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2024

Proposed Housing Development, Tyrrells Land, Portlaoise, Co. Laois Traffic and Transport Assessment

ENGINEERING A SUSTAINABLE FUTURE

Proposed Housing Development, Tyrrells Land, Portlaoise, Co. Laois
Traffic and Transport Assessment

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Executive Summary

ORS has been commissioned by *Hayes Higgins Partnership* to undertake a Traffic and Transport Assessment (TTA) for the proposed Housing Development at Tyrrells Land, Portlaoise, Co. Laois. This document forms part of the planning application and should be read in conjunction with all drawings, reports, specifications, and particulars associated with the planning application.

The report will examine existing and proposed traffic conditions and transport activity to determine the effects on the surrounding road network by the proposed development.

The proposal entails the development of a single plot, offering 21No. social and 46No. affordable housing units, totalling 67No. units. The total proposed site area spans 22,535m^2 (2.25Ha). Additionally, the proposal encompasses the provision of public open space, car parking, upgraded vehicular access, along with all associated ancillary works, including site development and both hard and soft landscaping.

Dedicated onsite car parking spaces will be available for all houses. The proposed residential development will offer a total of 108No. parking spaces, provided for both residents and visitors, corresponding to 1.6 parking spaces per unit. 7No. spaces will be allocated for disabled parking. Additionally, each house will be provided with EV ducting to facilitate future charging connection.

A total of four bicycle parking shelters, each accommodating 12No. spaces, will be provided along the southern boundary of the site for apartment residents. This equates to one long-term bicycle space per bedroom in line with standards. In addition, 28No. visitor bicycle spaces and 4No. dedicated electric bicycle spaces will be provided. For the houses, bicycle storage will be accommodated within the curtilage of each unit.

ORS engaged with the Laois County Council in April 2024 to scope the requirements for the Traffic Assessment, and it was agreed that this report would focus on 3No. junctions in the vicinity of the site in order to assess the impact of the proposed residential development on the road network; the roundabout junction between Stradbally Rd (N80) and the Southern Circular Road, the roundabout junction formed by Stradbally Rd (N80), Dublin Road (R445), Bridge Street and James Fintan Lalor Avenue and the proposed site access junction between Stradbally Rd (N80) and the internal access road.

Automatic junction turning counts (JTC) were carried out on Tuesday 16th April 2024 at the 3No. junctions mentioned above by a third-party company named IDASO. The traffic counts encompass all movements along the junctions and are assumed to be representative of a normal weekday.

The traffic profile likely to be generated by the proposed residential development was obtained by the Trip Rate Information Computer System (TRICS) database and split through the junctions in proportion to the existing traffic flows measured on the traffic counts. The Laois County Council planning website was consulted to include proposed developments in the area that will affect the road network in the vicinity of the proposed residential development.

The expected increase in traffic generated by the proposed residential development falls below the 5% TII threshold at the assessed junctions, that would require a Traffic and Transport assessment. The junctions were tested using ARCADY (Assessment of Roundabout Capacity and Delay) and PICADY (Priority Intersection Capacity and Delay) software for the year of opening, 5-year, and 15-year future design scenarios. Appropriate TII Traffic Growth Factors for Co. Laois were applied to the traffic flows to ensure that the future growth of the road network has been considered in the analysis.

Upon building the traffic model for the proposed development, junction capacity analysis was carried out on the existing junctions to assess the potential worst-case scenarios associated with the development. The proposed development will generate a minimal increase in traffic flow along the junctions when compared to the existing traffic along the junctions.

Following the results of the traffic analysis and the trip generation associated with the proposed residential development, it can be confirmed that the proposed development will not negatively affect the operation of the surrounding road network for all future design year scenarios.

1 Introduction

The purpose of this Traffic and Transport Assessment (TTA) is to address the traffic and transport related issues that may arise in relation to the proposed residential development at Tyrrell Lands, Portlaoise, Co. Laois. This document will form part of the planning application.

This report will follow the principles set out in the TII Publication PE-PDV-02045 'Traffic and Transport Assessment Guidelines' and the Laois County Development Plan 2021 – 2027 and will assess the impact the proposed development, and the associated traffic flows, will have on the public road network in the vicinity of the site.

1.1 Objectives of this TTA

The objective of this report is to assess the impact the proposed residential development will have on the surrounding road network, with the assessment focusing primarily on 3No. key junctions in the vicinity of the site; Junction 1 between Stradbally Road (N80) and the Southern Circular Road, Junction 2 between Stradbally Road (N80), Dublin Road (R445), Bridge Street and James Fintan Lalor Avenue and Junction 3 between Stradbally Road (N80) and the internal access road. The selected junctions are illustrated in **Figure 1.1** below.

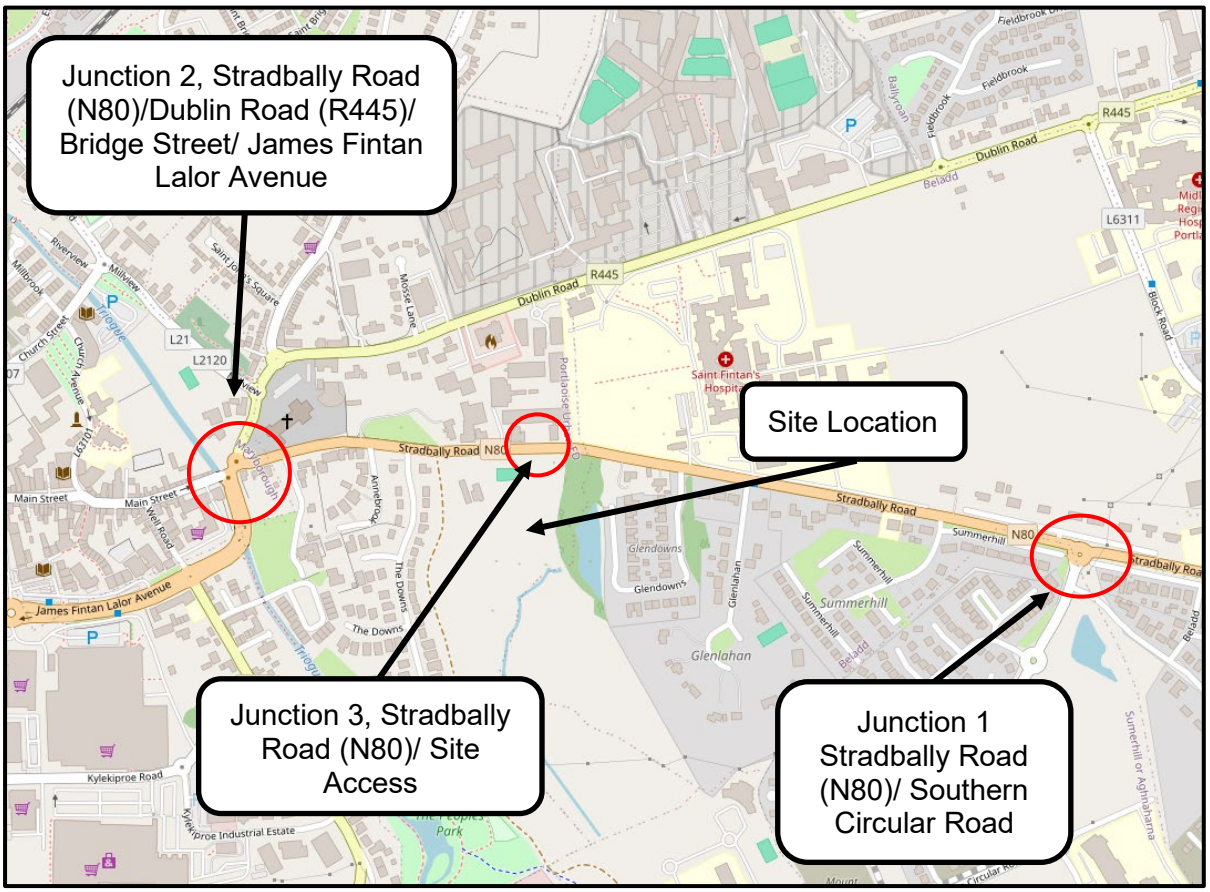

Figure 1.1: Location of Junctions Analysed, Portlaoise (Source: OpenStreetMap)

In summary, the objectives of this report are to assess:

- The prevailing traffic conditions on the public road network in the vicinity of the proposed development;
- The potential effect on the surrounding road network due to the anticipated traffic generated by the proposed residential development;
- Review of the committed developments adjacent to the proposed development;
- The pedestrian, cyclist and public transport connectivity in the vicinity of the site; and
- The proposed parking requirements for the development.

1.2 Methodology

The TII Publication PE-PDV-02045 sets out the methodology to be followed in any given TTA. The methodology that will be used in this assessment follows the guidelines set in this document and can be outlined as follows:

- Automatic junction turning counts (JTC) have been undertaken by IDASO on Tuesday 16th April 2024 at Junction 1 between Stradbally Road (N80) and the Southern Circular Road, Junction 2 between Stradbally Road (N80), Dublin Road (R445) and James Fintan Lalor Avenue and Junction 3 between Stradbally Road (N80) and the access road as these junctions are situated near the site and in accordance with the agreement made with Laois County Council.
- Traffic distribution splits on the public road network could be determined from the traffic counts and applied to the anticipated future generated traffic as a result of the proposed development.
- The predicted traffic to be generated by the proposed development was obtained using TRICS (Trip Rate Information Computer System) traffic generation software for similar developments to ensure a worst-case scenario was incorporated into the assessment.
- The effect caused by the proposed development in the neighbouring junctions could be calculated using the existing traffic flows and the expected additional traffic to be generated by the development.
- The effect the increase in capacity will have on the road network was assessed against the TII threshold and it was found that the subject junctions fall below the threshold of 5% increase in traffic.
- The junctions were modelled using the Transport Research Laboratory (TRL) software *Junctions 10* (ARCADY and PICADY) for future design years using Central Sensitivity Growth Factors for Co. Laois to obtain the existing and proposed traffic profiles at the junctions analysed for the year of opening, 5-year and 15 years after the completion of the proposed development.
- Parking requirements were assessed against standards set in Table 10.3 of the Laois County Development Plan 2021 – 2027.

1.3 Liaison with Laois County Council

As part of this TTA, ORS engaged by email in April 2024 with the Housing & Urban Regeneration Department of the Laois County Council to scope the requirements of this TTA. It was agreed that the study will focus on the 3No. mentioned junctions.

2 The Proposed Development

2.1 Development Site Location

The proposed residential development is situated on an undeveloped greenfield site currently under the ownership of Laois County Council. Positioned on the eastern side of Portlaoise town, the site is in proximity to the National Road N80 which runs outside the East and Northwest of the town. The proposal benefits from excellent transport connections, being conveniently located near major roadways and public transportation networks, as well as the vibrant town centre of Portlaoise.

The site is bordered by mature trees and a watercourse to the east and undeveloped fields to the south, with Stradbally Road (N80) serving as the northern site boundary. The west boundary runs outside the wooded esker ridge. Portrane Veterinary Clinic, the former Portrane House adjoins the northwest corner of the site.

One access point is planned from Stradbally Road to the north. Exiting the site from the north, vehicles are expected to use JTC1 to the east, or JTC2 to the west and the town centre. It is anticipated that approximately 50% of the traffic will travel westbound, with the remaining turning towards east and JTC1, as illustrated in **Figure 2.1**.

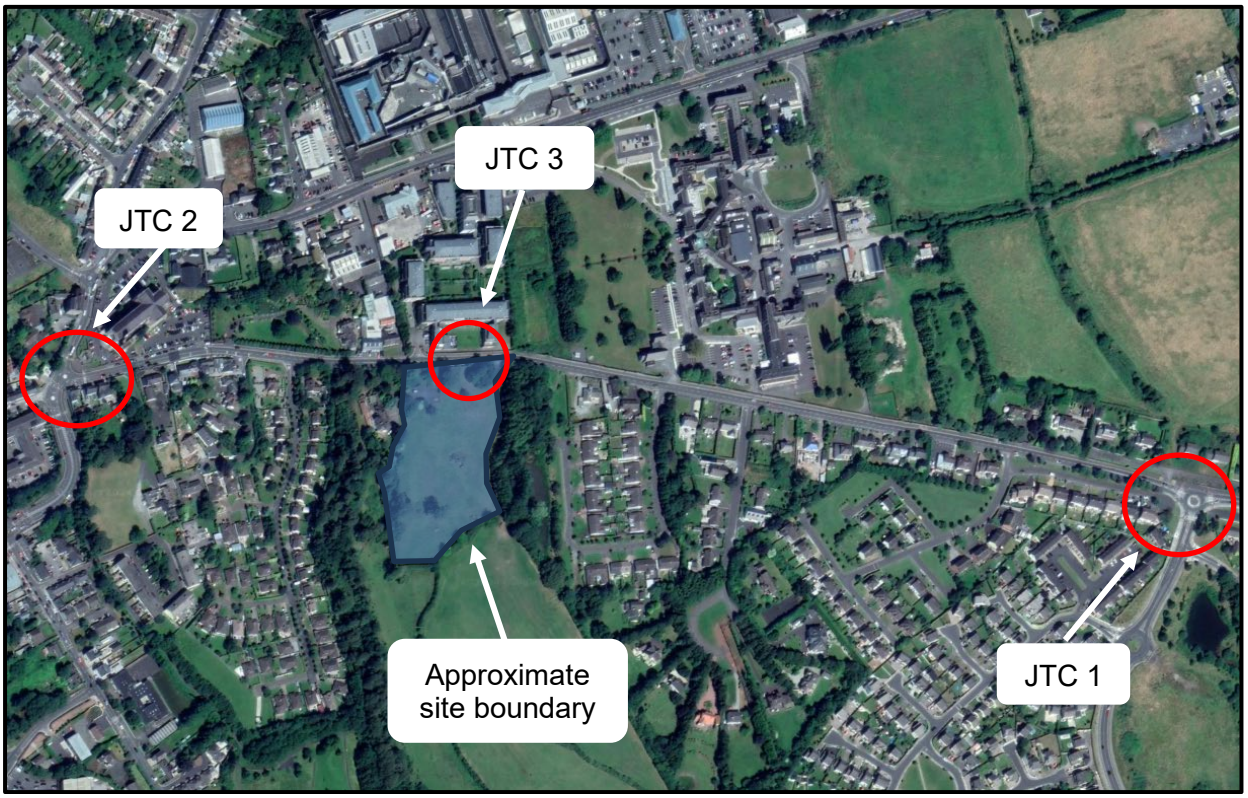

Figure 2.1: Site Location Map and Surroundings (Source: Google Earth)

2.2 Existing Premises and Land use

The Laois County Development Plan (LCDP) 2021 – 2027 was consulted to determine the future zoning within and around the proposed development. The site is currently zoned as 'Residential 2' with the objective to promote development mainly for housing, associated open space, community uses and where an acceptable standard of amenity can be maintained, a limited range of other uses that support the overall residential function of the area.

Figure 2.2 below shows the land use zoning map provided in the LCDP.

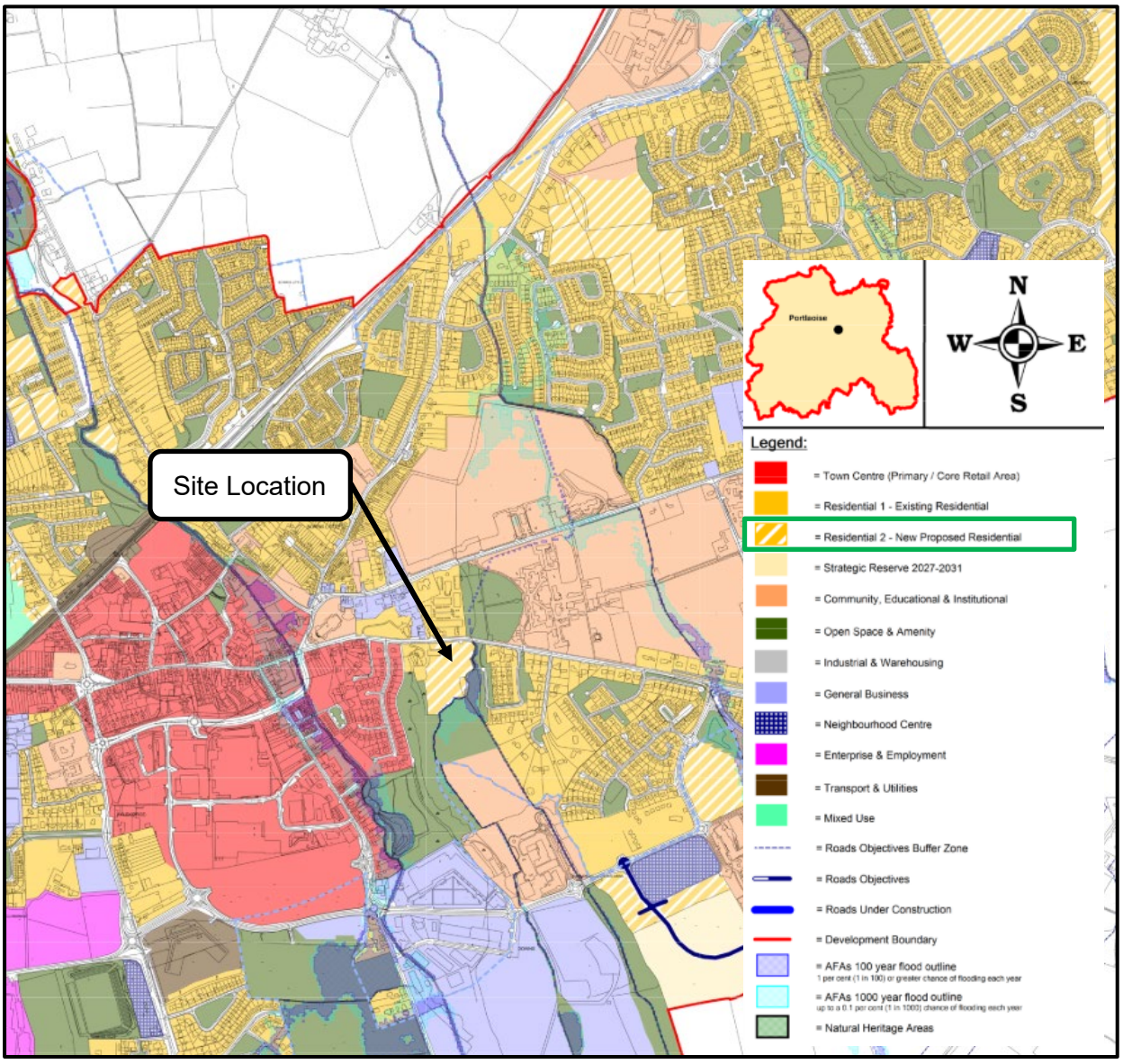

Figure 2.2: Land Use Zoning Objectives Map (Source: Laois County Development Plan 2021 - 2027)

The zoning designation also aligns with the broader objectives of the Portlaoise Local Area Plan 2024 – 2030. Three masterplan development sites have been identified in the Draft LAP

which will contribute to the renewal, enhancement and regeneration of the particular areas of the town in which they are located. The first Masterplan belongs to Tyrrells Lands, along Stradbally Road. The vision for Stradbally Road is to create '*a new sustainable residential community that meets the needs of local people whilst being resilient to economic, social and climate change*.' The key objectives are to:

- To provide for new residential development, residential services and community facilities. High quality residential areas of sensitive design, which are complimentary to their surroundings and do not adversely impact on the amenity of adjoining residents.
- To preserve, provide for and improve active and passive recreational open space.
- To protect and improve existing community, educational and institutional facilities and to safeguard their future provision.

2.3 Planning History

There is no planning application history for the proposed site.

2.4 Description of the Proposed Development

The proposed development put forward by Laois County Council encompasses a residential layout in alignment with LCC's housing objectives. The development comprises a total of 67No. residential units, comprising 21No. social (duplex apartments) and 46No. affordable housing units, varying in size from 1 to 4 bedrooms. In terms of affordable housing, this category includes 8No. detached houses, 22No. Semi-detached and 16No. terrace houses. The development also features one upgraded vehicular access from Stradbally Road, public open space, an internal road network, all associated ancillary works including site development works, and hard and soft landscaping.

Parking spaces are provided throughout the site, totalling 108No., including 7No. accessible parking spaces. Furthermore, each house will include provisions for EV charging.

A total of four bicycle parking shelters, each accommodating 12No. spaces, will be provided along the southern boundary of the site for apartment residents. This equates to one long-term bicycle space per bedroom in line with standards. In addition, 28No. visitor bicycle spaces and 4No. dedicated electric bicycle spaces will be provided. For the houses, bicycle storage will be accommodated within the curtilage of each unit.

The site will be accessed through one vehicular entrance, linked to Stradbally Road, by means of a priority junction. The proposal includes a strong pedestrian and cycle route along the eastern boundary. This space will provide a nature corridor along the water edge connecting Stradbally round to the new public green space to the south, promoting a well-connected and pedestrian-friendly environment within the development.

The proposed layout is illustrated in **Figure 2.3** overleaf.

Figure 2.3: Proposed Site Layout, cropped (Source: Van Dijk Architects)

2.5 Accessibility and Parking

The Laois County Development Plan 2021-2027 designates Portlaoise Town as a 'Key Town' due to its substantial economic activity, service provision, and status as the county town, contributing significantly to the employment landscape in the surrounding area. Recognised for its robust transport links and positioned as a regional driver, Portlaoise Town complements the broader Regional Growth Centres.

Portlaoise is the principal town and administrative centre for County Laois. Portlaoise is strategically located at a national, regional and local level. The town is located on the M7/M8 National Motorway Network which enables easy access to Cork, Limerick and Dublin including Dublin Airport and Dublin Port. The motorway provides a physical boundary to the south-east and south. The N80 National Secondary route extends through Portlaoise and provides access to Carlow, Waterford and Rosslare in the south-east and Tullamore, Mullingar and Athlone in the north-west. Portlaoise is also located on the Dublin to Cork railway line, which provides a high degree of rail connectivity nationally. The Dublin/Cork Railway line intersects the town in a North/East-South/West direction.

The proposed housing development is located off Stradbally Road (N80), adjacent to a well-connected local highway network which offers convenient access to the wider Laois area. Stradbally Road (N80) provides a direct link road to the town centre of Laois Town. There is no on street parking available in the direct vicinity of the proposed development.

2.5.1 Site Access

Vehicles accessing the site will use one proposed entrance from Stradbally Road (N80) through a new priority T-junction to the north of the site, as shown in **Figure 2.4**. The primary route for the vehicular traffic entering and exiting the site will be through the roundabout junction on Southern Circular Road to the east, or the roundabout formed by Dublin Road (R445)/ Stradbally Rd (N80)/ Bridge Street/ James Fintan Lalor Avenue to the west.

For visual reference, please refer to **Figure 2.4** displaying the existing access point to the site off Stradbally Road.

The internal road network will extend from the proposed access point to the south of the site and along the outline of the site boundary, as shown in **Figure 2.3**, **Section 2.4.** Pedestrian access to the site can be via the footpaths which line the vehicular access road, in addition to a pedestrian only access point to the southeastern corner of the site, to ensure its permeability and connectivity with the future adjacent developments. The vehicular internal access road provides footpaths on both sides of the road. A key part of the proposal is a cycle and pedestrian path connecting Stradbally road to a future public park, with pocket parks along the way. This runs along the East of the site and will be wide enough to accommodate both cyclists and pedestrians comfortably.

The Design Manual for Urban Roads and Streets (DMURS) specifies a desired sightline of 45m within a setback of 2.4m for a 50km/h road or 49m should this road constitutes a bus route. It mandates that safe and unobstructed sight distances must be provided and maintained from vehicular entrances onto the road network. Additionally, the Laois County Council Development

Plan stipulates that all new developments access arrangements shall have regard to the Design Manual for Urban Roads and Streets (DMURS) and TII Publication DN-GEO-03060, including considerations for sightline visibility. Refer to **Figure 2.5** for existing visibility at the site frontage. As per the provided drawings, sightlines of 49m are achievable in both directions along Stradbally Road, aligning with the standards set forth in DMURS.

Figure 2.4: Existing Site Access Point (Source: ORS, April 2024)

Figure 2.5: Existing access arrangements and visibility (Source: ORS, April 2024)

2.5.2 Internal Road Layout

The main function of the internal road network is to provide a safe and efficient parking and circulatory system that reduces the potential for conflicting movements, which can comfortably accommodate the anticipated volume of arrivals and departures without presenting a safety risk and not having a negative effect on the road network that it connects to.

The site will provide 5.5 to 6-metre-wide internal roads connecting all extents of the site with 2.5-metre-wide footpaths running along one side of the carriageway. Additionally, several vehicular turning bays are placed throughout the site to enhance turning manoeuvres. Pedestrian access points will be strategically positioned, ensuring safe and convenient pathways to the front of houses and throughout open spaces, facilitating secure pedestrian movements. There will be a number of pedestrian crossings located at strategic positions which will enhance pedestrian safety within the development, as shown in **Figure 2.3**. Traffic calming measures in the form of raised tables are proposed for the internal road network.

2.5.3 Servicing Arrangements

The internal road network is primarily designed to accommodate private cars which is the main vehicle type to use the residential housing development. However, adequate provision to facilitate the circulation and turning movements of emergency vehicles and bin collection vehicles should be made. An Autotrack analysis has been carried out to confirm that waste collection vehicles and emergency vehicles, such as ambulances and fire trucks, will be able to manoeuvre the site in a safe and efficient manner, as shown in **Table 2.1** below.

Table 2.1 – Autotrack analysis for Refuse Vehicles and Fire Tenders (Source: HHP)

2.5.4 Vehicle Parking

Chapter 10 of the Laois County Development Plan 2021 – 2027 (LCDP) was consulted in order to obtain the car parking standards for the development. The document states, in Table 10.3 and summarised in **Table 2.2** below, the number of car parking spaces required for houses and apartments. According to LCDP Objective TRANS 28, a relaxation of car parking requirement may be considered where a development is located in town centre locations, in close proximity to public transport or for certain types of housing developments.

Table 2.2 – Car Parking Standards as per Laois County DP 2021 – 2027

Development	Space/Area Required
Houses	2 per Dwelling
Apartments/flats	1.26 - 2 per Unit

The proposed residential development will consist of 67No. residential units, and a total of 108No. parking spaces will be provided for both residents and visitors. Specifically, a total of 27No. car parking spaces will be provided to serve the apartments (21 units), equating to one space per unit, with an additional 6 spaces designated for visitors. This allocation aligns with the requirements outlined in the Laois County Development Plan 2021 - 2027.

The site's location also results in a number of bus stops being located within a convenient 5 minute (400m) walk of the site, with Portlaoise rail station located around a 12 minute (960m) walk from the site. The development's layout has also been designed to provide convenient access on foot and by bicycle to town centre and numerous amenities. Therefore, the proposed reduced parking strategy is deemed to be in accordance with the LCDP car parking policies and objectives.

According to the development plan and Parking Development Management Standard DM TRANS 6, a minimum of one car parking space should be accessible in every 26 standard car parking spaces up to the first 100 spaces, thereafter, one space per 100 standard spaces or part thereof. These spaces should be located in proximity to building entrance points and appropriately signed and demarcated for accessibility. The proposal includes 7No. parking bays for mobility-impaired users in the proposed layout, located adjacent to unit 5-Block 1, unit 11-Block 3, Units 33-35-Block 10, Units 49-50-Block 11, and Unit 65-Block 15.

Mention is given to electric vehicle charging points. The document specifies in Chapter 10.1.6, Electric Vehicle Objective TRANS 33 that '*all developments should provide facilities for the charging of battery-operated cars at a rate of up to 10% of the total car parking spaces. The remainder of the parking spaces should be constructed so as to be capable of accommodating future charging points, as required'.*

Specifically for new residential developments Objective TRANS 35 mentions that at least 1No. car parking space equipped with an EV charging point should be provided for every 10No. car parking spaces and should be clearly demarcated with appropriate signage. According to the

site layout each house will be provided with EV ducting to facilitate future charging connections.

2.5.5 Cycle Storage

Providing safe and convenient bicycle parking is crucial to support sustainable transportation options such as cycling, walking, and public transport. In line with the ambitious cycling and walking network outlined in Laois County Development Plan 2021 – 2027, and Parking Policy Objective TRANS 31 cycle spaces shall be provided in prominent and secure locations convenient to building entrances.

The bicycle parking standards set out in Chapter 10, Parking Development Management Standard DM TRANS 10 of the LCDP and summarised in **Table 2.3** below, indicate the minimum provision of 2No. private secure bicycle space per 100sq. m and 1No. visitor space per two housing units.

Furthermore, Section-28 Ministerial Guideline, '*Sustainable Urban Housing: Design Standards for New Apartments*' sets clear cycle-parking minimums for apartment developments:

- Resident provision: 1 cycle storage space per bedroom.
- Visitor provision: 1 space per 2 residential units
  These standards apply unless the planning authority accepts a justified deviation, considering factors such as location, quality of facilities, and potential for future expansion.

The proposed development comprises:

- 21 apartments,
- 46 houses.

A total of four bicycle parking shelters, each accommodating 12No. spaces, will be provided along the southern boundary of the site for apartment residents. This equates to one long-term bicycle space per bedroom in line with standards. In addition, 28No. visitor bicycle spaces and 4No. dedicated electric bicycle spaces will be provided. For the houses, bicycle storage will be accommodated within the curtilage of each unit.

Table 2.3 – Bicycle Parking Requirements as per Laois County PD 2021 – 2027 and Sustainable Urban Housing: Design Standards for New Apartments

Development Type	Total Bicycle Spaces Required	Total Bicycle Spaces Provided
Apartment developments	2 private secure spaces per 100 sq. m, and 1 visitor bicycle space per two housing units	48 sheltered (4 shelters × 12 spaces) and 28 visitor spaces Plus, 4 dedicated electric-bicycle spaces
Apartment Guidelines	1 cycle storage space per bedroom and 1 visitor bicycle space per two housing units	

3 Existing Traffic Conditions

3.1 Existing Road network

Portlaoise is centrally situated in the Midlands of Ireland and enjoys close proximity to the Greater Dublin Area. It has strategic road links to the entire country, facilitated by the M7 and M8 motorways, the N77, N78, and N80 National Secondary Roads, along with an extensive network of regional and local roads. The proposed residential development is located off the Stradbally Road and will be accessed via 1No. vehicular entrance to the north of the site. These access point will be a new priority T - junction formed between Stradbally Road and the proposed internal link road.

As previously mentioned, Stradbally Road (N80) borders the northern boundary of the site and extends through Portlaoise, running from southeast to northwest out of the town. The road primarily consists of a standard two-lane carriageway, measuring approximately 6-7 meters in width from kerb to kerb. Footpaths line both sides of the road from the junction with South Circular Road to the town center, varying in width but generally spacious and well-maintained. A 50km/h speed limit is enforced along this stretch. Double yellow lines are present on one side of the road, with the central dividing line extending roughly 95 metres from the roundabout junction with South Circular Road. Along the site's frontage, intermittent double yellow lines mark both sides of the carriageway. At this point, the road widens to accommodate an additional lane for right turns, facilitating entry and exit from the Maples Creche.

No on street parking is provided on Stradbally Road in the direct vicinity of the proposed development, with the closest being approximately 300m west of the site where St. Peter and Paul's Roman Catholic Church sits, offering on-site and on-street parking options. On street parking options increase significantly closer to the town centre. On-street parking is also available close to St. Peter and Paul’s cemetery. Additionally, bus stops can be found nearby on Stradbally Road (N80), with the closest stop to the proposed residential development situated approximately a 4-minute walk west of the site. Road markings indicate the presence of pedestrians in the vicinity alerting drivers to slow.

Traffic from the site will utilise the roundabout to the east when entering the town, formed by the Stradbally Road (N80) and the South Circular Road, located north of the McEvoy roundabout. This junction is equipped with zebra crossings, each accompanied by refuge islands, at each of the three roundabout exits. Belisha beacon lights also mark the pedestrian crossings. Signage and road markings clearly delineate the roundabout and crossings for approaching vehicles. Footpaths are accessible on both sides of the converging roads, while the South Circular Road features a segregated cycle path on both sides of the carriageway.

For the remaining traffic associated with the development, attention is directed towards the double roundabout junction situated between Stradbally Road (N80), James Fintan Lalor Avenue, and Dublin Rd (R445), positioned west of the site and leading towards the Portlaoise town center. It is expected that all traffic arriving from the town center will utilise this junction. This roundabout forms part of a dual roundabout system connecting to the main arterial roads of the town centre. Refuge islands are strategically placed on the R445 and the southbound arm of Stradbally Road. Pedestrian crossings are also available on the R445 and along

Stradbally Road near St. Peter and Paul's church, along with protective railing.

The assessed junctions and roads included in this report are existing roads already in active usage; as such, their condition and suitability for purpose are not subject to assessment as part of this report. For visual detail of the junction tested as part of this assessment, please refer to **Figure 3.1**, **Figure 3.2** for Junction 1, **Figure 3.3** and **Figure 3.4** overleaf for Junction 2 and **Figure 3.5** and **Figure 3.6** for Junction 3.

Figure 3.1: Junction 1 Layout (Source: Google Earth)

Figure 3.2: Approach to Junction 1 from Site as of May 2023 (Source: Google Earth)

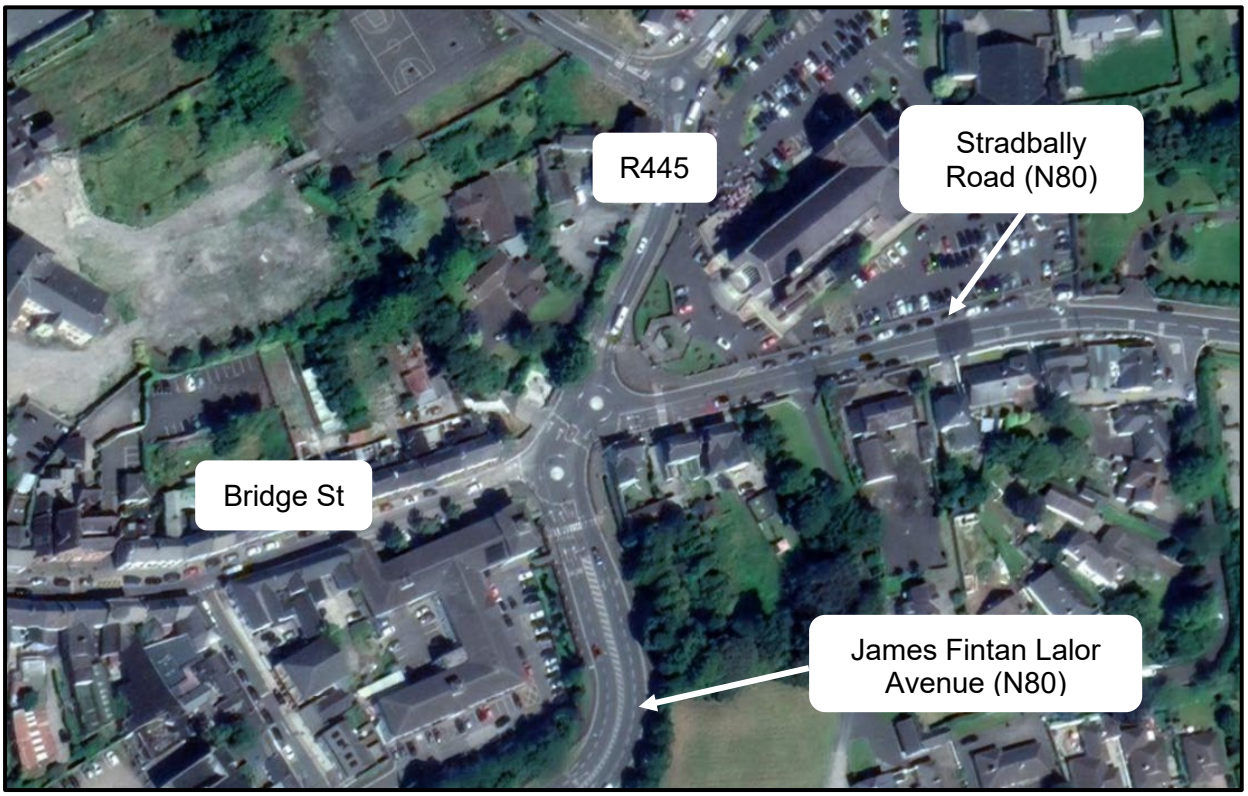

Figure 3.3: Junction 2 Layout (Source: Google Earth)

Figure 3.4: Approach to Junction 2 from Site as of May 2023 (Source: Google Earth)

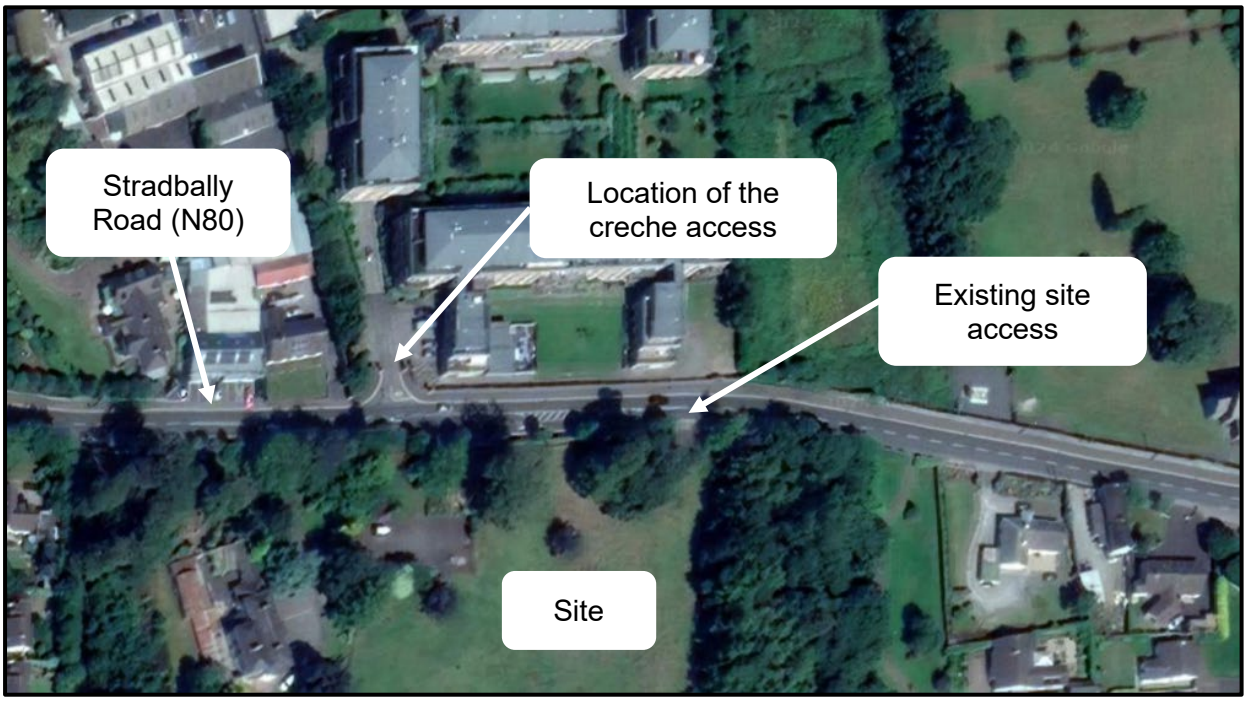

Figure 3.5: Junction 3 Layout (Source: Google Earth)

Figure 3.6: Approach to Junction and the site access from Stradbally Road (eastbound on the left) (Source: ORS)

3.2 Pedestrian and Cyclist Connectivity

The proposed residential development is located to the east of Portlaoise Town and is well connected to the wider environs with footpaths generally in good condition. Due to the size of the town, it is expected that a 20-minute walk from the development can reach a significant portion of the town. In close proximity to the site, there are zebra pedestrian crossings situated on the double roundabout junction to the west, as well as uncontrolled pedestrian crossing at the junction between the N80 and the local roads nearby. This crossing is illustrated in **Figure 3.7**. The roundabout between Stradbally and South Circular Road is adequately equipped with zebra pedestrian crossings on each arm,.

Currently, there are no designated cycle lanes near the proposed residential development, requiring cyclists to share the road with other traffic. However, the Southern Circular Road (SCR) boasts excellent pedestrian and cyclist amenities. Dedicated cycle tracks run parallel to both sides of the SCR corridor, separated from the footpath by distinct materials and road markings, as shown in **Figure 3.8** overleaf. Whilst segregated from vehicular traffic by way of vertical segregation, additional protection is provided at locations by way of bollards or barriers. It is expected that a 15-minute cycle from the site can reach all locations of the town. However, several enhancements and provisions for active travel infrastructure are planned for 2024 in Portlaoise and the surrounding roads, including Triogue Way, Borris, and Mountrath Road.

The map shown in **Figure 3.9** illustrates locations of cycleways in the vicinity of the site.

Figure 3.7: Pedestrian Crossings at the double roundabout between the N80 and Dublin Road (R445) (Source: Google Earth)

Figure 3.8: Raised cycle tracks along South Circular Road (Source: Google Earth)

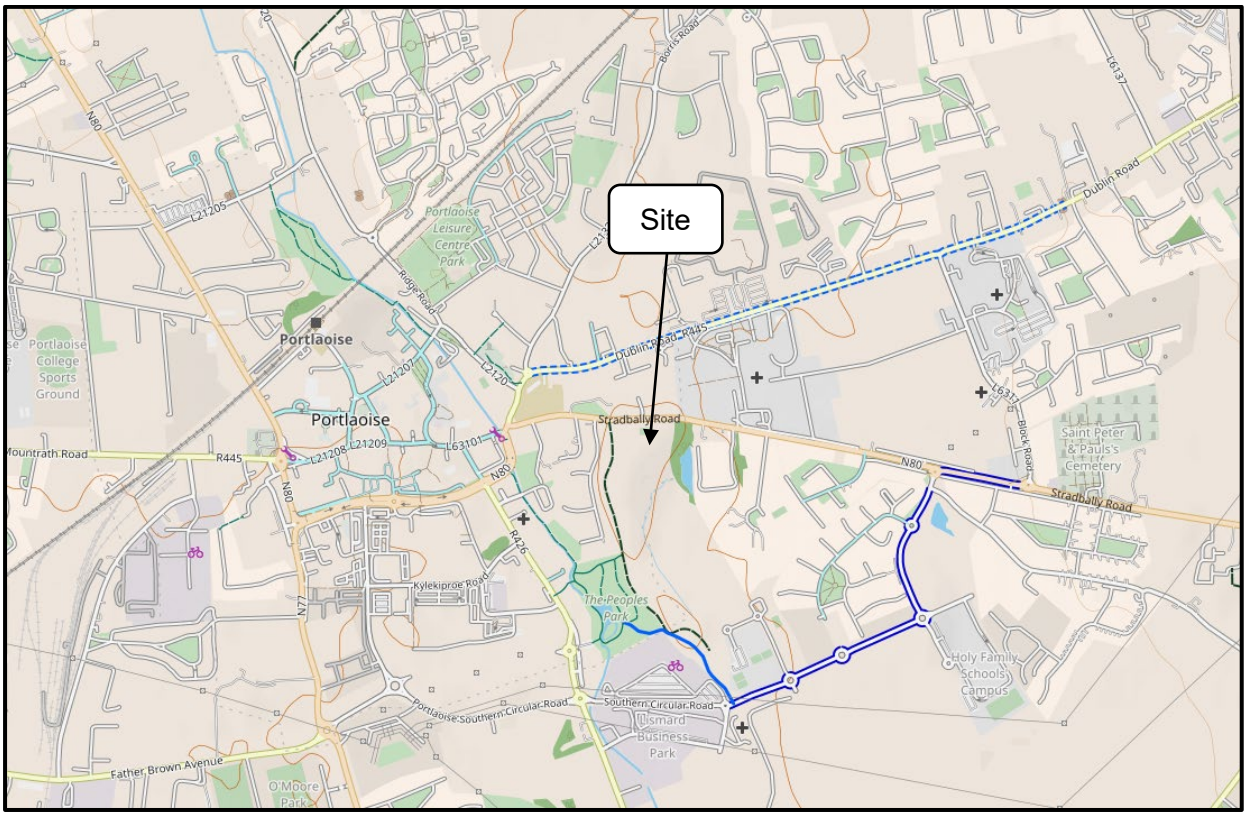

Figure 3.9: Cycleways in the site vicinity, Portlaoise (Source: OpenStreetMap.org)

3.3 Public Transport Provision

National and local bus routes serve Portlaoise town, offering convenient transportation options. The residential development is strategically positioned near Stradbally Road, with existing footpaths facilitating easy access to the nearby town center and its amenities. Additionally, the site's location ensures proximity to multiple bus stops, with Portlaoise rail station just a 21-minute walk away. Within walking distance, there are 7 bus stops, ranging from 4 to 10 minutes away, serving a total of 15 routes, as illustrated in **Figure 3.10** below.

The bus stop on James Fintan Lalor Avenue, only a 10-minute walk from the site entrance, provides access to numerous bus routes connecting residents to the Greater Dublin area and Dublin airport. This convenient placement encourages residents to opt for walking for shorter trips, while also facilitating access to local bus and rail services for longer journeys, promoting the use of public transport over private vehicles.

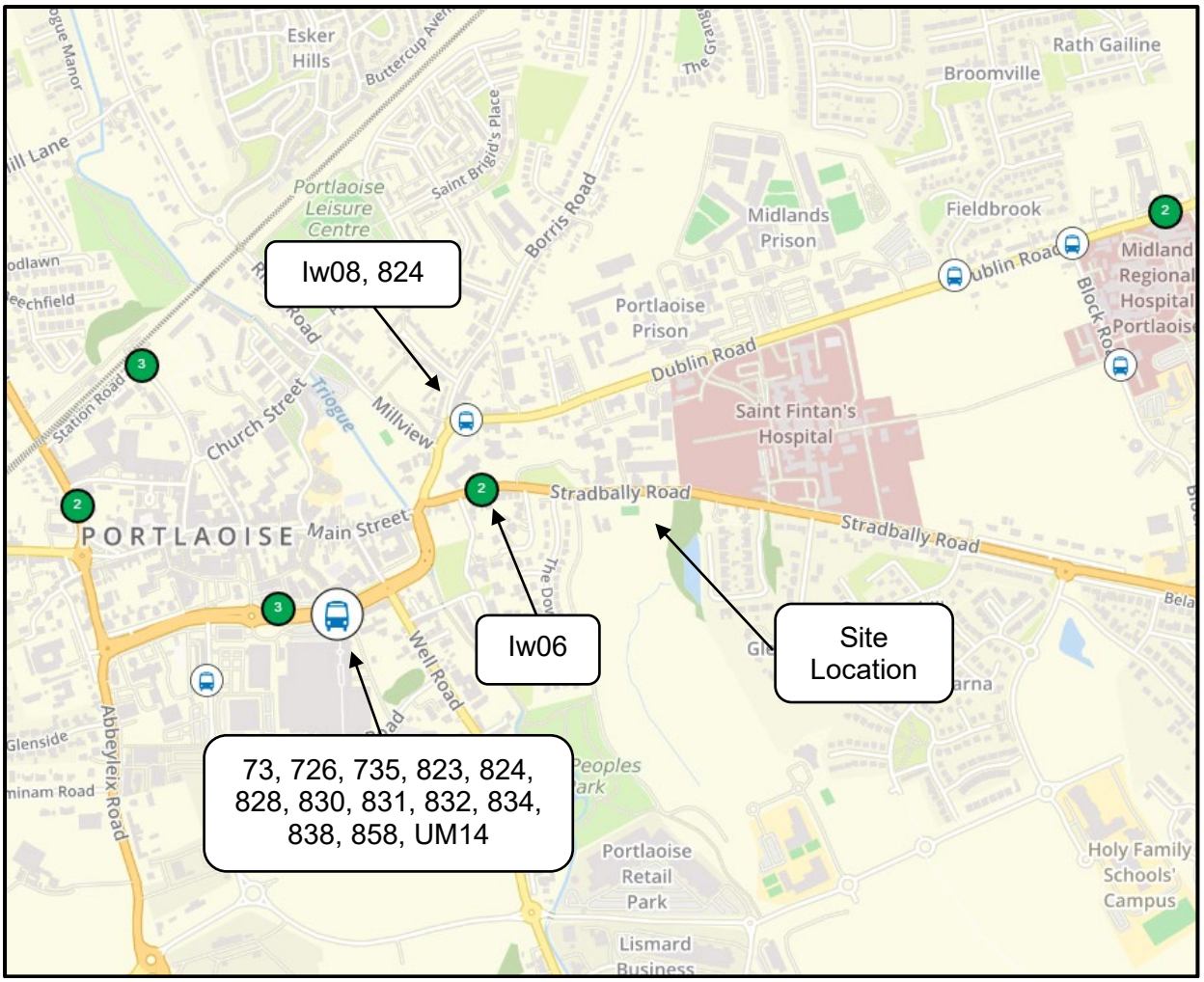

Figure 3.10: Bus Stops in the Vicinity of the Site (Source: TransporforIreland.ie)

Table 3.1 overleaf summarises the main routes and the weekday services available near the

site.

Table 3.1 – Bus Services Available (Source: TFI)			
Route No.	**Bus Operator**	**Direction**	**Weekday Services**
73	Bus Éireann	Waterford to Athlone via Portlaoise	2/2 Mon-Fri
726	Dublin Coach	Portlaoise – Red Cow Luas & Dublin Airport	Every 30 or 60 min.
735	J.J Kavanagh & Sons	Limerick – Nenagh – Roscrea – Portlaoise – Dublin Airport	10/9
823	TFI Local Link Laois Offaly	Birr to Portlaoise	5/5 Mo-Sa, 4/4 Sun
824	PJ Martley	Mountmellick – Dublin UCD	1/1
828	TFI Local Link Tipperary	Cashel to Portlaoise via Urlingford	2/2
830	Slieve Bloom Coach Tours	Portlaoise - Mountmellick - Tullamore	6/5
831		Borris in Ossory to Portlaoise	3/3 Mon-Fri
832		Portlaoise - Errill	3/3
834	TFI Local Link Laois Offaly	Portlaoise to Roscrea	6/6 Mo-Sa, 3/3Sun
838	Slieve Bloom Coach Tours	Mountmellick - Portlaoise - Kilkenny	2/2 Mon-Fri
858	TFI Local Link Laois Offaly	Portlaoise to Thurles	4/4
Iw06	J.J Kavanagh & Sons	Carlow - Abbeyleix	2/2
Iw08		Mountmellick - Carlow	3/3
UM14		Portlaoise - Maynooth	2/2

The train station is in close proximity to the site, as shown in **Figure 3.11**. It is situated approximately a 6-minute drive, while future residents will reach the train station within a 21-minute walk**.** This train station services 2No. routes as listed in **Table 3.2**.

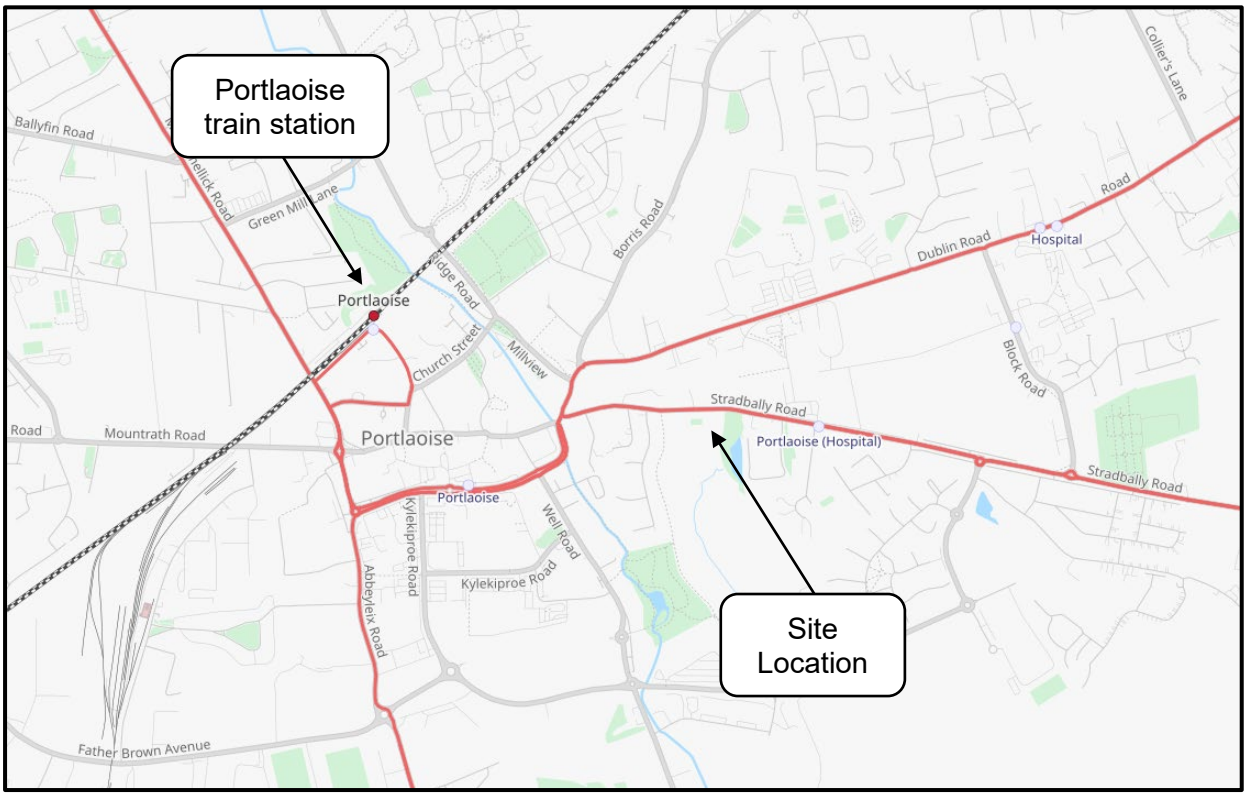

Figure 3.11: Transportation in the vicinity of the site (Source: OpenstreetMap.ie)

Table 3.2 – Train Services Available in Portlaoise (Source: TFI)	
Direction	**Weekday Services**
Dublin Heuston – Cork	10/10
Dublin Heuston - Limerick and Ennis	4/6
Dublin Heuston - Limerick via Nenagh	1 (Sun) /2 on weekdays, 1 (Sun)
Grand Canal Dock and Dublin Heuston - Portlaoise	Approx.. every 60 min.

Figure 3.12 overleaf shows the pedestrian catchments accessible from the subject site for different walking times, ranging from 10 minutes to 20 minutes, in accordance with Portlaoise Local Area Plan Transport Objectives, while **Figure 3.13** illustrates the cycling travel time from the proposed development, spanning 15 minutes. It is evident from this figure that within 15-minute timeframe, the majority of Portlaoise town and its suburbs are accessible.

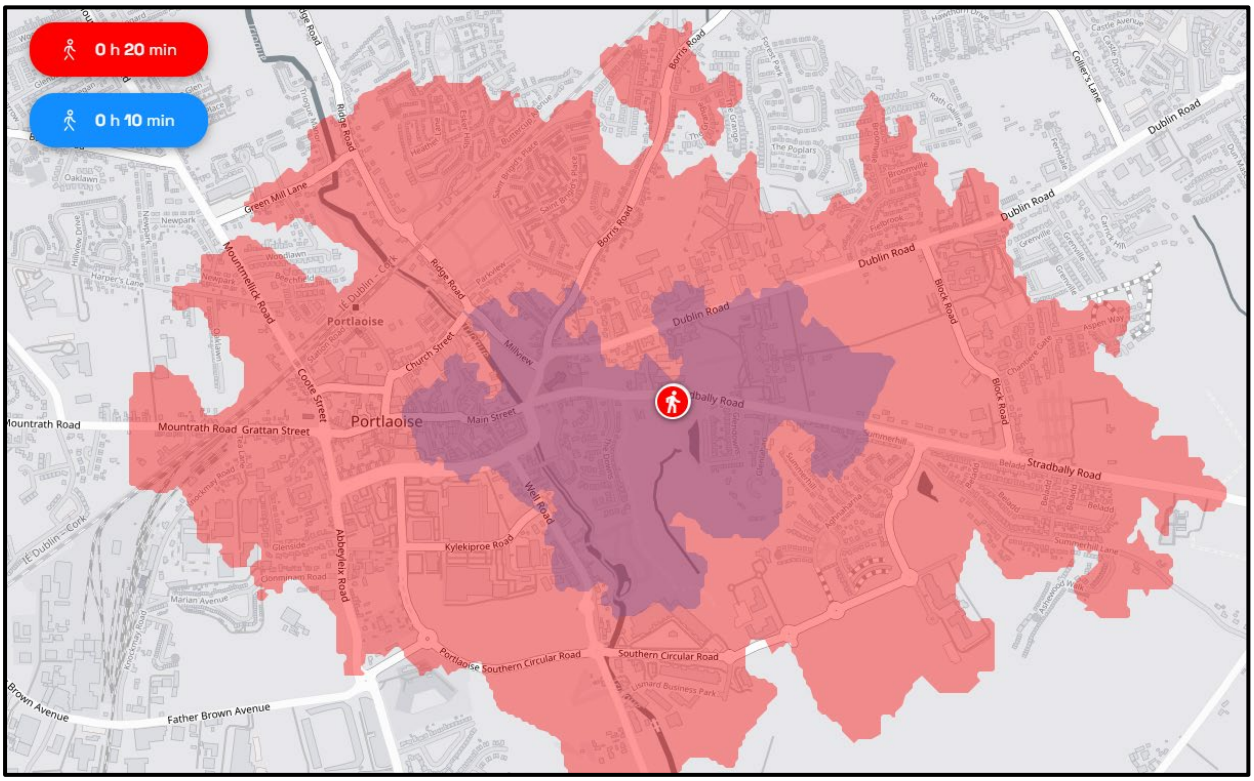

Figure 3.12: Catchment area for 10- and 20-minute walking journeys from proposed site (Source: TravelTime.com)

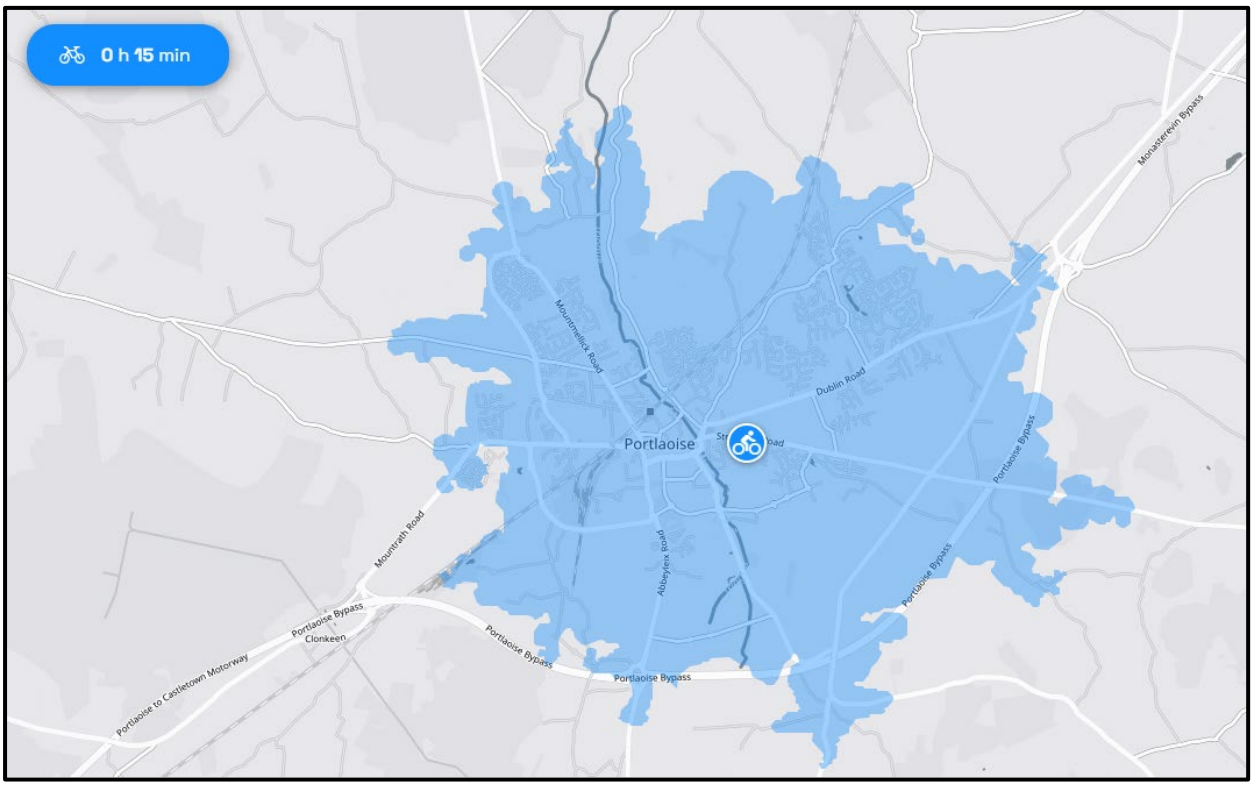

Figure 3.13: Cycling Distances from the proposed site (Source: TravelTime.com)

3.4 Proposed Transport Infrastructure

The Laois County Development Plan 2021–2027 acknowledges the significant role of cycling and walking in enhancing the overall well-being and quality of life for residents, alongside their environmental benefits. The Council actively promotes and facilitates the creation of a high-quality, easily accessible, and appealing network for pedestrians and cyclists. Laois County Council had been actively progressing the Portlaoise Low Carbon Town Project since the adoption of the 2040 and Beyond: A Vision for Portlaoise a Strategy for a Better Town Centre in 2017. This vision includes objectives to deliver a Low Carbon Town and a Walkable Town Centre.

The County Development Plan includes a number of pedestrian and cyclist objectives to encourage cycling.

- **TRANS 36**: Encourage walking and cycling through the provision of the necessary infrastructure and also provide a mix of land uses which generate short trip distances to combat sedentary transport patterns. All new development proposals shall be required to provide for well-integrated pedestrian and cycle networks.
- **TRANS 37**: Support the installation of infrastructure measures (for example new/wider pavements, road crossings and cycle parking facilities), retrofitted if necessary, which facilitates, and encourages safe walking and cycling.
- **TRANS 38**: Promote cycling and pedestrian friendly development layouts, provide facilities at public transport nodes, towns and villages, plan for and make provision for the integration of cyclist and pedestrian needs when considering new development.
- **TRANS 39**: Investigate the possibility of developing and utilising existing abandoned road/ rail infrastructure for the purposes of walking and cycling.
- **TRANS 40**: Support the principle of delivering of cycle links between the following:
  - Tullamore – Mountmellick
  - Mountmellick – Portlaoise
  - Portlaoise – Stradbally
  - Stradbally - Graiguecullen/Carlow
  - Routing any link away from the N80 and tying into the Barrow Way
- **TRANS 40**: Seek the establishment of cycle links between the towns of:
  - Portlaoise, Kildare Town, Newbridge and Naas
  - Portlaoise and Athy
  - Portlaoise and Kilkenny via Abbeyleix and Durrow.
- **TRANS 40**: Support the development of on-road cycle lanes to link towns and villages located along the R445 & R639 and if permitted proceed with works:
  - Portlaoise – Monasterevin
  - Borris-in-Ossory – Roscrea
  - Durrow – Cullahill.
- **TRANS 41**: Support the development of and secure funding for a Greenway along a dismantled railway line on between Mountmellick, Portlaoise and Abbeyleix.

Chapter 11 of the Portlaoise Local Area Plan 2024- 2030 sets out the overall policy approach which is very much focused on achieving a modal shift to more sustainable modes of transport.

Some of the Key Objectives of the Portlaoise Local Transport Plan are listed below:

- **Transport Objective 1**: Develop a multi-modal transport plan to identify interventions that enable a transition to sustainable and low carbon transport modes.
- **Transport Objective 2**: Apply the 15-minute town concept, providing excellent links to public transport for when longer journeys are needed and supporting town centre living and working as outlined in Portlaoise 2040.
- **Transport Objective 3**: Identify opportunities to ensure more children can travel safely to school by walking and cycling.

Some of the key principles identified for Portlaoise include:

- Revitalising the town centre may include shared streets, along with traffic-calming measures such as speed reductions, and prioritising movement by pedestrians and cyclists.
- Improving permeability between schools and residential areas and implementing Safe Routes to School (SRTS) measures to encourage more children to walk and cycle to school.
- Providing a dedicated cycle network for Portlaoise town, following the cycle connections proposed for the town in the NTA's National Cycle Network Cycle Connects.
- Completing the Triogue Way greenway and a new sustainable transport corridor leading to Togher Woods that would include attractive pedestrian and cycling infrastructure. These schemes emphasise ease of use for pedestrians and cyclists and a sense of safety and security when traversing greenways around Portlaoise, making it easy for people to walk or cycle to employment, education and leisure.
- Maximising accessibility and connectivity of Portlaoise's rail and bus network by improving connectivity between places where people live, work, go to school and socialise. This includes the development of the new town bus service within Portlaoise, which will provide residents with a high-quality and accessible bus route connecting the town centre with the outskirts of Portlaoise.
- Upgrading Portlaoise Railway Station and its surroundings as an intermodal transport hub,
- serving not only Portlaoise and its neighbouring towns with sustainable public transport options but further servicing the entire Midlands region and beyond as a core transport nexus situated directly in the centre of Ireland.
- Maximising the impact of the town bus service, by improving the permeability of the proposed bus stops, ensuring that it is as easy as possible to reach bus stops.
- Developing Park-and-Ride facilities near the bus depots on the town's periphery could prevent large volumes of vehicular traffic from entering the town centre for commercial activities, while Park-and-Stride set-down locations could prevent potentially dangerous traffic volumes in and around Portlaoise's school or commercial areas.

In 2023, the National Transport Authority (NTA) allocated €290 million in Active Travel Investment Grants to local authorities to enhance the delivery of hundreds of projects across the country. Laois County Council have been allocated over €3 million for a variety of Active Travel schemes. Schemes include junction tightening, the construction of new and the upgrading of existing cycle lanes, upgrading footpaths and pedestrian crossings, as well as a Safe Routes to School (SRTS) scheme.

The following are some of the projects which are included in the NTA funding:

- **Borris Road:** This is a rapid deployment scheme proposed to extend existing provision of

segregated cycle infrastructure to circa 1.3km. Laois County Council also propose to include roundabout upgrade works at the two northern roundabouts which will see uncontrolled crossing points upgraded to controlled.

- **Dublin Road:** Part 1 of the scheme begins near the Grenville Estate and runs as far as the Kilminchy roundabout. The scheme proposes the removal of right turning lanes and central medians and reallocating the road space to cycling infrastructure. Detailed design has been completed following Part 8 approval. Part 2 of the scheme proposes the formalisation of the advisory cycle lanes on the Dublin Road from Grenville residential estate as far as St. Mary's Hall, closer to town. Works are proposed to begin in 2024 and will provide a seamless route over its 2km length to the Town Centre.
- **Mountrath Road R445, Rapid Deployment Scheme**: The scheme proposes the formalisation of the advisory cycle lanes on the Mountrath Road between the roundabouts at the Western Orbital Road to Knockmay Road. Laois County Council are assessing options, including the option of segregating cycle lanes from vehicular traffic by way of a raised cycle track. The scheme will ensure the continuity of off-road cycle facilities from the Western Orbital Road to Knockmay Road.
- **Triogue Way Phase 2 and 3**: Phase 1 runs from Lismard Roundabout into the People's Park as a shared pedestrian and cycle path. This phase was delivered and completed in 2022. Phases 2 and 3 will run from the People's Park along the route of the river Triogue, through the old Convent Lands and the Linear Park where it will meet Greenmill Lane. From here it leaves the Park and travels on-road along Greenmill Lane, onto the N80 Mountmellick Road, and onto the Ballyfin Road where is finishes at the Western Orbital Road. Phase 2 is the section from Greenmill Lane to the Western Orbital Road.

Most importantly the NTA funding includes the Stradbally Road Active Travel Scheme that aim to review the provision of cycling infrastructure on the Stradbally Road from its roundabout junction with the Southern Circular Road to the Tyrrells site is proposed by Laois County Council. Options for the Stradbally Road Scheme involve the delivery of dedicated cycle tracks or shared pedestrian/cycle tracks.

3.5 Existing Traffic flows

Automated junction turning counts (JTC) have been undertaken at the 3No. key locations in the vicinity of the proposed residential development on Tuesday 16th April 2024 by a third-party company named IDASO. The traffic counts were carried out during a 12-hour period from 07:00 AM to 07:00 PM and encompass all movements at the junctions. The traffic counts cover movements of pedal cycles, cars, taxis, buses, LGVs and HGVs and the final number of traffic is presented in Passenger Car Unit (PCU). PCU is the impact that a mode of transport has on traffic compared to a single car, e.g., a private car represents 1 PCU whereas an HGV represents 2.3 PCUs.

From the data obtained, peak periods in the AM and PM could be identified for each junction being analysed. In Junction 1, peak periods occur between 8:00 to 09:00 in the AM and 16:30 to 17:30 in the PM with a total of 1476 PCU and 1674.1 PCU, respectively.

Analysis of Junction 2 reveals that the morning peak period falls between 08:15 and 09:15, recording a maximum traffic volume of 2048.2 PCUs. In the evening, peak traffic is observed between 16:45 and 17:45 at Junctions 2 and 3, with a peak volume of 1947.7 PCUs.

Regarding the existing entrance at Junction 3, the morning peak aligns with that of Junction 1, registering 958.5 PCUs along the N80 in both eastbound and westbound directions. In the evening, peak traffic occurs between 16:30 and 17:30, slightly differing from the results of Junctions 1 and 2, recording 1057.5 PCUs.

Table 3.3, **Figure 3.12, Figure 3.13** and **Figure 3.14** display the traffic flows observed in the junctions in the AM and PM periods.

During the modelling process, it's important to note that the junctions were evaluated during the same peak hours, those for Junction 2 as it has registered the highest traffic volume, utilising peak traffic volumes for each junction.

From the traffic counts, the percentage of Heavy Good Vehicles (HGV) travelling along the road network in both morning and evening peak periods could be calculated. Overall, there is a moderate level of HGV travelling to/from the assessed junctions along the N80, with the highest percentage recorded in the morning along N80 Eastbound at 4%.

Table 3.3 – April 2024 Traffic Flows

	Peak Time	
Junction	**AM**	**PM**
JTC1	1476	1674.1
JTC2	2048.2	1947.7
JTC3	958.5	1057.5

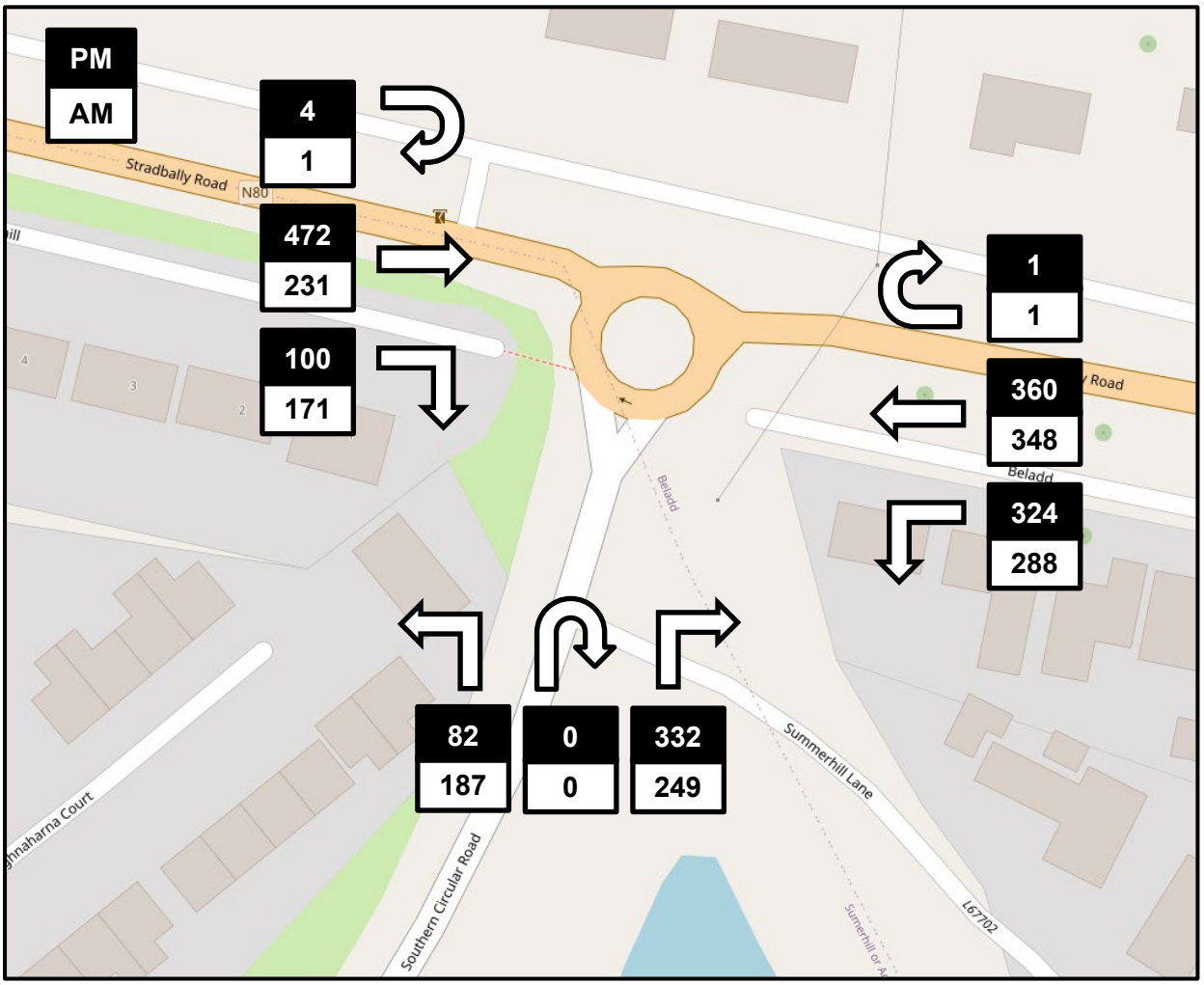

Figure 3.14: April 2024 AM and PM Traffic Counts in JTC1

In Junction 1, traffic data reveals that during both morning and evening periods, traffic entering Portlaoise town from the East is almost evenly split between the N80 Stradbally Road and the Southern Circular Road. In the morning peak, traffic from the Stradbally N80 arm heading east is nearly evenly distributed between the other two arms, with 57% continuing along the N80 and 43% turning right onto the Southern Circular Road. Likewise, 57% of traffic from the Southern Circular Road continues eastbound along the N80.

During the evening peak, approximately 80% of vehicles arriving from the Southern Circular Road turn east, exiting the town. Similarly, the majority of vehicles coming from the N80 travelling eastbound from the town center (82%) continue their journey eastbound along the N80.

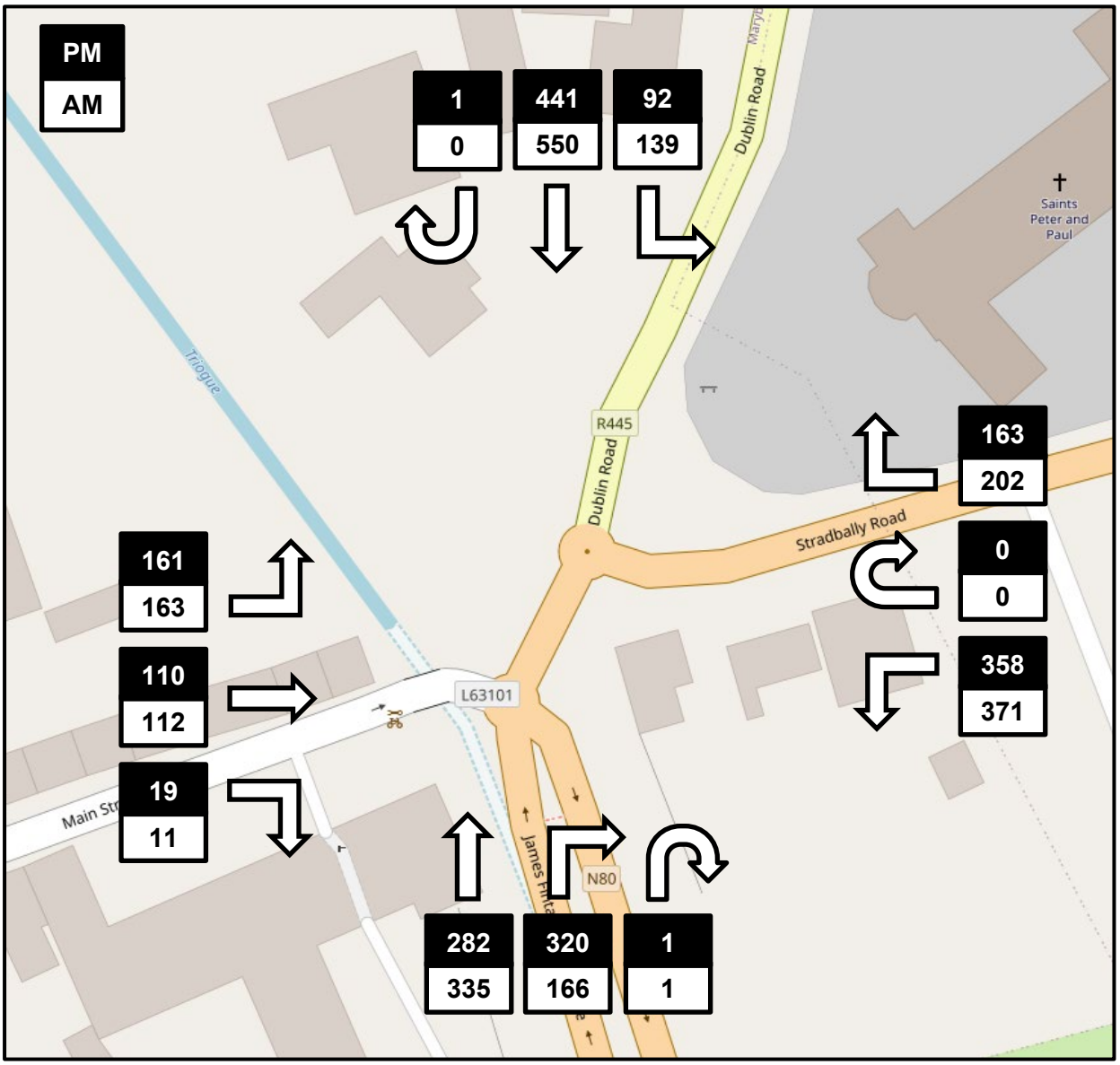

Figure 3.15: April 2024 AM and PM Traffic Counts in JTC2

In Junction 2, traffic data reveals that during both morning and evening periods, the majority of traffic from the North and the R445 proceeds southbound towards the N80, accounting for 80% and 83%, respectively. Additionally, approximately 65% of the traffic from Stradbally Road opts to turn south, with the remaining vehicles turning north onto Dublin Road. During the morning peak, traffic from James Fintan Lalor Avenue mostly continues straight onto Dublin Road (equal to 67%), while this proportion decreases in the afternoon peak, with 53% choosing Stradbally Road. Regarding Main Street, approximately 57% of vehicles turn north onto Dublin Road, around 39% turn onto Stradbally Road (N80), and the rest continue south onto the N80 during both morning and evening periods. Notably, the overall traffic volume at the double mini roundabout is substantial during peak hours, leading to consistent queues between the two roundabouts and resulting in delays for vehicles attempting to enter the junction.

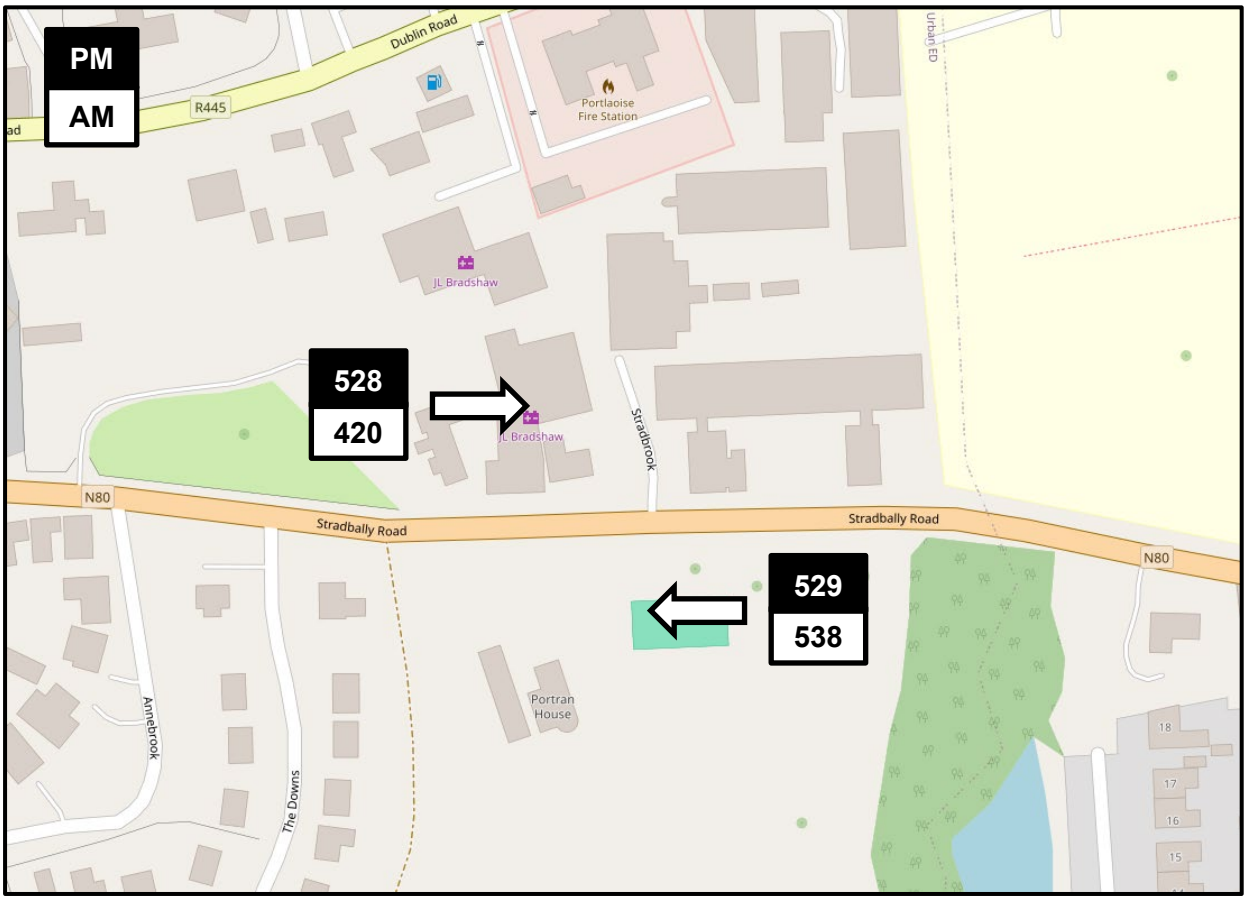

Figure 3.16: April 2024 AM and PM Traffic Counts in JTC3

It was noted that at Junction 3 during the morning peak, 56% of traffic travelled westbound towards Portlaoise town and 44% travelled eastbound out of the town. During the evening peak traffic was equally distributed between the two directions.

3.6 Traffic Collisions Data in the Vicinity of the Site

Traffic data on collisions in the vicinity of the site could not be obtained as the Road Safety Authority website is currently in process of reviewing its road traffic collision data. Therefore, this Traffic Assessment is unable to verify the safety along the road network in the vicinity of the site.

4 Trip Generation, Distribution and Impact on the Road Network

In order to obtain a comparative trip rate for the proposed data centre development once operational, the Trip Rate Information Computer System (TRICS) database was consulted. The TRICS database contains traffic generation data for developments of a similar nature to the proposed development. TRICS was established in the UK and is a substantial source of validated empirical data which contains information on arrival and departure rates for a range of different types and sizes of development throughout Ireland.

4.1 Traffic Generation and Distribution Slips

For the purposes of generating a robust representation of likely traffic profile for the future, a traffic generation profile based on the proposed layout was prepared. The proposed residential development was evaluated using the most relevant option available in TRICS, which was classified as affordable/local authority houses. The trip rate data for the proposed residential development, consisting of 67No. dwellings, has been summarised in **Table 4.1**.

Table 4.1 – TRICS Output for the Residential development

TRICS 7.11.1						
Trip Rate Parameter: No of Dwellings						
TRIP RATE for Land Use 03 - RESIDENTIAL/ B - AFFORDABLE/LOCAL AUTHORITY HOUSES						
Calculation Factor: 1 DWELLS						
Count Type: TOTAL VEHICLES						
TIME RANGE	ARRIVALS			DEPARTURE		
	No. Days	Ave. Dwells	Trip Rate	No. Days	Ave. Dwells	Trip Rate
07:00-08:00	10	39	0.048	10	39	0.15
08:00-09:00	10	39	0.148	10	39	0.224
09:00-10:00	10	39	0.137	10	39	0.201
10:00-11:00	10	39	0.135	10	39	0.15
11:00-12:00	10	39	0.14	10	39	0.112
12:00-13:00	10	39	0.127	10	39	0.135
13:00-14:00	10	39	0.115	10	39	0.132
14:00-15:00	10	39	0.153	10	39	0.186
15:00-16:00	10	39	0.244	10	39	0.165
16:00-17:00	10	39	0.234	10	39	0.122
17:00-18:00	10	39	0.26	10	39	0.201
18:00-19:00	10	39	0.168	10	39	0.14
Daily Trips Rates:			**1.909**			**1.918**

The TRICS output is presented in a trip rate per unit. The unit reference is dependent on the development in question, such as per person, per house or unit area. In this case, the multiplication factor to be applied to the unit rate is the number of new residential units (67No.).

Table 4.2 shows the expected traffic generation profile once the residential development is fully operational.

Table 4.2 – Total Typical Daily Generated Profile for 67 dwellings			
Time Range	**Arrivals**	**Departures**	**Total**
08:00-09:00	10	15	25
17:00-18:00	17	13	31

4.2 Cumulative Impact

As part of this Traffic Assessment, to assess the existing and expected traffic along the road network in the vicinity of the proposed development, the Laois County Council planning website and the National Planning Application Map Viewer were consulted to include all committed developments in the area. 5No. committed development were identified, that planning permission has been received, which would affect the junctions analysed in the vicinity of the proposed development, as shown in **Figure 4.1** below. Traffic and Transport Assessments were conducted for these applications, providing insights into the projected traffic on the assessed junctions. Incomplete or withdrawn applications were not included.

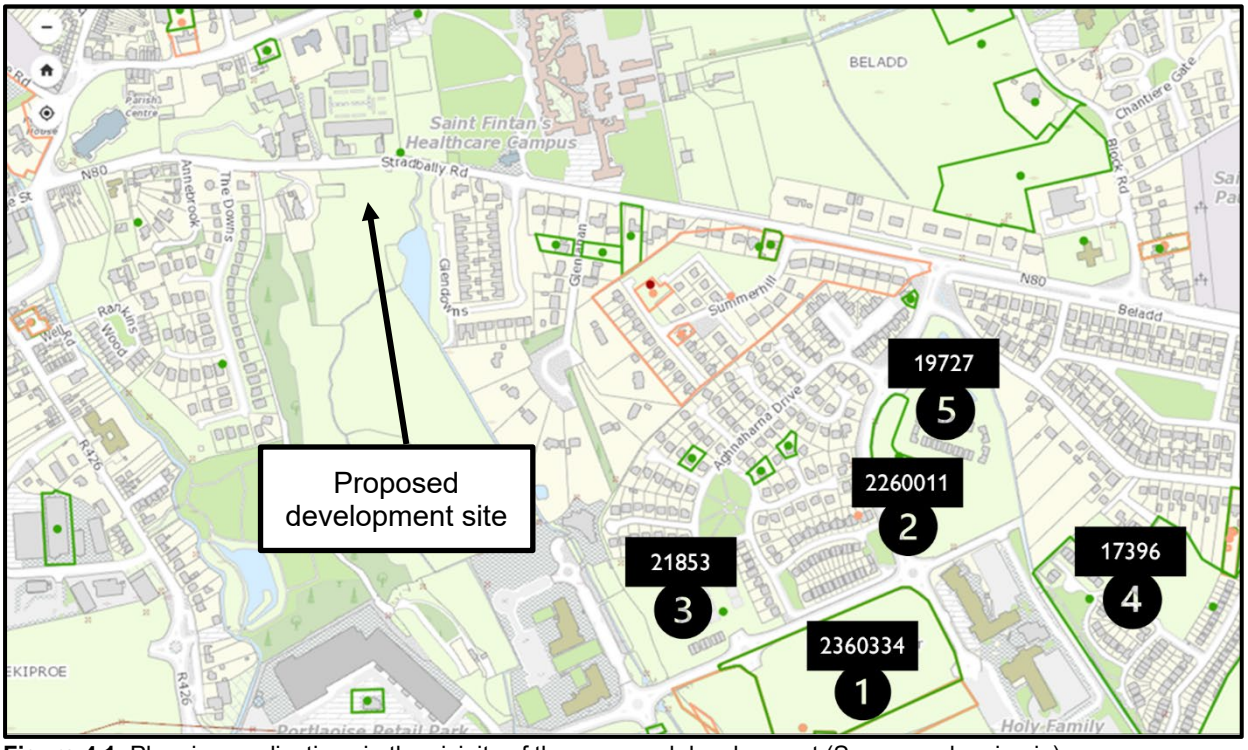

Figure 4.1: Planning applications in the vicinity of the proposed development (Source: eplanning.ie)

4.2.1 Summerhill, Portlaoise (LCC Pl. Ref. 2360334, 2360340), Sites 1a and 1b

The proposals seek planning permission for a: a 2 No. storey Neighbourhood Centre (1,484 sq m) principally comprising a retail unit 361 sq m), a creche (289 sq m), refuse storage (23 sq m) and cycle storage (65 sq m) at ground floor level and office floorspace (746 sq m) at ground and first floor level; the provision of 57 No. houses (comprising of: 5 No. detached dwellings (three-storey 5-bed); 3 No. semi-detached corner dwellings (two-storey 4-bed); 29 No. semi-detached dwellings (two-storey 4-bed); 20 No. edge house t-shape dwellings (two-storey 4-bed); and 5 No. 3 No. storey duplexes comprising 5 No. 2-bed units and 5 No. 3-bed units. The development will also include: a new Link Road through the site, providing vehicular entrance/ exit to the site via O'Devoy (O'Deevy) roundabout; roof plant at the Neighbourhood Centre; ancillary car parking spaces; public open space; boundary treatments; hard and soft landscaping; sub-stations; lighting; and all associated site and development works above and below ground.

Table 4.3 below summarises the predicted AM and PM peak hour traffic generated by the proposed development.

Table 4.3 - LCC Pl. Ref. 2360334 Trip Generation, Site 1b

Land Use	AM (08:15 - 09:15)			PM (16:30 - 17:30)		
	Arrival	Departure	Total	Arrival	Departure	Total
Houses	13	20	32	27	18	45
Duplex	1	2	2	2	2	4
Creche	3	2	5	2	2	4
Retail	17	17	34	20	20	40
Office	5	1	5	1	5	5
Total Trips	38	41	79	51	46	97

The adjacent development Site 1a which is also within the Applicant's ownership will be lodged for planning. The development will consist of the provision of 45 No. residential dwellings comprising: 1 No. detached dwelling (three-storey 5-bed); 2 No. semi-detached corner dwellings (two-storey 4-bed); 18 No. semi-detached dwellings (two-storey 4-bed); 20 No. edge house t-shape dwellings (two-storey 4-bed); and 4 No. semi-dwellings (two-storey 3-bed). The development will also include: a new Link Road through the site, providing vehicular entrance/ exit via O'Devoy roundabout; ancillary car parking spaces; public open space; boundary treatments; hard and soft landscaping; sub-station; pumping station; lighting; and all associated site and development works above and below ground. **Table 4.4** below summarises the predicted AM and PM peak hour traffic generated by the development.

Table 4.4 - LCC Pl. Ref. 2360340 Trip Generation, Site 1a

AM (08:15 - 09:15)			PM (16:30 - 17:30)		
Arrival	Departure	Total	Arrival	Departure	Total
10	16	26	21	14	35

4.2.2 Summerhill, Portlaoise (LCC Pl. Ref. 2260011)

This application is an amendment to the aforementioned LCC Pl. Ref. 19727 application for revised changes on a site measuring c.0.729 Ha. The revised permitted development will consist of 20 no. residential units (comprising 8 no. two-storey semi-detached dwellings (4 no. 4 -bedroom houses and 4 no. 3 -bedroom houses) and 12 no. apartments provided in 1 no. three storey block (4 no. 3 bedroom apartments and 8 no. 3 bedroom duplex apartments), ancillary car-parking spaces, cycle parking, pedestrian accesses, hard and soft landscaping, bin storage, boundary treatments and all associated site development works above and below ground. **Table 4.5** below summarises the predicted AM and PM peak hour traffic generated by the development.

Table 4.5 - LCC Pl. Ref. 2260011 Trip Generation					
AM peak			PM peak		
Arrival	Departure	Total	Arrival	Departure	Total
3	5	8	6	4	10

4.2.3 Aghnaharna, Portlaoise (LCC Pl. Ref. 21853)

This application amended the number and dwelling mix of the partially constructed scheme as permitted under Laois County Council Reg. Ref. 18/450 as amended by Reg. Refs. 19/217 and 19/690. The scheme as permitted comprises 78 no. units providing 15 no. 4 bedroom units and 63 no. 3 bedroom units. The scheme as proposed comprises 75 no. dwellings providing 21 no. 3 bedroom units and 54 no. 4 bedroom units (including 20 no. constructed units comprising 15 no. 3 bedroom units and 5 no. 4 bedroom units); and all associated works. **Table 4.6** below summarises the predicted AM and PM peak hour traffic generated by the development.

Table 4.6 - LCC Pl. Ref.21853 Trip Generation					
AM (08:00 - 09:00)			PM (16:45 - 17:45)		
Arrival	Departure	Total	Arrival	Departure	Total
17	26	43	36	24	60

4.2.4 Summerhill Lane, Portlaoise (LCC Pl. Ref. 17396)

The proposal seeks planning permission for 87 no. two-storey dwellings (38 no. 4-bedroom semi-detached houses, 6 no. 3-bedroom semi-detached houses, 3 no. 5-bedroom detached houses, 22 no. 4-bedroom end of terrace houses and 18 no. 3-bedroom terraced houses) and a single storey creche; lighting; landscaping; boundary treatments; and all associated site development works.

Roughly 50% of the proposal began construction in 2022 and prior, signifying that this portion of the site is already finalised and functional. The remaining portion is currently under construction. Since the development is not yet fully completed, the traffic patterns it generates

were not captured in the traffic counts conducted in 2024. Consequently, this Traffic Assessment has incorporated the projected traffic flows for future years in the evaluated junctions to ensure a comprehensive evaluation of the road network's future conditions. The traffic flows arriving on the Stradbally Road (N80)/Southern Circular Road are presented in **Table 4.7** below and are assumed to take place during the peak network times for the junction.

Table 4.7 - LCC Pl. Ref. 17396 Trip Generation on Junction					
AM peak			PM peak		
Arrival	Departure	Total	Arrival	Departure	Total
21	24	45	21	14	35

4.2.5 The Pond Site, Portlaoise (LCC Pl. Ref. 19727)

The development will consist of 91 no. residential units (comprising 63 no. two-storey semi-detached and detached dwellings (18 no. 4-bedroom houses, 44 no. 3-bedroom houses and 1 no. 2-bedroom house) and 28 no. apartments provided in 2 no. three storey blocks (14 no. 1-bedroom apartments and 14 no. 3 bedroom apartments) along with ancillary car-parking spaces, cycle parking and pedestrian accesses. **Table 4.8** below summarises the predicted AM and PM peak hour traffic generated by the development.

Table 4.8 - LCC Pl. Ref. 17927 Trip Generation on Junction					
AM peak			PM peak		
Arrival	Departure	Total	Arrival	Departure	Total
21	24	45	21	14	35

4.3 Future Year Traffic Growth

Transport Infrastructure Ireland (TII) issues a range of forecasts: low growth, central growth and high growth. The implementation of policies relating to the National Sustainable Mobility Policy will act as a deterrent to high growth in car-based travel. Low growth factors are however likely to be equally unrealistic at present, therefore, this assessment has used central growth factors, which was extracted from the TII Publication PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, published in October 2021, outlined in **Table 4.9, Table 4.10** and **Table 4.11** below.

Table 4.9 – Development Location Information	
Location of Development	Laois
Sensitivity Area	Central
Year of Traffic Counts	2024
Year of Assessment	2024
Year of Development Construction	2026

Table 4.10 – TII Annual Growth Rates (Central Growth) for Co. Laois		
Year	**LGV**	**HGV**
2016 – 2030	1.0147	1.0280
2030 – 2040	1.0047	1.0125
2040 – 2050	1.0036	1.0155

Table 4.11 – Growth Factors for Future Design Years for Co. Laois				
	Counts	Completion	Completion +5	Completion +15
	2024	2026	2031	2041
LGV	1.000	1.030	1.097	1.148
HGV	1.000	1.057	1.195	1.357

4.4 Generated Traffic Splits Through Neighbouring Junctions

Utilising the traffic counts recorded at the three junctions in April 2024, the travel distribution pattern was determined. Notably, during the morning peak, around 43% of the traffic departing from Southern Circular Road heads west, moving towards JTC2 and JTC3 and towards the town centre. In the evening peak, the traffic turning left from JTC2 onto Stradbally Road increases to 80%. Traffic arriving to the access site junction in the evening peak is evenly distributed from JTC2 to the west of the site and JTC1 to the east. In the morning, 44% is expected to arrive from the town centre.

The traffic counts indicate a slight variation between the AM and PM peak times at the junctions. Peak traffic volumes are observed between 08:00 and 09:00 for Junctions 1 and 2 in the morning, and between 16:30 and 17:30 for Junction 1, and 16:45 and 17:45 for Junction 2 in the evening. At Junction 3, peak times are noted between 08:15-09:15 in the morning and 16:15-17:15 in the evening. To accommodate this variation, an average was taken into consideration, and the junctions were assessed based on their peak-time traffic volumes.

According to the TRICS analysis, traffic from the residential development is expected to arrive between 08:00 and 9:00, departing between 17:00 and 18:00. To evaluate the impact of the proposed development on the surrounding road infrastructure, a traffic generation and distribution model (MS Excel-based traffic flows model) was created for the following key junctions.

Figure 4.2, **Figure 4.3** and **Figure 4.4** overleaf display the expected traffic generated by the proposed development distributed on the junctions affected in the vicinity of the site.

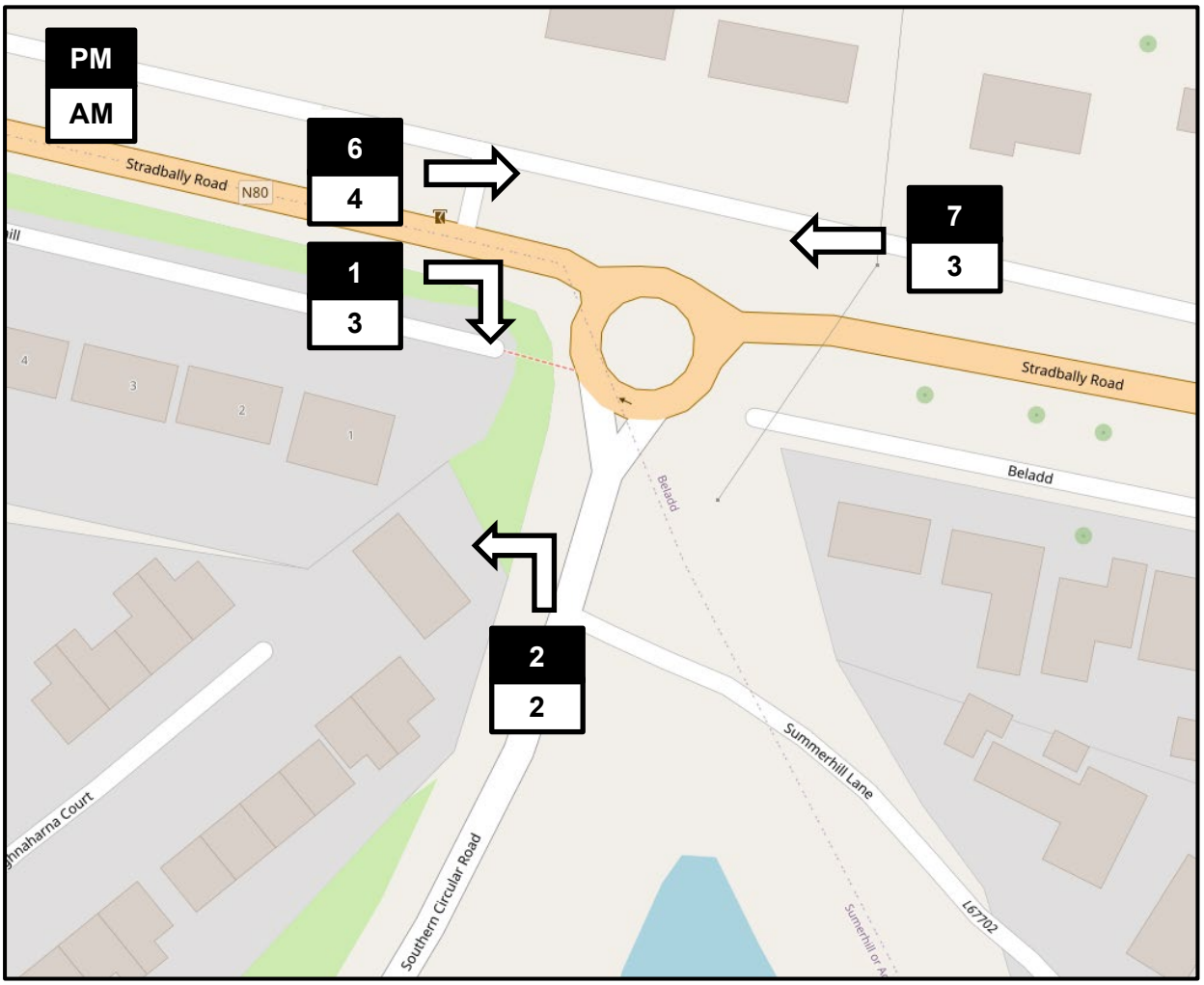

Figure 4.2: AM and PM Development Generated Traffic in JTC1

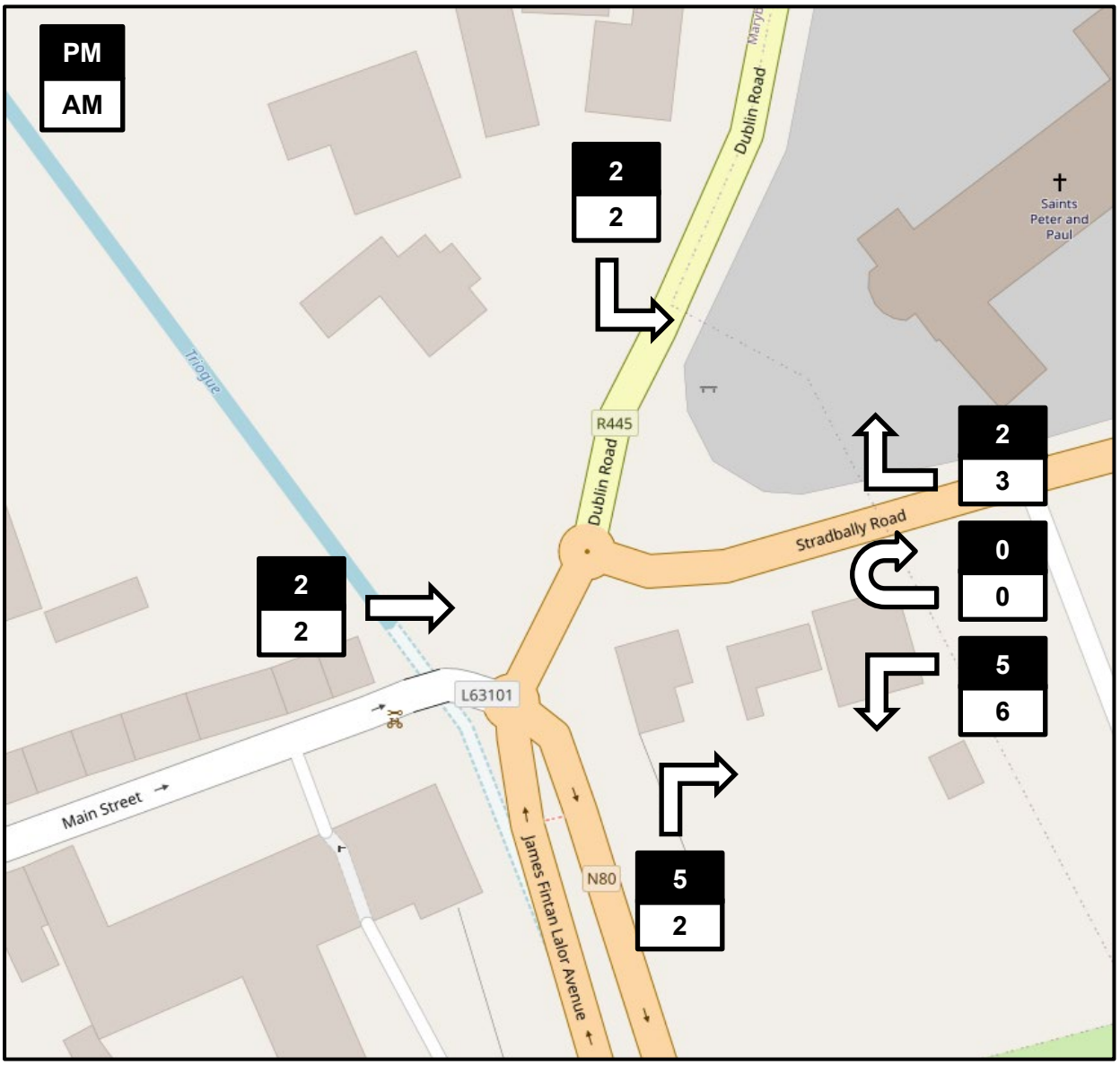

Figure 4.3: AM and PM Development Generated Traffic in JTC2

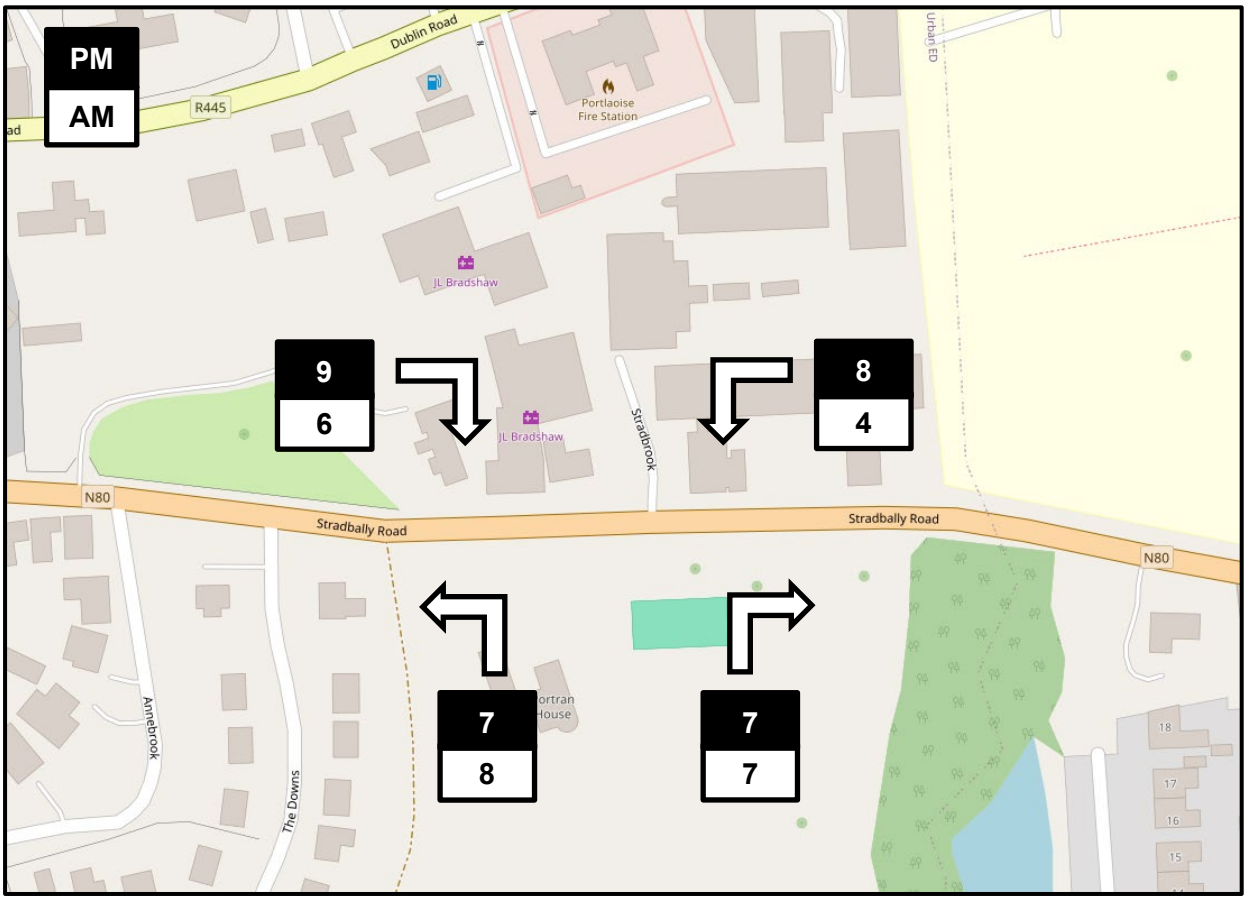

Figure 4.4: AM and PM Development Generated Traffic in JTC3

4.5 Traffic and Transport Assessment Guidelines

The Laois County Development Plan 2021 – 2027, in Section 10.1.4, Objective TRANS 26, requires a Traffic and Transport Assessment to be provided as part of a development proposals with the potential to create significant additional demands on the traffic network and shall be in accordance with the Traffic and Transport Assessment Guidelines (2014).

The TII Publication PE-PDV-02045 Traffic and Transport Assessment Guidelines, published in May 2014, recommends that junction modelling should be carried out where new traffic exceeds 5% of existing flows if congestion already exists and if traffic generated by the development exceeds 10% where no traffic congestion is present.

As the proposed development is assumed to be fully constructed and operational in 2026, the projected 2026 traffic flows could be calculated using TII's Central Growth Factor for Co. Laois. The impact on traffic for the assessed junctions is presented in **Table 4.12**.

Table 4.12 – Traffic Impact on Neighbouring Junctions from the development

Junction	2026 Projected Traffic		Traffic from Development		Increase in Traffic		TII Threshold of 5%	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
JTC1	1727	1927	12	16	0.7%	0.8%	Below	Below
JTC2	2191	2046	15	16	0.7%	0.8%	Below	Below
JTC3	1069	1129	25	31	2.3%	2.7%	Below	Below

Table 4.13 provides the thresholds for a Traffic and Transport Assessment (TTA).

Table 4.13 – Traffic Management Guidelines Thresholds for Transport Assessments (TII)

N/A	Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
NO	Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive
N/A	Residential development in excess of 200 dwellings
N/A	Retail and leisure development in excess of 100m^2
N/A	Office, education and hospital development in excess of 2,500m^2
N/A	Industrial development in excess of 5,000m^2
N/A	Distribution and warehousing in excess of 10,000m^2

Upon comparing the traffic to and from the development with the threshold requirements outlined in **Table 4.13** above, it is recommended by TII that if any of the listed conditions apply

to the development then a TTA is deemed necessary. As can be seen in **Table 4.13**, none of these conditions are applicable in this case.

Similarly, **Table 4.14** provides the thresholds when national roads are affected. As can be seen, none of these conditions are applicable in this case.

Table 4.14 – Advisory Threshold for Traffic and Transport Assessments Where National Roads are Affected (TII)			
N/A	Type	Description	
N/A	Vehicle Movements	100 trips in/out combined in the peak hours for the proposed development	
N/A		Development traffic exceeds 10% of turning movements at junctions with and on National Roads	
NO		Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive	
N/A	Size	Retail	1,000m^2 Gross Floor Area
N/A		Leisure facilities including hotels, conference centres and cinemas	1,000m^2 Gross Floor Area
N/A		Business	2,500m^2 Gross Floor Area
N/A		Industry	5,000m^2 Gross Floor Area
N/A		Distribution and Warehousing	10,000m^2 Gross Floor Area
N/A		Hospitals and education facilities	2,500m^2 Gross Floor Area
N/A		Stadia	1,500m^2 Gross Floor Area
N/A		Community facilities including places for worship, community centre	1,000m^2 Gross Floor Area
N/A		Housing	50 dwellings within urban area with a population less than 30,000 100 dwellings within urban areas with a population equal to or greater than 30,000
N/A	Parking Provided	100 on-site parking spaces	

5 Capacity Analysis

5.1 Introduction

A capacity assessment was undertaken at 3No. junctions in the vicinity of the site, as previously noted, to demonstrate that the proposed development will not have a detrimental effect on the functionality of the existing junctions. The performance of the junctions during the AM and PM peak hours was assessed using ARCADY software for roundabouts and PICADY for the priority junction, for the following design years:

- 2024, the base year
- 2026, the opening year
- 2031, 5 years after development conclusion
- 2041, 15 years after development conclusion.

Figure 5.1 below shows the junctions in which a traffic simulation was undertaken in order to obtain the Ratio of Flow to Capacity (RFC) and the queue levels to determine if the junctions will cater for the predicted level of traffic by the proposed residential development.

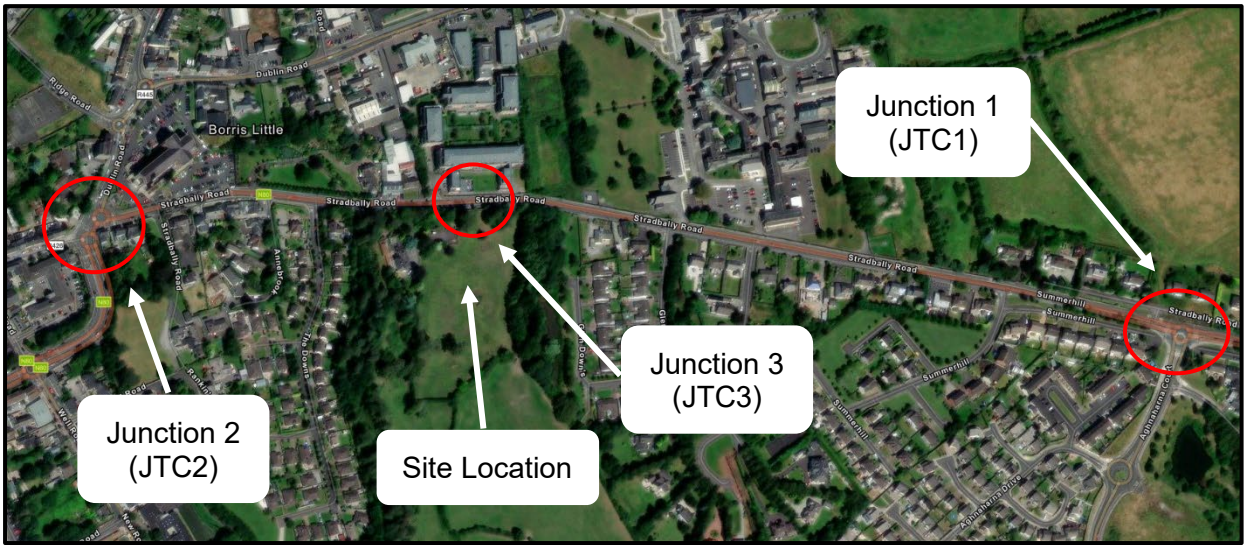

Figure 5.1: Location of Junctions Analysed (Source: ArcGIS)

The Ratio of Flow to Capacity (RFC) describes the capacity of each approach to the junction and determines if the junction will cater for the predicted level of traffic. An RFC below 0.85 (85%) implies that an approach road is operating satisfactorily well within capacity; between 0.85 to 1.0 RFC means the approach operates well within capacity but at less optimal efficiency; and an RFC above 1.0 means that demand and capacity are equal and no further traffic can progress through the junction.

The queue levels are presented in Passenger Car Unit (PCU) and quantify the total number of vehicles queueing on each arm.

5.2 Traffic Impacts of the Proposed Development on the Local Road Network

As stated in **Section 3.5** above, traffic counts were undertaken in Apil 2024 at the 3No. junctions. The cumulative effect of adjacent developments described in **Section 4.2** was considered into the analysis. Central traffic growth rates for Co. Laois, specified in the TII's Publication PE-PAG-02017 of October 2021, were applied to existing background traffic only and were not applied to the development traffic, since it is limited by development size. The capacity assessment was modelled for three different scenarios;

- Base-year: 2024 traffic flows modelled according to traffic counts obtained in April 2024, factored up using TII's Growth Factor.
- Do-nothing: modelled without the intervention of the proposed development. For this analysis, the traffic counts were factored up using TII's Growth Factor for the design years 2026, 2031 and 2041.
- Do-something: the impact of the traffic generated by the development were added to the design years 2026, 2031 and 2041. This analysis will enable the comparison with the 'Do-nothing' scenario.

5.2.1 Junction 1 – Stradbally Road (N80)/ Southern Circular Road

The junction was assessed for the AM and PM peak period and the arms were labelled as shown in **Figure 5.2** below:

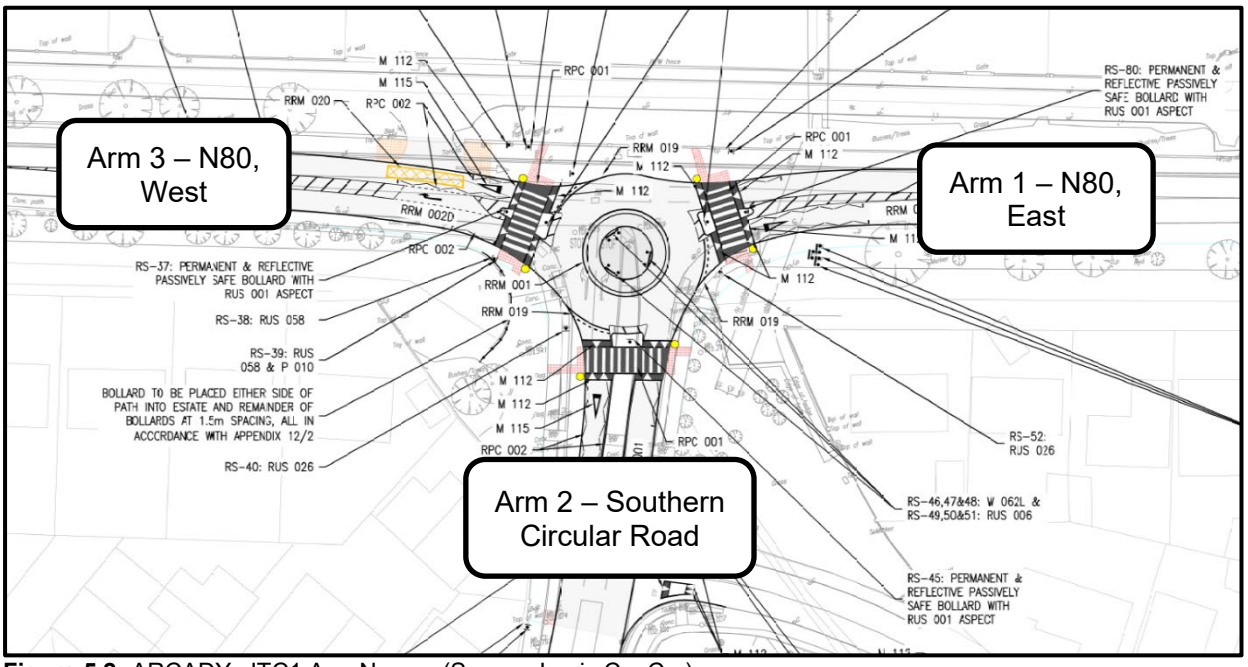

Figure 5.2: ARCADY, JTC1 Arm Names (Source: Laois Co. Co.)

Table 5.2 shows the results of the analysis of the roundabout modelled using ARCADY transport modelling software for the assessment year (2024), the expected year of opening (2026), 5 years after the development completion (2031) and 15 years after the development completion (2041) for the 'Do-Nothing' and 'Do-Something' scenarios.

Table 5.1 – *ARCADY* Results for JTC1 Analysis					
		AM		PM	
Analysis	**Arm**	**Queue (PCU)**	**Rate Flow Capacity (RFC)**	**Queue (PCU)**	**Rate Flow Capacity (RFC)**
1 – 2024, base traffic	Arm 1	2.6	0.73	2.9	0.74
	Arm 2	1.3	0.57	1.1	0.53
	Arm 3	1	0.49	5	0.85
2 – 2026, do-nothing	Arm 1	5	0.84	8.8	0.92
	Arm 2	3.4	0.78	1.9	0.66
	Arm 3	1.4	0.59	19.7	**1.01**
3 – 2026, do-something	Arm 1	5.1	0.85	9.5	0.92
	Arm 2	3.5	0.78	1.9	0.66
	Arm 3	1.5	0.60	22.2	**1.02**
4 – 2031, do-nothing	Arm 1	8.1	**0.91**	15.5	0.97
	Arm 2	4.8	0.84	2.3	0.71
	Arm 3	1.8	0.64	43	**1.11**
5 – 2031 do-something	Arm 1	8.5	**0.91**	16.9	0.98
	Arm 2	5	0.85	2.4	0.71
	Arm 3	1.8	0.65	46.5	**1.12**
6 – 2041, do-nothing	Arm 1	13.2	**0.96**	24.8	1.01
	Arm 2	6.8	**0.89**	2.8	0.74
	Arm 3	2.1	0.68	64.7	**1.18**
7 – 2041, do-something	Arm 1	14	**0.96**	27	1.02
	Arm 2	7	**0.89**	2.9	0.75
	Arm 3	2.2	0.69	68.4	**1.19**

As indicated in **Table 5.1**, the current operation of the junction is within its theoretical capacity of 0.85. The highest RFC is observed in Arm 3 (N80 - West) at 0.85 (85%) during the PM peak. Small delays are noted in Arm 3 during the evening, as well as in Arm 1 (N80 – East) during both the AM and PM peaks, which dissipate quite rapidly.

In Analysis 2, considering the committed developments mentioned in **Section 4.2**, all of them located south of the assessed junction utilising Arm 2, the junction is anticipated to exceed its maximum capacity. The maximum RFC, observed in Arm 3 again, is 1.01 (101%) during the PM peak, with a maximum queue length of 19.7 PCU equivalent to approximately 113m.

Upon introducing the traffic from the proposed development in Analysis 3, a minimal increase in RFC of 0.01 (1%) is observed in Arm 3 during both the AM and PM period, signifying a minimal impact on the road network.

Looking ahead to 2041, in Analysis 6, without the additional traffic from the proposed development, the junction is projected to operate above capacity for both the AM and PM periods. The highest anticipated RFC is 1.18 (118%) in Arm 3 during the PM period. When the traffic from the proposed development is considered in Analysis 7, there is negligible impact on the junction's capacity. Similarly, in the AM period, Arms 1 and 2 consistently operate above capacity, with a maximum RFC value of 0.96 (96%) and 0.89 (89%), respectively.

Therefore, should the committed developments in the vicinity, all planned to the south of Stradbally Road (N80)/ Southern Circular Road junction, come to completion and become operational, it may necessitate modifications to the junction's layout. This would aim to bolster the junction's capacity, alleviate delays, and enhance its overall performance.

5.2.2 Junction 2 – Stradbally Road (N80), Dublin Road (R445), Bridge Street and James Fintan Lalor Avenue Double Roundabout

The junction was assessed for the AM and PM peak period and the arms were labelled as shown in **Figure 5.3** below:

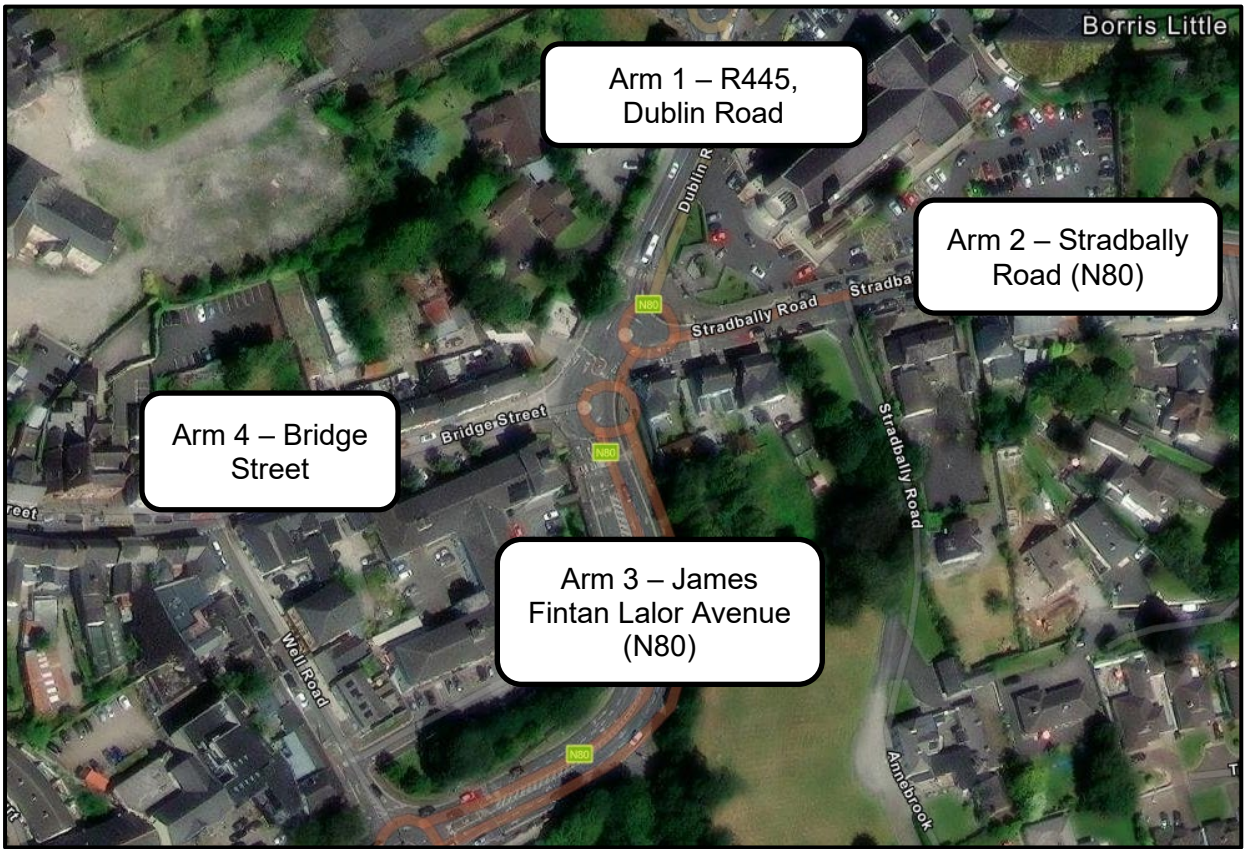

Figure 5.3: ARCADY, JTC2 Arm Names (Source: ArcGIS)

Traffic generated by the residential development will utilise the double roundabout, as this junction will be the closest junction for the traffic arriving from Portlaoise town centre. The traffic along the junction was calculated using the traffic counts data and the traffic associated with

the development is assumed to follow the same trend. **Table 5.2** shows the results of the analysis of the roundabout modelled using ARCADY transport modelling software for the assessment year (2024), the expected year of opening (2026), 5 years after the development completion (2031) and 15 years after the development completion (2041) for the 'Do-Nothing' and 'Do-Something' scenarios.

Table 5.2 – *ARCADY* Results for JTC2 Analysis

		AM		PM	
Analysis	**Arm**	**Queue (PCU)**	**Rate Flow Capacity (RFC)**	**Queue (PCU)**	**Rate Flow Capacity (RFC)**
1 – 2024, base traffic	Arm 1	89.7	**1.27**	33.8	**1.11**
	Arm 2	84.6	**1.30**	28.8	**1.09**
	Arm 3	1.1	0.50	1.5	0.60
	Arm 4	0.6	0.37	0.7	0.42
2 – 2026, do-nothing	Arm 1	123.3	**1.34**	46.1	**1.16**
	Arm 2	140.7	**1.44**	40.6	**1.15**
	Arm 3	1.2	0.53	1.8	0.64
	Arm 4	0.7	0.40	0.8	0.45
3 – 2026, do-something	Arm 1	126.1	**1.34**	47.8	**1.17**
	Arm 2	148	**1.44**	42.9	**1.15**
	Arm 3	1.2	0.53	1.8	0.64
	Arm 4	0.7	0.40	0.8	0.46
4 – 2031, do-nothing	Arm 1	168.9	**1.41**	66.8	**1.24**
	Arm 2	188.7	**1.52**	62.8	**1.23**
	Arm 3	1.4	0.56	28.4	**1.08**
	Arm 4	0.8	0.44	4	0.84
5 – 2031 do-something	Arm 1	171.6	**1.41**	68.5	**1.24**
	Arm 2	196.4	**1.53**	67.2	**1.24**
	Arm 3	1.4	0.56	31.7	**1.10**
	Arm 4	0.8	0.45	4.5	0.86
6 – 2041, do-nothing	Arm 1	206.6	**1.46**	90	**1.3**
	Arm 2	226.5	**1.59**	94.6	**1.31**
	Arm 3	18.3	**1.03**	51.8	**1.17**
	Arm 4	3.7	0.81	5.5	0.90
7 – 2041, do-something	Arm 1	210.1	**1.47**	92.3	**1.31**
	Arm 2	235.2	**1.60**	99.5	**1.32**
	Arm 3	20.4	**1.05**	54.4	**1.17**
	Arm 4	3.3	0.79	5.9	0.91

The internal linking arm between the two mini roundabouts has queuing space for only 3 PCUs. To model the restricting effect of this queueing space, queueing limitations were utilised in the model. Therefore, the queue on the internal link has been limited to 3 PCU, causing a larger queue on Arm 1 and Arm 2, and associated reduction in entry flow. This affects all upstream arms, in accordance to turning proportions and the results may not always been immediately intuitive, as can been seen in **Table 5.2**. As indicated in **Table 5.2**, the current operation of the junction is above its theoretical capacity of 0.85. The highest RFC is observed in Arm 2 (R445, Dublin Road) at 1.30 (130%) during the AM peak. This can also be confirmed from the site visit conducted, where long queues and congestion during morning peak were obvious. In Analysis 2, considering the committed developments mentioned in **Section 4.2**, the junction continues to operate above capacity. The maximum RFC, observed in Arm 2 is 1.44 (144%) during the AM peak, with a maximum queue length of 84.6 PCU equivalent to approximately 480m.

Upon introducing the traffic from the proposed development in Analysis 3, a minimal increase in RFC of 0.01 (1%) is observed in Arm 1 during PM period, signifying a minimal impact on the road network.

Looking ahead to 2031 and 2041, in Analyses 5 and 7 when the traffic from the proposed development is considered, there is negligible impact on the junction's capacity (mere 1% change in RFC value, respectively). However, significant queues are anticipated to all future scenarios due to the limited available space between the two roundabouts, resulting in interference with traffic from other arms and impeding traffic flow.

5.2.3 Junction 3 – Stradbally Road (N80)/Site Access

At the moment JTC3 is a priority junction formed by Stradbally Road (N80) and the existing entrance to the vacant site, as shown in **Figure 5.4** below.

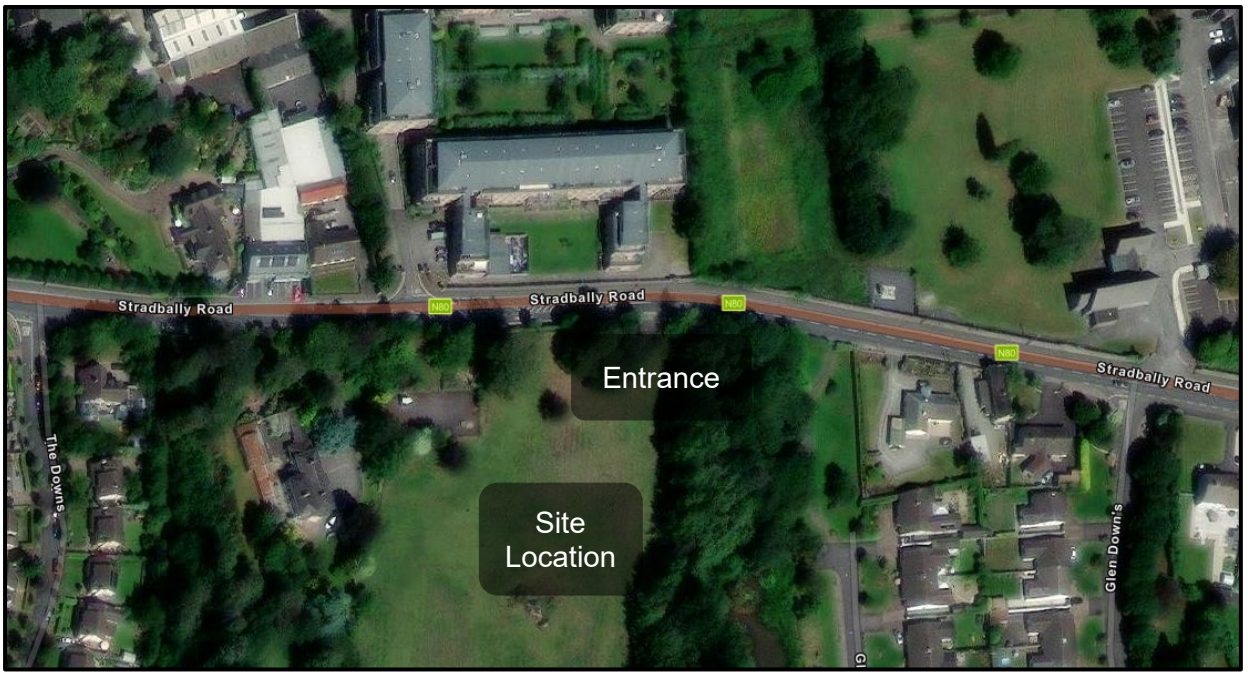

Figure 5.4: Current JTC3 layout (Source: Google Earth)

Traffic generated by the residential development will utilise the priority junction as it will be the only vehicular access to the site and all generated trips are new in the road network. Upon completion of the development, the junction will be equipped with 'STOP' road markings and sign, and its proposed configuration is shown in **Figure 5.5** below.

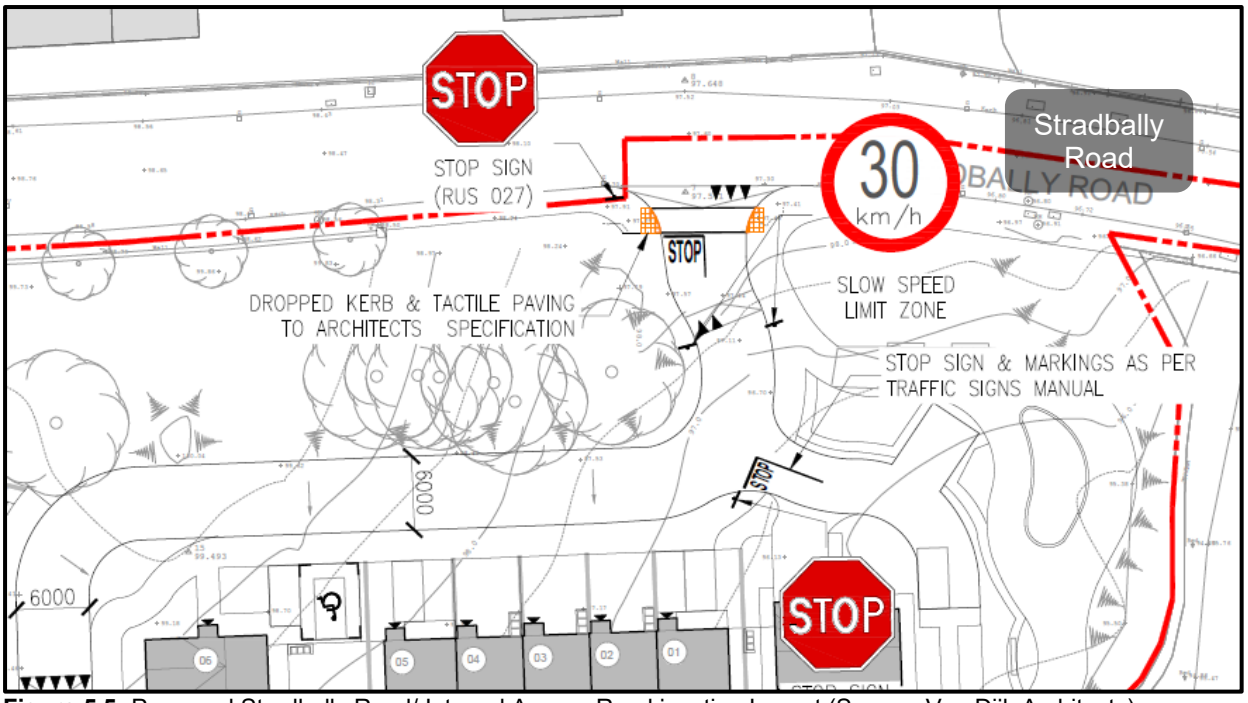

Figure 5.5: Proposed Stradbally Road/ Internal Access Road junction Layout (Source: Van Dijk Architects)

In the following analysis, the junction was assessed for the AM and PM peak period and the arms were labelled as shown in **Figure 5.6** below:

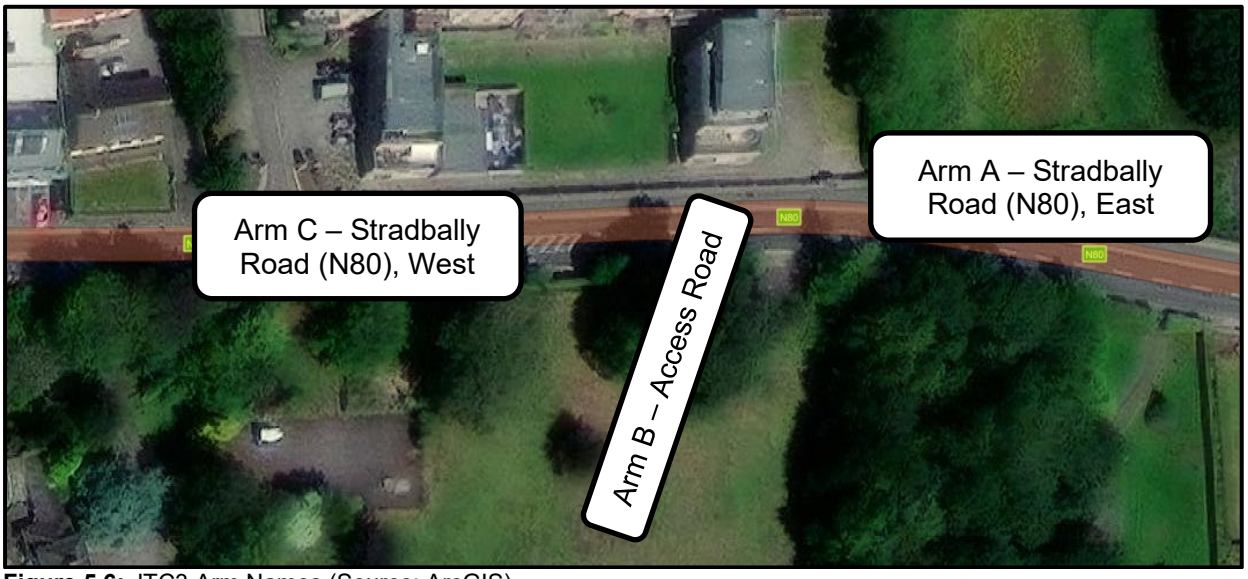

Figure 5.6: JTC3 Arm Names (Source: ArcGIS)

Table 5.3 shows the results of the analysis of the junction modelled using PICADY transport modelling software for the assessment year (2024), the expected year of opening (2026), 5 years after the development completion (2031) and 15 years after the development completion (2041) for the 'Do-Nothing' and 'Do-Something' scenarios.

Table 5.3 – *PICADY* Results for JTC3 Analysis

		AM		PM	
Analysis	**Stream**	**Queue (PCU)**	**Degree of Saturation (DOS)**	**Queue (PCU)**	**Degree of Saturation (DOS)**
1 – 2024, base traffic	B-AC	0	0	0	0
	C-AB	0	0	0	0
2 – 2026, do-nothing	B-AC	0	0	0	0
	C-AB	0	0	0	0
3 – 2026, do-something	B-AC	0	0.04	0	0.04
	C-AB	0	0.02	0	0.03
4 – 2031, do-nothing	B-AC	0	0	0	0
	C-AB	0	0	0	0
5 – 2031 do-something	B-AC	0	0.04	0	0.04
	C-AB	0	0.02	0	0.03
6 – 2041, do-nothing	B-AC	0	0	0	0
	C-AB	0	0	0	0
7 – 2041, do-something	B-AC	0	0.04	0	0.04
	C-AB	0	0.02	0	0.03

As indicated in **Section 4.5**, the expected traffic from the development is below the TII threshold of a 5% increase in traffic on the surrounding roads.

In all analyses, the RFC does not exceed 0.04, which is 4% of junction capacity. No queuing is projected to occur on any of the design years analysed. Traffic levels are very low through the junction and are predicted to remain low upon completion of the proposed development. Therefore, it is not anticipated that the proposed development will impact the traffic in the junction or surrounding vicinity.

In conclusion, the impact of the proposed traffic generated by the residential development is deemed minor, with no adverse effects on the capacity of the assessed junctions in all future design years.

However, both JTC1 and JTC2 are projected to operate above capacity in future design years, regardless of any additional traffic. Particularly for junction JTC2, significant traffic volumes are evident during peak times, resulting in extensive queues formed between the two mini roundabouts.

6 Conclusions

The main conclusions of this study are summarised as follows:

- This Traffic and Transport Assessment was conducted to accompany the planning application for a proposed residential development located at Tyrrell Lands, off Stradbally Road in Portlaoise, Co. Laois.
- The proposal entails the development of a single plot, offering 21No. social and 46No. affordable housing units, totalling 67No. units. The total proposed site area spans 22,535m^2 (2.25Ha). Additionally, the proposal encompasses the provision of public open space, car parking, upgraded vehicular access, along with all associated ancillary works, including site development and both hard and soft landscaping.
- The development will be accessed via 1No. combined vehicular and pedestrian/cyclist access from the north of the site, off Stradbally Road.
- ORS liaised with the local authority to scope the requirements for the Traffic and Transport Assessment (TTA) and it was agreed that this report would focus on the roundabout junction between Stradbally Road (N80) and the Southern Circular Road (JTC1), the double roundabout junction between Stradbally Road (N80), Dublin Road (R445), Bridge Street and James Fintan Lalor Avenue (JTC2) and the proposed priority junction between Stradbally Road (N80) and the internal site access road (JTC3). The chosen junctions were subjected to capacity analysis to examine the potential traffic levels generated from the development to the existing road network.
- Automatic junction turning counts (JTCs) were undertaken by a third-party company named IDASO, on Tuesday the 16th of April 2024, at the junctions mentioned above. The recorded peak hours were between 08:00 and 09:00 for Junctions 1 and 2 in the morning, and between 16:30 and 17:30 for Junction 1, and 16:45 and 17:45 for Junction 2 in the evening. At Junction 3, peak times are noted between 08:15-09:15 in the morning and 16:15-17:15 in the evening. During the peak hours, JTC1 recorded 1476 PCUs in the morning and 16741 PCUs in the evening. In contrast, JTC2 recorded higher traffic volumes with 2048.2 PCUs in the morning and 1947.7 PCUs in the evening. Stradbally Road along the site frontage experienced lower traffic volumes with 958.5 PCUs in the morning and 1057.5 PCUs in the evening.
- The Laois County Council planning website was consulted to obtain information about committed developments near the proposed site to be included in this traffic analysis. It was found that 5No. granted planning permission and will make use of the 3No. junctions analysed, therefore, they were included in future scenarios of the junctions modelling.
- The traffic splits in the examined junctions could be calculated from the traffic counts and it is expected that the traffic from the proposed development will follow the same trend. The trip generation from the development was assessed from the TRICS database.
- The junctions were examined using *Junctions 10* software for the AM and the PM peak conditions under conservative future projections and Central background Traffic Growth for the considered year of opening, 2026, 5-years and 15-years after development conclusion.
- The proposed junctions analysed in this traffic assessment were assessed against the TII threshold and it was found that the assessed junctions were below the threshold of 5% increase in traffic, therefore a TTA was not required. Nevertheless, a TTA was compiled to illustrate the minimal impact of the proposed development on the broader road network.

- From a transportation planning perspective, the proposed residential development is not expected to adversely impact the operation of the 3No. junctions analysed. JTC1 and JTC3 are currently operating below theoretical capacity, and the additional traffic generated by the development will not lead to significant delays or queues along the road. JTC3 will continue to operate well below capacity for all future design years. However, JTC1 is anticipated to exceed capacity in the future design years assessed. Conversely, JTC2 already exceeded for both the base year scenario and will continue to operate inefficiently for the future design years, regardless of the incorporation of the generated traffic from the proposed development. Significant queues are currently observed at the junction and are anticipated in all future scenarios due to the limited available space between the two roundabouts, resulting in interference with traffic from other arms and impeding traffic flow. Nonetheless, the impact of the proposed development on each of the assessed junctions is deemed minimal and will not affect their future operation.

Appendix A – Traffic Data

Traffic data available upon request.

Appendix B – TRICS Data

TRICS data available upon request.

Appendix C – Modelling Data

Junctions10 Modelling data available upon request.

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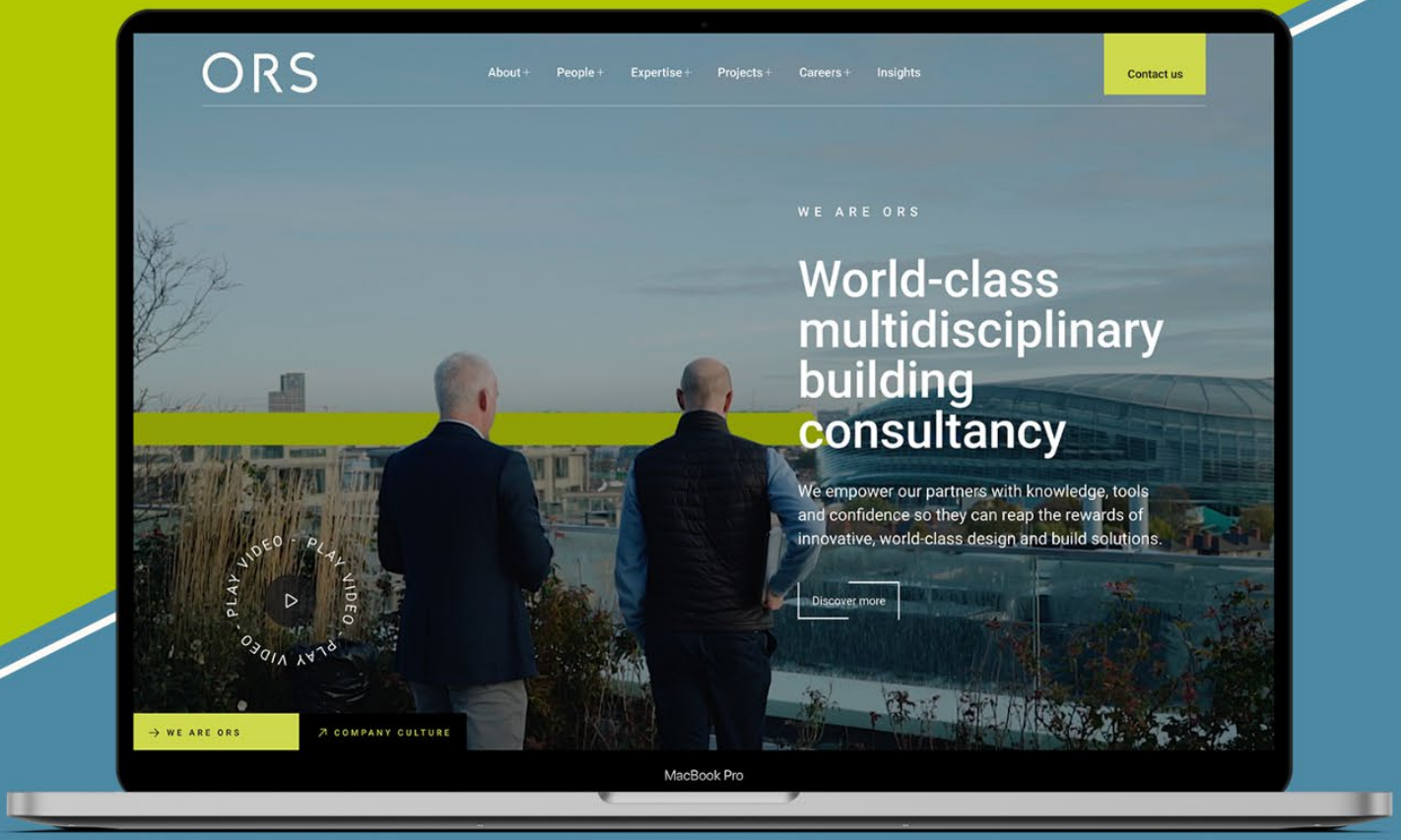

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