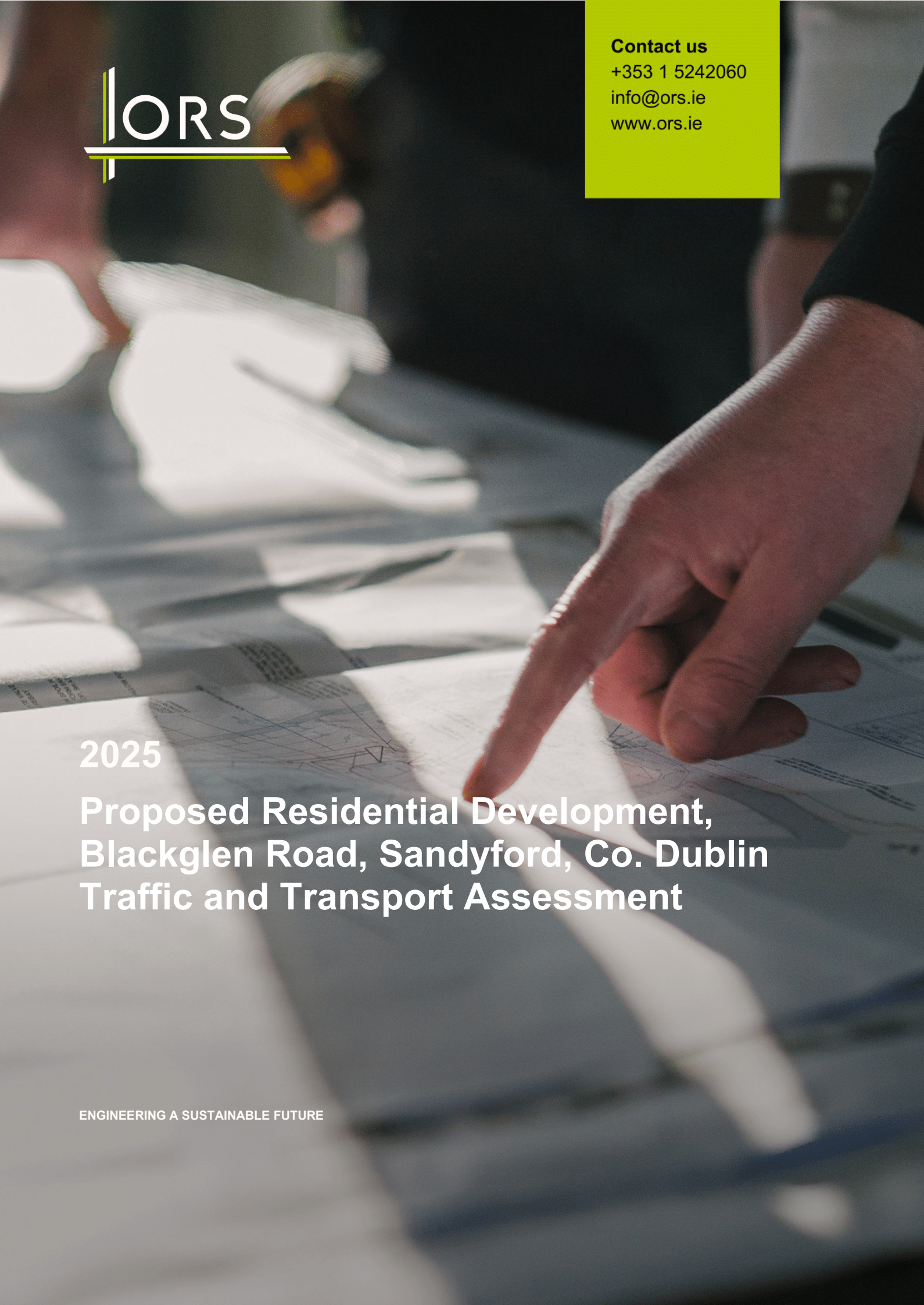

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2025

Proposed Residential Development, Blackglen Road, Sandyford, Co. Dublin Traffic and Transport Assessment

ENGINEERING A SUSTAINABLE FUTURE

Proposed Residential Development, Blackglen Road, Sandyford, Co. Dublin
Traffic and Transport Assessment

Document Control Sheet

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Executive Summary

ORS has been commissioned by Hayes Higgins Partnership to carry out a Traffic and Transport Assessment (TTA) for a proposed development comprising of 129No. residential housing units on an existing greenfield site at Blackglen Rd, Sandyford, Co. Dublin.

This TTA will examine existing and proposed traffic conditions and transport activity to determine the effects on the surrounding road network of the proposed development.

The proposed development will have a total site area of approx. 2.8ha and is located south of the M50, approximately 1.5km from Sandyford Business Park. It will involve the construction of 129No. dwellings with all associated parking (138No. car parking spaces and 168No. bicycle parking spaces), landscaping, boundary treatments, pedestrian links, public lighting, service connections and all associated site works, and vehicular, cycle and pedestrian access/egress off the regional road R113, Blackglen Road, to the south of the site.

This report will focus on 1No. junction along Blackglen Road in order to assess the impact of the proposed residential development on the road network; the junction between Blackglen Road (R113), Hillcrest Road (R113) and Enniskerry Road (R117), known as Lamb's Cross.

Automatic junction turning counts (JTC) were carried out on Wednesday 15th May 2024 at the junction mentioned above by a third-party company named IDASO. The traffic counts encompass all movements along the junction and are assumed to be representative of a normal weekday.

The Dún Laoghaire-Rathdown 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 development.

The traffic profile likely to be generated by the proposed residential development and committed developments, was obtained from TRICS (Trip Rate Information Computer System) database and split through the junction in proportion to the existing traffic flows measured in the traffic counts. These arrangements were then tested using TRANSYT (Signal Design for Network and Junctions) software for signalised junctions for the year of opening (2026), 5-year and 15-year future design scenarios. Appropriate TII Traffic Growth Factors for Co. Dublin 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 junction, to assess the potential worst-case scenarios associated with the development. The results showed that the trip generation associated with the proposed development will not significantly increase the Degree of Saturation of the junction subject of this traffic assessment.

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

1 Introduction

The purpose of this Traffic and Transport Assessment is to address the traffic and transport-related issues that may arise in relation to the proposed residential housing development at Blackglen Rd, Sandyford, Co. Dublin, and how the development will integrate with the existing traffic flows in the vicinity of the site.

This report will follow the principles set out in the TII Publication PE-PDV-02045 'Traffic and Transport Assessment Guidelines' 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 the Traffic and Transport Assessment

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 the junction between Enniskerry Road (R117) and Blackglen Road (R113), known as Lamb's Cross.

Refer to **Figure 1.1** below which shows the junction selected for this assessment.

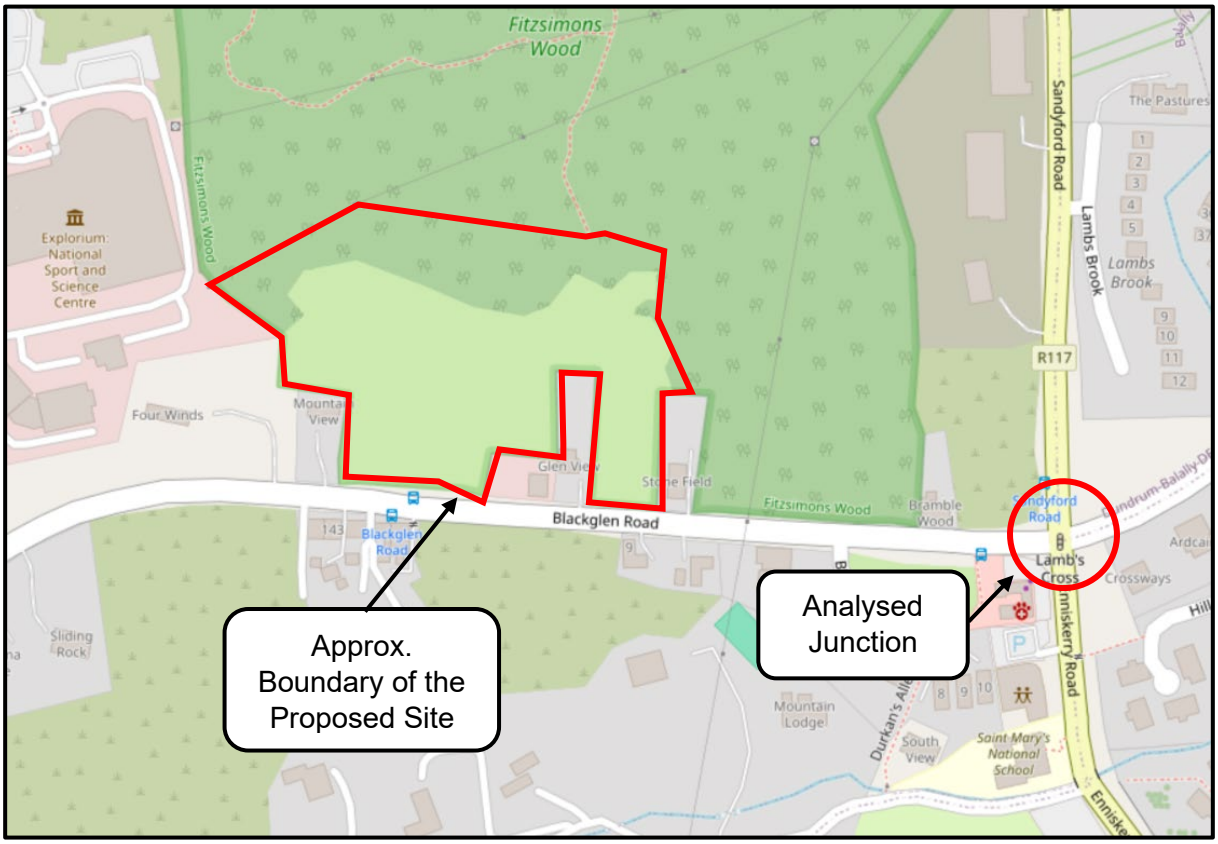

Figure 1.1: Location of Analysed Junction (Source: OpenStreetMap)

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.
- The pedestrian and cyclist connectivity in the vicinity of the development.
- The parking requirements for the site.

1.2 Methodology

The Transport Infrastructure Ireland (TII) Publication PE-PDV-02045, published in May 2014 sets out the methodology to be followed in any given Traffic and Transport Assessment. 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) taken on Wednesday 15th May 2024 at the Lamb's Cross junction by a third-party company named IDASO. The traffic counts encompass all movements along the junction and are assumed to be representative of a normal weekday.
- The traffic data was factored up using appropriate TII Traffic Growth Rates for Co. Dublin to represent current scenarios.
- The 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 residential development.
- The predicted traffic to be generated by the residential development and committed developments was obtained using TRICS (Trip Rate Information Computer Centre) traffic generation software.
- The junction was modelled using the TRANSYT software for future design years using Central Sensitivity Growth Factors for Co. Dublin to obtain the existing and proposed traffic profiles at the junctions analysed for the year of opening (2026), 5-year and 15 years after the completion of the proposed development.
- Parking requirements were assessed against parking standards set in Table 12.5 of the Dún Laoghaire Rathdown County Development Plan 2022 – 2028 and in 'The Sustainable Urban Housing: Design Standards for new Apartments'.

2 The Proposed Development

2.1 Development Site Location

The proposed residential development site is located to the south of the M50 and to the north of Blackglen Road, approximately 300m west of the Lamb's Cross in Sandyford, Co. Dublin.

The site is surrounded by urban developments of new and existing housing estates; to the north it is bounded by Fitzsimons Woods Proposed Natural Heritage Area, with the National Sports and Science Centre on the western boundary and an area of land known as Gorse Hill on the eastern boundary. There are a number of stand-alone dwellings along the southern boundary of the site, all with access to the Blackglen Road. The site comprises of rough pasture and dense scrub vegetation. Access to the development will be provided via the existing entrance to the site off Blackglen Road.

Figure 2.1 shows the site location.

Figure 2.1: Site Location (Source: OpenStreetMap)

2.2 Existing Premises and Land Use

According to Dún Laoghaire-Rathdown County Development Plan 2022 – 2028 land zoning maps, the location of the proposed development is under 'Objective A: to provide residential development and/or protect and improve residential amenity'.

Figure 2.2 shows the existing land use map.

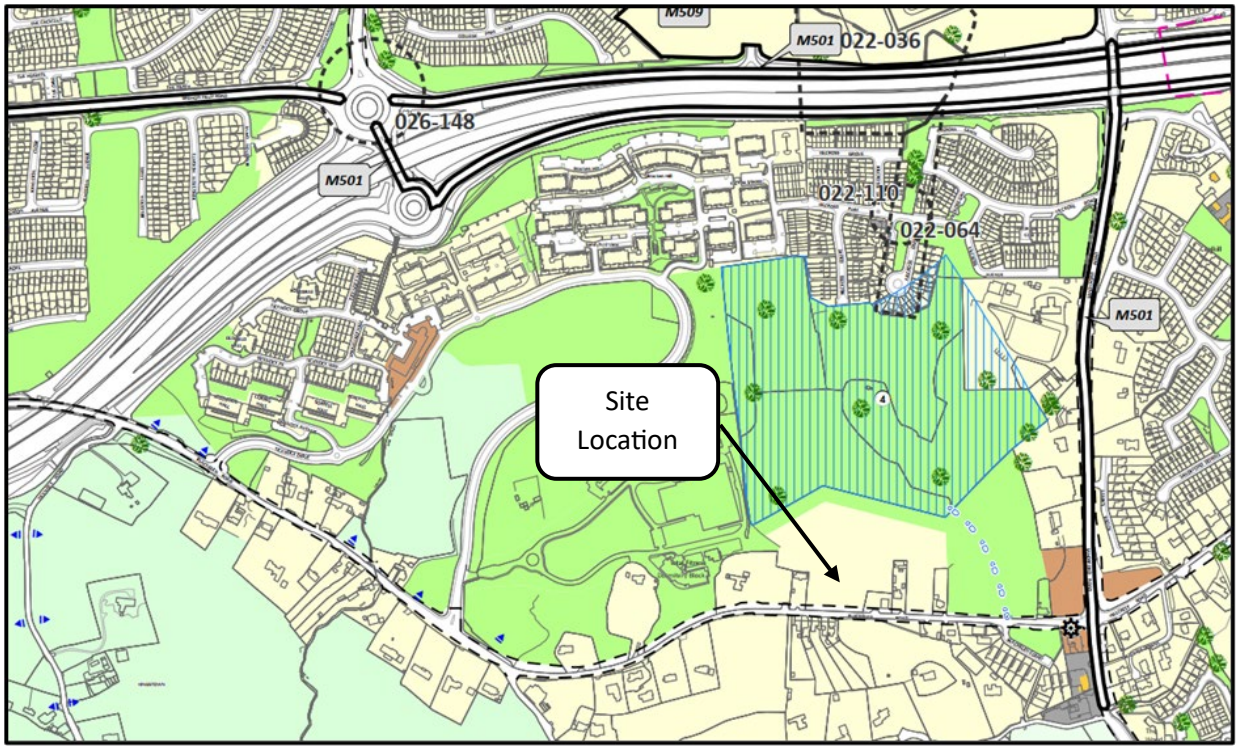

Figure 2.2: Land Use Zoning Objectives Map (Source: Dún Laoghaire-Rathdown CDP 2022 – 2028)

2.3 Description of the Proposed Development

The proposal put forward by Hayes Higgins Partnership is to construct 129No. houses and apartments consisting of:

- 24No. Affordable units,
- 32No. Cost Rental units,
- 73No. Social units including 1No. High support unit.

The proposal includes all necessary infrastructure such as landscaping, boundary treatments, pedestrian links, public lighting and service connections. Ancillary site development works will also be undertaken, facilitating pedestrian, cycle and vehicular access/egress with Blackglen Road.

The proposed layout includes 138No. car parking spaces and 168No. bicycle spaces.

Figure 2.3 overleaf shows the proposed site layout.

Figure 2.3: Proposed Site Layout (Source: JFOC Architects)

2.4 Accessibility and Parking

The Dún Laoghaire-Rathdown Development Plan 2022 – 2028 states as a key objective to follow the 'Avoid-Shift-Improve Model' approach. This model aims to shift to more environmentally friendly modes of transport and improve the energy efficiency of transport modes. The approach changes the emphasis from moving vehicles to moving people with the aim to reduce congestion, create more lively cities and reduce greenhouse gas emissions.

The proposed residential development is located in a peripheral but transitional area, south of the M50 and west of Lamb's Cross. The area of the development has a relatively low density, however, is easily accessed through the extensive road network. Footpaths and cycle lanes run along Blackglen Road adjacent the site entrance, which will be connected to the footpath network within the site layout.

2.4.1 Site Access

The residential scheme will be accessed through a proposed stop-controlled for vehicles, combined with pedestrian access off Blackglen Road (R113) to the south of the site, as shown in **Figure 2.4** overleaf. All traffic associated with the proposed residential development will access the site via Blackglen Road.

According to the proposed layout, site access will serve as a priority T-junction for both entry and exit purposes. The internal road widens on the approach to the junction to provide an

additional flare for traffic turning.

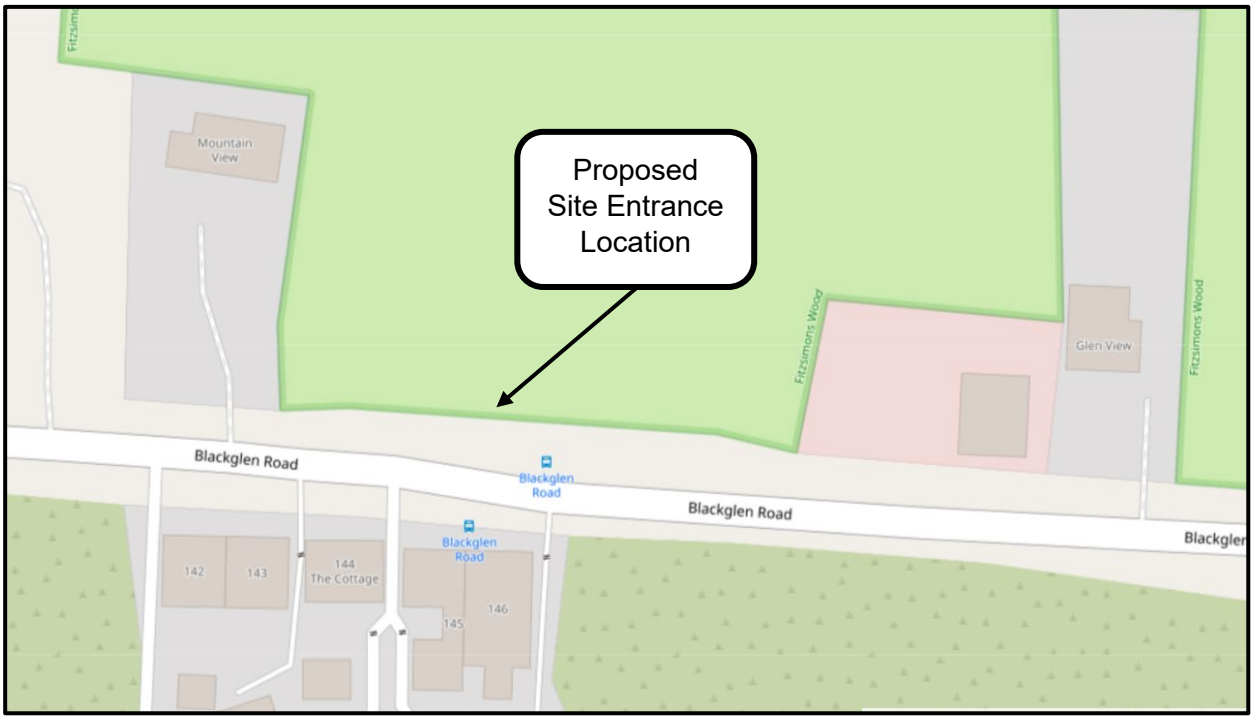

Figure 2.4: Proposed Development Site Access (Source: OpenStreetMap)

Blackglen Road features footpaths and cycle lanes on both sides to accommodate site users arriving on foot/ bicycle, in accordance with the Design Manual for Urban Roads and Streets (DMURS) guidelines.

Please refer to **Figures 2.5** to **2.7** for visualisation of current arrangements.

According to DMURS, the desired sightline for a 50 km/h road with a 2.4m setback is 49m, especially when the road serves a bus route. Therefore, sightlines of over 49m must be achievable in both directions from the site access onto Blackglen Road.

Figure 2.5: Proposed Site Access Location (Source: ORS, 17/06/2024)

Figure 2.6: View of Blackglen Road to the East from the Proposed Site Access, on the approach to Lamb's Cross Junction (Source: ORS, 17/06/2024)

Figure 2.7: View of Existing Boundary Arrangements at the Site Frontage, Along Blackglen Road (Source: ORS, 17/06/2024)

2.4.2 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 feature an internal road off the access point, which includes an additional flare to accommodate turning traffic. The internal road extends to the northwest, with a branch leading to the east and then southeast of the site.

The site will feature pedestrian access routes positioned alongside the internal roads, providing access to the dwellings and ensuring safe movement for pedestrians and cyclists.

2.4.3 Servicing Arrangements

The internal road network is primarily designed to accommodate private vehicles, which is the main vehicle type to use in the residential housing development. Adequate provision to facilitate the circulation and turning movements of emergency vehicles and bin collection vehicles has been provided within the site. An Autotrack analysis should also be 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.

2.4.4 Car Parking Availability

Chapter 12 of the Dún Laoghaire-Rathdown County Development Plan 2022 – 2028 was consulted to obtain the car parking standards for the proposed housing development. The document states in Table 12.5 the car parking spaces required for new developments and apartments located in Zone 3 – Remainder of the County (non-rural) areas. It is stated that ‘Within parking Zone 3 maximum standards shall apply to uses other than residential where the parking standard shall apply’ and that ‘In some instances, in Zone 3 reduced provision may be acceptable.’

The proposed residential development will provide a total of 129No. dwellings and aims to have 138No. parking spaces (1No. per dwelling and 9No. visitor spaces). The 138No. parking spaces are in accordance with the requirements set under the development plan, as shown in **Table 2.1**. The reduction in car park availability is also in accordance with the publication ‘The Sustainable Urban Housing: Design Standards for new Apartments’ where the guideline for intermediate urban locations is ‘to reduce the overall car parking standard and apply an appropriate maximum car parking standard.’ Therefore, the proposal complies with the requirements. The car parking standards are summarised in **Table 2.1**.

The Development Plan determined that for residential developments, 4% of the car parking provision shall be suitable for disabled persons. The proposal should include minimum 7No. disabled parking bays, which corresponds to 4%, to be in accordance with the guidelines. It is proposed to provide 8No. disabled parking bays.

The development plan also states that new residential developments shall provide EV parking spaces: a minimum of 1No. per 5No. spaces. For 138No. proposed parking spaces, 28No. will be EV parking spaces including:

- 14No. 2.4m x 4.8m EV spaces;
- 14No. EV spaces to the new ZEVI design.

Table 2.1 – Car Parking Standards			
Land Use	**Space per Unit**	**Spaces Required**	**Spaces Provided**
1 – 2 Bed	1	Maximum 116	129
3 Bed	Maximum 2	Maximum 22	
Visitor Parking	Maximum 1 in 10	Maximum 13	9
Disabled Parking	Minimum 4%	Minimum 7	8
EV parking	Minimum 1 in 5	Minimum 28	28

Future residents of the development will avail of extensive, recently upgraded cycle network and public transport, which will reduce the need for private transport, therefore, the reduced car parking spaces are deemed to be sufficient and in accordance with current guidelines.

2.4.5 Cycle Storage

The *Standards for Cycle Parking and Associated Cycling Facilities for New Developments*, published by the Council, was consulted in order to obtain the quantity of bicycle parking spaces the proposed residential development shall provide. **Table 2.2** below summarises the contents of Table 4.1 of the document. As the development will have 129No. residential units, the total of bicycle parking spaces should be minimum 129No. for residents and 25No. for visitors, 154No. in total. The site is proposed to provide 164No. parking spaces.

In the Design Standards for New Apartments publication, the quantum of bicycle parking spaces provided should be a minimum of 1No. space per bedroom in apartments. It does not apply to all the proposed units as they are not all apartments.

However, if transport modal splits change, car parking spaces could be reduced and more bicycle storage introduced, as one car parking space can be reallocated to accommodate 6-10 bicycles.

Table 2.2 – Cycle Parking Availability				
Type of Space	**Guidelines**	**Minimum Parking Spaces**	**Spaces Required**	**Proposed Spaces**
Short stay (visitor) parking	DLR Development Plan	1 bicycle space per 5 units	25	164
Long stay parking	DLR Development Plan	1 space per unit	129	

3 Existing Traffic Conditions

3.1 Existing Road Network

The site access is located off Blackglen Road (R113), to the south of the site. All traffic associated with the residential development will access the site through Blackglen Road (R113).

Blackglen Road is a single carriageway of approximately 6.5 metres in width which caters for two-way traffic flow. The road runs east to west connecting the site to Enniskerry Road (R117) to the east and to Harold's Grange Road to the west. The speed limit along Blackglen Road is 50 km/h.

At approximately 350 metres from the site entrance is located Lamb's Cross, a signalised crossroads that connects Blackglen Road, Hillcrest Road, Enniskerry Road and Sandyford Road. All roads widen on the approach to the junction to provide an additional flare for traffic turning, and toucan crossings are provided on all approaches of the junction.

The roads and junction included in this assessment are existing and in active usage; as such, their condition and suitability for purpose are not subject to assessment as part of this report.

For visual details of Lamb's Cross, please refer to **Figures 3.1** and **3.2**.

Figure 3.1: View of Lamb's Cross Junction As Someone Approaches From Enniskerry Road (Source: ORS, 17/06/2024)

Figure 3.2: Signalised Pedestrian Crossing at the Lamb's Cross Junction (Source: ORS, 17/06/2024)

Road works have been recently carried out along Blackglen Road (R113) in the vicinity of the proposed residential development. The Blackglen Road/ Harold's Grange Road Improvement Scheme works included the construction of approximately 3km of single carriageway in the Sandyford and Rathfarnham area, bus stop upgrades, construction of footpaths and cycleways, road drainage, public lighting, installation of toucan crossings and public realm improvements. The bus stops located at Lamb's Cross have been upgraded to a Quality Bus Corridor, which will enhance the connectivity of the neighbourhood and consequently the development.

3.2 Pedestrian and Cyclist Connectivity

The proposed residential development is located near several schools and employment sites in Sandyford. **Figure 3.3** below shows that there are 3No. schools located to the east of the development, which can be accessed through the footpath and cycle lanes infrastructure provided, in less than 20-minute walking.

Regarding employment areas, to the northeast of the site lies the Sandyford Business District, which extends to approximately 190 hectares and employs over 20,000 people and can be accessed in less than 30 minutes walking from the site.

Figure 3.3: Locations near the Proposed Development. Approximate Site Location Marked With Green 'X' (Source: Map ©Google Earth)

In Policy Objective **T1** - *Integration of Land Use and Transport Policies*, the Dún Laoghaire-Rathdown County Development Plan 2022 – 2028 aims to '*actively support sustainable modes of transport and ensure that land use and zoning are aligned with the provision and development of high-quality public transport systems.*' The overall policy approach is to provide attractive high-quality inclusive and connected walking and cycling networks with direct routes to local destinations and public transport hubs.

Policy Objective **T11** - *Walking and Cycling is to secure the development of a high quality, fully connected and inclusive walking and cycling network across the County and the integration of walking, cycling and physical activity with placemaking including public realm permeability improvements*.

The map shown in **Figure 3.4** illustrates the available cycleways in the vicinity of the site. The closest cycle lane is on the Blackglen Road.

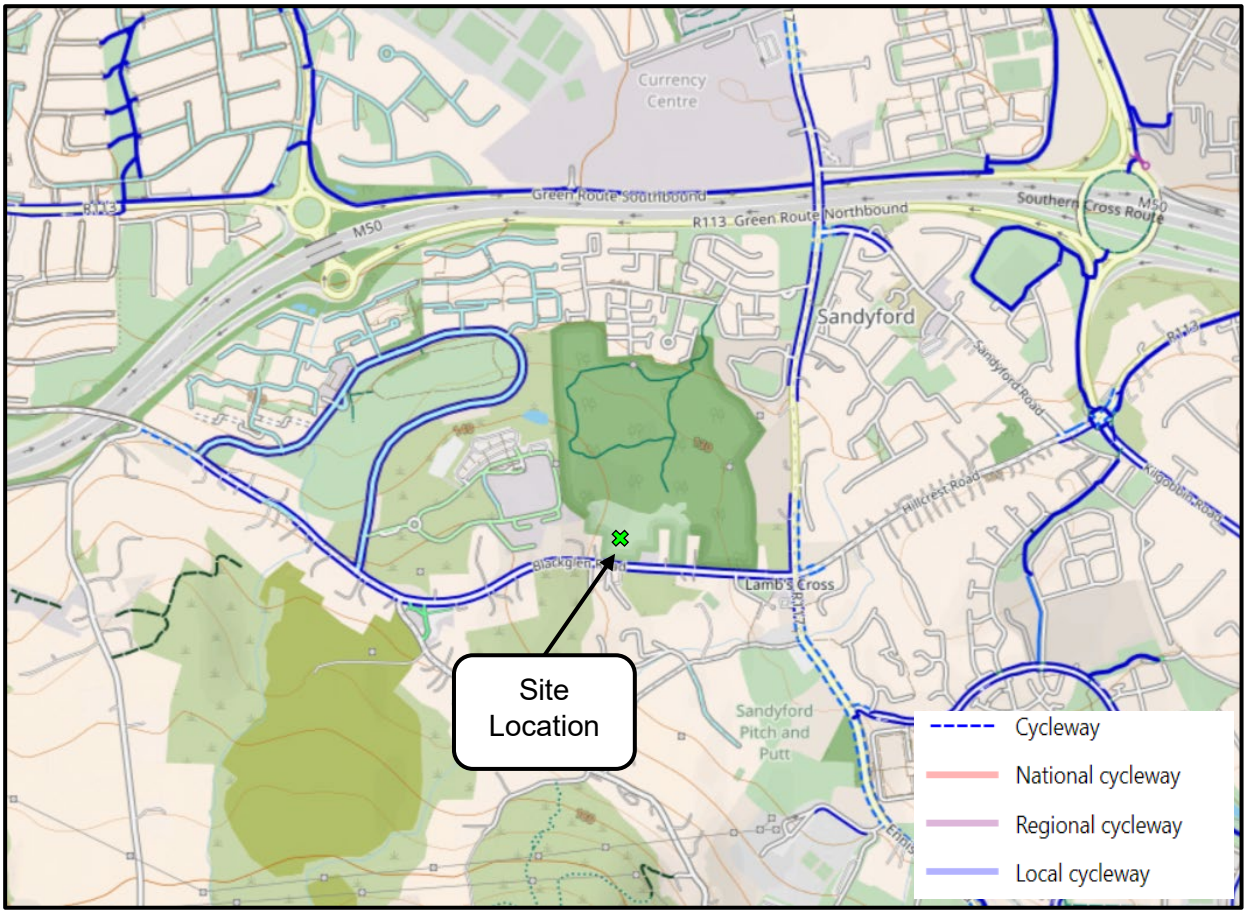

Figure 3.4: Cycleways in vicinity of the site (Source: OpenStreetMap)

3.3 Sustainable Transport and Public Transport Provision

There are 2No. bus stops located adjacent to the site entrance.

The 3494 and 3533 bus stops to the south of the site operate both Dublin Bus and Go-Ahead Ireland routes 44B and 114. The Dublin Bus 44B service operates only 5No. times a day from Monday to Friday in each direction and the Go-Ahead Ireland 114 route operates on an hourly basis during weekdays.

Figure 3.5 overleaf shows the locations of the bus stops.

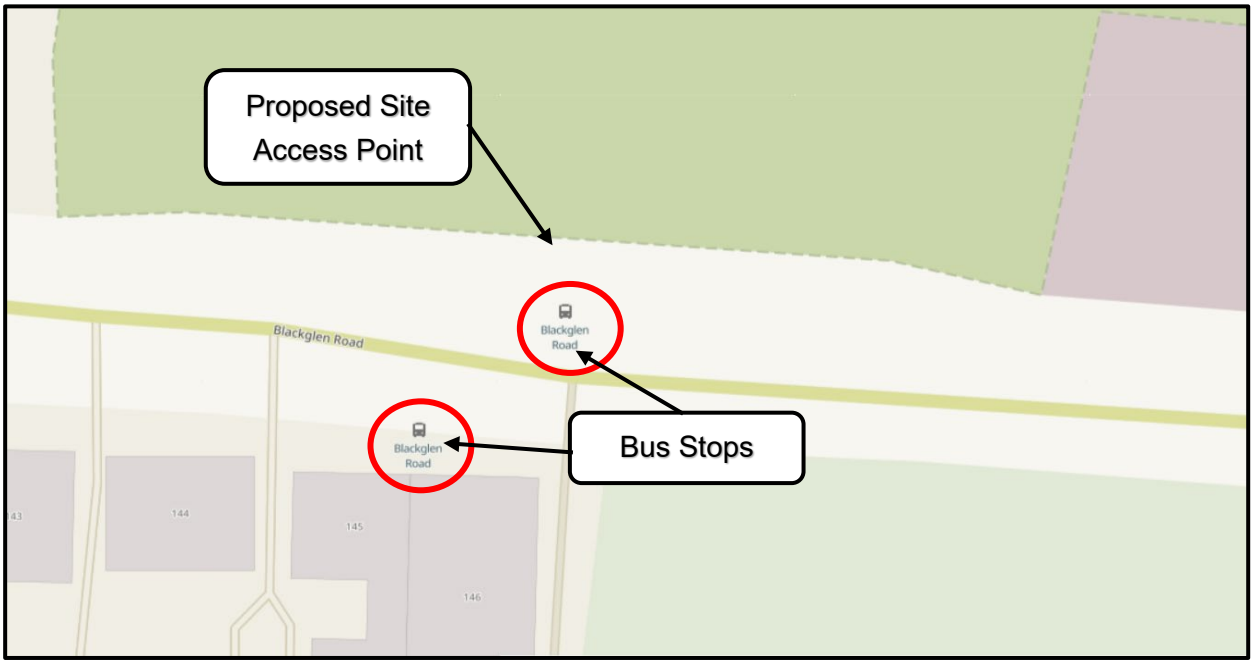

Figure 3.5: Bus Stops Located near Site Entrance (Source: OpenStreetMap)

Approximately 7-9 minutes cycling from the site is located the Glencairn LUAS stop, serving the LUAS green line (see **Figure 3.6** below) in a frequency of approximately 9 minutes during peak hours and 16 minutes during off-peak hours on weekdays. The green line connects the Cherrywood Business Park to the south to Broombridge, Cabra, to the north.

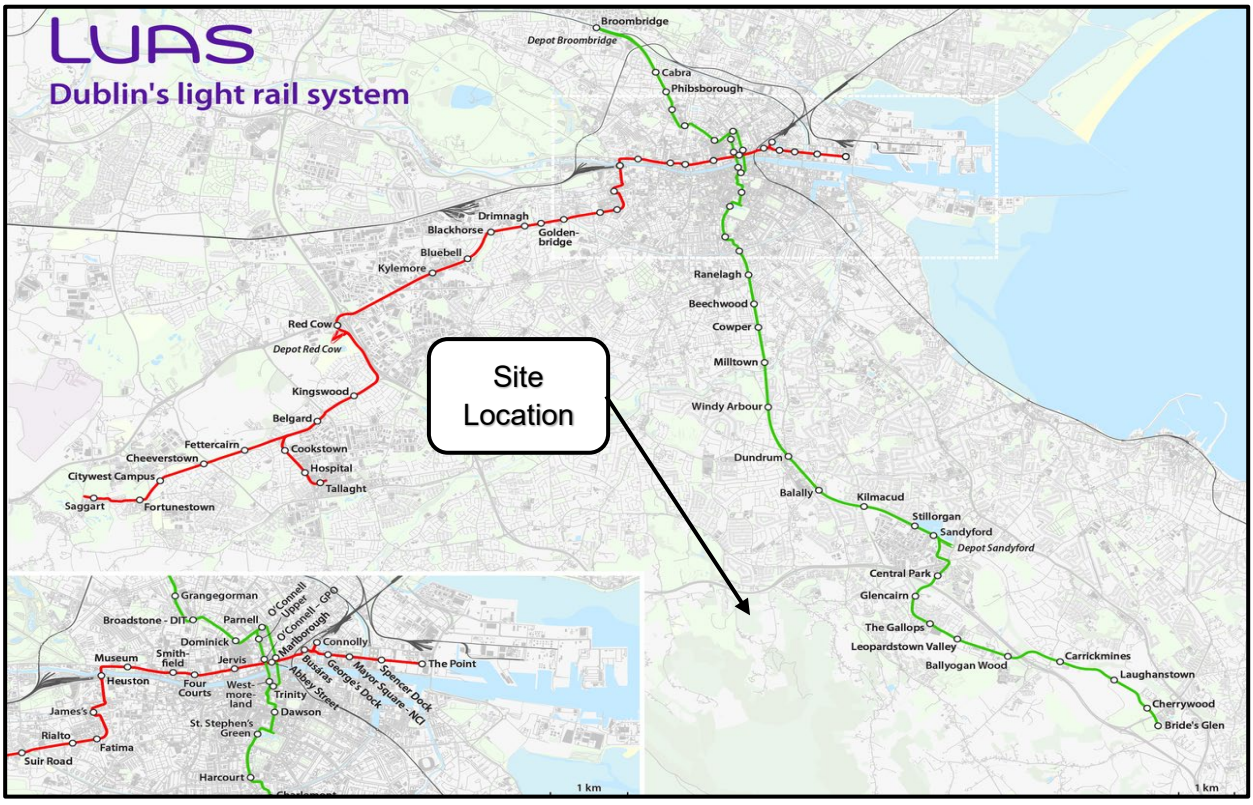

Figure 3.6: LUAS Lines (Source: luas.ie)

Figure 3.7 demonstrates public transport routes in the vicinity of the site.

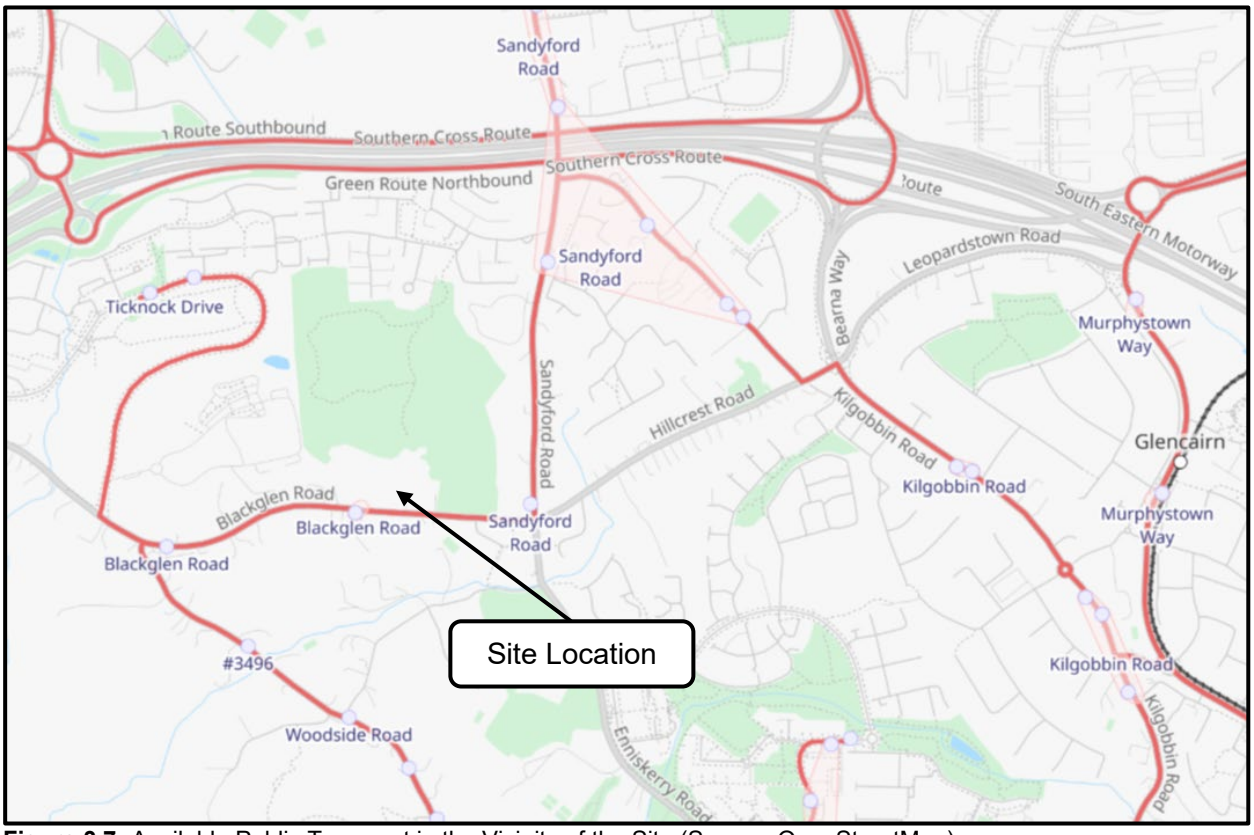

Figure 3.7: Available Public Transport in the Vicinity of the Site (Source: OpenStreetMap)

3.4 Existing Traffic Flows

Traffic counts have been undertaken at Lamb's Cross junction on Wednesday the 15th of May 2024 by a third-party company named IDASO Ltd. 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 junction. The traffic counts cover movements of pedal cycles, cars, taxis, buses, LGVs, and HGVs, and the final traffic numbers are presented in the form of Passenger Car Units (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, it could be observed that the highest traffic occurs between 08:00 and 09:00 during the AM period and between 17:00 to 18:00 in the evening period. **Figure 3.8** shows the traffic obtained at the junction on the day of the counts and **Table 3.2** summarises the AM and PM traffic flows.

The traffic data shows that in the morning peak, the majority of traffic passing along the junction is on the Enniskerry Road heading northbound, and in the evening, is on the same road in the opposite direction.

Table 3.1 overleaf summarises the AM and PM peak traffic flows.

Table 3.1 - May 2024 Traffic Counts		
Junction Name	**08:00 – 09:00**	**17:00 – 18:00**
Lamb's Cross	1692 PCU	1586 PCU

Figure 3.8: Counted Traffic at Lamb's Cross

3.5 Traffic Collisions Data in the Vicinity of the Site

Traffic collisions data 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 future housing scheme.

4 Trip Generation, Distribution and Impact on the Road Network

4.1 Traffic Generation and Distribution Slips

In order to obtain a comparative trip rate for the residential development once operational, the TRICS database was consulted. The TRICS (Trip Rate Information Computer System) 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.

4.1.1 TRICS Database Survey

Presently, the site location is a green field and therefore generates no traffic. The privately owned houses are the worst-case scenario for the traffic generation to/from a residential development. Therefore, the proposed residential development was assessed as ‘Houses Privately Owned’ (as opposed to 'Affordable/ Local Authority Houses') from the TRICS data, with a calculation factor by dwelling.

Table 4.1 below and **Table 4.2** overleaf show the trip data for the 129No. housing units.

Table 4.1 – TRICS output for Residential Developments

TRICS 7.10.2						
Trip Rate Parameter: NUMBER OF DWELLINGS						
TRIP RATE for Land Use 03 – RESIDENTIAL / A - HOUSES PRIVATELY OWNED						
Calculation Factor: 1 DWELL						
Count Type: TOTAL VEHICLES						
TIME RANGE	ARRIVALS			DEPARTURE		
	No. Days	Ave. DWELL	Trip Rate	No. Days	Ave. DWELL	Trip Rate
07:00-08:00	147	137	0.074	147	137	0.281
08:00-09:00	147	137	**0.146**	147	137	**0.363**
09:00-10:00	147	137	0.132	147	137	0.162
10:00-11:00	147	137	0.118	147	137	0.138
11:00-12:00	147	137	0.127	147	137	0.136
12:00-13:00	147	137	0.146	147	137	0.144
13:00-14:00	147	137	0.151	147	137	0.145
14:00-15:00	147	137	0.159	147	137	0.177
15:00-16:00	147	137	0.244	147	137	0.169
16:00-17:00	147	137	0.263	147	137	0.156
17:00-18:00	147	137	**0.336**	147	137	**0.162**
18:00-19:00	147	137	0.266	147	137	0.152
19:00-20:00	6	66	0.111	6	66	0.106
20:00-21:00	6	66	0.116	6	66	0.083
Daily Trips Rates:			**2.389**			**2.374**

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 residential units (129).

Table 4.2 – Expected Traffic from the Residential Development			
Time Range	**Arrivals**	**Departures**	**Total**
08:00-09:00	19	47	66
17:00-18:00	43	21	64

As mentioned before, the results shown in **Table 4.2** can be considered conservative.

4.2 Cumulative Impact

As part of this Traffic Assessment, to assess the existing and proposed traffic along the junction analysed in this report, the Dún Laoghaire-Rathdown County Council planning website was consulted to establish if any previous Traffic and Transport Assessments were carried out in the vicinity of the proposed development.

The planning application ABP31445922 was for the construction of a Strategic Housing Development on a site of c. 3.7 ha at Blackglen Road and Woodside Road, Sandyford, Dublin 18, consisting of 360No. residential units and a creche facility of approx. 401 sq. m. Although this planning application was refused, it would be beneficial to include it in the analysis as a worst-case scenario, in case it receives permission in the future. As part of the application, a Traffic Impact Assessment was submitted on 19 July 2022, and traffic counts were carried out in 5No. junctions in the vicinity of the site in July 2018. The assessment has shown no issues are created by the inclusion of the proposed development.

The expected traffic from this Strategic Housing Development is described in **Table 4.3**.

Table 4.3 – Total Typical Daily Generated Profile by ABP31445922 at Lamb's Cross			
Residential:			
Time Range	**Arrivals**	**Departures**	**Total**
08:00-09:00	11	35	46
17:00-18:00	40	22	62
Creche:			
08:00-09:00	15	15	30
17:00-18:00	12	15	27
TOTAL:			
08:00-09:00	26	50	76
17:00-18:00	52	37	89

A mixed-residential housing estate Four Winds consisting of 31No. residential units is proposed to be constructed at Blackglen Road, Sandyford, Dublin 18, on a site adjacent to the proposed

residential development. A Traffic Impact Assessment was carried out in June 2024, using traffic counts taken at the Lamb's Cross in May 2024. The assessment has shown no issues are created by the inclusion of the proposed development.

The expected traffic from Four Winds is described in **Table 4.4**.

Table 4.4 – Expected Traffic from Four Winds development			
Time Range	**Arrivals**	**Departures**	**Total**
08:00-09:00	1	3	4
18:00-19:00	3	2	5

Figure 4.1 shows the committed developments in the vicinity of the proposed development, while **Table 4.5** summarises the expected traffic from the committed developments.

Figure 4.1: Committed Developments in the vicinity of the Proposed Development (Source: Google Maps)

Table 4.5 – Expected Traffic from Committed Developments			
Time Range	**Arrivals**	**Departures**	**Total**
08:00-09:00	27	53	80
18:00-19:00	55	39	94

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 were 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 4.6**, **Table 4.7** and **Table 4.8**.

Table 4.6 – Development Location Information	
Location of Development	Dublin
Sensitivity Area	Central
Year of Traffic Counts	2024
Year of Assessment	2024
Year of Development Construction	2026

Table 4.7 – TII Annual Growth Rates (Central Growth) For Co. Dublin	
2016 – 2030	1.0162
2030 – 2040	1.0051
2040 – 2050	1.0044

Table 4.8 – Growth Factors for Future Design Years					
Counts	**Assessment Year**	**Opening**	**Opening +5**	**Opening +10**	**Opening +15**
2024	2024	2026	2031	2036	2041
1.000	1.000	1.033	1.107	1.135	1.164

4.4 Generated Traffic Splits at the Junction

Based on the traffic counts obtained at Lamb's Cross junction in May 2024 and factored up using Traffic Infrastructure Ireland (TII) traffic growth for Co. Dublin, the travel distribution was established, and the traffic generated by the proposed residential development will follow the same trend.

For the purpose of this Traffic Assessment, it has been assumed that the proposed development will be operational in 2026. The projected 2026 traffic along Lamb's Cross could be calculated by applying the TII's central growth factor for Co. Dublin on the traffic counts carried out in May 2024. Based on the traffic levels expected at the junction, the expected impact of the construction of the proposed development could be determined, as shown in **Table 4.9**.

The TII document Traffic and Transport Assessment Guidelines, publication PE-PDV-02045 and the Dún Laoghaire-Rathdown Development Plan 2022 – 2028 state that a Traffic and

Transport Assessment should be carried out if a new development exceeds 5% of the traffic flow on the adjoining road where congestion exists or exceeds in 10% where no congestion is assumed to exist. From the traffic counts obtained and the trip generation associated with the residential development, it can be observed from the data provided in **Table 4.9** that there will be no negative effect on the functionality of Lamb's Cross and the proposed development will provide a subthreshold impact on the junction both during the AM and the PM peak.

Table 4.9 – Traffic Impact at Lamb's Cross

Peak Traffic	2026 Projected Traffic	Traffic from Development	Increase in Traffic	TII Threshold of 5%
AM	1981	66	3.33%	Below
PM	1888	64	3.39%	Below

Figures 4.4 and **4.5** display the expected levels of traffic generated by the proposed development on the assessed junction for the proposed year of development conclusion, assumed 2026.

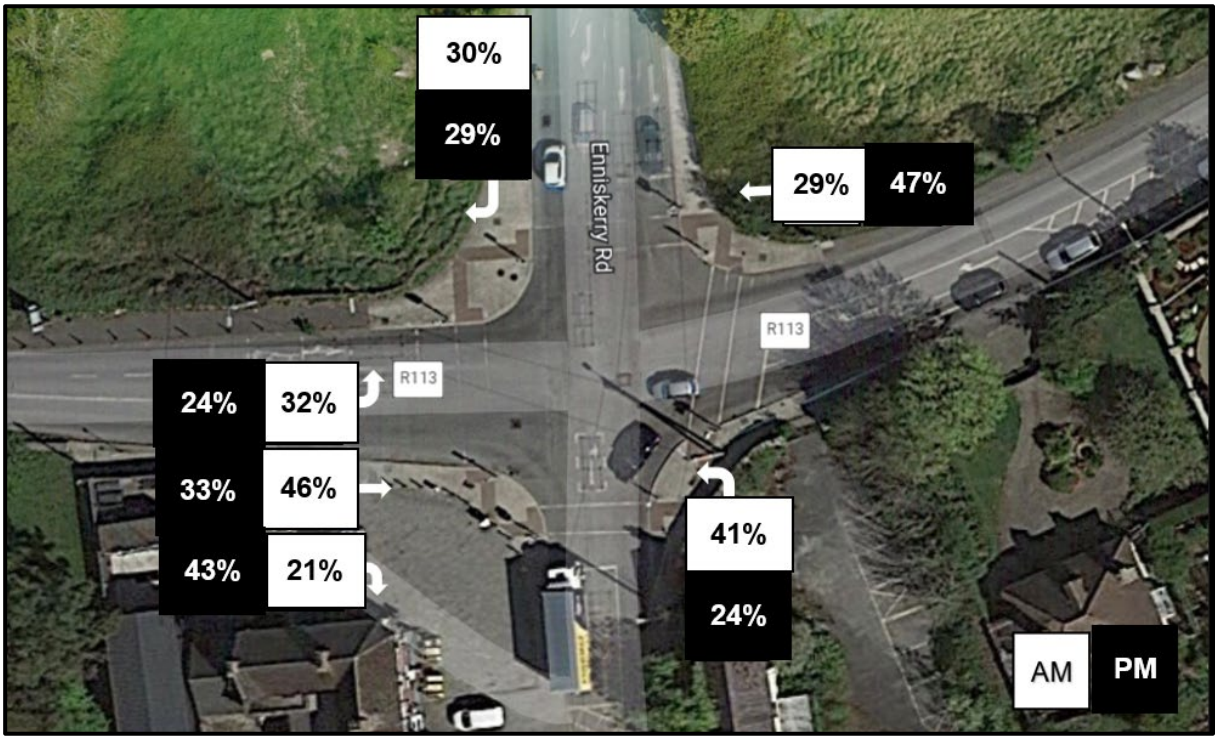

Figure 4.2: Proportion of Traffic to/ from the Development Splits at Lamb's Cross (Source: Google Maps)

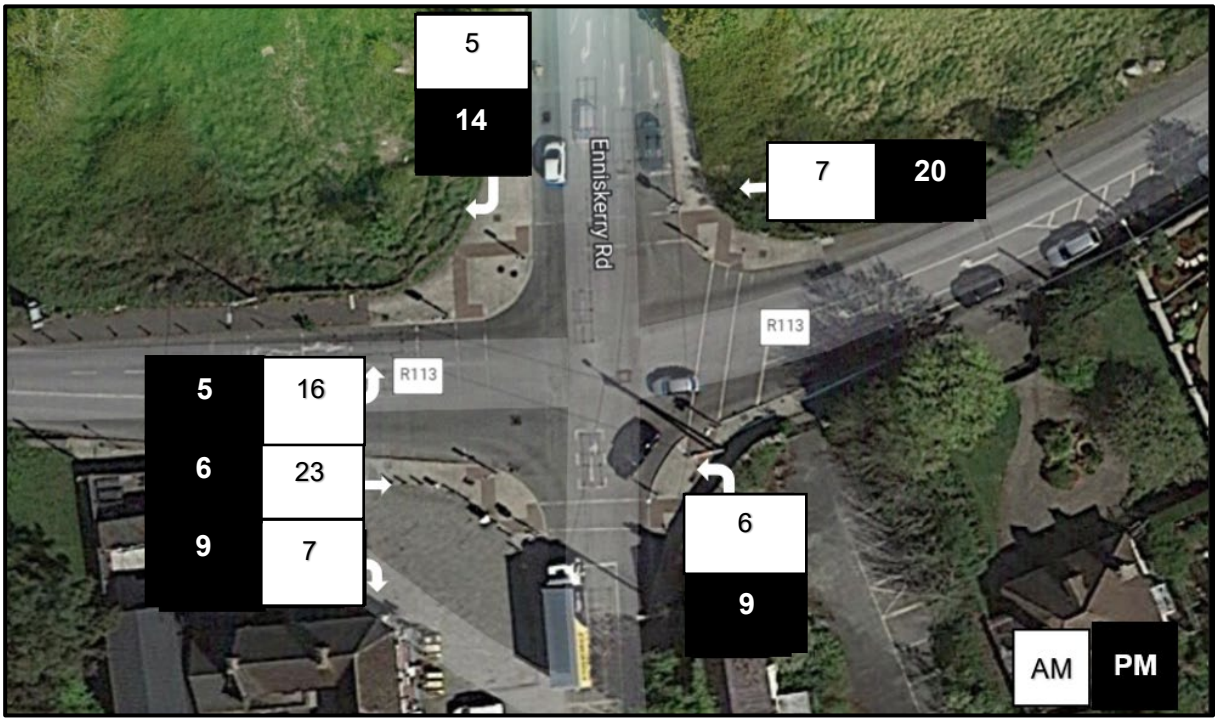

Figure 4.3: Traffic to/ from the Development Splits at Lamb's Cross (Source: Google Maps)

4.5 Traffic and Transport Assessment Guidelines

TII Publication PE-PDV-02045 and the Dún Laoghaire-Rathdown Development Plan 2022 – 2028 recommend 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 outlined in **Table 4.10** below. As discussed in **Section 4.5** above, the development is likely to generate an increase of less than 5% on the existing Lamb's Cross, where congestion is considered to exist during peak periods.

As outlined in **Section 4**, the traffic generated by the development accounts for 65No. vehicles in the AM period and 63No. in the PM period. Lamb's Cross is a signalised crossroad with a total of over 15,000 vehicles recorded during a 12-hour period.

On this basis the TII Publication 'Traffic and Transport Assessment Guidelines', PE-PDV-02045, was consulted and it found that the development did not meet any requirements for a Traffic and Transport Assessment.

Table 4.10 below provides the thresholds for a Traffic and Transport Assessment.

Table 4.10 – Traffic Management Guidelines Thresholds for Transport Assessments (TII)	
No	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
No	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

Blackglen Road currently experience no congestion, and the increase in traffic from the proposed site falls below the TII threshold of 5% increase for junction modelling, therefore, a Traffic Assessment is not required. However, to demonstrate the proposed development will not negatively affect the public roads, a modelling was undertaken on the junction.

5 Capacity Analysis

5.1 Capacity Analysis Introduction

A capacity assessment was undertaken on Lamb's Cross signalised crossroads in order to reinforce the point that the additional traffic from the proposed housing development will not adversely affect the capacity of the junction. The performance of the junction during the AM and PM peak hours was assessed using the software for signalised junctions, TRANSYT, for the following design years:

- 2024, base year
- 2026, planned year of the residential housing development conclusion
- 2031, 5 years after conclusion
- 2041, 15 years after conclusion.

Figure 5.1 below shows the junction for which traffic simulation was undertaken in order to obtain the Degree of Saturation value and the queue levels to determine whether the junction will cater for the predicted level of traffic from the proposed residential scheme.

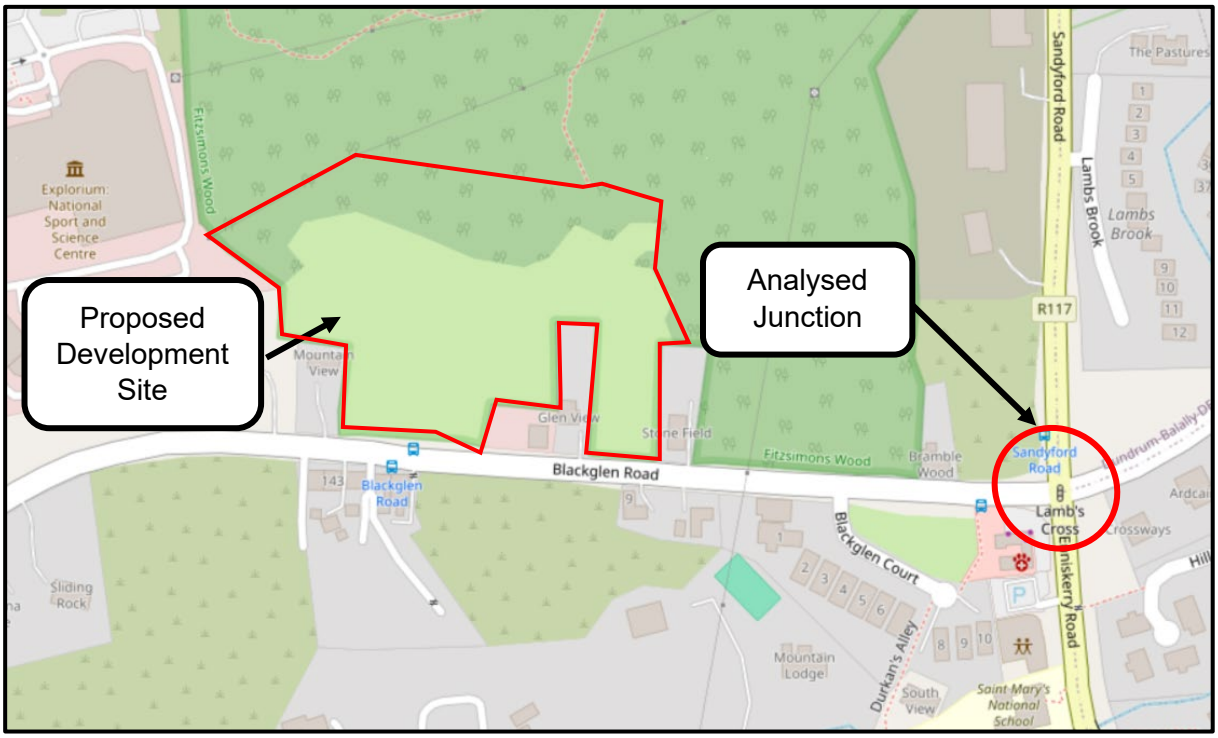

Figure 5.1: Location of Junction Analysed (Source: OpenStreetMap)

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

As stated in **Section 3.4**, traffic counts were undertaken at the junction location on Wednesday the 15th of May 2024, a typical weekday. Central Sensitivity traffic growth rates for Co. Dublin were applied to the existing background traffic and were not applied to the proposed development, as the potential traffic is limited by the development size. The junction was modelled using TRANSYT software.

The capacity assessment was modelled for three different scenarios:

- Base-year: 2024 traffic flows modelled according to traffic counts obtained in May 2024.
- Do-nothing: modelled without the intervention of the proposed development. For this analysis, the traffic counts were factored up using TII's Central Growth Factor for the design years, 2026, 2031 and 2041. The committed developments ABP31445922 and Four Winds mentioned previously were also added to this analysis.
- Do-something: the impact of the traffic generated by the proposed development was added to the design years 2026, 2031 and 2041. This analysis will enable the comparison with the 'Do-nothing' scenario.

In the following analyses of Lamb's Cross, the junction was assessed for AM and PM peak periods and the arms were labelled as follows, see **Figure 5.2** below:

- Arm A: R117 North (Sandyford Road)
- Arm B: Hillcrest Road (R113)
- Arm C: R117 South (Enniskerry Road)
- Arm D: Blackglen Road (R113).

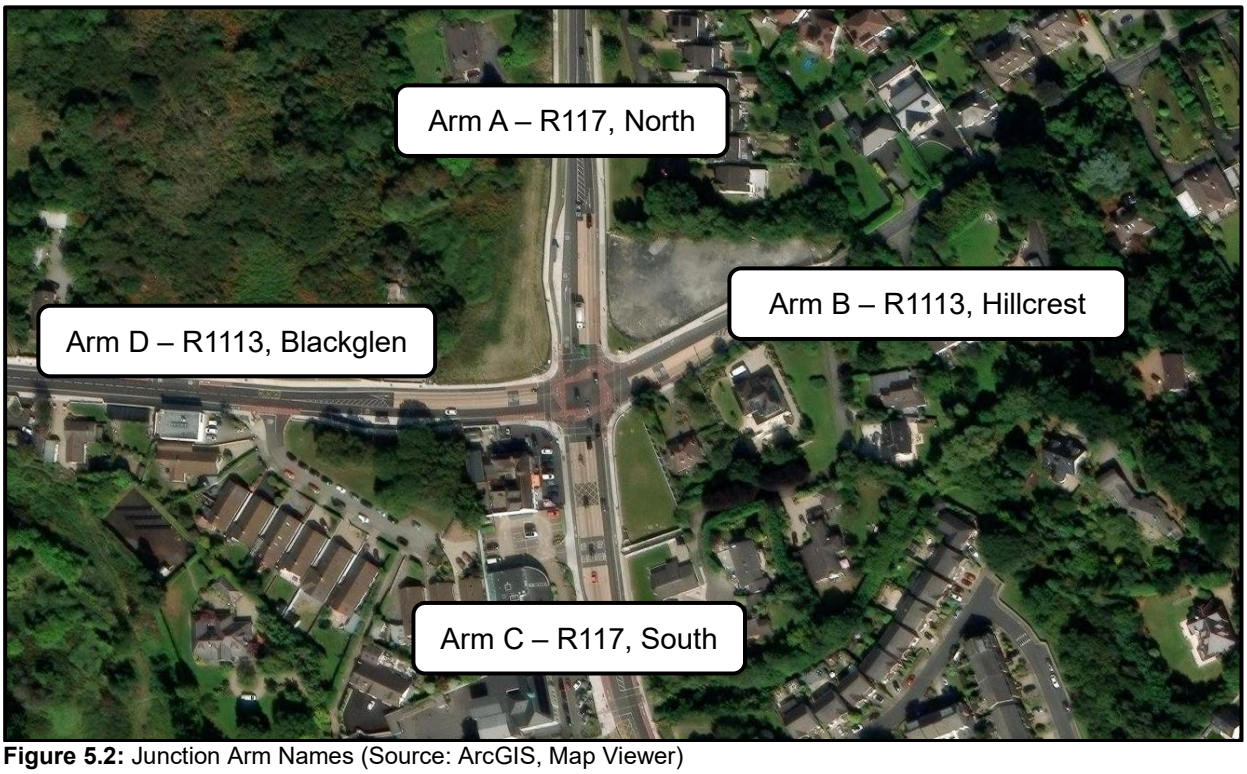

Figure 5.2: Junction Arm Names (Source: ArcGIS, Map Viewer)

To determine the operation details of the junction, ORS reviewed the video footage from the traffic count cameras. Consequently, the current controller configuration is based on these observations.

In the first stage, both Enniskerry Road north and south are provided general green. Right turners are allowed to turn during a gap. At the second stage right turners only are provided green. In the third stage, Blackglen and Hillcrest Road get green with right turners moving under indicative arrow which turns green in the fourth stage to allow unobstructed right turns. It was observed that when there was a call for pedestrian crossing the right turn without opposition (fourth stage) was omitted. In the fifth stage, pedestrians get their own green stage (on-demand). It was also observed that there was very low demand for crossing. Although pedestrian demand was observed to be low, the model includes the pedestrian phase in every cycle as a worst-case scenario.

For the purpose of this assessment, the results are presented with the aim of maximising the capacity of the junction under analysis through optimisation. The junction was analysed with 90 seconds cycle time for both ‘Do-Nothing’ and ‘Do-Something’ scenario.

For signalised junctions, **DOS (Degree of Saturation)** value serves as an indicator of the junction’s operational capacity. When the DOS value is 85% or less, it suggests that the junction is functioning within its capacity. If the DOS value ranges between 85% and 100%, it implies that the junction is still within its capacity but is starting to exhibit signs of queuing and delay. In urban areas, during peak traffic periods, a DOS value of less than 100% is considered desirable. However, it is not uncommon to observe DOS values exceeding 100% at many junctions.

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

Figure 5.3 below shows the current controller configuration for the Lamb’s Cross Signal Controlled Junction based on observations.

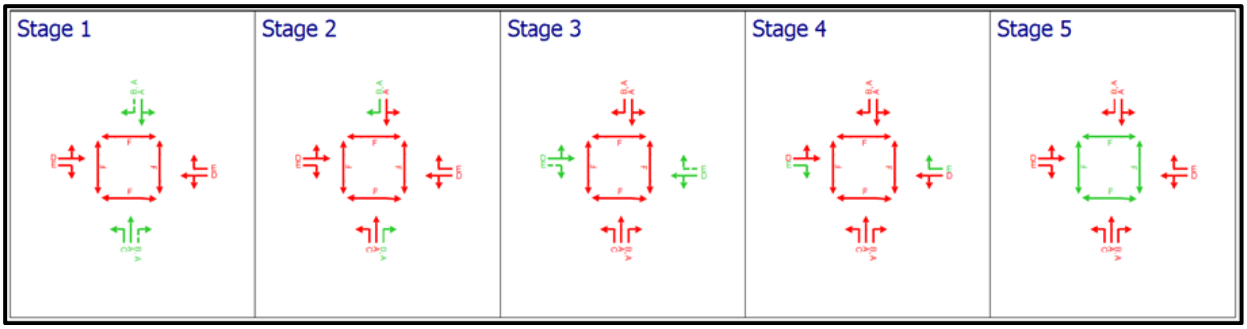

Figure 5.3: Controller Configuration for the Lamb’s Cross Junction

Table 5.1 show the results of the analysis for junction using the TRANSYT transport modelling software for signalised junctions for the assessment year (2024), the 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 – TRANSYT Results for Lamb's Cross Junction				
	AM		PM	
Analysis	Total delay (PCU-hr/hr)	Highest Degree of Saturation (DoS), %	Total delay (PCU-hr/hr)	Highest Degree of Saturation (DoS), %
1 – 2024, base year	19.96	69	18.93	68
2 – 2026, do-nothing	22.84	72	22.14	73
3 – 2026, do-something	24.07	72	23.25	77
4 – 2031, do-nothing	25.88	83	24.79	78
5 – 2031, do-something	27.18	83	26.35	82
6 – 2041, do-nothing	31.15	94	28.49	83
7 – 2041, do-something	32.55	94	31.38	90

Analysis 1 provides representations of the current base year and the anticipated traffic conditions in the study area without the proposed scheme and committed developments. As can be seen from **Table 5.1**, currently the junction is operating well within theoretical capacity of 0.85 Degree of Saturation (DoS), with a maximum DoS observed of 0.69 in the AM period and 0.68 in the PM period.

It is observed that in 2026, without the inclusion of the proposed development, the junction will operate under capacity in both the AM and PM period. The inclusion of the proposed development will generate an increase in the DoS of 4% on Arm A (R117 Sandyford Road, North) in the AM period, and will not generate any increase in the DoS on any approach to the junction in the PM period.

For the design year of 2041, 15 years after the conclusion of the proposed residential development, Lamb's Cross will operate still within capacity, with a maximum DoS of 94% on Arm B – Hillcrest Road in the AM period, however, it will start to exhibit signs of queuing and delay. However, it is noted that the inclusion of the proposed development will generate no significant effect at the junction in the morning with no increase in the DoS, and the total delay increase only by 1.4 PCU-hr/hr. In the evening, it was observed that the DoS increased by 7% (from 83% to 90%) and the total delay increased by 2.89 PCU-hr/hr. Since the worst-case scenario was selected for traffic generation for the proposal, these results can be considered conservative.

The anticipated impact of the proposed development is deemed not significant, and it is not expected to have an adverse effect on the functionality of the analysed junction.

Likewise, it is expected that residents of the neighbourhood and the proposed development will make use of the recently upgraded infrastructure in place. Blackglen Road/Harold's Grange Road Improvement Scheme included the realignment of the carriageway, provision of footpaths

and cycle lanes on both sides of the road, as well as the upgrade of the Lamb's Cross junction and bus stops located along the road. Consequently, it is anticipated that congestion at the junction will decrease, allowing it to operate within optimal capacity.

6 Conclusions

The main conclusions of this assessment are summarised as follows:

- This Traffic and Transport Assessment (TTA) report was conducted to accompany the planning application to Dún Laoghaire-Rathdown County Council for the proposed residential development located at Blackglen Road (R113), Sandyford, Co. Dublin.
- The proposed residential development will provide 129No. residential units, 138No. car parking spaces, 168No. bicycle parking spaces, internal roads and footpaths and all associated site works. Site access will be made through existing access to the south of the site, off Blackglen Road (R113).
- The proposed development is located near several schools and the Sandyford Business District, which future residents will be able to access by a short walk or cycle.
- This TTA focused on the junction between Blackglen Road (R113) and Enniskerry Road (R117), known as Lamb's Cross, as it is the junction in the immediate vicinity of the site.
- Junction turning counts (JTC) were undertaken on Wednesday the 15th of May 2024 at the junction mentioned above by a company named IDASO. The AM peak hour at the junction was recorded between 08:00 - 09:00 AM and 17:00-18:00 for the PM peak. The peak traffic along the Junction was 1692 PCU in the morning and 1586 PCU in the evening.
- The Dún Laoghaire-Rathdown County Council planning website was consulted to obtain information about other Traffic and Transport Assessments undertaken near the proposed residential development to be included in this traffic analysis.
- The expected trip generated and the peak hours from the proposed residential development were obtained from Trip Rate Information Computer System (TRICS) database. In a conservative approach, the worst-case scenario was selected for the traffic generation: as "houses privately owned" as opposed to "affordable houses". The development peak hours are deemed to occur between 08:00-09:00 in the morning and between 18:00-19:00 in the evening period, with a maximum of 66No. and 64No. vehicles, respectively.
- The traffic patterns at Lamb's Cross could be calculated from the traffic counts and it is expected that the traffic from the development will follow the same trend. The junction was examined for AM and PM peak conditions using TRANSYT junction modelling software for signalised junctions for the year of opening (2026), 5 years and 15 years after development conclusion. For the purpose of this assessment, the year of the conclusion of the development was assumed to be 2026.
- From a transportation planning perspective, the proposed residential development will not be a significant traffic generator and will not adversely impact the future operational capacity of Lamb's Cross junction.
- The junction modelling for Lamb's Cross indicates that the junction currently operates will below theoretical capacity, with a maximum Degree of Saturation (DoS) of 0.69 (69%). For the proposed year of the development conclusion, 2026, the junction is expected to operate with a maximum DoS of 0.73 (73%). The inclusion of the proposed development will increase the DoS by 4% in the evening peak. For the future year 2041, the junction is deemed to be operating within capacity (DoS of 0.94) in the morning peak period, with and without the development inclusion. In the evening, the DoS is expected to be higher by 7% with the inclusion of the development's traffic. Therefore, it can be assumed that the inclusion of the proposed development will not generate a detrimental effect at the junction.
- The upgrade of the Blackglen Road and Lamb's Cross junction will enhance safety for pedestrians and cyclists and will improve the public transport in the area, which will help to reduce traffic and congestion at Lamb's Cross in the future years.

Appendix A – Traffic Data

Traffic data available upon request.

Appendix B – TRANSYT Modelling Data

TRANSYT data available upon request.

Appendix C – TRICS Trip Generation Data

TRICS data available upon request.

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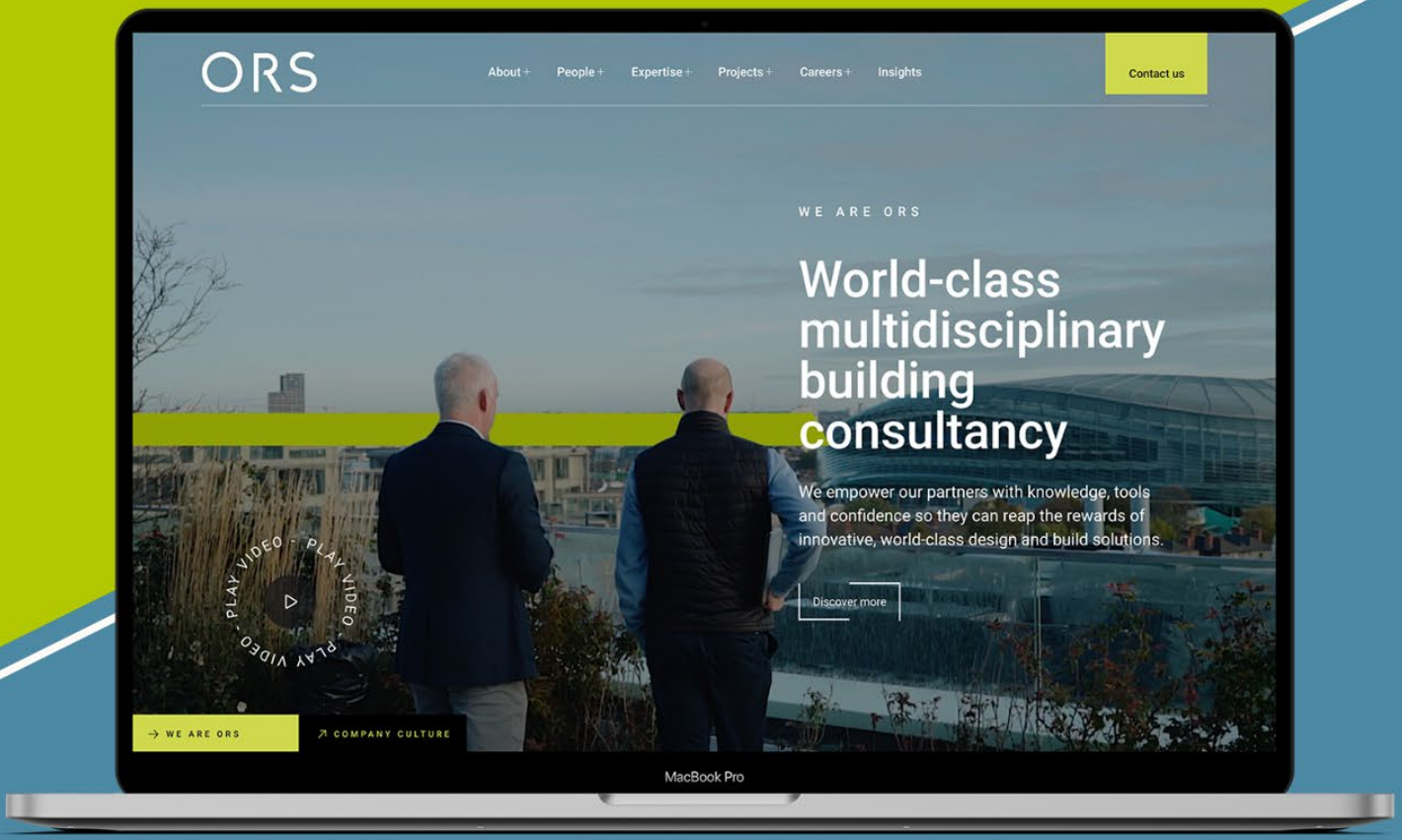

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