

Proposed Housing Development at Páirceanna na Bhaile, Townparks, Carrick on Shannon, Co Leitrim

Traffic Survey and Analysis Report

13th November 2020

Prepared for

WGG Architects

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Non-technical summary

- TTRSA has been commissioned by WGG Architects to undertake a 12-hour traffic survey and prepare a traffic survey report and associated analysis for a proposed housing development at Páirceanna na Bhaile, Townparks, Carrick on Shannon, Co Leitrim, as part of a forthcoming Part VIII planning application by Leitrim County Council.
- The proposed development consists of 12 residential units (four 2-bed, six 3-bed, and two 4-bed), accessed from the Summerhill/Autumn View junction as an extension to the Páirceanna na Bhaile estate which is under construction.
- The site layout drawing of the proposed development, upon which the analysis contained within this report is based, has been prepared by WGG Architects, entitled 'Site Location & Site Layout'; Drawing Number: PL20-006-001; Dated: 13/11/2020.
- TTRSA undertook a 12-hour video based traffic survey, between 07:00 and 18:59 hours inclusive, of through traffic and turning movements at the existing Summerhill/Autumn View junction on Thursday 5th March 2020, before the introduction of national restrictions on movement due to COVID-19. The traffic survey recorded a total of 2004 vehicle movements.
- The peak traffic flows identified from the traffic count data are an AM peak hour of 08:15-09:14 and a PM peak hour of 16:30-17:29, both inclusive. The count data shows 212 AM peak hour traffic movements, and 229 PM peak hour traffic movements, at the existing Summerhill/Autumn View junction.
- The predicted trip generation for the proposed development, based on a survey of a residential estate in Co. Leitrim, is two arrivals and three departures in the AM peak hour and four arrivals and three departures in the PM peak hour.
- To ensure that the analysis of the impact of the development on the Summerhill/Autumn View junction is robust, the trip generation applied within the traffic modelling is slightly higher, being based on the number and size of the proposed residential units.
- Local traffic has been growthed to the opening year of 2021 and future assessment years of 2026 and 2036 using standard growth factors from the National Transport Model which is consistent with prevailing Transport Infrastructure Ireland guidelines.
- The operation of the existing Summerhill/Autumn View junction has been assessed using the industry standard traffic modelling software package PICADY. The modelling covers the AM and PM peak hour scenarios in the opening and future assessment years, with and without the proposed development. A sensitivity test has also been applied taking account of the potential cumulative effect of the element of the Páirceanna na Bhaile that is currently under construction.
- The modelling output shows that the impact of the proposed development on the operation of the existing Summerhill/Autumn View junction is negligible, and that the junction will operate with a large amount of spare capacity and minimal queueing, in all of the scenarios tested.

1 Introduction

1.1 Traffic Transport and Road Safety Associates

Traffic Transport and Road Safety Associates Ltd. (TTRSA) is a specialist Traffic Engineering and Transport Planning practice, based in Ireland. The senior managers within TTRSA have extensive experience of developing traffic management schemes, assessing the transport related impacts of development and improving road safety both nationally and internationally.

TTRSA has been commissioned by WGG Architects to undertake a 12-hour traffic survey and prepare a traffic survey report and associated analysis for a proposed housing development at Páirceanna na Bhaile, Townparks, Carrick on Shannon, Co Leitrim, as part of a forthcoming Part VIII planning application by Leitrim County Council.

1.2 Proposed development

The proposed development consists of 12 residential units (four 2-bed, six 3-bed, and two 4-bed), accessed from the Summerhill/Autumn View junction as an extension to the Páirceanna na Bhaile estate which is under construction.

A scaled copy of the site layout drawing of the proposed development prepared by WGG Architects, entitled 'Site Location & Site Layout'; Drawing Number: PL20-006-001; Dated: 13/11/2020, is included for information within Appendix A, and provides the basis of the analysis contained within this report.

1.3 Format of this report

This traffic report has been prepared in accordance with the agreed design brief for the housing scheme, with cognisance of the Transport Infrastructure Ireland (TII) document 'Traffic and Transport Assessment Guidelines' (PE-PDV-02045) published in May 2014. The remaining sections of this traffic are set out as follows:

- Chapter 2 provides details of the traffic survey methodology and key findings of the traffic survey; and,
- Chapter 3 provides details of the analysis of the traffic impact of the proposed development, including trip generation, distribution, assignment and junction operation.

2 Traffic survey

2.1 Traffic survey methodology

TTRSA undertook a 12-hour video based traffic survey, between 07:00 and 18:59 hours inclusive, of through traffic and turning movements at the existing Summerhill/Autumn View junction on Thursday 5th March 2020, before the introduction of national restrictions on movement due to COVID-19. During the survey period no extreme weather events or traffic related incidents were recorded. The traffic survey recorded a total of 2004 vehicle movements.

Data from the traffic survey video was coded into 15 minute periods, classified into bicycles; motorcycles; cars and light goods vehicles (LGV); and, heavy goods vehicles (HGV) and public service vehicles¹ (PSV).

For the purpose of this analysis contained within Section 3 of this report, the traffic count data has also been converted into Passenger Car Units (PCUs), using factors of: 0.2 for bicycles; 0.4 for motorcycles; 1.0 for cars and LGVs (including those towing trailers); and 2.3 for buses and all types of rigid and articulated HGV and PSV.

The coded traffic count data, including PCU values, is included within Appendix B of this report.

2.2 Peak traffic flows

The peak traffic flows identified from the traffic count data are an AM peak hour of 08:15-09:14 and a PM peak hour of 16:30-17:29, both inclusive. The count data shows 212 AM peak hour traffic movements, and 229 PM peak hour traffic movements, at the existing Summerhill/Autumn View junction.

1 buses and coaches

3 Analysis of development impact

3.1 Predicted trip vehicular generation

Peak hour vehicular trip generation for the proposed development (Table 3.1) has been predicted based on a trip generation survey undertaken in Ballinamore, Co. Leitrim in March 2020. The average number of trips per residential unit in each peak hour is 0.6. This number of peak hour trips is consistent with typical levels of residential trip generation contained within databases such as TRICS.

Table 3.1 – Predicted vehicular trip generation (PCUs)

Peak Period	Arrivals	Departures
AM Peak	2	3
PM Peak	5	4

3.2 Modelled trip vehicular generation

To ensure that the analysis of the impact of the development on the existing Summerhill/Autumn View junction is robust, the trip generation applied within the traffic modelling detailed in Section 3.6 has been based on the number and size of the proposed residential units: 0.5 arrivals and departures for each one-bed and two-bed dwelling; 0.75 arrivals and departures for each three-bed dwelling; and, one arrival and departure for each four-bed dwelling, during each of the peak hours. The modelled vehicular trip generation for the proposed development is detailed in Table 3.2 and incorporated into Appendix C.

Table 3.2 – Modelled vehicular trip generation (PCUs)

Peak Period	Arrivals	Departures
AM Peak	8.5	8.5
PM Peak	8.5	8.5

3.3 Modal split

No modal split targets have been set for the development. The 2016 Census modal split for journeys to work in Carrick-on-Shannon was reported as: Walk 20%; Cycle 2%; Public Transport 2%; Car/Van 76%; and, other <1%, and for journeys to school in Carrick-on-Shannon was reported as: Walk 28%; Cycle 1%; Public Transport 11%; and, Car 60%.

3.4 Trip distribution and assignment

For the purpose of this assessment, trips to and from the proposed development have been distributed and assigned taking account of existing AM and PM peak hour traffic movements on Summerhill in the vicinity of the existing Summerhill/Autumn View junction. This approach takes into account a number of factors including the distance to and availability of facilities and commuting based trips. The distribution and assignment of development related trips is detailed in Appendix D.

3.5 Opening and future year traffic

Subject to planning being granted, it is assumed for the purpose of this traffic report that the proposed development will be fully constructed during 2021/2. Local traffic has been growthed to the opening year and future assessment years of 2026 and 2036 using the Central Growth assumptions for link based growth in Carrick-on-Shannon (Zone 102) contained in the TII PE-PAG-02017 NTpM Zones Shapefile (May 2019 version), taking account of 2.0% HCVs. The growth factors applied being:

- From 2020 to 2021 a factor of 1.005;
- From 2020 to 2026 a factor of 1.028; and,
- From 2020 to 2036 a factor of 1.035.

The impact of this traffic growth is detailed within Appendix C.

3.6 Assessment of junction operation

The operation of the existing Summerhill/Autumn View junction has been assessed using the industry standard traffic modelling software package PICADY. The modelling covers the AM and PM peak hour scenarios in the opening and future assessment years, with and without the proposed development. A sensitivity test has also been applied taking account of the potential cumulative effect of the element of the Páirceanna na Bhaile that is currently under construction. Traffic movements related to all scenarios are detailed within Appendix C.

The assessment has been undertaken using PCU values. The criteria used to assess the performance of a junction for a given traffic demand within the aforementioned traffic modelling software are:

- Ratio of Flow to Capacity (RFC) is a measure of junction performance in terms of saturation. A value of 1.00, which can also be considered as 100% saturation, represents an arm of the junction operating at maximum capacity, in that any increase in the rate of vehicles arriving on the link will result in significant additional queue lengths. Traditionally a figure of 0.85 or 85% is the maximum acceptable degree of saturation for priority junctions, with anything above this figure being considered to be congested.
- Queue lengths (measured in PCUs) are primarily used to check for blocking back through adjacent junctions.

The results of the assessment are summarised in Table 3.3 and the output file is presented in Appendix D.

The modelling output shows that the impact of the proposed development on the operation of the existing Summerhill/Autumn View junction is negligible and that the junction will operate with a large amount of spare capacity and minimal queuing, in all of the scenarios tested. The modelling output shows that with the planned development in place, the junction has 96.0% spare capacity in the 2036 AM peak hour, and 95.1% spare capacity in the 2036 PM peak hour.

Table 3.3 – Summary of PICADY output for the existing Summerhill/Autumn View junction

Scenarios	AM Peak Hour		PM Peak Hour	
	Max RFC	Max Queue (Vehicles)	Max RFC	Max Queue (Vehicles)
2021 without development	0.017	0.02	0.028	0.03
2026 without development	0.017	0.02	0.030	0.03
2036 without development	0.017	0.02	0.030	0.03
2021 with development	0.037	0.04	0.049	0.05
2026 with development	0.037	0.04	0.049	0.05
2036 with development	0.040	0.04	0.049	0.05
2036 sensitivity test	0.065	0.07	0.075	0.08

Appendix A

Site Layout Drawing (prepared by WGG Architects)

Drawing Title: Site Location & Site Layout

Drawing Number: PL20-006-001

Drawing Dated: 13/11/2020

Scaled drawing for information only

Notes
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Private Open Space

Plot No.	Area
1	53.02
2	48.68
3	70.30
4	68.96
5	95.28
6	98.25
7	61.09
8	54.86
9	73.04
10	68.29
11	61.51
12	89.74

Site Layout
 Area: 5,903.8 m²

Site Layout

1:500

2 No. Type A - 1087 sqft 3 Bed Semi-D

4 No. Type B - 897 sqft 2 Bed Mid-Terrace

4 No. Type C - 1087 sqft 3 Bed End-Terrace

2 No. Type D - 1188 sqft 4 Bed End-Terrace

Total Units: 12

Joining Development Currently Under Construction

5.5 - 6m Access Road

Pedestrian Path Along Access Road

Driveways/ Parking Spaces

Private Open Space (Lawn)

Public Open Space

Woodland Planting With Understorey

Specimen Trees

Shrubs & Ground Cover Planting

Native Hedgerow

Retaining Wall/Gabions

Plot Boundary Fence

1.2m Boundary Walls

1.8m Boundary Walls



Rev	Issue Date	Description	Approved by

Purpose of Issue: **Planning**

Wynne Gormley Architects & Surveyors Ltd.

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JOB DETAILS
 Proposed Housing Development
 Pairceanna na Bhaile, Townparks, Carrick-on-Shannon, Co. Leitrim
 Leitrim County Council

Scale @ A2	Dwgn No	Amend.
1:500, 1:10.7, 1:100, 1:1.1	PL 20-006-001	
Date	Description	
13/11/2020	Site Location & Site Layout	
Drawn by	J. McDermott	
Checked by	E. Gilmanan	

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Appendix B

Traffic Count Data and PCU Conversion

12-hour Manual Classified (Video) Count Thursday 5th March 2020
Summerhill/Autumn View junction, Carrick-on-Shannon, Co. Leitrim



Arm A – Summerhill to/from south-west
 Arm B – Autumn View
 Arm C – Summerhill to/from north-east

PCU Factors

Cycle 0.2
 Motorcycle 0.4
 Car/LGV 1
 HGV/PSV 2.3

Incidents None

Bicycle	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	0	0	0	0	0	0
07:15 – 07:29	0	0	0	0	0	0
07:30 – 07:44	0	0	0	0	0	0
07:45 – 07:59	0	0	0	0	0	0
08:00 – 08:14	0	0	0	0	0	0
08:15 – 08:29	0	0	0	0	0	0
08:30 – 08:44	0	0	1	0	0	0
08:45 – 08:59	0	0	0	0	0	0
09:00 – 09:14	0	0	0	0	0	0
09:15 – 09:29	0	0	0	0	0	0
09:30 – 09:44	0	0	0	0	0	0
09:45 – 09:59	0	1	0	0	0	0
10:00 – 10:14	0	0	0	0	0	0
10:15 – 10:29	0	0	0	0	1	0
10:30 – 10:44	0	0	0	0	0	0
10:45 – 10:59	0	1	0	0	0	0
11:00 – 11:14	0	0	0	0	0	0
11:15 – 11:29	0	0	0	0	0	0
11:30 – 11:44	0	0	0	0	0	0
11:45 – 11:59	0	0	0	0	0	0
12:00 – 12:14	0	0	0	0	0	0
12:15 – 12:29	0	0	0	0	0	0
12:30 – 12:44	0	0	0	0	0	0
12:45 – 12:59	0	0	0	0	0	0
13:00 – 13:14	0	0	0	0	0	0
13:15 – 13:29	0	0	0	0	0	0
13:30 – 13:44	0	0	0	0	0	0
13:45 – 13:59	0	0	0	0	0	0
14:00 – 14:14	0	0	0	0	1	0
14:15 – 14:29	0	0	0	0	0	0
14:30 – 14:44	0	0	0	0	0	0
14:45 – 14:59	0	0	0	0	0	0
15:00 – 15:14	0	0	0	0	0	0
15:15 – 15:29	0	0	0	0	0	0
15:30 – 15:44	0	0	0	0	0	0
15:45 – 15:59	0	0	0	0	0	0
16:00 – 16:14	0	0	0	0	0	0
16:15 – 16:29	0	0	0	0	0	0
16:30 – 16:44	0	0	0	0	0	0
16:45 – 16:59	0	0	1	0	0	0
17:00 – 17:14	0	0	0	0	0	0
17:15 – 17:29	0	0	0	0	0	0
17:30 – 17:44	0	0	0	0	0	0
17:45 – 17:59	0	0	0	0	0	0
18:00 – 18:14	0	0	0	0	0	0
18:15 – 18:29	0	0	0	0	0	0
18:30 – 18:44	0	0	0	0	0	0
18:45 – 18:59	0	0	0	0	0	0

Motorcycle	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	0	0	0	0	0	0
07:15 – 07:29	0	0	0	0	0	0
07:30 – 07:44	0	0	0	0	0	0
07:45 – 07:59	0	0	0	0	0	0
08:00 – 08:14	0	0	0	0	0	0
08:15 – 08:29	0	0	0	0	0	0
08:30 – 08:44	0	0	0	0	0	0
08:45 – 08:59	0	0	0	0	0	0
09:00 – 09:14	0	0	0	0	0	0
09:15 – 09:29	0	0	0	0	0	0
09:30 – 09:44	0	0	0	0	0	0
09:45 – 09:59	0	0	0	0	0	0
10:00 – 10:14	0	0	0	0	0	0
10:15 – 10:29	0	0	0	0	0	0
10:30 – 10:44	0	0	0	0	0	0
10:45 – 10:59	0	0	0	0	0	0
11:00 – 11:14	0	0	0	0	0	0
11:15 – 11:29	0	0	0	0	0	0
11:30 – 11:44	0	0	0	0	0	0
11:45 – 11:59	0	0	0	0	0	0
12:00 – 12:14	0	0	0	0	0	0
12:15 – 12:29	0	0	0	0	0	0
12:30 – 12:44	0	0	0	0	0	0
12:45 – 12:59	0	0	0	0	0	0
13:00 – 13:14	0	0	0	0	1	0
13:15 – 13:29	0	0	0	0	0	0
13:30 – 13:44	0	0	0	0	0	0
13:45 – 13:59	0	0	0	0	0	0
14:00 – 14:14	0	0	0	0	0	0
14:15 – 14:29	0	0	0	0	0	0
14:30 – 14:44	0	0	0	0	0	0
14:45 – 14:59	0	0	0	0	0	0
15:00 – 15:14	0	0	0	0	0	0
15:15 – 15:29	0	0	0	0	0	0
15:30 – 15:44	0	0	0	0	0	0
15:45 – 15:59	0	0	0	0	0	0
16:00 – 16:14	0	0	0	0	0	0
16:15 – 16:29	0	0	0	0	0	0
16:30 – 16:44	0	0	0	0	0	0
16:45 – 16:59	0	0	0	0	0	0
17:00 – 17:14	0	0	0	0	0	0
17:15 – 17:29	0	1	0	0	0	0
17:30 – 17:44	0	0	0	0	0	0
17:45 – 17:59	0	0	0	0	0	0
18:00 – 18:14	0	0	0	0	0	0
18:15 – 18:29	0	0	0	0	0	0
18:30 – 18:44	0	0	0	0	0	0
18:45 – 18:59	0	0	0	0	0	0

Car/LGV	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	1	1	0	0	4	0
07:15 – 07:29	0	3	0	0	6	0
07:30 – 07:44	0	13	1	0	11	0
07:45 – 07:59	4	20	0	0	18	0
08:00 – 08:14	2	9	0	0	18	0
08:15 – 08:29	0	21	0	0	14	0
08:30 – 08:44	1	17	0	0	26	0
08:45 – 08:59	1	27	2	0	40	0
09:00 – 09:14	2	24	2	0	30	0
09:15 – 09:29	1	18	0	0	14	0
09:30 – 09:44	0	28	0	1	12	0
09:45 – 09:59	3	14	1	0	19	0
10:00 – 10:14	2	30	1	0	20	1
10:15 – 10:29	1	31	1	0	30	0
10:30 – 10:44	0	15	0	0	20	0
10:45 – 10:59	0	11	0	0	27	0
11:00 – 11:14	0	16	3	0	28	0
11:15 – 11:29	0	13	0	0	20	0
11:30 – 11:44	0	16	3	0	28	1
11:45 – 11:59	1	15	2	0	20	0
12:00 – 12:14	0	30	1	0	16	0
12:15 – 12:29	1	20	1	0	16	0
12:30 – 12:44	2	17	3	0	12	1
12:45 – 12:59	0	12	3	0	18	0
13:00 – 13:14	1	20	1	0	17	0
13:15 – 13:29	1	14	1	1	19	0
13:30 – 13:44	3	18	0	0	18	1
13:45 – 13:59	2	24	1	1	16	0
14:00 – 14:14	2	24	0	1	19	0
14:15 – 14:29	0	20	1	0	20	0
14:30 – 14:44	1	18	1	0	21	0
14:45 – 14:59	0	13	1	1	13	0
15:00 – 15:14	1	25	0	1	15	0
15:15 – 15:29	2	24	1	0	21	1
15:30 – 15:44	0	24	1	1	17	0
15:45 – 15:59	0	14	1	0	19	0
16:00 – 16:14	3	23	2	0	21	0
16:15 – 16:29	2	20	2	0	24	0
16:30 – 16:44	1	23	0	1	20	1
16:45 – 16:59	0	17	2	0	24	1
17:00 – 17:14	1	29	4	0	30	0
17:15 – 17:29	0	36	3	2	29	0
17:30 – 17:44	2	19	1	0	17	0
17:45 – 17:59	2	26	4	1	19	1
18:00 – 18:14	0	19	0	0	16	0
18:15 – 18:29	1	13	0	0	10	0
18:30 – 18:44	0	19	0	0	15	0
18:45 – 18:59	2	14	0	0	13	0

HGV/PSV	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	0	0	0	0	0	0
07:15 – 07:29	0	0	0	0	0	0
07:30 – 07:44	0	0	0	0	0	0
07:45 – 07:59	0	0	0	0	0	0
08:00 – 08:14	0	0	0	0	0	0
08:15 – 08:29	0	0	0	0	0	0
08:30 – 08:44	0	1	0	0	1	0
08:45 – 08:59	0	0	0	0	0	1
09:00 – 09:14	0	0	1	0	0	0
09:15 – 09:29	0	0	0	0	0	0
09:30 – 09:44	0	0	1	1	1	0
09:45 – 09:59	0	1	0	0	0	0
10:00 – 10:14	0	0	0	0	0	0
10:15 – 10:29	0	1	0	0	1	0
10:30 – 10:44	1	1	0	0	0	1
10:45 – 10:59	1	1	0	0	0	0
11:00 – 11:14	0	1	0	1	0	0
11:15 – 11:29	0	0	0	0	0	0
11:30 – 11:44	0	1	0	0	1	0
11:45 – 11:59	0	0	0	0	0	0
12:00 – 12:14	0	0	2	0	0	0
12:15 – 12:29	0	2	0	0	1	0
12:30 – 12:44	0	0	0	0	2	0
12:45 – 12:59	0	0	0	0	0	0
13:00 – 13:14	0	1	0	0	0	0
13:15 – 13:29	0	1	0	0	2	0
13:30 – 13:44	0	0	0	0	0	0
13:45 – 13:59	0	0	0	0	0	0
14:00 – 14:14	0	0	0	0	0	0
14:15 – 14:29	0	1	0	0	0	0
14:30 – 14:44	0	0	0	0	0	0
14:45 – 14:59	0	0	0	0	0	0
15:00 – 15:14	0	1	0	0	1	0
15:15 – 15:29	0	0	0	0	1	0
15:30 – 15:44	0	0	0	0	0	0
15:45 – 15:59	0	0	0	0	0	0
16:00 – 16:14	0	0	0	0	0	0
16:15 – 16:29	0	0	0	0	0	0
16:30 – 16:44	0	0	0	0	0	0
16:45 – 16:59	0	2	0	0	1	0
17:00 – 17:14	0	0	0	0	0	0
17:15 – 17:29	0	0	0	0	0	0
17:30 – 17:44	0	0	0	0	0	0
17:45 – 17:59	0	1	0	0	1	0
18:00 – 18:14	0	0	0	0	0	0
18:15 – 18:29	0	0	0	0	0	0
18:30 – 18:44	0	1	0	0	0	0
18:45 – 18:59	0	0	0	0	0	0

Total Vehicles	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	1	1	0	0	4	0
07:15 – 07:29	0	3	0	0	6	0
07:30 – 07:44	0	13	1	0	11	0
07:45 – 07:59	4	20	0	0	18	0
08:00 – 08:14	2	9	0	0	18	0
08:15 – 08:29	0	21	0	0	14	0
08:30 – 08:44	1	18	1	0	27	0
08:45 – 08:59	1	27	2	0	40	1
09:00 – 09:14	2	24	3	0	30	0
09:15 – 09:29	1	18	0	0	14	0
09:30 – 09:44	0	28	1	2	13	0
09:45 – 09:59	3	16	1	0	19	0
10:00 – 10:14	2	30	1	0	20	1
10:15 – 10:29	1	32	1	0	32	0
10:30 – 10:44	1	16	0	0	20	1
10:45 – 10:59	1	13	0	0	27	0
11:00 – 11:14	0	17	3	1	28	0
11:15 – 11:29	0	13	0	0	20	0
11:30 – 11:44	0	17	3	0	29	1
11:45 – 11:59	1	15	2	0	20	0
12:00 – 12:14	0	30	3	0	16	0
12:15 – 12:29	1	22	1	0	17	0
12:30 – 12:44	2	17	3	0	14	1
12:45 – 12:59	0	12	3	0	18	0
13:00 – 13:14	1	21	1	0	18	0
13:15 – 13:29	1	15	1	1	21	0
13:30 – 13:44	3	18	0	0	18	1
13:45 – 13:59	2	24	1	1	16	0
14:00 – 14:14	2	24	0	1	20	0
14:15 – 14:29	0	21	1	0	20	0
14:30 – 14:44	1	18	1	0	21	0
14:45 – 14:59	0	13	1	1	13	0
15:00 – 15:14	1	26	0	1	16	0
15:15 – 15:29	2	24	1	0	22	1
15:30 – 15:44	0	24	1	1	17	0
15:45 – 15:59	0	14	1	0	19	0
16:00 – 16:14	3	23	2	0	21	0
16:15 – 16:29	2	20	2	0	24	0
16:30 – 16:44	1	23	0	1	20	1
16:45 – 16:59	0	19	3	0	25	1
17:00 – 17:14	1	29	4	0	30	0
17:15 – 17:29	0	37	3	2	29	0
17:30 – 17:44	2	19	1	0	17	0
17:45 – 17:59	2	27	4	1	20	1
18:00 – 18:14	0	19	0	0	16	0
18:15 – 18:29	1	13	0	0	10	0
18:30 – 18:44	0	20	0	0	15	0
18:45 – 18:59	2	14	0	0	13	0

PCUs	A-B	A-C	B-A	B-C	C-A	C-B
07:00 – 07:14	1	1	0	0	4	0
07:15 – 07:29	0	3	0	0	6	0
07:30 – 07:44	0	13	1	0	11	0
07:45 – 07:59	4	20	0	0	18	0
08:00 – 08:14	2	9	0	0	18	0
08:15 – 08:29	0	21	0	0	14	0
08:30 – 08:44	1	19	0	0	28	0
08:45 – 08:59	1	27	2	0	40	2
09:00 – 09:14	2	24	4	0	30	0
09:15 – 09:29	1	18	0	0	14	0
09:30 – 09:44	0	28	2	3	14	0
09:45 – 09:59	3	17	1	0	19	0
10:00 – 10:14	2	30	1	0	20	1
10:15 – 10:29	1	33	1	0	33	0
10:30 – 10:44	2	17	0	0	20	2
10:45 – 10:59	2	14	0	0	27	0
11:00 – 11:14	0	18	3	2	28	0
11:15 – 11:29	0	13	0	0	20	0
11:30 – 11:44	0	18	3	0	30	1
11:45 – 11:59	1	15	2	0	20	0
12:00 – 12:14	0	30	6	0	16	0
12:15 – 12:29	1	25	1	0	18	0
12:30 – 12:44	2	17	3	0	17	1
12:45 – 12:59	0	12	3	0	18	0
13:00 – 13:14	1	22	1	0	17	0
13:15 – 13:29	1	16	1	1	24	0
13:30 – 13:44	3	18	0	0	18	1
13:45 – 13:59	2	24	1	1	16	0
14:00 – 14:14	2	24	0	1	19	0
14:15 – 14:29	0	22	1	0	20	0
14:30 – 14:44	1	18	1	0	21	0
14:45 – 14:59	0	13	1	1	13	0
15:00 – 15:14	1	27	0	1	17	0
15:15 – 15:29	2	24	1	0	23	1
15:30 – 15:44	0	24	1	1	17	0
15:45 – 15:59	0	14	1	0	19	0
16:00 – 16:14	3	23	2	0	21	0
16:15 – 16:29	2	20	2	0	24	0
16:30 – 16:44	1	23	0	1	20	1
16:45 – 16:59	0	22	2	0	26	1
17:00 – 17:14	1	29	4	0	30	0
17:15 – 17:29	0	36	3	2	29	0
17:30 – 17:44	2	19	1	0	17	0
17:45 – 17:59	2	28	4	1	21	1
18:00 – 18:14	0	19	0	0	16	0
18:15 – 18:29	1	13	0	0	10	0
18:30 – 18:44	0	21	0	0	15	0
18:45 – 18:59	2	14	0	0	13	0

PCUs	A-B	A-C	B-A	B-C	C-A	C-B
AM Peak Hour	4	91	7	0	112	2
PM Peak Hour	2	110	9	3	105	2
12 Hour	54	957	61	16	951	13

Appendix C

Traffic Calculations Summary

Traffic Calculations Summary
Summerhill/Autumn View junction, Carrick-on-Shannon, Co. Leitrim



- Arm A – Summerhill to/from south-west
- Arm B – Autumn View
- Arm C – Summerhill to/from north-east

Scenario	A-B	A-C	B-A	B-C	C-A	C-B
2020 AM Peak Hour (08:15-09:14)	4	91	7	0	112	2
2021 AM Peak Hour (Opening Year) Factor 1.005	4	92	7	0	113	2
2026 AM Peak Hour (Opening Year+5) Factor 1.028	4	97	7	0	119	2
2036 AM Peak Hour (Opening Year+15) Factor 1.035	4	99	7	0	122	2
AM Peak Hour Development Related Trips	5	0	9	0	0	3
2021 AM Peak Hour With Development	9	92	15	0	113	5
2026 AM Peak Hour With Development	10	97	15	0	119	6
2036 AM Peak Hour With Development	10	99	16	0	122	6
2036 AM Peak Hour Sensitivity	16	99	26	0	122	9

2020 PM Peak Hour (16:30-17:29)	2	110	9	3	105	2
2021 PM Peak Hour (Opening Year) Factor 1.005	2	111	9	3	106	2
2026 PM Peak Hour (Opening Year+5) Factor 1.028	2	117	10	3	112	2
2036 PM Peak Hour (Opening Year+15) Factor 1.035	2	119	10	3	114	2
PM Peak Hour Development Related Trips	4	0	6	2	0	4
2021 PM Peak Hour With Development	6	111	16	5	106	6
2026 PM Peak Hour With Development	6	117	16	5	112	6
2036 PM Peak Hour With Development	6	119	16	5	114	6
2036 PM Peak Hour Sensitivity	12	119	24	8	114	12

All Data in PCUs rounded to the nearest whole number

Appendix D

PICADY Modelling Output File

PICADY

GUI Version: 5.00 AC
Analysis Program Release: 3.0

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The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution

Run Analysis

Parameter	Values
File Run	D:\..\carrick\summerhill.vpi
Date Run	13 November 2020
Time Run	15:33:36
Driving Side	Drive On The Left

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Summerhill to/from south west	100
Arm B	Autumn View to/from Development	100
Arm C	Summerhill to/from north east	100

Stream Labelling Convention

Stream A-B contains traffic going from A to B etc.

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	8.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.85
Minor Road Visibility To Right (m)	16
Minor Road Visibility To Left (m)	21
Major Road Right Turn Visibility (m)	80
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	484.896	0.081	0.204	0.128	0.291
B-C	624.488	0.087	0.221	-	-
C-B	620.292	0.219	0.219	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	08:00-09:30	90	15
Second Modelling Period	16:15-17:45	90	15

ODTAB Turning Counts

Demand Set: 2021 AM Peak Without Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	4.0	92.0
Arm B	7.0	0.0	0.0
Arm C	113.0	2.0	0.0

Demand Set: 2026 AM Peak Without Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	4.0	97.0
Arm B	7.0	0.0	0.0
Arm C	119.0	2.0	0.0

Demand Set: 2036 AM Peak Without Development
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	4.0	99.0
Arm B	7.0	0.0	0.0
Arm C	122.0	2.0	0.0

Demand Set: 2021 AM Peak With Development
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	9.0	92.0
Arm B	15.0	0.0	0.0
Arm C	113.0	5.0	0.0

Demand Set: 2026 AM Peak With Development
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	10.0	97.0
Arm B	15.0	0.0	0.0
Arm C	119.0	6.0	0.0

Demand Set: 2036 AM Peak With Development
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	10.0	99.0
Arm B	16.0	0.0	0.0
Arm C	122.0	6.0	0.0

Demand Set: 2021 PM Peak Without Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	2.0	111.0
Arm B	9.0	0.0	3.0
Arm C	106.0	2.0	0.0

Demand Set: 2026 PM Peak Without Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	2.0	117.0
Arm B	10.0	0.0	3.0
Arm C	112.0	2.0	0.0

Demand Set: 2036 PM Peak Without Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	2.0	119.0
Arm B	10.0	0.0	3.0
Arm C	114.0	2.0	0.0

Demand Set: 2021 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	6.0	111.0
Arm B	16.0	0.0	5.0
Arm C	106.0	6.0	0.0

Demand Set: 2026 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	6.0	117.0
Arm B	16.0	0.0	5.0
Arm C	112.0	6.0	0.0

Demand Set: 2036 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	6.0	119.0
Arm B	16.0	0.0	5.0
Arm C	114.0	6.0	0.0

Demand Set: 2036 AM Peak Sensitivity
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	0.0	16.0	99.0
Arm B	26.0	0.0	0.0
Arm C	122.0	9.0	0.0

Demand Set: 2036 PM Peak Sensitivity
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	12.0	119.0
Arm B	24.0	0.0	8.0
Arm C	114.0	12.0	0.0

ODTAB Synthesised Flows

Demand Set: 2021 AM Peak Without Development
Modelling Period: 08:00-09:30

Arm	Rising Time	Rising Flow (veh/min)	Peak Time	Peak Flow (veh/min)	Falling Time	Falling Flow (veh/min)
Arm A	08:15	1.200	08:15	1.800	08:45	1.200
Arm B	08:15	0.087	08:15	0.131	08:45	0.087
Arm C	08:15	1.438	08:15	2.156	08:45	1.438

Heavy Vehicles Percentages

Demand Set: 2021 AM Peak Without Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2026 AM Peak Without Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 AM Peak Without Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2021 AM Peak With Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2026 AM Peak With Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 AM Peak With Development

Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2021 PM Peak Without Development

Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2026 PM Peak Without Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 PM Peak Without Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2021 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2026 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 PM Peak With Development
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 AM Peak Sensitivity
Modelling Period: 08:00-09:30

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Demand Set: 2036 PM Peak Sensitivity
Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	0.0
Arm B	0.0	-	0.0
Arm C	0.0	0.0	-

Entry capacities marked with an '(X)' are dominated by a pedestrian crossing in that time segment.
In time segments marked with a '(B)', traffic leaving the junction may block back from a crossing so impairing normal operation of the junction.
Delays marked with '##' could not be calculated.

PICADY 5 Run Successful