COAKLEY
CONSULTING ENGINEERS

Whitebox Student Campus, Groody Road, Newcastle, Castletroy, Co. Limerick
Groody Developments Ltd.
Traffic and Transport Assessment (TTA) Report

Coakley Consulting Engineers
January 2025

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1 Introduction

1.1 General

Coakley Consulting Engineers (CCE) have been commissioned on behalf of the applicant, Groody Developments Ltd., to prepare this Traffic and Transport Assessment (TTA) report in support of a Large-Scale Residential Development (LRD) planning application for the proposed Whitebox Student Campus development on Groody Road, Newcastle, Co. Limerick.

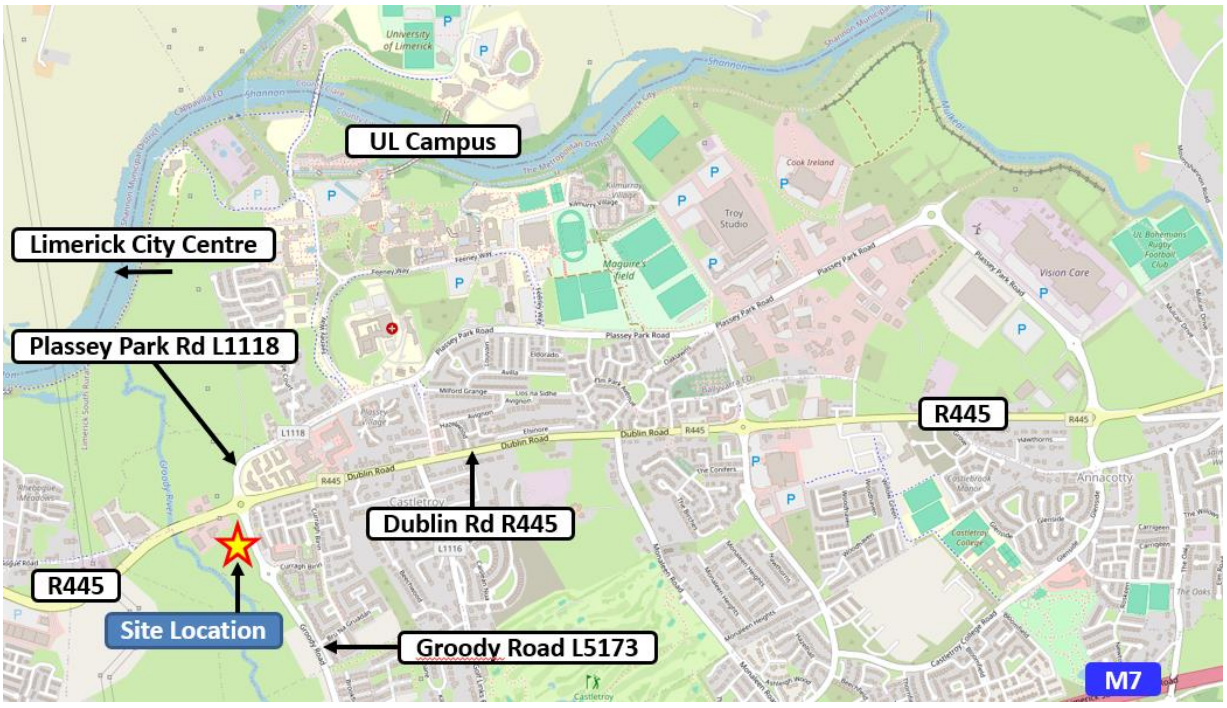
Coakley Consulting Engineers are traffic and transport consultants based in Tralee, Co. Kerry. This report should be read in conjunction with all other documents and information submitted as part of this application. The project scope has been discussed with a Waterford City and County Council Roads Department prior to submission. This report should be read in conjunction with all other documents submitted as part of this planning application including original scale drawings. Coakley Consulting Engineers have made reference to the following documents in preparation of this report.

- Drawings by Fewer Harrington and Partners (FHP) and Garland (GL)
- Mobility Management Plan (MMP) report by CCE
- TII standards and DoT document 'Design Manual for Urban Roads and Streets' DMURS
- Limerick Development Plan 2022-2028
- Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) 2040 report
- NTA BusConnects Limerick

1.2 Proposed Site Location

As shown in Figure 1.1, the proposed development is ideally located in a sub-urban residential area adjacent to the University of Limerick (UL) campus, approx. 3.0 km east of Limerick City centre. The site is bounded to the north by the Dublin Rd R445 and to the east by Groody Rd L5173.

Figure 1.1 *Site Location and Current/Future Local Road Network*



1.3 Proposed Development Summary and TII Traffic Impact Threshold

As outlined in further detail in Section 3, the proposed development comprises 5 blocks of student accommodation with a bed capacity for 1,400 residents, the provision of 32no. car parking spaces including mobility impaired, EV and car share spaces, set down only areas and 352no. high quality cycle parking spaces distributed through the site and including long term spaces which are secure and sheltered, short term visitor spaces and also the potential for E-bike and bike share spaces.

Taking into account the proximity to the UL campus, the availability of both existing and potential future high-quality facilities for walking, cycling and public transport users (BusConnects), existing traffic survey data, comparable CSO mode of travel statistics and the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) future mode of travel targets, the proposed mode of travel targets for residents and staff can be found below and also in the separate Mobility Management Plan (MMP).

Mode of Travel Mode Targets	Year 1	Year 3	Year 5
Walking	*75 %*	*70%*	*67%*
Cycle	*11 %*	*15%*	*18%*
Public Transport	*11 %*	*12%*	*12%*
Car driver	*2.5 %*	*2.5%*	*2.5%*
Other (passenger)	*0.5 %*	*0.5%*	*0.5%*

The above justified forecast mode of travel choice has a typical low level of private car use for students and therefore the development requires minimal car parking provision below the Development Management Standards contained in Limerick Development Plan which presents the *maximum* allowable parking provision for each city zone and development land use in Table DM 9(a).

With a minimal parking provision of only 32no. parking spaces, the proposed development will generate negligible traffic flows in the order of less than 10no. private car trips during peak hours and will therefore have a negligible, near zero traffic impact on the local road network and junctions.

As per Sections 2.1 (Thresholds) and 2.2 (Sub-Thresholds) of the Transport Infrastructure Ireland (TII) publication Traffic and Transport Assessment (TTA) Guidelines PE-PDV-02045 May 2014, it is clearly evident that the proposed development does not meet several of the applicable threshold's values for carrying out a *full* Traffic and Transport Assessment, namely:

- Estimated traffic to and from the development (<10 car trips in peak hour) represents only approx. *0.6%* of the traffic flows on the adjoining road (approx. 1,550 in peak hour) and therefore does not exceed the 5% threshold where congestion exists or the location is sensitive, would not impact on National Roads and would not cause a local concern.

Detailed TII threshold calculations are contained in Section 4. Therefore, as agreed with the Local Authority at the project outset, the above calculation confirms that a full Traffic and Transport Assessment (TTA) report is not required or appropriate considering the negligible near zero impact.

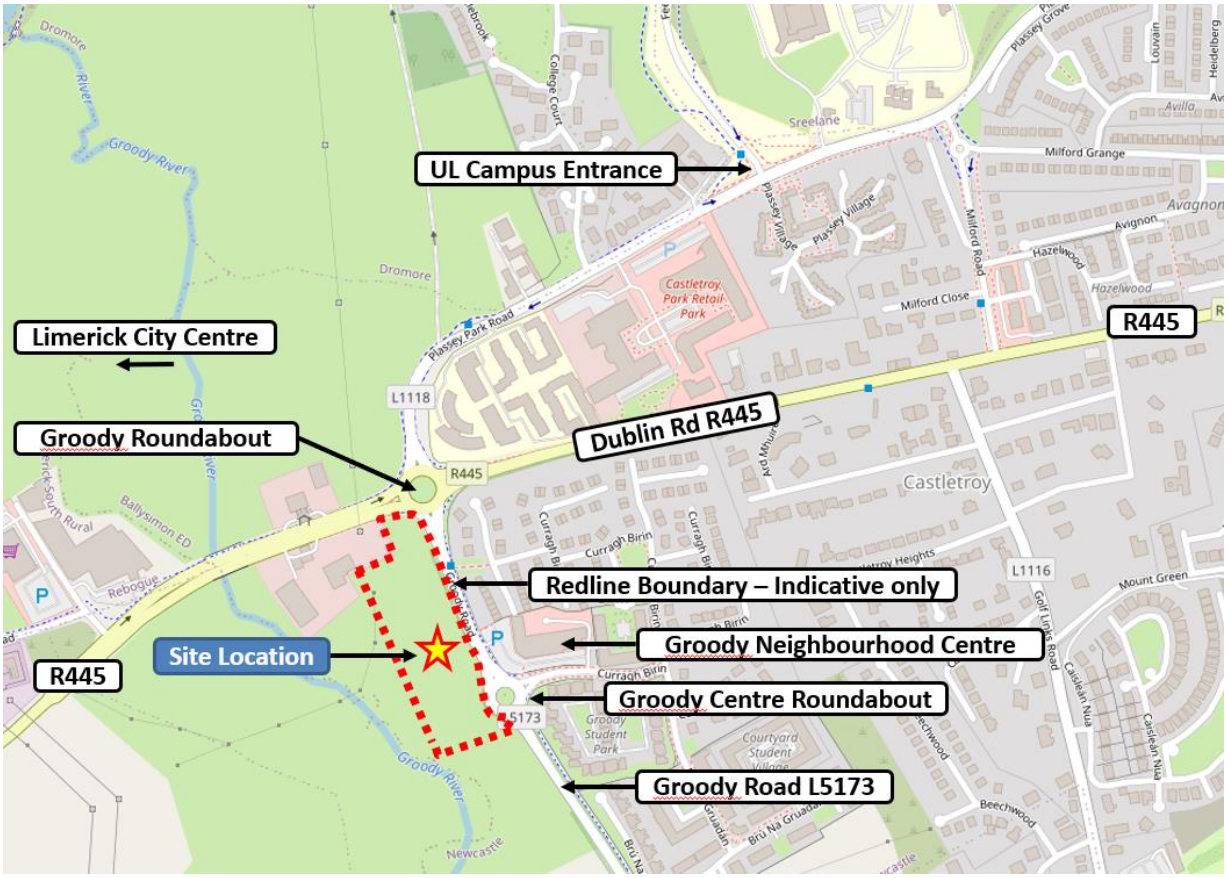
This report is also supported by a separate Mobility Management Plan (MMP) which is a 'live' document that will actively encourage student trips by sustainable modes of travel through the implementation of both 'Soft' (operational and promotional) and 'Hard' (infrastructural) measures to help reduce, where possible, the reliance on the private car, encourage more sustainable and alternative modes of transport such as walking cycling and public transport and improve overall accessibility.

2 Road Network & Travel Patterns

2.1 General

As shown below in Figure 2.1, the proposed development site is ideally located only a short 10 to 15 minute walk or 3-5 minute cycle from the UL Campus and provides students with high quality connectivity, permeability and accessibility to the university facilities and also city centre on foot, cycling or by public transport. The roads surrounding the site have high quality infrastructure for vulnerable road users including signalised and zebra crossing points some of which are raised, footpaths, cycle lanes, dropped kerbs, and street lighting. The speed limit surrounding the site is 50km/h.

Figure 2.1 – *Èxisting Road Network*



2.2 Dublin Road R445 - Northern Site Boundary

As shown in Figure 2.1 and Figure 2.2, the Dublin Road runs in an east west direction along the site's northern boundary from the city centre in the west to the M7 Newport Junction to the east.

The Dublin Road adjacent to the site is a high-capacity 4 lane road with high quality infrastructure and facilities for pedestrians, cyclists and public transport. The road returns to single lane to the east of the site.

The R445 Dublin Road meets the L5173 Groody Road at the sites northwestern corner and forms the Groody Roundabout junction with a fourth junction arm, Plassey Park Road L1118) which leads to the UL Campus.

Figure 2.2 - *Dublin Road R445 - Looking east to Groody Roundabout and raised pedestrian crossings*

2.3 Groody Roundabout

Located at the northeastern corner of the site, the Groody Roundabout is a 4-arm high-capacity roundabout with a diameter of 56m. As shown in Figure 2.2, pedestrian crossings in the form of raised zebra crossings are provided on all junction arms and facilitate the safe movement of pedestrians and cyclists through the junction.

This is especially important due to the high pedestrian and cycle flows generated by the desire line movement of UL students and others at this location.

2.4 Groody Road L5173

As shown in Figure 2.1 and Figure 2.3, the Groody Road is a standard urban road which runs in a north south direction along the site's eastern boundary and extends south to the Ballysimon Road R527 approx. 1.5km away and the M7 Junction 29 approx 2.5km away. The proposed site access is located on Groody Road and will form a fourth arm on the existing 45m diameter roundabout junction serving the Groody Neighbouring Centre and existing residential and student accommodation developments.

Figure 2.3 – *Groody Road L5173 - Looking south to existing Groody Centre roundabout*

2.5 Potential Future Road Network

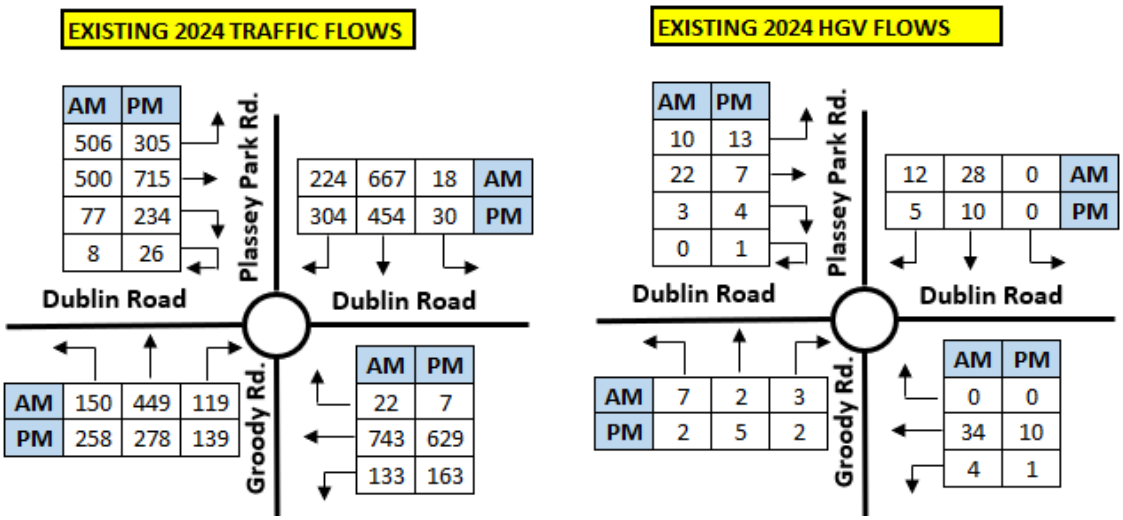
The proposed development also takes into account Active Travel and other potential future upgrades for both the Dublin and Groody Roads including improved pedestrian and cycle infrastructure and importantly BusConnects Limerick. As requested by LCCC, the proposed development layout does not encroach on an agreed 4m setback inside the existing fence line boundary. This setback allows for all required potential NTA upgrade works including bus lanes, cycle lanes, footpaths, bus stops and more. See more detail in Section 3.10.

2.6 Existing Traffic Volumes

A new *independent* traffic survey was undertaken on Thursday 18th September 2024 by Traffinomics Ltd at the Groody Roundabout junction of the R445 Dublin Rd and L5173 Groody Road.

This traffic data was used as part of the traffic impact analysis and mobility management plan for the proposed development and suitable growth rates were then applied to estimate future traffic flows outlined in Section 2.6. A summary of the 2024 AM (8-9am) and PM (5-6pm) peak hour flows from the above turning count survey are shown in Figure 2.4 in addition to separate Heavy Goods Vehicle (HGV) only flows.

Figure 2.4 - Existing Peak Hour Traffic and HGV Flows



Using this 2024 traffic data, the Annual Average Daily Traffic (AADT) and following traffic flow patterns were estimated using industry standard calculations, guidelines, and best practice[1] and future growth rates applied taking into account national standards[2].

- Groody Road L5173: 16,750
- Dublin Road West: 27,500
- Dublin Road East: 18,850
- Plassey Park Road: 18,700

For illustration purposes, the estimated average daily flows on Groody Road are shown in Figure 2.5, average 24-hour traffic flow profile shown in Figure 2.6 and daily flows by month in Figure 2.7.

[1]Transport Infrastructure Ireland (Tii) document 'Expansion Factors for Short Period Traffic Counts 2016'
[2]Transport Infrastructure Ireland (Tii) document 'Link Based Traffic Forecasting 2011'

***Figure 2.5** – 2024 Estimated Average Daily Traffic Flows*

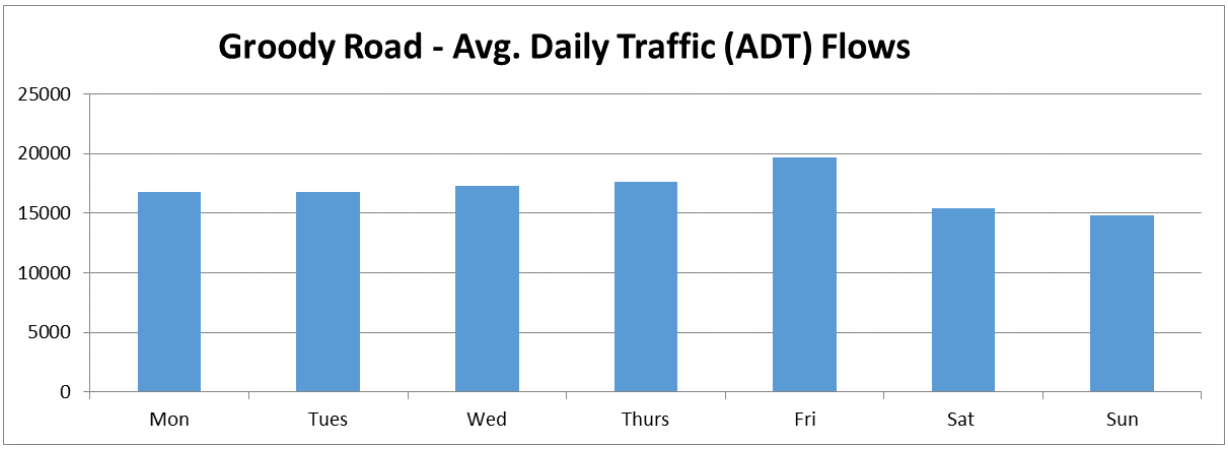


***Figure 2.6** – 2024 Estimated Average Hourly Traffic Flows*

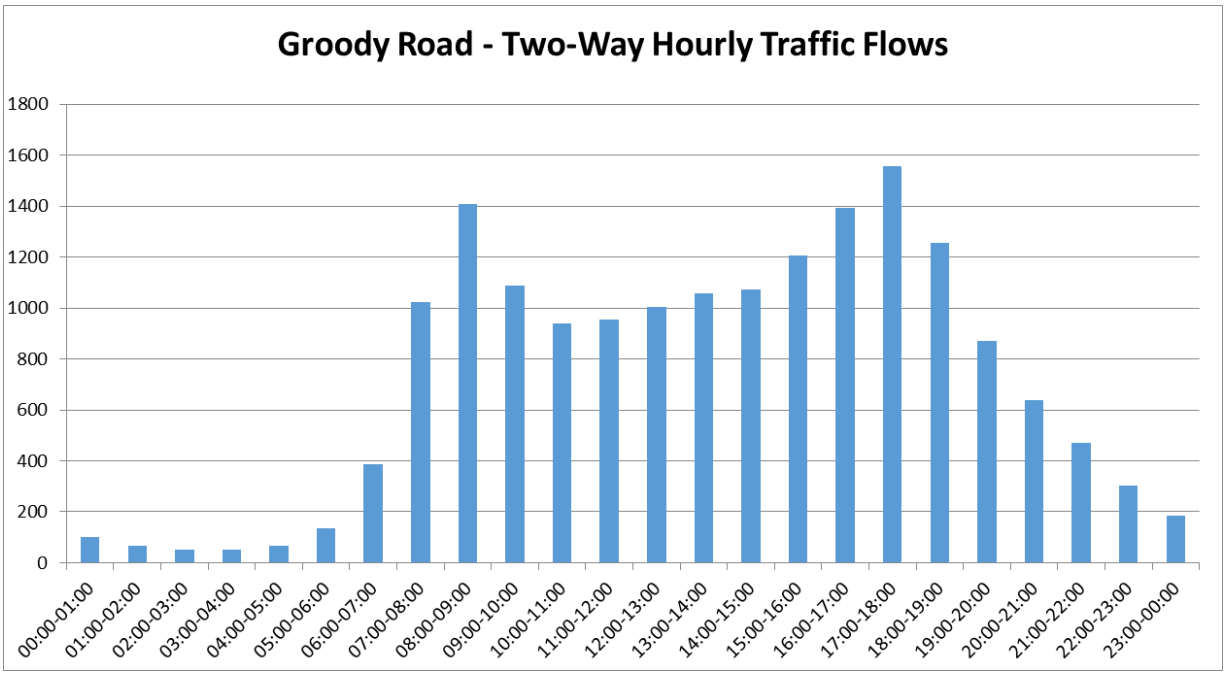
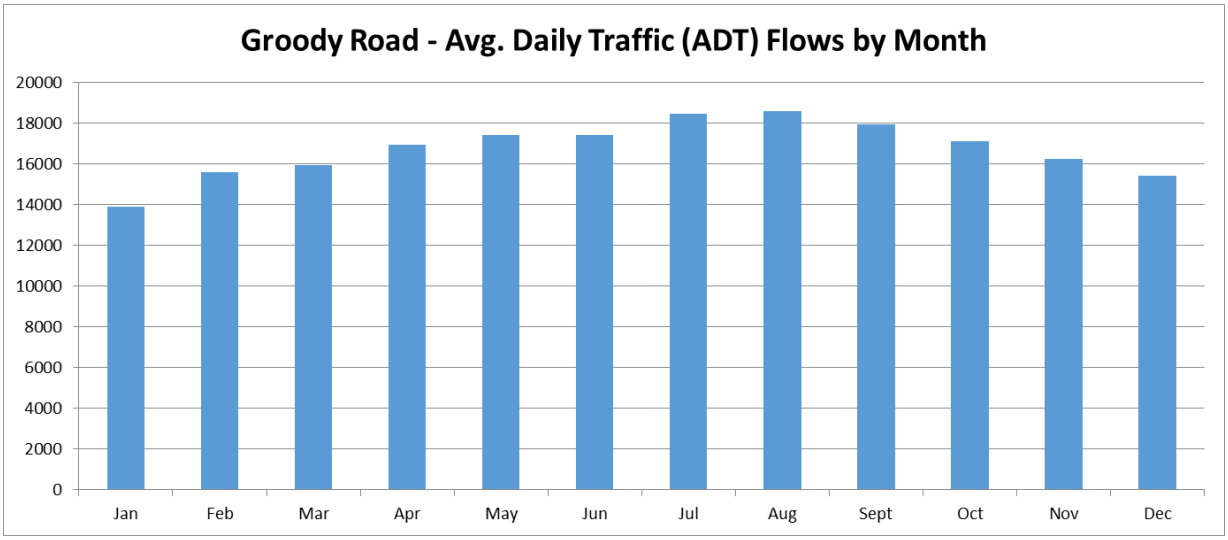


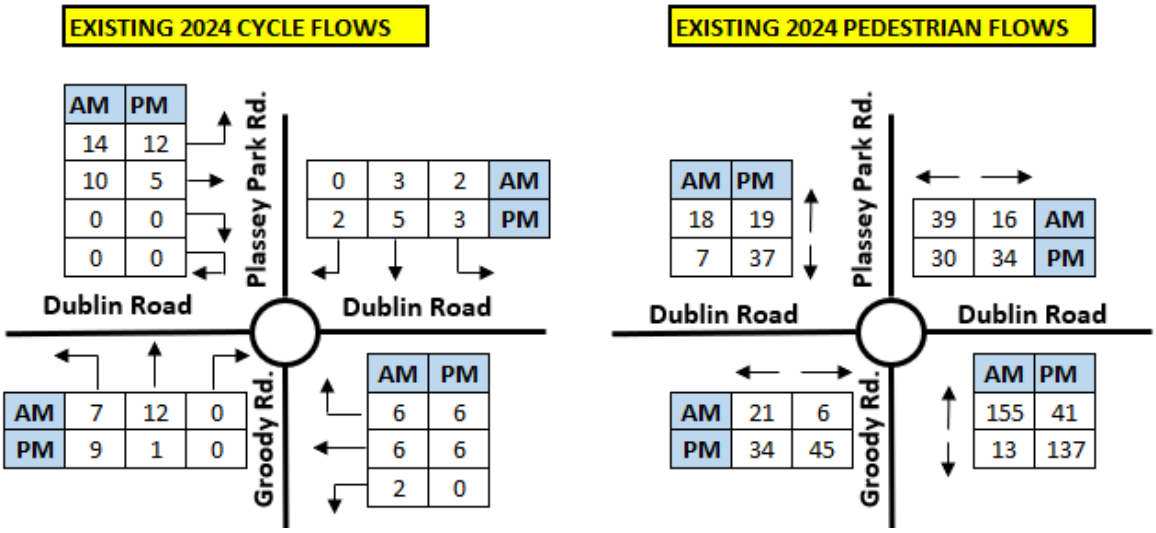
***Figure 2.6** – 2024 Estimated Average Daily Traffic Flows by Month*



2.7 Traffic Flows by Sustainable Modes

As shown below in Figure 2.7 and critically for a development of this nature, the above *independent* traffic counts also included surveys of existing pedestrians and cycle flows through the roundabout junction. This data will also be used to inform the separate Mobility Management Plan (MMP) report.

Figure 2.7 - Existing Peak Hour Cycle and Pedestrian Flows

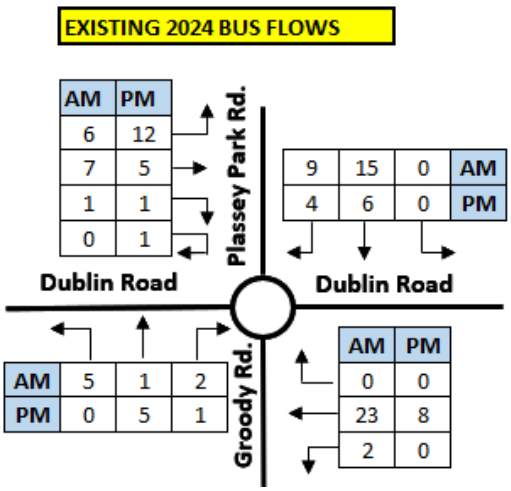


Due to proximity to the UL campus, the data shows and confirms that existing local student developments generate a significant number of trips on foot and cycle, in particular on the Dublin Road west crossings.

2.8 Public Transport (Bus) Surveys

As shown below in Figure 2.8, the *independent* traffic counts also included public transport (buses) through the roundabout junction. This data will also be used to inform the separate Mobility Management Plan (MMP) report and has been complemented with an additional Bus Survey of route occupancy and capacity for the existing bus stops for Routes 310, 304 and 304a adjacent to the site and have the potential to serve the residents of the proposed development. The potential for trips by bus will be further increased with the upcoming BusConnects Limerick proposals which are discussed further in Section 3.10 and include new routes, bus stops, increased capacity, frequency and more.

Figure 2.8 - Existing Peak Hour Bus Flows



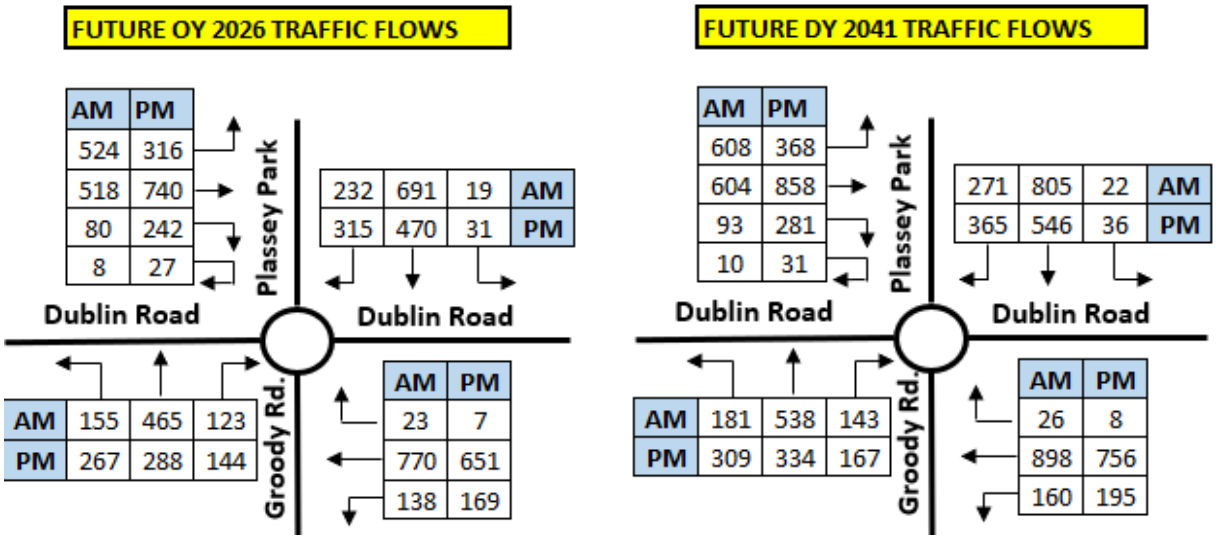
2.9 Future Traffic Volumes

Estimated future opening year and design year traffic volumes have taken into account the industry standard growth rates contained in the TII (NRA) document 'Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections - Oct 2021' (PE-PAG-02017) and the National Transport Authority (NTA) document 'Limerick and Shannon Metropolitan Area Transport Strategy'. The TII 'Limerick' growth rates used below include for development of zoned lands, transport strategies and more.

The future Opening Year 2026 and Design Year 2041 AM and PM peak hour traffic volumes 'without' the proposed development traffic are shown in Figure 2.9 were estimated based on the following.

- Robust growth rates applied to existing 2024 traffic flows based on TII calculation document:
    - Opening Year 2026: 3.5% for cars/LGVs & 6.7% for HGVs/Bus
    - Design Year 2041: 20% for cars/LGVs and 44% for HGVs/Bus

***Figure 2.9** – 2026 Opening Year (Left) & 2041 Design Year (right) Flows **without** proposed Development Traffic*



2.10 Existing Mode of Travel Patterns – CSO Statistics

The Central Statistics Office (CSO) census data and Small Area Population Statistics (SAPMAP) has been used to gather data for existing 'School or College' mode of travel to patterns for nearby UL student accommodation areas and also a comparable location in Galway city, with those selected having similar characteristics to the proposed development in terms of their location, proximity to the main campus, accessibility characteristics, local services, type of accommodation and type/demographic of resident (i.e. students).

Although 2022 Census data is available, 2016 data was also used as the 2022 census was undertaken as Covid restrictions were still being removed and normal travel patterns may not have returned, in particular for students. Also note that travel data for any primary and secondary school children living in these areas is included in the data and therefore may increase 'private car' use statistics.

As outlined below, CSO data reveals that the main mode of travel for local students is walking at approx. <80%, cycling at ~5%, bus at ~5% and private car use <7% with some areas as low as 1%.

The proposed development is located in close proximity and easy walking and cycling distance to the campus and also to a wide range of local amenities and several key trip generators such as retail, café, restaurants and more. Therefore, it is reasonable to assume that private car use within the development would be in the region of only 2.5% and 32no. parking spaces have been provided to match this level of expected demand for 1,400 resident students.

Table 2.1 outlines modes of travel for both the overall Limerick City and Suburbs (settlement area) shown in Figure 2.10 and the combined average travel patterns for several local CSO SAPMAP small areas broken down into travel to/from college/school.

Figure 2.10 *– CSO SAPMAP screenshots (Limerick City Area and Several Local Small Areas)*

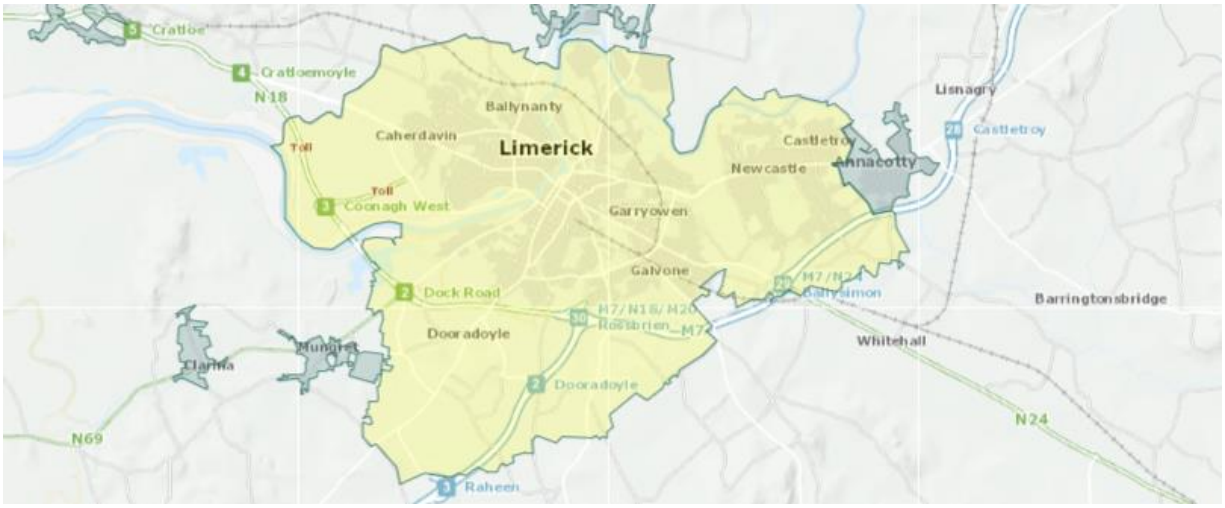
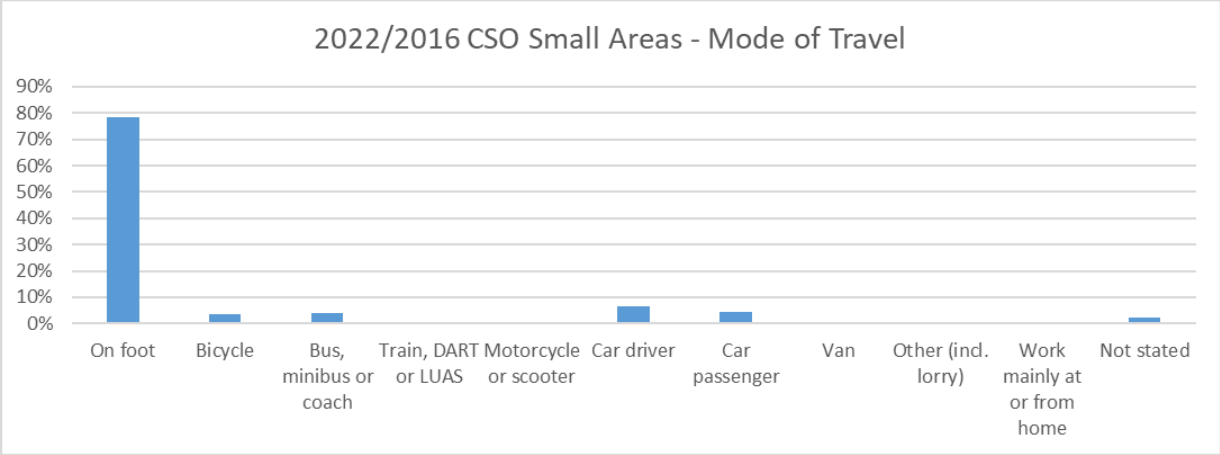


Table 2.1 *– CSO Limerick City & Local Small Areas - Mode of Travel to School/College*

Travel Mode	2022 Mode of Travel to School/College	
		CSO Small Areas (see Figure 2.10)
	Limerick City Area	Local Small Areas
On foot	30%	79%
Bicycle	3%	4%
Bus, minibus or coach	10%	4%
Car driver	0%	7%
Car passenger	0%	4%
Work mainly at or from home	6%	0%
Not stated	37%	2%
TOTAL	100%	100%

***Figure 2.11** – CSO SAPMAP – 2022/2016 CSO 'Travel to School/College' Modal Split – Local Small Areas*



These statistics demonstrate that residents and those working in or visiting the proposed development will rely less on private car use for typical daily trips and use more suitable modes of transport such as walking, cycling and public transports. With significant public transport improvements proposed as part of both Active Travel and BusConnects (see Section 3.10), the proposed development and local area could greatly benefit and a large shift to public transport and more sustainable modes of travel could be realistic and achievable.

2.11 Comparable Mode of Travel Patterns – CSO Statistics

To further back up and inform the expected mode of travel targets below, comparable data from 4no. similar student accommodation areas in Galway city (see Figure 2.12) were selected with similar characteristics to the proposed development in terms of their location, proximity to the main campus, accessibility characteristics, type of accommodation and type of resident (i.e. students).

- Area 1 - Small Area Ref. Sa2017_068006013 – Corrib Village
- Area 2 – Small Area Ref. Sa2017_068010010 – Cúirt na Coiribe / Dun na Coiribe.
- Area 3 - Small Area Ref. Sa2017_068010011 – Gort na Coiribe
- Area 4 - Small Area Ref. Sa2017_068010012 – Gort na Coiribe (rear)

***Figure 2.12** – CSO SAPMAP Comparable Areas for assumed Mode of Travel Statistics*

The principal mode of travel used by student residents in each catchment area is summarised in Table 2.2 below which reveals that the clear majority of those travelling to college from these primarily student residential areas do so on Foot (89.3%), followed by cycling (6.8%). In comparison only 3.4% travel by private car (2.3% car driver & 1.1% car passenger). Only 0.6% travel by bus to college, however this is not surprising given the close proximity of these areas to the NUIG campus.

***Table 2.2** – CSO Limerick City Settlement Area & Local Area Surrounding Site - Mode of Travel*

Travel Mode	Mode of Travel to School/College
	Galway Student Accomodation
On foot	89.3%
Bicycle	6.8%
Car driver	2.3%
Car passenger	1.1%
Public Transport (Bus)	0.6%

2.12 Expected Mode of Travel

Taking into account the above CSO statistics, proximity to the UL campus, the availability of both existing and potential future high-quality facilities for walking, cycling and public transport users (BusConnects), existing traffic survey data, comparable CSO mode of travel statistics and the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) future mode of travel targets, the expected mode of travel targets for residents of the proposed development are shown below in Table 2.3 and also in the separate Mobility Management Plan (MMP).

***Table 2.3** – 2016 CSO Limerick City Settlement Area & Local Area Surrounding Site - Mode of Travel*

Travel Mode	Mode of Travel Targets for Residents
On foot	75 %
Bicycle	11 %
Public Transport (Bus)	11 %
Car driver	2.5 %
Other (car passenger, car share, taxi, etc)	0.5 %

3 Proposed Development

3.1 Proposed Site Layout and Development Configuration

The proposed schedule of the LRD student accommodation development is outlined below in Table 3.1

Table 3.1 – *Proposed Development Schedule*

Proposed Development	Apartments	Bedrooms	Blocks
Student Accommodation	**196**	**1,400**	**5**

The proposed site layout shown below in Figure 3.1 was designed by Fewer Harrington and Partners Architects (FHP) with civil engineering input from Garland and CCE. Please refer to all original scale drawings submitted for planning.

Figure 3.1 – *Proposed Site Layout (extract from Drawing PP1.01)*

The site layout was carefully designed to take into account the following key elements:

1. The overarching guidelines and principles of DMURS within the development and placing greater importance on the movements of vulnerable road users throughout the development. See also accompanying DMURS Quality Audit and Compliance Statement reports.
2. The site layout is carefully designed with the principles of safety, accessibility, connectivity, permeability and sustainability. The design allows for safe access and movement for both vehicles and vulnerable road users in terms of junction type, crossing points, pedestrian desire lines and vehicle speeds, sightlines, dropped kerbs, tactile paving and more.
3. The proposed layout includes the design recommendations contained in the independent DMURS Quality Audit (QA) including Road Safety Audit (RSA). See Section 3.7.
4. Pedestrian crossing points, dropped kerbs and tactile paving are proposed at several uncontrolled pedestrian crossing locations throughout the development to match the likely desire lines of pedestrians.
5. A detailed AutoTrack assessment was undertaken during the site layout and junction design process to ensure that multiple vehicle types including emergency, refuse and other vehicles can access, egress and safely negotiate the internal road layout. Please refer to Garland Drawing Package.
6. A ‘Slow Zone’ speed limit of 30km/h is proposed within the development.
7. Taking on board the ‘self-regulating street’ and other approaches outlined in DMURS, the proposed site layout encourages low vehicle speeds using a variety of measures to change driver behaviour and enhance quality of life within the development.
8. Although the vast majority of trips to and from the development will be by on foot or cycling by students to and from the nearby campus, sufficient parking has been provided for the expected mode of travel targets.
9. BusConnects: As requested by LCCC Active Travel, the proposed development layout does not encroach on an agreed 4m setback inside the sites existing fence line boundary. This setback allows for all required potential NTA BusConnects upgrade works including bus lanes, cycle lanes, footpaths, bus stops and more along the boundary with both Dublin and Groody Roads.

3.2 Proposed Development Access Junction

As shown on Figure 3.1, the proposed site access is located on Groody Road and will form a standard fourth junction arm on the western side of the existing 45m diameter roundabout junction serving the Groody Neighbouring Centre and existing residential and student accommodation developments. The Groody Road is a standard urban road of which runs in a north south direction along the site’s eastern boundary. The proposed site access has been subjected to an independent DMURS Quality Audit including Road Safety Audit (see Section 3.6).

3.3 Vehicle Movement and Turning Analysis

A vehicle swept path assessment was undertaken during the internal road layout and junction design process to ensure that multiple vehicle types including emergency, service and refuse/delivery vehicles can access, egress, and safely negotiate the internal road layout and fire roads which provide access to the sides of all buildings. Suitably sized turning heads have been provided where required. Please refer to Garland Drawing package submitted.

3.4 Proposed Parking Provision and Justification

As shown on the site layout plan, the proposed parking provision of 32no. car parking spaces and 352no. cycle parking spaces (long term & visitor) takes into account a variety of key factors and criteria outlined below and is supported by a separate Mobility Management Plan (MMP) report:

a) *The maximum* allowable car parking provision for each city zone as laid down in Table DM 9(a) of the Development Management Standards contained in Limerick Development Plan

   a. The proposed development is located in Zone 2

   b. The development Plan states that '… the provision of car parking for residential development at a reduced rate to the maximum standards will be considered where the Planning Authority are satisfied that good public transport links are already available or planned'.

b) Taking into account the above CSO statistics, proximity to the UL campus, the availability of both existing and potential future high-quality facilities for walking, cycling and public transport users (BusConnects), existing traffic survey data, comparable CSO mode of travel statistics and the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) future mode of travel targets, the expected mode of travel targets for residents of the proposed development are shown in Section 3.13 and also in the separate Mobility Management Plan (MMP).

c) The assumed low level of private car use (<2.5%) and ownership among students is typical and results in minimal parking demand.

d) The proposed National transport policy, the Limerick Development Plan and national transport policy is one of modal shift away from the private car to more sustainable means of mobility

e) In addition, this and the MMP report also considers the ongoing work between University of Limerick and the National Transport Authority (NTA) as part of the Transport for Ireland (TFI) Smarter Travel for Campuses programme which aims to change travel behaviour and attitudes in terms of sustainable modes of travel among both students and staff. change

f) The proposed development meets various criteria for the relaxation of parking standards including the site location in close proximity to public transport, availability of potential on-site car and bike sharing services, and other sustainable travel infrastructure which are proposed and supported by this Mobility Management Plan. Proximity to existing and future public transport routes (See also section 3.9)

g) Mobility Impaired Parking provided at the standard rate of 5% (1 per 20 spaces) and all spaces located in close proximity to building entrances to minimise walking distances.

- Cycle parking is provided as per standards outlined in Table DM 9(a). Long stay cycle parking are located in safe, secure and sheltered cycle parking areas with short stay visitor cycle parking located throughout the development. Although the development plan does not contain requirements for e-bike charging/parking spaces, the applicant is willing to provide a number of conveniently located spaces if required. Cycle parking is proposed in convenient and passively surveilled locations.

h) The required EV parking spaces will be provided on site including charging infrastructure and also ducting for potential future EV charging for all parking spaces.

i) The site layout also allows for the provision of dedicated Car Share spaces if required (subject to agreement with a relevant provider). Industry experience indicates that 1no. Car Sharing space (i.e. GoCar or similar service) has the potential to replace/equal 10-20 car parking spaces in terms of overall use and demand. The mobility management plan will inform residents of the benefits of car sharing in a city location and outline the true cost of owning and running a car which sits parked for 95% of the time (based on current statistics).

Table 3.2 – *Parking Requirements and Provision*

Land-use	Units	Maximum Parking Standard	Max. Requirement	Provision
Car Parking	1,400 beds	1 space per 15 beds (Zone 2)	93	32
Including				
EV parking		1/5 spaces	4	4
Disabled Parking		5%	2	2
Cycle Parking	1,400 beds	1 per 5 bedrooms	280	306
Visitor, EV and Shared Cycle Parking Spaces			/	46

3.5 Quality Audit including Road Safety Audit

An independent DMURS compliant Quality Audit (QA) report of the proposed site layout and surrounding road network was undertaken by a TII approved independent audit team and is contained in Appendix B.

The Quality Audit Report combines the following DMURS audit elements into one single report.

1. Road Safety Audit
    - Undertaken to formal TII standards and signed off by both designer and audit team
2. Access Audit
3. Walking Audit
4. Non-Motorised User Audit
5. Cycle Audit

The recommendations made by both the Road Safety Audit and Quality Audit report have been reviewed and accepted in full by the design team and these audit recommendations along with any

feedback from the Local Authority as part of the LRD process will be addressed and incorporated into the final site layout drawings submitted for planning including any redline boundary changes.

A summary of the key audit recommendations are outlined below.

1) Additional footpaths, shared surfaces, pedestrian crossing points, suitable gradients, dropped kerbs, tactile paving will be provided through the development at key locations and desire lines, in particular for parking areas, the main access and to serve cycle parking areas.

2) Although the western side of Groody Road is subject to upcoming major improvements for pedestrians and cyclists with BusConnects Limerick, as shown on the site layout, the applicant proposes a footpath on the western side of Groody Road along with a signalised 'Raised' Toucan crossing on Groody Road for both pedestrians and cyclists which has been agreed with the Local Authority and redline boundary adjusted to include these measures.

3) Pedestrian connections with the Groody Valley are proposed as part of the overall landscaping plan.

4) Appropriate high-quality seating, benches, cycle parking and other facilities are proposed throughout the scheme as per the architectural and landscaping drawing packages.

5) The remaining audit items will be address as per the audit recommendations and the site layout revised for planning.

6) The locations of all audit changes are be labelled for ease of understanding within the Garland Drawing package submitted for planning.

3.6 Walking

The site is ideally located in terms of potential connectivity, permeability and accessibility to the university and city centre on foot, cycling or by public transport.

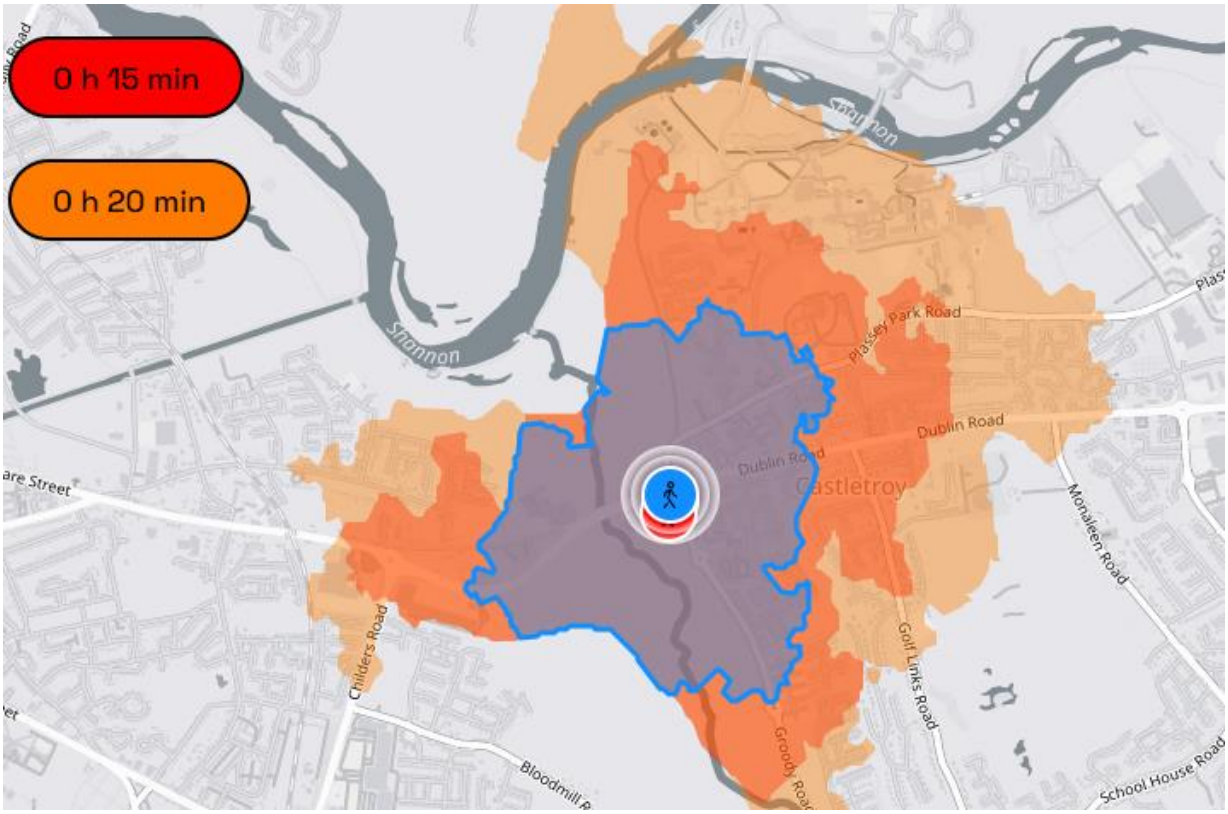
The sites ideal proximity and accessibility to the university, city centre, current and future public transport routes and other key local attractors including retail, café, restaurants and more will ensure that walking is the key mode of travel for residents.

Typical walk times are outlined on Table 3.4 and Figure 3.5 shows a isochrone diagram illustrating how far the average Adult/Student (3.1mph/5km/h) can walk in 10, 15 and 20 minutes from the site and that the university campus is within a 10 min walk of the site.

Table 3.4 – *Average Walk Times and Distances*

Walking Time	Avg. Distance (Child)	Avg. Distance (Adult)	Avg. Distance (Commuter)
	4.3 km/h or 1.21m/s	5km/h or 1.39m/s	6km/h or 1.65m/s
5 minutes	363m	417m	495m
10 minutes	726m	834m	990m
20 minutes	1,452m (1.45km)	1,668m (1.67km)	1,980m (1.98km)

Figure 3.5 *Approx. Walking Time Isochrones Diagram*



3.7 Cycling

Similar to walking, the proposed site is ideally located within easy cycling distance of the university campus, city centre, local shops, amenities and more. The proposed development includes safe, secure and passively surveilled parking spaces for residents/staff (306no.) and also visitor cycle parking (46no.) which comprise standard visitor racks, EV bike spaces and shared cycle spaces.

The site is surrounded by existing high-quality off-road and on-road cycle lane infrastructure but also planned future improvements as part of the BusConnects proposals.

Typical cycling times are outlined below in Table 3.4 based on typical cycle speeds for adults is 10mph (16.1km/h) or 4.47m per second and for commuting cycling speed of 15mph (24km/h) or 6.7m per second.

Table 3.5 – *Average Cycle Times and Distances*

Cycle Time	Avg. Distance (Adult)	Avg. Distance (Commuter)
	16km/h or 4.5m/s	24km/h or 6.7m/s
5 minutes	1,341m (1.34km)	2,010m (2.01km)
10 minutes	2,682m (2.68km)	4,020m (4.02km)
20 minutes	5,364m (5.36km)	8,040m (8.04km)
30 minutes	8,046m (8.05km)	12,060m (12.06km)

Figure 3.6 *Approx. Cycle Time Isochrones Diagram*

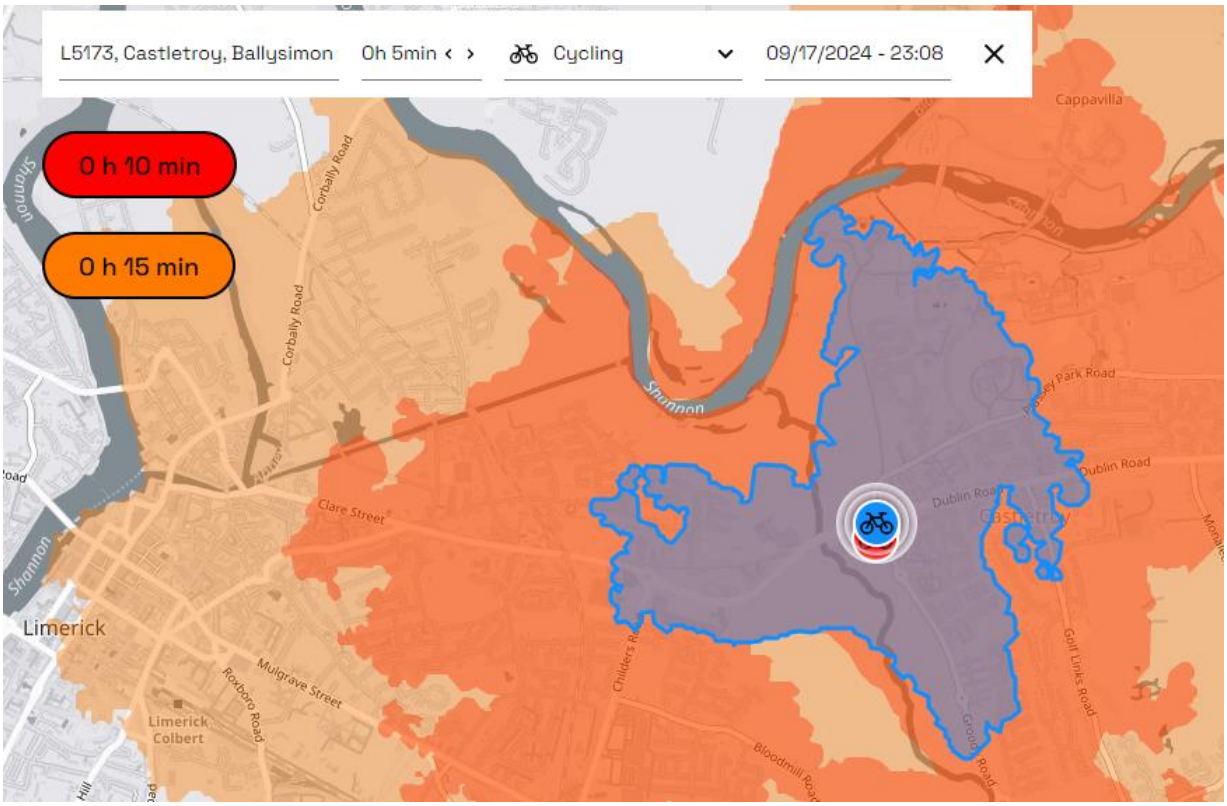


Figure 3.4 above shows that the entire UL campus is within a 5-minute cycle of the proposed development and city centre is within only a 10-minute cycle time which suggests that cycling could and should be an attractive mode of travel for residents.

Figure 3.7 below illustrates the Proposed Limerick Cycle Network as presented in the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS). Although routes and alignments are indicative and subject to change through the statutory scheme appraisal process, it is clear to see that the site is ideally located on the Dublin Road Primary Cycle Route and the Groody Road Secondary Route which will provide high quality off-road cycle infrastructure and allow cyclists to easily access the UL campus and entire cycle network, reduce travel times and improve safety.

As outlined in Section 3.11, several draft routes contained in BusConnects Limerick also pass the site and will help deliver the above off-road cycle lane infrastructure.

These proposed measures will make cycling to and from the proposed development a more realistic and attractive travel option.

Figure 3.7 *– Proposed Limerick Cycle Network - LSMATS*

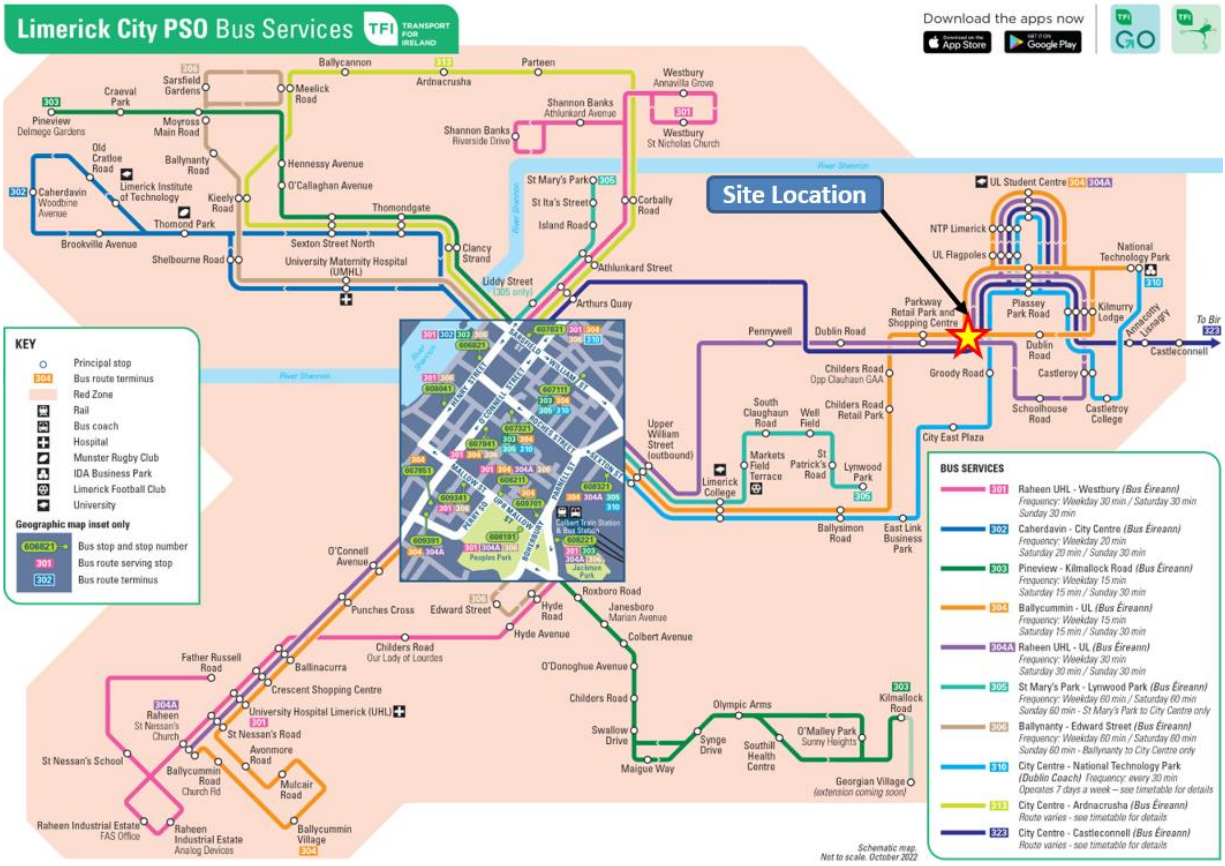
3.8 Public Transport – Existing Bus Routes

As shown in Figure 3.8, the proposed site is well served and is located within a 1min walk of several bus routes including the following:

1. Route 310 on Groody Road – City Centre to National Tech Park. Freq: Every 30mins/7 days
2. Route 304 on Dublin Road – Ballycummin to UL. Freq: every 15mins Mon-Sat, 30mins Sun
3. Route 304a on Dublin Road – UHL to UL. Freq: every 30mins 7 days
4. Route 323 on Dublin Road – City Centre to Casteconnell. Freq: varies

These existing routes provide residents with easy high frequency access to the UL Campus, local amenities and the city centre including the main bus and train station (services every <15mins during peak times).

Figure 3.8 – *Local Public Transport – Bus Stops, Routes and Train Station (source TFI.ie)*



Timetables for the various public transport services can be found at www.journeyplanner.transportforireland.ie with a sample timetable and more in Appendix D.

3.9 Limerick Shannon Metropolitan Area Transport Strategy (LSMATS)

The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) was published in 2022 and sets out the framework for the delivery of the transport system required to further the development of the Limerick Shannon Metropolitan Area as a hub of cultural and social development and regeneration; as the economic core for the Mid-West; as an environmentally sustainable and unified metropolitan unit; as a place where people of all ages can travel conveniently and safely; and a place that attracts people, jobs and activity from all over Ireland and beyond.

The LSMATS was prepared by the NTA in collaboration with Limerick City and County Council, Clare County Council, and Transport Infrastructure Ireland. The cooperation of Irish Rail was also a key input.

The strategy includes and examination and vision for road, public transport, bus, rail, cycle, pedestrian networks and more within the study area and importantly, it assisted and informed the ongoing BusConnects Limerick programme and draft route network design outlined below.

Figure 3.9 illustrates the Proposed Bus Priority Measures as presented in LSMATS but this has since been superseded in certain locations by the draft BusConnects routes outlined below.

Figure 3.9 *– Proposed Bus Priority Measures - LSMATS*

Although the proposed bus routes are again indicative and subject to change through the statutory scheme appraisal process, it is clear to see that the site is ideally located on key bus routes, thereby further improving the attractiveness of bus travel. Figure 3.10 below illustrates the Proposed Phase 2 Rail Network as presented in LSMATS which indicates a new potential train station at Ballysimon approx. 3km (5min drive) to the south of the proposed development. This new train station could potentially provide additional benefits in terms of increasing sustainable transport options to and from the site (train and bike, train and walk, train and bus, P&R and more).

Figure 3.10 *– Proposed Phase 2 Rail Network - LSMATS*

3.10 BusConnects Limerick

The National Transport Authority (NTA) published its final new bus network for Limerick in Dec 2023 with roll out of new services in 2025 onwards. BusConnects Limerick is a programme of nine measures to fundamentally transform Limerick's bus system.

This programme will assist in realising the ambition of the Limerick Shannon Metropolitan Area Transport Strategy outlined below, to significantly increase public transport use. The proposed strategy for a new Bus Network for Limerick will greatly enhance bus travel with new and improved services transforming the public transport network.

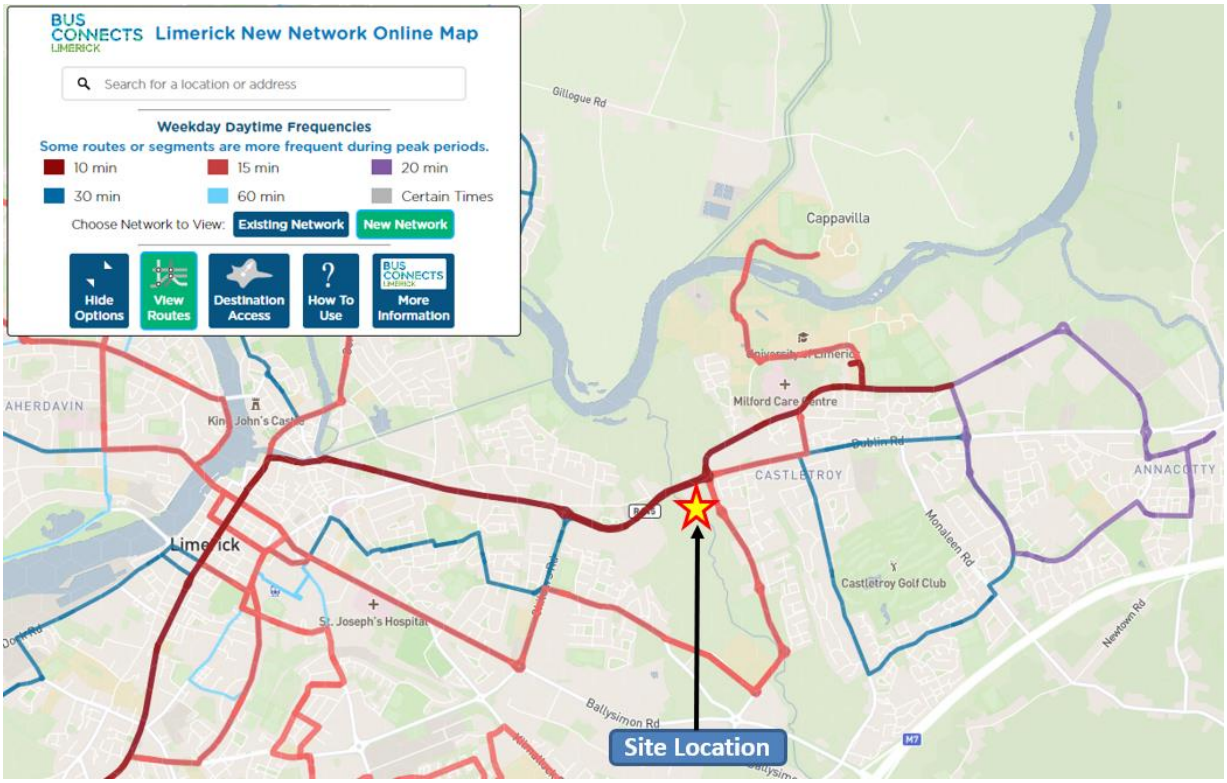
Under the proposals within the Limerick bus network redesign report, the level of bus services in Limerick city and its suburbs will increase by approximately 70%. 61% of people in Limerick city would be located within 400 metres walk of a bus stop, up from 53%. The added service levels will be enabled by the extension of bus services to new areas, more routes with frequent services, an enhanced Sunday timetable and a new 24-hour route.

In particular, the proposed development will significantly benefit from the following proposed high frequency BusConnects routes and below in Table and illustrated on Figure 3.11.

***Table 3.6** – Proposed BusConnects Routes and Frequencies*

Number	Route	Weekday Freq.	Sat Freq.	Sun Freq.
2	Moylish - UL North Campus	15mins	15mins	15mins
4	St Nessans Church – UL	10mins	15mins	15mins
6	Coonagh Shopping Centre – UL	30mins	30mins	30mins
4a	Raheen Ind. Estate – Annacotty	20mins	30mins	30mins
4b	Mungret Park – Annacotty	20mins	30mins	30mins

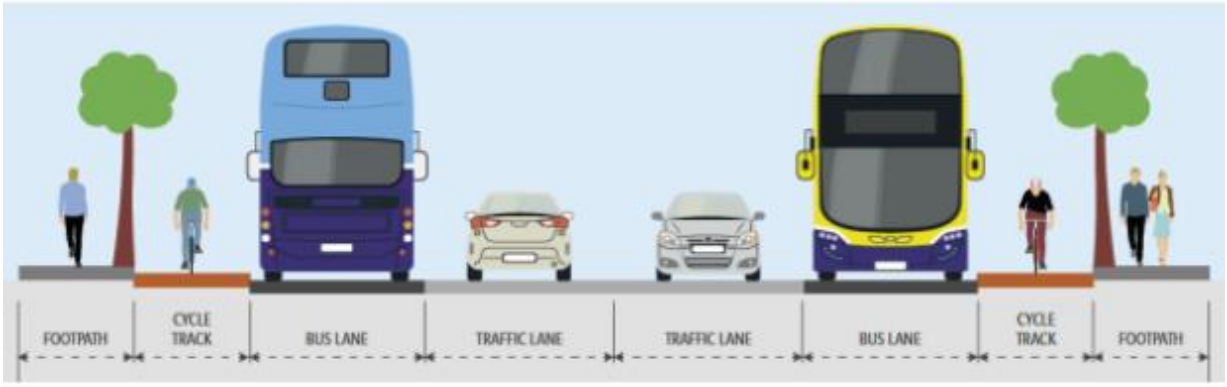
Figure 3.11 – *BusConnects Limerick New Network (screenshot from online map)*



The Applicant supports the BusConnects network and as already outlined in Section 2.5, the proposed development layout does not encroach on an agreed 4m setback inside the existing fence line boundary of the subject site requested by LCCC Active Travel.

This setback allows for all required potential NTA BusConnects upgrade works including bus lanes, cycle lanes, footpaths, bus stops and more for a typical desirable minimum 20m cross section shown below which comprises 3m wide traffic and bus lanes, and 2m wide footpath and cycle lanes.

Figure 3.12 – *Typical BusConnects Cross Section*



The Applicant is also more than willing to support the provision of a Bus Stop on Groody Road including bus shelter and layby.

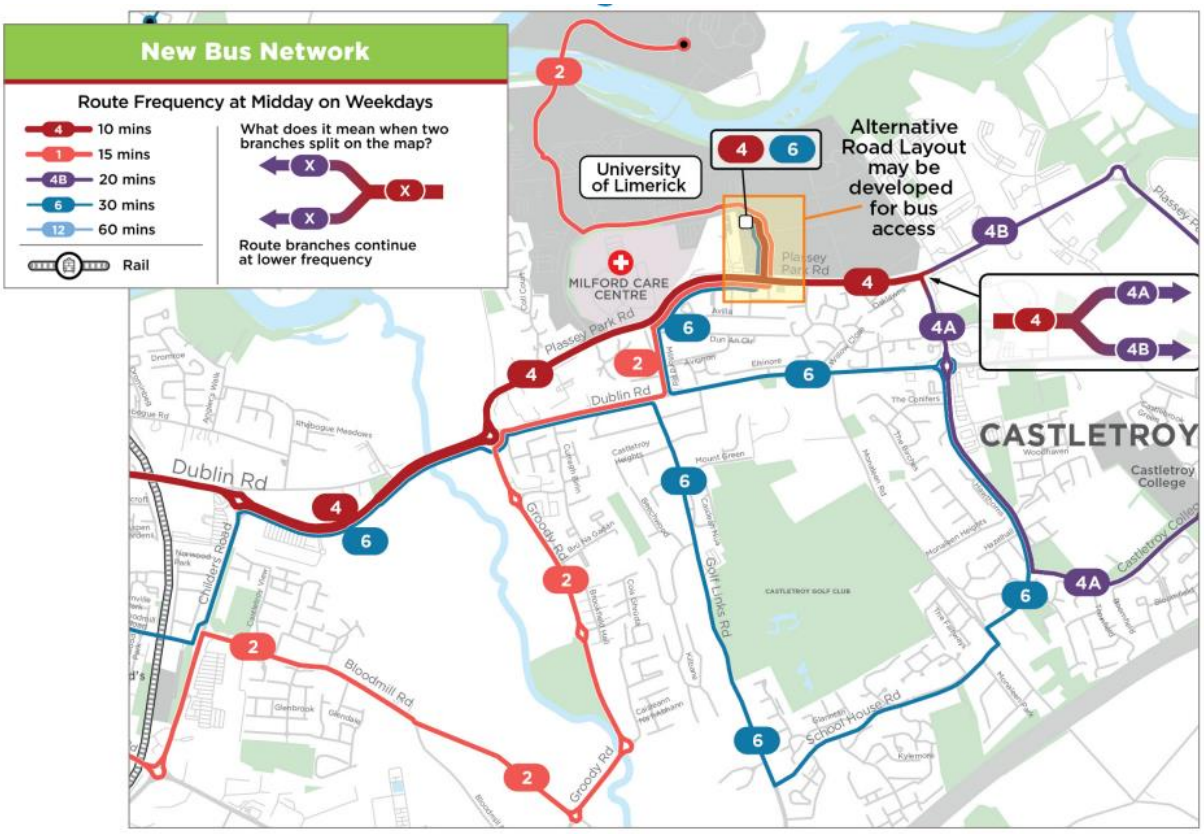
For BusConnects it is proposed that bus stops should be spaced approximately 400m apart on typical suburban sections of the route, dropping to approximately 250m in urban centres (CIHT Buses in Urban Developments, January 2018).

The proposed buildings entrances are likely to be within <100m of any future bus stops (i.e. <1min walk) and therefore trips by bus between the proposed development and UL, city centre or other destinations would be an attractive and realistic mode of travel.

3.11 BusConnects and University of Limerick

After the City Centre, the University of Limerick (UL) is the second most important public transport destination in Limerick. As shown in Figure 3.13 below, the new BusConnects network surrounding UL would significantly increase service in this area, making travel to many parts of Limerick faster.

Figure 3.13 – *BusConnects Network near UL*



As outlined above, Route 4, every 10 minutes would be the fastest, most frequent and most direct path from campus to the proposed development, City Centre and Dooradoyle, via the Dublin Road and Clare Street. In the eastbound direction, Route 4 would split into Route 4A and Route 4B, every 20 minutes, providing service to parts of Castletroy and Annacotty.

Next, Route 2, every 15 minutes would connect the north campus, central campus and student housing on Groody Road, and would continue to shopping and services on Childers Road and in the City Centre. This route would also provide direct service to TUS Moylish and Caherdavin.

Finally, Route 6, every 30 minutes would provide service from campus to areas south of the Dublin Road. It would also continue to City Centre and the Ennis Road. Making this possible would rely on two key changes to bus circulation. A new bus facility and terminus for Route 6 located off the Plassey Park Road UL would be the main campus bus stop (design and location TBC). Two-way bus circulation on some campus roads will be required to allow Route 2 to reach north campus.

Access from UL to Colbert Station would rely on Routes 2 and 4. There would be a 400 metre walk in the City Centre between the train station and the nearest bus stop. Passengers unable to make this walk could use Routes 1 and 3 at Colbert Station to interchange with Route 4 at O'Connell Street.

3.12 University of Limerick Smarter Travel

In 2023, the University of Limerick is the first university in Ireland to receive a gold level Smarter Travel Mark accreditation from the Smarter Travel Programme at the National Transport Authority (NTA).

The Smarter Travel Mark is recognition of UL's commitment to changing attitudes and behaviours regarding walking, cycling, public transport usage and carpooling by implementing measures that facilitate, support and encourage sustainable travel options for staff, students and visitors.

The Smarter Travel team in the Buildings and Estates department at UL continue to develop a range of smarter travel initiatives, transport options, and the promotion of sustainable travel.

Among the many initiatives each year, in recent times UL have developed e-scooter and electric bike pilot schemes partnering with Limerick City and County Council to roll out a dockless bike share scheme linking the campus to Castletroy and the city centre. UL have also recently partners with GoCar to provide a car share service on campus and have an ongoing bicycle hire scheme for students.

The UL website www.ul.ie/buildings/travel-transport has a wide variety of information available to both staff and students for a range of travel modes including infrastructure maps, travel times by various modes, campus entrance locations, shower locations on campus, challenges, competitions and more.

- Walking: www.ul.ie/buildings/travel-transport/walking
- Cycling: www.ul.ie/buildings/travel-transport/cycling#facilities
- Bus: www.ul.ie/buildings/travel-transport/bus
- Train: www.ul.ie/buildings/travel-transport/train
- Car: www.ul.ie/buildings/travel-transport/car
- Plane: www.ul.ie/buildings/travel-transport/plane

3.13 Mobility Management Plan (MMP) Targets

Please also refer to the separate Mobility Management Plan (MMP) report submitted for planning. A summary of the MMP objectives for the proposed development are as follows:

- Increased awareness and encouragement of the use of sustainable travel modes
- Provision of travel information, in particular live bus information (i.e. next bus in 1 min)
- Increased walking and cycling
- Increased use of public transport
- Increased awareness of healthy lifestyles and exercise
- Reduction in private car use through promotion and limited car parking provision
- Increased car occupancy (car sharing / pooling) where private car use occurs

The overall objective of the proposed development is to reduce, where possible, the reliance on the private car, encourage more sustainable and alternative modes of transport such as walking, cycling and public transport and improved site accessibility and connectivity.

These objectives should be achieved through both 'soft' (promotion and operational initiatives) and 'hard' (infrastructural) measures such as pedestrian and cycle facilities within the development and also the new roads and bus routes, new bus stops, potential nearby future train station and other measures proposed as part of the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS), BusConnects Limerick, Active Travel and other programmes which include the delivery of infrastructure to promote sustainable transport and travel.

Raised tables, dropped kerbs and tactile paving for uncontrolled pedestrian crossing points are proposed at several locations throughout the development to cater for key pedestrian desire lines.

The key Apartment-College trip type has the best potential for change in terms of more sustainable travel modes. This trip type has the potential to be influenced by various MMP measures to achieve a higher percentage of sustainable modes of travel to and from the site.

Taking into account the site location, the existing CSO mode of travel statistic (see Table 2.1), the upcoming and planned improvements to infrastructure, facilities and services for public transport, pedestrians and cyclists proposed as part of the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) measures, BusConnects and other schemes, the proposed development has a set Year 1 MMP targets and also adopted the 2040 Mode of Travel targets set down in Section 20.1.3 of LSMATS (Figure 20.3) for future design year analysis purposes (i.e. traffic and noise analysis, etc).

***Table 3.7** – Mode of Travel MMP Targets and other LSMATS Targets*

Travel Mode	Mode of Travel Targets for Residents		
	LSMATS 2022 Daily Mode Share	Proposed Year 1 MMP Targets	LSMATS 2040 Targets AM Mode Share
On foot	25.3%	75 %	32.7%
Bicycle	3.0%	11 %	18.7%
Public Transport (Bus)	8.0%	11 %	12.3%
Car driver	63.7%	2.5 %	36.3%
Other (passenger, etc)	0.0%	0.5 %	/

Although the aim is to reduce vehicular trips and the use of private cars and connected parking demand, another key objective of the MMP is to improve awareness, change travel behaviour and attitudes through the introduction and promotion of a range of measures through an Action Plan to encourage more sustainable modes of transport such as walking, cycling, public transport and car sharing (carpooling) to achieve these targets.

4 Traffic Impact

4.1 Traffic Impact Assessment

This section of the report assesses the traffic impact of the proposed development (see Table 3.1) on the local road network.

4.2 Estimated Development Trip Generation – By All Modes of Travel

Based on the proposed 1,400 bedspaces, the estimated trip generation for all modes of travel from the proposed development is shown in Table 4.1 and was undertaken using the industry standard TRICS trip rate database (see Appendix C) which contains a wide sample of traffic surveys from various types of development throughout Ireland and the UK.

Table 4.1 – *Estimated Proposed Development Traffic – All Trips – All Modes of Travel*

Proposed Development	Arrivals	Departures
AM 08:00-09:00	28	288
PM 17:00-18:00	253	130

Full details of the trip rates used are contained in Appendix C.

Taking into account Section 3 above, the proximity to the UL campus, the availability of both existing and potential future high-quality facilities for walking, cycling and public transport users (BusConnects), existing traffic survey data, comparable CSO data and the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) future mode of travel targets, the expected mode of travel targets for residents can be found below in Table 4.2 along with a breakdown of trips by each mode of travel.

Table 4.2 – *Estimated Peak Hour Trips by Expected Mode of Travel*

1,400 Students		AM Peak Hour (8-9am)		PM Peak Hour (5-6)	
Travel Mode	**% Share**	**Arrivals**	**Departures**	**Arrivals**	**Departures**
On foot	75 %	18	205	180	92
Bicycle	11 %	3	37	33	17
Public Transport	11 %	3	37	33	17
Car driver	2.5 %	1	7	6	3
Passenger/Other	0.5 %	0	1	1	1
TOTAL	**100%**	**25**	**288**	**253**	**130**

The above trips by mode of travel assumes a justified low level of private car use for students and therefore the development requires minimal car parking provision (32no. spaces). The proposed parking provision is below the Development Management Standards contained in Limerick Development Plan which presents the *maximum* allowable parking provision for each city zone in Table DM 9(a).

4.3 Estimated Development Traffic Generation – By Private Car

With a minimal provision of 32no. car parking spaces for 5 blocks of apartments, the proposed development will generate negligible traffic flows in the order of less than 10no. private car trips during peak hours (see Table 4.2) and will therefore have a near zero (negligible) impact on the local road network.

The estimated daily traffic flows are in the order of only 48 arrivals and 48 departures over 24 hours.

4.4 TII Threshold Calculation for full TTA requirement

As per Sections 2.1 (Thresholds) and 2.2 (Sub-Thresholds) of the Transport Infrastructure Ireland (TII) publication Traffic and Transport Assessment (TTA) Guidelines PE-PDV-02045 May 2014 and existing traffic flows on the local road network (see Section 2.6), it is clearly evident that the proposed development does not meet several of the applicable threshold's values for carrying out a *full* Traffic and Transport Assessment including junction capacity analysis.

The estimated traffic to and from the development (<10 car trips in peak hour) represents only approx. *<0.6%* of the traffic flows on the adjoining road (approx. 1,550 in peak hour) and therefore does not exceed the TII 5-10% threshold values where congestion exists or the location is sensitive, would not impact on National Roads and would not cause a local concern. See Table 4.3 below for details.

Table 4.3 – *Estimated Proposed Development Traffic – All Trips – All Modes of Travel*

	AM 08:00-09:00	PM 17:00-18:00	Daily Trips
Estimated Development Car Trips (two-way)	8	9	97
Existing Traffic Flows on Groody Road	1,595	1,526	16,762
% of Development Traffic	0.5%	0.6%	0.5%

4.5 Traffic Assignment, Distribution and Impact on Daily Traffic Flows

With site access off Groody Road, this road will cater for all estimated development traffic with 90% arriving and departing to the north (UL) and 10% to the south. As this estimated car traffic disperses through the local road network, the percentage of traffic impact will reduce further still on Dublin Road West (5%), Dublin Road East (5%) and Plassey Park Road/UL (80%) and as such, no junction capacity impact assessment have been carried out due to the negligible, near zero traffic flow and capacity impact on both the Groody Roundabout (Dublin Rd) junction or the site access roundabout on Groody Road which also serves the Groody Neighbourhood Centre.

The estimated daily traffic flows for the Baseyear (2024), assumed Opening Year (2026) and future Design Year (2041: opening +15 years) for both the Do Nothing (DN) and Do Something (DS) with estimated Development Traffic is outlined below in Figure 4.1 and Table 4.4.

Figure 4.1 *– Est. Daily Design Year Traffic Flows with and without development traffic*

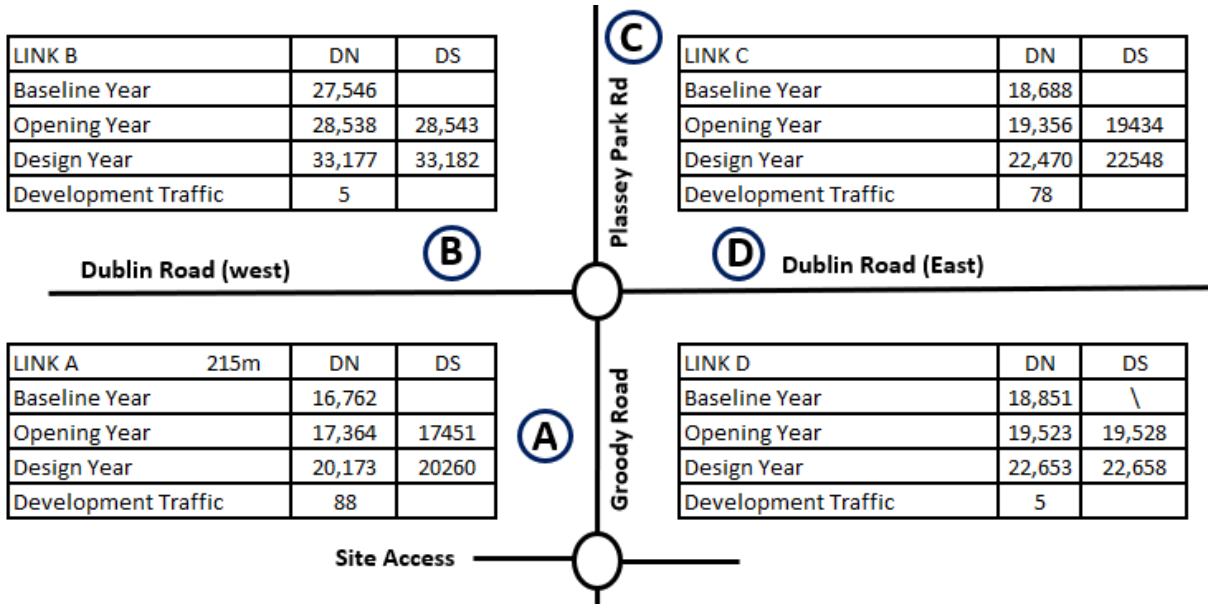


Figure 4.4 *– Est. Daily Design Year Traffic Flows with and without development traffic - % Impact*

	Groody Rd	Dublin Rd West	Plassey Pk Rd	Dublin Rd East
Link Name	A	B	C	D
Link Length	215m	/	/	/
Speed Limit	50km/h	50km/h	50km/h	50km/h
Base Year (2024)	16,762	27,546	18,688	18,851
% HGV	2.5%	2.9%	2.1%	1.8%
Opening Year (2026) - DN	17,364	28,538	19,356	19,523
%HGV	2.6%	3.0%	2.1%	1.8%
Est Development Traffic	87	5	78	5
Opening Year (2026) - DS	17,451	28,543	19,434	19,528
%HGV	2.6%	3.0%	2.1%	1.8%
% Increase with Dev Traffic	0.5%	0%	0.4%	0%
Design Year (2041) - DN	20,173	33,177	22,470	22,653
%HGV	3.0%	3.5%	2.5%	2.1%
Design Year (2041) - DS	20,260	33,182	22,548	22,658
%HGV	3.0%	3.5%	2.5%	2.1%
% Increase with Dev Traffic	0.4%	0%	0.3%	0%

The above TII threshold analysis and estimated daily traffic flows for key assessment years should give the Local Authority and others confidence that the proposed development can be easily accommodated onto the local road network with negligible traffic impact on local junctions or overall carrying capacity of the roads. Further analysis can be undertaken on request.

4.6 Construction Phase

The applicant will provide a contractor's compound within the site boundaries to accommodate all construction staff, parking, deliveries and safe vehicle turning within the site. Typically, construction would commence a minimum of 1 month after grant of full planning permission and construction traffic levels are anticipated to be similar to those outlined in Section 4.4 above and would have negligible impact on the local road network. The following are a number of simple construction stage details:

- Construction vehicles will be covered during dry weather to prevent dust emissions;
- Wheel washers provided to ensure debris and mud are not taken onto the Local Road;
- Trained banksmen will marshal delivery vehicles within the site & access/exit.

5 Summary and Conclusion

Coakley Consulting Engineers (CCE) have been commissioned on behalf of the applicant, Groody Developments Ltd., to prepare this Traffic and Transport Assessment report in support of a proposed Large-Scale Residential Development (LRD) planning application for a Student Accommodation Development on Groody Road, Newcastle, Co. Limerick.

Proposed Development	Apartments	Bedrooms	Blocks
Student Accommodation	**196**	**1,400**	**5**

Using TRICS, the estimated total trips to and from the development by ALL modes of transport include:

1,400 Students		AM Peak Hour (8-9am)		PM Peak Hour (5-6)	
Travel Mode	**% Share**	**Arrivals**	**Departures**	**Arrivals**	**Departures**
On foot	75 %	18	205	180	92
Bicycle	11 %	3	37	33	17
Public Transport	11 %	3	37	33	17
Car driver	2.5 %	1	7	6	3
Passenger/Other	0.5 %	0	1	1	1
TOTAL	**100%**	**25**	**288**	**253**	**130**

- As shown, the estimated trips by private car to and from the development represents only <0.6% of traffic on the local road network and therefore it does not exceed the Transport Infrastructure Ireland (TII) 5-10% threshold value for carrying out a full Traffic and Transport Assessment. The applicant is however willing to undertake junction analysis if required.
- The development has been designed taking into account DMURS principles of safety, accessibility and sustainability to allow safe access, movement and parking throughout the site.
- An independent DMURS compliant Quality Audit (QA) including Road Safety Audit was undertaken by a TII approved audit team, the recommendations of which have been accepted and will be fully incorporated into the final site layout drawings submitted for planning.
- Vehicular site access is proposed via a new arm on the existing roundabout junction on Groody Road which current serves the Groody Neighbourhood Centre.
- This report is also supported by the following separate reports submitted for planning:
    - DMURS Quality Audit including Road Safety Audit (see Appendix B)
    - Mobility Management Plan (MMP) Report which supports the overall parking provision
    - Bus Capacity Assessment Report (included in MMP)
    - DMURS Compliance Statement (Garland)

Overall Conclusion: It is considered that on the basis of the above, the application, in terms of roads, traffic and junction capacity, would operate in a safe and efficient manner, with minimal impact on other road users and on the capacity of local road network well into the future.

Appendix A – Drawings and Figures

Please refer to all original scale drawings submitted as part of the overall planning application.

Appendix B – DMURS Quality Audit incl. Road Safety Audit (RSA)

Coakley Consulting Engineers

Whitebox Student Campus, Groody Road, Newcastle, Castletroy, Co. Limerick

Stage 1 Quality Audit

P·M·C·E

January 2025

Coakley Consulting Engineers

Whitebox Student Campus, Groody Road, Newcastle, Castletroy, Co. Limerick

Stage 1 Quality Audit

Document Ref:	P24170-PMCE-XX-XX-RP-QA-3_0001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
4.0	AP	AOR	AOR	17th Jan 2025	Final Report
3.0	AP	AOR	AOR	14th Oct 2024	Final Report
2.0	AP	AOR	AOR	11th Oct 2024	Revised Draft Report
1.0	AP	AOR/TAG	AOR	9th Oct 2024	Draft Report

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Table of Contents

1 Quality Audit Report

1.1 Introduction

This report was prepared in response to a request from Mr. Bian Coakley of Coakley Consulting Engineers, on behalf of Groody Developments Limited to provide a Stage 1 Quality Audit of the proposed Whitebox Student Campus at Castletroy, Co. Limerick.

Quality Audits consist of a number of overlapping audits, as described in the Design Manual for Urban Roads and Streets (Ireland). Table 1-1 identifies the transport related audits undertaken by PMCE and includes a brief overview of the purpose or goal of each report.

TABLE 1-1 QUALITY AUDIT REPORT CONTENTS

Access Audit	The purpose of this Access Audit is to review the proposed Scheme to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability.
Cycle Audit	The purpose of this Cycle Audit is to review the proposed Scheme/Development to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.
Walking Audit	The purpose of this Walking Audit is to review the proposed Scheme to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.
Road Safety Audit	The purpose of a Road Safety Audit is to identify problems that may lead to road safety collisions, material damage or personal injury, and to offer recommendations that mitigate identified safety risks.
Non-Motorised User Audit[1]	The purpose of a Non-Motorised User (NMU) Audit is to review the proposed Scheme to assess if it will cater comfortably for all non-motorised road users, of all ages and abilities, and that the needs of these vulnerable road users have been prioritised over vehicular traffic.

A Quality Audit is not intended to pass or fail a design, rather it is intended as an assessment tool that highlights the strengths and weaknesses of a design.

1.2 Site Visit

A site visit was undertaken on Thursday the 3rd of October 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were high, pedestrian and cyclist volumes were moderate and traffic speeds were considered to be generally within the posted speed limit.

1.3 Local Environment

1.3.1 Proposed Development

A new student development is proposed on the L5173 (Groody Road), to the south of the R445 (Dublin Road), to the east of Groody River in Castletroy, Co. Limerick (see Figure 1-1). The proposed development shall include five apartment blocks within a greenfield site (see Figure 1-2) and will be located in a predominantly residential area, with pedestrian and cycle facilities provided along the eastern side of Groody Road adjacent to the built up residential areas of Curragh Birin, Brú Na Gruadán and Cois Ghrúda, which are located opposite the site of the proposed development, and on the northern side of Dublin Road in close proximity to the development site connecting the University of Limerick and Castletroy, in the northeast, with Limerick City, in the west.

The development shall have one vehicular which would form a new western arm at the existing Groody Road/Curragh Birin roundabout, and three pedestrian accesses, including two onto Groody Road and one onto Dublin Road. The proposed development would include five multistorey apartment blocks including a total of 1,400 beds, an internal road and footpath network within the development, public open spaces, 40 on-street

[1] A separate Non-motorised User (NMU) Audit has not been prepared. For the proposed scheme/development, separate Access, Walking & Cycling Audits have been undertaken, and these should be referred to for findings in relation to NMUs.

car parking spaces, including two accessible parking spaces, and two set down areas. Cyclists would be required to share the carriageway with motorised road users within the proposed development.

FIGURE 1-1: SITE LOCATION (SOURCE: WWW.OPENSTREETMAP.ORG)

FIGURE 1-2: PROPOSED DEVELOPMENT LAYOUT (DRAWING PP-1.01 (REV.-))

1.3.2 Existing Pedestrian & Cycle Facilities

Segregated pedestrian and cycle facilities are currently provided on the eastern side of the Groody Road from the Garryglass Roundabout, to the south of the proposed development, to the Groody Road/Dublin Road roundabout (Groody Roundabout), to the northeast of the proposed development. A protected cycle lane is provided on the western side of Groody Road transitioning to an off-road cycle track on approach to the Groody Roundabout. However, no footpath is currently provided on the western side of Groody Road. A segregated footpath and a two-way cycle track is provided on the northern side of the Dublin Road, and a pedestrian-only footpath on the southern side of Dublin Road in the vicinity to the proposed development.

Zebra crossings are provided on all arms of the Groody Roundabout providing connectivity between the southern side of Dublin Road for pedestrians and cyclists to the surrounding network. However, no pedestrian or cycle crossings are provided on the Groody Road/Curragh Birin roundabout. Groody Road and Dublin Road provide public lighting on both sides of the road in the vicinity of the development.

1.3.3 Public Transport

There are existing bus stops on Dublin Road and Groody Road in close proximity to the proposed residential development. The nearest bus stops that can be accessed by road users within the proposed scheme are listed in Table 1-2 including the bus routes which serve these bus stops. Figure 1-3 illustrates the bus routes and the location of these bus stops in relation to the proposed scheme.

TABLE 1-2: BUS ROUTES WITHIN PROPOSED SCHEME

Route No.	Bus Stop (number)	Bus Stop (Name)	Travelling between	Frequency
310	11079	Groody Road Kilbane	National Technology Park, Plassey Park Road to Sarsfield Street. through the University of Limerick	30mins
	11076	Groody Road, Groody Park		
304/304A	607701	Groody Roundabout Kilbane	University of Limerick to Raheen	15mins
304/304A	607601	Plassey Park Road, Limerick	University of Limerick to Raheen	15mins
310	11086	Plassey Park Road, University of Limerick	National Technology Park, Plassey Park Road to Sarsfield Street. through the University of Limerick	30mins

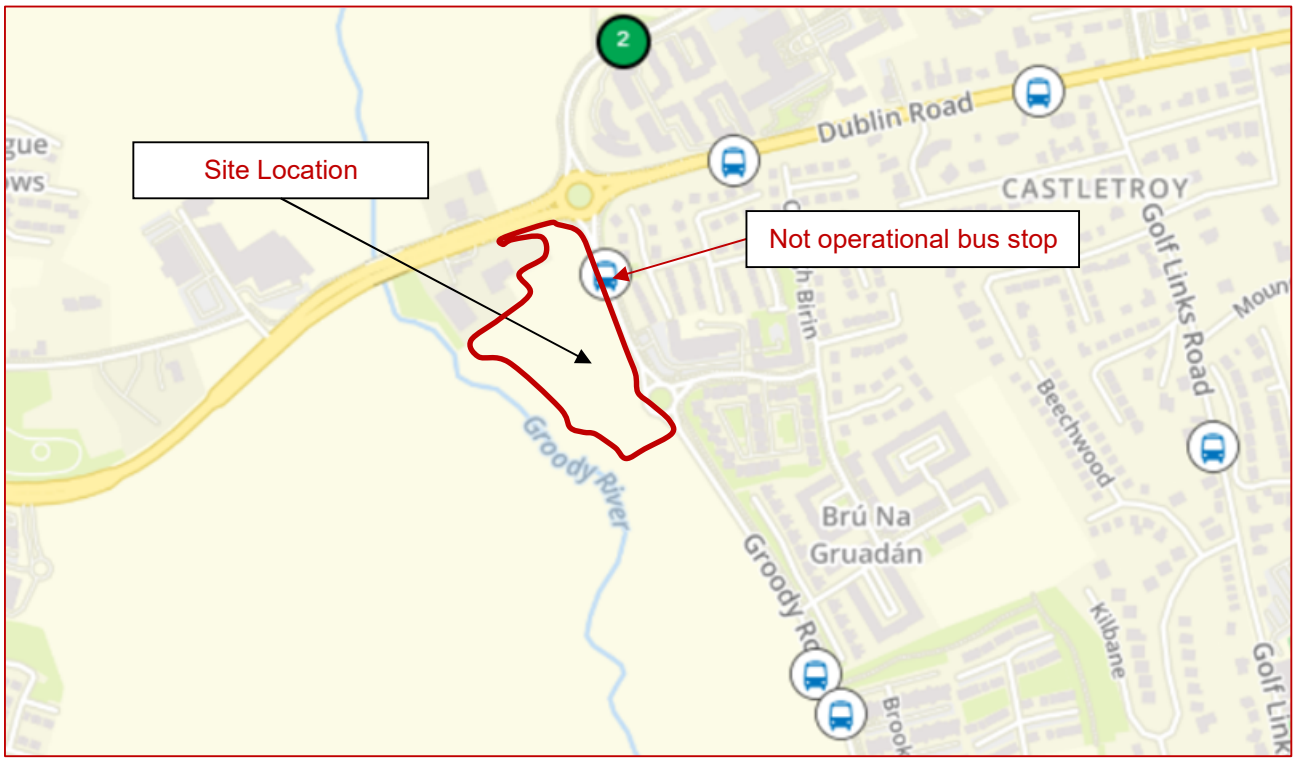


FIGURE 1-3: NEARBY BUS STOPS (SOURCE: WWW.TRANSPORTFORIRELAND.IE)

1.4 Summary of Individual Audit Findings

The following table summarises the issues identified by the component audits of this Quality Audit, and the Design Team's response to the issues raised.

#					Summary of Audit Issue	Design Team Response/Action
1	✓		✓		Pedestrian crossings have not been indicated on pedestrian desire lines within the development.	Pedestrian crossings will be indicated with dropped kerbs and tactile paving at all key locations and desire lines
2	✓		✓		No footpath is currently provided on the western side of Groody Road nor are pedestrian crossings provided connecting the development with Curragh Birin, including at the Groody Road/Curragh Birin roundabout.	A footpath on the western side of Groody road and crossing facility proposal will be brought to the attention of the Local Authority
3	✓				It is unclear if the gradient of the proposed footpath connecting the proposed development with Dublin Road would be suitable for all pedestrians	A suitable gradient will be provided on the pedestrian link to Dublin Road
4	✓				Dropped kerbs, and tactile paving, have not been indicated at the accessible parking spaces within the proposed development.	Dropped kerbs and tactile paving will be provided at mobility impaired parking spaces
5			✓		No seating or benches have been indicated within the public open spaces and paths on Groody Valley	Seating / benches will be provided within the public open spaces, courtyards and Groody Valley. See landscaping plan.
6			✓		It is unclear if there will be sufficient vertical clearance between the tree canopies and the footpath should trees overhang the pedestrian facilities.	Sufficient vertical clearance between the tree canopies and the footpath will be provided. See landscaping plan.
7		✓			Bicycle storage areas have not been indicated, and it is, therefore, unclear if, and where, bicycle parking will be provided within the development.	In excess of the required cycle parking will be provided throughout the development, for both short term and internal long term (storage) cycle parking

#					Summary of Audit Issue	Design Team Response/Action
8		✓			Cyclists may attempt to mount/dismount the full height kerb to access areas within the development from the development access road e.g. the apartment blocks where cycle stands may be provided.	Dropped kerbs will be provided where cycle parking is proposed
9		✓			The path connecting Dublin Road and the proposed development is not wide enough to cater for the expected types, and volumes, of non-motorised road users travelling between Dublin Road and the proposed development.	A sufficiently wide shared pedestrian and cycle path will be provided between the proposed development and Dublin Road
10		✓			There is no existing crossing facility provided for cyclists within the development, or for northbound cyclists on Groody Road.	A suitable shared crossing proposal on Groody road will be brought to the attention of the Local Authority
11				✓	No pedestrian crossings have been indicated to/from the proposed development on Groody Road.	A suitable shared crossing proposal on Groody road will be brought to the attention of the Local Authority
12				✓	No footpath has been indicated around the parking spaces at the proposed development's northern boundary adjacent to Blocks A and B	A footpath and crossing will be provided adjacent to proposed parking spaces for Block A and B
13				✓	Details of pedestrian crossings within the development have not been indicated.	Pedestrian crossings, including dropped kerbs and tactile paving will be provided at key locations
14				✓	No pedestrian crossings have been indicated to cater for vehicle occupants travelling between their vehicle and the apartment blocks within the proposed development.	Pedestrian crossings, including dropped kerbs and tactile paving will be provided at key locations
15				✓	It is unclear if the swept path of large vehicles, for example fire tenders and refuse trucks, will be safely accommodated within the development.	An Autotrack assessment has demonstrated that multiple vehicle types can safely move and turn with the development. See Garland drawing package.

#					Summary of Audit Issue	Design Team Response/Action
16				✓	Forward visibility of drivers within the proposed development may be restricted by proposed planting and building boundaries on the inside of horizontal curves.	The proposed planting and building boundaries will not restrict the required forward visibility for ambient speeds.
17				✓	The set-down area at Block B is indicated on the offside relative to drivers entering the development which may lead to unsafe U-turn manoeuvres when exiting the set-down area.	The setdown area will be revised south of Block B
18				✓	It is unclear where the bicycle parking/storage area(s) will be located within the proposed development, and if sufficient measures would be provided for cyclists to access these locations from the development's access road carriageway.	Suitable shared surfaces and dropped kerbs will be provided for cycle parking areas.
19				✓	The pedestrian desire line on Groody Road between the pedestrian access to the proposed development and the existing Curragh Birin residential development is not adequately catered for.	A suitable shared crossing proposal on Groody road will be brought to the attention of the Local Authority
20				✓	The existing level difference between the site and the adjacent public footpath on the southern side of the R445 may result in a steep gradient on the proposed pedestrian path between the R445 and the development.	A suitable gradient and non-slip surface will be provided on the pedestrian link to Dublin Road

Appendix A: Access Audit

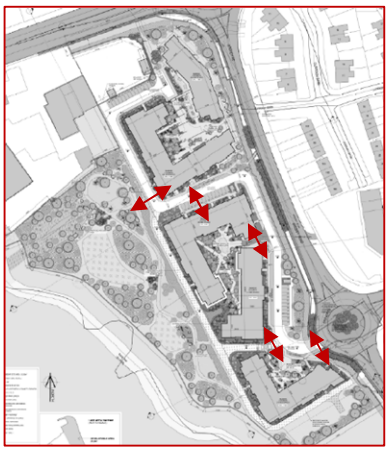
The purpose of this Access Audit is to review the proposed Scheme to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability.

2 Access Audit Findings

2.1 Pedestrian Desire Lines within the Development

Pedestrian crossings have not been indicated at pedestrian desire lines within the development. No pedestrian crossings have been indicated at the following locations:

- Between the central public open spaces and the surrounding residential development/.
- Between parking spaces and the footpath on the opposite side of the road.
- At the development access and internal vehicular accesses.



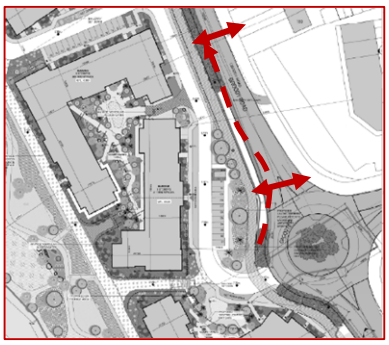
A failure to provide an appropriate crossing for non-motorised road users at these expected desire lines could result in difficulties when crossing the carriageway, particularly for mobility and visually impaired pedestrians.

Recommendation

A thorough review of the likely pedestrian desire lines within the development should be undertaken, and suitable pedestrian crossings, including dropped kerbs and tactile paving, provided to facilitate safe VRU movement.

2.2 Pedestrian Desire Lines to/from the Footpath on Groody Road

It is likely that pedestrian desire lines will exist between the proposed development and the neighbouring residential area to the east on the opposite side of Groody Road. Two pedestrian accesses to the proposed development have been indicated on Groody Road, however, no footpath is currently provided on the western side of Groody Road, nor are any pedestrian crossings provided, or proposed, connecting the development with Curragh Birin, including at the Groody Road/Curragh Birin roundabout.



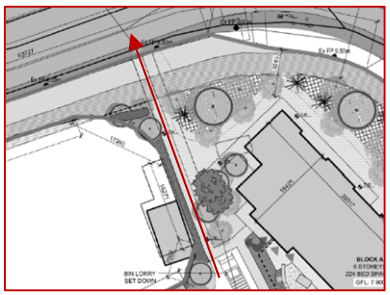
If pedestrian facilities, including footpaths and formal pedestrian crossings, with dropped kerbs and tactile paving, are not provided on Groody Road, this may lead to difficulties for pedestrians, particularly the mobility and visually impaired, such as wheelchair users, in independently navigating the road layout.

Recommendation

Pedestrian facilities should be provided on Groody Road, including a footpath on the western side of the road and pedestrian crossings, with dropped kerb and associated tactile paving, to cater for pedestrian desire lines.

2.3 Steep Gradient

A pedestrian access onto the footpath on the southern side of Dublin Road has been indicated at the northern boundary of the proposed development. Due to the existing level difference between the land within the development site and this footpath it is unclear if the gradient of this path would be suitable for all pedestrians, particularly the mobility impaired. Should the path gradient exceed 1V:20H, it will create difficulties for mobility impaired pedestrians to traverse.

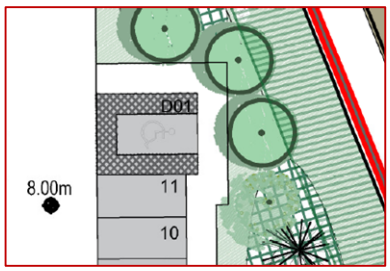


Recommendation

Ensure the proposed ramp gradients are suitable for all road users.

2.4 No Dropped Kerb/Tactile Paving at Accessible Parking Spaces

Two accessible parking spaces have been indicated within the proposed development. Dropped kerbs, and tactile paving, have not been indicated at these parking spaces. This may lead to mobility impaired vehicle occupants having to travel within the carriageway to a suitable location to access the footpath, which may be a lengthy journey, or have to mount/dismount full height kerbs to access a footpath.



Recommendation

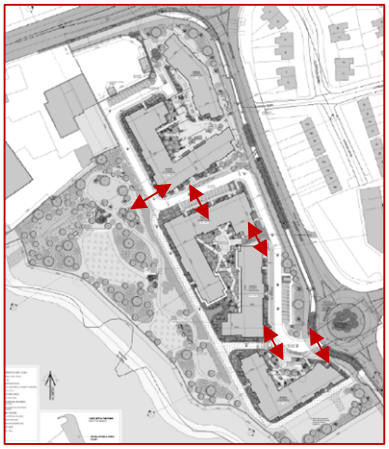
Dropped kerbs, and tactile paving, should be provided adjacent to accessible parking spaces.

Appendix B: Walking Audit

The purpose of this Walking Audit is to review the proposed Scheme to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.

3 Walking Audit Findings

3.1 Pedestrian Desire Lines within the Development



Pedestrian crossings have not been indicated at pedestrian desire lines within the development. No pedestrian crossings have been indicated at the following locations:

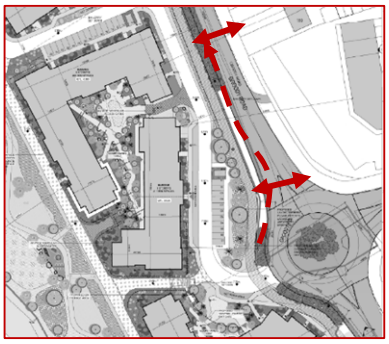
- Between the central public open spaces and the surrounding residential development.
- Between parking spaces and the footpath on the opposite side of the road.
- At the development access and internal vehicular accesses.

A failure to provide an appropriate crossing for non-motorised users at these expected desires line could result in difficulties in crossing the carriageway, particularly for mobility and visually impaired pedestrians.

Recommendation

A thorough review of likely pedestrian desire lines within the development should be undertaken, and suitable pedestrian crossings, including dropped kerbs and tactile paving, provided to facilitate safe VRU movement.

3.2 Pedestrian Desire Lines to/from the Footpath on Groody Road



It is likely that pedestrian desire lines will exist between the proposed development and the neighbouring residential area to the east on the opposite side of Groody Road. Two pedestrian accesses to the proposed development have been indicated on Groody Road, however, no footpath is currently provided on the western side of Groody Road nor are any pedestrian crossings provided, or proposed, connecting the development with Curragh Birin, including at the Groody Road/Curragh Birin roundabout.

If pedestrian facilities, including footpaths and formal pedestrian crossings, with dropped kerbs and tactile paving, are not provided on Groody Road, this may lead to difficulties for pedestrians, particularly the mobility and visually impaired, such as wheelchair users, in independently navigating the road layout.

Recommendation

Pedestrian facilities should be provided on Groody Road, including a footpath on the western side of the road and pedestrian crossings, including dropped kerb and associated tactile paving, to cater for pedestrian desire lines.

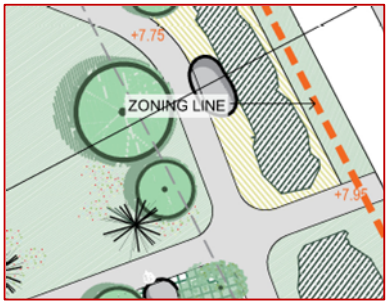
3.3 Absence of Seating on Groody Valley

No seating or benches have been indicated within the public open spaces and paths on Groody Valley. Pedestrians, particularly the mobility impaired, may have difficulties walking, or standing, for long periods leading to fatigue.

Recommendation

Seating should be provided within public open spaces and courtyards.

3.4 Mounting Height of Tree Canopies



Information regarding the mounting height of tree canopies, located within the development and on Groody Valley public open space area, has not been provided to the Auditor. It is, therefore, unclear if there will be sufficient vertical clearance between the tree canopies and the footpath should trees overhang these pedestrian facilities.

If sufficient vertical clearance is not provided there is a risk that the tree canopies could present an obstacle to pedestrians.

Recommendation

Tree canopies should have a clear vertical clearance of 2.3m above footpaths.

Appendix C: Cycle Audit

The purpose of this Cycle Audit is to review the proposed Scheme/Development to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.

4 Cycle Audit Findings

4.1 Bicycle Parking Provision

Bicycle storage areas have not been indicated on the drawings provided, and it is, therefore, unclear if and where bicycle parking will be provided within the development.

Recommendation

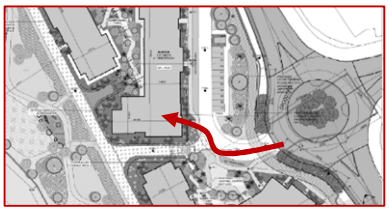
Sufficient bicycle parking spaces should be provided for the student development in accordance with the Limerick Development Plan 2022 - 2028, including both short-stay and long-stay bicycle parking spaces.

The proposed bicycle stands should be located at all apartment blocks and should accommodate a mix of bicycles in order to cater for the widest possible mix of cyclists (e.g. standard bicycles, cargo bicycles, hand-operated bicycles, etc.).

Depending on the location of the cycle stands, doors used by cyclists should be operated electronically by automatic detection or with a push button within 3m of the door.

4.2 Cyclist Routes to/from Apartment Blocks

It is unclear where bicycle storage facilities are to be provided within the proposed development. Dropped kerb access has not been indicated within the development, including at locations where cyclists would access the necessary bicycle storage areas within the development. Cyclists are likely to want to access the apartment blocks, where cycle stands may be provided, via the development access road and, if sufficient dropped kerb access is not provided, they may attempt to mount/dismount the full height kerb, which may lead to difficulties.

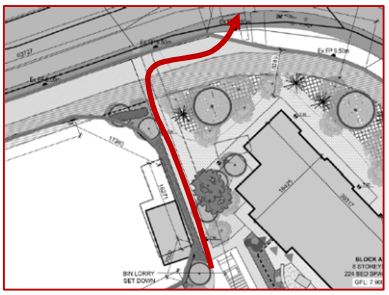


Recommendation

Dropped kerbs and tactile paving should be provided at the edge of the footpath adjacent to locations which are likely to attract cyclists.

4.3 Absence of Cycle Route between the Development and Dublin Road

Existing cycle facilities and a Zebra crossing are provided on Dublin Road connecting the University of Limerick with Groody Roundabout. Whilst a pedestrian access onto the footpath on the southern side of Dublin Road has been indicated at the northern boundary of the proposed development, a route, and access, for cyclists has not been indicated at this location.



It is, therefore, likely to result in cyclists travelling within the footpath between Dublin Road and the development. The width of the proposed pedestrian route at this location would be insufficient for use by both pedestrians and cyclists resulting in conflicts between these road users.

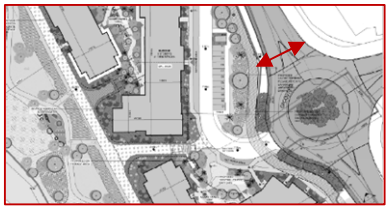
Recommendation

The path connecting Dublin Road and the proposed development should be wide enough to cater for the expected types and volumes of non-motorised road users, including the provision of shared path sections on the route between Dublin Road and the proposed development.

'Ladder & Tramline' tactile paving should be provided where the shared paths would transition to pedestrian-only paths.

The ramp gradient at this location (see Issue 2.3) should also be suitable for cyclists.

4.4 Absence of Cycle Crossing on Groody Road



There is no crossing facility indicated for cyclists within the development nor is there an existing crossing for northbound cyclists on Groody Road. This may lead to cyclists crossing the carriageway across the path of vehicles whose drivers may not anticipate a cyclist to undertake this manoeuvre.

Recommendation

Measures should be provided for cyclists to cross to the cycle facilities on the eastern side of Groody Road.

Appendix D: Road Safety Audit

The purpose of a Road Safety Audit is to identify problems that may lead to road safety collisions, material damage or personal injury, and to offer recommendations that mitigate identified safety risks.

Coakley Consulting Engineers

Whitebox Student Campus, Groody Road, Newcastle, Castletroy, Co. Limerick

Stage 1 Road Safety Audit

P·M·C·E

January 2025

Coakley Consulting Engineers

Whitebox Student Campus, Groody Road, Newcastle, Castletroy, Co. Limerick

Stage 1 Road Safety Audit

Document Ref:	P24170-PMCE-XX-XX-RP-SA-3_0001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
4.0	AOR	XY	AOR	17th Jan 2025	Final
3.0	AOR	XY	AOR	14th Oct 2024	Final Report
2.0	AOR	XY	AOR	11th Oct 2024	Revised Drawing Received
1.0	XY	AOR	TAG	9th Oct 2024	Draft Report

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Table of Contents

1 Introduction

1.1 General

This report results from a Stage 1 Road Safety Audit on the proposed Whitebox Student Campus at Castletroy, Co. Limerick carried out at the request of Mr Brian Coakley of Coakley Consulting Engineers on behalf of Groody Developments Limited.

The members of the Road Safety Audit Team are independent of the design team, and include:

Mr. Alan O'Reilly
(BA, BAI, MSc, PGDip(PM), RSACert, CEng, MIEI)
Road Safety Audit Team Leader

Ms. Xue Yan
(BEng, MSc, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during October 2024 and comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 3rd of October 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were high, pedestrian and cyclist volumes were moderate and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix B. Where problems are general to the proposals sample drawing extracts are within the main body of the report, where considered necessary.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety and considers the perspective of all road users. It has not been examined or verified for compliance with any other standards or criteria. The problems identified in this report are considered to require action in order to improve the safety of the scheme and minimise collision occurrence.

If any of the recommendations within this road safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observations are intended to be for information only. Written responses to Observations are not required.

2 Project Description

It is proposed to construct a new student accommodation development on the outskirts of Limerick City (see Figure 2.1), to the southwest of the University of Limerick. The proposed student accommodation development would be bound to the north by the R445 (Dublin Road), to the east by the L5173 (Groody Road) and to the west and the south by an existing greenfield site to be developed in the future.

The proposed student accommodation development would be accessed via a new arm on the western side of the existing roundabout at the intersection of Groody Road and the access road to Groody Student Park, approximately 180m to the south of the Groody Roundabout, where Groody Road intersects the Dublin Road.

Groody Road is a two-way single carriageway, approximately 7.0m wide, and includes a protected northbound cycle lane on its western side. A segregated footpath and cycle track is provided on the eastern side of the road. Public lighting is also provided on both sides of the road. The posted speed limit on Groody Road is 50kph

The proposed development would include the following:

- 1,400-bed accommodation spread over five apartment blocks.
- 40 parking spaces, including two accessible parking spaces, and three set down areas.
- Open green space, and courtyards, within, and between, the apartment blocks.
- Internal road and footpath network.
- Fire and emergency access route.
- Development of Groody Valley to provide walking routes, recreational areas and landscaped areas.

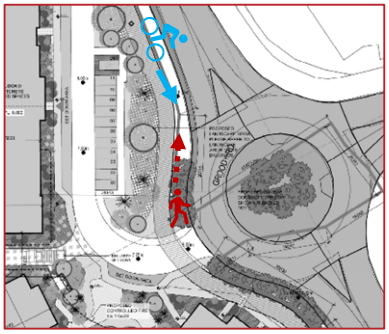
FIGURE 2.1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG**)**

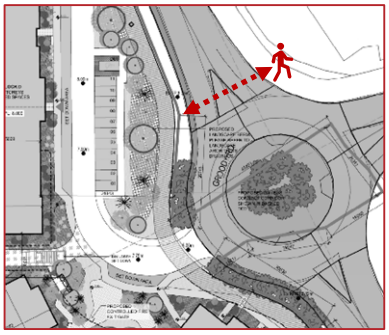
3 Items Arising from the Audit

3.1 Absence of Pedestrian Connectivity to Footpath on Groody Road

Location: *Drawing no. PP-1.01*

Summary: *No pedestrian crossings have been indicated to/from the proposed development on Groody Road.*





It is proposed to construct the student accommodation development on the western side of Groody Road with two pedestrian accesses indicated onto this side of the road, however, there is currently no footpath along the western side of Groody Road with an existing public footpath provided along the opposite side only. A pedestrian crossing has not been indicated on Groody Road with the nearest crossing being the Zebra crossing at the Groody Roundabout approximately 200m to the north.

There is likely to be a pedestrian desire line between the proposed development and the shops/residential developments on the eastern side of Groody Road, and it is unlikely that residents of the proposed development would travel north to this crossing. This may lead to pedestrians, who wish to travel between these developments, crossing Groody Road at locations where a driver may be less attentive to them, and insufficiently prepared to react, resulting in an increased risk of vehicle-pedestrian collisions.

There are also currently no pedestrian crossings at the roundabout at the proposed development access, which was noted as extremely busy at the time of the site visit, further exacerbating the problem.

In addition, the lack of a footpath on the western side of Groody Road will likely lead to pedestrians travelling in the verge or protected northbound cycle lane along the proposed development boundary, resulting in a risk of slips and falls, or pedestrian/cyclist collisions.

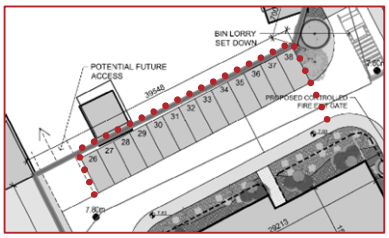
Recommendation

Measures should be provided to support the safe movement of pedestrians between the proposed development and developments on the eastern side of Groody Road.

3.2 Absence of Footpath at Parking Spaces

Location: *Drawing no. PP-1.01*

Summary: *No footpath has been indicated around the parking spaces at the proposed development's northern boundary adjacent to Blocks A and B.*



Parking spaces 26 – 38 have been indicated at the development's northern boundary adjacent to Blocks A and B. No footpath has been indicated adjacent to these parking spaces. The lack of a footpath at this location may lead to vehicle occupants travelling in the verge, which may rut over time, resulting in unstable ground and ponding, and an increased risk of slips, trips and falls.

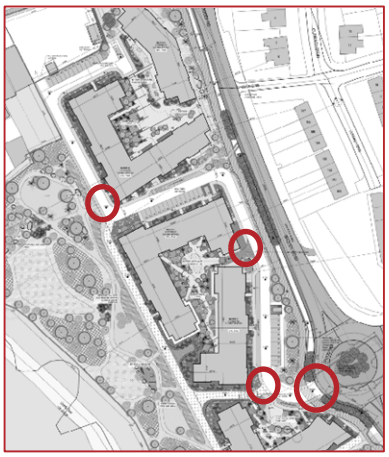
Recommendation

Provide a paved footpath bounding these parking spaces and a pedestrian crossing to access the footpath on the opposite side of the road.

3.3 Provision of Crossings

Location: *Drawing no. PP-1.01*

Summary: *Details of pedestrian crossings within the development have not been indicated.*



Pedestrian crossings have not been indicated within the development particularly at the development access and internal junctions where it is likely that these will be required to cater for pedestrians crossing the internal road network.

A failure to provide formal pedestrian crossings, with dropped kerbs and tactile paving, could lead to pedestrians crossing the carriageway at locations where drivers may be less attentive to them and insufficiently prepared to react safely resulting in an increased risk of vehicle-pedestrian collisions.

In addition, the lack of dropped kerbs and tactile paving at locations where pedestrians are likely to cross the carriageway would lead to pedestrians having to mount/dismount full height kerbs where there is a risk of trips and falls, and further accessibility issues for the visually and mobility impaired.

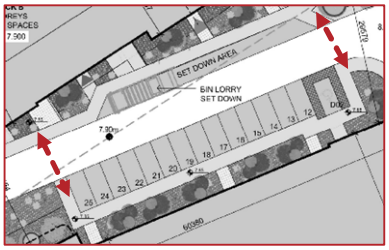
Recommendation

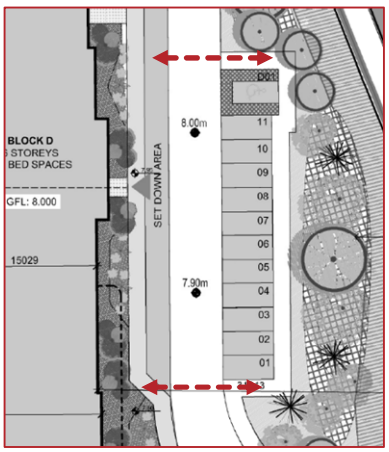
Pedestrian crossings, including dropped kerbs and tactile paving, should be provided at the development access and across side road junctions within the development.

3.4 Absence of Pedestrian Connectivity at Parking Spaces

Location: *Drawing no. PP-1.01*

Summary: *No pedestrian crossings have been indicated to cater for vehicle occupants travelling between their vehicle and the apartment blocks within the proposed development.*





Parking spaces have been indicated within the proposed development on the opposite side of the development access road to the main entrance to Blocks B and D. Formal pedestrian crossings have not been indicated adjacent to these parking spaces to accommodate vehicle occupants crossing between their vehicle and the apartment blocks. A failure to provide a formal pedestrian crossing, with dropped kerbs and tactile paving, at these locations could lead to pedestrians, particularly mobility impaired pedestrians, being unable to safely and independently enter the carriageway to cross to the opposite footpath.

This could result in slips, trips and falls as these pedestrians attempt to descend the kerb, or an increased risk in visually impaired pedestrians unintentionally entering the carriageway where they could be struck by vehicles.

Recommendation

Formal pedestrian crossings, including dropped kerbs and tactile paving, should be provided at pedestrian desire lines between the proposed parking spaces and the opposite footpath adjacent the main apartment block entrances.

3.5 Swept Path Analysis

Location: *Drawing no. PP-1.01*

Summary: *It is unclear if the swept path of large vehicles, for example fire tenders and refuse trucks, will be safely accommodated within the development.*

A designated fire tender emergency route and multiple refuse truck set down areas have been indicated within the proposed development. It is unclear if large vehicles, including fire tenders and refuse trucks, will be able to safely travel along these routes and turn at the proposed turning heads. If sufficient space is not available, this could lead to large vehicles mounting the footpath when turning or undertaking multi-point turning manoeuvres where there is an increased risk of striking parked vehicles, items of roadside furniture or collisions with other road users.

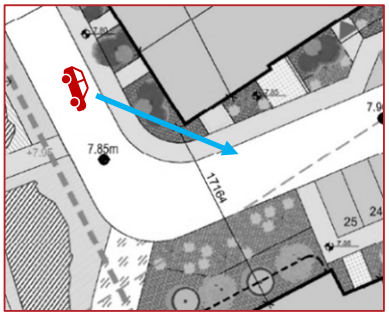
Recommendation

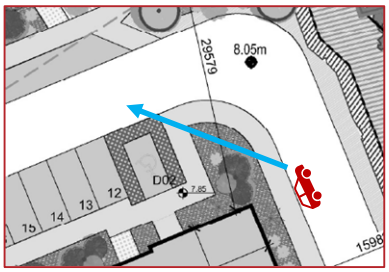
A swept path analysis should be undertaken to confirm that all vehicles, particularly fire tenders and refuse trucks, can safely navigate the necessary routes within the development's road network and complete safe turning manoeuvres at the turning heads indicated.

3.6 Restricted Forward Visibility at Bends

Location: *Drawing no. PP-1.01*

Summary: *Forward visibility of drivers within the proposed development may be restricted by proposed planting and building boundaries on the inside of horizontal curves.*





Horizontal curves have been indicated within the alignment of the development's internal access road between Blocks B and C. It is unclear if sufficient forward visibility will be available for drivers on the inside of these horizontal curves due to the trees and building boundaries located on the inside of the bend. This may lead to drivers being insufficiently aware of oncoming opposing traffic resulting in a risk of low-speed head on collisions.

Recommendation

Sufficient forward visibility should be provided for drivers on approach to, and throughout, the horizontal curves.

3.7 Set-down Area Arrangement

Location: *Drawing no. PP-1.01*

Summary: *The set-down area at Block B is indicated on the offside relative to drivers entering the development which may lead to unsafe U-turn manoeuvres when exiting the set-down area.*

A set-down area has been indicated adjacent to Block B located on the offside relative to vehicles entering the development. A turning head has been indicated at the end of the access road at Block A however it is unlikely that drivers will continue to the turning head at Block A, turn around, and then enter the set-down area so that they are facing the correct direction to exit the development when leaving, and instead cross the carriageway to enter the set-down area.

This may lead to drivers performing U-turn manoeuvres on the access road at the set-down area when exiting the development which may result in an increased risk of collisions with other vehicles.

This problem would be exacerbated by the horizontal curves at either side of the set-down area which may restrict visibility for drivers on the access road towards U-turning vehicles.

Recommendation

The set-down area should be relocated to the nearside of the access road.

3.8 Location of Bicycle Parking/Storage Area

Location: *Drawing no. PP-1.01*

Summary: *It is unclear where the bicycle parking/storage area(s) will be located within the proposed development, and if sufficient measures would be provided for cyclists to access these locations from the development's access road carriageway.*

The footpath within the proposed development does not appear to be wide enough to cater for both pedestrians and cyclists so it is assumed that cyclists will share the carriageway with vehicles when travelling within the development. The location of bicycle stores, or bicycle parking stands, has not been indicated on the drawing provided to the Audit Team, however, and it is unclear where cyclists would be travelling to/from in the development. It is, therefore, unclear if cyclists would be required to mount/dismount a full height kerb when accessing bicycle parking stands/storage areas from the carriageway. If so, this may result in a risk of loss of control and falls from their bicycle.

In addition, no information has been indicated regarding the width of the proposed footpaths within the development and whether or not cyclists would need to use any sections of the footpath to access bicycle parking stands/storage areas. A failure to provide sufficiently wide shared surfaces may result in an increased risk of pedestrian/cyclist collisions.

Recommendation

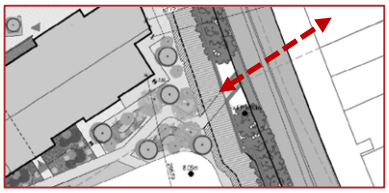
Routes to/from bicycle parking, both long-stay and short-stay, should be catered for with sufficiently wide shared surfaces, and dropped kerbs for cyclists to enter/exit the carriageway.

3.9 Pedestrian Desire Line to Curragh Birin

Location: *Drawing no. PP-1.01*

Summary: *The pedestrian desire line on Groody Road between the pedestrian access to the proposed development and the existing Curragh Birin residential development is not adequately catered for.*

A pedestrian access onto the western side of Groody Road from the proposed development has been indicated in close proximity to the pedestrian/cyclist route from the Curragh Birin residential development on the opposite side of Groody Road. There is likely to be a pedestrian desire line between this pedestrian/cyclist access to Curragh Birin and the proposed development.



The Audit Team acknowledge the existing Zebra crossing further north at Groody Roundabout, however this would be a 130m trip and unlikely to be undertaken. This may lead to unsafe crossing manoeuvres on Groody Road at this location, which was noted as extremely busy at the time of the site visit, resulting in an increased risk of vehicle-pedestrian collisions.

Recommendation

A suitable pedestrian crossing of Groody Road should be provided at this location.

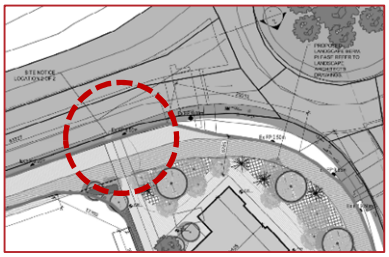
3.10 Level Difference

Location: *Drawing no. PP-1.01*

Summary: *The existing level difference between the site and the adjacent public footpath on the southern side of the R445 may result in a steep gradient on the proposed pedestrian path between the R445 and the development.*

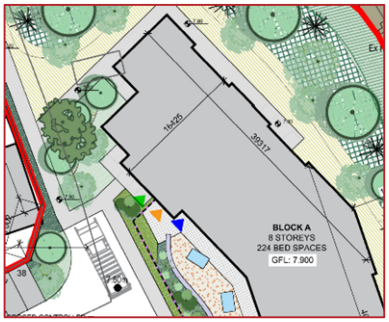
A pedestrian route from the proposed development to the footpath on the southern side of the R445 has been indicated at the development's northern boundary. At the time of the site visit, the Audit Team noted a level difference between the development site and the footpath on the R445. It is, therefore, unclear if the gradient of this access path would be suitable for all pedestrians, particularly the mobility impaired. If not, this may increase the risk of slips, trips and falls and personal injuries.

Recommendation



The access path should have a smooth, non-slip surface and should provide a gentle gradient that can be safely traversed by all road users.

4 Observations



4.1 The Main Lobby Entrances have not been indicated at Blocks A and C. It is, therefore, unclear how pedestrians will access these blocks, i.e. from the development's internal footpath network or from routes between other apartment blocks. The Main Lobby Entrances should be clearly marked on the drawings and sufficient routes provided to these locations.

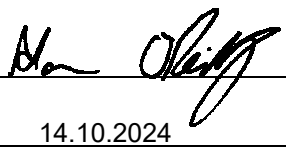
5 Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

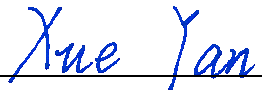
No one on the Road Safety Audit Team has been involved with the design of the scheme.

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly Signed: 

Dated: 14.10.2024

ROAD SAFETY AUDIT TEAM MEMBER

Xue Yan Signed: 

Dated: 14.10.2024

6 Road Safety Audit Feedback Form

Road Safety Audit Feedback Form

Scheme: Student Development, Castletroy, Limerick

Route No.: R445 (Dublin Road) & L5173 (Groody Road)

Audit Stage: Stage 1 **Date Audit Completed:** 17th January 2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1	Yes	Yes		
3.2	Yes	Yes		
3.3	Yes	Yes		
3.4	Yes	Yes		
3.5	Yes	Yes		
3.6	Yes	Yes		
3.7	Yes	Yes		
3.8	Yes	Yes		
3.9	Yes	Yes		
3.10	Yes	Yes		

Signed: Darryl O'Neill Designer **Date** 14.10.2024

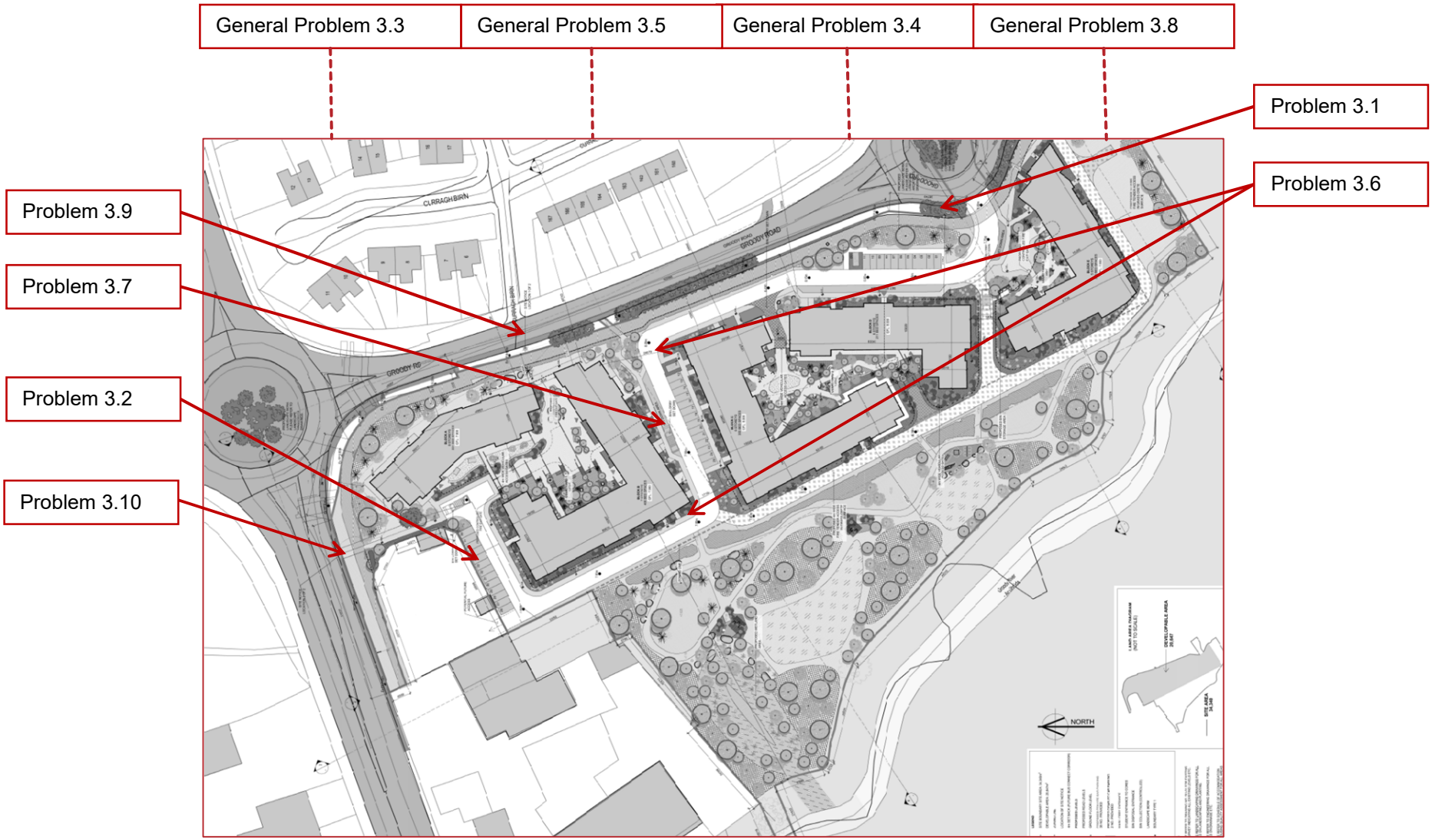
Signed: Audit Team Leader **Date** 14.10.2024

Signed: Employer **Date** 16.01.2025

Appendix A - Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Proposed Site Layout	PP-1.01	N/A

Appendix B – Problem Locations


General Problem 3.3
General Problem 3.5
General Problem 3.4
General Problem 3.8
Problem 3.1
Problem 3.6
Problem 3.9
Problem 3.7
Problem 3.2
Problem 3.10
CURRAGHBIRN
GROODY ROAD
GROODY RD
NORTH

Appendix C – TRICS Data – Trip Rates

Trip Rates used in Estimated Traffic Generation and Junction Analysis

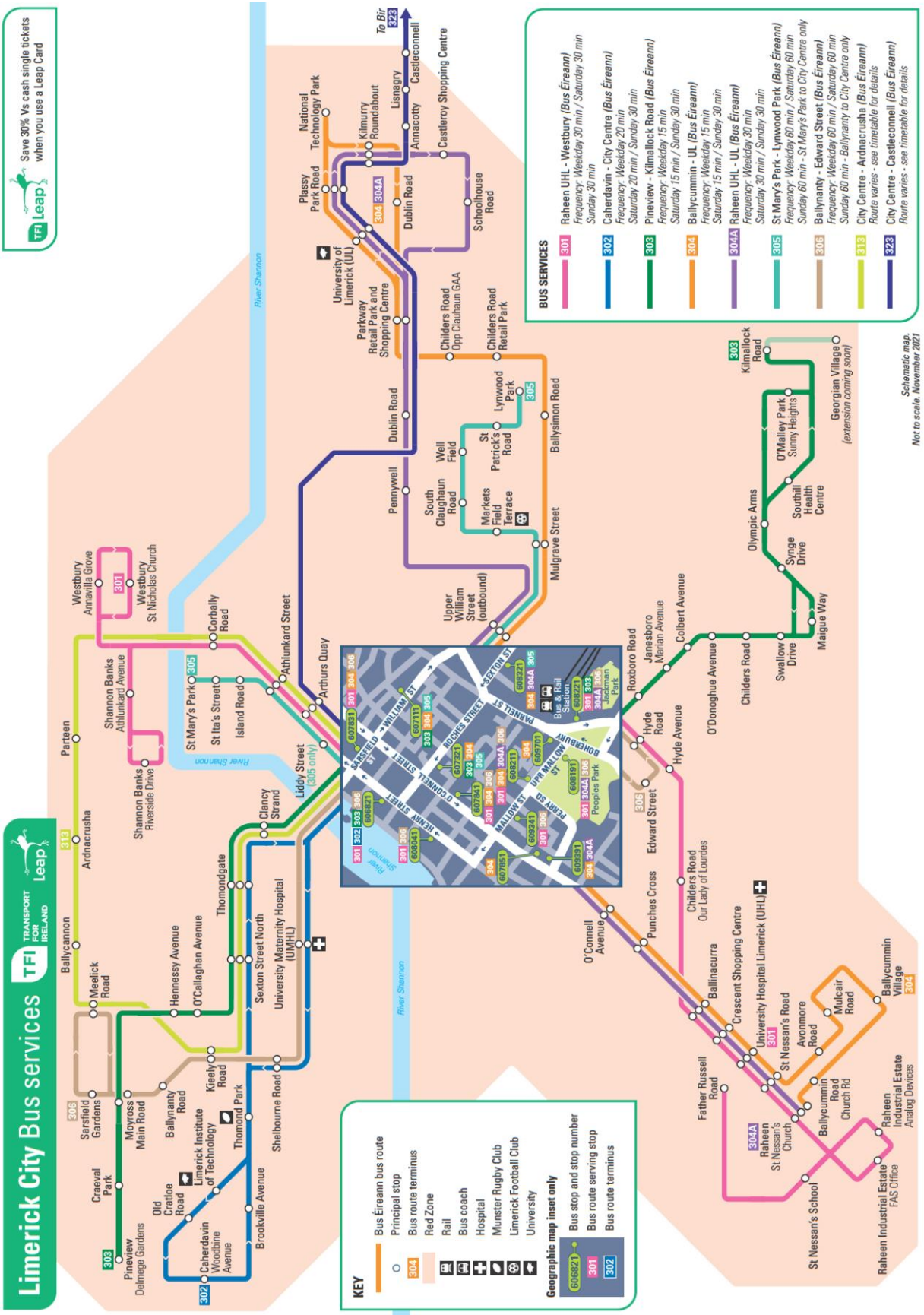
TRIP RATE for Land Use 03 - RESIDENTIAL/G - STUDENT ACCOMMODATION
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 RESIDE
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	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	1	241	0.000	1	241	0.000	1	241	0.000
07:00 - 08:00	5	177	0.003	5	177	0.007	5	177	0.010
08:00 - 09:00	5	177	0.018	**5**	**177**	**0.206**	5	177	0.224
09:00 - 10:00	5	177	0.019	5	177	0.123	5	177	0.142
10:00 - 11:00	5	177	0.070	5	177	0.139	5	177	0.209
11:00 - 12:00	5	177	0.051	5	177	0.107	5	177	0.158
12:00 - 13:00	5	177	0.084	5	177	0.079	5	177	0.163
13:00 - 14:00	5	177	0.107	5	177	0.082	5	177	0.189
14:00 - 15:00	5	177	0.132	5	177	0.092	5	177	0.224
15:00 - 16:00	5	177	0.164	5	177	0.086	5	177	0.250
16:00 - 17:00	**5**	**177**	**0.197**	5	177	0.095	**5**	**177**	**0.292**
17:00 - 18:00	5	177	0.181	5	177	0.093	5	177	0.274
18:00 - 19:00	5	177	0.165	5	177	0.106	5	177	0.271
19:00 - 20:00	2	219	0.053	2	219	0.059	2	219	0.112
20:00 - 21:00	2	219	0.098	2	219	0.080	2	219	0.178
21:00 - 22:00	2	219	0.048	2	219	0.037	2	219	0.085
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.390			1.391			2.781

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 D – Public Transport



Iarnród Éireann
Irish Rail