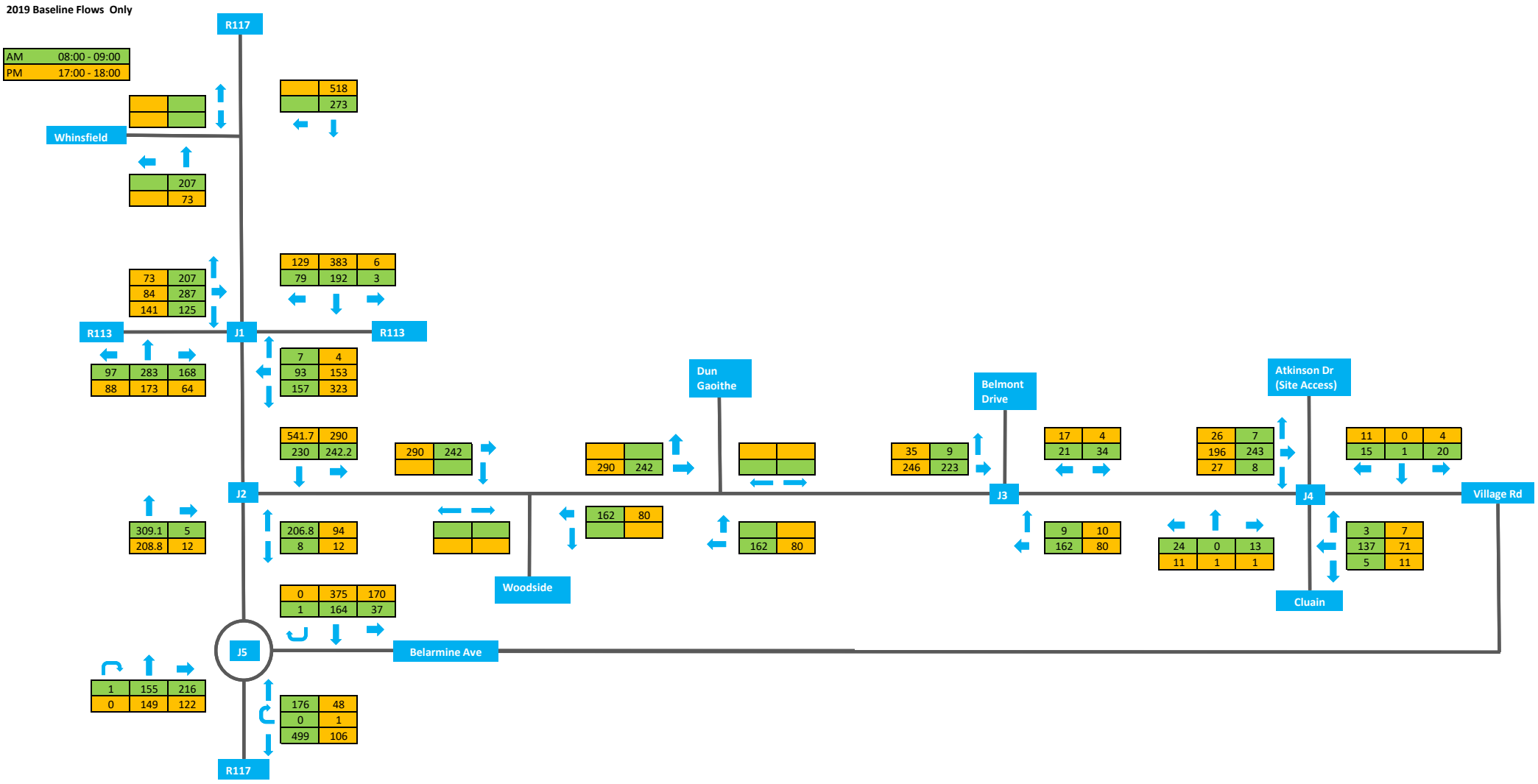
AUTOTRACK ANALYSIS

SHEET NUMBER

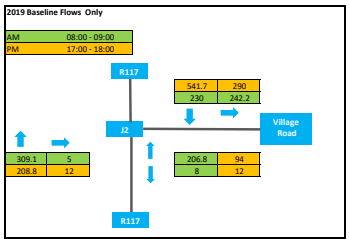
PR-424832-ACM-00-GF-DR-CE-10-0102

Appendix E Network Flow Diagrams

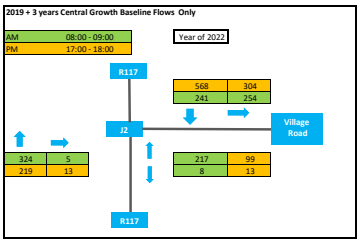
2019 Baseline Flows Only



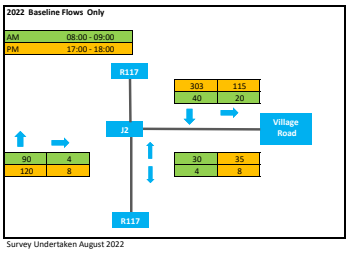
2019 Baseline Flows Only



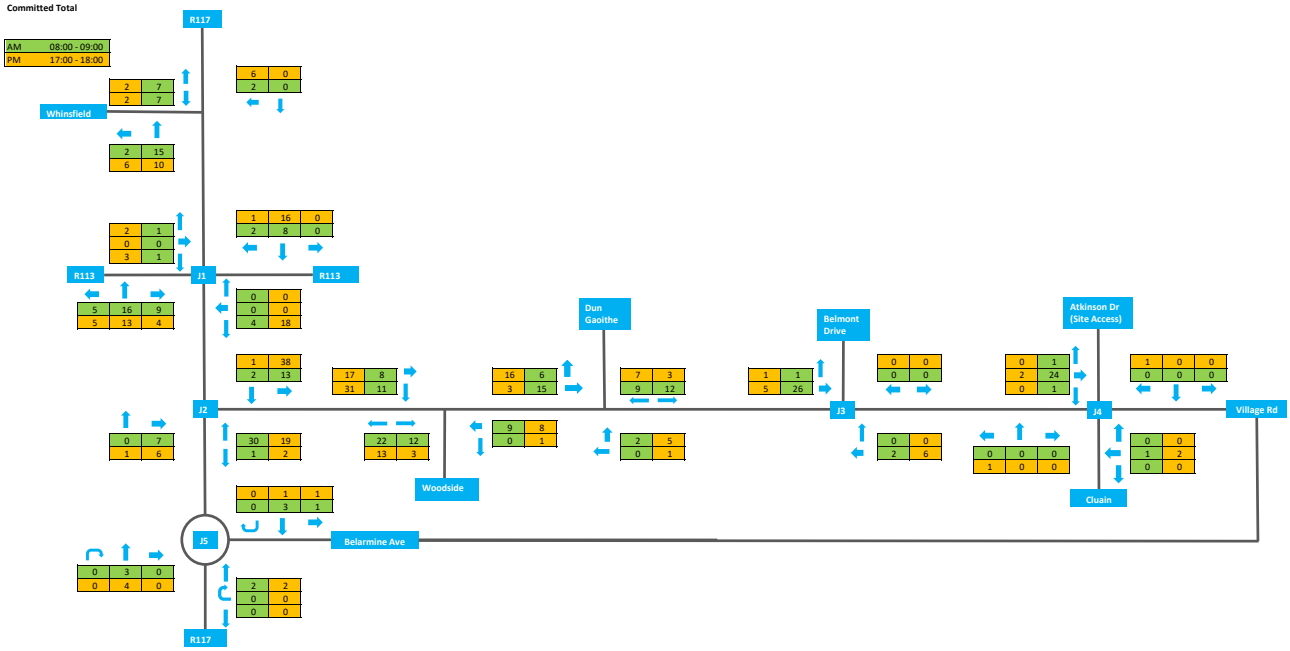
2019 + 3 years Central Growth Baseline Flows Only



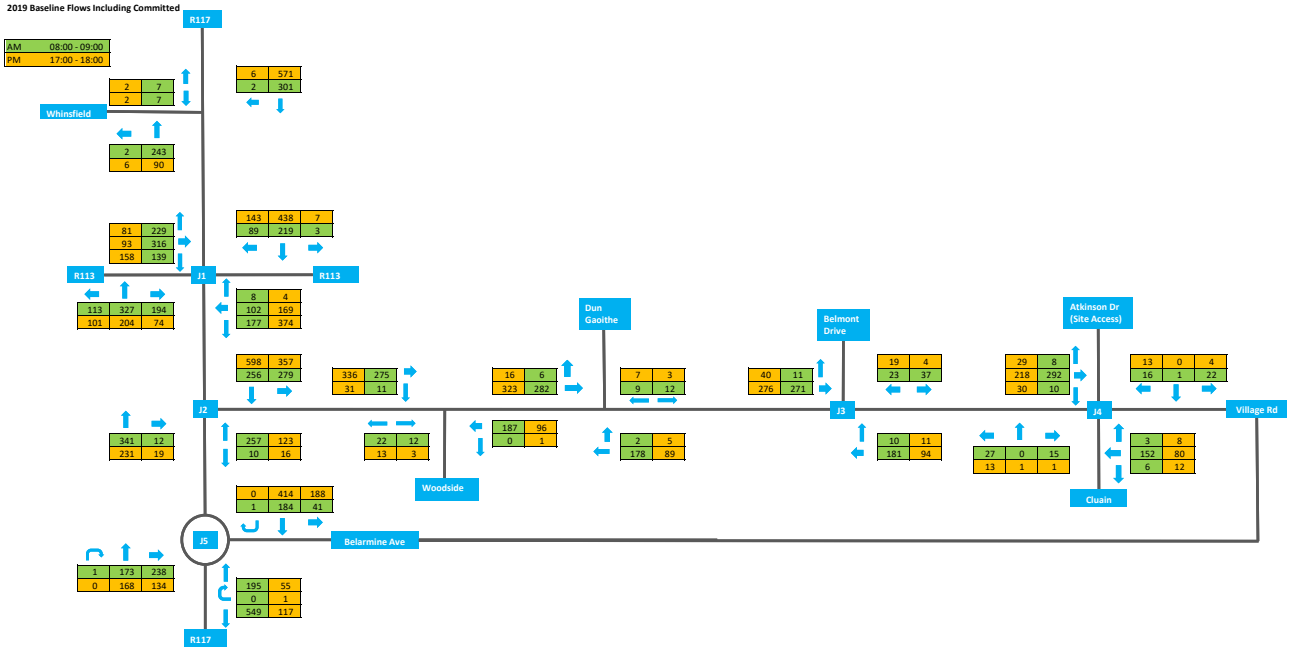
2022 Baseline Flows Only

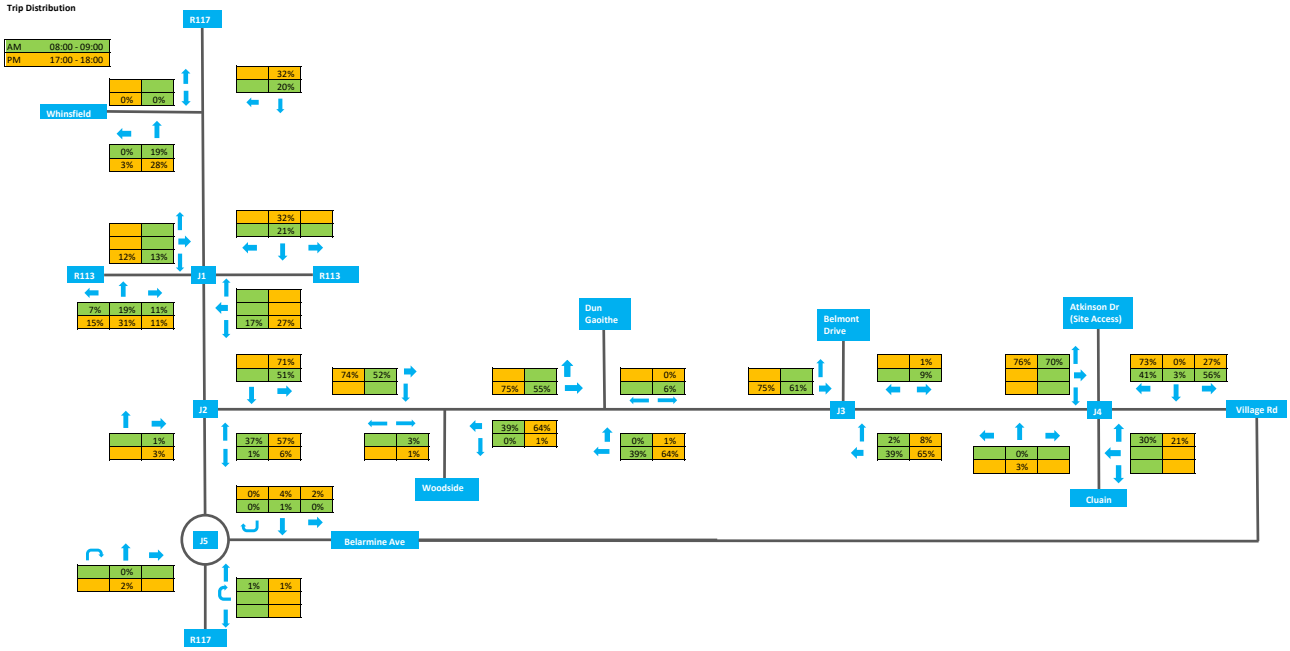


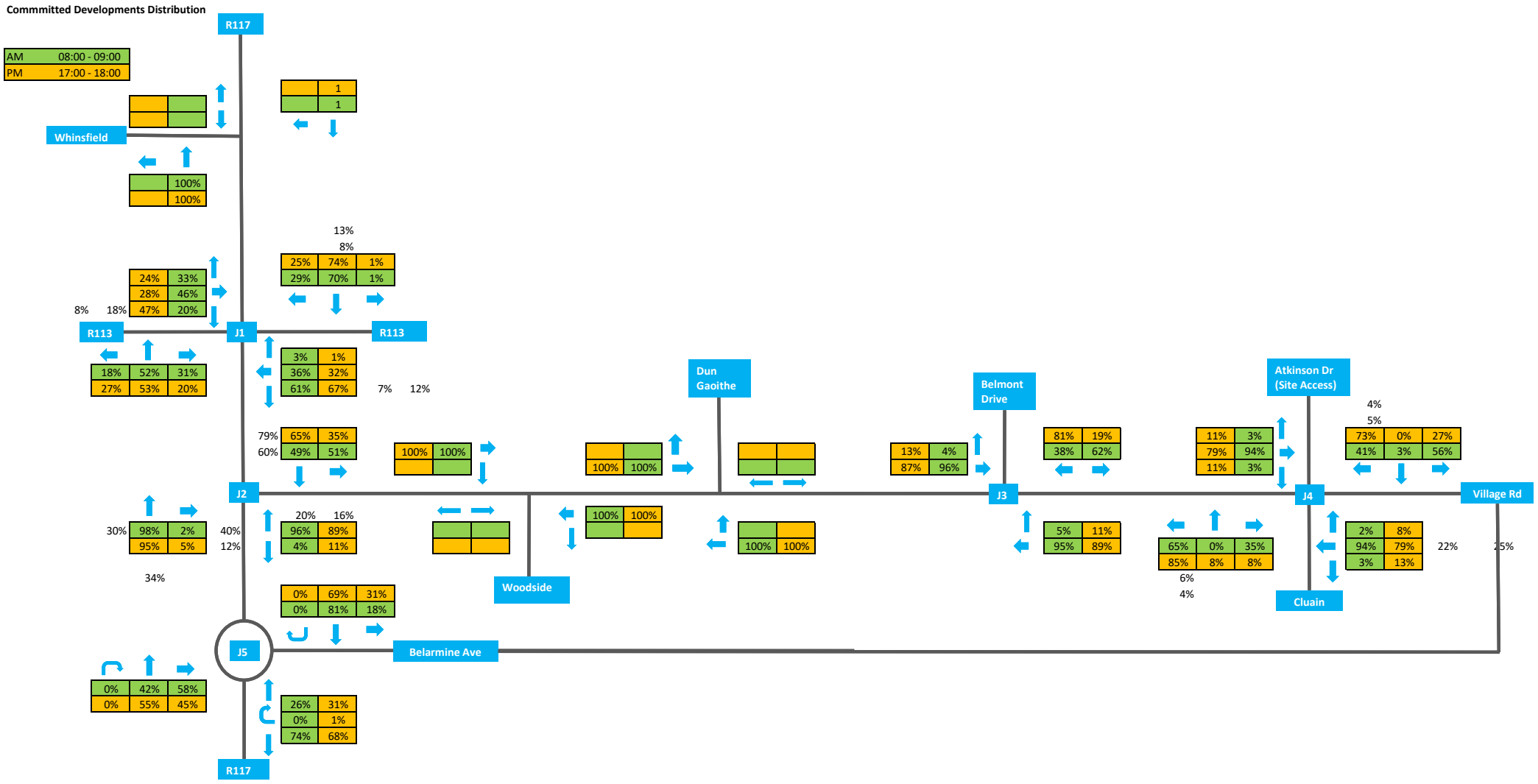
Survey Undertaken August 2022

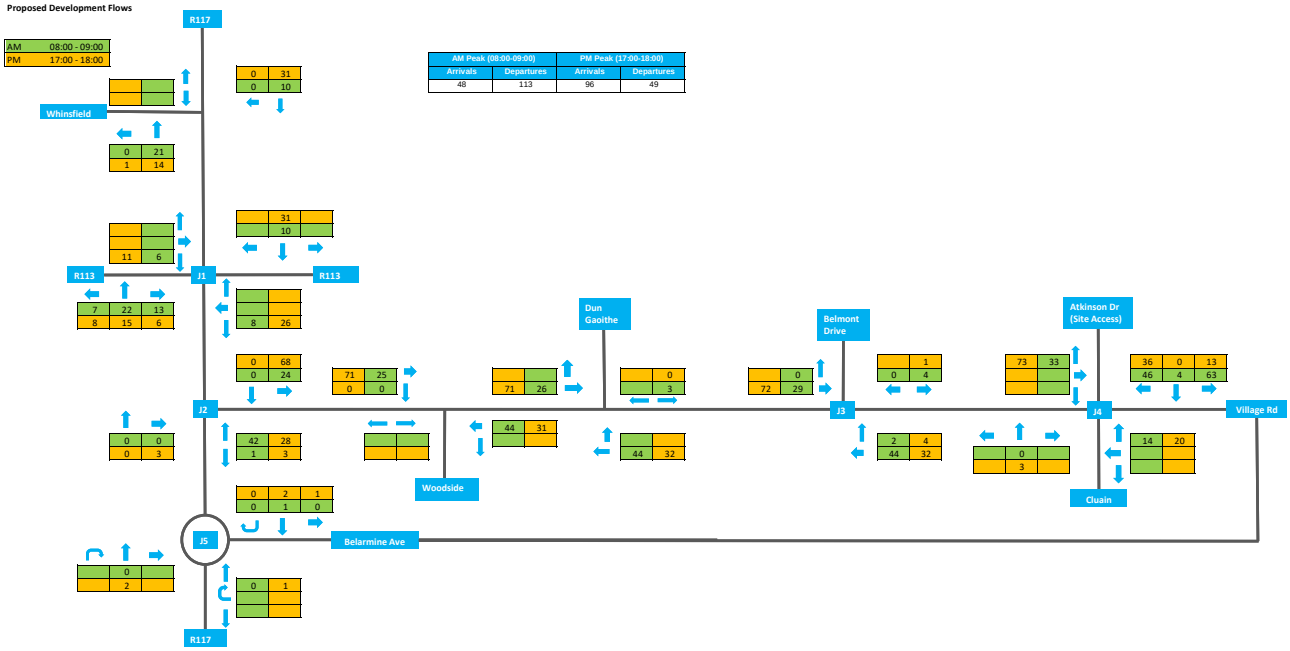

Committed Total
AM 08:00 - 09:00
PM 17:00 - 18:00
R117
Whinsfield
R113
J1
R113
J2
J3
J4
J5
Dun Gaoithe
Belmont Drive
Atkinson Dr (Site Access)
Village Rd
Woodside
Cluain
Belarmine Ave
R117

2019 Baseline Flows Including Committed

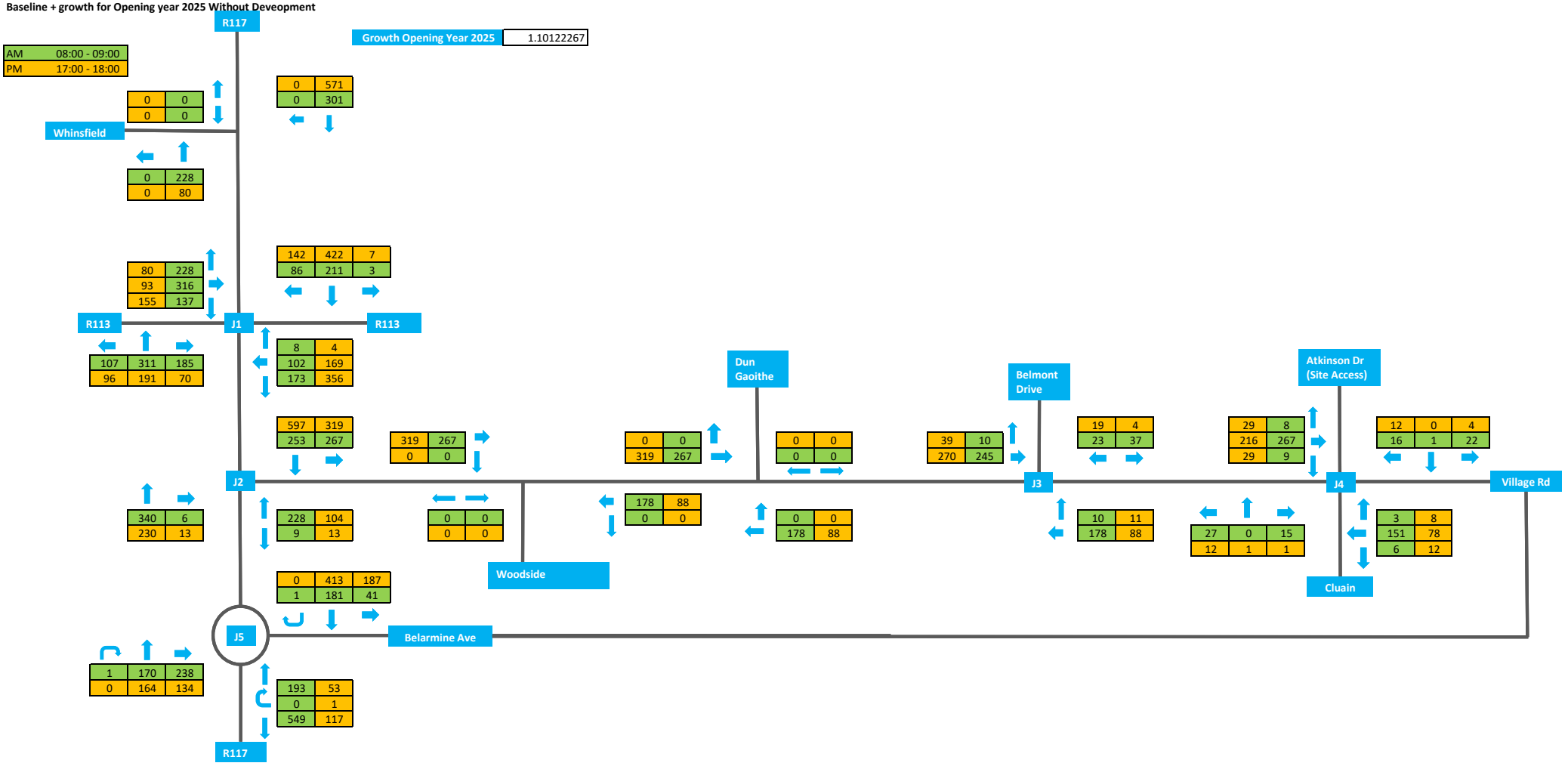



Trip Distribution
AM 08:00 - 09:00
PM 17:00 - 18:00
R117
Whinsfield
R113
J1
R113
J2
J3
J4
J5
Dun Gaoithe
Belmont Drive
Atkinson Dr (Site Access)
Village Rd
Woodside
Cluain
Belarmine Ave
R117

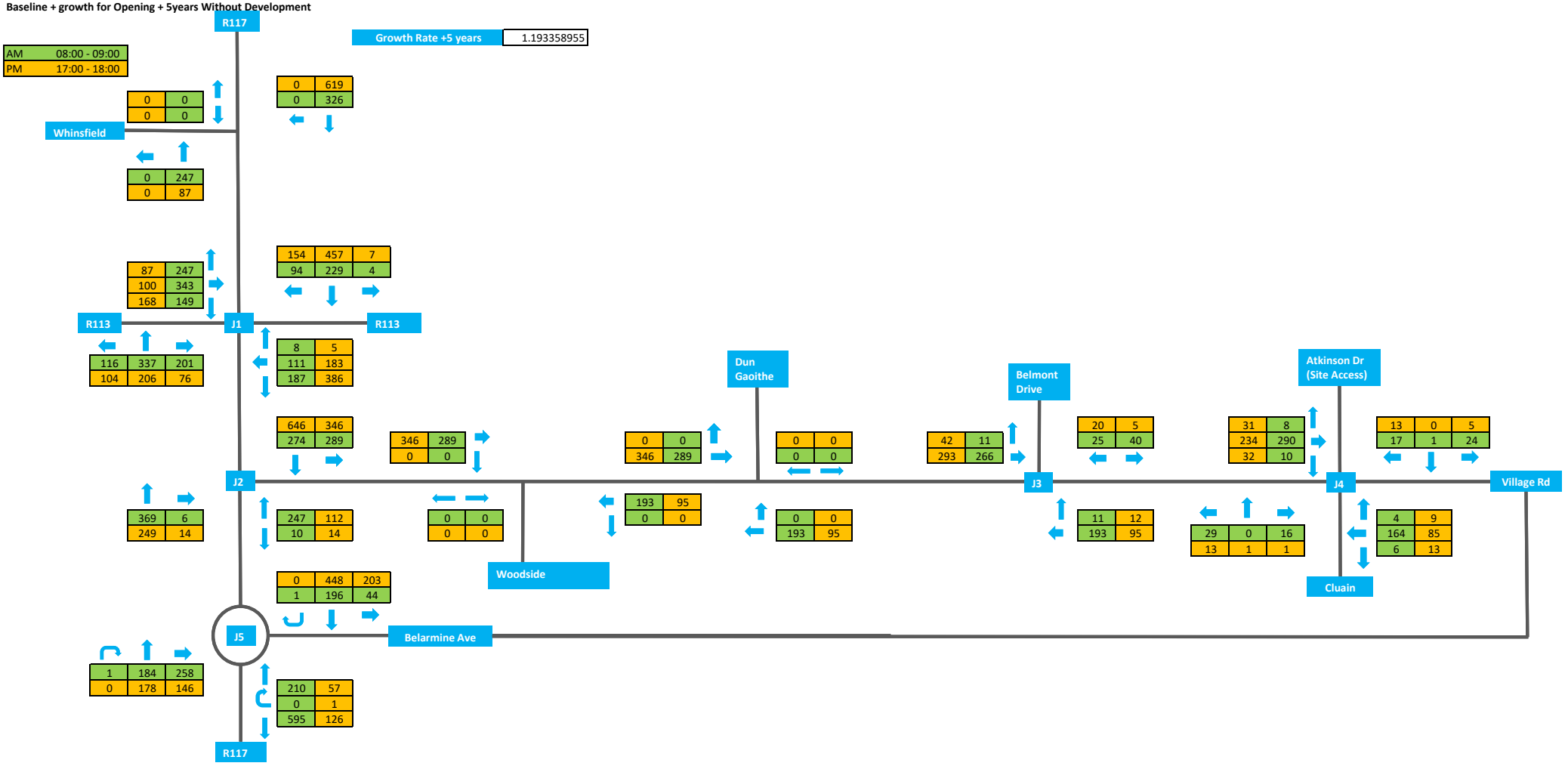

Commmitted Developments Distribution
AM 08:00 - 09:00
PM 17:00 - 18:00
R117
Whinsfield
R113
J1
R113
J2
J5
R117
Belarmine Ave
Woodside
Dun Gaoithe
Belmont Drive
J3
Atkinson Dr (Site Access)
J4
Village Rd
Cluain
13%
8%
25% 74% 1%
29% 70% 1%
24% 33%
28% 46%
47% 20%
8% 18%
18% 52% 31%
27% 53% 20%
3% 1%
36% 32%
61% 67%
7% 12%
79% 65% 35%
60% 49% 51%
100% 100%
100% 100%
100% 100%
100% 100%
100% 100%
13% 4%
87% 96%
81% 19%
38% 62%
5% 11%
95% 89%
11% 3%
79% 94%
11% 3%
65% 0% 35%
85% 8% 8%
6%
4%
4%
5%
73% 0% 27%
41% 3% 56%
2% 8%
94% 79%
3% 13%
22%
25%
30% 98% 2%
95% 5%
34%
40%
12%
20% 16%
96% 89%
4% 11%
0% 69% 31%
0% 81% 18%
0% 42% 58%
0% 55% 45%
26% 31%
0% 1%
74% 68%


Proposed Development Flows
AM 08:00 - 09:00
PM 17:00 - 18:00
AM Peak (08:00-09:00)
Arrivals 48
Departures 113
PM Peak (17:00-18:00)
Arrivals 96
Departures 49
R117
Whinsfield
R113
J1
R113
J2
Dun Gaoithe
Belmont Drive
Atkinson Dr (Site Access)
J3
J4
Village Rd
Woodside
Cluain
J5
Belarmine Ave
R117

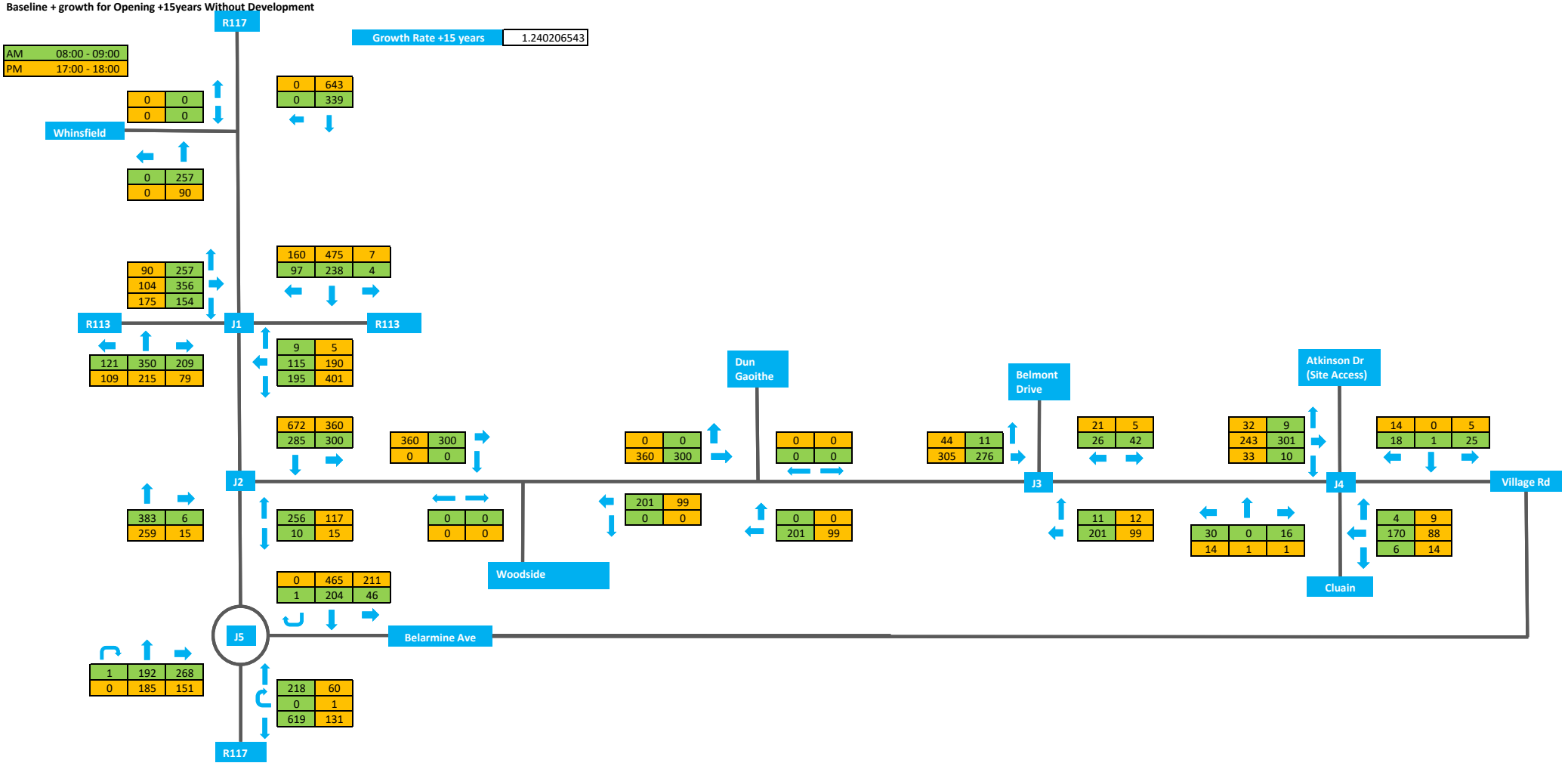
Baseline + growth for Opening year 2025 Without Deveopment

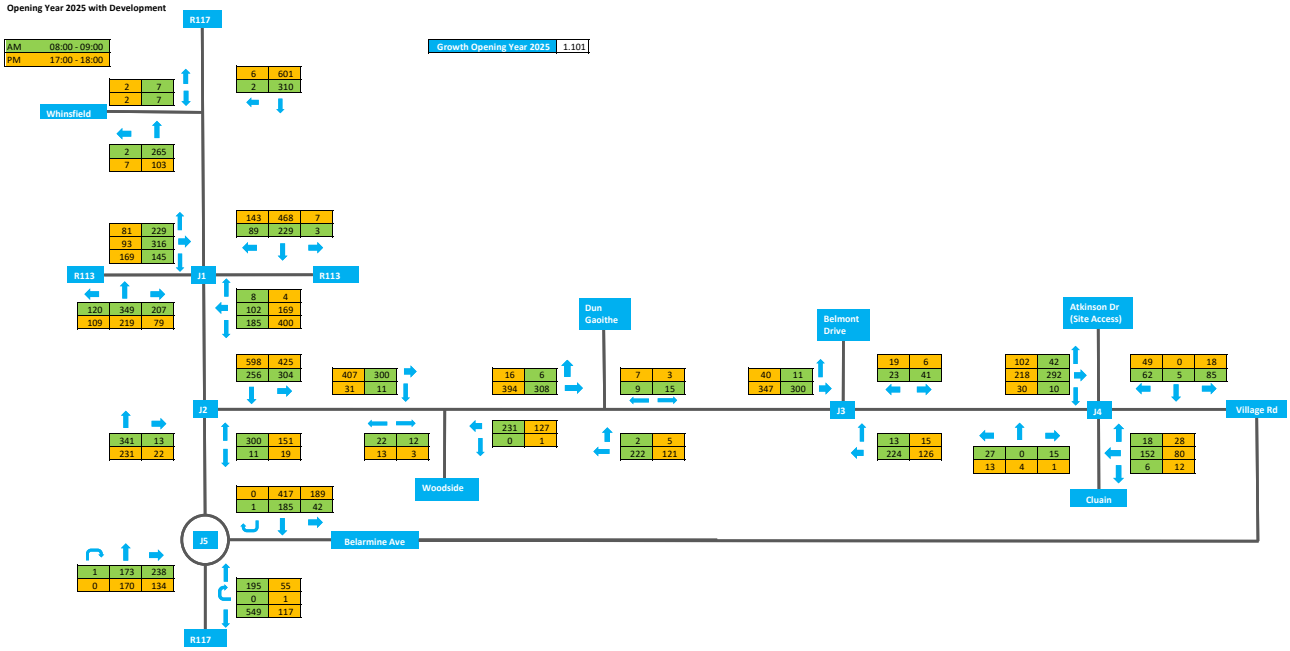


Baseline + growth for Opening + 5years Without Development

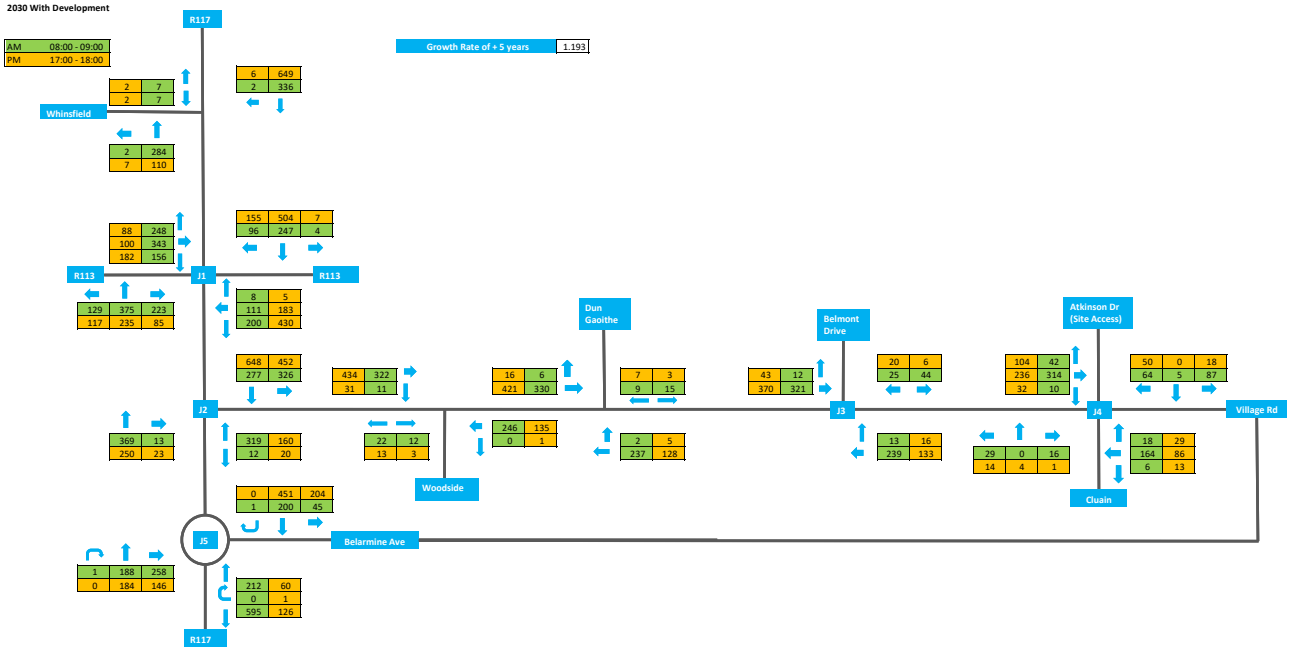


Baseline + growth for Opening +15years Without Development

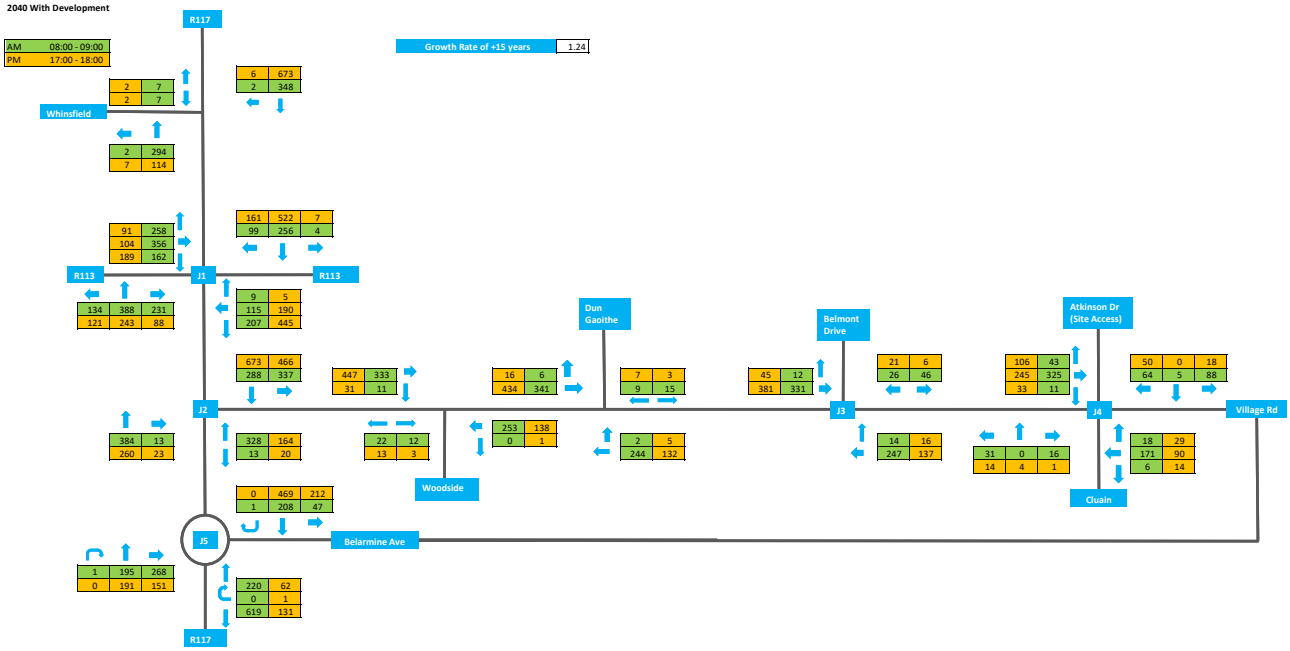



Opening Year 2025 with Development
AM 08:00 - 09:00
PM 17:00 - 18:00
Growth Opening Year 2025 1.101
R117
Whinsfield
R113
J1
R113
J2
J3
J4
J5
Dun Gaoithe
Belmont Drive
Atkinson Dr (Site Access)
Village Rd
Woodside
Cluain
Belarmine Ave
R117

2030 With Development



2040 With Development



Appendix F TRICS

Calculation Reference: AUDIT-204602-200630-0616

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
03	SOUTH WEST		
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
	LN	LINCOLNSHIRE	1 days
	NR	NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	2 days
10	WALES		
	BG	BRIDGEND	1 days
	MM	MONMOUTHSHIRE	1 days
11	SCOTLAND		
	DU	DUNDEE CITY	1 days
	SR	STIRLING	1 days
12	CONNAUGHT		
	RO	ROSCOMMON	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	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: 150 to 860 (units: sqm)
Range Selected by User: 120 to 2350 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 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	3 days
Wednesday	3 days
Thursday	3 days
Friday	5 days

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

Selected survey types:

Manual count	17 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 undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	8
Edge of Town	8
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.

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:

D1	17 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 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	3 days
20,001 to 25,000	1 days
25,001 to 50,000	6 days
50,001 to 100,000	1 days
100,001 or More	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	1 days
50,001 to 75,000	1 days
75,001 to 100,000	4 days
125,001 to 250,000	5 days
250,001 to 500,000	5 days
500,001 or More	1 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	4 days
1.1 to 1.5	11 days
2.1 to 2.5	1 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	17 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	17 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 BRIDGEND
GEORGE STREET
BRIDGEND
BRIDGEND IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 210 sqm
Survey date: MONDAY *13/10/14* *Survey Type: MANUAL*

2 CA-04-D-02 NURSERY CAMBRIDGESHIRE
EASTFIELD ROAD
PETERBOROUGH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 400 sqm
Survey date: TUESDAY *18/10/16* *Survey Type: MANUAL*

3 DL-04-D-01 NURSERY DUBLIN
78 THE PARK
DUBLIN
BEAUMONT WOODS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 256 sqm
Survey date: WEDNESDAY *26/09/12* *Survey Type: MANUAL*

4 DS-04-D-02 NURSERY DERBYSHIRE
MAXWELL AVENUE
DERBY
DARLEY ABBEY
Edge of Town
Residential Zone
Total Gross floor area: 415 sqm
Survey date: THURSDAY *12/07/18* *Survey Type: MANUAL*

5 DU-04-D-01 NURSERY DUNDEE CITY
LONGTOWN TERRACE
DUNDEE

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 325 sqm
Survey date: MONDAY *24/04/17* *Survey Type: MANUAL*

6 ES-04-D-01 NURSERY EAST SUSSEX
CONNAUGHT ROAD
BRIGHTON
HOVE
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Gross floor area: 185 sqm
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

7 LE-04-D-01 NURSERY LEICESTERSHIRE
WIGSTON ROAD
LEICESTER
OADBY
Edge of Town
Residential Zone
Total Gross floor area: 375 sqm
Survey date: THURSDAY *30/10/14* *Survey Type: MANUAL*

8 LN-04-D-01 NURSERY LINCOLNSHIRE
NEWARK ROAD
LINCOLN
SWALLOW BECK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 600 sqm
Survey date: TUESDAY *31/10/17* *Survey Type: MANUAL*

9 MM-04-D-01 NURSERY MONMOUTHSHIRE
SPOONER CLOSE
NEWPORT
COEDKERNEW
Edge of Town
Commercial Zone
Total Gross floor area: 860 sqm
Survey date: FRIDAY *27/09/19* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

10 NR-04-D-02 NURSERY NORTHAMPTONSHIRE
PARK AVENUE
KETTERING

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 182 sqm
Survey date: WEDNESDAY *26/09/12* *Survey Type: MANUAL*

11 RO-04-D-01 NURSERY ROSCOMMON
PARK VIEW
ROSCOMMON
CRUBY HILL
Edge of Town
Residential Zone
Total Gross floor area: 500 sqm
Survey date: FRIDAY *26/09/14* *Survey Type: MANUAL*

12 SR-04-D-01 NURSERY STIRLING
HENDERSON STREET
STIRLING
BRIDGE OF ALLAN
Edge of Town
No Sub Category
Total Gross floor area: 250 sqm
Survey date: MONDAY *16/06/14* *Survey Type: MANUAL*

13 TV-04-D-01 NURSERY TEES VALLEY
COTSWOLD DRIVE
REDCAR

Edge of Town
Residential Zone
Total Gross floor area: 150 sqm
Survey date: FRIDAY *19/05/17* *Survey Type: MANUAL*

14 TW-04-D-02 NURSERY TYNE & WEAR
ETTRICK GROVE
SUNDERLAND
HIGH BARNES
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 500 sqm
Survey date: WEDNESDAY *28/11/12* *Survey Type: MANUAL*

15 TW-04-D-03 NURSERY TYNE & WEAR
JUBILEE ROAD
NEWCASTLE UPON TYNE
GOSFORTH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 725 sqm
Survey date: TUESDAY *21/05/19* *Survey Type: MANUAL*

16 WK-04-D-01 NURSERY WARWICKSHIRE
THE RIDGEWAY
STRATFORD UPON AVON

Edge of Town
Residential Zone
Total Gross floor area: 340 sqm
Survey date: FRIDAY *29/06/18* *Survey Type: MANUAL*

17 WL-04-D-01 NURSERY WILTSHIRE
SHREWSBURY ROAD
SWINDON
WALCOT
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 500 sqm
Survey date: THURSDAY *22/09/16* *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 04 - EDUCATION/D - NURSERY
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	328	0.152	2	328	0.000	2	328	0.152
07:00 - 08:00	17	398	2.274	17	398	0.974	17	398	3.248
08:00 - 09:00	17	398	4.149	17	398	3.396	17	398	7.545
09:00 - 10:00	17	398	1.905	17	398	1.742	17	398	3.647
10:00 - 11:00	17	398	0.620	17	398	0.413	17	398	1.033
11:00 - 12:00	17	398	0.738	17	398	0.620	17	398	1.358
12:00 - 13:00	17	398	1.550	17	398	1.654	17	398	3.204
13:00 - 14:00	17	398	1.107	17	398	1.698	17	398	2.805
14:00 - 15:00	17	398	0.856	17	398	0.842	17	398	1.698
15:00 - 16:00	17	398	1.063	17	398	1.270	17	398	2.333
16:00 - 17:00	17	398	1.816	17	398	2.052	17	398	3.868
17:00 - 18:00	17	398	2.746	17	398	3.366	17	398	6.112
18:00 - 19:00	16	414	0.196	16	414	0.981	16	414	1.177
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			19.172			19.008			38.180

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.*

Parameter summary

Trip rate parameter range selected:	150 - 860 (units: sqm)
Survey date date range:	01/01/12 - 27/09/19
Number of weekdays (Monday-Friday):	17
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 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-204602-200629-0652

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
03	SOUTH WEST		
	DC	DORSET	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	NT	NOTTINGHAMSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	RI	EAST RIDING OF YORKSHIRE	1 days
08	NORTH WEST		
	MS	MERSEYSIDE	2 days
09	NORTH		
	CB	CUMBRIA	2 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days
12	CONNAUGHT		
	GA	GALWAY	1 days
13	MUNSTER		
	WA	WATERFORD	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	6 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	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: No of Dwellings
Actual Range: 9 to 184 (units:)
Range Selected by User: 6 to 372 (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: 01/01/12 to 25/09/19

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	2 days
Tuesday	12 days
Wednesday	5 days
Thursday	1 days
Friday	2 days

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

Selected survey types:

Manual count	22 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 undertaking using machines.

Selected Locations:
Suburban Area (PPS6 Out of Centre) 17

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:

Development Zone	2
Residential Zone	14
Built-Up 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:

C3	22 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 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
15,001 to 20,000	1 days
20,001 to 25,000	5 days
25,001 to 50,000	8 days
50,001 to 100,000	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	1 days
25,001 to 50,000	1 days
50,001 to 75,000	5 days
125,001 to 250,000	2 days
250,001 to 500,000	6 days
500,001 or More	7 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	8 days
1.1 to 1.5	14 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	22 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	22 days

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

LIST OF SITES relevant to selection parameters

1 AN-03-C-02 BLOCK OF FLATS ANTRIM
SUMMERHILL AVENUE
BELFAST
KNOCK
Edge of Town
Residential Zone
Total No of Dwellings: 22
Survey date: FRIDAY *28/11/14* *Survey Type: MANUAL*

2 CA-03-C-03 BLOCKS OF FLATS CAMBRIDGESHIRE
CROMWELL ROAD
CAMBRIDGE

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total No of Dwellings: 82
Survey date: MONDAY *18/09/17* *Survey Type: MANUAL*

3 CB-03-C-02 BLOCK OF FLATS CUMBRIA
BRIDGE LANE
PENRITH

Edge of Town
No Sub Category
Total No of Dwellings: 35
Survey date: WEDNESDAY *11/06/14* *Survey Type: MANUAL*

4 CB-03-C-03 FLATS & BUNGALOWS CUMBRIA
LOUND STREET
KENDAL

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 33
Survey date: MONDAY *09/06/14* *Survey Type: MANUAL*

5 DC-03-C-02 FLATS IN BLOCKS DORSET
PALM COURT
WEYMOUTH
SPA ROAD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 14
Survey date: FRIDAY *28/03/14* *Survey Type: MANUAL*

6 DL-03-C-11 BLOCK OF FLATS DUBLIN
WYCKHAM WAY
DUBLIN
DUNDRUM
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 96
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

7 DL-03-C-12 BLOCK OF FLATS DUBLIN
BOOTERSTOWN AVENUE
DUBLIN

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 47
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

8 DL-03-C-13 BLOCK OF FLATS DUBLIN
SANDYFORD ROAD
DUBLIN

Neighbourhood Centre (PPS6 Local Centre)
Built-Up Zone
Total No of Dwellings: 52
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 DL-03-C-14 BLOCKS OF FLATS DUBLIN
BALLINTEER ROAD
DUBLIN
DUNDRUM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 140
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

10 DL-03-C-15 BLOCKS OF FLATS DUBLIN
MONKSTOWN ROAD
DUBLIN
MONKSTOWN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 20
Survey date: WEDNESDAY *01/10/14* *Survey Type: MANUAL*

11 DL-03-C-16 BLOCKS OF FLATS DUBLIN
BOTANIC AVENUE
DUBLIN
DRUMCONDRA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 31
Survey date: TUESDAY *22/11/16* *Survey Type: MANUAL*

12 DS-03-C-03 BLOCKS OF FLATS DERBYSHIRE
CAESAR STREET
DERBY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 30
Survey date: WEDNESDAY *25/09/19* *Survey Type: MANUAL*

13 EB-03-C-01 BLOCKS OF FLATS CITY OF EDINBURGH
MYRESIDE ROAD
EDINBURGH
CRAIGLOCKHART
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 32
Survey date: TUESDAY *26/05/15* *Survey Type: MANUAL*

14 ES-03-C-01 BLOCK OF FLATS EAST SUSSEX
OLD SHOREHAM RD
BRIGHTON
HOVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 71
Survey date: TUESDAY *26/09/17* *Survey Type: MANUAL*

15 GA-03-C-01 FLATS GALWAY
BALLYLOUGHANE ROAD
GALWAY

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total No of Dwellings: 34
Survey date: THURSDAY *31/10/13* *Survey Type: MANUAL*

16 MS-03-C-02 BLOCKS OF FLATS MERSEYSIDE
SOUTH FERRY QUAY
LIVERPOOL
BRUNSWICK DOCK
Suburban Area (PPS6 Out of Centre)
Development Zone
Total No of Dwellings: 184
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

17 MS-03-C-03 BLOCK OF FLATS MERSEYSIDE
MARINERS WHARF
LIVERPOOL
QUEENS DOCK
Suburban Area (PPS6 Out of Centre)
Development Zone
Total No of Dwellings: 9
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

18 NT-03-C-01 HOUSES (SPLIT INTO FLATS) NOTTINGHAMSHIRE
LAWRENCE WAY
NOTTINGHAM

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total No of Dwellings: 56
Survey date: TUESDAY *08/11/16* *Survey Type: MANUAL*

19 NT-03-C-02 HOUSES (SPLIT INTO FLATS) NOTTINGHAMSHIRE
CASTLE MARINA ROAD
NOTTINGHAM

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total No of Dwellings: 135
Survey date: WEDNESDAY *09/11/16* *Survey Type: MANUAL*

20 RI-03-C-01 FLATS EAST RIDING OF YORKSHIRE
465 PRIORY ROAD
HULL

Edge of Town
Residential Zone
Total No of Dwellings: 20
Survey date: TUESDAY *13/05/14* *Survey Type: MANUAL*

21 SF-03-C-03 BLOCKS OF FLATS SUFFOLK
TOLLGATE LANE
BURY ST EDMUNDS

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 30
Survey date: WEDNESDAY *03/12/14* *Survey Type: MANUAL*

22 WA-03-C-01 BLOCKS OF FLATS WATERFORD
UPPER YELLOW ROAD
WATERFORD

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 51
Survey date: TUESDAY *12/05/15* *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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.056	22	56	0.192	22	56	0.248
08:00 - 09:00	22	56	0.060	22	56	0.218	22	56	0.278
09:00 - 10:00	22	56	0.074	22	56	0.115	22	56	0.189
10:00 - 11:00	22	56	0.055	22	56	0.076	22	56	0.131
11:00 - 12:00	22	56	0.060	22	56	0.072	22	56	0.132
12:00 - 13:00	22	56	0.072	22	56	0.083	22	56	0.155
13:00 - 14:00	22	56	0.071	22	56	0.078	22	56	0.149
14:00 - 15:00	22	56	0.086	22	56	0.072	22	56	0.158
15:00 - 16:00	22	56	0.104	22	56	0.064	22	56	0.168
16:00 - 17:00	22	56	0.111	22	56	0.076	22	56	0.187
17:00 - 18:00	22	56	0.186	22	56	0.073	22	56	0.259
18:00 - 19:00	22	56	0.176	22	56	0.094	22	56	0.270
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.111			1.213			2.324

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.*

Parameter summary

Trip rate parameter range selected:	9 - 184 (units:)
Survey date date range:	01/01/12 - 25/09/19
Number of weekdays (Monday-Friday):	22
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 show. 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 for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.006	22	56	0.006	22	56	0.012
08:00 - 09:00	22	56	0.001	22	56	0.001	22	56	0.002
09:00 - 10:00	22	56	0.006	22	56	0.005	22	56	0.011
10:00 - 11:00	22	56	0.002	22	56	0.002	22	56	0.004
11:00 - 12:00	22	56	0.003	22	56	0.003	22	56	0.006
12:00 - 13:00	22	56	0.001	22	56	0.000	22	56	0.001
13:00 - 14:00	22	56	0.002	22	56	0.003	22	56	0.005
14:00 - 15:00	22	56	0.003	22	56	0.003	22	56	0.006
15:00 - 16:00	22	56	0.003	22	56	0.003	22	56	0.006
16:00 - 17:00	22	56	0.002	22	56	0.002	22	56	0.004
17:00 - 18:00	22	56	0.001	22	56	0.001	22	56	0.002
18:00 - 19:00	22	56	0.005	22	56	0.005	22	56	0.010
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.035			0.034			0.069

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.001	22	56	0.004	22	56	0.005
08:00 - 09:00	22	56	0.001	22	56	0.002	22	56	0.003
09:00 - 10:00	22	56	0.002	22	56	0.002	22	56	0.004
10:00 - 11:00	22	56	0.001	22	56	0.001	22	56	0.002
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.002	22	56	0.002	22	56	0.004
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.001	22	56	0.001	22	56	0.002
15:00 - 16:00	22	56	0.001	22	56	0.000	22	56	0.001
16:00 - 17:00	22	56	0.001	22	56	0.001	22	56	0.002
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.001	22	56	0.000	22	56	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.011			0.013			0.024

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.001	22	56	0.002	22	56	0.003
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.001	22	56	0.001	22	56	0.002
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.001	22	56	0.001	22	56	0.002
17:00 - 18:00	22	56	0.001	22	56	0.001	22	56	0.002
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.004			0.005			0.009

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.003	22	56	0.011	22	56	0.014
08:00 - 09:00	22	56	0.001	22	56	0.017	22	56	0.018
09:00 - 10:00	22	56	0.003	22	56	0.005	22	56	0.008
10:00 - 11:00	22	56	0.002	22	56	0.002	22	56	0.004
11:00 - 12:00	22	56	0.004	22	56	0.002	22	56	0.006
12:00 - 13:00	22	56	0.005	22	56	0.001	22	56	0.006
13:00 - 14:00	22	56	0.003	22	56	0.003	22	56	0.006
14:00 - 15:00	22	56	0.002	22	56	0.003	22	56	0.005
15:00 - 16:00	22	56	0.002	22	56	0.002	22	56	0.004
16:00 - 17:00	22	56	0.002	22	56	0.002	22	56	0.004
17:00 - 18:00	22	56	0.009	22	56	0.005	22	56	0.014
18:00 - 19:00	22	56	0.010	22	56	0.004	22	56	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.046			0.057			0.103

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.026	22	56	0.088	22	56	0.114
08:00 - 09:00	22	56	0.026	22	56	0.110	22	56	0.136
09:00 - 10:00	22	56	0.038	22	56	0.056	22	56	0.094
10:00 - 11:00	22	56	0.036	22	56	0.042	22	56	0.078
11:00 - 12:00	22	56	0.030	22	56	0.040	22	56	0.070
12:00 - 13:00	22	56	0.037	22	56	0.049	22	56	0.086
13:00 - 14:00	22	56	0.042	22	56	0.044	22	56	0.086
14:00 - 15:00	22	56	0.037	22	56	0.033	22	56	0.070
15:00 - 16:00	22	56	0.057	22	56	0.030	22	56	0.087
16:00 - 17:00	22	56	0.062	22	56	0.043	22	56	0.105
17:00 - 18:00	22	56	0.096	22	56	0.039	22	56	0.135
18:00 - 19:00	22	56	0.065	22	56	0.042	22	56	0.107
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.552			0.616			1.168

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.004	22	56	0.007	22	56	0.011
08:00 - 09:00	22	56	0.007	22	56	0.008	22	56	0.015
09:00 - 10:00	22	56	0.012	22	56	0.008	22	56	0.020
10:00 - 11:00	22	56	0.007	22	56	0.010	22	56	0.017
11:00 - 12:00	22	56	0.007	22	56	0.008	22	56	0.015
12:00 - 13:00	22	56	0.007	22	56	0.006	22	56	0.013
13:00 - 14:00	22	56	0.004	22	56	0.007	22	56	0.011
14:00 - 15:00	22	56	0.005	22	56	0.004	22	56	0.009
15:00 - 16:00	22	56	0.007	22	56	0.007	22	56	0.014
16:00 - 17:00	22	56	0.005	22	56	0.007	22	56	0.012
17:00 - 18:00	22	56	0.007	22	56	0.007	22	56	0.014
18:00 - 19:00	22	56	0.005	22	56	0.005	22	56	0.010
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.077			0.084			0.161

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.001	22	56	0.001	22	56	0.002
08:00 - 09:00	22	56	0.000	22	56	0.001	22	56	0.001
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.001	22	56	0.001	22	56	0.002
15:00 - 16:00	22	56	0.002	22	56	0.001	22	56	0.003
16:00 - 17:00	22	56	0.001	22	56	0.001	22	56	0.002
17:00 - 18:00	22	56	0.001	22	56	0.002	22	56	0.003
18:00 - 19:00	22	56	0.002	22	56	0.002	22	56	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.008			0.009			0.017

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Rigid Trucks - No Trailer (OGV1)
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Trucks Towing Trailers (OGV2)
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Non-Motorised Vehicles (NMV)
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
Non-Vehicular People Movements (NVPM)
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	22	56	0.000	22	56	0.000	22	56	0.000
08:00 - 09:00	22	56	0.000	22	56	0.000	22	56	0.000
09:00 - 10:00	22	56	0.000	22	56	0.000	22	56	0.000
10:00 - 11:00	22	56	0.000	22	56	0.000	22	56	0.000
11:00 - 12:00	22	56	0.000	22	56	0.000	22	56	0.000
12:00 - 13:00	22	56	0.000	22	56	0.000	22	56	0.000
13:00 - 14:00	22	56	0.000	22	56	0.000	22	56	0.000
14:00 - 15:00	22	56	0.000	22	56	0.000	22	56	0.000
15:00 - 16:00	22	56	0.000	22	56	0.000	22	56	0.000
16:00 - 17:00	22	56	0.000	22	56	0.000	22	56	0.000
17:00 - 18:00	22	56	0.000	22	56	0.000	22	56	0.000
18:00 - 19:00	22	56	0.000	22	56	0.000	22	56	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.*

Appendix G Traffic Analysis

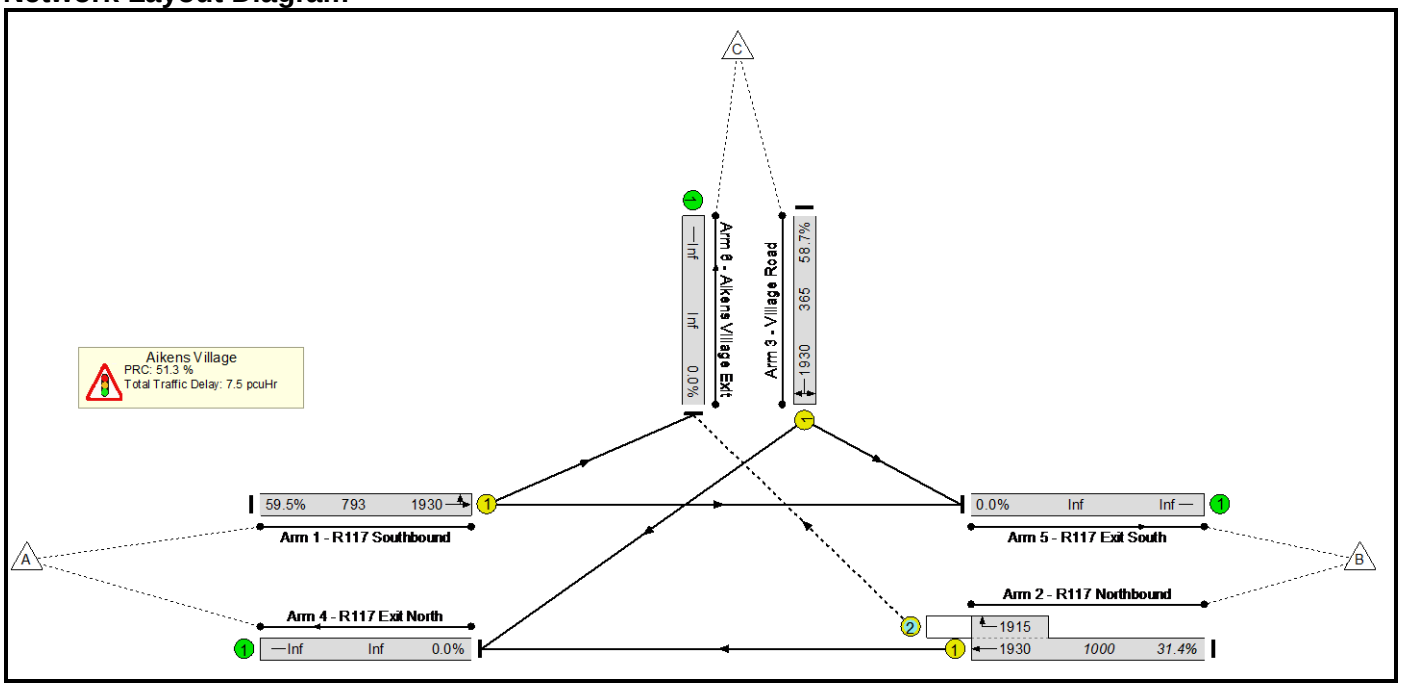
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Date Started:	22/08/2022
Additional detail:	
File name:	Enniskerry Road Village Road Signal Junction old.lsg3x
Author:	
Company:	
Address:	

Scenario 1: '2019 Base AM Peak' (FG1: '2019 Base AM', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.5%**	**4**	**0**	**0**	**7.5**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.5%**	**4**	**0**	**0**	**7.5**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	36	-	472	1930	793	59.5%	-	-	-	3.4	26.2	9.9
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	45	-	314	1930:1915	1000	31.4%	4	0	0	1.4	15.6	4.7
3/1	Village Road Right Left	U	B		1	16	-	214	1930	365	58.7%	-	-	-	2.7	45.1	5.6

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 51.3
PRC Over All Lanes (%): 51.3

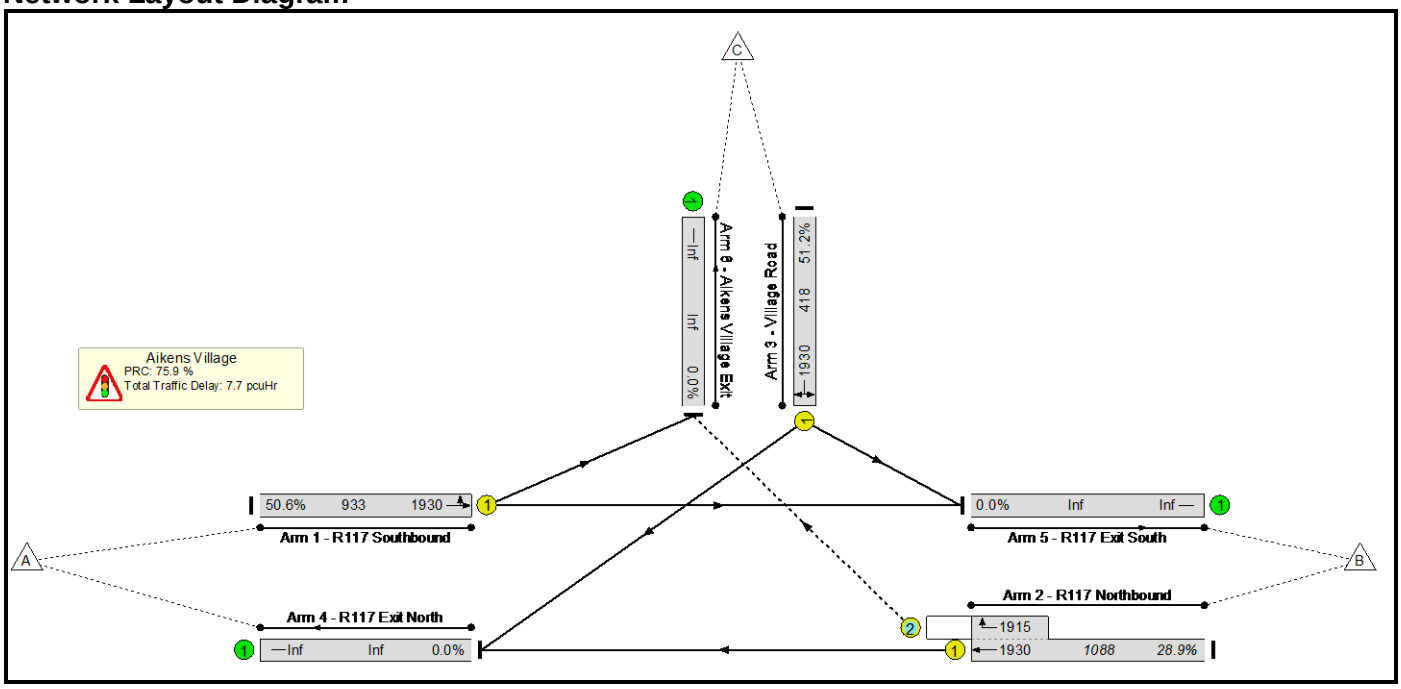
Total Delay for Signalled Lanes (pcuHr): 7.48
Total Delay Over All Lanes(pcuHr): 7.48

Cycle Time (s): 90

Basic Results Summary

Scenario 2: '2019 Base PM Peak' (FG1: '2019 Base AM', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**	**5**	**0**	**0**	**7.7**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**	**5**	**0**	**0**	**7.7**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	57	-	472	1930	933	50.6%	-	-	-	3.3	25.1	11.3
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	66	-	314	1930:1915	1088	28.9%	5	0	0	1.4	16.4	5.6
3/1	Village Road Right Left	U	B		1	25	-	214	1930	418	51.2%	-	-	-	3.0	50.2	6.8

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 75.9
PRC Over All Lanes (%): 75.9

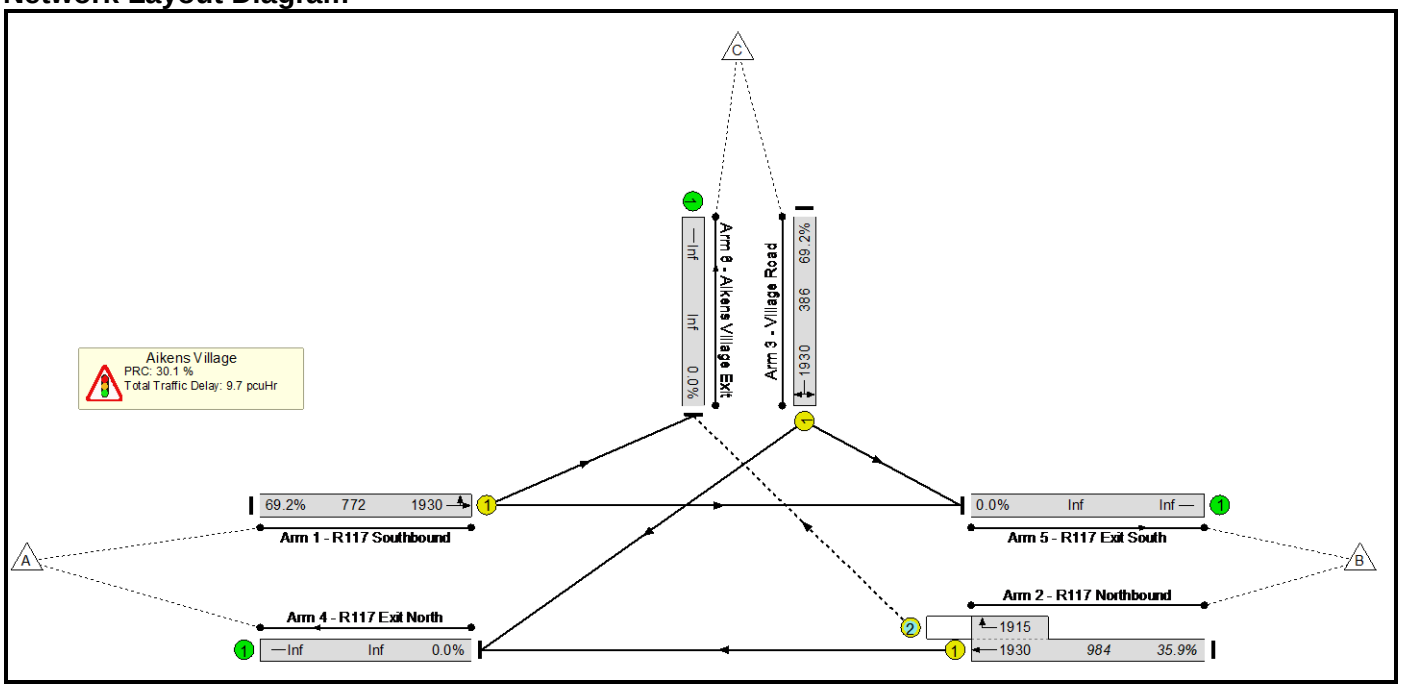
Total Delay for Signalled Lanes (pcuHr): 7.70
Total Delay Over All Lanes(pcuHr): 7.70

Cycle Time (s): 120

Basic Results Summary

Scenario 3: '2025 Opening Year DN AM' (FG7: '2025 Opening Year AM DN', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.2%**	**12**	**1**	**0**	**9.7**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.2%**	**12**	**1**	**0**	**9.7**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	35	-	534	1930	772	69.2%	-	-	-	4.4	29.9	12.1
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	44	-	353	1930:1915	984	35.9%	12	1	0	1.7	16.9	5.4
3/1	Village Road Right Left	U	B		1	17	-	267	1930	386	69.2%	-	-	-	3.6	48.3	7.3

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 30.1
PRC Over All Lanes (%): 30.1

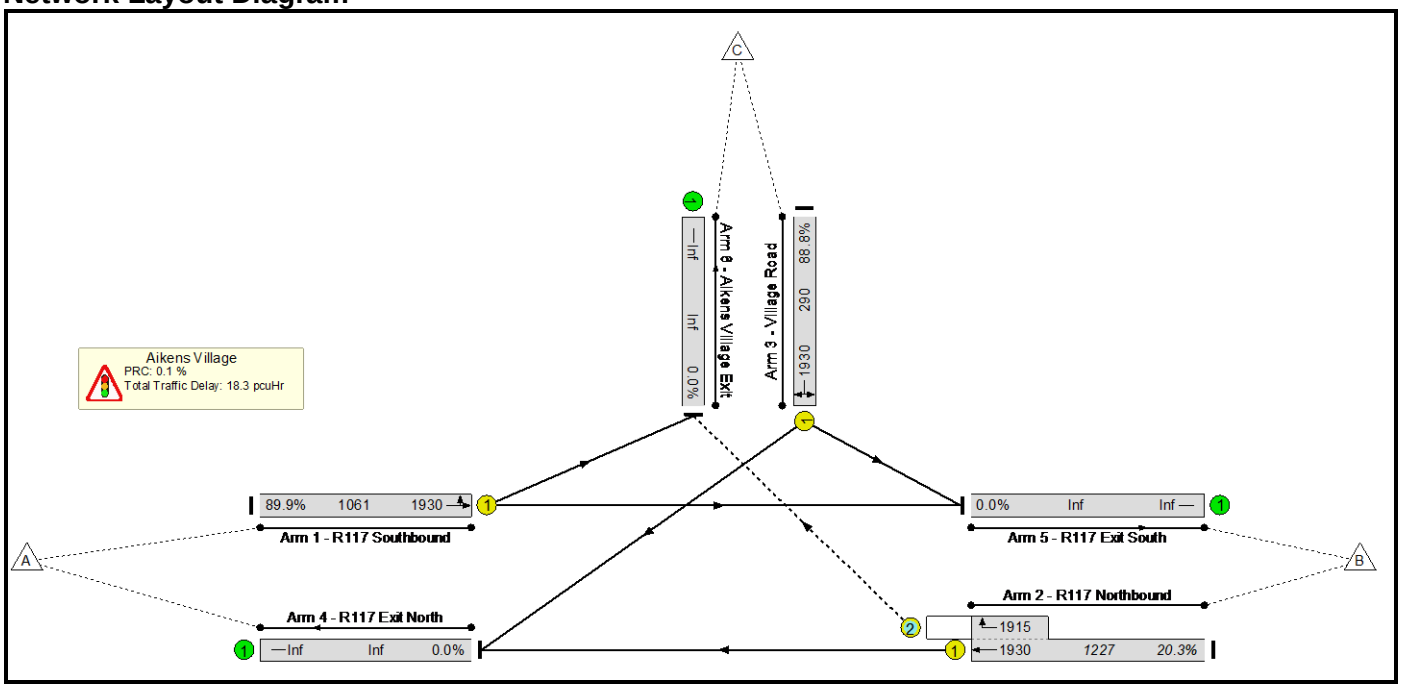
Total Delay for Signalled Lanes (pcuHr): 9.67
Total Delay Over All Lanes(pcuHr): 9.67

Cycle Time (s): 90

Basic Results Summary

Scenario 4: '2025 Opening Year DN PM' (FG8: '2025 Opening Year PM DN', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.9%**	**17**	**1**	**0**	**18.3**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.9%**	**17**	**1**	**0**	**18.3**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	65	-	954	1930	1061	89.9%	-	-	-	10.5	39.6	32.2
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	74	-	249	1930:1915	1227	20.3%	17	1	0	1.0	13.8	3.4
3/1	Village Road Right Left	U	B		1	17	-	257	1930	290	88.8%	-	-	-	6.9	96.1	11.6

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 0.1
PRC Over All Lanes (%): 0.1

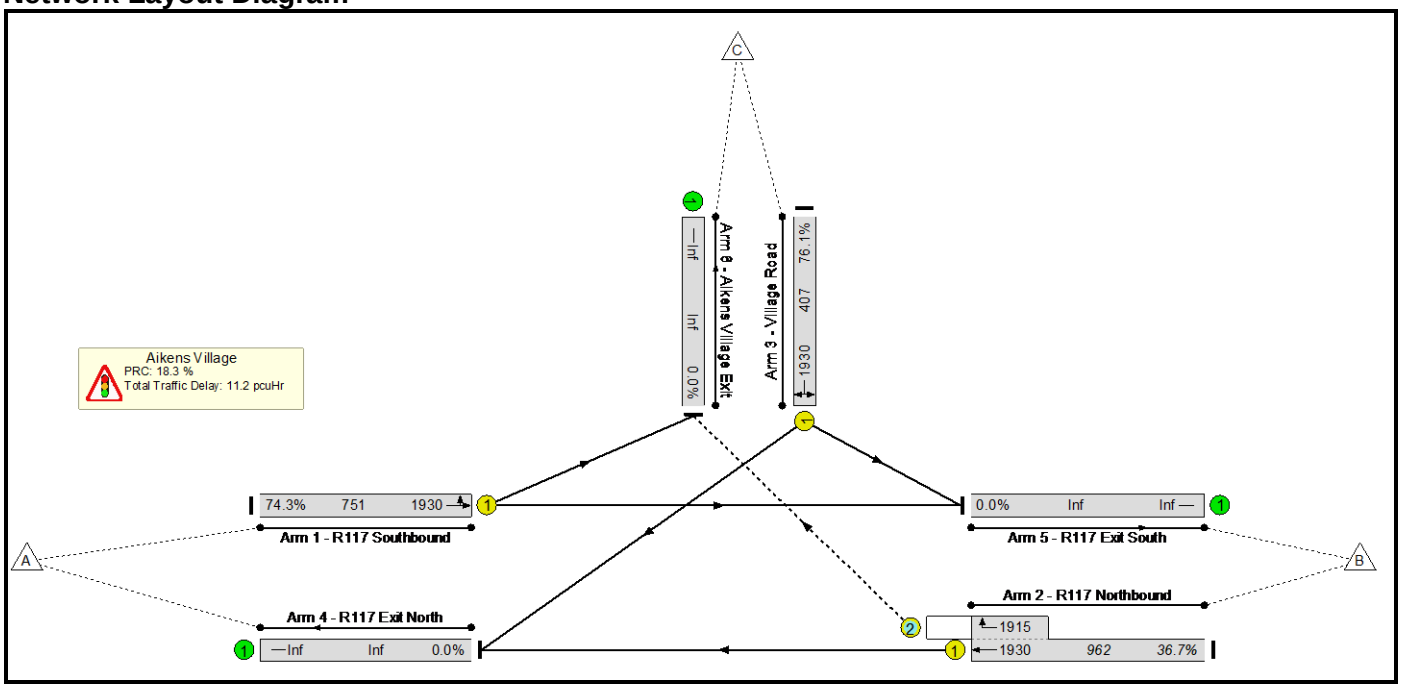
Total Delay for Signalled Lanes (pcuHr): 18.30
Total Delay Over All Lanes(pcuHr): 18.30

Cycle Time (s): 120

Basic Results Summary

Scenario 5: '2025 Opening Year DS AM' (FG11: '2025 Opening Year AM DS', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.1%**	**12**	**1**	**0**	**11.2**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.1%**	**12**	**1**	**0**	**11.2**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	34	-	558	1930	751	74.3%	-	-	-	5.1	32.9	13.4
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	43	-	353	1930:1915	962	36.7%	12	1	0	1.7	17.7	5.5
3/1	Village Road Right Left	U	B		1	18	-	310	1930	407	76.1%	-	-	-	4.4	51.3	8.8

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 18.3
PRC Over All Lanes (%): 18.3

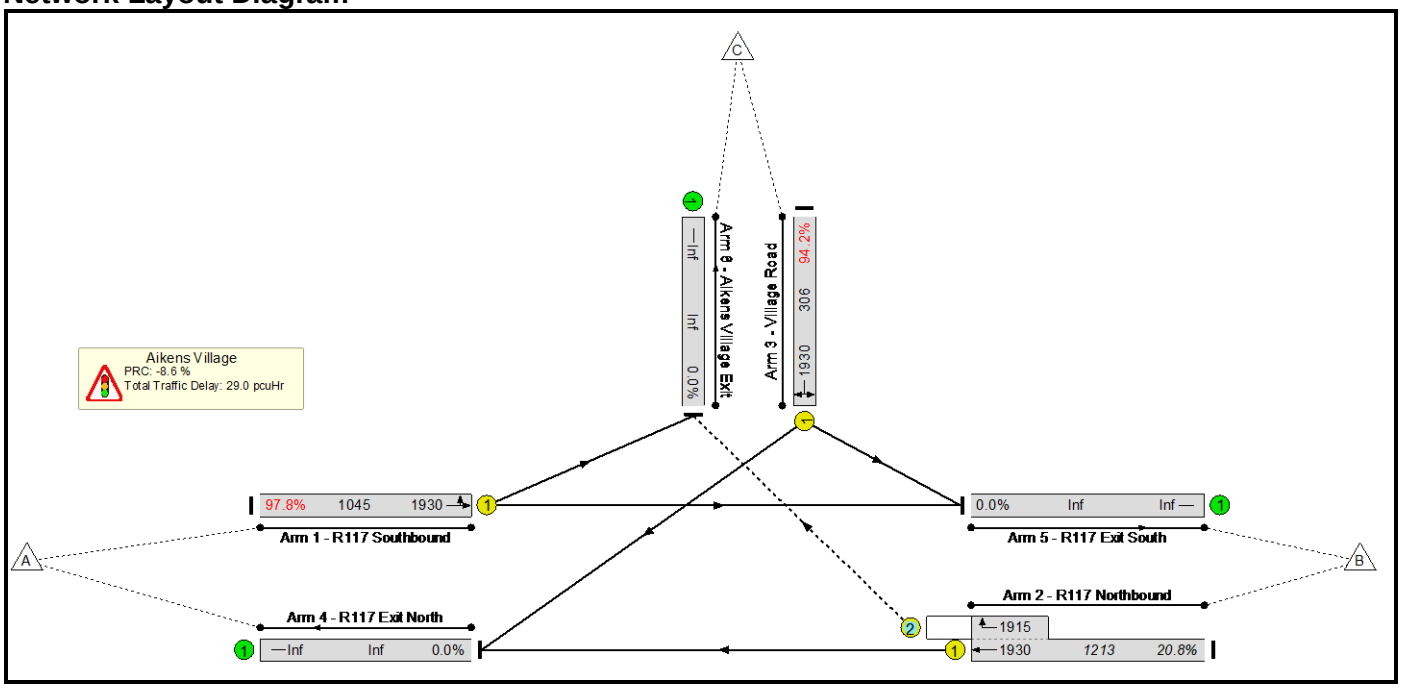
Total Delay for Signalled Lanes (pcuHr): 11.24
Total Delay Over All Lanes(pcuHr): 11.24

Cycle Time (s): 90

Basic Results Summary

Scenario 6: '2025 Opening Year DS PM' (FG12: '2025 Opening Year PM DS', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**97.8%**	**8**	**13**	**1**	**29.0**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**97.8%**	**8**	**13**	**1**	**29.0**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	64	-	1022	1930	1045	97.8%	-	-	-	18.8	66.1	44.1
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	73	-	252	1930:1915	1213	20.8%	8	13	1	1.1	15.4	3.5
3/1	Village Road Right Left	U	B		1	18	-	288	1930	306	94.2%	-	-	-	9.2	114.5	14.6

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): -8.6
PRC Over All Lanes (%): -8.6

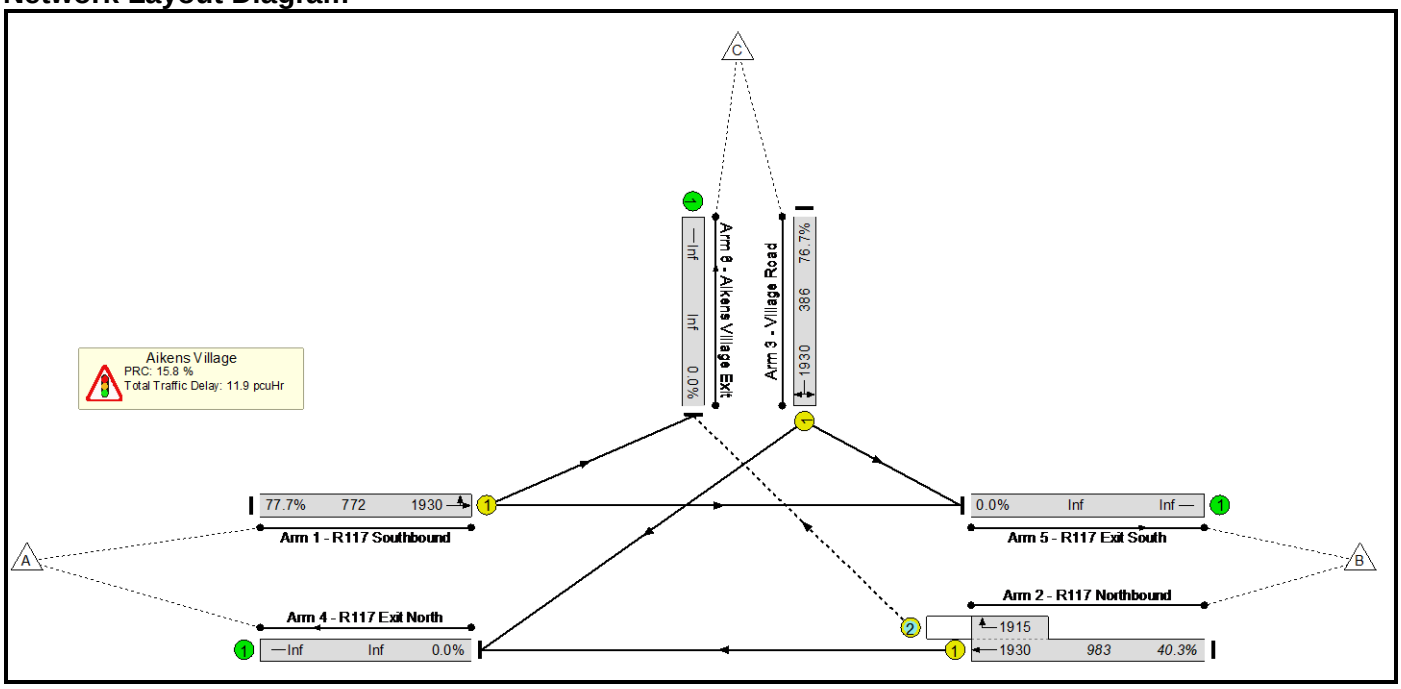
Total Delay for Signalled Lanes (pcuHr): 29.01
Total Delay Over All Lanes(pcuHr): 29.01

Cycle Time (s): 120

Basic Results Summary

Scenario 7: '2040 Design Year DN AM' (FG9: '2040 Design Year AM DN', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.7%**	**12**	**1**	**0**	**11.9**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.7%**	**12**	**1**	**0**	**11.9**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	35	-	600	1930	772	77.7%	-	-	-	5.6	33.8	14.7
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	44	-	396	1930:1915	983	40.3%	12	1	0	1.9	17.5	6.3
3/1	Village Road Right Left	U	B		1	17	-	296	1930	386	76.7%	-	-	-	4.4	53.3	8.6

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 15.8
PRC Over All Lanes (%): 15.8

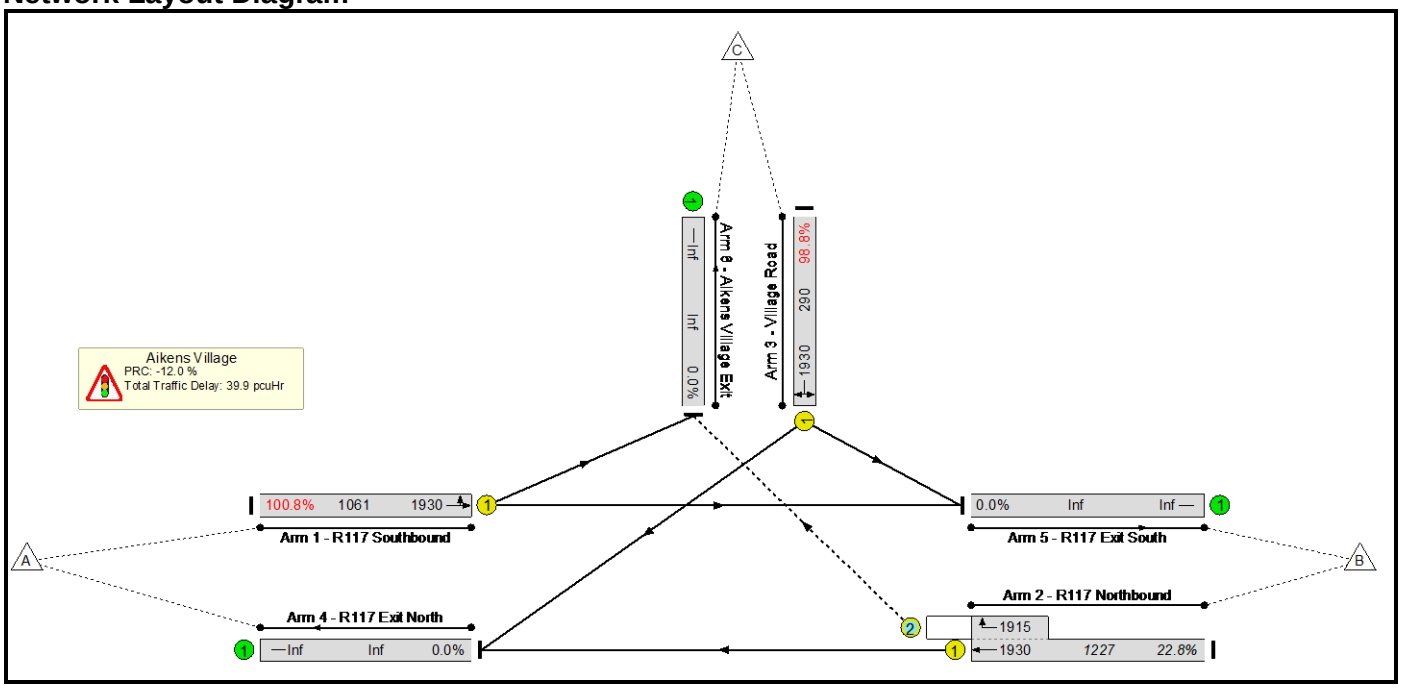
Total Delay for Signalled Lanes (pcuHr): 11.94
Total Delay Over All Lanes(pcuHr): 11.94

Cycle Time (s): 90

Basic Results Summary

Scenario 8: '2040 Design Year DN PM' (FG10: '2040 Design Year PM DN', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**100.8%**	**0**	**20**	**1**	**39.9**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**100.8%**	**0**	**20**	**1**	**39.9**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	65	-	1070	1930	1061	100.8%	-	-	-	27.1	91.2	54.6
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	74	-	280	1930:1915	1227	22.8%	0	20	1	1.1	14.7	3.8
3/1	Village Road Right Left	U	B		1	17	-	286	1930	290	98.8%	-	-	-	11.7	146.9	17.1

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): -12.0
PRC Over All Lanes (%): -12.0

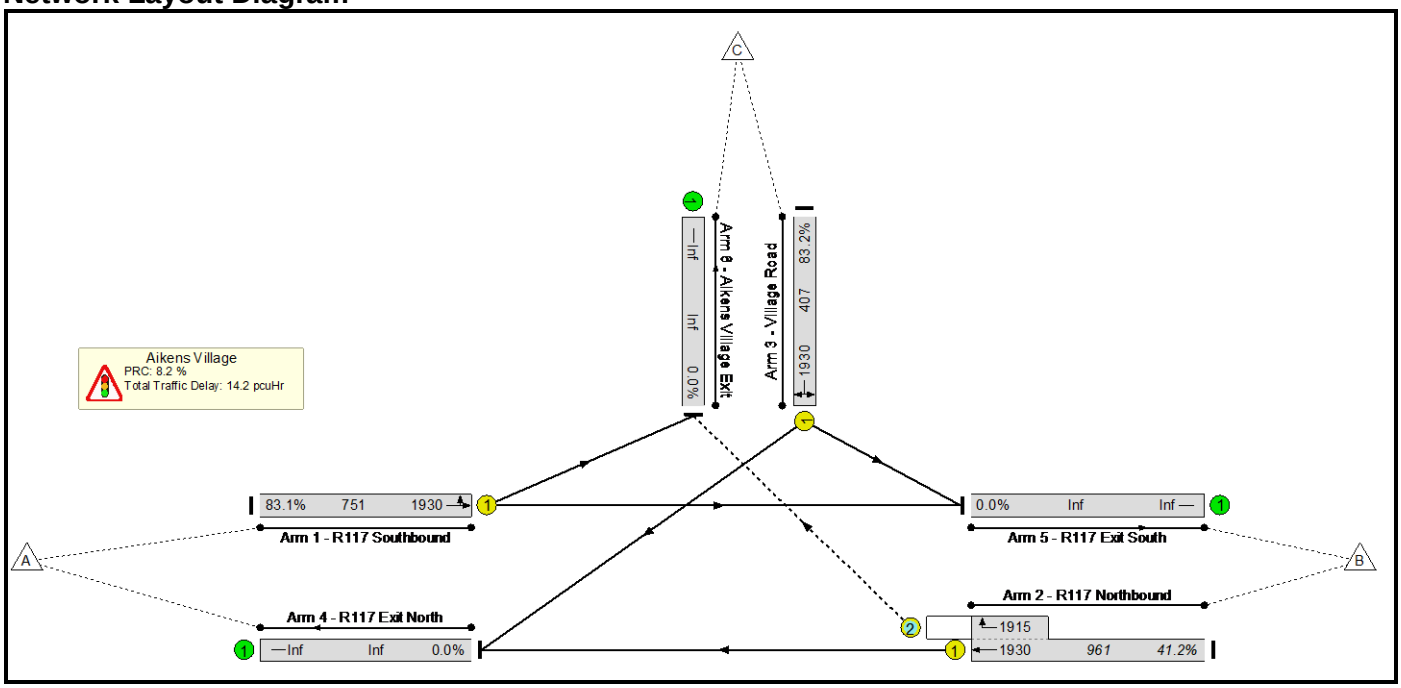
Total Delay for Signalled Lanes (pcuHr): 39.92
Total Delay Over All Lanes(pcuHr): 39.92

Cycle Time (s): 120

Basic Results Summary

Scenario 9: '2040 Design Year DS AM' (FG13: '2040 Design Year AM DS', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.2%**	**12**	**1**	**0**	**14.2**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.2%**	**12**	**1**	**0**	**14.2**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	34	-	624	1930	751	83.1%	-	-	-	6.7	38.5	16.4
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	43	-	396	1930:1915	961	41.2%	12	1	0	2.0	18.3	6.4
3/1	Village Road Right Left	U	B		1	18	-	339	1930	407	83.2%	-	-	-	5.5	58.6	10.4

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): 8.2
PRC Over All Lanes (%): 8.2

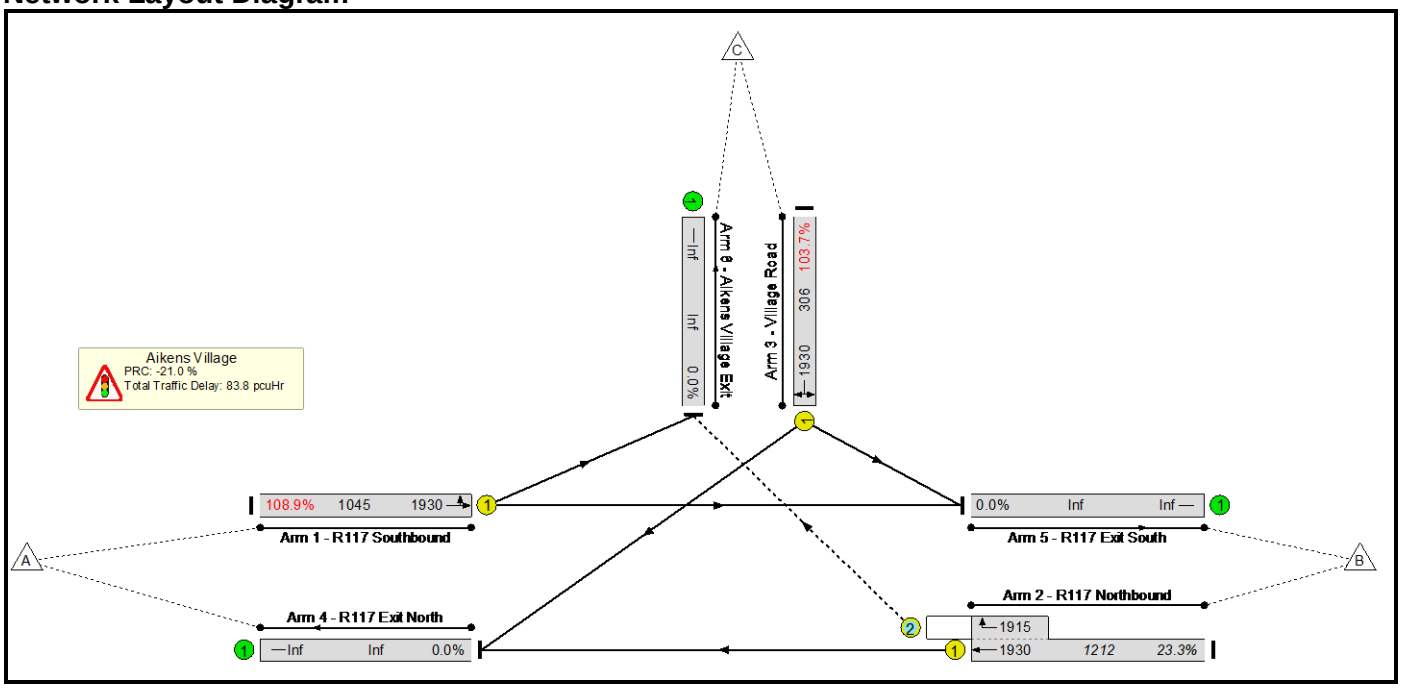
Total Delay for Signalled Lanes (pcuHr): 14.21
Total Delay Over All Lanes(pcuHr): 14.21

Cycle Time (s): 90

Basic Results Summary

Scenario 10: '2040 Design Year DS PM' (FG14: '2040 Design Year PM DS', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.9%**	**0**	**23**	**1**	**83.8**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.9%**	**0**	**23**	**1**	**83.8**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		1	64	-	1138	1930	1045	108.9%	-	-	-	65.5	207.3	92.8
2/1+2/2	R117 Northbound Ahead Right	U+O	C		1	73	-	283	1930:1915	1212	23.3%	0	23	1	1.2	15.6	4.0
3/1	Village Road Right Left	U	B		1	18	-	317	1930	306	103.7%	-	-	-	17.1	194.1	23.1

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): -21.0
PRC Over All Lanes (%): -21.0

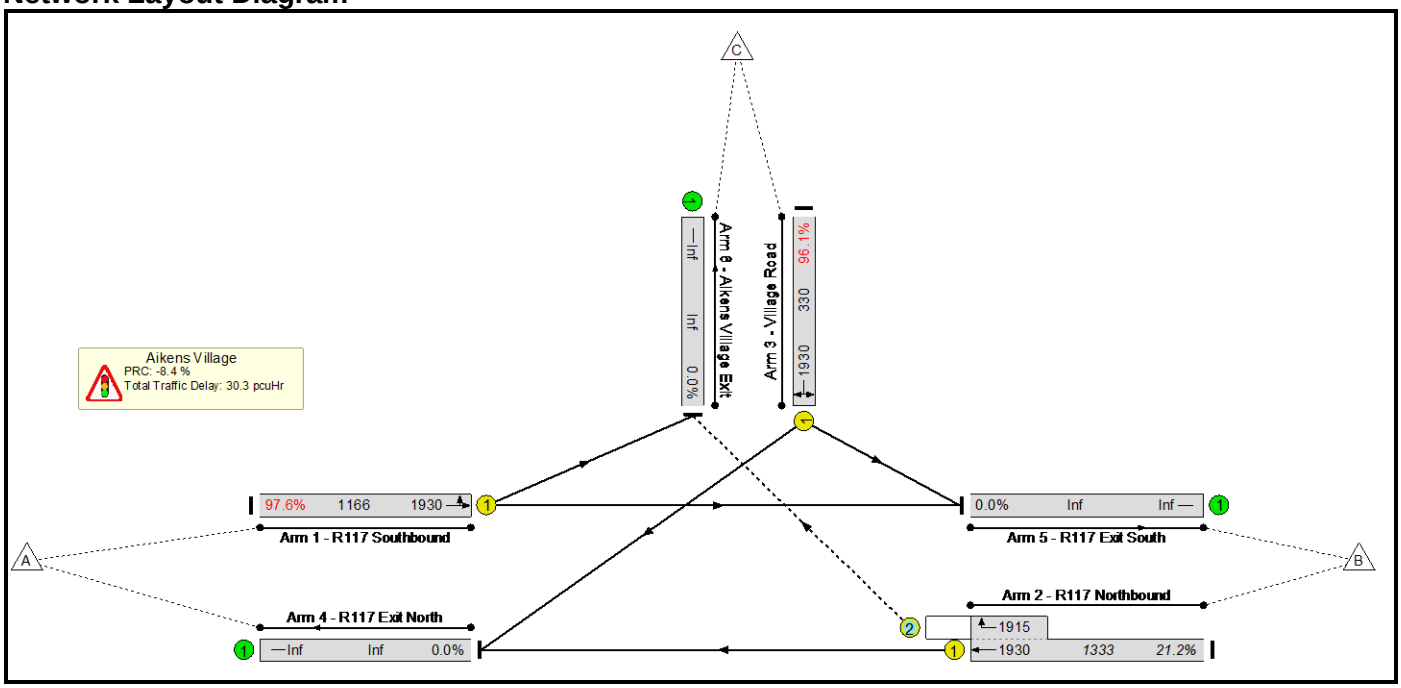
Total Delay for Signalled Lanes (pcuHr): 83.84
Total Delay Over All Lanes(pcuHr): 83.84

Cycle Time (s): 120

Basic Results Summary

Scenario 10: '2040 Design Year DS PM' (FG14: '2040 Design Year PM DS', Plan 2: 'Network Control Plan 2')

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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**97.6%**	**6**	**17**	**1**	**30.3**	**-**	**-**
Aikens Village	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**97.6%**	**6**	**17**	**1**	**30.3**	**-**	**-**
1/1	R117 Southbound Ahead Left	U	A		2	143	-	1138	1930	1166	97.6%	-	-	-	18.6	58.8	52.0
2/1+2/2	R117 Northbound Ahead Right	U+O	C		2	161	-	283	1930:1915	1333	21.2%	6	17	1	1.0	12.7	3.7
3/1	Village Road Right Left	U	B		2	39	-	317	1930	330	96.1%	-	-	-	10.7	121.5	18.2

C1 - Aikens Village Junction

PRC for Signalled Lanes (%): -8.4
PRC Over All Lanes (%): -8.4

Total Delay for Signalled Lanes (pcuHr): 30.29
Total Delay Over All Lanes(pcuHr): 30.29

Cycle Time (s): 240

Junctions 9

ARCADY 9 - Roundabout Module
PICADY 9 - Priority Intersection Module

Filename: Updated Non-signalised junctions models.j9
Path: \\eu.aecomnet.com\EMIA\UKI\IEDBL2\Jobs\PR-424832_Aikens_Village,_Stepaside,\400_Technical\404 CE\2020 Application
Report generation date: 11/01/2021 08:50:37

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
	2019 Baseline			
Junction 1 - Stream B-ACD	0.1	0.09	0.0	0.03
Junction 1 - Stream A-BCD	0.0	0.01	0.0	0.02
Junction 1 - Stream D-ABC	0.1	0.09	0.0	0.04
Junction 1 - Stream C-ABD	0.0	0.02	0.1	0.06
Junction 2 - Stream B-AC	0.2	0.14	0.1	0.06
Junction 2 - Stream C-AB	0.0	0.02	0.0	0.02
Junction 3 - Arm 1	0.3	0.23	0.2	0.15
Junction 3 - Arm 2	0.1	0.12	0.5	0.30
Junction 3 - Arm 3	0.7	0.39	0.1	0.11
	2023 Without			
Junction 1 - Stream B-ACD	0.1	0.09	0.0	0.03
Junction 1 - Stream A-BCD	0.0	0.01	0.0	0.02
Junction 1 - Stream D-ABC	0.1	0.10	0.1	0.04
Junction 1 - Stream C-ABD	0.0	0.02	0.1	0.07

Junction 2 - Stream B-AC	0.2	0.15	0.1	0.06
Junction 2 - Stream C-AB	0.0	0.02	0.0	0.02
Junction 3 - Arm 1	0.4	0.25	0.2	0.16
Junction 3 - Arm 2	0.2	0.13	0.5	0.32
Junction 3 - Arm 3	0.8	0.42	0.1	0.11
	2028 Without			
Junction 1 - Stream B-ACD	0.1	0.10	0.0	0.03
Junction 1 - Stream A-BCD	0.0	0.01	0.0	0.02
Junction 1 - Stream D-ABC	0.1	0.11	0.1	0.05
Junction 1 - Stream C-ABD	0.0	0.02	0.1	0.07
Junction 2 - Stream B-AC	0.2	0.16	0.1	0.07
Junction 2 - Stream C-AB	0.0	0.03	0.0	0.03
Junction 3 - Arm 1	0.4	0.27	0.2	0.18
Junction 3 - Arm 2	0.2	0.14	0.6	0.35
Junction 3 - Arm 3	0.9	0.45	0.2	0.13
	2038 Without			
Junction 1 - Stream B-ACD	0.1	0.11	0.0	0.03
Junction 1 - Stream A-BCD	0.0	0.01	0.0	0.02
Junction 1 - Stream D-ABC	0.1	0.11	0.1	0.05
Junction 1 - Stream C-ABD	0.0	0.02	0.2	0.08
Junction 2 - Stream B-AC	0.2	0.17	0.1	0.07
Junction 2 - Stream C-AB	0.0	0.03	0.0	0.03
Junction 3 - Arm 1	0.4	0.28	0.2	0.18
Junction 3 - Arm 2	0.2	0.15	0.6	0.36
Junction 3 - Arm 3	1.0	0.48	0.2	0.14
	2023 With			
Junction 1 - Stream B-ACD	0.1	0.10	0.0	0.03
Junction 1 - Stream A-BCD	0.1	0.04	0.1	0.07
Junction 1 - Stream D-ABC	0.7	0.40	0.2	0.19
Junction 1 - Stream C-ABD	0.0	0.02	0.1	0.07
Junction 2 - Stream B-AC	0.2	0.15	0.1	0.07
Junction 2 - Stream C-AB	0.0	0.02	0.0	0.03
Junction 3 - Arm 1	0.4	0.26	0.2	0.18
Junction 3 - Arm 2	0.2	0.13	0.5	0.33
Junction 3 - Arm 3	0.9	0.46	0.2	0.12
	2028 With			
Junction 1 - Stream B-ACD	0.1	0.11	0.0	0.03
Junction 1 - Stream A-BCD	0.1	0.04	0.1	0.07
Junction 1 - Stream D-ABC	0.7	0.41	0.2	0.19
Junction 1 - Stream C-ABD	0.0	0.02	0.2	0.08
Junction 2 - Stream B-AC	0.2	0.16	0.1	0.07
Junction 2 - Stream C-AB	0.0	0.03	0.0	0.03
Junction 3 - Arm 1	0.4	0.28	0.3	0.19
Junction 3 - Arm 2	0.2	0.14	0.6	0.35
Junction 3 - Arm 3	1.1	0.49	0.2	0.14
	2038 With			
Junction 1 - Stream B-ACD	0.1	0.11	0.0	0.03
Junction 1 - Stream A-BCD	0.1	0.04	0.1	0.07
Junction 1 - Stream D-ABC	0.7	0.42	0.3	0.20
Junction 1 - Stream C-ABD	0.0	0.03	0.2	0.08
Junction 2 - Stream B-AC	0.2	0.17	0.1	0.08
Junction 2 - Stream C-AB	0.0	0.03	0.0	0.03
Junction 3 - Arm 1	0.5	0.30	0.3	0.20
Junction 3 - Arm 2	0.2	0.15	0.6	0.37

Junction 3 - Arm 3	1.2	0.52	0.2	0.15

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

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	15/10/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\Zac.Cave
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D1	2019 Baseline	AM	ONE HOUR	07:45	09:15	15	✓		
D2	2019 Baseline	PM	ONE HOUR	16:45	18:15	15	✓		
D3	2023 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.0597
D4	2023 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.0597
D5	2028 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.1393
D6	2028 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.1393
D7	2038 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.1969
D8	2038 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.1969
D9	Dev Flows	AM	ONE HOUR	07:45	09:15	15			
D10	Dev Flows	PM	ONE HOUR	16:45	18:15	15			
D11	2023 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D3+D9
D12	2023 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D4+D10

D13	2028 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D5+D9
D14	2028 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D6+D10
D15	2038 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D7+D9
D16	2038 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D8+D10

Analysis Set Details

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

2019 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.70	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.40	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description	Arm type
1	**A**	Village Road (Eastern Arm)		Major
	B	Cluain-Shee		Minor
	C	Village Road (Western Arm)		Major
	D	Atkinson Drive		Minor
2	**A**	Village Road (Western Arm)		Major
	B	Belmont Drive		Minor
	C	Village Road (Eastern Arm)		Major
3	**1**	R117 (South-Eastern Arm)		
	2	R117 (North-Western Arm)		
	3	Belarmine Avenue (North-Eastern Arm)		

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
3	1	3.41	3.81	1.6	26.6	31.4	21.9	
	2	4.10	4.40	0.5	19.4	31.4	21.8	
	3	3.90	4.00	0.8	28.3	31.4	21.3	

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	1	0	0.00
	2	0	0.00
	3	0	0.00

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	A	6.00			0.0	✓	0.00
	C	6.00			0.0	✓	0.00
2	C	6.00			0.0	✓	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)	Visibility to left (m)	Visibility to right (m)
1	B	One lane	2.20	0	0
	D	One lane	2.20	0	0
2	B	One lane	2.20	0	0

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
3	1	1.189	2010
	2	1.251	2174
	3	1.241	2123

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

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	574	-	-	-	-	-	-	0.222	0.318	0.222	-	-	-
1	B-A	440	0.080	0.202	0.202	-	-	-	0.127	0.289	-	0.202	0.202	0.101
1	B-C	574	0.088	0.222	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	440	0.080	0.202	0.202	-	-	-	0.127	0.289	0.127	-	-	-
1	B-D, offside lane	440	0.080	0.202	0.202	-	-	-	0.127	0.289	0.127	-	-	-
1	C-B	574	0.222	0.222	0.318	-	-	-	-	-	-	-	-	-
1	D-A	574	-	-	-	-	-	-	0.222	-	0.088	-	-	-
1	D-B, nearside lane	440	0.127	0.127	0.289	-	-	-	0.202	0.202	0.080	-	-	-
1	D-B, offside lane	440	0.127	0.127	0.289	-	-	-	0.202	0.202	0.080	-	-	-
1	D-C	440	-	0.127	0.289	0.101	0.202	0.202	0.202	0.202	0.080	-	-	-

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	440	0.080	0.202	0.127	0.289

2	B-C	574	0.088	0.222	-	-
2	C-B	574	0.222	0.222	-	-

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)	Run automatically
D1	2019 Baseline	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	**A**		ONE HOUR	✓	145	100.000
	B		ONE HOUR	✓	37	100.000
	C		ONE HOUR	✓	258	100.000
	D		ONE HOUR	✓	36	100.000
2	**A**		ONE HOUR	✓	232	100.000
	B		ONE HOUR	✓	55	100.000
	C		ONE HOUR	✓	171	100.000
3	**1**		ONE HOUR	✓	372	100.000
	2		ONE HOUR	✓	202	100.000
	3		ONE HOUR	✓	675	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To			
		A	**B**	**C**	**D**
From	**A**	0	5	137	3
	B	13	0	24	0
	C	243	8	0	7
	D	20	1	15	0

Junction 2

Demand (PCU/hr)

		To		
		A	**B**	**C**
From	**A**	0	9	223
	B	21	0	34
	C	162	9	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	155	216
	2	164	1	37
	3	499	176	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	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		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.23	2.89	0.3	A	341	512
	2	0.12	2.40	0.1	A	185	278
	3	0.39	3.43	0.7	A	619	929

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.09	9.40	0.1	A	34	51
	A-BCD	0.01	6.57	0.0	A	4	5
	A-B					5	7
	A-C					125	187

	D-ABC	0.09	10.16	0.1	B	33	50
	C-ABD	0.02	5.90	0.0	A	11	17
	C-D					6	9
	C-A					219	329
2	**B-AC**	0.14	10.28	0.2	B	50	76
	C-AB	0.02	6.47	0.0	A	11	16
	C-A					146	219
	A-B					8	12
	A-C					205	307

2019 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.50	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.79	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.69	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 Baseline	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	89	100.000
	B		ONE HOUR	✓	13	100.000
	C		ONE HOUR	✓	249	100.000
	D		ONE HOUR	✓	15	100.000
2	A		ONE HOUR	✓	281	100.000
	B		ONE HOUR	✓	21	100.000
	C		ONE HOUR	✓	90	100.000
3	1		ONE HOUR	✓	271	100.000
	2		ONE HOUR	✓	545	100.000
	3		ONE HOUR	✓	155	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	11	71	7
	B	1	0	11	1
	C	196	27	0	26
	D	4	0	11	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	35	246
	B	17	0	4
	C	80	10	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	149	122
	2	375	0	170
	3	106	48	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	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		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.15	2.40	0.2	A	249	373
	2	0.30	2.82	0.5	A	500	750
	3	0.11	2.75	0.1	A	142	213

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	7.84	0.0	A	12	18
	A-BCD	0.02	7.00	0.0	A	7	11
	A-B					10	15
	A-C					64	96

	D-ABC	0.04	10.23	0.0	B	14	21
	C-ABD	0.06	6.13	0.1	A	35	53
	C-D					23	34
	C-A					170	256
2	**B-AC**	0.06	10.85	0.1	B	19	29
	C-AB	0.02	7.13	0.0	A	11	16
	C-A					72	108
	A-B					32	48
	A-C					226	339

2023 Without, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.73	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.43	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D3	2023 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.0597

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	154	100.000
	B		ONE HOUR	✓	39	100.000
	C		ONE HOUR	✓	273	100.000
	D		ONE HOUR	✓	38	100.000
2	A		ONE HOUR	✓	246	100.000
	B		ONE HOUR	✓	58	100.000
	C		ONE HOUR	✓	181	100.000
3	1		ONE HOUR	✓	394	100.000
	2		ONE HOUR	✓	214	100.000
	3		ONE HOUR	✓	715	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	5	145	3
	B	14	0	25	0
	C	258	8	0	7
	D	21	1	16	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	10	236
	B	22	0	36
	C	172	10	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	164	229
	2	174	1	39
	3	529	187	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	0
	C	10	10	0	10
	D	10	10	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.25	2.97	0.4	A	362	543
	2	0.13	2.44	0.2	A	196	295
	3	0.42	3.61	0.8	A	656	985

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.09	9.53	0.1	A	36	54
	A-BCD	0.01	6.55	0.0	A	4	6
	A-B					5	7
	A-C					132	199

	D-ABC	0.10	10.34	0.1	B	35	53
	C-ABD	0.02	5.84	0.0	A	12	18
	C-D					7	10
	C-A					232	348
2	**B-AC**	0.15	10.49	0.2	B	53	80
	C-AB	0.02	6.44	0.0	A	12	18
	C-A					155	232
	A-B					9	13
	A-C					217	325

2023 Without, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.52	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.80	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D4	2023 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.0597

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	94	100.000
	B		ONE HOUR	✓	14	100.000
	C		ONE HOUR	✓	264	100.000
	D		ONE HOUR	✓	16	100.000
2	A		ONE HOUR	✓	298	100.000
	B		ONE HOUR	✓	22	100.000
	C		ONE HOUR	✓	95	100.000
3	1		ONE HOUR	✓	287	100.000
	2		ONE HOUR	✓	578	100.000
	3		ONE HOUR	✓	164	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	12	75	7
	B	1	0	12	1
	C	208	29	0	28
	D	4	0	12	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	37	261
	B	18	0	4
	C	85	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	158	129
	2	397	0	180
	3	112	51	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	10
	C	10	10	0	10
	D	10	0	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	10
	2	10	0	10
	3	10	10	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.16	2.43	0.2	A	264	395
	2	0.32	2.91	0.5	A	530	795
	3	0.11	2.83	0.1	A	151	226

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	7.88	0.0	A	13	19
	A-BCD	0.02	7.01	0.0	A	8	12
	A-B					11	16
	A-C					68	102

	D-ABC	0.04	10.36	0.1	B	15	22
	C-ABD	0.07	6.09	0.1	A	38	58
	C-D					24	36
	C-A					180	270
2	**B-AC**	0.06	11.02	0.1	B	20	31
	C-AB	0.02	7.14	0.0	A	11	17
	C-A					76	114
	A-B					34	51
	A-C					239	359

2028 Without , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.77	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.47	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D5	2028 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.1393

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	165	100.000
	B		ONE HOUR	✓	42	100.000
	C		ONE HOUR	✓	294	100.000
	D		ONE HOUR	✓	41	100.000
2	A		ONE HOUR	✓	264	100.000
	B		ONE HOUR	✓	63	100.000
	C		ONE HOUR	✓	195	100.000
3	1		ONE HOUR	✓	424	100.000
	2		ONE HOUR	✓	230	100.000
	3		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	6	156	3
	B	15	0	27	0
	C	277	9	0	8
	D	23	1	17	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	10	254
	B	24	0	39
	C	185	10	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	177	246
	2	187	1	42
	3	569	201	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	0
	C	10	10	0	10
	D	10	10	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.27	3.09	0.4	A	389	583
	2	0.14	2.51	0.2	A	211	317
	3	0.45	3.89	0.9	A	706	1059

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.10	9.72	0.1	A	39	58
	A-BCD	0.01	6.52	0.0	A	4	6
	A-B					5	8
	A-C					142	213

	D-ABC	0.11	10.60	0.1	B	38	56
	C-ABD	0.02	5.78	0.0	A	13	20
	C-D					7	11
	C-A					249	374
2	**B-AC**	0.16	10.78	0.2	B	57	86
	C-AB	0.03	6.41	0.0	A	13	19
	C-A					166	249
	A-B					9	14
	A-C					233	350

2028 Without , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.54	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.82	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D6	2028 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.1393

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	101	100.000
	B		ONE HOUR	✓	15	100.000
	C		ONE HOUR	✓	284	100.000
	D		ONE HOUR	✓	17	100.000
2	A		ONE HOUR	✓	320	100.000
	B		ONE HOUR	✓	24	100.000
	C		ONE HOUR	✓	103	100.000
3	1		ONE HOUR	✓	309	100.000
	2		ONE HOUR	✓	621	100.000
	3		ONE HOUR	✓	177	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	13	81	8
	B	1	0	13	1
	C	223	31	0	30
	D	5	0	13	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	40	280
	B	19	0	5
	C	91	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	170	139
	2	427	0	194
	3	121	55	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	10
	C	10	10	0	10
	D	10	0	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	10
	2	10	0	10
	3	10	10	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.18	2.48	0.2	A	283	425
	2	0.35	3.05	0.6	A	570	855
	3	0.13	2.94	0.2	A	162	243

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	7.94	0.0	A	14	20
	A-BCD	0.02	7.01	0.0	A	9	13
	A-B					11	17
	A-C					73	110

	D-ABC	0.05	10.54	0.1	B	16	24
	C-ABD	0.07	6.04	0.1	A	42	64
	C-D					26	38
	C-A					192	289
2	**B-AC**	0.07	11.26	0.1	B	22	33
	C-AB	0.03	7.16	0.0	A	12	19
	C-A					82	123
	A-B					37	55
	A-C					257	386

2038 Without , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.79	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.50	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D7	2038 Without	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*1.1969

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	174	100.000
	B		ONE HOUR	✓	44	100.000
	C		ONE HOUR	✓	309	100.000
	D		ONE HOUR	✓	43	100.000
2	A		ONE HOUR	✓	278	100.000
	B		ONE HOUR	✓	66	100.000
	C		ONE HOUR	✓	205	100.000
3	1		ONE HOUR	✓	445	100.000
	2		ONE HOUR	✓	242	100.000
	3		ONE HOUR	✓	808	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	6	164	4
	B	16	0	29	0
	C	291	10	0	8
	D	24	1	18	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	11	267
	B	25	0	41
	C	194	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	186	259
	2	196	1	44
	3	597	211	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	0
	C	10	10	0	10
	D	10	10	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.28	3.18	0.4	A	409	613
	2	0.15	2.55	0.2	A	222	333
	3	0.48	4.12	1.0	A	741	1112

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.11	9.86	0.1	A	41	61
	A-BCD	0.01	6.50	0.0	A	4	7
	A-B					5	8
	A-C					149	224

	D-ABC	0.11	10.80	0.1	B	40	59
	C-ABD	0.02	5.73	0.0	A	14	21
	C-D					8	11
	C-A					262	392
2	**B-AC**	0.17	11.01	0.2	B	60	91
	C-AB	0.03	6.39	0.0	A	14	21
	C-A					174	261
	A-B					10	15
	A-C					245	367

2038 Without , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		1.56	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.83	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D8	2038 Without	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*1.1969

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	107	100.000
	B		ONE HOUR	✓	16	100.000
	C		ONE HOUR	✓	298	100.000
	D		ONE HOUR	✓	18	100.000
2	A		ONE HOUR	✓	336	100.000
	B		ONE HOUR	✓	25	100.000
	C		ONE HOUR	✓	108	100.000
3	1		ONE HOUR	✓	324	100.000
	2		ONE HOUR	✓	652	100.000
	3		ONE HOUR	✓	186	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	13	85	8
	B	1	0	13	1
	C	235	32	0	31
	D	5	0	13	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	42	294
	B	20	0	5
	C	96	12	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	178	146
	2	449	0	203
	3	127	57	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	10
	B	10	0	10	10
	C	10	10	0	10
	D	10	0	10	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	10
	B	10	0	10
	C	10	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	10
	2	10	0	10
	3	10	10	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.18	2.51	0.2	A	298	446
	2	0.36	3.16	0.6	A	599	898
	3	0.14	3.03	0.2	A	170	255

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	7.98	0.0	A	14	21
	A-BCD	0.02	7.02	0.0	A	9	14
	A-B					12	18
	A-C					77	115

	D-ABC	0.05	10.68	0.1	B	16	25
	C-ABD	0.08	6.01	0.2	A	45	68
	C-D					27	40
	C-A					201	302
2	**B-AC**	0.07	11.44	0.1	B	23	35
	C-AB	0.03	7.18	0.0	A	13	20
	C-A					86	129
	A-B					38	58
	A-C					270	405

2023 With, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		4.22	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.27	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D11	2023 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D3+D9

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	**A**		ONE HOUR	✓	168	100.000
	B		ONE HOUR	✓	39	100.000
	C		ONE HOUR	✓	307	100.000
	D		ONE HOUR	✓	152	100.000
2	**A**		ONE HOUR	✓	280	100.000
	B		ONE HOUR	✓	58	100.000
	C		ONE HOUR	✓	229	100.000
3	**1**		ONE HOUR	✓	408	100.000
	2		ONE HOUR	✓	215	100.000
	3		ONE HOUR	✓	781	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	**B**	**C**	**D**
From	**A**	0	5	145	17
	B	14	0	25	0
	C	258	8	0	41
	D	87	1	64	0

Demand (PCU/hr)

Junction 2

		To		
		A	**B**	**C**
From	**A**	0	10	270
	B	22	0	36
	C	220	10	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	164	243
	2	175	1	39
	3	578	204	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	2
	B	10	0	10	0
	C	10	10	0	2
	D	2	10	2	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	9
	B	10	0	10
	C	8	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	9
	2	10	10	10
	3	9	9	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.26	3.05	0.4	A	375	562
	2	0.13	2.47	0.2	A	197	296
	3	0.46	3.84	0.9	A	717	1075

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.10	9.86	0.1	A	36	54
	A-BCD	0.04	6.35	0.1	A	21	31
	A-B					5	7
	A-C					129	193

	D-ABC	0.40	14.50	0.7	B	140	209
	C-ABD	0.02	5.70	0.0	A	13	19
	C-D					37	56
	C-A					232	348
2	**B-AC**	0.15	10.83	0.2	B	53	80
	C-AB	0.02	6.21	0.0	A	13	19
	C-A					198	296
	A-B					9	13
	A-C					248	372

2023 With, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		2.61	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.67	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D12	2023 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D4+D10

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	115	100.000
	B		ONE HOUR	✓	14	100.000
	C		ONE HOUR	✓	340	100.000
	D		ONE HOUR	✓	66	100.000
2	A		ONE HOUR	✓	374	100.000
	B		ONE HOUR	✓	22	100.000
	C		ONE HOUR	✓	132	100.000
3	1		ONE HOUR	✓	308	100.000
	2		ONE HOUR	✓	581	100.000
	3		ONE HOUR	✓	177	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	12	75	28
	B	1	0	12	1
	C	208	29	0	104
	D	17	0	49	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	37	337
	B	18	0	4
	C	122	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	158	150
	2	400	0	180
	3	121	55	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	2
	B	10	0	10	10
	C	10	10	0	2
	D	2	0	2	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	8
	B	10	0	10
	C	7	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	8
	2	10	0	10
	3	9	9	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.18	2.46	0.2	A	283	424
	2	0.33	2.98	0.5	A	533	799
	3	0.12	2.85	0.2	A	163	244

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	7.95	0.0	A	13	19
	A-BCD	0.07	7.18	0.1	A	31	46
	A-B					10	15
	A-C					65	98

	D-ABC	0.19	11.74	0.2	B	60	91
	C-ABD	0.07	5.75	0.1	A	43	65
	C-D					89	134
	C-A					179	269
2	**B-AC**	0.07	11.75	0.1	B	20	31
	C-AB	0.03	6.96	0.0	A	12	18
	C-A					109	164
	A-B					34	51
	A-C					309	463

2028 With , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		4.25	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.31	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.63	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D13	2028 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D5+D9

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	179	100.000
	B		ONE HOUR	✓	42	100.000
	C		ONE HOUR	✓	328	100.000
	D		ONE HOUR	✓	155	100.000
2	A		ONE HOUR	✓	298	100.000
	B		ONE HOUR	✓	63	100.000
	C		ONE HOUR	✓	243	100.000
3	1		ONE HOUR	✓	438	100.000
	2		ONE HOUR	✓	231	100.000
	3		ONE HOUR	✓	835	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	6	156	17
	B	15	0	27	0
	C	277	9	0	42
	D	89	1	65	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	10	288
	B	24	0	39
	C	233	10	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	177	260
	2	188	1	42
	3	618	218	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	2
	B	10	0	10	0
	C	10	10	0	2
	D	2	10	2	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	9
	B	10	0	10
	C	8	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	9
	2	10	10	10
	3	9	9	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.28	3.18	0.4	A	402	603
	2	0.14	2.54	0.2	A	212	318
	3	0.49	4.16	1.1	A	766	1149

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.11	10.07	0.1	B	39	58
	A-BCD	0.04	6.33	0.1	A	21	32
	A-B					5	8
	A-C					138	207

	D-ABC	0.41	15.08	0.7	C	142	213
	C-ABD	0.02	5.64	0.0	A	14	21
	C-D					38	57
	C-A					249	374
2	**B-AC**	0.16	11.15	0.2	B	57	86
	C-AB	0.03	6.18	0.0	A	14	21
	C-A					209	313
	A-B					9	14
	A-C					264	396

2028 With , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		2.61	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.69	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	2.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D14	2028 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D6+D10

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	**A**		ONE HOUR	✓	122	100.000
	B		ONE HOUR	✓	15	100.000
	C		ONE HOUR	✓	360	100.000
	D		ONE HOUR	✓	67	100.000
2	**A**		ONE HOUR	✓	396	100.000
	B		ONE HOUR	✓	24	100.000
	C		ONE HOUR	✓	140	100.000
3	**1**		ONE HOUR	✓	330	100.000
	2		ONE HOUR	✓	624	100.000
	3		ONE HOUR	✓	190	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	**B**	**C**	**D**
From	**A**	0	13	81	29
	B	1	0	13	1
	C	223	31	0	106
	D	18	0	50	0

Demand (PCU/hr)

Junction 2

		To		
		A	**B**	**C**
From	**A**	0	40	356
	B	19	0	5
	C	128	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	170	160
	2	430	0	194
	3	130	59	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	3
	B	10	0	10	10
	C	10	10	0	3
	D	2	0	2	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	8
	B	10	0	10
	C	7	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	9
	2	10	0	10
	3	9	9	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.19	2.51	0.3	A	303	454
	2	0.35	3.13	0.6	A	573	859
	3	0.14	2.96	0.2	A	174	261

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	8.00	0.0	A	14	20
	A-BCD	0.07	7.21	0.1	A	32	47
	A-B					11	16
	A-C					70	105

	D-ABC	0.19	12.00	0.2	B	62	92
	C-ABD	0.08	5.71	0.2	A	48	72
	C-D					91	136
	C-A					192	287
2	**B-AC**	0.07	12.02	0.1	B	22	33
	C-AB	0.03	6.97	0.0	A	13	20
	C-A					115	172
	A-B					37	55
	A-C					327	490

2038 With , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		4.28	A
2	Village Road / Belmont Drive	T-Junction	Two-way		1.35	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D15	2038 With	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D7+D9

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	188	100.000
	B		ONE HOUR	✓	44	100.000
	C		ONE HOUR	✓	343	100.000
	D		ONE HOUR	✓	157	100.000
2	A		ONE HOUR	✓	312	100.000
	B		ONE HOUR	✓	66	100.000
	C		ONE HOUR	✓	253	100.000
3	1		ONE HOUR	✓	459	100.000
	2		ONE HOUR	✓	243	100.000
	3		ONE HOUR	✓	874	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	6	164	18
	B	16	0	29	0
	C	291	10	0	42
	D	90	1	66	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	11	301
	B	25	0	41
	C	242	11	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	1	186	273
	2	197	1	44
	3	646	228	0

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	2
	B	10	0	10	0
	C	10	10	0	2
	D	2	10	3	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	9
	B	10	0	10
	C	8	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	10	10	9
	2	10	10	10
	3	9	9	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.30	3.27	0.5	A	421	632
	2	0.15	2.59	0.2	A	223	334
	3	0.52	4.43	1.2	A	802	1203

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.11	10.22	0.1	B	41	61
	A-BCD	0.04	6.33	0.1	A	22	33
	A-B					5	8
	A-C					145	217

	D-ABC	0.42	15.52	0.7	C	144	216
	C-ABD	0.03	5.59	0.0	A	15	23
	C-D					38	57
	C-A					261	392
2	**B-AC**	0.17	11.39	0.2	B	60	91
	C-AB	0.03	6.15	0.0	A	15	23
	C-A					217	325
	A-B					10	15
	A-C					276	414

2038 With , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D11 - 2023 With, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Large Roundabout	Junction 3 - Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Arm order	Junction Delay (s)	Junction LOS
1	Village Road / Atkinson Drive / Cluain Shee	Crossroads	Two-way		2.61	A
2	Village Road / Belmont Drive	T-Junction	Two-way		0.71	A
3	R117 / Belarmine Avenue	Large Roundabout		1,2,3	3.01	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Junction	Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
3	**1**	0	0.00
	2	0	0.00
	3	0	0.00

Major Arm Geometry
[same as above]

Minor Arm Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D16	2038 With	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D8+D10

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	128	100.000
	B		ONE HOUR	✓	16	100.000
	C		ONE HOUR	✓	374	100.000
	D		ONE HOUR	✓	68	100.000
2	A		ONE HOUR	✓	412	100.000
	B		ONE HOUR	✓	25	100.000
	C		ONE HOUR	✓	145	100.000
3	1		ONE HOUR	✓	345	100.000
	2		ONE HOUR	✓	655	100.000
	3		ONE HOUR	✓	199	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	0	13	85	29
	B	1	0	13	1
	C	235	32	0	107
	D	18	0	50	0

Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	42	370
	B	20	0	5
	C	133	12	0

Demand (PCU/hr)

Junction 3

		To		
		1	2	3
From	1	0	178	167
	2	452	0	203
	3	136	61	1

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	0	10	10	3
	B	10	0	10	10
	C	10	10	0	3
	D	3	0	2	0

Heavy Vehicle Percentages

Junction 2

		To		
		A	B	C
From	A	0	10	8
	B	10	0	10
	C	7	10	0

Heavy Vehicle Percentages

Junction 3

		To		
		1	2	3
From	1	0	10	9
	2	10	0	10
	3	9	9	10

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
3	1	0.20	2.54	0.3	A	317	475
	2	0.37	3.24	0.6	A	601	902
	3	0.15	3.06	0.2	A	182	273

Results Summary for whole modelled period

Junction	Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	B-ACD	0.03	8.05	0.0	A	14	21
	A-BCD	0.07	7.23	0.1	A	32	49
	A-B					11	17
	A-C					73	110

	D-ABC	0.20	12.20	0.3	B	62	94
	C-ABD	0.08	5.68	0.2	A	51	77
	C-D					92	137
	C-A					200	301
2	**B-AC**	0.08	12.22	0.1	B	23	35
	C-AB	0.03	6.99	0.0	A	14	21
	C-A					119	178
	A-B					38	58
	A-C					340	510

Appendix H Car Club Letter of Support

To Whom It May Concern,

This is a letter to confirm that GoCar intends to provide 2 shared car club vehicles in the proposed Strategic Housing Development in Project Ironborn, Aikens Village, Stepaside. GoCar representatives have discussed the project with the appointed transport planners of the development (AECOM) and are excited to provide a car club service at this location.

It is understood that the vehicles at this development will be shared between both the residents of the development and members of the public living nearby. GoCar will work with the eventual management company to work out how best to provide access to the property for non-residents who wish to use the vehicles.

GoCar is Ireland's leading car sharing service with over 50,000 members and over 700 cars and vans on fleet. Each GoCar which is placed in a community has the potential to replace the journeys of up to 15 private cars. The Department of Housing's Design Standards for New Apartments - Guidelines for Planning Authorities 2018 outline: "For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure... provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles."

Carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary and walk and use public transport more often than car owners.

By having GoCar car club vehicles in a residential development such as this, residents will have access to pay-as-you-go driving, in close proximity to their homes, which will increase usership of the service.

I trust that this information is satisfactory. For any queries, please do not hesitate to contact me.

Regards,

Rob Kearns
Head of Growth
GoCar Carsharing Limited
M: 083 822 3924
E: rob.kearns@gocar.ie

aecom.com