

14 MATERIAL ASSETS (TRANSPORT)

14.1 INTRODUCTION

DBFL Consulting Engineers (DBFL) have been commissioned to prepare this EIAR Chapter for a proposed Large Residential Development (LRD) at a site located in Dundalk, Co. Louth.

The proposed development comprises 1,058no. dwellings (765no. houses, 150no. duplex units, and 143no. apartments) including 2no. duplexes with an option to accommodate a childcare facility at ground floor level; a local centre comprising ground floor retail units, a medical unit, and mobility hub; provision of a childcare facility; all in buildings ranging in height from 1 to 6 storeys. All associated and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works, including public, communal and private open space; public lighting; surface car parking spaces; bicycle parking; ESB substations; bin stores; provision of a foul sewage pumping station; laying a foul rising main along Castletown Road from the proposed new access to the development eastward to the Castletown Road and Bellevue Bridge Road Junction. The proposed development will be accessed from two new combined vehicular, cyclist and pedestrian junction at Castletown and at Mount Avenue. A separate pedestrian and cyclist access is also provided at Mount Avenue. A Heritage Park, a playing pitch and a site reserved for a future educational/school facility are also being provided.

The proposed development is located at lands in the Townlands of Newtownbalregan, Castletown and Farrandreg, at Mount Avenue, Castletown, Dundalk, Co. Louth.

The application will include all infrastructure associated with the development including road/streets layout, footpaths, cycle lanes, and all site services including foul drainage networks, surface water and SuDS drainage networks and systems, and water mains.

14.2 ASSESSMENT METHODOLOGY

The purpose of this assessment is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed scheme. The scope of the assessment covers transport and sustainability issues including pedestrian, cyclist, and public transport connectivity.

This assessment is being carried out in accordance with the following guidance and established best practice:

- Environmental Protection Agency (EPA) Guidelines on the information to be contained in the EIAR (May 2022);
- Transport Infrastructure Ireland (TII) Traffic and Transportation Assessment Guidelines PE-PDV-02045 (2014).

Our approach to the study accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include;

- 'Traffic and Transport Assessment Guidelines' (May 2014) National Road Authority (TII);
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation; and
- Louth County Council Development Plan 2021-2027.
- Guidance on the preparation of Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU) (European Commission, 2017) (the EU EIAR Guidance).

Our methodology incorporated a number of key inter-related stages, including:

- **Background Review:** A background review of planning permissions surrounding the study area has been undertaken.
- **Site Audit:** A site audit has been undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.
- **Development Framework:** A review of Development Frameworks and supporting transport focused studies has been undertaken.
- **Trip Distribution:** Based upon both the existing traffic characteristics and the network layout in addition to the spatial/land use configuration and density of the urban structure across the catchments area of the development, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.
- **Network Analysis:** Further to quantifying the predicted impact of vehicle movements across the local road network for the adopted site access strategy more detailed computer simulations have been undertaken to assess the operational performance of key junctions in the post development 2027, 2032 and 2042 development scenarios.

14.3 RECEIVING ENVIRONMENT

14.3.1 Land Use

The proposed development site is located within the Louth County Development Plan 2021-2027 Lands. These lands are made up of four distinct zoning types:

- A2 – New Residential Phase 1
- H1 – Open Space
- Spot Objective 3

A map of the nearby zoning can be seen in Figure 14.1.

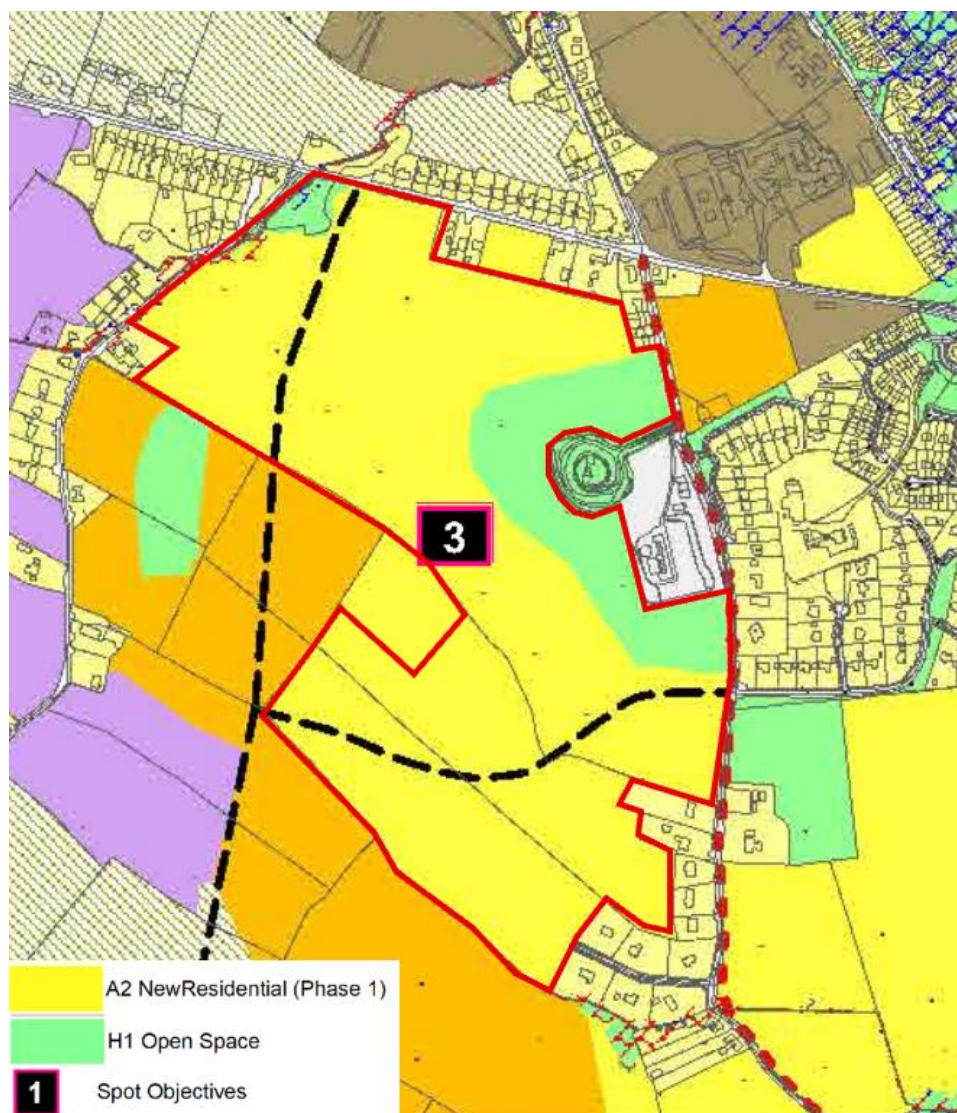


Figure 14.1: Site Zoning (Louth County Development Plan 2021-2027)

14.3.2 Location

The subject site is located within the Castletown suburb of West Dundalk. The subject lands are located adjacent to the Castletown Road (N53) (Northern Boundary) and Mount Avenue (Eastern Boundary).

The subject site is approximately 2km northwest of Dundalk Town Centre.

The general location of the subject site in relation to the surrounding road network is illustrated in Figure 14.2 below, whilst Figure 14.3 shows the indicative extent of the subject site lands.



Figure 14.2: Site Location (Source : OpenStreetMap)



Figure 14.3: Subject Site Indicative Redline Boundary (Source: OpenStreetMap)

14.3.3 Existing Transportation Infrastructure

14.3.3.1 Road Network

The subject development site is adjacent to Castletown Road (R934) and Mount Avenue. Castletown Road carries high volumes of traffic due to its proximity to the M1. M1 Junction 17 is located approximately 500 metres west from the subject site. Mount Avenue serves a more local function, however, there are a number of new residential areas under construction, and the road was recently upgraded and rerouted. Castletown Road leads to the M1 and becomes the N53 in the west and leads to Dundalk Town Centre to the east. Mount Avenue leads to the Carrickmacross Road in the south. Figure 14.4 illustrates the location of the subject site within the context of the existing road network.

- **Castletown Road / R934** is a regional road on the site's northern boundary. It consists of a single carriageway with a general traffic lane in both directions. Travelling westbound it becomes the N53 and leads to the M1, whereas eastbound it leads to Dundalk Town Centre. The speed limit along this road is 50 km/h.
- **Mount Avenue** is a local road along the western boundary of the subject site. It consists of a single carriageway with a general traffic lane in both directions. This connects the Castletown and Carrickmacross Roads. The speed limit along this road is 50 km/h.



Figure 14.4: Existing Road Network

14.3.3.2 Existing Pedestrian Facilities

All of the immediate routes leading to and from the subject site benefit from the provision of street lighting and pedestrian footpaths.

Castletown Road is an regional road with the speed limit of 50km/h and incorporates a dedicated footpath on one side of the road. The closest signalised crossing is approximately 350 metres to the east of the proposed northern site entrance.

Mount Avenue is a link road with a speed limit of 50km/h and begins to the north of the eastern site access with a single footpath on one side, progressing to footpaths and cycle tracks on both sides near the proposed eastern site access, as seen in Figure 14.5.



Figure 14.5: Mount Avenue, located along the eastern boundary of the site

Existing walking time isochrones from the development site are shown in Figure 14.6 overleaf. This illustrates the levels of accessibility for pedestrians walking to/from the site. The walking time isochrones illustrates that a number of amenities, such as Dunnes Stores, Dundalk Train Station, as well as a number of schools are within a 30 minute walking distance from the subject site.

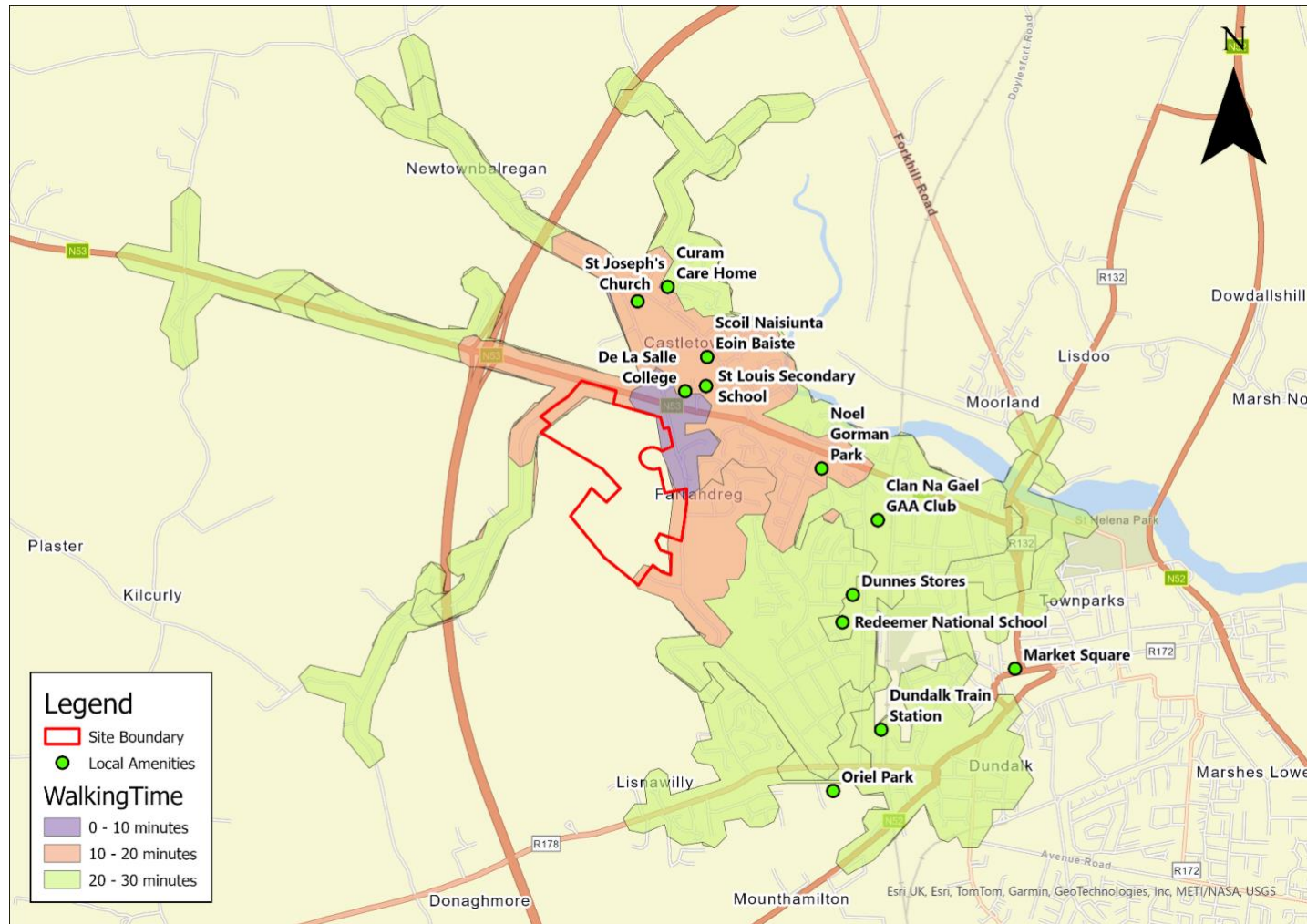


Figure 14.6: Walking Catchment from the Subject Development Site

14.3.3.3 Existing Cycling Facilities

In the immediate vicinity of the subject site, segregated cycle facilities are located along the new section of Mount Avenue, as can be seen below:



Figure 14.7: Cycle Facilities along Mount Avenue

The remaining roads in the vicinity of the site have no cycle facilities, and so cyclists are required to share the carriageway with vehicles.

Existing cycling time isochrones from the development site are shown in Figure 14.8 overleaf. This illustrates the levels of accessibility for cycling to/from the site. The walking time isochrones illustrate that a number of amenities and locations, such as Dunnes Stores, Dundalk Train Station, Market Square, and Dundalk Town Centre are within a 15-minute cycling distance from the subject site.

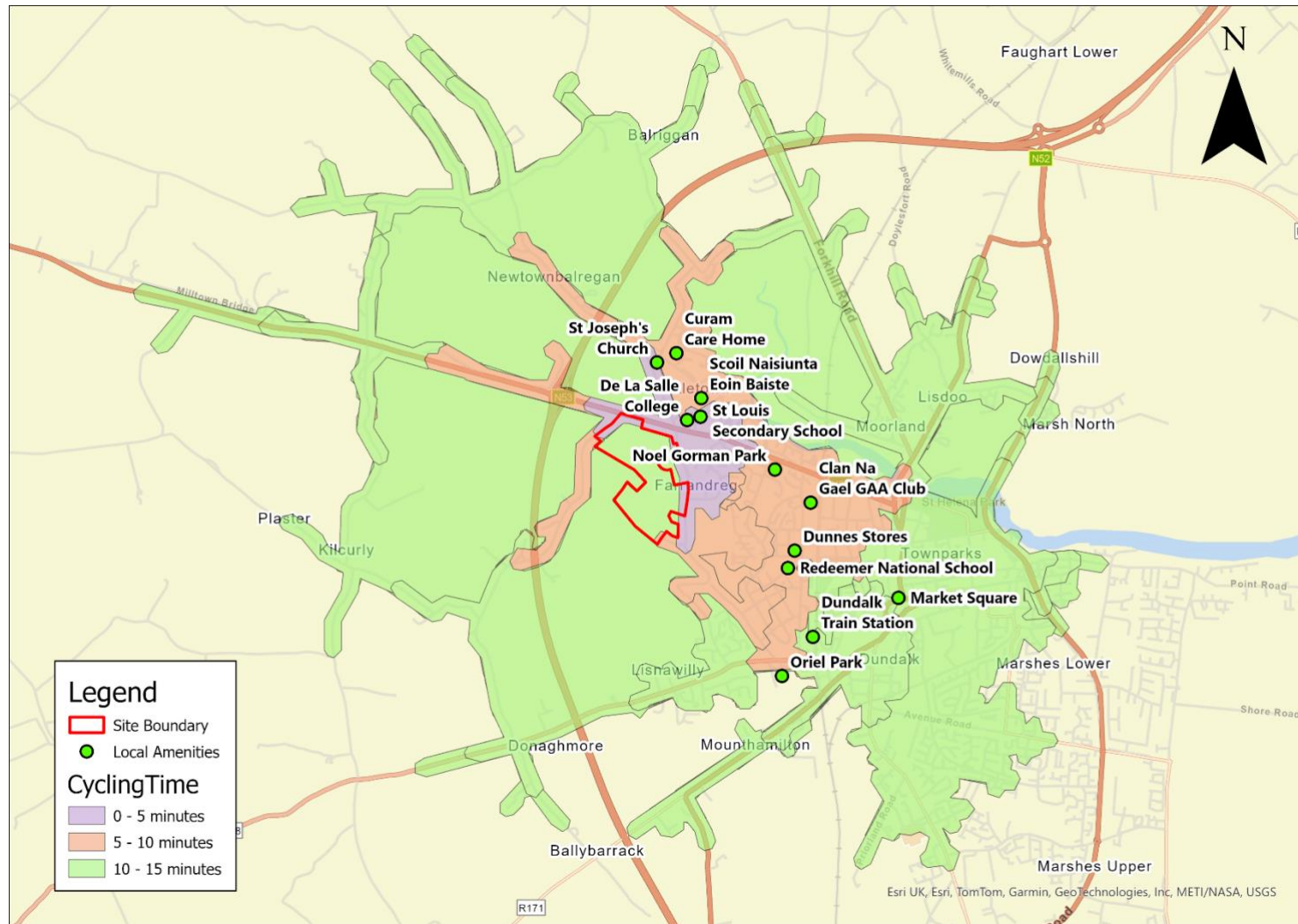


Figure 14.8: Existing Cycle Catchment from the Subject Site

14.3.3.4 Public Transport- Bus

There is an existing bus service operated by Bus Eireann, the 174A, which serves the vicinity of the site. There are a number of offline bus stops which were constructed recently along Mount Avenue. The location of the bus stop served by the 174A, as well as the unused bus stops (recently construction) near the site can be seen in Figure 14.9 below:

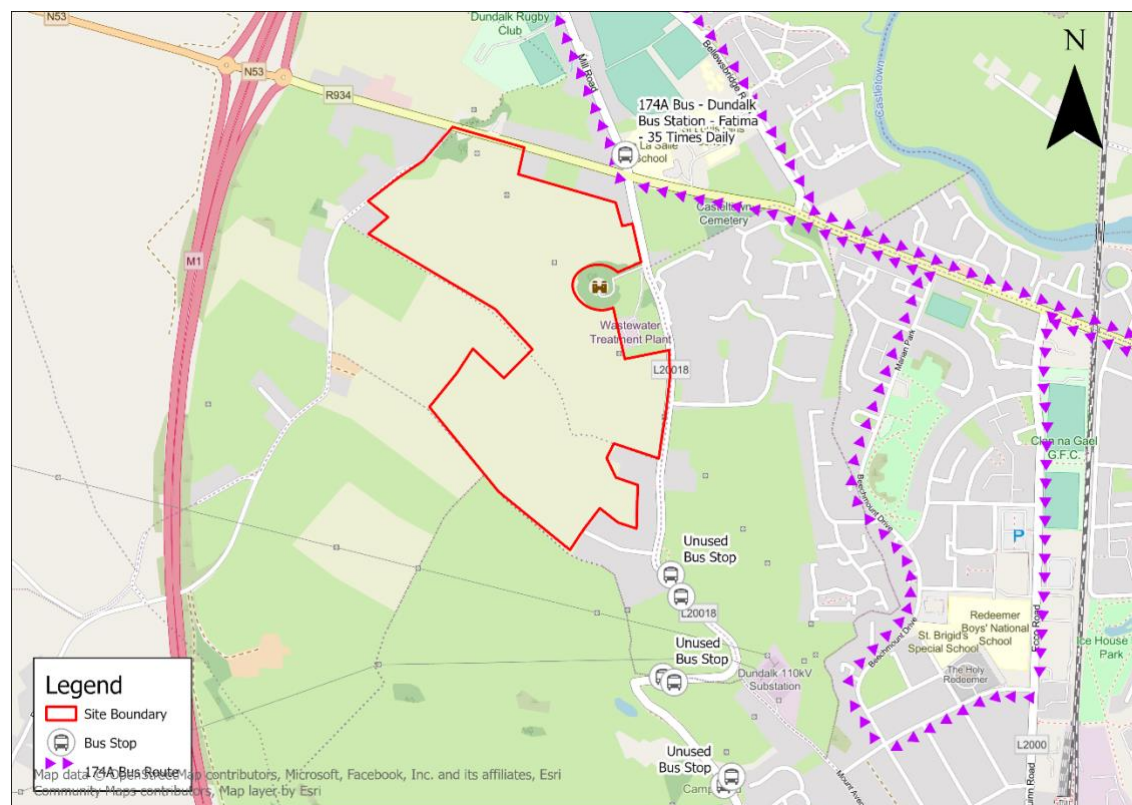


Figure 14.9: Existing Bus Stops in the vicinity of the Subject Site

The 174A bus is scheduled to run 34 / 35 times per day, and provides quick access between the subject site and Dundalk Bus Station. The route also serves a number of residential areas, such as Marian Park, and Ard Easmuinn. The timetable for the 174A can be seen in Table 14.1 below:

Bus Frequencies		Number of Services		
Number	Route	Monday to Friday	Saturday	Sunday
174A	Dundalk Bus Station to Bellewsbridge Road	35	34	34
	Bellewsbridge Road to Dundalk Bus Station	35	34	34

Table 14.1: Bus Service Frequency (No. of Services)

The 174A route can be seen in Figure 14.10 below:

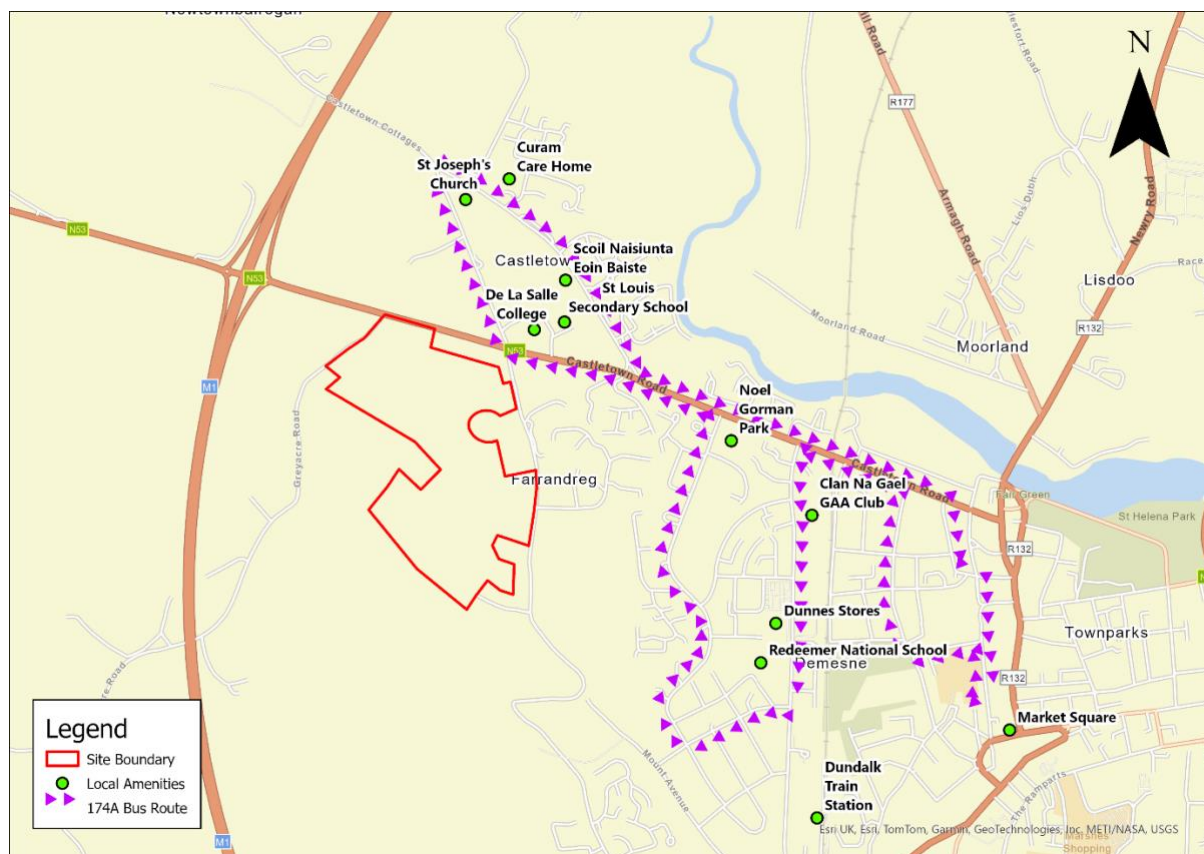


Figure 14.10: Route 174A Bus Route

As well as the public bus services, the local area is served by a number of school buses.

14.3.3.5 Public Transport- Train

Dundalk Train Station is located approximately 30 minutes' walk from the site access. It is currently served by the Belfast Central – Dublin Connolly (Enterprise), which operates 15 times a day in each direction.

The location of the train station in relation to the site can be seen in Figure 14.11.

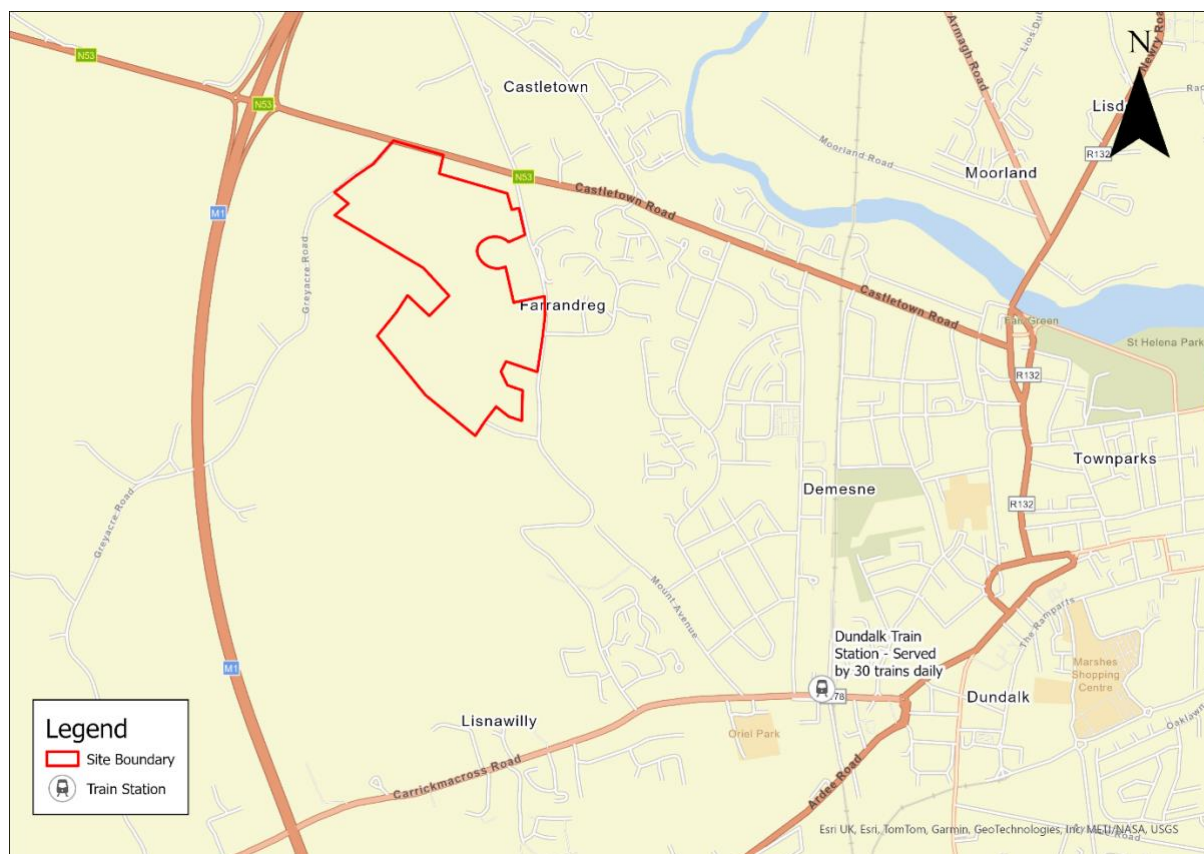


Figure 14.11: Location of Dundalk Train Station

14.3.4 Local Amenities

The subject development site is well placed in terms of the availability of local amenities. There are three schools in the vicinity of the site, including De La Salle College, St Louis Secondary School, and Scoil Naisiunta Eoin Baiste. Additionally, there are lands within the subject site zoned for a school. There is a Dunnes Stores located in Ard Easmuinn, near the subject site and within a 20 minute walk. Closer to the subject site are a number of smaller convenience stores, such as MACE Castletown Road also. There are a number of retail units proposed within the subject site.

Dundalk Town Centre is within a 30 minute walk, which includes a significant number of amenities, such as Long Walk Shopping Centre, as well as other shopping locations within Dundalk.

Furthermore, the subject site benefits from good access to leisure facilities such as Cú Chulainn's Castle adjacent to the site, Noel Gorman Park, Oriol Park, and the proposed parks within the subject site. A nursing home is proposed on the site, as well as two medical offices. Townparks Pharmacy and Carrick Road Medical Centre are also within walking distance.

Figure 14.12 illustrates location of the subject site with respect to the local amenities.

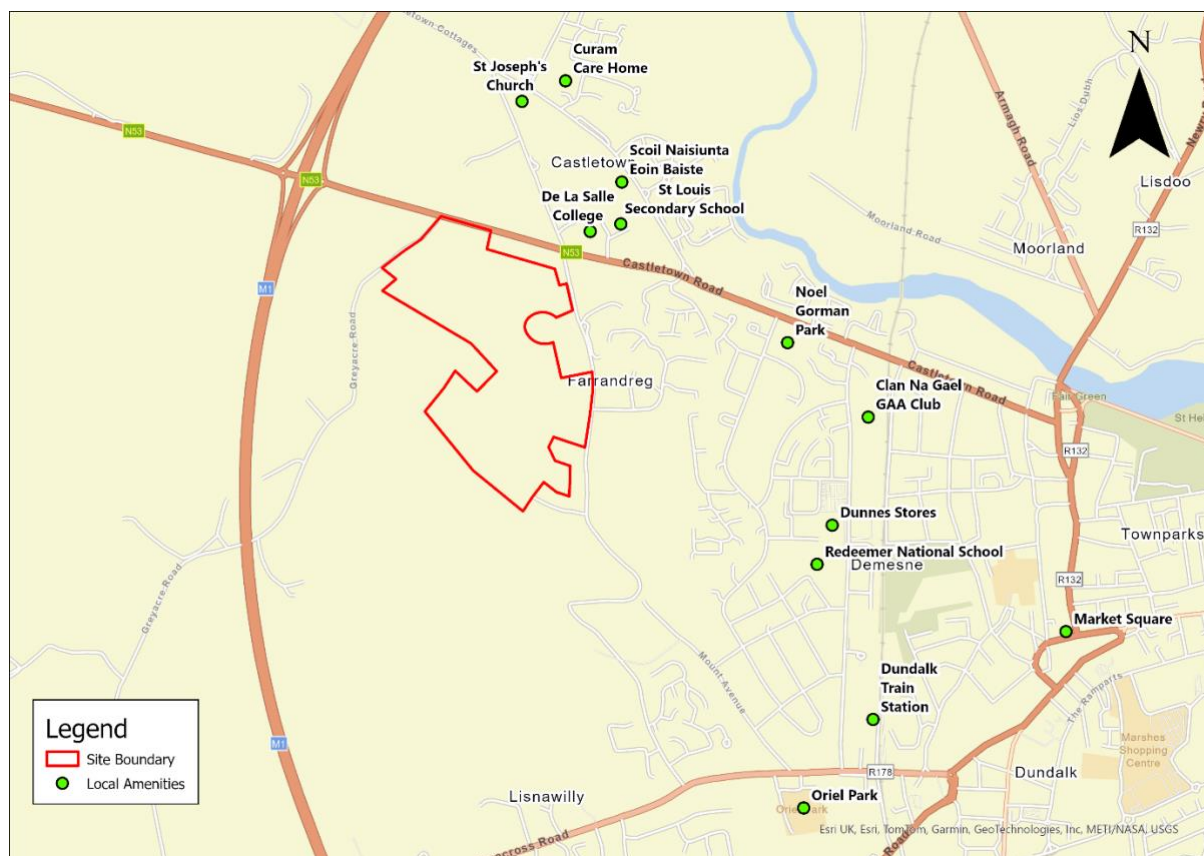


Figure 14.12: Local Amenities in the vicinity of the site

14.3.5 Road Safety Review

The collision statistics on the Road Safety Authority (RSA) website were reviewed in order to ascertain the safety record of the Jamestown Road over the most recent period, 2016-2020. The RSA records detail only those occasions where the incident was officially recorded such as the Garda being present to formally record details of the incident.

The RSA website currently states *"The RSA is in the process of reviewing its road traffic collision (RTC) data sharing policies and procedures. Record-level RTC data cannot be shared until this review is complete, but we expects this to be finalised in the coming months. At that point, we will have new policies and procedures in place for access to RTC information and data."*

14.3.6 Proposed Transport Infrastructure

14.3.6.1 CycleConnects (2022)

The National Transport Authority (NTA) published the CycleConnects Plan for all key cities, towns and villages in Ireland in 2022. CycleConnects aims to improve sustainable travel by providing the potential for more trips on a safe, accessible and convenient cycling network, connecting more people to more places. CycleConnects proposed network consists of fully connected, coherent and safe cycling routes in each county. This includes proposed cycle networks in towns with a population of at least 5,000 people (2016 Census) and fully connected networks in rural areas.

Figure 14.13 below illustrates the proposed CycleConnects routes in the vicinity of the site, which include the following key proposals;

- **Inter-urban:** Proposed to travel between Dundalk and Castleblayney in a northwest - southeast direction along the N53;

- **Urban Primary Route:** There are urban primary routes proposed along Castletown Road, Bellevue Road, and Carrickmacross Road. These routes have been identified as priority routes for improved cycle facilities, thanks to their importance to a coherent cycle network in Dundalk.
- **Urban Secondary Route:** There are urban secondary routes proposed along Mill Road and Mount Avenue. This indicates a lower priority route for cycle facilities to be developed, however it is still deemed relevant to a coherent cycle network in Dundalk.

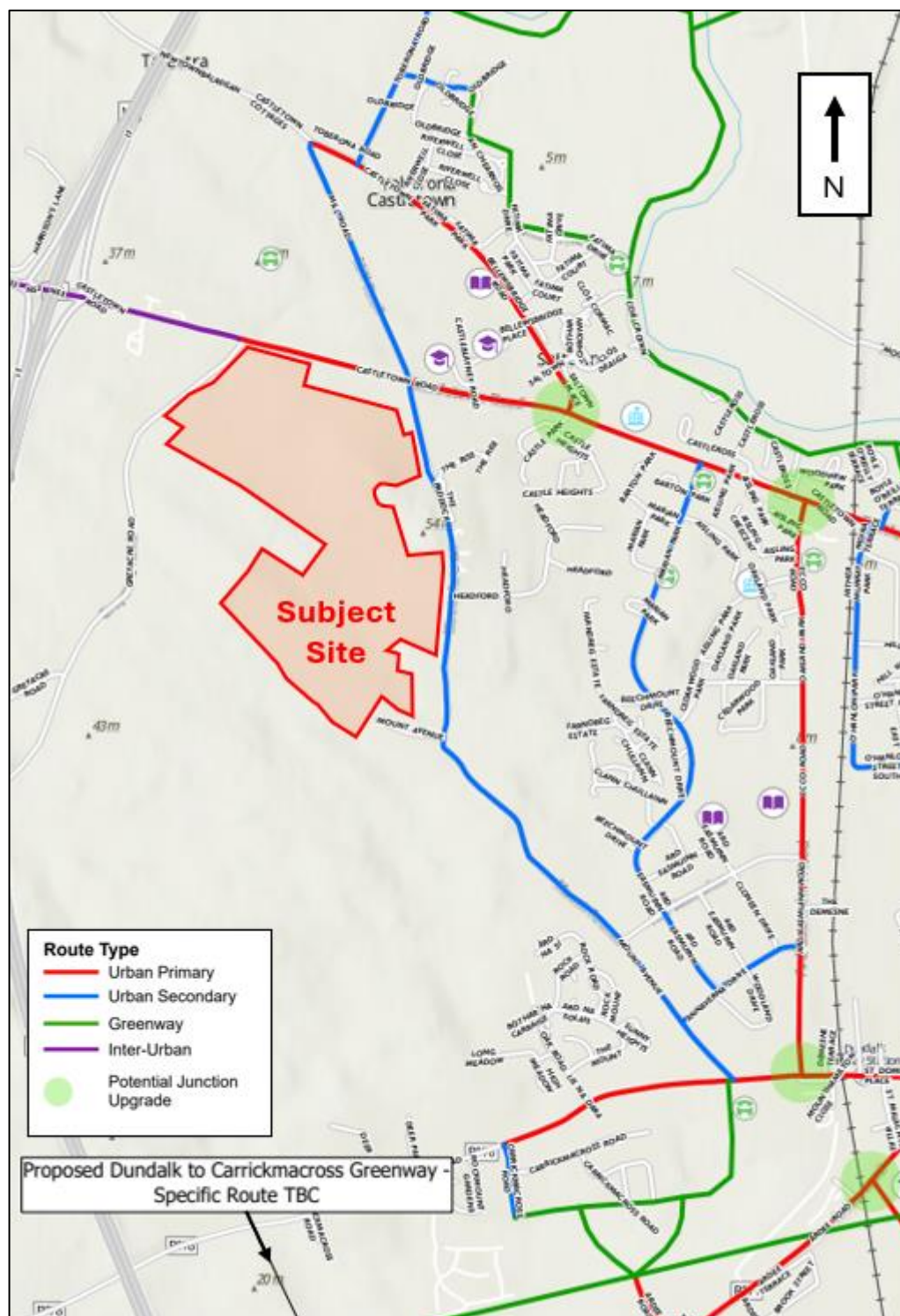


Figure 14.13 Proposed Cycle Routes in Dundalk (Source: CycleConnects, NTA)

14.3.6.2 Dundalk Local Transport Plan (July 2024)

The Dundalk Local Transport Plan was released in 2024 to help to shape the future transport proposals of Dundalk in a sustainable and planned manner.

The overarching goal of the Local Transport Plan is:

“To reduce overall travel demand and to achieve a modal shift through land use planning, optimising opportunities to make sustainable choices, providing a high-quality transport network and system which effective, accessible, and responsive to technological change and reduce the contribution of transport to climate change.”

Included in the plan are proposals in the following areas:

- Strategy Development
- Active Travel Measures
- Public Transport Measures
- Road Measures
- Multimodal Measures

Proposed Active Travel Measures in vicinity of Subject Site

There are a number of proposed active travel measures in the vicinity of the subject site, as per both Figure 5-1 and 5-2 within the Dundalk LTP. They include increasing the permeability between a number of residential areas, mainly by the removal of existing barriers and walls, and the introduction of new pedestrian and cycle connections. Additionally, active travel upgrades are proposed at a number of junctions in the vicinity of the site. These upgrades include the introduction of segregated walking and cycle facilities, as well as traffic calming and other similar measures.

The proposed changes are likely to make the surrounding area a much safer and attractive place to walk and cycle, and will help to promote a reduction in private car usage. The permeability changes will reduce the walking distance from the subject site to the Dunnes Stores in Townparks, by allowing journeys through the nearby residential areas. The proposed active travel measures in the vicinity of the site are presented in Figure 14.14.

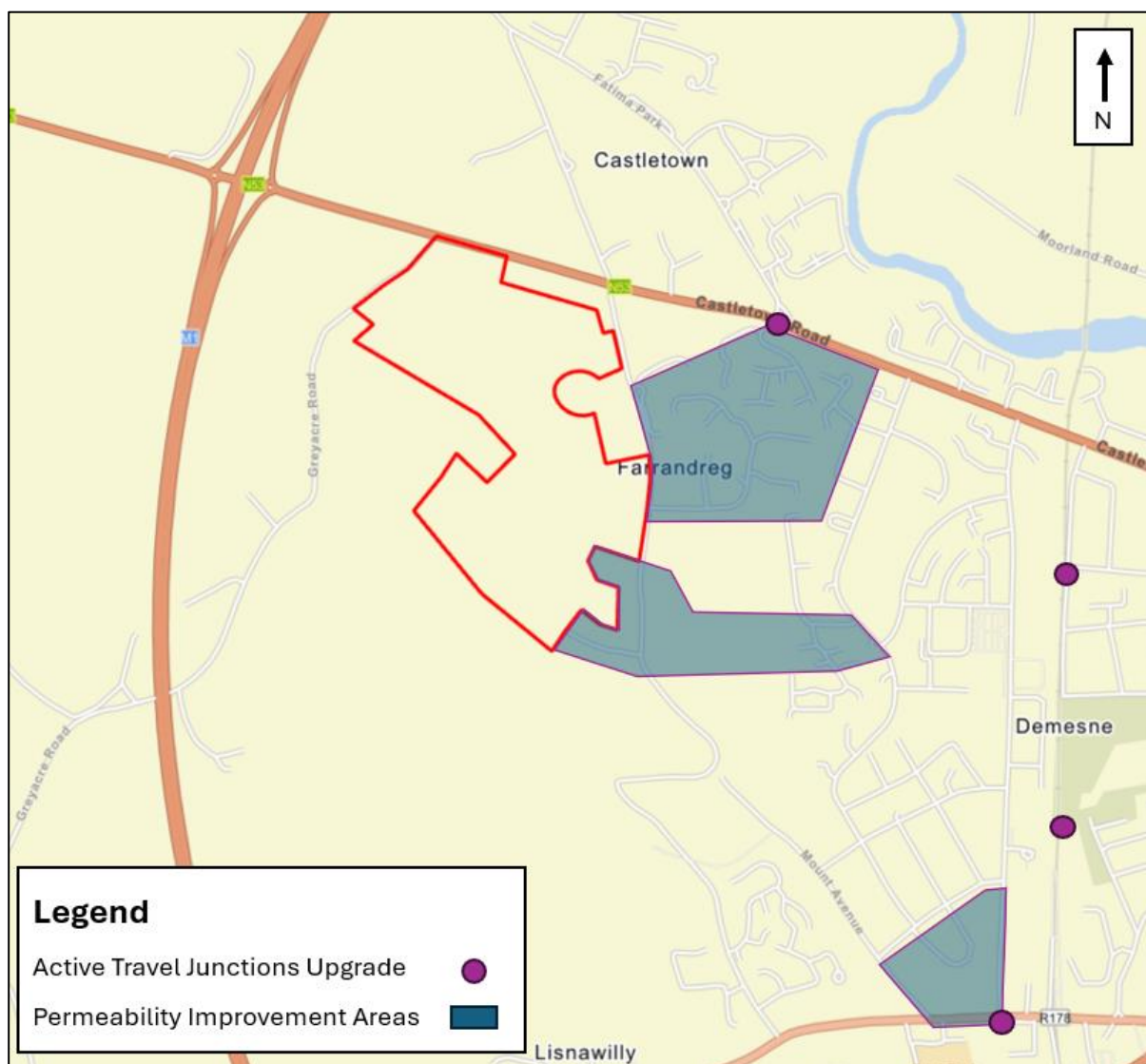


Figure 14.14: Dundalk LTP Active Travel Measures

Proposed Public Transport Measures in vicinity of Subject Site

Several new bus routes are proposed for Dundalk as part of the LTP, including the introduction of a dedicated local bus service. There are two relevant bus routes to the subject site, the DN3 and DN4. The DN3 is due to travel from Ard Easmuinn to Mullagharlin and is approximately 20 minutes' walk from the subject site.

The DN4 bus route is shown as Blackrock to Clarke Station, however a 'Possible Future Extension' is labelled from Clarke Station to the subject site. This bus route would directly serve the subject site and can make use of the proposed internal bus stops, as well as the new bus stops built along the new Mount Avenue Extension. The route would positively impact the future residents of the subject site and would further reduce the requirement for private car journeys generated by the site. The public transport measures proposed in the vicinity of the site are presented in Figure 14.15.

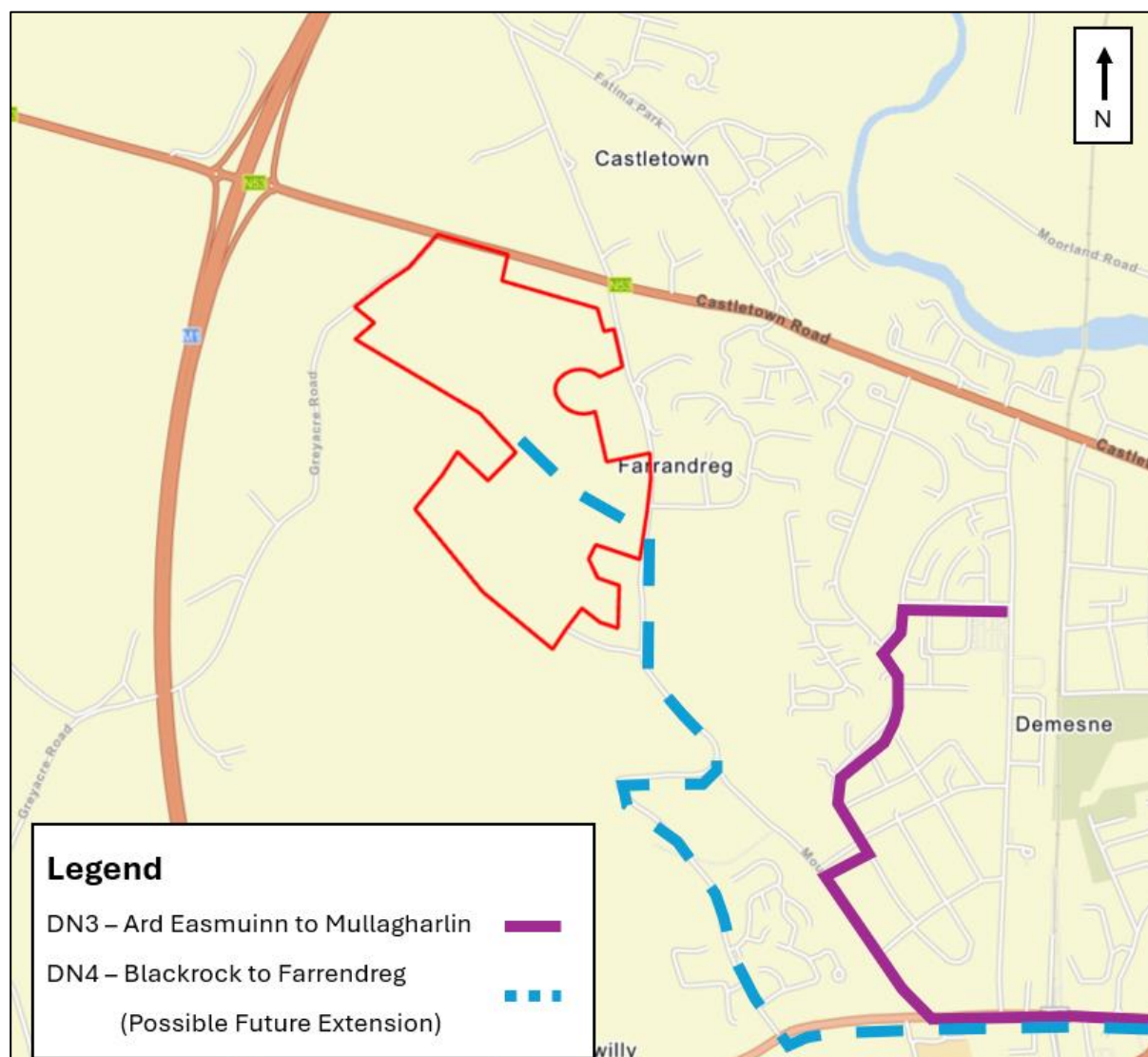


Figure 14.15: Dundalk LTP Public Transport Measures

There are two proposed roads in the vicinity of the site. These include an orbital link between Castletown Road and Carrickmacross Road, as well as a link road from Mount Avenue to the proposed orbital link.

It can be seen in Figure 14.16 that the site is bisected by both the orbital route and the link road, and so the routes of the proposed road objectives have changed slightly to fit within the site, and following consultation with LCC. The proposed roads will provide an alternative route for vehicles wishing to travel around the environs of Dundalk and will provide new connections between Carrickmacross Road and the M1.

Proposed Road Measures in the vicinity of the Subject Site

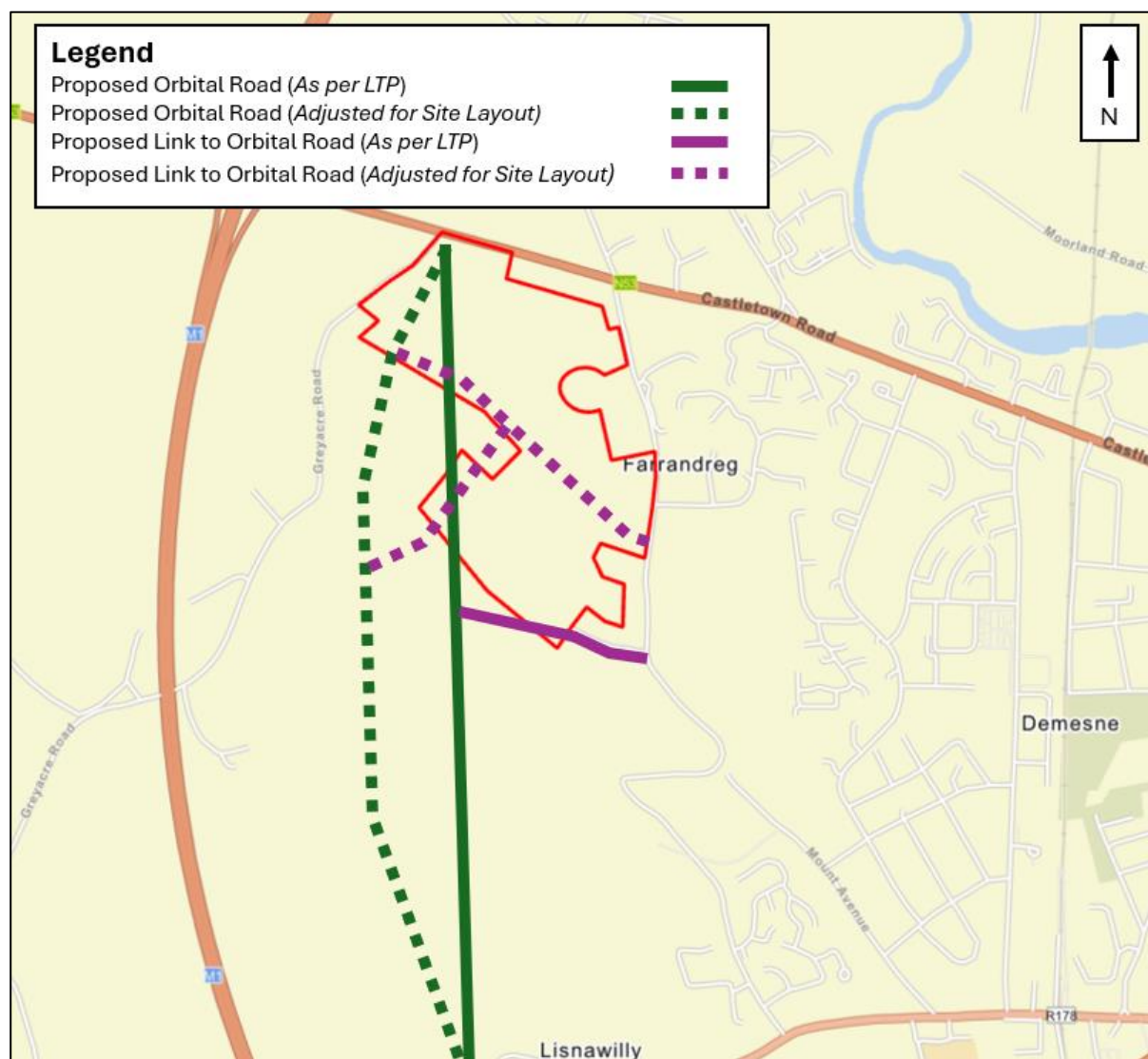
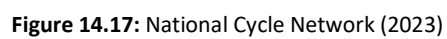


Figure 14.16: Dundalk LTP Road Measures

14.3.6.3 National Cycle Network (2023)

The National Cycle Network (NCN), issued by TII, is a planned core cycle network of 3,500km that will cross Ireland connecting more than 200 villages, towns and cities. The network will include cycling links to transport hubs, education centres, employment centres, leisure and tourist destinations, and support “last mile” bicycle deliveries.

The NCN is mandated in the National Development Plan 2021- 2030 and was developed by the TII. The National Cycle Network is shown in Figure 14.17 overleaf.



14.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

14.4.1 Overview

The proposed development site is located at a site adjacent to Castletown Road / Mount Avenue, Dundalk, Co. Louth. The site is a greenfield site. Figure 4.1 below illustrates the Site Plan Layout encompassing the proposed Residential Development.



Figure 14.18: Proposed Site Plan Layout

The proposed development is located on a site that is approximately 38.89Ha that will comprise of 1058 residential units (765no. houses, 150no. duplex units, and 143no. apartments, retail units, community service units, and a creche within the masterplan area.

The application will include all infrastructure associated with the development including road/streets layout, footpaths, cycle lanes, and all site services including foul drainage networks, surface water and SuDS drainage networks and systems, and watermains.

Further details of the development proposals, including the site layout drawing, are illustrated in the architects' scheme drawings as submitted with this pre-application consultation request.

14.4.2 Vehicular/Pedestrian/Cycle Access

Vehicular / Pedestrian / Cycle access to/from the subject development will be provided via two new signalised junctions, located on Castletown Road, and Mount Avenue. There will be a number of pedestrian / cycles only accesses onto Mount Avenue, to maximise permeability between the site and the nearby amenities.

The main site accesses for vehicles, pedestrians, and cyclists are illustrated in Figure 4.2.



Figure 14.19: Proposed Site Accesses for Vehicles, Pedestrians & Cyclists

Figure 14.20 shows the proposed Pedestrian / Cycle Access Points drawing.

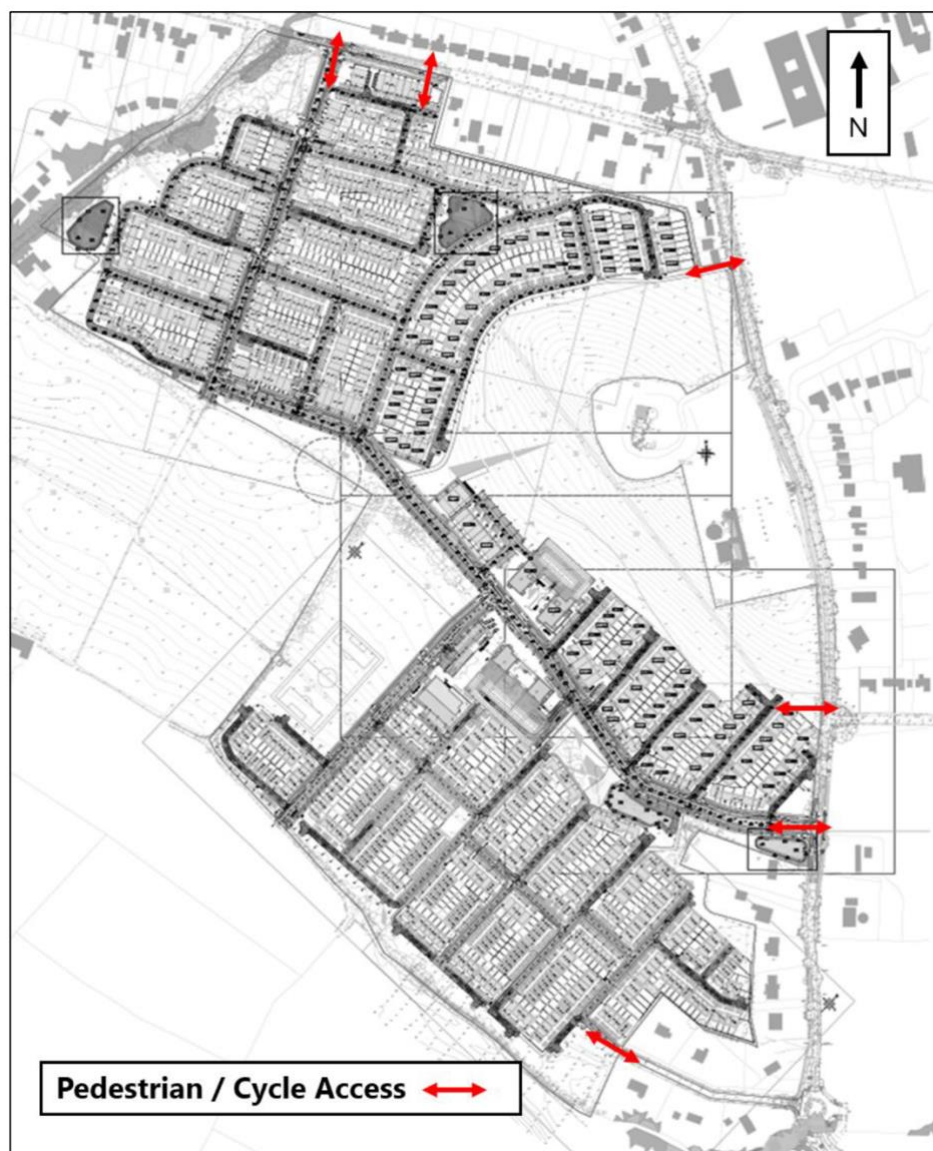


Figure 14.20: Proposed Pedestrian / Cycle Accesses

14.4.3 Cycle Parking Provision

In order to determine the appropriate level of cycle parking provision for the proposed development reference should also be made to both (i) the Louth County Council (LCC) requirements; and (ii) the Department of Housing and Planning and Local Government (DHPLG) Government 'Sustainable Residential Development and Compact Settlements – Guidelines for Planning Authorities (January 2024).

LCC outline the following categories for cycle parking:

- Long Term: These are to be designed for use by residents and employees. Such spaces should be located in a secure area that is not freely accessible to the general public.
- Short Stay: These are to be designed for ease of use by the general public. Such spaces should be located in highly visible areas that are easy to access.

14.4.3.1 Louth County Council Parking Requirements

The LCC cycle parking standards are detailed in Table 14.2 below:

Cycle Parking Standards					
Unit Type		No. of Units	Metric	Louth Development Plan 2021 - 2027	
				Short Stay	Long Stay
House		757	Units	1 space per 5 units	1 per unit
Apartment	1 bed	100	Units	1 space per 2 units	1 space per bedroom
	2 bed	129	Units	1 space per 2 units	1 space per bedroom
	3 bed	55	Units	1 space per 2 units	1 space per bedroom
Retail		900	Sqm	1 space per 100 sqm	1 space per 5 staff
Creche		284	Children	1 space per 10 children	1 space per 5 staff
Medical		250	Sqm	1 space per 100 sqm	1 space per 5 staff

Table 14.2: LCC Cycle Parking Standards

Cycle Parking Standards					
Unit Type		No. of Units	Metric	Louth Development Plan 2021 - 2027	
				Short Stay	Long Stay
House		765	Units	153	765
Apartment	1 bed	111	Units	56	111
	2 bed	140	Units	70	280
	3 bed	42	Units	21	126
Retail		900	Sqm	9	4
Creche		194	Children	19	8
Medical		250	Sqm	3	1
Total				330	1295
				1625	

Table 14.3: LCC Cycle Parking Requirements

With reference to the Table 14.2 and Table 14.3, the development is required to provide 1295 long term cycle spaces and 330 short term cycle spaces for visitors. This equates to a total cycle parking provision requirement of 1625 cycle parking spaces in accordance with the LCC Development standards.

14.4.3.2 Sustainable Residential Development and Compact Settlements – Guidelines for Planning Authorities (2024)

Reference has been made to the document Sustainable Residential Development and Compact Settlements – Guidelines for Planning Authorities, published by the Department of Housing, Local Government and Heritage in January 2024, which states the following requirements for cycle parking:

“in the case of residential units that do not have ground level open space or have smaller terraces, a general minimum standard of 1 cycle storage space per bedroom should be applied. Visitor cycle parking should also be provided.”

This reflects the same requirements as the LCC Development Plan, and so the same number of cycle spaces are required for both long term and short term spaces.

In total, there are 293 residential apartment units / duplexes proposed. Of these, there is proposed to be 111 No. 1-bedroom apartments / duplexes, 140 No. 2-bedroom apartments / duplexes, and 42 No. 3-bedroom apartments / duplexes. Therefore, the development is required to provide a total of 517 no. of long-term residential apartment cycle parking spaces, plus additional visitor spaces based on the SRDCS guidelines.

It is noted that previous versions of Planning Design Standards for Apartments had their own guidelines, however the latest guidance (July 2025) simply refer to the SRDCS Guidelines for car and cycle parking standards.

14.4.3.3 Proposed Cycle Parking Numbers

The development proposes to provide a total of 1770 cycle parking spaces with 1395 of these proposed as long-term cycle parking. The increased level of cycle parking spaces is proposed to encourage positive modal shift towards a more sustainable mode of travel. Moreover, future residents and visitors of the subject site will also be able to benefit from pedestrian/cycle facilities along all of the major roads within the proposed development.

A comparison of all standards and the proposed cycle parking can be seen in Table 14.2.

Cycle Parking Standards									
Unit Type		No. of Units	Metric	Louth Development Plan 2021 - 2027		Compact Settlement Guidelines 2024		Proposed	
				Short Stay	Long Stay	Short Stay	Long Stay	Short Stay	Long Stay
House		757	Units	1 space per 5 units	1 per unit	"Also provided"	0 if has open space	1 space per 5 units	1 per unit
Apartment	1 bed	100	Units	1 space per 2 units	1 space per bedroom	"Also provided"	1 space per bedroom	1 space per 2 units	1 space per bedroom
	2 bed	129	Units	1 space per 2 units	1 space per bedroom	"Also provided"	1 space per bedroom	1 space per 2 units	1 space per bedroom
	3 bed	55	Units	1 space per 2 units	1 space per bedroom	"Also provided"	1 space per bedroom	1 space per 2 units	1 space per bedroom
Retail		900	Sqm	1 space per 100 sqm	1 space per 5 staff	-	-	1 space per 100 sqm	1 space per 5 staff
Creche		284	Children	1 space per 10 children	1 space per 5 staff	-	-	1 space per 10 children	1 space per 5 staff
Medical		250	Sqm	1 space per 100 sqm	1 space per 5 staff	-	-	1 space per 10 beds	1 space per 5 staff

Cycle Parking Standards									
Unit Type		No. of Units	Metric	Louth Development Plan 2021 - 2027		Compact Settlement Guidelines 2024		Proposed	
				Short Stay	Long Stay	Short Stay	Long Stay	Short Stay	Long Stay
House		765	Units	153	765	-	0	153	765
Apartment	1 bed	111	Units	56	111	-	111	61	121
	2 bed	140	Units	70	280	-	280	77	295
	3 bed	42	Units	21	126	-	126	28	141
Retail		900	Sqm	9	4	-		10	10
Creche		194	Children	19	8	-		20	20
Medical		250	Sqm	3	1	-		3	1
General Local Centre Cycle Parking								24	42
Total				330	1295	0	517	375	1395
				1625		517		1770	

Table 14.4: Comparison of Bicycle Parking Provision

The locations of the proposed short- and long-term cycle parking in the Local Centre and Apartments can be seen in Figure 14.21.



Figure 14.21: Local Centre and Apartments Layout

14.4.4 Vehicle Parking Provision

14.4.4.1 Louth County Council Car Parking Requirements

According to Louth County Development Plan 2021 – 2027, the subject site falls within Area 3 of the Car Park Provision Areas. The parking tiers are laid out below:

- **Area 1: Land within 1km of Drogheda Train Station** – Within 1km walking distance of an existing or planned high capacity urban public transport node.

- **Area 2: Regional Growth Centres – Drogheda and Dundalk** – Town Centre and / or lands within 500 metres of existing or planned high frequency urban bus services.
- **Area 3: Intermediate Location** Town Centre and / or lands within 500 metres of existing or planned high frequency urban bus services.
- **Area 3: Peripheral Location** Lands that do not meet the proximity or accessibility criteria detailed above.

The site is located in a Peripheral Location, and so the Area 3 standards have been applied.

14.4.4.2 Sustainable Residential Development and Compact Settlements – Guidelines for Planning Authorities (2024)

Reference has been made above to the document Sustainable Residential Development and Compact Settlements – Guidelines for Planning Authorities, published by the Department of Housing, Local Government and Heritage in January 2024. According to these guidelines, the subject development falls under the ‘Peripheral’ classification.

In reference to SPPR 3 (i) for Car Parking in Peripheral locations the Guidelines state:

“(ii) In intermediate and peripheral locations, defined in Chapter 3 (Table 3.8) the maximum rate of car parking provision for residential development, where such provision is justified to the satisfaction of the planning authority, shall be 2 no. spaces per dwelling.”

The LCC and Compact Settlement Guidelines Car Parking Standards and Requirements are outlined in Table 14.5.

Car Parking Standards					
Unit Type		No. of Units	Metric	Louth Development Plan 2021 2027 Standard	Compact Settlement Guidelines
House	1 bed	0	Units	2 per unit	-
	2 bed	51	Units	2 per unit	-
	3+ bed	714	Units	2 per unit	-
Apartment	1 bed	111	Units	2 per unit	1 per unit + 1 per 3.5 units
	2 bed	140	Units	2 per unit	1 per unit + 1 per 3.5 units
	3 bed	42	Units	2 per unit	1 per unit + 1 per 3.5 units
Retail		900	Sqm	1 per 100 sqm	-
Creche		284	Children	1 per 6 children	-
Medical		250	Sqm	3 per consulting room	-

Car Parking Standards						
Unit Type		No. of Units	Metric	Louth Development Plan 2021 - 2027 Standard	Compact Settlement Guidelines	Proposed
House	1 bed	0	Units	0	-	0
	2 bed	51	Units	102	-	102
	3+ bed	714	Units	1428	-	1428
Apartment	1 bed	111	Units	586	377	427
	2 bed	140	Units			
	3 bed	42	Units			
Retail		900	Sqm	9	-	Local Centre
Creche		194	Children	32	-	63
Medical		250	Sqm	9	-	
Total				2166	377	2020

Table 14.5: Car Parking Standards and Proposals

It can be seen that the LCC Development plan outlines a maximum car parking standard of 2166 car parking spaces for the entire lands. The total amount of proposed car parking spaces is 2020 spaces, including 1957 car parking spaces dedicated to the residential houses. A total of 63 car parking spaces are proposed for the Local Centre.

The Development Plan outlines that a reduced level of car parking may be acceptable where the site has good links to public transport, and where the location of the site promotes walking and cycling. It is believed that the site is catered for by public transport, and the sites permeability and walking and cycling facilities will reduce the level of private car parking required. The proposed mobility hub will also include a mixture of e-bikes, EV charging, and regular bike parking, all of which will promote a reduction in private car usage. The future proposed transport infrastructure in Dundalk, such as the DN4 bus, and the various active travel upgrades, will further promote a reduction in private car use.

14.4.4.3 Car Club

A Car Club provides its members with quick and easy access to a vehicle for short term hire. The GoCar is a well-established and successful car club operator in Ireland. This service has been recommended in recent developments as a means for car sharing where car parking is reduced. GoCar would provide a number of permanent vehicles within close proximity to the development or within the development itself where residents would have availability to use.

A recent survey undertaken by GoCar indicated that the main uses of the service was for day trips, family trips and big shopping trips. The survey also highlighted that the average use of a car was for 1 hour a day. GoCar also offer more favourable rates for long distance travel.

It is proposed to provide 2 No. car share spaces (e.g. GoCar or similar) within the development, which will be located within the mobility hub at the centre of the development.

14.4.4.4 Mobility Management Plan

A Mobility Management Plan has been prepared as part of the planning pack and should be read in conjunction with this document. The MMP will be developed further at operational stage by the management company who will have a more active role than a management company from a traditional apartment development.

14.4.5 Pedestrian Connectivity

The Design Manual for Urban Roads and Streets (DMURS) identifies the importance of connectivity for pedestrians within residential areas. The document states 'The creation of vibrant and active places requires pedestrian activity. This in turn requires walkable street networks that can be easily navigated and are well connected.'

DMURS references that 'Sustainable neighbourhoods are areas where an efficient use of land, high quality urban design and effective integration in the provision of physical and social infrastructure such as public transport, schools, amenities and other facilities combine to create places people want to live in'.

The document highlights that these residential locations constructed in accordance with the principles of segregation have a significant influence on mode choice, as a lack of connectivity is one of the key factors that discourage people from walking.

The proposed development site will have excellent connectivity for pedestrians to access the residential units and local centre alike, with a number of connecting paths that routing through the proposed green areas.

14.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

14.5.1 Proposed Development

14.5.1.1 Construction Stage

In general, the impact of the construction period will be temporary in nature and less significant than the final post development operational stage.

All construction activities will be governed by a Construction Traffic Management Plan (CTMP), the details of which will be agreed with Louth County Council prior to the commencement of construction activities on site. The principal objective of the CTMP is to ensure that the impacts of all building activities generated during the construction phase upon the public (off-site), visitors to the subject site (on-site) and internal (on-site) workers environments, are fully considered and proactively managed/programmed thereby ensuring that safety is maintained at all times, disruption is minimised and undertaken within a controlled hazard free/minimised environment.

During the general excavation of the foundations there may be additional HGV movements from the site. All suitable material will be used for construction and fill activities where possible and appropriate. All spoil material will be removed to a registered landfill site which will be agreed in advance with Louth County Council.

In addition to the traffic generated by the disposal of surplus subsoil from the site, there will be traffic generated from deliveries of construction materials and equipment. It should be noted that construction traffic generated during the development works tends to be at off-peak hours. Such trips would generally be spread out over the full working day and are unlikely to be higher than the peak hour predicted for the operational stage.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Excavation plant and dumper trucks involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready-mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.
- On-site employees will generally arrive before 07:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 18:00. It should be noted that a large proportion of construction workers would arrive in shared transport. Deliveries would arrive at a steady rate during the course of the day.
- In the absence of a final construction programme, it is difficult to assess the exact impact during the construction period. Nevertheless, the following estimates have been made in respect of the construction period impacts:
- Appropriate on-site parking and compounding will be provided to prevent overflow onto the local network.
- It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential.
- Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low.
- Site offices and compound will be located within the site boundary. The site will be able to accommodate employee and visitor parking throughout the construction period. Initially, hard-standing parking areas will be provided and as the development progresses, employees will use constructed car-parking spaces, as they become available.
- Finally, truck wheel washes will be installed at construction entrances and any specific recommendations with regard to construction traffic management made by Louth County Council will be adhered to.

14.5.1.2 Operational Stage

In order to establish the existing local road networks traffic characteristics and subsequently enable the identification of the potential impact of the proposed residential development, traffic surveys were conducted on Tuesday the 4th of March 2025.

The aforementioned traffic surveys (weekday classified junction turning counts) were conducted by IDASO Ltd between 07:00 AM to 19:00 PM., as per the requirements set out in both the NTA Survey Specification and TII Doc Ref PE-PAG-02016 (PAG Unit 5.2 – Data Collection). The surveys undertaken included Junction Turning Counts (JTC) as well as Queue Length Surveys (QLS) on each approach to junctions. JTCs were carried out at thirteen junctions within close proximity to the proposed development site. The following locations were included within the survey (Figure 5.1):

- Junction 1 – Castletown Road / Mount Avenue (Priority Crossroads)
- Junction 2 – M1 Junction 17 Western Roundabout
- Junction 3 – Castletown Road / Marian Park (Priority Junction)
- Junction 4 – Carrickmacross Road / Old Mount Avenue (Priority Junction)
- Junction 5 – Carrickmacross Road / Ard Easmuinn (Priority Junction)
- Junction 6 – Bellewsbridge Road / Mill Road (Priority Junction)
- Junction 7 – Castletown Road / Ecco Road (Signalised Junction)
- Junction 8 – M1 Junction 17 Eastern Roundabout
- Junction 9 – Castletown Road / Greycare Road (Priority Junction)
- Junction 10 – Castletown Road / Bellewsbridge Road (Signalised Junction)
- Junction 11 – Mount Avenue / Headford (Priority Junction)
- Junction 12 – Mount Avenue Roundabout
- Junction 13 – Carrickmacross Road / New Mount Avenue (Signalised Junction)

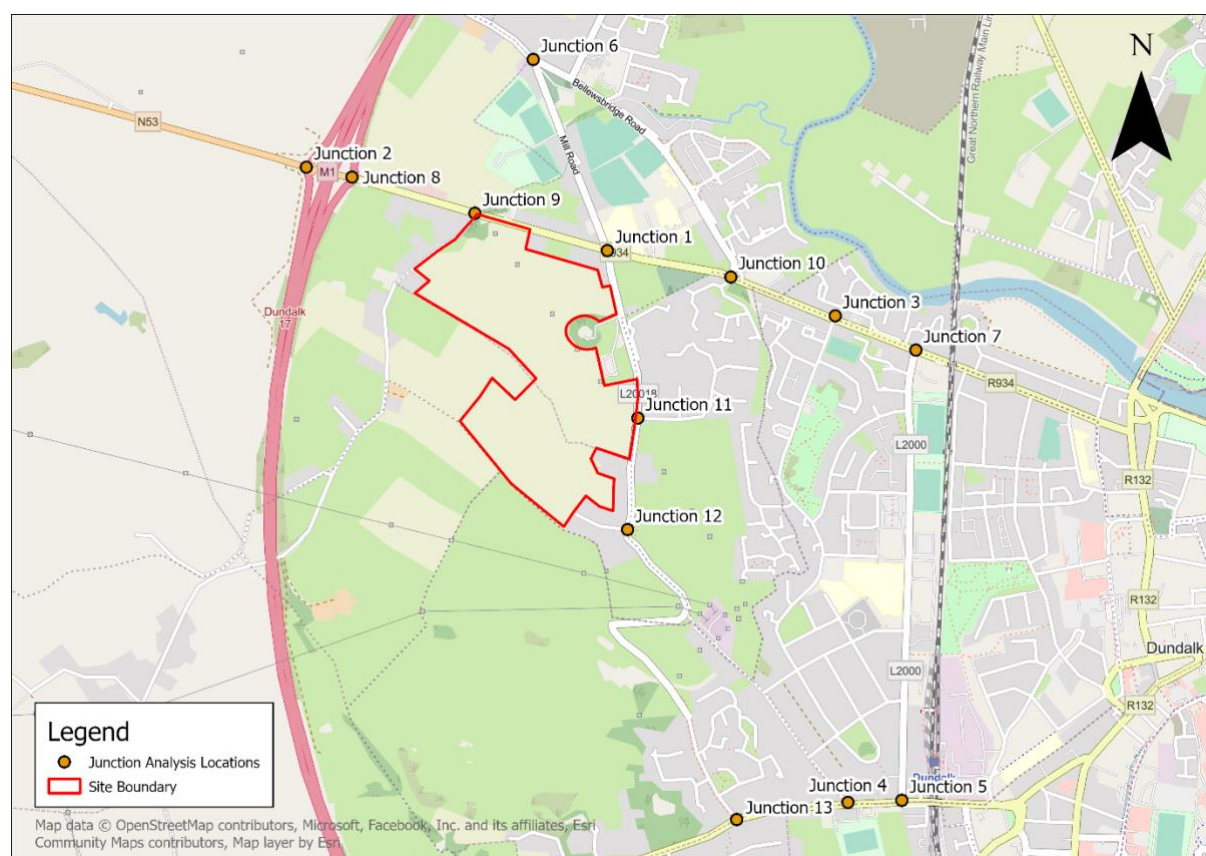


Figure 14.22: Traffic Survey Locations

Automatic Traffic Counts (ATCs) were carried out over a total of 2-weeks (one neutral week in November 2024 and one neutral week in March 2025) at both proposed site accesses.

In order to analyse and assess the predicted traffic generation from the proposed residential development upon the local road network, an area wide traffic model incorporating these local junctions was created by DBFL. Base traffic flows and the Flow Diagrams for all scenarios are illustrated within Appendix B of the TTA submitted as part of this planning application.

14.5.1.3 Traffic Growth

An Opening Year of 2027 has been assumed for this assessment. In accordance with TII Guidance, Future Design years (+5 and +15 years) of 2032 and 2042 have also been adopted.

The TII Project Appraisal Guidelines (PAG) have been utilized to determine the traffic growth forecast rates. The traffic growth forecast rates within the PAG ensures local and regional variations and demographic patterns are accounted for.

Table 6.1 within the PAG Unit 5.3 provides Annual National Traffic Growth Factors for the different regions within Ireland. The subject site lies within 'Louth' with the growth factors as outlined within Table 14.6 below.

Area	Low Sensitivity Growth				Central Growth				High Sensitivity Growth			
	2016-2040		2030-2040		2016-2040		2030-2040		2016-2040		2030-2040	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Louth	1.0134	1.0347	1.0054	1.0153	1.0148	1.0363	1.007	1.0174	1.0177	1.0397	1.01	1.0177

Table 14.6: National Traffic Growth Forecasts: Annual Growth Factors

Applying the annual factors (central growth) as outlined in Table 14.6 above for the adopted Opening Year of 2027 and Future Horizon Years of 2032 (+5 years) and 2042 (+15 years), the following growth rates have been adopted to establish corresponding 2027, 2032 and 2042 baseline network flows: -

- 2025 to 2027 – 1.0298 (or 2.98%);
- 2025 to 2032 – 1.0913 (or 9.13%); and
- 2025 to 2042 – 1.1686 (or 16.86%).

Traffic flow diagrams for the 2027, 2032 and 2042 flows are illustrated in Appendix B of the TTA submitted as part of this planning application.

14.5.1.4 Trip Generation

To estimate the potential level of vehicle trips that could be generated by the proposed development, reference has been made to the TRICS database. TRICS provides trip rate information for a variety of different land uses and development types, which can be applied to the subject development.

TRICS calculations were carried out for the residential units.

TRICS data is primarily UK based, although a number of Irish sites are now included, and the number of Irish sites continues to expand. Nevertheless, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

Notwithstanding the above, internal research undertaken by TRICS has shown that there is no direct evidence of trip rate variation by country or region. The use of English, Scottish or Welsh data can be equally applicable to Ireland if users take into account important site selection filtering factors such

as levels of population, location type, local public transport provision, and development size and car ownership level, amongst others.

Data supplied for inclusion in TRICS undergoes a procedure of validation testing, and there is no evidence from this procedure suggesting that data from Ireland bears any significant fundamental differences to that from the other countries included. Consequently, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

The weekday AM and PM peak hour flows have been identified in traffic survey.

Table 14.7 presents the predicted trip generation and the estimated traffic flows arriving and departing the proposed development during the morning and evening peak hours. The TRICS output data is provided within Appendix A of the TTA submitted as part of this planning application.

Due to the size of the development, it is not expected that the entire development will be operational for the Opening Year 2027, and that instead the development will become operational on a phased basis. The status of the development for the Opening Year (2027), Opening Yr +5 (2032) and Opening Year +15 (2042) are shown below:

- 2027 Opening Year – 200 houses occupied, all movements via Castletown Road Access (Mount Ave access closed)
- 2032 Opening Year + 5 – 765 Houses occupied, 100 apartments occupied, local centre operational incl all commercial, both Castletown Road and Mount Ave access open and connected internally.
- 2042 Opening Year + 15 – Entire development occupied and operational

Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	757	Units	0.146	0.328	0.354	0.189
Apartments	284	Units	0.068	0.143	0.234	0.105
Retail	900	Sqm	8.619	8.661	9.920	10.456
Creche	1900	Sqm	2.124	1.487	1.467	2.471
Medical	250	Sqm	0.373	0.037	0.410	0.410
Primary School	350	Students	0.367	0.280	0.017	0.105
Total			11.697	10.935	12.402	13.736

Table 14.7: Proposed Development Vehicle Trip Rates

200 Units Complete - 2027						
Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	200	Units	29	66	71	38
Apartments	0	Units	0	0	0	0
Retail	0	Sqm	0	0	0	0
Creche	0	Sqm	0	0	0	0
Medical	0	Sqm	0	0	0	0
Total			29	66	71	38

Table 14.8 Proposed Development Vehicle Trip Generation 2027

865 Units Complete - 2032						
Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	765	Units	112	251	271	145
Apartments	100	Units	7	14	23	11
Retail	900	Sqm	54	55	62	66
Creche	962	Sqm	14	10	10	17
Medical	250	Sqm	1	0	1	1
Total			188	330	368	239

Table 14.9 Proposed Development Vehicle Trip Generation 2032

All Phases Complete - 2042						
Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	765	Units	112	251	271	145
Apartments	293	Units	20	42	69	31
Retail	900	Sqm	54	55	62	66
Creche	962	Sqm	14	10	10	17
Medical	250	Sqm	1	0	1	1
Total			201	357	413	259

Table 14.10: Proposed Development Vehicle Trip Generation 2042

A total of 558 trips are generated by the development during the AM Peak Hour, and 672 trips are generated during the PM Peak Hour. The majority of these trips are derived from the residential houses and apartments.

14.5.1.5 Committed Developments

Fully permitted developments in the nearby areas which generate vehicle trips onto road corridors modelled as part of this assessment have been considered. The committed developments taken into consideration have been chosen based upon the vehicle trips from committed vehicles which could potentially route through the local road network modelled as part of this traffic assessment.

There are three sites which have planning permission and are under construction in the vicinity of the site. The locations of these committed developments can be seen in Figure 14.23.



Figure 14.23: Committed Developments in the vicinity of the site

The breakdown of the committed developments can be seen below:

Com Dev	Louth County Council / An Bord Pleanála Planning Ref:	No. of Houses	No. of Apartments	Total Units
1	211173	61	32	93
2	308644	67	0	67
3	24145	50	30	80
Total		178	62	240

Table 14.11: Committed Developments

Trip rates were unclear in the case of the committed developments, therefore for the sake of robustness, new trip rates were generated using the TRICS software and applied to the unit types.

Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	178	Units	0.145	0.379	0.354	0.189
Apartments	62	Units	0.056	0.169	0.234	0.105

Table 14.12: Committed Developments Trip Rates

Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	178	Units	26	67	63	34
Apartments	62	Units	3	10	15	7
Total	240		29	78	78	40

Table 14.13: Committed Developments Total Trips

It can be seen that a maximum of 118 trips are generated by the committed developments during the PM Peak Hour.

These trips have been added onto the network and form part of the over traffic model for the subject development.

14.5.2 Network Impact

Two different traffic scenarios have been assessed, namely (a) the 'Base' (Do Nothing) traffic characteristics and (b) the 'Post Development' (Do Something) traffic characteristics.

The proposed development traffic flows have then been added to the network's 'Base' (Base + Committed Development) traffic flows to establish the new 'Post' Development traffic flows. Base Flows for the future design years were based on Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections published by Transport Infrastructure Ireland (TII).

In Summary the following scenarios are considered the residential site at Mount Avenue:

14.5.2.1 Do Nothing

- A1 – 2027 Base Flows + Committed Developments
- A2 – 2032 Base Flows + Committed Developments
- A3 – 2042 Base Flows + Committed Developments

14.5.2.2 Do Something

- B1 – 2027 Do Nothing (A1) + Proposed Development Flows (200 Units)
- B2 – 2032 Do Nothing (A2) + Proposed Development Flows (865 Units + Local Centre)
- B3 – 2042 Do Nothing (A2) + Proposed Development Flows (Full Development)

14.5.3 Assessment Periods

The weekday AM and PM peak hour flows have been identified in traffic survey as occurring between 08:15-09:15 and 17:00-18:00 respectively. These peak hours form the basis of the network assessments.

14.5.4 Network Vehicle Flows

The following Figures as included in Appendix B present the vehicle flows across the local road network for each of the adopted development assessment scenarios:

- 2027 Do Nothing
- 2032 Do Nothing
- 2042 Do Nothing
- 2027 Do Something
- 2032 Do Something
- 2042 Do Something

14.5.5 Road Network Impact

The Institute of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated, a more detailed assessment should be undertaken to ascertain the specific impact upon the network's operational performance. These same thresholds are reproduced in the TII document entitled Traffic and Transport Assessment Guidelines (2014).

In accordance with the IHT and TII guidelines, assessments have been undertaken to establish the potential level of impact upon the key junctions of the local road network. To enable this calculation to be undertaken, the analysis took account of the following:

- 2027 Opening Year (Do Nothing & Do Something);
- 2032 Future Design Year Scenario (Do Nothing & Do Something); and
- 2042 Future Design Year Scenario (Do Nothing & Do Something).

Table 6.1 details the percentage impact of the relevant key junctions (illustrated in Figure 14.24 for the 2027, 2032 and 2042 design years are the following:

- Junction 1 – Castletown Road / Mount Avenue (Priority Crossroads)
- Junction 2– M1 Junction 17 Western Roundabout
- Junction 3 – Castletown Road / Marian Park (Priority Junction)
- Junction 4 – Carrickmacross Road / Old Mount Avenue (Priority Junction)
- Junction 5 – Carrickmacross Road / Ard Easmuinn (Priority Junction)
- Junction 6 – Bellewsbridge Road / Mill Road (Priority Junction)
- Junction 7 – Castletown Road / Ecco Road (Signalised Junction)
- Junction 8 – M1 Junction 17 Eastern Roundabout
- Junction 9 – Castletown Road / Greyacre Road (Priority Junction)
- Junction 10 – Castletown Road / Bellewsbridge Road (Signalised Junction)
- Junction 11 – Mount Avenue / Headford (Priority Junction)
- Junction 12 – Mount Avenue Roundabout
- Junction 13 – Carrickmacross Road / New Mount Avenue (Signalised Junction)
- Junction 14 – Castletown Road / Site Access
- Junction 15 – Mount Avenue / Site Access

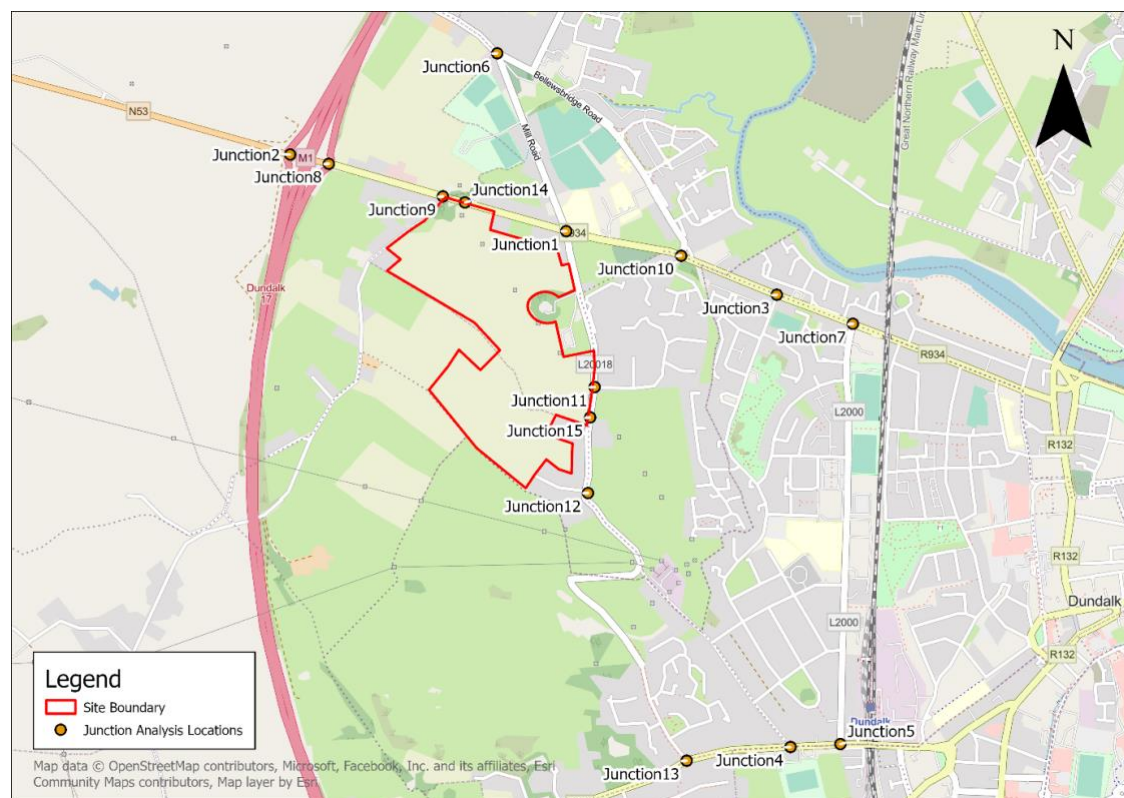


Figure 14.24: Junctions included in Analysis

AM													
Year		2027				2032				2042			
Junction	Name	DN	DS	Diff	Impact	DN	DS	Diff	Impact	DN	DS	Diff	Impact
1	Castletown Road / Mount Avenue (Priority Crossroads)	1033	1105	71	7%	1099	1274	175	16%	1184	1374	190	16%
2	M1 Junction 17 Western Roundabout	1682	1696	14	1%	1808	1886	78	4%	1976	2060	84	4%
3	Castletown Road / Marian Park (Priority Junction)	1118	1166	47	4%	1192	1386	194	16%	1286	1496	209	16%
4	Carrickmacross Road / Mount Avenue (Priority Junction)	953	953	0	0%	1012	1077	65	6%	1087	1157	70	6%
5	Carrickmacross Road / Ard Easmuinn (Priority Junction)	1478	1478	0	0%	1573	1637	65	4%	1694	1764	70	4%
6	Bellewsbridge Road / Mill Road (Priority Junction)	226	236	9	4%	242	294	52	21%	264	320	56	21%
7	Castletown Road / Ecco Road (Signalised Junction)	1314	1361	47	4%	1399	1593	194	14%	1510	1719	209	14%
8	M1 Junction 17 Eastern Roundabout	1543	1566	24	2%	1653	1782	129	8%	1797	1937	140	8%
9	Castletown Road / Greyscale Road (Priority Junction)	909	932	24	3%	968	1097	129	13%	1044	1184	140	13%
10	Castletown Road / Bellewsbridge Road (Signalised Junction)	1147	1195	47	4%	1223	1417	194	16%	1320	1530	209	16%
11	Mount Avenue / Headford (Priority Junction)	265	280	14	5%	279	299	20	7%	296	319	22	8%
12	Mount Avenue Roundabout	273	287	14	5%	284	426	142	50%	298	452	154	52%
13	Carrickmacross Road / An Bothair Dara (Signalised Junction)	926	940	14	2%	982	1124	142	14%	1053	1207	154	15%
14	Castletown Road / Site Access	891	986	95	11%	949	1234	285	30%	1024	1331	307	30%
15	Mount Avenue / Site Access	224	238	14	6%	235	468	233	99%	249	501	251	101%

Table 14.14: Network Impact Analysis (AM Peak Hour)

PM													
Year		2027				2032				2042			
Junction	Name	DN	DS	Diff	Impact	DN	DS	Diff	Impact	DN	DS	Diff	Impact
1	Castletown Road / Mount Avenue (Priority Crossroads)	1039	1052	13	1%	1100	1318	217	20%	1178	1422	244	21%
2	M1 Junction 17 Western Roundabout	1711	1727	16	1%	1825	1916	91	5%	1973	2074	101	5%
3	Castletown Road / Marian Park (Priority Junction)	1172	1226	54	5%	1243	1471	227	18%	1334	1586	252	19%
4	Carrickmacross Road / Mount Avenue (Priority Junction)	1029	1029	0	0%	1091	1167	76	7%	1169	1253	84	7%
5	Carrickmacross Road / Ard Easmuinn (Priority Junction)	1663	1663	0	0%	1764	1840	76	4%	1891	1975	84	4%
6	Bellewsbridge Road / Mill Road (Priority Junction)	236	247	11	5%	251	312	61	24%	271	338	67	25%
7	Castletown Road / Ecco Road (Signalised Junction)	1345	1399	54	4%	1426	1654	227	16%	1529	1781	252	16%
8	M1 Junction 17 Eastern Roundabout	1299	1322	22	2%	1384	1530	147	11%	1492	1655	163	11%
9	Castletown Road / Greyscale Road (Priority Junction)	912	939	27	3%	967	1119	152	16%	1038	1206	168	16%
10	Castletown Road / Bellewsbridge Road (Signalised Junction)	1114	1168	54	5%	1181	1409	227	19%	1267	1519	252	20%
11	Mount Avenue / Headford (Priority Junction)	254	270	16	6%	265	301	36	13%	279	322	43	15%
12	Mount Avenue Roundabout	287	304	16	6%	298	465	167	56%	311	496	185	59%
13	Carrickmacross Road / An Bothair Dara (Signalised Junction)	1002	1018	16	2%	1061	1228	167	16%	1137	1321	185	16%
14	Castletown Road / Site Access	882	990	109	12%	935	1273	338	36%	1003	1377	374	37%
15	Mount Avenue / Site Access	235	252	16	7%	245	518	273	111%	258	561	302	117%

Table 14.15: Network Impact Analysis (PM Peak Hour)

The Institute of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. It can therefore be seen that the majority of impacts surpass 10%, and that further analysis is required on all 15 junctions to determine the detailed impact of the development on the local road network.

It should be noted that while some junctions experience a high percentage impact from the development (such as 101% on Junction 15 during 2042 AM Peak), the Do-Nothing flows may be quite low and the junction may actually have significant reserve capacity.

All 15 junctions have been analysed using the TRL Software Junctions 10 and TRANSYT 17. The results of this analysis are presented in Section 14.5.9.

14.5.6 Network Analysis

This network assessment considers the impact of the subject development only on the surrounding road network. The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package PICADY (part of Junctions 10) for the priority junctions, ARCADY (part of Junctions 10) for the roundabouts, and TRANSYT for the signalised junctions.

For the PICADY and ARCADY analyses, a 90-minute AM and PM period has been simulated, from 08:00 to 09:30 and 16:45 to 18:15, respectively. For these junction analysis sets traffic flows were entered using an Origin-Destination table for the peak hours.

When considering priority junctions, a Ratio of Flow to Capacity (RFC) of greater than 85% (0.85) would indicate a junction to be approaching capacity, as operation above this RFC value is poor and the performance of the junction deteriorates quickly.

When considering signalised junctions, a Degree of Saturation (DOS) of greater than 90% would indicate a junction to be approaching capacity, as operation above this DOS value is poor and the performance of the junction deteriorates quickly.

In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the junctions was analysed for the following:

- 2025 Base
- 2027 Opening Year
- 2032 Interim Year (Opening Year +5 years)
- 2042 Future Horizon Year (Opening Year +15 years)

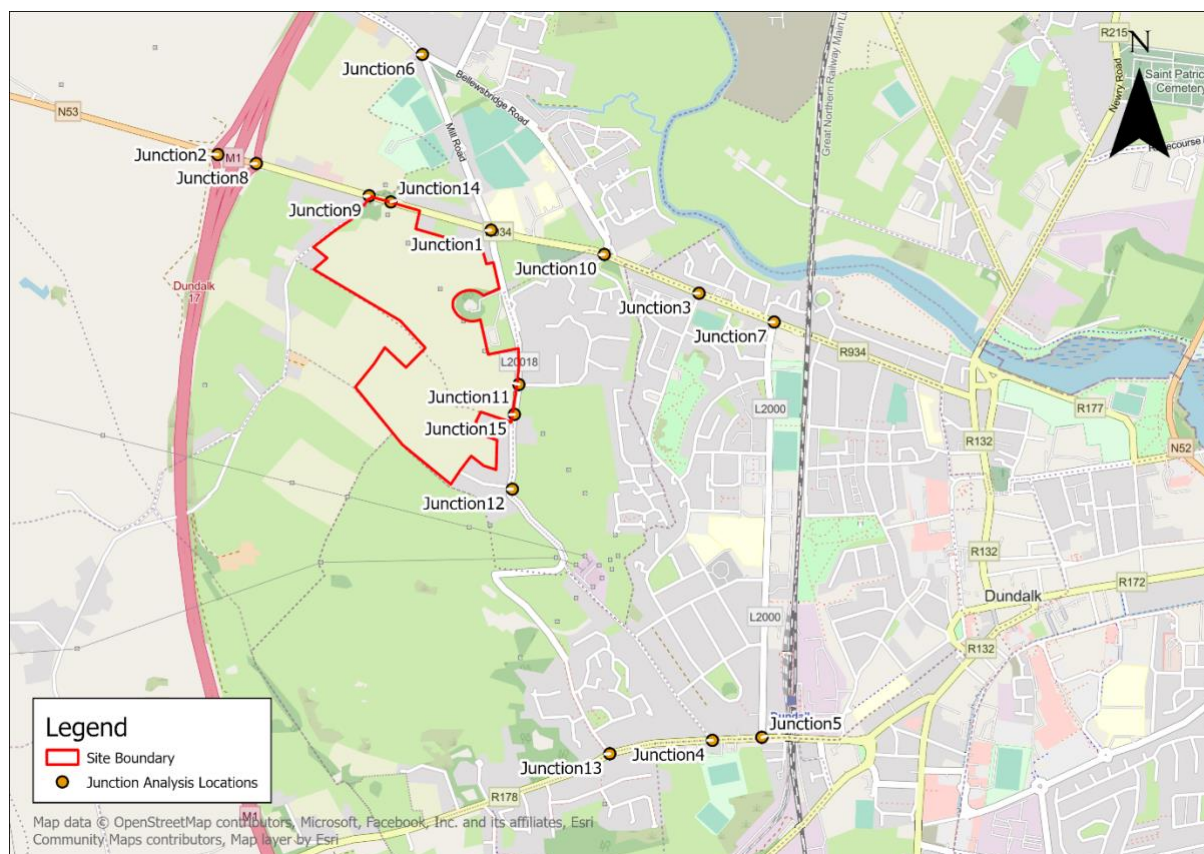


Figure 14.25: Junctions Assessed

14.5.6.1 Junction 1 – Castletown Road / Mount Avenue (Priority Crossroads)

Junction 1 is a priority-controlled crossroads junction, consisting of a regional road (Castletown Road) travelling east-west, and minor arms of Mount Avenue to the south, and Mill Road to the north. The junction has a signal-controlled pedestrian crossing on its eastern arm.

The principal results of the operational assessment of this priority-controlled crossroads junction during the weekday morning and evening peaks are summarised in Table 14.14 below. The arms were labelled as follows within the PICADY model:

- Arm A: Castletown Road (East)
- Arm B: Mount Avenue
- Arm C: Castletown Road (West)
- Arm D: Mill Road

A diagram of the junction can be seen in Figure 14.26.

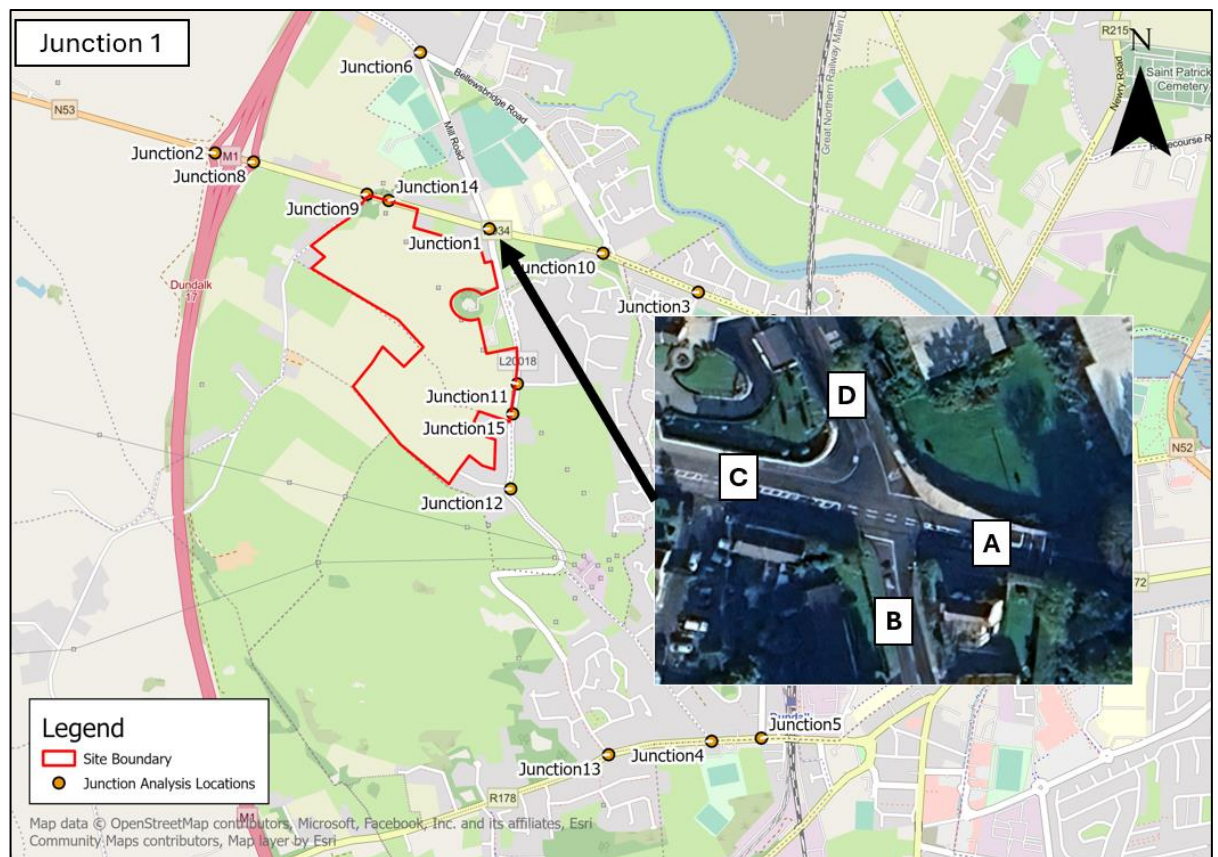


Figure 14.26: Junction 1 Location

Junction 1																
			2025				2027									
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			Queue (pcu)	Delay (s)	RFC	RFC	Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	B-ACD	Mount Ave	0.30	8.96	0.22	-	0.50	10.80	0.33	0.50	11.25	0.35	0.02			
	A-BC	Castletown Road (E)	0.40	6.27	0.15	-	0.40	6.31	0.16	0.40	6.37	0.17	0.01			
	A-D	Castletown Road (E)	0.00	7.04	0.16	-	0.00	7.09	0.17	0.00	7.17	0.18	0.01			
	D-ABC	Mill Road	0.30	11.47	0.23	-	0.40	12.37	0.26	0.40	13.20	0.28	0.02			
	C-ABD	Castletown Road (W)	0.10	6.91	0.10	-	0.20	6.95	0.12	0.20	6.95	0.14	0.02			
PM Peak	B-ACD	Mount Ave	0.20	7.86	0.15	-	0.30	8.98	0.22	0.20	9.21	0.18	-0.04			
	A-BC	Castletown Road (E)	0.60	6.37	0.24	-	0.70	6.52	0.26	0.70	6.40	0.28	0.02			
	A-D	Castletown Road (E)	0.10	6.83	0.26	-	0.10	7.02	0.28	0.10	7.14	0.30	0.02			
	D-ABC	Mill Road	0.10	9.37	0.12	-	0.20	10.18	0.15	0.20	10.50	0.17	0.02			
	C-ABD	Castletown Road (W)	0.10	7.23	0.12	-	0.20	7.42	0.16	0.10	7.35	0.10	-0.06			
			2032				2042									
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC	RFC	Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-ACD	Mount Ave	0.60	11.46	0.36	0.90	16.47	0.47	0.11	0.70	12.37	0.39	1.10	199.02	0.52	0.13
	A-BC	Castletown Road (E)	0.40	6.45	0.17	0.60	6.67	0.22	0.05	0.50	656.00	0.18	0.60	0.83	0.23	0.05
	A-D	Castletown Road (E)	0.00	7.28	0.19	0.00	7.55	0.23	0.04	0.00	7.44	0.20	0.00	7.78	0.25	0.05
	D-ABC	Mill Road	0.40	13.32	0.29	0.60	16.09	0.37	0.08	0.50	14.86	0.33	0.80	18.63	0.42	0.09
	C-ABD	Castletown Road (W)	0.20	6.96	0.13	0.10	7.02	0.06	-0.07	0.20	6.96	0.14	0.10	7.03	0.07	-0.07
PM Peak	B-ACD	Mount Ave	0.30	9.29	0.23	0.50	13.14	0.32	0.09	0.30	9.77	0.25	.	14.70	0.36	0.11
	A-BC	Castletown Road (E)	0.70	6.67	0.28	1.10	7.33	0.30	0.02	0.80	6.89	0.30	1.20	7.72	0.40	0.10
	A-D	Castletown Road (E)	0.10	7.22	0.30	0.10	7.90	0.38	0.08	0.10	7.50	0.32	0.10	8.35	0.41	0.09
	D-ABC	Mill Road	0.20	10.59	0.16	0.40	13.69	0.28	0.12	0.20	11.26	0.18	0.50	15.27	0.32	0.14
	C-ABD	Castletown Road (W)	0.20	7.47	0.17	0.10	7.63	0.09	-0.08	0.30	7.50	0.18	0.10	7.74	0.10	-0.08

Table 14.16 Junction 1 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC and highest queue value is observed during the 2042 Do Something AM Peak on Mount Avenue, with an RFC of 0.52, and a queue length of 1.20. The biggest increase in RFC between the Do Nothing and Do Something is during 2042 PM Peak Hour, with an increase of 0.14 RFC on the Mill Road arm.

It is noted that the RFC reduces on the Castletown Road (West) arm for the Do-Something scenarios. This is due to the new link street within the site, of which it is assumed that some vehicles will use that instead of using this junction.

14.5.6.2 Junction 2 – M1 Junction 17 Western Roundabout

Junction 2 is a roundabout junction, located on the western side of M1 Junction 17. Castletown Road crosses the roundabout in an east-west fashion, while the M1 Off-Ramp is the southern arm, and the M1 On-Ramp is the northern arm.

The principal results of the operational assessment of this roundabout junction during the weekday morning and evening peaks are summarised in Table 14.15 below. The arms were labelled as follows within the ARCADY model:

- Arm 1: Castletown Road (East)
- Arm 2: M1 Off-Ramp
- Arm 3: Castletown Road (West)
- Arm 4: M1 On-Ramp

A diagram of the junction can be seen in Figure 14.27.

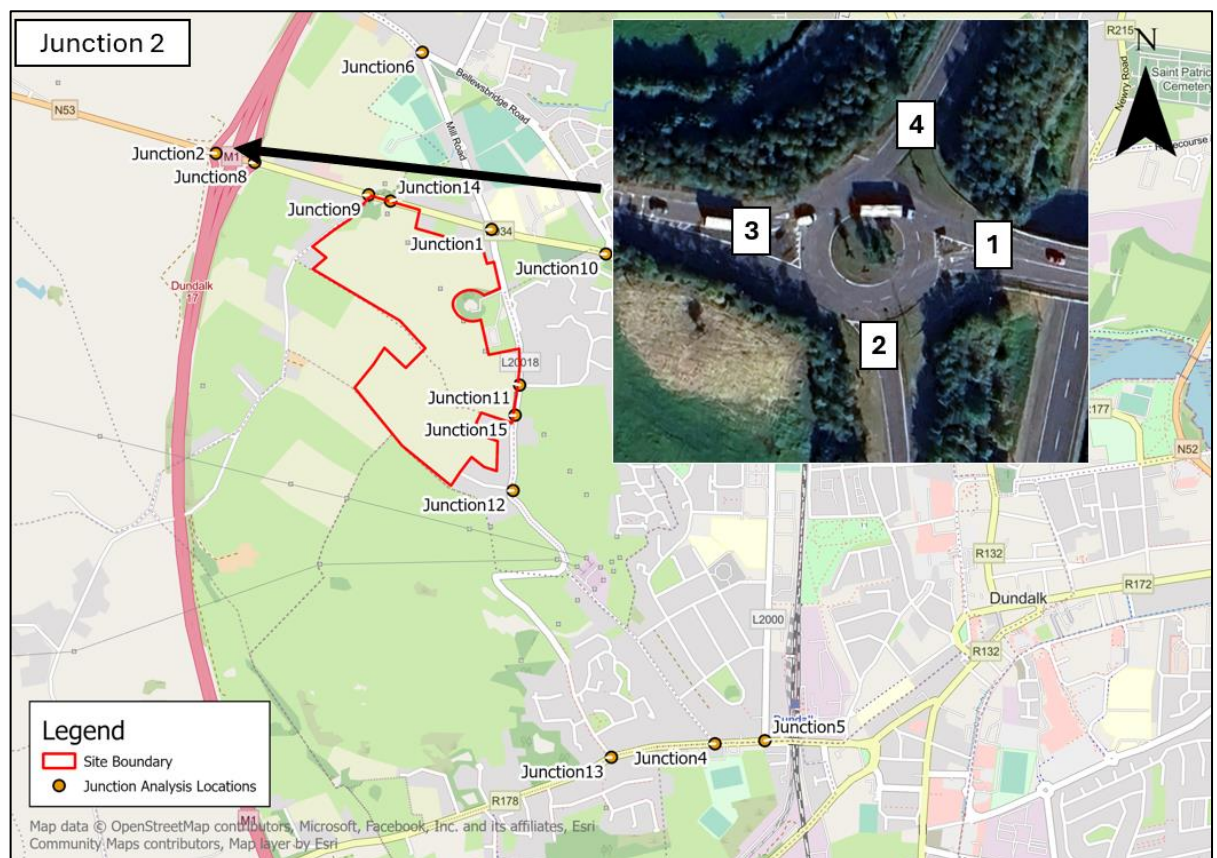


Figure 14.27: Junction 2 Location

Junction 2																
			2025					2027								
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	Arm 1	Castletown Road (E)	1.60	3.66	0.25	-	1.40	3.75	0.27	1.60	3.78	0.28	0.01			
	Arm 2	M1 Off-Ramp	1.10	3.47	0.20	-	1.30	3.58	0.22	1.30	3.61	0.22	0.00			
	Arm 3	Castletown Road (W)	4.00	7.85	0.69	-	7.10	8.83	0.72	7.50	8.98	0.73	0.01			
PM Peak	Arm 1	Castletown Road (E)	2.70	4.19	0.40	-	2.50	4.32	0.42	2.40	4.35	0.43	0.01			
	Arm 2	M1 Off-Ramp	1.50	6.29	0.55	-	1.60	6.86	0.59	1.70	7.01	0.59	0.00			
	Arm 3	Castletown Road (W)	2.00	3.76	0.31	-	2.30	3.90	0.33	2.40	3.95	0.33	0.00			
			2032					2042								
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	Arm 1	Castletown Road (E)	1.40	3.86	0.29	2.50	4.06	0.33	0.04	2.40	4.03	0.32	3.00	4.28	0.36	0.04
	Arm 2	M1 Off-Ramp	1.40	3.74	0.24	1.60	3.93	0.26	0.02	1.70	3.98	0.27	1.70	4.22	0.29	0.02
	Arm 3	Castletown Road (W)	15.20	11.12	0.78	19.90	12.90	0.81	0.03	30.30	16.65	0.85	38.30	21.46	0.89	0.04
PM Peak	Arm 1	Castletown Road (E)	2.00	4.55	0.45	1.60	4.77	0.48	0.03	1.50	4.88	0.49	1.50	5.16	0.52	0.03
	Arm 2	M1 Off-Ramp	2.10	8.01	0.64	4.70	9.36	0.68	0.04	6.80	10.16	0.71	13.60	12.78	0.76	0.05
	Arm 3	Castletown Road (W)	2.80	4.11	0.36	3.00	4.41	0.38	0.02	2.90	4.41	0.39	2.90	4.81	0.42	0.03

Table 14.17: Junction 2 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC and Queue values are observed during the 2042 Do Something AM Peak on Castletown Road (West), with an RFC of 0.89 and a 95% Queue of 38.30 PCU. It should be noted that the junction reaches above the 0.85 threshold during the Do-Nothing scenario. The biggest increase in RFC between the Do Nothing and Do Something is 0.05, which occurs on the M1 Off-Ramp arm during the PM Peak 2042.

It should be noted, as outlined in the Dundalk Local Area Plan (2025 – 2031), a future road is proposed along the western corridor of Dundalk, which may reduce future traffic volumes along the M1.

14.5.6.3 Junction 3 – Castletown Road / Marian Park (Priority Junction)

Junction 3 is a priority-controlled T-junction, consisting of a regional road (Castletown Road) travelling east-west, and the minor arm of Marian Park to the south.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.16 below. The arms were labelled as follows within the PICADY model:

- Arm A: Castletown Road (East)
- Arm B: Marian Road
- Arm C: Castletown Road (West)

A diagram of Junction 3 can be seen in Figure 14.28.

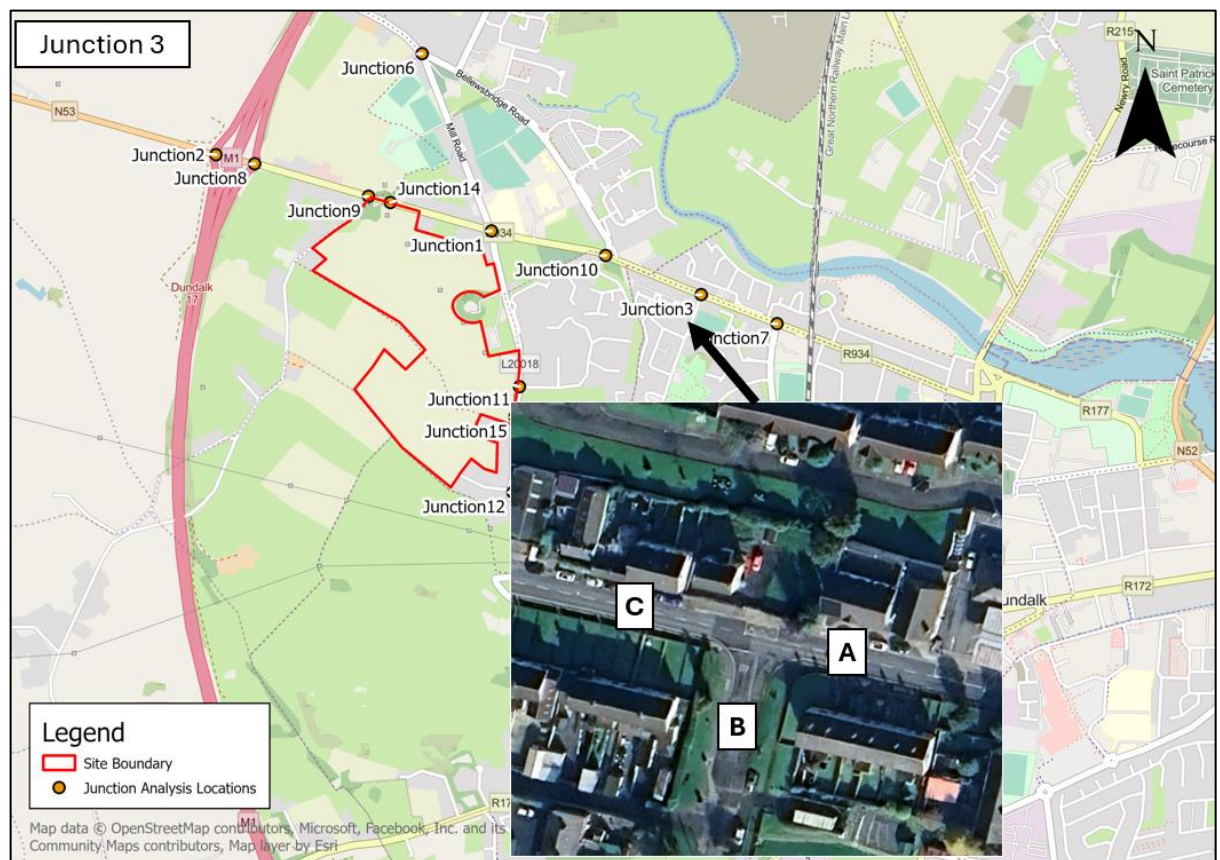


Figure 14.28: Junction 3 Location

Junction 3																
			2025					2027								
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	B-AC	Marian Road	0.50	7.59	0.15	-	0.50	8.00	0.17	0.50	8.21	0.17	0.00			
	C-AB	Castletown Road (W)	0.50	6.17	0.11	-	0.50	6.23	0.11	0.50	6.23	0.11	0.00			
PM Peak	B-AC	Marian Road	1.10	9.50	0.19	-	1.20	10.03	0.20	1.30	10.53	0.21	0.01			
	C-AB	Castletown Road (W)	0.50	7.45	0.16	-	0.50	7.57	0.17	0.80	7.66	0.17	0.00			
			2032					2042								
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Marian Road	1.00	8.64	0.19	1.20	9.63	0.20	0.01	1.20	9.06	0.20	1.30	10.56	0.23	0.03
	C-AB	Castletown Road (W)	0.50	6.38	0.13	0.50	6.27	0.13	0.00	0.50	6.26	0.13	0.50	6.28	0.14	0.01
PM Peak	B-AC	Marian Road	1.30	10.80	0.23	1.20	13.66	0.27	0.04	1.00	11.96	0.26	2.00	16.23	0.32	0.06
	C-AB	Castletown Road (W)	1.10	7.68	0.18	1.30	7.99	0.20	0.02	1.30	7.82	0.20	1.40	8.15	0.22	0.02

Table 14.18: Junction 3 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC and Queue values are observed during the 2042 Do Something PM Peak on Marian Road, with an RFC of 0.32, and a 95% Queue of 2.00 PCU. The biggest increase in RFC between the Do Nothing and Do Something is 2042 PM Peak, with a change of 0.06 RFC on Marian Road.

14.5.6.4 Junction 4 – Carrickmacross Road / Mount Avenue (Priority Junction)

Junction 4 is a priority-controlled T-junction, consisting of a regional road (Carrickmacross Road) travelling east-west, and the minor arm of Mount Avenue to the north.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.17 below. The arms were labelled as follows within the PICADY model:

- Arm A: Carrickmacross Road (West)
- Arm B: Mount Avenue
- Arm C: Carrickmacross Road (East)

A diagram of the junction can be seen in Figure 14.29.



Figure 14.29: Junction 4 Location

Junction 4																
			2025				2027									
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	B-AC	Mount Avenue	0.50	7.80	0.14	-	0.50	8.12	0.15	0.50	8.12	0.15	0.00			
	C-AB	Carrickmacross Road (East)	0.50	7.35	0.05	-	0.50	7.51	0.06	0.50	7.51	0.06	0.00			
PM Peak	B-AC	Mount Avenue	0.50	7.59	0.12	-	0.50	7.86	0.13	0.50	7.86	0.13	0.00			
	C-AB	Carrickmacross Road (East)	0.50	6.46	0.08	-	0.50	6.49	0.09	0.50	6.49	0.09	0.00			
			2032				2042									
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Mount Avenue	0.50	8.47	0.16	0.50	8.84	0.16	0.00	0.80	9.01	0.18	1.00	9.47	0.19	0.01
	C-AB	Carrickmacross Road (East)	0.50	7.66	0.06	0.50	7.82	0.06	0.00	0.50	7.86	0.07	0.50	8.04	0.07	0.00
PM Peak	B-AC	Mount Avenue	0.50	8.14	0.14	0.50	8.48	0.15	0.01	0.50	7.43	0.14	0.50	9.03	0.17	0.03
	C-AB	Carrickmacross Road (East)	0.50	6.54	0.09	0.50	6.57	0.09	0.00	0.50	6.07	0.09	0.50	6.61	0.10	0.01

Table 14.19: Junction 4 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC and Queue values are observed during the 2042 Do Something AM Peak on Mount Avenue with an RFC of 0.19, and a 95% Queue of 1.00 PCU. The biggest increase in RFC between the Do Nothing and Do Something is during the 2042 PM Peak Hour, with an increase of 0.03 RFC on the Mount Avenue arm.

14.5.6.5 Junction 5 – Carrickmacross Road / Ard Easmuinn (Priority Junction)

Junction 5 is a priority-controlled T-junction, consisting of a regional road (Carrickmacross Road) travelling east-west, and the minor arm of Ard Easmuinn to the north.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.18 below. The arms were labelled as follows within the PICADY model:

- Arm A: Carrickmacross Road (West)
- Arm B: Ard Easmuinn
- Arm C: Carrickmacross Road (East)

A diagram of the junction can be seen in Figure 14.30.



Figure 14.30: Junction 5 Location

Junction 5																
			2025							2027						
Peak Hour	Stream		Base						Change	Do Nothing			Do Something			Change
			95% Queue (pcu)		Delay (s)		RFC		RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Ard Easmiunn	4.10		14.60		0.58	-	5.30	16.41	0.62	5.30	16.41	0.62	0.00	
	C-AB	Carrickmacross Road (East)	6.40		11.54		0.51	-	7.50	12.22	0.55	7.50	12.22	0.55	0.00	
PM Peak	B-AC	Ard Easmiunn	4.70		15.49		0.57	-	1.50	17.44	0.61	5.00	17.44	0.61	0.00	
	C-AB	Carrickmacross Road (East)	15.90		11.21		0.65	-	3.70	11.72	0.67	19.10	11.72	0.67	0.00	
			2032							2042						
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Ard Easmiunn	9.30	20.00	0.68	10.80	22.02	0.70	0.02	15.10	27.33	0.76	17.40	31.79	0.79	0.03
	C-AB	Carrickmacross Road (East)	10.00	13.54	0.60	11.30	13.93	0.61	0.01	15.70	16.10	0.67	18.20	16.90	0.69	0.02
PM Peak	B-AC	Ard Easmiunn	9.20	21.90	0.67	11.40	25.28	0.71	0.04	17.40	33.98	0.78	23.60	45.36	0.83	0.05
	C-AB	Carrickmacross Road (East)	26.40	13.36	0.72	29.50	13.60	0.73	0.01	40.00	17.10	0.79	44.70	17.90	0.80	0.01

Table 14.20: Junction 5 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC value is observed during the 2042 Do Something PM Peak on Ard Easmuinn with an RFC of 0.83. The highest 95% Queue value observed is during the same period, on the Carrickmacross Road (East) arm, with a value of 44.70 PCU. The biggest increase in RFC between the Do Nothing and Do Something is during the 2042 PM Peak Hour, with an increase of 0.05 RFC on the Ard Easmuinn arm. It should be noted that this junction is included in the Local Transport Plan for active travel upgrades, as seen in Figure 14.14. These changes may affect the traffic conditions at this junction.

14.5.6.6 Junction 6 – Bellewsbridge Road / Mill Road (Priority Junction)

Junction 6 is a priority-controlled T-junction, consisting of a regional road (Bellewsbridge Road) travelling northwest-southeast, and the minor arm of Mill Road to the south.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.19 below. The arms were labelled as follows within the PICADY model:

- Arm A: Bellewsbridge Road (West)
- Arm B: Mill Road
- Arm C: Bellewsbridge Road (East)

A diagram of the junction can be seen in Figure 14.31.

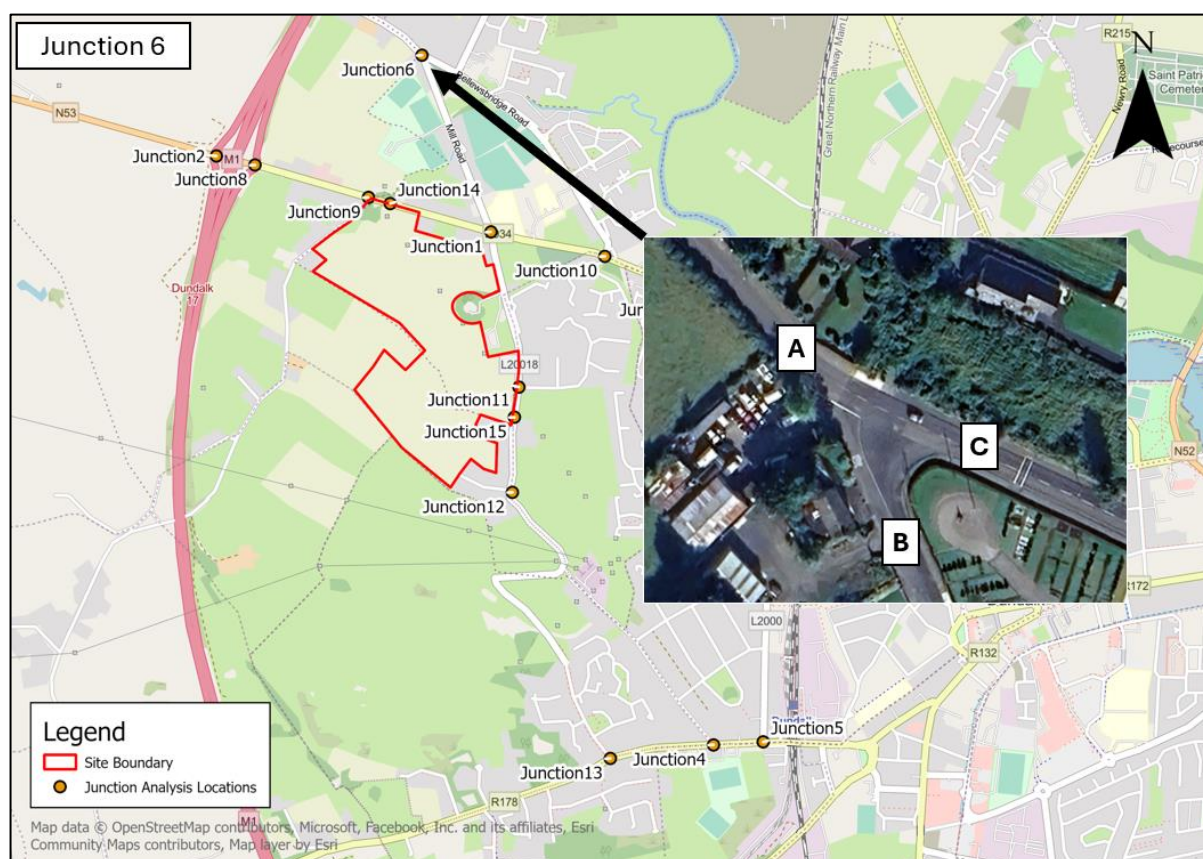


Figure 14.31: Junction 6 Location

Junction 6														
Peak Hour		Stream	2025				2027							
			Base			Change	Do Nothing			Do Something			Change	
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	
AM	B-AC	Mill Road	0.60	6.30	0.07	-	0.60	6.31	0.09	0.60	6.30	0.09	0.00	
Peak	C-AB	Bellewsbridge Road (East)	0.50	5.63	0.05	-	0.50	5.67	0.06	0.50	5.70	0.06	0.00	
PM	B-AC	Mill Road	0.50	5.87	0.15	-	0.50	5.94	0.16	0.50	5.96	0.16	0.00	
Peak	C-AB	Bellewsbridge Road (East)	0.60	7.08	0.02	-	0.60	7.17	0.03	0.60	7.25	0.05	0.02	
Peak Hour		Stream	2032				2042							
			Do Nothing			Change	Do Nothing			Do Something			Change	
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	
AM	B-AC	Mill Road	0.60	6.38	0.09	0.04	0.60	6.47	0.10	0.60	6.58	0.15	0.05	
Peak	C-AB	Bellewsbridge Road (East)	0.50	5.70	0.06	0.03	0.50	5.74	0.06	0.50	5.93	0.10	0.04	
PM	B-AC	Mill Road	0.50	6.03	0.17	0.03	0.90	6.14	0.18	1.30	6.35	0.22	0.04	
Peak	C-AB	Bellewsbridge Road (East)	0.60	7.19	0.04	0.06	0.60	7.23	0.04	0.60	7.70	0.11	0.07	

Table 14.21: Junction 6 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC value is observed during the 2042 Do Something PM Peak on Mill Road with an RFC of 0.23. The highest 95% Queue value observed is during the same period, on the Mill Road arm, with a value of 1.30 PCU. The biggest increase in RFC between the Do Nothing and Do Something is during the 2027 and 2042 PM Peak Hour, with an increase of 0.07 RFC on the Bellewbridge Road (East) arm.

14.5.6.7 Junction 7 – Castletown Road / Ecco Road (Signalised Junction)

Junction 7 is a signal-controlled T-junction, consisting of a regional road (Castletown Road) travelling west-east, and the minor arm of Ecco Road to the south.

The principal results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in Table 14.20 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: Castletown Road (West)
- Arm B: Ecco Road
- Arm C: Castletown Road (East)

A diagram of the junction can be seen in Figure 14.32.

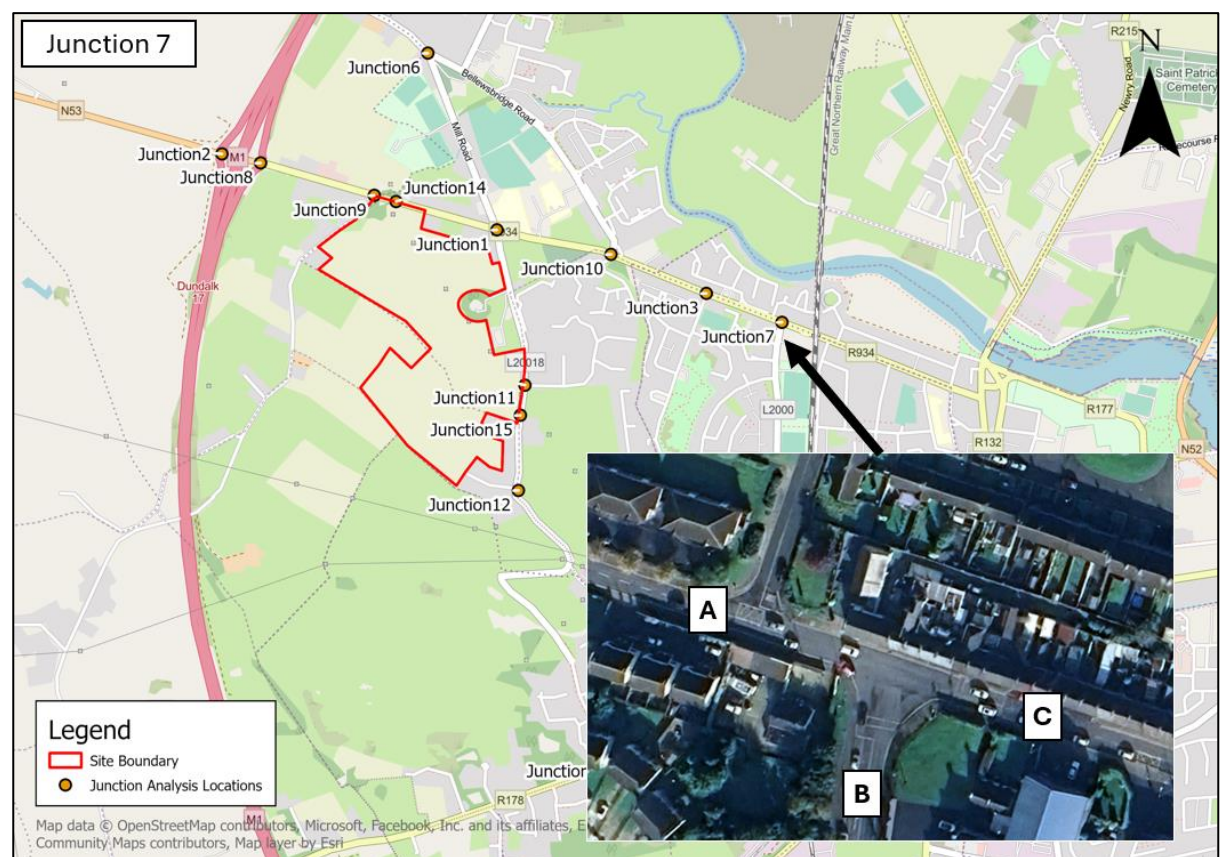


Figure 14.32: Junction 7 Location

Junction 7																
Peak Hour	Stream				2025				2027							
					Base			Diff	Do Nothing			Do Something			Diff	
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	
AM Peak	Arm A	1	-	Castletown Road (East)	8.22	143.09	75%	-	9.89	158.85	80%	8.35	80.63	63%	-17%	
	Arm B	1	Left	Ecco Road	2.70	38.32	33%	-	2.82	38.44	35%	2.13	16.73	16%	-19%	
		2	Right		3.99	39.14	45%	-	4.12	39.39	46%	6.75	80.38	84%	38%	
	Arm C	1	-	Castletown Road (West)	82.81	409.13	119%	-	101.56	482.72	125%	20.41	38.93	86%	-39%	
PM Peak	Arm A	1	-	Castletown Road (East)	41.38	236.50	95%	-	56.91	361.14	101%	11.10	35.36	60%	-41%	
	Arm B	1	Left	Ecco Road	6.93	57.54	74%	-	7.35	59.91	77%	7.71	53.04	75%	-2%	
		2	Right		2.78	40.71	35%	-	2.85	40.80	36%	3.60	49.72	54%	18%	
	Arm C	1	-	Castletown Road (West)	12.83	61.59	85%	-	15.25	73.81	89%	12.77	33.38	76%	-13%	
Peak Hour	Stream				2032				2042							
					Do Nothing			Diff	Do Nothing			Do Something			Diff	
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	
AM Peak	Arm A	1	-	Castletown Road (East)	20.83	190.96	85%	1%	34.45	268.90	92%	19.93	141.35	86%	-6%	
	Arm B	1	Left	Ecco Road	3.06	38.70	37%	8%	3.37	39.20	41%	4.10	45.33	52%	11%	
		2	Right		4.47	40.05	49%	48%	4.86	41.01	53%	21.51	325.63	116%	63%	
	Arm C	1	-	Castletown Road (West)	123.48	561.06	133%	-38%	151.89	649.76	144%	55.95	146.57	102%	-42%	
PM Peak	Arm A	1	-	Castletown Road (East)	71.31	430.07	108%	-32%	89.65	516.25	115%	20.00	59.87	84%	-31%	
	Arm B	1	Left	Ecco Road	8.42	67.22	81%	3%	10.61	83.90	87%	11.02	79.41	90%	3%	
		2	Right		3.04	41.07	38%	25%	3.33	41.47	41%	4.49	58.53	67%	26%	
	Arm C	1	-	Castletown Road (West)	22.31	108.69	94%	-10%	36.87	203.19	101%	20.49	52.64	90%	-11%	

Table 14.22: Junction 7 Modelling Results

It can be seen that the junction is currently operating above capacity in the Base 2025 scenario, with maximum Degree of Saturation of 119% on the Castletown Road (West) arm during the AM Peak, and a DOS of 95% on the Castletown Road (East) arm during the PM Peak. The junction further worsens during the Do-Nothing Scenarios, with a maximum Degree of Saturation of 144% on the Castletown Road (West) arm during the 2042 Do Nothing AM Peak.

Following analysis of the junction operation through both traffic survey cameras and modelling, it was found that the signal control is dated, which may be improved through minor changes.

There are some changes, such as updating the traffic signals at Ecco Road, which has been carried out in the Do Something Model. For example, the left turn lane of Ecco Road is required to wait for an entirely clear junction before it gets an overall green light. The introduction of separate left and right turn greens would allow left turning vehicles from Ecco Road to proceed while vehicles are travelling from Castletown Road (West).

These signal changes have been applied to the Do-Something mode which improved the capacity on certain arms. This junction may be updated as part of a future Active Travel scheme, as both Castletown Road and Ecco Road are proposed Urban Primary Cycle Routes within the CycleConnects and the junction is outlined as being potentially upgraded (Figure 14.13). There are also additional junction active travel junctions upgrades proposed as part of the Dundalk Local Transport Plan (July 2024).

14.5.6.8 Junction 8 - M1 Junction 17 Eastern Roundabout

Junction 8 is a roundabout junction, consisting of a regional road (Castletown Road) travelling west-east, and the minor arms of the M1 On-Ramp to the north, and the M1 Off-Ramp to the south.

The principal results of the operational assessment of this roundabout junction during the weekday morning and evening peaks are summarised in below. The arms were labelled as follows within the ARCADY model:

- Arm 1: Castletown Road (East)
- Arm 2: M1 On-Ramp
- Arm 3: Castletown Road (West)
- Arm 4: M1 Off-Ramp

A diagram of this junction can be seen in Figure 14.33.

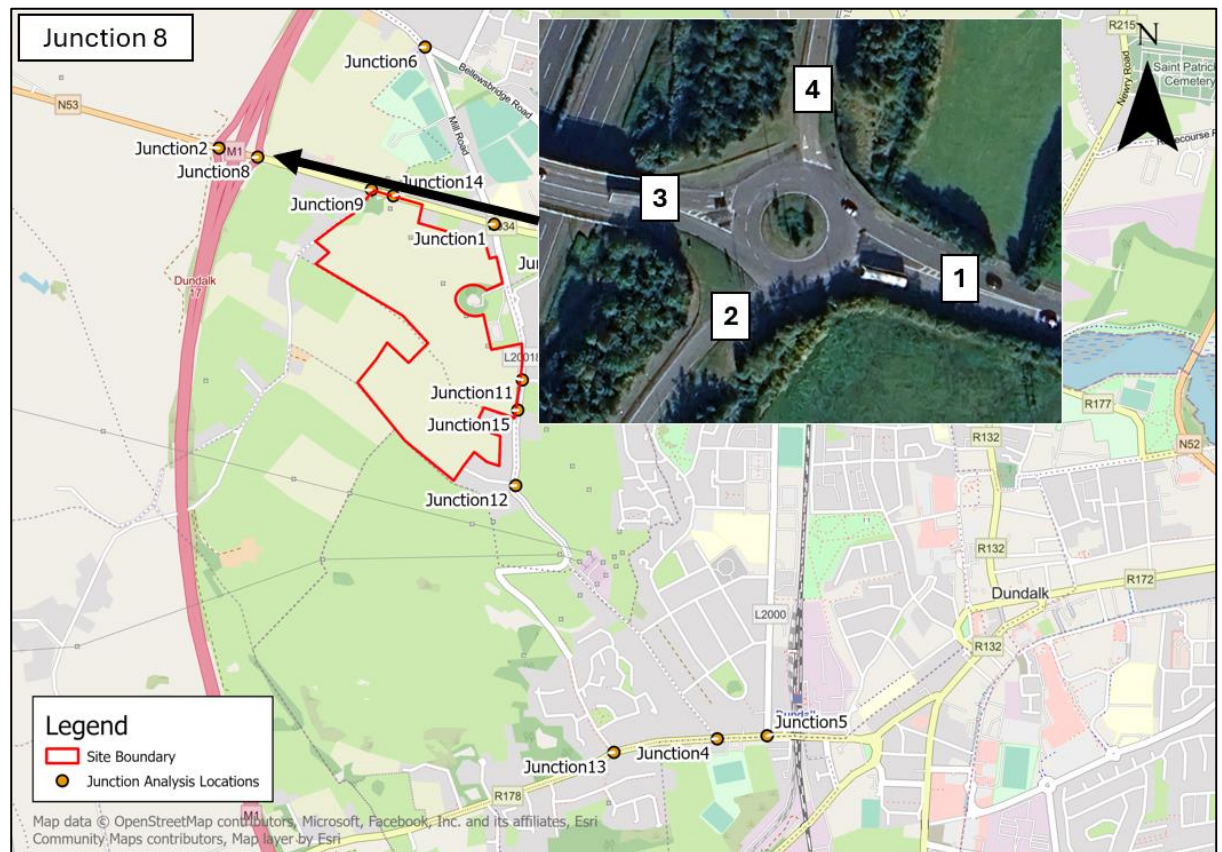


Figure 14.33: Junction 8 Location

Peak Hour	Stream		Base						Change	Do Nothing			Do Something			Change
			95% Queue (pcu)		Delay (s)		RFC		RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	Arm 1	Castletown Road (E)	1.10		4.08		0.27	-	1.80	4.32	0.30	2.00	4.41	0.32	0.02	
	Arm 3	Castletown Road (W)	1.60		5.32		0.56	-	1.90	5.59	0.58	1.90	5.64	0.58	0.00	
	Arm 4	M1 Off Ramp	1.70		4.27		0.27	-	1.60	4.47	0.29	1.70	4.50	0.29	0.00	
PM Peak	Arm 1	Castletown Road (E)	1.60		3.45		0.29	-	1.90	3.57	0.31	2.00	3.60	0.32	0.01	
	Arm 3	Castletown Road (W)	2.20		3.39		0.33	-	2.50	3.48	0.34	2.60	3.52	0.35	0.01	
	Arm 4	M1 Off Ramp	1.30		3.05		0.25	-	1.50	3.38	0.26	1.00	3.41	0.27	0.01	
			2032						2042							
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	Arm 1	Castletown Road (E)	2.30	4.66	0.33	3.10	5.24	0.40	0.07	3.00	5.21	0.37	3.10	6.02	0.46	0.09
	Arm 3	Castletown Road (W)	2.60	6.20	0.62	3.00	6.52	0.64	0.02	3.80	7.21	0.67	4.30	7.70	0.70	0.03
	Arm 4	M1 Off Ramp	2.20	4.90	0.33	2.70	5.14	0.35	0.02	3.20	5.59	0.38	3.50	5.95	0.40	0.02
PM Peak	Arm 1	Castletown Road (E)	2.30	3.75	0.33	2.80	4.03	0.38	0.05	2.70	4.20	0.37	2.80	4.36	0.42	0.05
	Arm 3	Castletown Road (W)	2.70	3.61	0.37	2.60	3.83	0.40	0.03	2.70	3.77	0.39	2.20	4.05	0.44	0.05
	Arm 4	M1 Off Ramp	1.50	3.56	0.29	2.10	3.82	0.32	0.03	2.10	3.80	0.30	2.80	4.15	0.36	0.06

Table 14.23: Junction 8 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC and Queue values are observed during the 2042 Do Something AM Peak on Castletown Road (West), with an RFC of 0.70, and a 95% Queue of 4.30 PCU. The biggest increase in RFC between the Do Nothing and Do Something is 0.09, which occurs on the Castletown Road (East) during the AM Peak 2042.

It should be noted, as outlined in the Dundalk Local Area Plan (2025 – 2031), a future road is proposed along the western corridor of Dundalk, which may reduce future traffic volumes along the M1.

14.5.6.9 Junction 9 – Castletown Road / Greyacre Road (Priority Junction)

Junction 9 is a priority T-junction, consisting of a regional road (Castletown Road) travelling west-east, and the minor arm of Greyacre Road to the south.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.22 below. The arms were labelled as follows within the PICADY model:

- Arm A: Castletown Road (East)
- Arm B: Greyacre Road
- Arm C: Castletown Road (West)

A diagram of the junction can be seen in Figure 14.34.

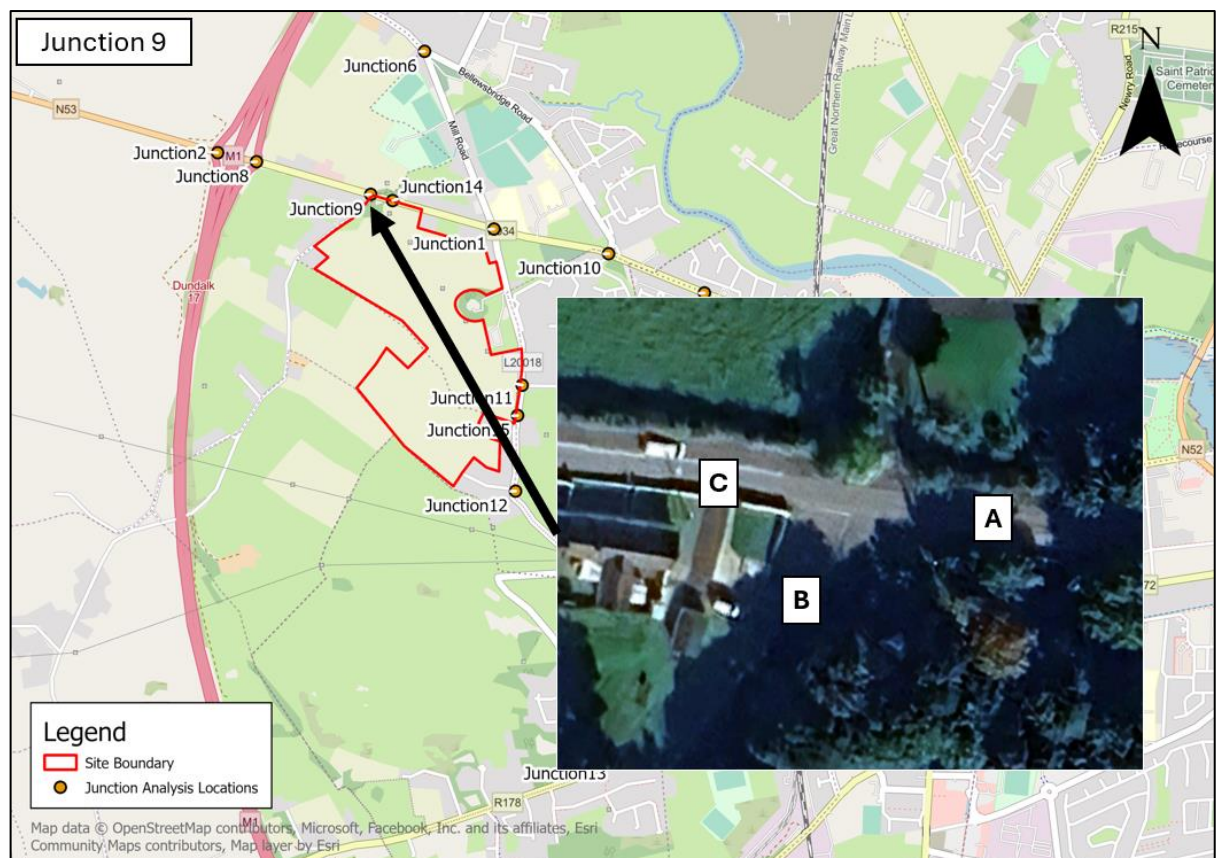


Figure 14.34: Junction 9 Location

Junction 9																
			2025							2027						
Peak Hour	Stream		Base						Change	Do Nothing			Do Something			Change
			95% Queue (pcu)		Delay (s)		RFC		RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Greyacre Road	0.50		8.03		0.05		-	0.50	8.26	0.05	0.50	8.39	0.05	0.00
	C-AB	Castletown Road (W)	0.50		6.27		0.01		-	0.50	6.36	0.01	0.50	6.41	0.01	0.00
PM Peak	B-AC	Greyacre Road	0.50		8.04		0.04		-	0.50	8.38	0.05	0.50	8.48	0.05	0.00
	C-AB	Castletown Road (W)	0.50		6.50		0.03		-	0.50	6.56	0.03	0.50	6.58	0.03	0.00
			2032							2042						
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Greyacre Road	0.50	8.54	0.06	0.50	9.27	0.06	0.00	0.50	8.92	0.06	0.50	10.00	0.07	0.01
	C-AB	Castletown Road (W)	0.50	6.43	0.01	0.50	6.69	0.01	0.00	0.50	6.52	0.01	0.50	6.95	0.01	0.00
PM Peak	B-AC	Greyacre Road	0.50	8.53	0.05	0.50	9.19	0.05	0.00	0.50	8.92	0.06	0.50	9.99	0.06	0.00
	C-AB	Castletown Road (W)	0.50	6.63	0.04	0.50	6.78	0.04	0.00	0.50	6.72	0.04	0.50	6.95	0.04	0.00

Table 14.24: Junction 9 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC value is observed during the 2042 Do Something AM Peak on Greyacre Road with an RFC of 0.07. The highest 95% Queue value observed is 0.5 PCU during each time period. The biggest increase in RFC between the Do Nothing and Do Something is during the 2042 AM Peak Hour, with an increase of 0.01 RFC on the Greyacre Road arm.

14.5.6.10 Junction 10 – Castletown Road / Bellewsbridge Road (Signalised Junction)

Junction 10 is a signalised crossroads, consisting of a regional road (Castletown Road) travelling west-east, and the minor arms of Bellewsbridge Road to the north, and Castle Park to the south.

The principal results of the operational assessment of this signal-controlled crossroads junction during the weekday morning and evening peaks are summarised in Table 14.23 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: Castletown Road (West)
- Arm B: Bellewsbridge Road
- Arm C: Castletown Road (East)
- Arm D: Castle Park

A diagram of the junction can be seen in Figure 14.35.



Figure 14.35: Junction 10 Location

Junction 10																
					2025				2027							
Peak Hour	Stream				Base			Diff	Do Nothing			Do Something			Diff	
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	
AM Peak	Arm A	1	-	Castletown Road (West)	10.33	31.89	65%	-	11.53	33.79	70%	10.13	22.13	58%	-12%	
	Arm B	1	-	Bellewsbridge Road	16.40	136.06	100%	-	19.02	162.02	103%	8.64	43.11	70%	-33%	
	Arm C	1	Straight Right	Castletown Road (East)	3.93	24.19	30%	-	4.28	24.52	32%	3.78	16.82	26%	-6%	
		2			3.22	42.02	42%	-	3.40	42.45	44%	2.59	23.23	46%	2%	
	Arm D	1	-	Castle Park	0.90	36.06	12%	-	0.92	36.10	13%	0.84	29.98	9%	-4%	
PM Peak	Arm A	1	-	Castletown Road (West)	7.06	27.58	49%	-	7.61	28.23	52%	5.45	13.05	35%	-17%	
	Arm B	1	-	Bellewsbridge Road	5.11	46.96	60%	-	5.28	47.67	61%	5.40	50.87	65%	4%	
	Arm C	1	Straight Right	Castletown Road (East)	7.90	28.52	53%	-	8.78	29.70	58%	6.66	13.79	41%	-17%	
		2			5.04	48.21	61%	-	5.30	49.18	63%	3.57	20.49	55%	-8%	
	Arm D	1	-	Castle Park	0.59	35.50	8%	-	0.61	35.55	8%	0.63	37.43	10%	2%	
					2032				2042							
Peak Hour	Stream				Do Nothing			Diff	Do Nothing			Do Something			Diff	
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	
AM Peak	Arm A	1	-	Castletown Road (West)	12.74	35.95	75%	-3%	14.43	39.68	80%	16.37	29.16	77%	-3%	
	Arm B	1	-	Bellewsbridge Road	26.85	236.05	109%	-35%	38.85	337.74	118%	10.97	51.05	81%	-37%	
	Arm C	1	Straight Right	Castletown Road (East)	4.63	24.86	35%	0%	4.98	25.27	37%	5.73	18.31	37%	0%	
		2			3.69	43.37	47%	2%	4.12	44.71	52%	3.27	26.18	54%	2%	
	Arm D	1	-	Castle Park	0.97	36.17	13%	-4%	1.08	36.36	15%	0.97	30.11	10%	-5%	
PM Peak	Arm A	1	-	Castletown Road (West)	8.25	29.05	56%	-11%	9.15	30.18	60%	8.32	15.48	48%	-12%	
	Arm B	1	-	Bellewsbridge Road	5.77	49.60	65%	4%	6.42	52.58	70%	6.42	52.58	70%	0%	
	Arm C	1	Straight Right	Castletown Road (East)	9.58	30.73	62%	-9%	10.47	32.16	66%	11.09	17.55	59%	-7%	
		2			5.71	51.20	67%	-9%	6.34	54.38	71%	4.57	24.94	64%	-7%	
	Arm D	1	-	Castle Park	0.63	35.60	9%	1%	0.71	35.74	10%	0.71	36.68	10%	0%	

Table 14.25: Junction 10 Modelling Results

It can be seen that the junction is currently operating above capacity, and further worsens during the Do-Nothing Scenarios, with a maximum Degree of Saturation of 118% on the Bellewsbridge Road arm in the 2042 Do Nothing AM Peak.

Following analysis of the junction operation through both traffic survey cameras and modelling, it was found that the signal control is dated, which may be improved greatly through minor changes.

It is noted that at present vehicles wishing to turn right from Castletown Road (East) to Bellewsbridge Road are held for the entire green period of the main east-west movements. Changing this turn to a four aspect with right filter was found to greatly improve the junction's capacity and is reflected in the improved junction capacity in the Do Something Scenarios. This change does not require any major infrastructural works and simply requires changing the signal phases and signal aspects.

The maximum Degree of Saturation (DOS) value observed during the Do Something Scenario is 81% on the Bellewsbridge arm during the 2042 Do Something AM Peak. The highest queue length observed is 16.37 PCU, on the Castletown Road (West) arm during the same time period. The biggest change in DOS between the Do Nothing and Do Something is during the AM Peak Hour of 2042, with a DOS reduction of 37% on the Bellewsbridge Road arm.

14.5.6.11 Junction 11 – Mount Avenue / Headford (Priority Junction)

Junction 11 is a priority T-junction, consisting of a regional road (Mount Avenue) travelling north-south and the minor arm of Headford to the east.

The principal results of the operational assessment of this priority-controlled junction during the weekday morning and evening peaks are summarised in Table 14.24 below. The arms were labelled as follows within the PICADY model:

- Arm A: Mount Avenue (North)
- Arm B: Headford
- Arm C: Mount Avenue (South)

A diagram of the junction can be seen in Figure 14.36 .

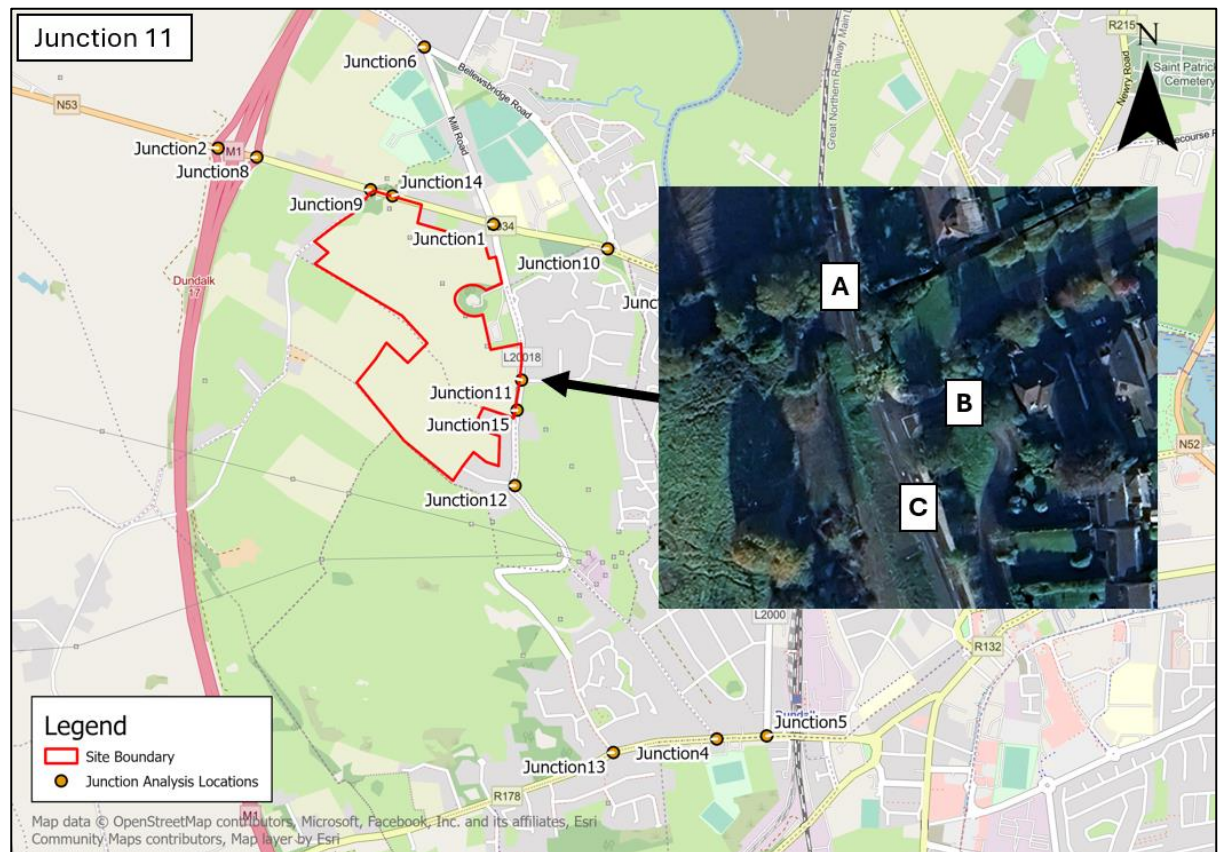


Figure 14.36: Junction 11 Location

Junction 11																
			2025				2027									
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	B-AC	Headford	0.50	6.67	0.08	-	0.50	6.85	0.09	0.50	6.90	0.09	0.00			
	C-AB	Mount Avenue (South)	0.50	5.67	0.01	-	0.50	5.71	0.01	0.50	5.74	0.01	0.00			
PM Peak	B-AC	Headford	0.50	6.34	0.04	-	0.50	6.54	0.04	0.50	6.58	0.04	0.00			
	C-AB	Mount Avenue (South)	0.50	5.71	0.02	-	0.50	5.83	0.02	0.50	5.84	0.02	0.00			
			2032				2042									
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	B-AC	Headford	0.50	6.93	0.09	0.50	6.97	0.09	0.00	0.50	7.02	0.10	0.50	7.07	0.10	0.00
	C-AB	Mount Avenue (South)	0.50	5.73	0.01	0.50	5.73	0.01	0.00	0.50	5.75	0.02	0.50	5.75	0.02	0.00
PM Peak	B-AC	Headford	0.50	6.59	0.04	0.50	6.70	0.04	0.00	0.50	6.65	0.05	0.50	6.78	0.05	0.00
	C-AB	Mount Avenue (South)	0.50	5.85	0.02	0.50	5.92	0.02	0.00	0.50	5.87	0.02	0.50	5.95	0.02	0.00

Table 14.26: Junction 11 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC value is observed during the 2042 Do Something AM Peak on Headford with an RFC of 0.10. The highest 95% Queue value observed is 0.5 PCU during each time period. There are no changes in the RFC during all scenarios.

14.5.6.12 Junction 12 - Mount Avenue Roundabout

Junction 12 is a roundabout junction, consisting of a regional road (Mount Avenue) travelling north-south and the minor arms Mount Avenue (East) and Mount Avenue (West).

The principal results of the operational assessment of this roundabout junction during the weekday morning and evening peaks are summarised in Table 14.25 below. The arms were labelled as follows within the ARCADY model:

- Arm 1: Mount Avenue (East)
- Arm 2: Mount Avenue (South)
- Arm 3: Mount Avenue (West)
- Arm 4: Mount Avenue (North)

A diagram of the junction can be seen in Figure 14.37.

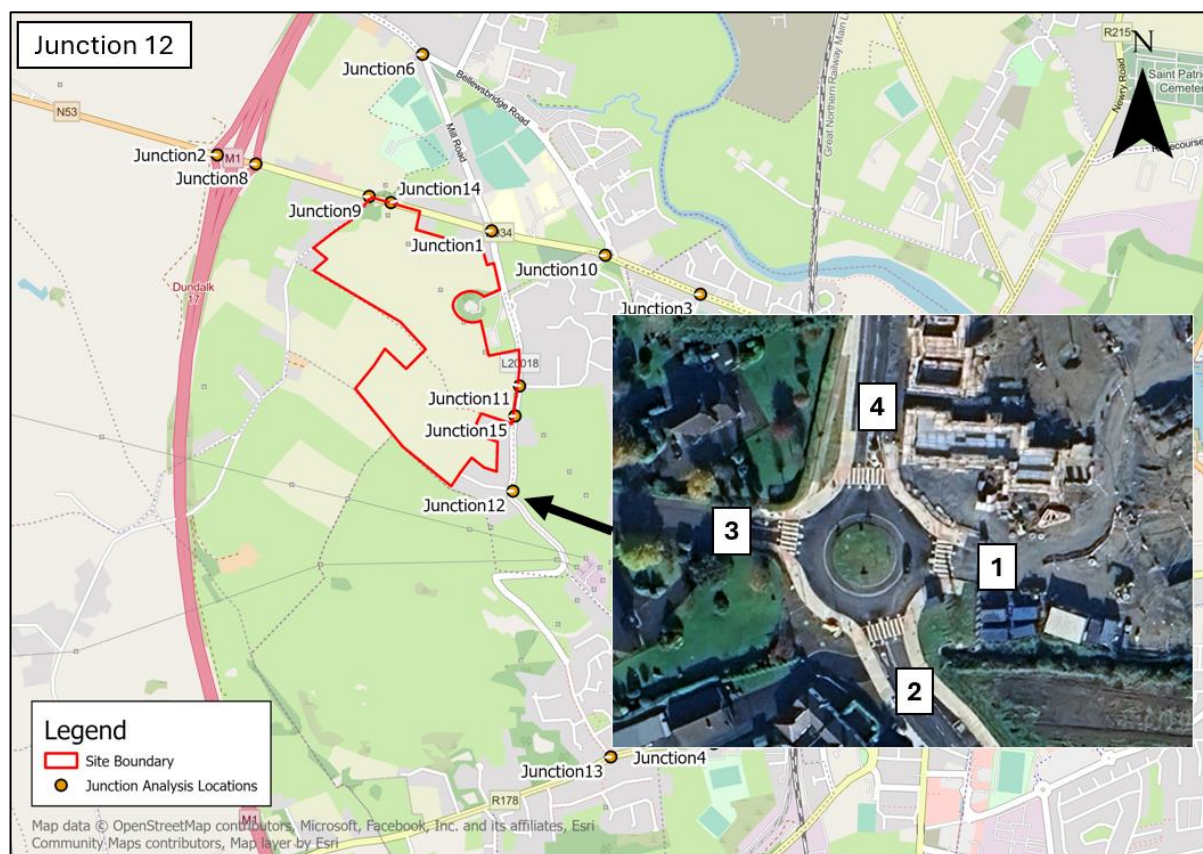


Figure 14.37: Junction 12 Location

Junction 12																
			2025					2027								
Peak Hour	Stream		Base			Change	Do Nothing			Do Something			Change			
			95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC			
AM Peak	Arm 1	Mount Avenue (East)	0.00	0.00	0.00	-	0.50	3.57	0.08	0.50	3.39	0.08	0.00			
	Arm 2	Mount Avenue (South)	0.10	3.23	0.07	-	0.50	3.52	0.08	0.50	3.38	0.09	0.01			
	Arm 3	Mount Avenue (West)	0.00	0.00	0.00	-	1.00	0.00	0.00	1.00	0.00	0.00	0.00			
	Arm 4	Mount Avenue (North)	0.10	3.31	0.07	-	0.60	3.87	0.09	1.20	3.46	0.10	0.01			
PM Peak	Arm 1	Mount Avenue (East)	1.00	0.00	0.00	-	0.50	3.22	0.04	0.50	3.23	0.04	0.00			
	Arm 2	Mount Avenue (South)	0.50	3.24	0.07	-	0.50	3.40	0.10	1.20	3.44	0.11	0.01			
	Arm 3	Mount Avenue (West)	1.00	0.00	0.00	-	1.00	1.00	0.00	1.00	0.00	0.00	0.00			
	Arm 4	Mount Avenue (North)	0.50	3.33	0.08	-	0.50	3.58	0.13	1.20	3.61	0.13	0.00			
			2032					2042								
Peak Hour	Stream		Do Nothing			Do Something			Change	Do Nothing			Do Something			Change
			95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC	95% Queue (pcu)	Delay (s)	RFC	95% Queue (pcu)	Delay (s)	RFC	RFC
AM Peak	Arm 1	Mount Avenue (East)	0.50	3.38	0.08	0.50	3.56	0.08	0.00	0.50	3.40	0.08	0.50	3.60	0.08	0.00
	Arm 2	Mount Avenue (South)	0.50	3.38	0.09	0.50	3.58	0.14	0.05	0.50	3.41	0.09	0.50	3.61	0.14	0.05
	Arm 3	Mount Avenue (West)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.50	4.84	0.01	0.50	5.02	0.01	0.00
	Arm 4	Mount Avenue (North)	0.50	3.44	0.10	1.30	3.79	0.18	0.08	0.50	3.48	0.11	1.30	3.87	0.20	0.09
PM Peak	Arm 1	Mount Avenue (East)	0.50	3.23	0.04	0.50	3.35	0.04	0.00	0.50	3.24	0.04	0.50	3.87	0.04	0.00
	Arm 2	Mount Avenue (South)	0.50	3.42	0.11	1.20	3.82	0.20	0.09	0.50	3.44	0.11	1.30	3.90	0.22	0.11
	Arm 3	Mount Avenue (West)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00
	Arm 4	Mount Avenue (North)	0.50	3.60	0.13	1.30	3.87	0.19	0.06	0.50	3.63	0.14	1.30	3.93	0.21	0.07

Table 14.27: Junction 12 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum RFC value is observed during the 2042 Do Something PM Peak on Mount Avenue (South) with an RFC of 0.22.

The maximum 95% Queue value is observed during the 2042 Do Something AM Peak on Mount Avenue (North) with a value of 1.30 PCU, as well as during the 2042 Do Something PM Peak on Mount Avenue (South) and Mount Avenue (North) with the same value of 1.30 PCU.

The biggest increase in RFC between the Do Nothing and Do Something is during the 2042 PM Peak, with an RFC increase of 0.11 on Mount Avenue (South).

14.5.6.13 Junction 13 – Carrickmacross Road / New Mount Avenue (Signalised Junction)

Junction 12 is a signalised T-junction, consisting of a regional road (Carrickmacross Road) travelling east-west and the minor arm of An Bothar Dara to the north.

The principal results of the operational assessment of this signalised junction during the weekday morning and evening peaks are summarised in Table 14.26 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: Carrickmacross Road (West)
- Arm B: Mount Avenue
- Arm C: Carrickmacross Road (East)

A diagram of the junction can be seen in Figure 14.38 .

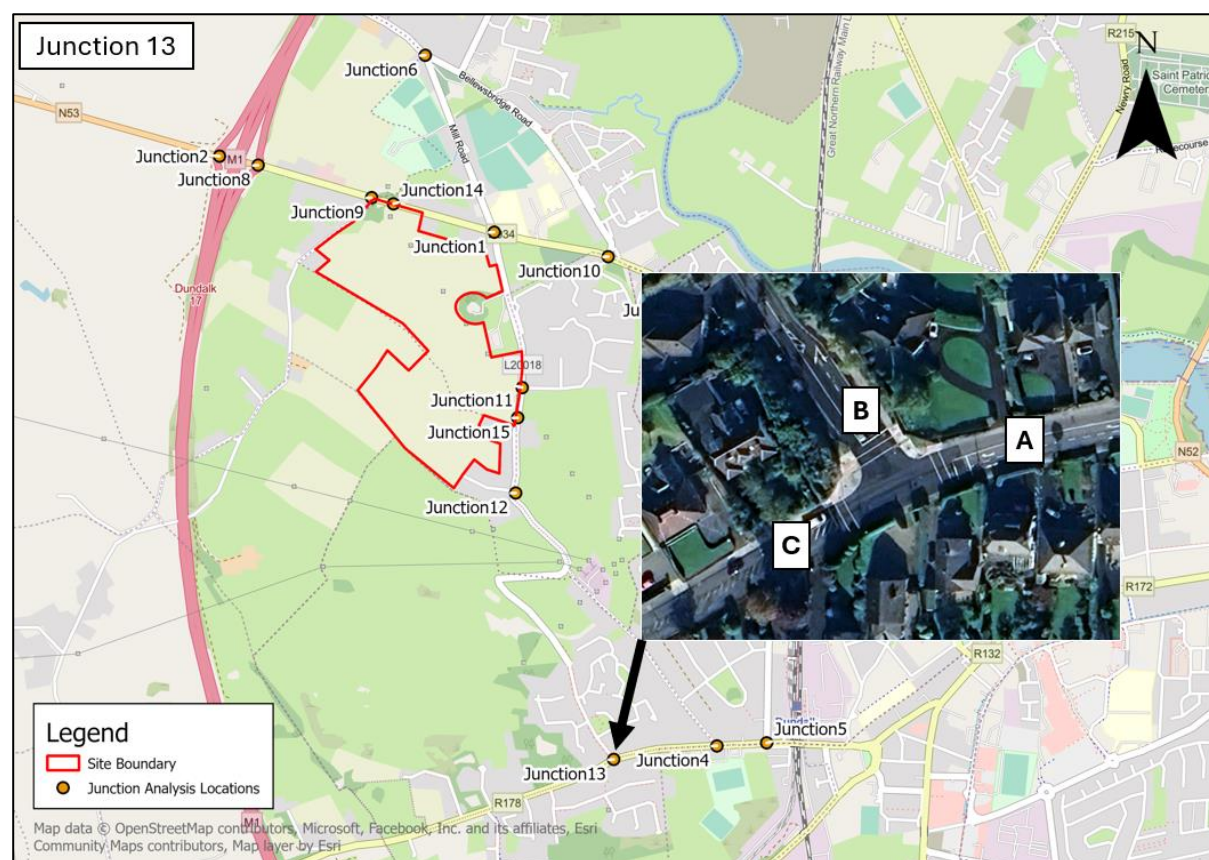


Figure 14.38: Junction 13 Location

Junction 13																		
Stream					2025				2027									
					Base			Diff	Do Nothing			Do Something			Diff			
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS			
AM Peak	Arm A	1	-	Carrickmacross Road (W)	7.43	19.07	46%	-	8.12	21.03	50%	8.07	20.30	49%	-1%			
	Arm B	1	Left	An Bothair Dara	4.95	39.82	51%	-	5.56	38.53	53%	5.60	40.13	55%	2%			
		2	Right		0.47	44.56	13%	-	0.80	46.39	21%	1.10	48.08	28%	7%			
	Arm C	1	Straight	Carrickmacross Road (E)	1.75	8.56	14%	-	1.80	8.59	14%	1.70	8.59	14%	0%			
		2	Right		1.28	9.32	17%	-	1.44	9.49	18%	1.45	9.51	18%	0%			
PM Peak	Arm A	1	-	Carrickmacross Road (W)	4.19	17.12	29%	-	4.60	17.41	31%	5.28	21.20	36%	5%			
	Arm B	1	Left	An Bothair Dara	3.29	35.34	35%	-	3.68	36.00	38%	4.52	32.36	40%	2%			
		2	Right		0.80	46.39	21%	-	1.00	47.52	26%	2.00	52.49	50%	24%			
	Arm C	1	Straight	Carrickmacross Road (E)	4.81	10.26	32%	-	4.96	10.37	33%	5.28	11.45	34%	1%			
		2	Right		2.18	10.49	25%	-	2.62	11.07	29%	2.77	12.04	29%	0%			
					2032				2042									
Peak Hour	Stream				Do Nothing			Do Something			Diff	Do Nothing			Do Something			Diff
					Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS
AM Peak	Arm A	1	-	Carrickmacross Road (W)	8.91	21.68	53%	10.10	24.36	59%	6%	9.88	22.54	57%	11.23	25.57	63%	6%
	Arm B	1	Left	An Bothair Dara	5.97	39.38	56%	7.08	39.10	60%	4%	6.48	40.55	59%	7.74	40.67	64%	5%
		2	Right		0.86	46.70	22%	2.18	45.52	38%	16%	0.89	46.86	23%	2.36	46.28	40%	17%
	Arm C	1	Straight	Carrickmacross Road (E)	1.91	8.65	15%	2.14	10.51	16%	1%	2.12	8.75	16%	2.32	10.62	17%	1%
		2	Right		1.53	9.62	19%	2.12	12.28	25%	6%	1.67	9.79	20%	2.33	12.57	26%	6%
PM Peak	Arm A	1	-	Carrickmacross Road (W)	4.97	18.36	34%	6.36	20.13	41%	7%	5.42	18.72	36%	7.00	20.70	45%	9%
	Arm B	1	Left	An Bothair Dara	3.85	35.28	39%	4.61	35.54	44%	5%	4.18	35.81	41%	5.00	36.23	47%	6%
		2	Right		1.07	47.88	27%	2.26	57.44	52%	25%	1.19	448.68	30%	2.38	54.29	50%	20%
	Arm C	1	Straight	Carrickmacross Road (E)	5.39	10.60	35%	5.39	10.60	35%	0%	5.92	10.91	38%	6.16	11.47	39%	1%
		2	Right		2.81	11.27	30%	3.78	12.50	37%	7%	3.07	11.62	32%	4.37	13.78	41%	9%

Table 14.28: Junction 13 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum Degree of Saturation (DOS) value is observed during the 2042 Do Something AM Peak on the An Bothair Dara Left Turn lane, with Degree of Saturation of 64%. The maximum Queue length observed is 11.23 PCU, which occurs on the Carrickmacross Road (West) arm during the 2042 Do Something AM Peak Hour. The biggest change in DOS between the Do Nothing and Do Something is during the PM Peak Hour of 2032, with a change of 25% on the An Bothair Dara Right Turn lane.

14.5.6.14 Junction 14 - Castletown Road / Site Access

Junction 14 is a signalised T-junction, consisting of a regional road (Castletown Road) travelling east-west and the minor arm of the subject site access to the south.

The principal results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in Table 14.27 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: Castletown Road (East)
- Arm B: Site Access
- Arm C: Castletown Road (West)

A diagram of the junction can be seen in Figure 14.39.

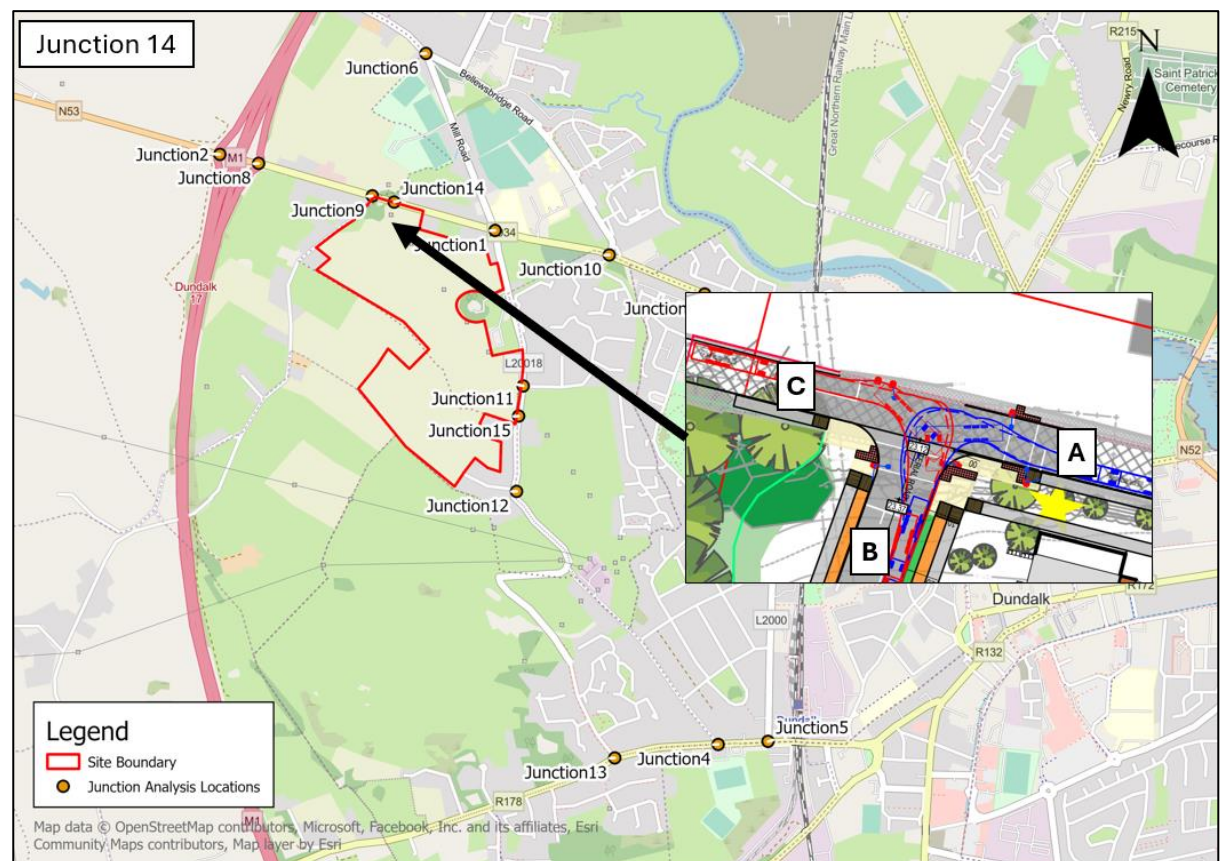


Figure 14.39: Junction 14 Location

Junction 14																		
					2025					2027								
Peak Hour	Stream				Base			Diff	Do Nothing			Do Something			Diff			
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS			
AM Peak	Arm A	1	-	Castletown Road (East)	-	-	-	-	-	-	-	5.43	12.04	35%	-			
	Arm B	1	Left	Site Access	-	-	-	-	-	-	-	0.38	37.89	6%	-			
		2	Right		-	-	-	-	-	-	1.37	49.94	34%	-				
	Arm C	1	-	Castletown Road (West)	-	-	-	-	-	-	-	7.72	9.96	48%	-			
PM Peak	Arm A	1	-	Castletown Road (East)	-	-	-	-	-	-	-	7.55	14.45	45%	-			
	Arm B	1	Left	Site Access	-	-	-	-	-	-	-	0.21	35.90	3%	-			
		2	Right		-	-	-	-	-	-	0.75	46.07	19%	-				
	Arm C	1	-	Castletown Road (West)	-	-	-	-	-	-	-	6.95	9.82	46%	-			
					2032					2042								
Peak Hour	Stream				Do Nothing			Do Something			Diff	Do Nothing			Do Something			Diff
					Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS
AM Peak	Arm A	1	-	Castletown Road (East)	-	-	-	6.37	14.70	40%	-	-	-	-	7.50	17.27	46%	-
	Arm B	1	Left	Site Access	-	-	-	3.06	39.41	38%	-	-	-	-	3.18	36.18	35%	-
		2	Right		-	-	-	3.10	60.72	61%	-	-	-	-	3.47	64.70	66%	-
	Arm C	1	-	Castletown Road (West)	-	-	-	12.89	17.35	72%	-	-	-	-	15.22	19.45	76%	-
PM Peak	Arm A	1	-	Castletown Road (East)	-	-	-	9.30	16.74	52%	-	-	-	-	11.50	21.15	61%	-
	Arm B	1	Left	Site Access	-	-	-	2.33	37.81	29%	-	-	-	-	2.37	33.84	26%	-
		2	Right		-	-	-	2.14	56.35	50%	-	-	-	-	2.39	58.65	54%	-
	Arm C	1	-	Castletown Road (West)	-	-	-	15.02	22.37	78%	-	-	-	-	17.39	25.66	82%	-

Table 14.29: Junction 14 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum Degree of Saturation (DOS) value is observed during the 2042 Do Something AM Peak on the Castletown Road (West) arm, with Degree of Saturation of 76%. The maximum Queue length observed is 17.39 PCU, which occurs on the same arm during the 2042 Do Something PM Peak.

14.5.6.15 Junction 15 - Mount Avenue / Site Access

Junction 15 is a signalised T-junction, consisting of a regional road (Mount Avenue) travelling north-south and the minor arm of the subject site access to the west.

The principal results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in Table 14.28 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: Mount Avenue (South)
- Arm B: Site Access
- Arm C: Mount Avenue (North)

A diagram of the junction can be seen in Figure 14.40.

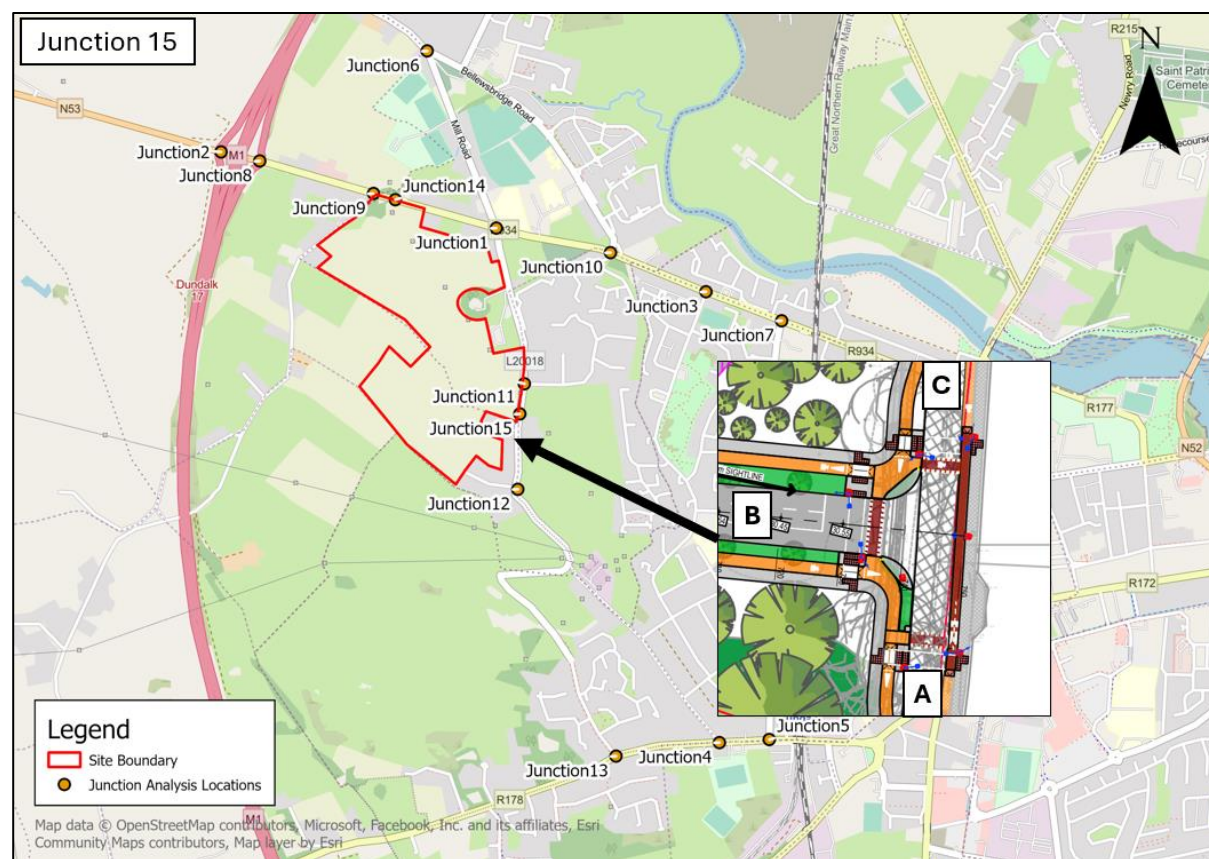


Figure 14.40: Junction15 Location

Junction 15																		
					2025				2027									
Peak Hour	Stream				Base			Diff	Do Nothing			Do Something			Diff			
					Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS			
AM Peak	Arm A	1	-	Mount Avenue (South)	-	-	-	-	-	-	-	1.40	7.59	11%	-			
	Arm B	1	Left	Site Access	-	-	-	-	-	-	-	0.00	0.00	0%	-			
		2	Right		-	-	-	-	-	-	0.00	0.00	0%	-				
	Arm C	1	-	Mount Avenue (North)	-	-	-	-	-	-	-	1.20	7.48	10%	-			
PM Peak	Arm A	1	-	Mount Avenue (South)	-	-	-	-	-	-	-	1.25	7.51	10%	-			
	Arm B	1	Left	Site Access	-	-	-	-	-	-	-	0.00	0.00	0%	-			
		2	Right		-	-	-	-	-	-	0.00	0.00	0%	-				
	Arm C	1	-	Mount Avenue (North)	-	-	-	-	-	-	-	0.13	7.05	1%	-			
					2032				2042									
Peak Hour	Stream				Do Nothing			Do Something			Diff	Do Nothing			Do Something			Diff
					Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	Mean Max Queue (pcu)	Delay (s)	DOS	DOS
AM Peak	Arm A	1	-	Mount Avenue (South)	-	-	-	2.86	15.01	21%	-	-	-	-	3.05	15.11	22%	-
	Arm B	1	Left	Site Access	-	-	-	1.30	32.25	15%	-	-	-	-	1.39	32.37	16%	-
		2	Right		-	-	-	2.84	33.63	29%	-	-	-	-	3.09	33.98	32%	-
	Arm C	1	-	Mount Avenue (North)	-	-	-	1.70	15.22	20%	-	-	-	-	1.82	15.37	21%	-
PM Peak	Arm A	1	-	Mount Avenue (South)	-	-	-	2.90	11.44	21%	-	-	-	-	3.21	11.62	23%	-
	Arm B	1	Left	Site Access	-	-	-	1.03	38.22	16%	-	-	-	-	1.10	38.41	17%	-
		2	Right		-	-	-	2.70	41.05	36%	-	-	-	-	2.92	41.67	39%	-
	Arm C	1	-	Mount Avenue (North)	-	-	-	2.37	12.81	29%	-	-	-	-	2.62	13.25	31%	-

Table 14.30: Junction 15 Modelling Results

It can be seen that the junction remains within capacity for all scenarios, during both the Do Nothing and the Do Something scenarios.

The maximum Degree of Saturation (DOS) value is observed during the 2042 Do Something PM Peak on the Site Access Right Turn lane, with Degree of Saturation of 41%. The maximum Queue length observed is 3.92 PCU, which occurs on Mount Avenue (South) and the Site Access Right Turn lane during the 2042 Do Something AM Peak.

14.5.6.16 Sensitivity Analysis for Zoned Lands in vicinity of Subject Site

It is noted that the proposed site is surrounded by areas zoned for additional residential units within the Dundalk Local Area Plan 2025 – 2031. A map of the zoning in the vicinity of the site is shown in Figure 14.41 .

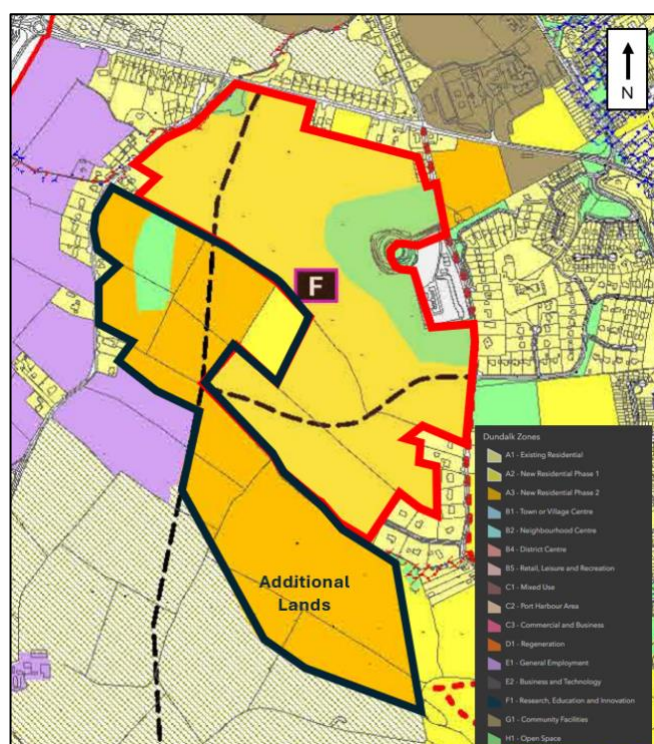


Figure 14.41: Zoned Lands in vicinity of Subject Site

A sensitivity analysis was carried out on the two proposed site accesses (Junction 14 (Castletown Road / Site Access) and 15(Mount Avenue / Site Access)), to ensure that they remain within capacity when the above zoned residential lands are occupied, as request by Louth County Council in the subject development pre-planning meeting.

The total land zoned for residential is 24.61 Hectares. Assuming a rate of 35 units per hectare and applying the same housing / apartment mix (72% / 28%) as the subject development, the land has been modelled for a total of 861 units (626 houses and 235 apartments). A 350 student primary school has also been included in the analysis. The potential trips generated by this zoned land is laid out in Table 14.29 below:

Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	626	Units	0.146	0.328	0.354	0.189
Apartments	235	Units	0.068	0.143	0.234	0.105
Primary School	350	Students	0.367	0.280	0.017	0.105
Type	Unit No.	Metric	AM Peak Hour		PM Peak Hour	
			08:15 - 09:15		17:00-18:00	
			Arrive	Depart	Arrive	Depart
Houses	626	Units	92	205	222	118
Apartments	235	Units	16	34	55	25
Primary School	350	Students	128	98	6	37
Total			236	337	283	180

Table 14.31: Zoned Lands Trip Generation

This trips have been added onto the 2042 Do-Something Scenario (which includes the proposed 1058 residential units, retail units, creche), and the result of the model indicates that Junctions 14 and 15 remain within capacity for the 2042 Do-Something Scenario. The results can be seen in Table 14.30 below.

Junction 14 Sensitivity Analysis							
Peak Hour	Stream				2042		
					Do Something		
					Mean Max Queue (pcu)	Delay (s)	DOS
AM Peak	Arm A	1	-	Castletown Road (East)	13.40	38.63	78%
	Arm B	1	Left	Site Access	4.34	23.85	32%
		2	Right		7.35	72.06	83%
	Arm C	1	-	Castletown Road (West)	21.86	37.37	89%
PM Peak	Arm A	1	-	Castletown Road (East)	71.23	39.63	84%
	Arm B	1	Left	Site Access	3.07	26.25	26%
		2	Right		5.14	86.95	81%
	Arm C	1	-	Castletown Road (West)	21.87	38.26	90%

Table 14.32: Junction 14 (Castletown Road / Site Access) Sensitivity Analysis Results

For Junction 14, the maximum Degree of Saturation (DOS) value is observed during the 2042 Do Something PM Peak on the Castletown Road (West) arm, with Degree of Saturation of 90%. The maximum Queue length observed is 23.83 PCU, which occurs on the same arm during the same period.

Junction 15 Sensitivity Analysis							
Peak Hour	Stream				2042		
					Do Something		
					Mean Max Queue (pcu)	Delay (s)	DOS
AM Peak	Arm A	1	-	Mount Avenue (South)	4.85	20.83	34%
	Arm B	1	Left	Site Access	2.59	28.07	23%
		2	Right		5.06	30.34	41%
	Arm C	1	-	Mount Avenue (North)	3.20	23.62	41%
PM Peak	Arm A	1	-	Mount Avenue (South)	4.76	13.62	32%
	Arm B	1	Left	Site Access	1.88	37.98	25%
		2	Right		4.33	42.55	50%
	Arm C	1	-	Mount Avenue (North)	4.06	17.85	48%

Table 14.33: Junction 15 (Mount Avenue / Site Access) Sensitivity Analysis Results

For Junction 15, the maximum Degree of Saturation (DOS) value is observed during the 2042 Do Something PM Peak on the Site Access Right Turn lane, with Degree of Saturation of 50%. The maximum Queue length observed is 5.06 PCU, which occurs on Site Access Right Turn Lane during the 2042 Do Something AM Peak.

A separate Mobility Management Plan (MMP) has been prepared as part of this planning application. The MMP presents a number of objectives and targets for reducing private car travel in favour of more sustainable travel modes within the development.

The facilities proposed within the subject development include for 1770 cycle parking spaces, linkages to good public transport services (current and future), reduced parking for residents as well as the Mobility Hub with car sharing within the development. Therefore, this development proposes a sustainable approach to travel within the development. This will encourage existing and future residents to increase modal shift away from car use to more sustainable modes of transport and this can be achieved by the implementation of the Mobility Management Plan (MMP) which has been prepared for this development.

14.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

14.6.1 Proposed Development

14.6.1.1 Construction Stage

A Construction and Environmental Management Plan (CEMP) has been prepared as part of the planning application which incorporates a range of integrated control measures and associated management activities with the objective of minimising the construction activities associated with the development. The following initiatives will be implemented to avoid, minimise and/or mitigate against the anticipated construction period impacts:

- During the pre-construction phase, the site will be securely fenced off/hoarded off from adjacent properties, public footpaths and roads;
- Appropriate on-site parking (temporary parking for the duration of construction works) and compound area will be provided to prevent overflow onto the local network;
- A large proportion of construction workers are anticipated to arrive in shared transport. It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential;
- Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low;
- Truck wheel washes will be installed at construction entrances;
- Any specific recommendations with regard to construction traffic management made by Louth County Council will be adhered to;
- Potential localised traffic disruptions during the construction phase will be mitigated through the implementation of industry standard traffic management measures such as the use of traffic signage. These traffic management measures shall be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks" and "Guidance for the Control and Management of Traffic at Roads Works – 2nd Edition" (2010); and
- Site entrance point/s from the public road will be constructed with a bound, durable surface capable of withstanding heavy loads and with a sealed joint between the access and public

highway. This durable bound surface will be constructed for a distance of 10m from the public road.

- Material storage zones will be established in the compound area and will include material recycling areas and facilities;
- 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas;
- Dedicated construction haul routes will be identified and agreed with Louth County Council prior to commencement of activities on-site; and
- On completion of the works, all construction materials, debris, temporary hardstands etc. from the site compound will be removed off-site and the site compound area reinstated in full on completion of the works.

14.6.1.2 Operational Stage

A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development at the subject site could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The identified measures and associated timescale for their implementation are summarised below.

- Parking Management Strategy - A management regime has been set out which will be implemented by the development's management company to control access to the on-street car parking spaces thereby actively managing the availability of on-street car parking for residents and visitors to the development
- Management – A preliminary Mobility Management (MMP) will be compiled (with the aim of guiding the delivery and management of co-ordinated initiatives by the scheme promotor to be implemented upon occupation of the site. The MMP will ultimately seek to encourage sustainable travel practices for all journeys to and from the proposed development.
- Infrastructure – Infrastructure measures identified to reduce reliance of private vehicles include the provision of ample secure cycle parking on site, exceeding minimum guidance (SCSG), and ensuring a design which promotes permeability for pedestrians and cyclists to, through and from the development. The lower level of car parking provision for the development will also act as a powerful mobility management measure, ensuring against an overprovision of parking and a resultant over reliance on the private vehicle.
- Infrastructure – Junction enhancements have been identified and proposed at both the Castletown Road and Mount Avenue site access junction, including an upgrade to the existing uncontrolled pedestrian crossing on Castletown Road to a protected junction, with the objective of creating a highly permeable environment for pedestrians and cyclists.
- Car Sharing – The provision of 2 No. dedicated car share (GoCar and development-owned) spaces at the mobility hub is proposed for the use of the scheme's residents and staff. The availability of these on-site provide a viable alternative to residents needing to own a private vehicle whilst still having access to a car as and when required.

14.7 RESIDUAL IMPACT OF THE PROPOSED DEVELOPMENT

14.7.1 Proposed Development

14.7.1.1 Construction Stage

Provided the above mitigation measures and management procedures are incorporated during the construction phase, the residual impact on the local receiving environment will be temporary in nature and neutral in terms of quality and effect.

The significance of each of the projected impacts are detailed in Table 14.32 for the following key junctions:

- Junction 1 – Northern Site Access / Castletown Road
- Junction 2 – Eastern Site Access / Mount Avenue

The significance of the impacts has been determined in accordance with the classifications stipulated within the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports - Draft (EPA, August 2017).

Junction	Environment Character	Quality / Scale of Impact	Impact Significance	Duration
14	Low Sensitivity	Negative - Low	Not Significant	Temporary
15	Low Sensitivity	Neutral	Imperceptible	Temporary

Table 14.34: Construction Impacts on Site Accesses

14.7.1.2 Operational Stage

In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the junctions was analysed for the schemes following opening, interim and design years:

- 2027 Opening Year;
- 2032 Interim Year and
- 2042 Future Horizon Year

The following key junctions have been analysed as they exceeded the 5% threshold required under the Institution of Highways and Transportation document 'Guidelines for Traffic Impact Assessments':

- Junction 1 – Castletown Road / Mount Avenue (Priority Crossroads)
- Junction 2 – M1 Junction 17 Western Roundabout
- Junction 3 – Castletown Road / Marian Park (Priority Junction)
- Junction 4 – Carrickmacross Road / Old Mount Avenue (Priority Junction)
- Junction 5 – Carrickmacross Road / Ard Easmuinn (Priority Junction)
- Junction 6 – Bellewsbridge Road / Mill Road (Priority Junction)
- Junction 7 – Castletown Road / Ecco Road (Signalised Junction)
- Junction 8 – M1 Junction 17 Eastern Roundabout
- Junction 9 – Castletown Road / Greyacre Road (Priority Junction)
- Junction 10 – Castletown Road / Bellewsbridge Road (Signalised Junction)
- Junction 11 – Mount Avenue / Headford (Priority Junction)
- Junction 12 – Mount Avenue Roundabout
- Junction 13 – Carrickmacross Road / New Mount Avenue (Signalised Junction)
- Junction 14 – Castletown Road / Site Access
- Junction 15 – Mount Avenue / Site Access

The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package PICADY (part of Junctions 10) for the priority junctions, ARCADY (part of Junctions 10) for the roundabouts, and TRANSYT for the signalised junctions.

For the PICADY and ARCADY analyses, a 90-minute AM and PM period has been simulated, from 08:00 to 09:30 and 16:45 to 18:15, respectively. For these junction analysis sets traffic flows were entered using an Origin-Destination table for the peak hours.

When considering priority junctions, a Ratio of Flow to Capacity (RFC) of greater than 85% (0.85) would indicate a junction to be approaching capacity, as operation above this RFC value is poor and the performance of the junction deteriorates quickly.

When considering signalised junctions, a Degree of Saturation (DOS) of greater than 90% would indicate a junction to be approaching capacity, as operation above this DOS value is poor and the performance of the junction deteriorates quickly.

The evaluation of the operational performance of the key off site junctions following the implementation of the proposed residential scheme is summarised below for the Do Nothing (DN) and the Do Something (DS) scenario.

Existing – Do Nothing (DN): The potential level of traffic generated by committed developments and the existing baseline flows travelling across the network.

Proposed – Do Something (DS): The original development traffic in addition to the Base scenario (Existing – Do Nothing).

The evaluation of the operational performance of the key junctions across the local road network both prior to and following the implementation of the proposed residential development are summarised in Section 14.5.9 of this chapter.

14.7.1.3 Impact Significance

The implementation of the mitigation measures outlined above, including the MMP, will ensure that the residual effect on the local receiving environment is both managed and minimised.

With regards to the TII thresholds, the above junctions are indicated as having impacts above 5%, and therefore have been subject to detailed analysis. This detailed analysis has been covered in section 14.5.9 in line with the criteria set out within the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – Draft (EPA, August 2017).

The significance of each of the projected impacts at each of the key nodes after the introduction of the identified mitigation works is detailed within the following table for the adopted worst case (e.g. peak hours) 2042 Future Year scenarios.

Junction	Environment Character	Environment Character	Quality / Scale of Impact	Impact Significance	Duration
1	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
2	AM	Low Sensitivity	Negative - Low	Not Significant	Medium-term
	PM	Low Sensitivity	Negative - Low	Not Significant	Medium-term
3	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
4	AM	Low Sensitivity	Negative - Low	Slight	Medium-term
	PM	Low Sensitivity	Negative - Low	Slight	Medium-term
5	AM	Low Sensitivity	Negative - Low	Not Significant	Medium-term
	PM	Low Sensitivity	Negative - Low	Not Significant	Medium-term
6	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
7	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
8	AM	Low Sensitivity	Negative - Low	Slight	Medium-term
	PM	Low Sensitivity	Negative - Low	Slight	Medium-term
9	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
10	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
11	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
12	AM	Low Sensitivity	Negative - High	Significant	Medium-term
	PM	Low Sensitivity	Negative - High	Significant	Medium-term
13	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
14	AM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
	PM	Low Sensitivity	Negative - Medium	Moderate	Medium-term
15	AM	Low Sensitivity	Negative - High	Significant	Medium-term
	PM	Low Sensitivity	Negative - High	Significant	Medium-term

Table 14.35: Impact Significance – 2042 Design Year

14.7.2 Cumulative

The analysis detailed above represents an appraisal in terms of potential cumulative impacts for a typical weekday as it is focused upon the key two busiest periods of the day (e.g. AM and PM peak hours). During the other 22 hours of the day, traffic flows are predicted to be significantly lower resulting in the network operating with additional reserve capacity to that forecast for the peak hour periods.

Furthermore, if any of the adjacent zoned lands in the area were to be developed, aside from those included as a committed development, this would have an effect on the local road network. However, the scale of any potential impact would be fully assessed during the planning procedures for any of these individual third-party developments (which currently do not benefit from planning permission).

Nevertheless, the utilisation of TII's growth rates does take some account of the potential additional traffic that such third party sites could generate. The TII Project Appraisal Guidelines (PAG) have been utilised to determine the traffic growth forecast rates for Louth as outlined in Section 14.5.2 of this chapter. The traffic growth forecast rates within the PAG ensures local and regional variations and demographic patterns are accounted for.

14.8 MONITORING

14.8.1 Proposed Development

14.8.1.1 Construction Stage

During the construction stage, the following monitoring exercises are proposed:

- Compliance with construction vehicle routing practices;
- Compliance with construction vehicle parking practices;
- Internal and external road conditions; and
- Timing of construction activities.

14.8.1.2 Operational Stage

As part of the MMP process, bi-annual post occupancy surveys are to be carried out in order to determine the success of the measures and initiatives as set out in the proposed MMP document. The information obtained from the monitoring surveys will be used to identify ways in which the MMP measures and initiatives should be taken forward in order to maintain and further encourage sustainable travel characteristics.

Impact Without Mitigation				Mitigation Measures and Monitoring		Impact With Mitigation / Monitoring		
Likely Significant Effect	Quality	Significance	Duration	Mitigation Measures	Monitoring	Quality	Significance	Duration
Congestion on the local road network as a result of HGVs during the Construction Stage.	Negative	Significant	Short-term	An appropriate control and routing strategy for HGVs and the phasing of construction vehicles throughout the day.	Compliance with construction vehicle routing practices.	Neutral	Slight	Short-term
Additional HGVs required due to improper storage, material damage or lack of reuse of construction materials.	Negative	Moderate	Short-term	Material storage zones will be in use as well as the conducting of regular inventory checks to ensure reuse of available material.	Compliance with construction waste management practices.	Neutral	Not Significant	Short-term

Table 14.36: Summary of Construction Phase Likely Significant Effects with and without Mitigation / Monitoring

Impact Without Mitigation				Mitigation Measures and Monitoring		Impact With Mitigation / Monitoring		
Likely Significant Effect	Quality	Significance	Duration	Mitigation Measures	Monitoring	Quality	Significance	Duration
An increase in traffic flow causes capacity issues at local junctions	Negative	Significant	Medium-term	A detailed parking management strategy and MMP have outlined the various methods with which private car ownership will be deterred and sustainable transport options promoted.	Bi-annual occupancy surveys as part of the MMP process will be conducted to determine efficacy of measures and to further encourage a modal shift.	Neutral	Slight	Medium-term

Table 14.37: Summary of Operational Phase Likely Significant Effects with and without Mitigation /Monitoring

14.9 REINSTATEMENT

14.9.1 Proposed Development

14.9.1.1 Construction Stage

The construction works areas will be reinstated following completion of development with landscaped areas provided where proposed. The majority of works will be restricted to the footprint of the site for the proposed development with upgrades required to public road to construct the proposed site access junctions including toucan crossings as well as service connections. Excavated topsoil and subsoil will be reused in reinstatement and landscaping where appropriate or dealt with in the appropriate manner i.e. sent for soil recovery as appropriate.

14.9.1.2 Operational Stage

No reinstatement requirements have been identified in relation to the operational phase of the proposed development.

14.10 DIFFICULTIES ENCOUNTERED

There were no material difficulties encountered in compiling and assessing the data for this EIAR sufficient to prevent modelling of the likely transport effects of the proposed development. The analysis reported within this chapter is based upon the traffic survey data obtained for this appraisal and undertaken in March 2025.

