

13 MATERIAL ASSETS (TRANSPORTATION)

13.1 Introduction

13.1.1 Background

Quintain Developments Ireland Limited are applying for Planning Permission to An Bord Pleanála (ABP) for a residential development at Portmarnock South Phase 1D in the townlands of Drumnigh, Maynetown and Portmarnock, Portmarnock, Co Dublin. The chapter was prepared by Gerard Claffey of J. B. Barry and Partners Limited. Gerard is a Chartered Engineer with seven years' experience. Gerard has been engaged as team member and team leader on a variety of Transportation and Traffic projects.

J.B. Barry & Partners Ltd. was engaged to carry out a Traffic and Transport Assessment (TTA) and the Material Assets: Transportation Chapter of the EIAR for the Proposed Development. This chapter of the Environmental Impact Assessment Report (EIAR) will focus on two areas: the Proposed Development (Phase 1D) and the cumulative development of the remainder of the Local Area Plan lands. Phase 1A, St. Marnock Bay, comprising of 101no. residential units and a new access junction off Station Road (western side) and Phase 1B ('Dún Sí' at St. Marnocks Bay), comprising of 150no. residential units and a new secondary access junction off Station Road (eastern side) have been completed and are fully occupied. In addition, construction has commenced on Phase 1C of St. Marnock Bay, comprising of 153no. residential units, a 'Local Centre' with café / restaurant / retail units and a medical / community unit.

The Proposed Development (Phase 1D) generally comprises: -

- 172no. new housing units (comprising of 57no. four-bedroom houses, 93no. three-bedroom houses, 11no. three-bedroom duplex units and 11no. two-bedroom apartment units).
- Associated roads, footpaths, private driveways, landscaping, site services, SuDS measures and sundry related works.
- A new access road and junction onto Moyne / Mayne Road serving the Proposed Development.

The future development on the remainder of the Portmarnock South Local Area Plan lands comprises:

- c. 507no. new residential units (comprising of three / four-bedroom houses, two / three-bedroom duplex / apartments and one / two / three-bedroom apartments).
- A comprehensive network of internal roads and associated underground utilities and services.
- High level provision of facilities for pedestrians and cyclists within the development.
- Direct high-quality pedestrian/cycle access to and from Portmarnock DART station.

13.1.2 Consultation and Scoping Study

A series of pre-planning meetings have been held with Fingal County Council (FCC) since 2015 to discuss Phases 1A, 1B and 1C. In addition, a Section 247 meeting was held with FCC on the 11 March 2021 to discuss the subject development (Phase 1D). As part of the application process for previous phases, it was agreed with FCC that the study area would include five junctions surrounding the development: -

- **Junction 1:** Station Road / Drumnigh Road R124 (to the north / west).
- **Junction 2:** Strand Road / Coast Road / Station Road (to the north / east).
- **Junction 3:** Moyne Road / Coast Road (to the south / east).
- **Junction 4:** Drumnigh Road / Moyne Road (to the south / west).
- **Junction 5:** Balgriffin Park / Balgriffin Cottages / Moyne Road (to the south / west).

These junctions were selected as they are considered the junctions most likely to be affected by traffic associated with the Proposed Development.

13.2 Assessment Methodology

13.2.1 Objectives

This chapter provides an assessment of the potential traffic impacts associated with both the Proposed Development and the Cumulative Development of the entire Local Area Plan lands (refer to the Framework Plan, prepared by Burke Kennedy Doyle Architects). In this regard, the assessment aims to: -

- Identify the existing environment in terms of traffic and transportation.
- Quantify the likely vehicle traffic flows to and from the development and to the surrounding road network.
- Identify and quantify the likely traffic impacts on the surrounding road network resulting from the development.
- Identify any potential safety issues, in particular impacts on vulnerable road users in the study area.
- Identify parking requirements.
- Identify suitable measures to mitigate traffic and transportation impacts, if any, associated directly with the development.

The assessment is based on the findings of site visits, traffic observations, on-site traffic counts, architectural plans, and consultations with the Design Team.

13.2.2 Methodology

The methodology adopted for this report is summarised as follows: -

- Reference was made to site layout drawings issued by the project architect and the proposed plans for the site.
- Historical traffic surveys were obtained at the junctions most likely to be impacted by the Proposed Development.
- Proposed access arrangements for the development onto the surrounding road network were considered.
- The traffic survey locations and survey times were selected so as to best reflect the likely traffic generation to and from the subject development, particularly at proposed site access/egress points.
- The junctions considered to be most likely to be impacted upon by traffic movements associated with the Proposed Development were assessed in terms of capacity and road safety.

In preparing this assessment, reference has been made to the following documents: -

- TII Traffic and Transport Assessment Guidelines – May 2014.
- TII Project Appraisal Guidelines for National Roads Unit 5.3, Travel Demand Projections- Oct 2021
- Design Manual for Urban Roads and Streets (DMURS) – July 2019.
- South Fingal Transport Study (2012).
- South Fingal Transport Study (2019).
- Portmarnock South Local Area Plan (2013 – As extended).
- Fingal County Development Plan 2017 – 2023.

13.3 Receiving Environment

13.3.1 Proposed Development and Cumulative Development

13.3.1.1 Site Location



Figure 13.1: Site Location.

The site for the Proposed Development (Phase 1D) and the existing and permitted Phase 1 development (Phase 1A, 1B and 1C) which is illustrated in Figure 13.2 (below) is on lands north of Moyne Road and south of Station Road, east of the Dublin – Belfast / (DART) Railway Line, and to the west of the Coast Road. The northern frontage of St. Marnocks Bay onto Station Road currently provides access to the external road network. Fingal County Development Plan 2017 – 2023 (hereafter the Development Plan) contains an objective to upgrade both Moyne Road and Station Road in the future. The Portmarnock South LAP provides for access to the development from Station Road and Moyne Road.

Coast Road runs along the eastern side of the Proposed Development in a north south direction from its junction with Station Road to the north and to Moyne Road to the south.

Portmarnock DART station is situated to the north west of the site with direct access off Station Road. The rail line runs along the western boundary of the site. Further lands zoned for development lie to the west of the Dublin-Belfast / (DART) Railway Line in the vicinity of the site.

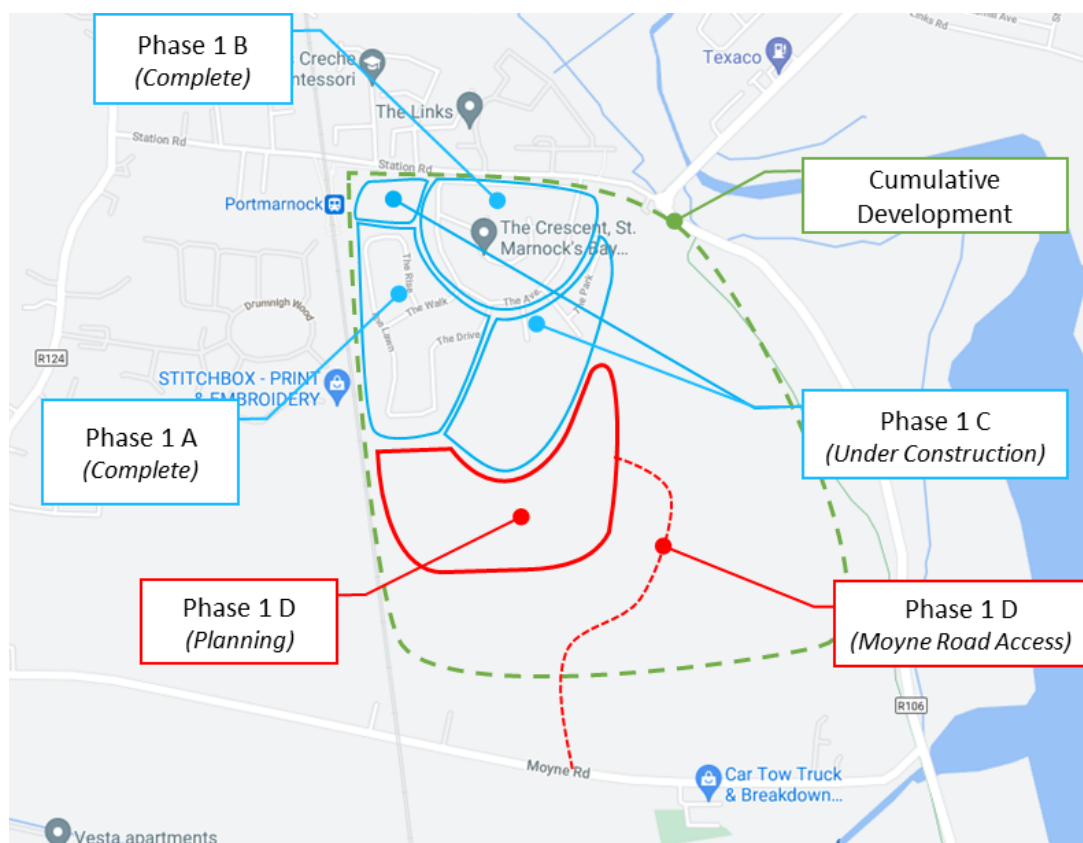


Figure 13.2: Site Location Plan.

13.3.1.2 Local Road Network

The subject site for the Proposed Development is located south of Station Road and north of Moyne Road in Portmarnock. Station Road is a bi-directional two-lane distributor road. In the vicinity of the site, Station Road has a road pavement width of approximately 5.5 to 6.0 metres. To the west of the site along the DART station northern boundary, the road (upgraded in 2013 as part of the Station Road rail overbridge scheme) has a carriageway width of 6.4 metres and footpaths provided on both sides of the road. A signalised pedestrian crossing was also installed as part of the scheme at a pedestrian access to the DART station from Station Road. Moyne Road (R123) is a bi-directional two-lane distributor road and has a road pavement width of approximately 6.0 to 6.5 metres. A pedestrian footpath is partially present along the northern side of Moyne Road, but no pedestrian footpath exists along the southern side.

The Proposed Development will be served by three new priority-controlled junctions providing direct access from the external road network. Two of these junctions are on Station Road and one on Moyne Road. One of the access junctions on Station Road, 180m east of the Dart station has been constructed as part of Phase 1A and is currently in use by the residents of Phase 1A and Phase 1B. The other access junction on Station Road, 450m east of the DART Station was completed as part of the Phase 1B development. This secondary access is also used for construction access at present but will revert to residential and general public once construction traffic is able to use the recently approved haul road access onto Moyne Road.

See Figures 13.3 to 13.5 following for photographs images of Station Road and Moyne Road as it currently exists past the subject site and the new access.



Figure 13.3: Station Road looking west towards the DART Station.



Figure 13.4: New Primary Access looking from Station Road.



Figure 13.5 Moyne Road R123 looking East (Source Google Maps).

The following road works are taking place in the vicinity of the Proposed Development, however as noted below, the majority of these will be completed prior to envisaged start date (April 2022 subject to approval) on site for this Proposed Development: -

- Hole in the Wall / Mayne Road Junction Upgrade (*Substantially Complete November – December 2021*).
- Coast Road / Station Road Junction Upgrade (*Works January to March 2022*).
- Druimnigh Road / Station Road Junction Improvements (*Works January to March 2022*).
- Irish Watermain Replacement at Malahide Road (*Ongoing – Envisaged mid 2022*).
- Various Development Boundary Works along Malahide Road near Balgriffin Cottages; (*Substantially Complete, with the exception of Belcamp, November 2021*).

13.3.1.3 Existing Public Transport

The subject site and surrounding lands are currently very well serviced by public transport.

The DART rail line lies immediately to the west of the site and provides DART and suburban rail services to Malahide and the city centre from Portmarnock Station which is located to the north-west of the site. Other DART stations are also located nearby at Malahide to the north and Clongriffin to the south.

The nearest Dublin Bus scheduled services operate generally to and from Dublin city centre and along the Strand Road to Portmarnock and Malahide. These include the following services: -

- 32 From Talbot St. to Malahide.
- 32x From Malahide towards UCD Belfield.
- 102 Sutton Station to Dublin Airport.
- 42d Portmarnock to DCU.

Phase 1 of the new BusConnects network launched on 27 June with the introduction of H-Spine (H1, H2, H3, H9) and Route 6 (all operated by Dublin Bus). The following BusConnects Routes currently service the study area: -

- H2 – Malahide to City Centre.

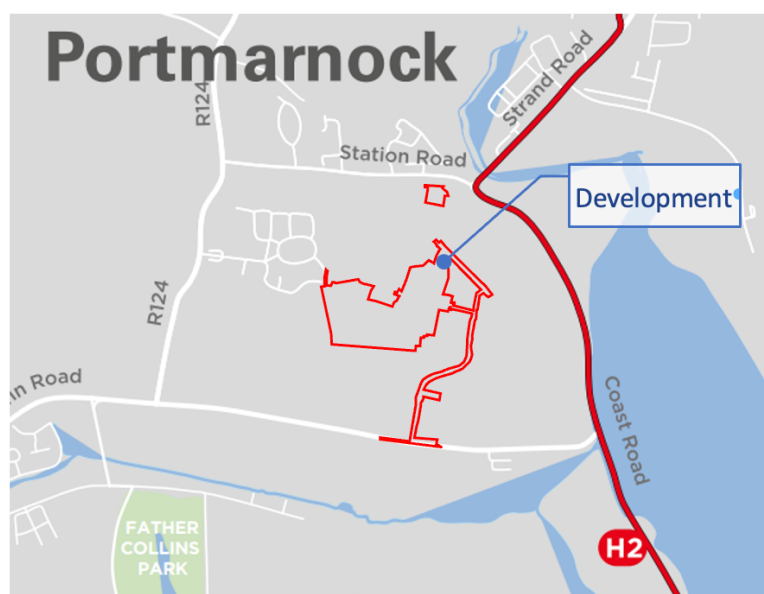


Figure 13.6: Phase 1 of the new BusConnects network as per www.busconnects.ie.

13.3.1.4 Proposed Public Transport

Dublin Bus propose to upgrade their service to the study area by way of the Dublin BusConnects project. Figure 13.6 taken from the latest Bus Connects proposal illustrates proposed new routes in the vicinity of the Proposed Development and includes the “H2 Bus Route”, which is the Malahide to City Centre Core Bus Corridor. In addition, the scheme will include the L81 from Malahide to Abbey Street via Portmarnock and the X78 to UCD via the city centre.



Figure 13.7: BusConnects Portmarnock.

13.3.1.5 Pedestrian and Cycle Infrastructure

The Portmarnock area has greatly benefited from the recent opening of the Portmarnock Greenway. The greenway is a walking and cycling route connecting Baldoyle to Portmarnock. It forms part of a vital first phase of the overall Sutton to Malahide Greenway Scheme. The Greenway will eventually connect to the wide shared surface running along the north of the development providing a direct walking and cycling link to Portmarnock Dart station.

13.3.1.6 Road Safety

Introduction

The Proposed Development has been designed with pedestrians and cyclists needs at the forefront rather than motorists. This will create a congenial and safe environment for pedestrians and cyclists. Footway and cycleway networks are designed in accordance with the Design Manual for Urban Roads and Streets and will facilitate direct and safe access between the adjacent Portmarnock DART station and surrounding areas.

The development access points are carefully positioned at locations to maximise available forward visibility along Station Road and Moyne Road. The development junctions have been designed to ensure that two-way traffic movements can be safely accommodated, and, in addition, the swept path of refuse type vehicles is catered for. The access junctions and internal site junctions have been designed in accordance with the Design Manual for Urban Roads and Streets (2019).

RSA Database

The Road Safety Authority (RSA) database of road collision information was interrogated to establish if the surrounding road network in the vicinity of the Proposed Development access holds records relating to historical collision occurrence (Figure 13.8 below). Collisions from 2005 to 2016 only are available.

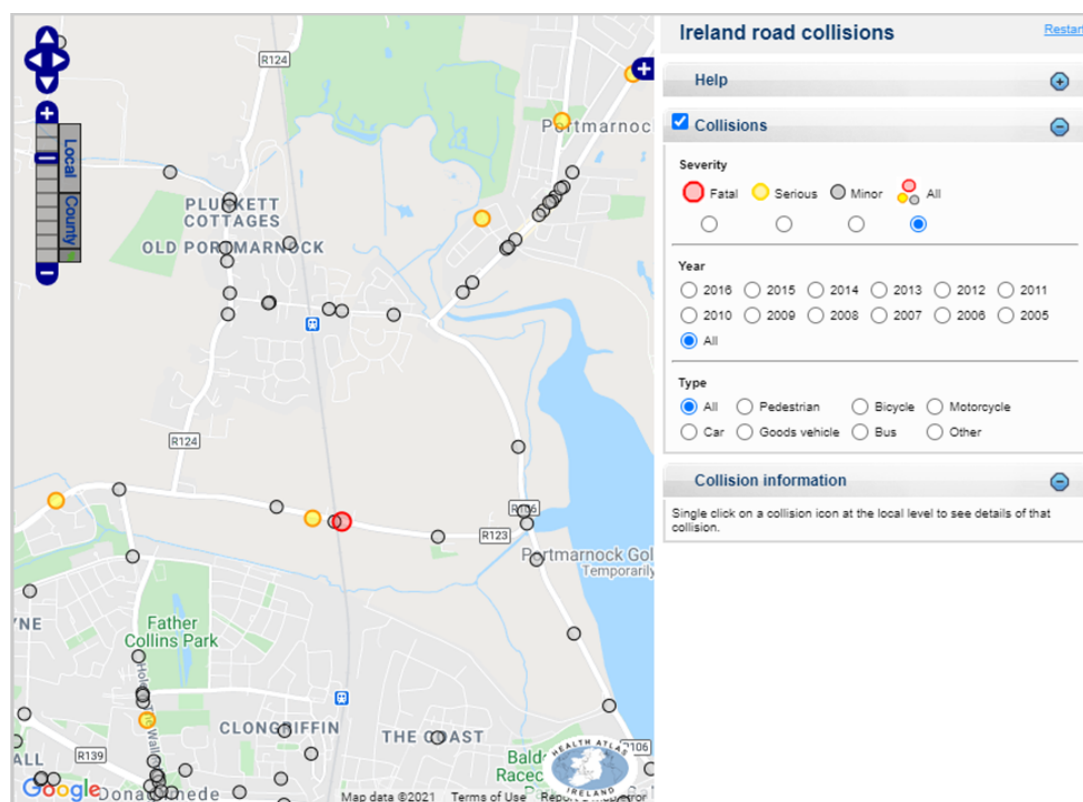


Figure 13.8: RSA record of collisions.

This exercise revealed that there has been one fatal collision on Moyne Road, recorded in 2013. In addition, there has been one serious single vehicle collision (involving a motorcycle 2010) and a series of minor collisions on the surrounding road network near the development. Due to the isolated nature and low frequency of these collisions a pattern of collisions is not identifiable. It is anticipated that the Proposed Development will have no significant negative impact on the road safety of the area. Additionally, the proposed junction upgrades as referenced in Section 13.4.1.1. will have a positive impact on road safety in particular vulnerable road users.

13.4 Characteristics of the Proposed Development

13.4.1 Proposed Development

The Proposed Development will generally comprise:-

- 172no. new housing units (comprising of 57no. four-bedroom houses, 93no. three-bedroom houses, 11no. three-bedroom duplex units and 11no. two-bedroom duplex units).
- Associated roads, footpaths, private driveways, landscaping, site services, SuDS measures and sundry related works.
- A new access road and junction onto Moyne Road serving the Proposed Development.

13.4.1.1 Construction Phase

It is estimated that if planning permission is granted for the Proposed Development in c. Q1 2022. The Proposed Development will take a 24-month construction period; therefore it is estimated that the Proposed Development will be fully operational by the end of 2023 / start of 2024.

Currently all construction traffic access / egress the site via the eastern second entrance on Station Road. Construction traffic is forbidden from travelling through Junction 1: Station Road / Drumnigh Road junction, west of the site. Construction traffic has to use Junction 2: Coast Road / Station Road / Strand Road to the east as it is better able to accommodate larger construction vehicles. After passing through the Coast Road / Station Road junction, construction traffic not exceeding 3.85m will be able to utilise Moyne Road and pass under the DART bridge. They will travel towards the M1 on the most direct route via the R139. Construction traffic exceeding 3.85m will not be able to use Moyne Road and will travel to the M1 / M50 via Baldoyle village, Dublin Road, Kilbarrack Road, Tonlegee Road and Coolock Lane.

Permission was granted (F20A/0700 – May 2021) for the construction of a new temporary Haul Road to the south connecting into Moyne Road, to link both the development under construction (1C) and any future phases, until such time as the permanent Access Road to Moyne Road is delivered under this Proposed Development. This temporary Haul road will be completed in December 2021.

When complete, the new temporary Haul Road (and future Access Road) will allow construction traffic to access the site from the south, minimising the interaction with Phases 1A / B / C, the Station Road junctions and the general public.

It should be noted that construction traffic generated during the Construction Phase tends to be outside of peak hours. All construction activities will be governed by a construction Traffic Management Plan (TMP) the details of which will be agreed with FCC's Roads Department prior to the commencement of the Construction Phase. Refer to Construction Environmental Management Plan prepared for this application for further details.

Access Arrangements

The Proposed Development will be served by three priority controlled junctions providing direct access from the external road network. Two of these junctions are on Station Road and one on Moyne Road. The two priority controlled junctions on Station Road are situated 250m apart. The western junction of the two will provide the main access to the development and includes a right turning lane into the development. The two priority controlled junctions on Station Road are constructed and the priority junction on Moyne Road is proposed as part of this Phase 1D of the development.

Sustainable Transport and Connectivity

The principle of providing sustainable transport which is embodied in the Portmarnock South Local Area Plan will be given physical expression in the Proposed Development. The form and structure of the Proposed Development will encourage the use of public transport, cycling and walking in preference to the private car. Measures that will be taken to secure this include the provision of: -

- A network of segregated combined cycle and footpath routes through the development including along the Primary Link road, the Townland boundaries and a circular route which will connect homes to the DART station, commercial area and open space;
- A network of footpaths that will permeate the residential area and provide a high degree of accessibility to local facilities and to bus and rail transport.

Within the general context of promoting a sustainable transport system, the road network designed in accordance with DMURs to cater for the development is described as follows: -

- **Primary Link Road:** This will be the main traffic artery for the Proposed Development. It will run from the main Station Road western access in the north to Moyne Road access in the south and will have a design speed of 30kph. The road will be 6.5 metres wide. A 4-metre-wide combined footpath and cycle way will be provided along most of the road and will link with the proposed walking / cycling route in the open space lands to the south of the development.
- **Secondary Road and Access Roads:** These roads will assist with the dispersal of traffic from the Primary Link Road to the main part of the residential area. They will range from 4.8 metres to 6 metres in width and will have a design speed of 30kph by means of speed restraint measures such as short road lengths, horizontal deflections, priority road crossings, gateway platforms, etc. A footpath of 2 metres in width will be provided on each side of the carriageway.

The Proposed Development will be designed with pedestrians and cyclists needs at the forefront rather than motorists. Vehicle speeds will be restricted to 30kph throughout the development. This will create a congenial and safe environment for pedestrians and cyclists.

In addition, a perimeter route will be provided combining a cycleway and footpath around the entire development. The main function of this perimeter route is to provide an attractive leisure route for residents which will give access to the recreation facilities in the open space / parkland, to the Fingal Coastal Walking / Cycling route and from there to the surrounding footpath and cycleway network. The combined footpath and cycle routes will be 4 metres in width and paved with a durable surface such as tar macadam. The separation between pedestrians and cyclists will be defined by a tactile white line.

A short link will be provided between the Local Centre (permitted under Phase 1C – now under construction) to the north west of the Proposed Development connecting pedestrians with the DART station.

Junction Upgrades

The Hole in the Wall Road realignment project, as noted earlier is substantially complete. The project replaced Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road and Junction 4: Drumnigh Road / Moyne Road). This junction upgrade has been completed well in advance of the development year of opening 2023 / 2024. The traffic currently passing through Junction 4: Drumnigh Road and Junction 5: Balgriffin Park will now pass-through Junction H: Hole in the Wall Road.

As part of the previous Phase 1C planning application, An Bord Pleanála attached a condition which required the upgrade of Junction 1: Drumnigh Road (R124) / Station Road and Junction 2: Strand Road / Coast Road / Station Road. (ABP Ref: BD-005047-20 and 305619-19). A meeting was held on 22 August 2019 at the offices of Fingal County Council, Swords in respect of the nature, extent and costs associated with specific off-site road improvements associated with the development as identified by Fingal County Council. Further correspondence was undertaken with FCC throughout 2021 to further discuss changes to the junction upgrades, with an agreed compliance submission issued in August and approved in October 2021. Works are due to commence on site in January 2022.

The junction works agreed upon included upgrading Junction 1: Drumnigh Road (R124) / Station Road with traffic calming measures and changes to the kerb lines. It also included upgrading Junction 2: Strand Road / Coast Road / Station Road from a mini roundabout into a signalised junction. The two junction upgrades will improve traffic movements in the area, improve road safety (though to a lesser extent for Junction 1 owing to limited land availability). These junction upgrades will be completed in March 2022 i.e. in advance of the development year of opening 2023/2024 and therefore these upgrades have been included in the following modelling scenarios.

Proposed Vehicle Parking Provision

All parking within the development will comply with the Development Plan. Three more parking spaces have been provided at the duplex units to mitigate against haphazard parking in the area. This parking provision includes: -

Land Use	Units / Area	Fingal Dev Plan Parking Standards	Requirements
3 / 4 – Bed House	150	2 spaces per unit	300
Bed Duplex	11	2 spaces per unit	22
2 Bed Duplex	11	1.5 spaces per unit	16.5
2 / 3 Duplex	22	1 visitor space per 5 units	4.5
		Total	343
		Provided	345

Table 13.1: Vehicle Parking Provision.

For clarity, the design of the Proposed Development layout is compliant with DMURS (Design Manual for Urban Roads and Streets) and proposed car parking spaces are in accordance with Fingal County Council Development Plan and whilst this may have the potential to lead to on-street parking and vehicles partially blocking roads and footpaths, it is expected to be a less likely risk for this phase given its distance from the railway station, evolution of design i.e. removal of undercroft parking (particular to Phase 1A), that the majority of roads have access from both ends and where cul-de-sacs are present, these have a more direct relationship between road and parking i.e. to park on road will block one to two parking spaces.

Proposed Bicycle Parking Provision

All bicycle parking within the development will comply with the Development Plan. 30no. bicycle parking spaces will be provided for the 22no. duplex units, in excess of the Development Plan minimum requirement.

13.4.2 Cumulative Development

13.4.2.1 Construction Phase

It is estimated that the following timetable for the redevelopment of the remaining lands at Portmarnock area as follows: -

- **Phase 1D:** 172no. units – Commence construction Q2 2022.
- **Phase 1E:** 190no. units – Commence construction Q2 2023.
- **Phase 1F:** 317no. units – Commence construction Q1 / Q2 2024.

The Proposed Development (Phase 1D) will include the construction of a new access road and junction onto Moyne Road serving the Proposed Development the existing Phase 1A and Phase 1B, the permitted Phase 1C under construction and the remainder of the Local Area Plan lands. The new access road will replace the Haul Road and therefore continue to allow construction traffic to access the site from the south, minimising the interaction with Phases 1A / B / C and the general public.

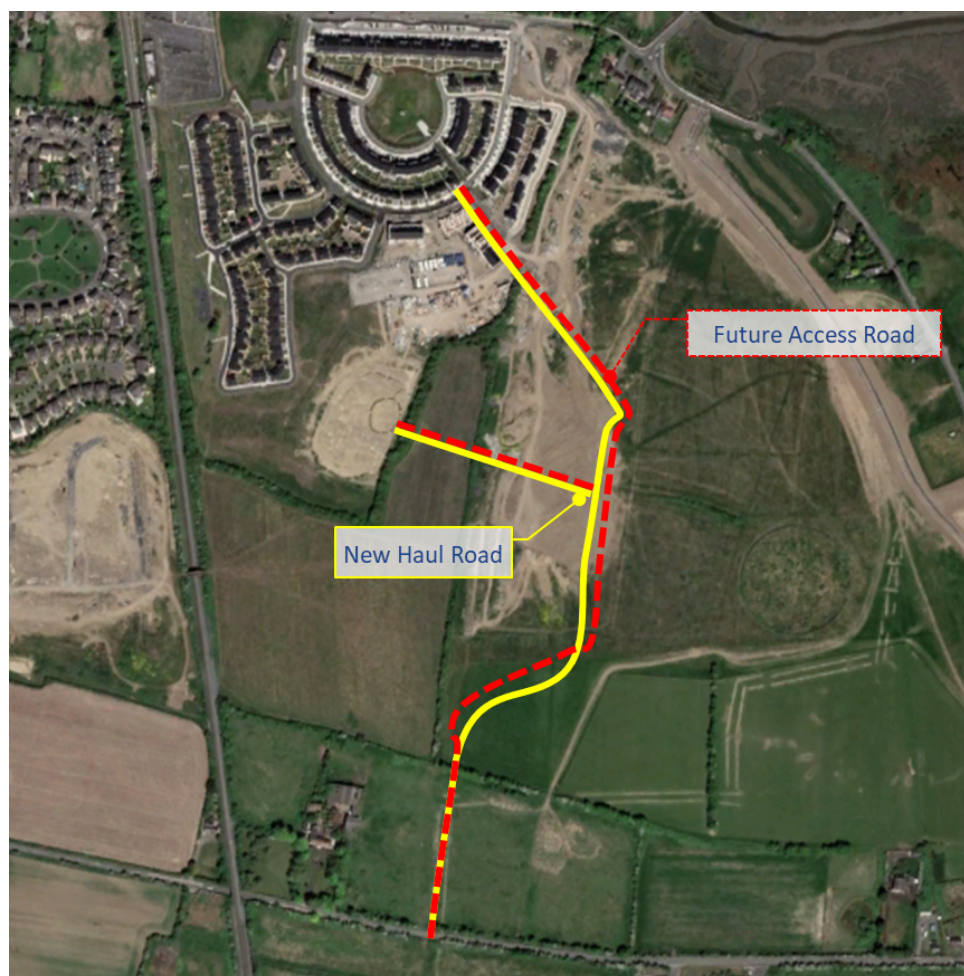


Figure 13.9: Haul Road and Future Access Road.

13.4.2.2 Operational Phase

The envisaged future development (including all phases) on the remainder of the Portmarnock South Local Area Plan lands comprises: -

- 304no. built and under construction residential units from Phases 1A, 1B and 1C.
- 172no. residential units proposed for Phase 1D.
- c. 507no. new residential units (comprising of three / four-bedroom houses, two / three-bedroom duplex / apartments and one / two / three-bedroom apartments) to build out remaining phases.
- A 'Local Centre' situated adjacent to Portmarnock DART station containing apartments and café / restaurant / retail units and a medical / community unit.
- A comprehensive network of internal roads and associated underground utilities and services.
- High level provision of facilities for pedestrians and cyclists within the development.
- Direct high-quality pedestrian/cycle access to and from Portmarnock DART station.
- Two access junctions on Station Road (as part of Phase 1A and 1B) and one new junction on Moyne Road serving the Proposed Development.

All car parking and bicycle parking in the Entire Development will comply with the standards set out in the Development Plan.

13.5 Potential Impact of the Proposed Development

13.5.1 Construction Phase

All construction activities will be governed by a construction Traffic Management Plan (TMP) the details of which will be agreed with Fingal County Council's Roads Department prior to the commencement of the Construction Phase. The principal objective of the TMP is to ensure that the impacts of all building activities generated during the Construction Phase upon both the public (off-site) and internal (on site) workers environments, are fully considered and proactively managed / programmed respecting key stakeholders' requirements. Refer to Construction Environmental Management Plan prepared for this application for further details.

During the construction works there will be additional HGV movements to / from the site. Traffic will be generated by the disposal of surplus subsoil from the site, deliveries of construction materials and equipment and of course private vehicles owned and driven by construction workers and staff.

It should be noted that construction traffic generated during the Construction Phase tends to be outside of peak hours (staff and deliveries arrive before 07:30 and generally depart after 19:00). The traffic generated by the Construction Phase will not be higher than the peak hour predicted volumes for the Operational Phase. Any specific recommendations / requirements with regard to construction traffic management made by FCC will be adhered to during this phase.

As part of previous phases of the development, construction traffic is forbidden from travelling through Junction 1: Station Road / Drumnigh Road junction and will have to use the Coast Road as outlined in Section 13.4.1.1.

In order to cater for construction traffic, permission was applied for and granted (F20A/0700 – May 2021) for the construction of a new temporary Haul Road to the south connecting into Moyne Road, to link both the development under construction (1C) and any future phases, until such time as the permanent Access Road to Moyne Road is delivered under this Proposed Development. This temporary Haul road will be completed in December 2021.

The Proposed Development (Phase 1D) will include the construction of a new access road and junction onto Moyne Road serving the Proposed Development the existing Phase 1A and Phase 1B, the permitted Phase 1C and the remainder of the Local Area Plan lands. The new access road will replace the Haul Road where the former connects to Moyne Road and therefore will continue to allow construction traffic to access the site from the south, minimising the interaction with Phases 1A / B / C and the general public.

13.5.2 Base Year (2021)

13.5.2.1 Traffic Survey

In order to determine current traffic behaviour in the vicinity of the subject site, a vehicle turning movement survey was obtained at the five junctions near the subject site (See Figure 13.10). Due to the current Covid-19 restrictions, traffic in the surrounding area is considerably less than usual and it was therefore agreed with Fingal County Council that historical traffic counts would be used for each junction. The historical traffic counts were taken from a previous planning application for Phase 1C in 2019: -

- **Site 1 – Junction 1:** Station Road / Drumnigh Road R124 (to the north / west).
- **Site 2 – Junction 2:** Strand Road / Coast Road / Station Road (to the north / east).
- **Site 3 – Junction 3:** Moyne Road / Coast Road (to the south / east).
- **Site 4 – Junction 4:** Drumnigh Road / Moyne Road (to the south / west).
- **Site 5 – Junction 5:** Balgriffin Park / Balgriffin Cottages / Moyne Road (to the south / west).

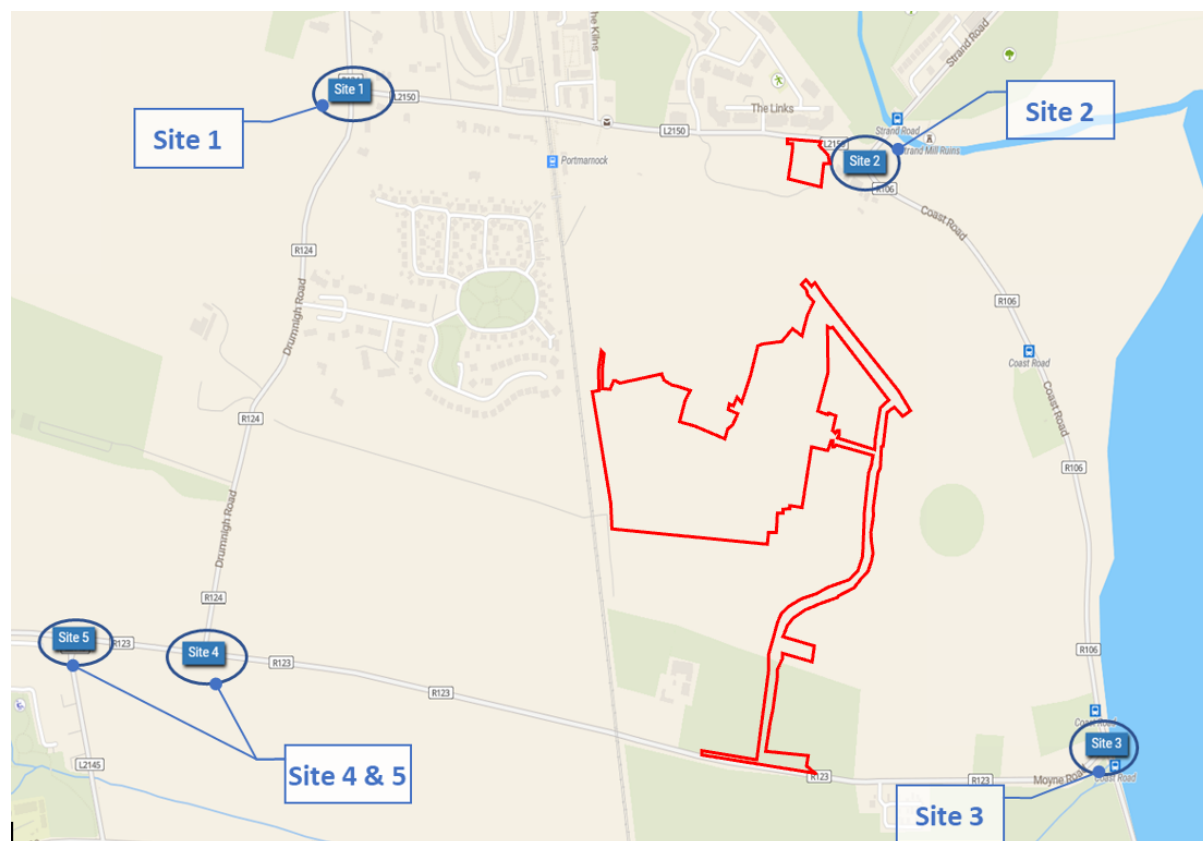


Figure 13.10: Traffic Count Locations relative to Proposed Development (Source – IDASO).

The counts captured all turning movements at these junctions. The vehicle turning movement surveys were undertaken on Tuesday, 26 February 2019. The counts were carried out over the 12-hour period from 07:00 hours to 19:00 hours including both the morning and evening peak periods. Data was collected in 15-minute intervals.

The morning peak hour was identified as 08:00-09:00 for all junctions. The evening peak hour was identified as 17:00-18:00 for the three western junctions; Site 1, Site 4 and Site 5. The eastern junctions Site 2 and Site 3 had evening peak hours of 16:00-17:00. A full transcription of the turning movement survey is included in Appendix 13.1 herein.

The morning peak hour of 08:00 to 09:00 hours was observed to be marginally more intense than the evening peak hour. It is noted that the peak hours over the evening period generally stretched over a longer period of time of three hours (16:00 to 19:00), rather than an hour and a half during the morning peak hour (07:44 to 09:15). In order to carry out a robust traffic analysis of the surrounding road network, the traffic modelling exercise following herein will be based on traffic flows recorded for both the weekday morning and evening peak hours for each junction.

The 2019 traffic survey at all junctions were factored up to 2021 figures to ensure consistency across all junctions. Traffic flows were factored up in accordance with Table 5.3.2 of Transport Infrastructure Ireland publication, Project Appraisal Guidelines. The medium growth rate factors were used.

A summary of the 2021 factored up vehicle turning movement surveys for the morning and evening peak hour periods is shown in Figures 13.11 and 13.12 below.



Figure 13.11: Morning Peak Hour 2021.



Figure 13.12: Evening Peak Hour 2021.

13.5.2.2 Junction Capacity Assessment for Base Year 2021

A traffic capacity assessment of the five junctions in the vicinity of the subject site was undertaken utilising the surveyed results shown in Figures 13.11 and 13.12 above and TRL's PICADY & ARCADY traffic modelling software.

A summary of the results of the analysis of Junction 1: Station Road / Drumnigh Road R124 for the morning and evening peak hours is shown in Table 13.2.

Junction 1: Station Road / Drumnigh Road R124						
Base Year 2021						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Drumnigh Road R124 North	0	0	0	0	0	0
Station Road	0.85	1.10	5	28	62	236
Drumnigh Road R124 South	0.54	0.56	2	2	12	12

Table 13.2: Junction 1: Station Road / Drumnigh Road R124.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a priority junction. Table 13.2 demonstrates that Junction 1: Station Road / Drumnigh Road R124 currently operates over the normal design threshold during the evening peak hour considered. It is evident that the Station Road arm is exceeding capacity with delays and queuing for motorists in the evening peak hour. During the morning peak hour, the Station Road arm has reached the normal design threshold 0.85 with delays and queuing beginning to form.

Due to the current Covid-19 restrictions, there is less traffic in the area and therefore difficult to say that this analysis concurs with observations made on site at this moment. However, the analysis concurs with observations made pre Covid restrictions while working on previous developments in the area, as queuing was apparent at the junction.

A summary of the results of the analysis of Junction 2: Strand Road / Coast Road / Station Road for the morning and evening peak hours is shown in Table 13.3.

Junction 2: Strand Road / Coast Road / Station Road						
Base Year 2021						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Strand Road	0.66	0.48	2	1	10	5
Coast Road	0.45	0.77	1	3	8	18
Station Road	0.84	0.71	5	2	31	19

Table 13.3: Junction 2: Strand Road/Coast Road/Station Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a roundabout junction. Table 13.3 demonstrates that the Junction 2: Strand Road / Coast Road / Station Road currently operates just within the normal design threshold during the morning and evening peak hours considered. However, the junction is nearing capacity with minor queues and delays for motorists beginning to form.

Due to the current Covid-19 restrictions, there is less traffic in the area and therefore difficult to say that this analysis concurs with observations made on site at this moment. However, the analysis concurs with observations made pre Covid restrictions while working on previous developments in the area, as queuing was apparent at the junction.

A summary of the results of the analysis of Junction 3: Moyne Road/Coast Road for the morning and evening peak hours is shown in Table 13.4.

Junction 3: Moyne Road / Coast Road						
Base Year 2021						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Coast Road South	0	0	0	0	0	0
Moyne Road	0.67	0.59	2	2	30	25
Coast Road North	0.59	0.38	3	1	9	8

Table 13.4: Junction 3: Moyne Road/Coast Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.4 demonstrates that the Junction 3: Moyne Road/Coast Road currently operates within the normal design threshold during the morning and evening peak hours considered. The analysis concurs with observations made pre Covid restrictions while working on previous developments in the area, as no queuing was observed at the junction.

A summary of the results of the analysis of Junction 4: Drumnigh Road / Moyne Road and Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road for the morning and evening peak hours is shown in Tables 13.5 and 13.6 respectively.

Junction 4: Drumnigh Road / Moyne Road						
Base Year 2021						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Moyne Road West	0	0	0	0	0	0
Drumnigh Road	0.89	0.79	6	3	72	43
Moyne Road East	0.09	0.09	0	0	5	6

Table 13.5: Junction 4: Drumnigh Road / Moyne Road.

Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road						
Base Year 2021						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Moyne Road East	0	0	0	0	0	0
Balgriffin Park	0.82	0.86	4	5	53	54
Moyne Road West	0.49	0.00	2	0	9	6

Table 13.6: Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a priority junction. Tables 13.5 and 13.6 demonstrate that Junction 4: Drumnigh Road / Moyne Road currently operates just above the normal design threshold during the morning peak hour, while Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road currently operates just above the normal design threshold during the evening peak hour. It is noted that both junctions are marginally above the threshold with no significant delays for motorists. The analysis concurs with observations made pre Covid restrictions while working on previous developments in the area, as no queuing was observed at the junction.

13.5.3 Proposed Development Impact: Phase 1D (Do-Nothing & Do-Something)

13.5.3.1 Trip Generation: Phase 1D

The Trip Rate Information Computer System (TRICS) database was interrogated to derive the potential development trip generation rates. Utilising data supplied by the TRICS database, Table 13.7 details the estimated trip generation for the Proposed Development (Phase 1D) during the morning and evening peak hours being considered for this study. The TRICS morning and evening peak hours were 08:00 to 09:00 and 17:00 to 18:00 respectively. The trips generated during these times were added to the morning and evening peak hours for the road network. The full TRICS output files are contained in Appendix 13.2.

Furthermore, it is noted that the 303no. units and Local Centre of Phase 1B and 1C will be fully finished and occupied over the next few years, therefore the trips generated from Phase 1B and 1C will be included in both the “with” and “without” development scenarios. This is because if the Phase 1D development is not built, the trips generated by Phase 1B and 1C will still apply. Table 13.8 details the estimated trip generation for the Phase 1B and 1C developments taken from the previous planning applications for these phases.

As the Phase 1D development is made up of substantially 3/4-bedroom houses, the trip rates were calculated “per unit”. As the residential part of the Phase 1B and 1C development includes a mix of 3/4-bedroom houses and 2/3-bedroom duplex/apartments, the trip rates were calculated “per bedroom”, to get a more accurate result. The full TRICS output files are contained in Appendix 13.2.

13.5.3.2 Modal Split: Phase 1D

When estimating trip generation for a residential development using TRICS the trip rate for car drivers accounts for a 65 – 70% modal split. This is in line with the national average modal split as well as the modal split at a location with a Public Transport Accessibility Level (PTAL)¹ of 1 (see South Fingal Transport Study 2012: Section 5). As the Portmarnock South development has a PTAL of 4 (see South Fingal Transport Study 2012: Section 5), we propose to use the PTAL 4 modal split of 41% for car

¹ A Public Transport Accessibility Level (PTAL) is defined as a numerical value which determines the quality of access to public transport from a particular location. The value is based on the proximity to a service, the frequency of the service, and the nature of the service. Portmarnock South has a PTAL of 4 due to the proximity of the DART and Bus.

drivers. The South Fingal Transport Study 2019 does not reference “Public Transport Accessibility Level”; therefore the 2012 study is referenced.

This trip attenuation will more accurately reflect the trip generation of the development due to its proximity to the DART station and improved cycle facilities in the area. It is also in line with the Portmarnock South LAPs strategy to promote and encourage sustainable transport. In order to produce a robust, conservative scenario, a tolerance of 5% will be added to the modal split in order to bring it up 46% of car drivers.

The majority of trips generated by the Local Centre will likely come from within the St. Marnock’s Bay development and neighbouring developments without passing through Junctions 1 to 5. The trips will most likely form part of the residential trips (i.e. the people using the Local Centre will live within the St Marnock’s Bay, rather than the surrounding Portmarnock / Clongriffin / Malahide area). However, to produce a robust, conservative scenario, it will be assumed that half of the trips generated by the local centre will be generated from outside the area immediately adjacent the development.

Utilising data supplied by the TRICS database including trip attenuation principles, Table 13.7 and 13.8 following details the estimated trip generation for the development phases and Local Centre during the morning and evening peak hours being considered for this study. The full TRICS output files are contained in Appendix 13.2.

	Time	Factor	TRICS Arrival Rate	TRICS Departure Rate	Hourly Trips (PTAL area of 1, 65% modal split)		Attenuated Hourly Trips (PTAL area of 4, 46% modal split)	
					Trips In	Trips Out	Trips In	Trips Out
Phase 1D Housing Development 172 Units	Morning Peak Hour	172 Units	0.138 <i>(per unit)</i>	0.361 <i>(per unit)</i>	24	62	17	44
	Evening Peak Hour		0.340 <i>(per unit)</i>	0.165 <i>(per unit)</i>	59	28	42	20

Table 13.7: TRICS Trip Generation for the Proposed Development (Phase 1D).

	Time	Factor	TRICS Arrival Rate	TRICS Departure Rate	Hourly Trips (PTAL area of 1, 65% modal split)		Attenuated Hourly Trips (PTAL area of 4, 46% modal split)	
					Trips In	Trips Out	Trips In	Trips Out
Phase 1B Housing Development 150 Units	Morning Peak Hour	472 Bedrooms	0.040 <i>(per bedroom)</i>	0.118 <i>(per bedroom)</i>	19	56	13	40
	Evening Peak Hour		0.103 <i>(per bedroom)</i>	0.055 <i>(per bedroom)</i>	49	26	35	18
Phase 1C Housing Development 153 Units	Morning Peak Hour	468 Bedrooms	0.040 <i>(per bedroom)</i>	0.118 <i>(per bedroom)</i>	19	55	13	39
	Evening Peak Hour		0.103 <i>(per bedroom)</i>	0.055 <i>(per bedroom)</i>	48	26	34	18

Local Centre: Retail and Café	Morning Peak Hour	443.8m ²	4.661 <i>(per 100m²)</i>	4.318 <i>(per 100m²)</i>	21	19	11	10
	Evening Peak Hour		6.874 <i>(per 100m²)</i>	7.345 <i>(per 100m²)</i>	31	33	16	17
Medical / Community Unit	Morning Peak Hour	86.9m ²	3.062 <i>(per 100m²)</i>	1.533 <i>(per 100m²)</i>	3	1	2	1
	Evening Peak Hour		1.257 <i>(per 100m²)</i>	2.129 <i>(per 100m²)</i>	1	2	1	1
TOTAL	Morning Peak Hour	-	-	-	-	-	39	90
	Evening Peak Hour		-	-	-	-	86	54

Table 13.8: TRICS Trip Generation for Phase 1B Development (constructed and occupied) and Phase 1C Development (under construction).

13.5.3.3 Trip Distribution Phase 1D

During the “without” development scenarios, the only access to the Proposed Development will be from Station Road to the north. Therefore, 100% of trips generated from Phase 1B and Phase 1C will come and go from the accesses at Station Road (via Junctions 1 and 2). However, during the “with” Proposed Development (Phase 1D) scenario, the new primary access road onto Moyne Road will be constructed. This new access going south onto Moyne Road will likely cater for the majority of Phase 1D trips c. 80% will travel south. The new southern access will also cater for a number of Phase 1B and 1C trips, with at least 50% now likely to travel south. The 80% / 20% for Phase 1 D and 50% / 50% splits for Phase 1B and 1C is an estimate derived from the existing traffic flows traveling north and south at each junction and the location of each phase within the overall development itself.

In reality, due to the existing congested nature of Junction 1 and Junction 2 each side of Station Road, the traffic generated from the Proposed Development will likely pre-sort within the development itself to avoid locations of congestion or travel before / after the peak times thus further reducing the volume of traffic on Station Rd.

It was assumed for the purposes of this study that the future development traffic will mirror existing travel flows when exiting and entering St. Marnocks Bay. The existing traffic from the Phase 1A development was analysed in the morning and evening peak hours. Currently the traffic from the existing Phase 1A leaving the development, during the morning and evening peak, 60% will travel east towards the Coast Road/Strand Road junction, while the remaining 40% will travel west towards the Drumnigh Road R124 junction. Currently the traffic on Moyne Road, during the morning peak, 50% will travel west towards the Balgriffin junction (Hole in Wall Road realignment junction), while the other 50% will travel east towards the Coast Road junction.

The future development traffic distribution at the surrounding junctions will also mirror existing traffic patterns i.e. development generated flows will be split through the junction proportionally to existing flows.

13.5.3.4 Assessment Years Phase 1D

Assuming planning permission is granted for the Proposed Development in c. Q1 2022, and allowing for a 18 to 24-month construction period, it is estimated that the Proposed Development will be fully operational by the end of 2023 / start of 2024. For the purpose of this study, we will therefore take 2023 as the Year of Opening. Consequently, traffic analysis associated with this study will focus on the following future development operational scenarios: -

- Proposed Development (Phase 1D) Year of Opening – 2023.
- 15 Year Design Horizon – 2038.

The projected 2023, 2038 traffic flows have been calculated by factoring up the 2019 recorded traffic flows in accordance with the TII Publications Project Appraisal Guidelines for National Roads document '*Unit 5.3 Travel Demand Projections, Table 5.3.2: Link-Based Growth Rates: Annual Growth Factors*'. The medium growth rate factors have been utilised.

Figures 13.13 and 13.14 illustrate the 2023 Year of Opening for the "without" and "with" development scenarios for morning and evening peaks. Figures 13.15 and 13.16 illustrate the 2038 Design Year Horizon for the "without" and "with" development scenarios for morning and evening peaks.

In order to produce a robust assessment, this section will analyse the traffic impact of the entire development when completed by the 15 year design horizon of 2038.

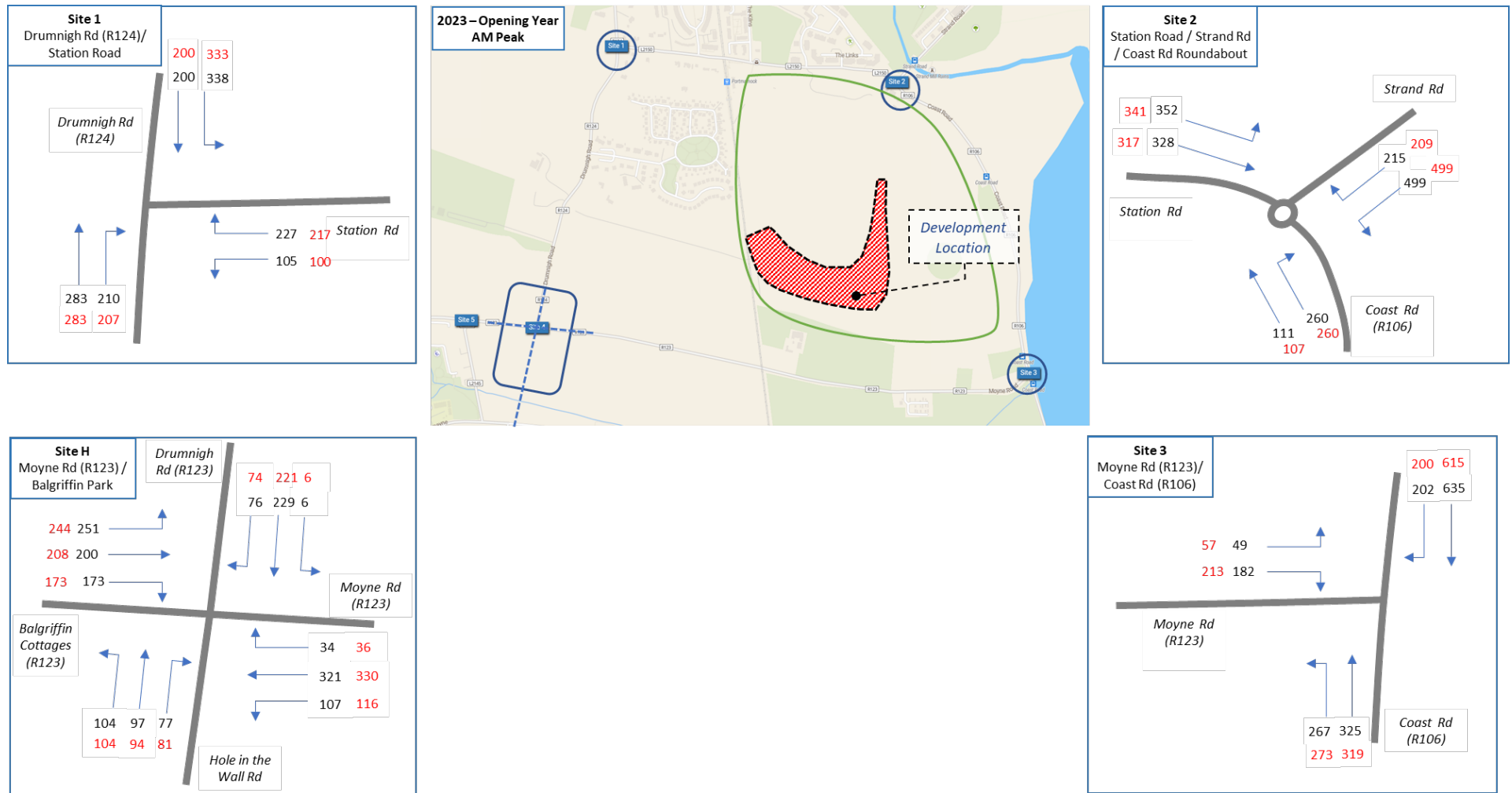


Figure 13.2: 2023 Morning Peak Hour Phase 1D Opening Year.

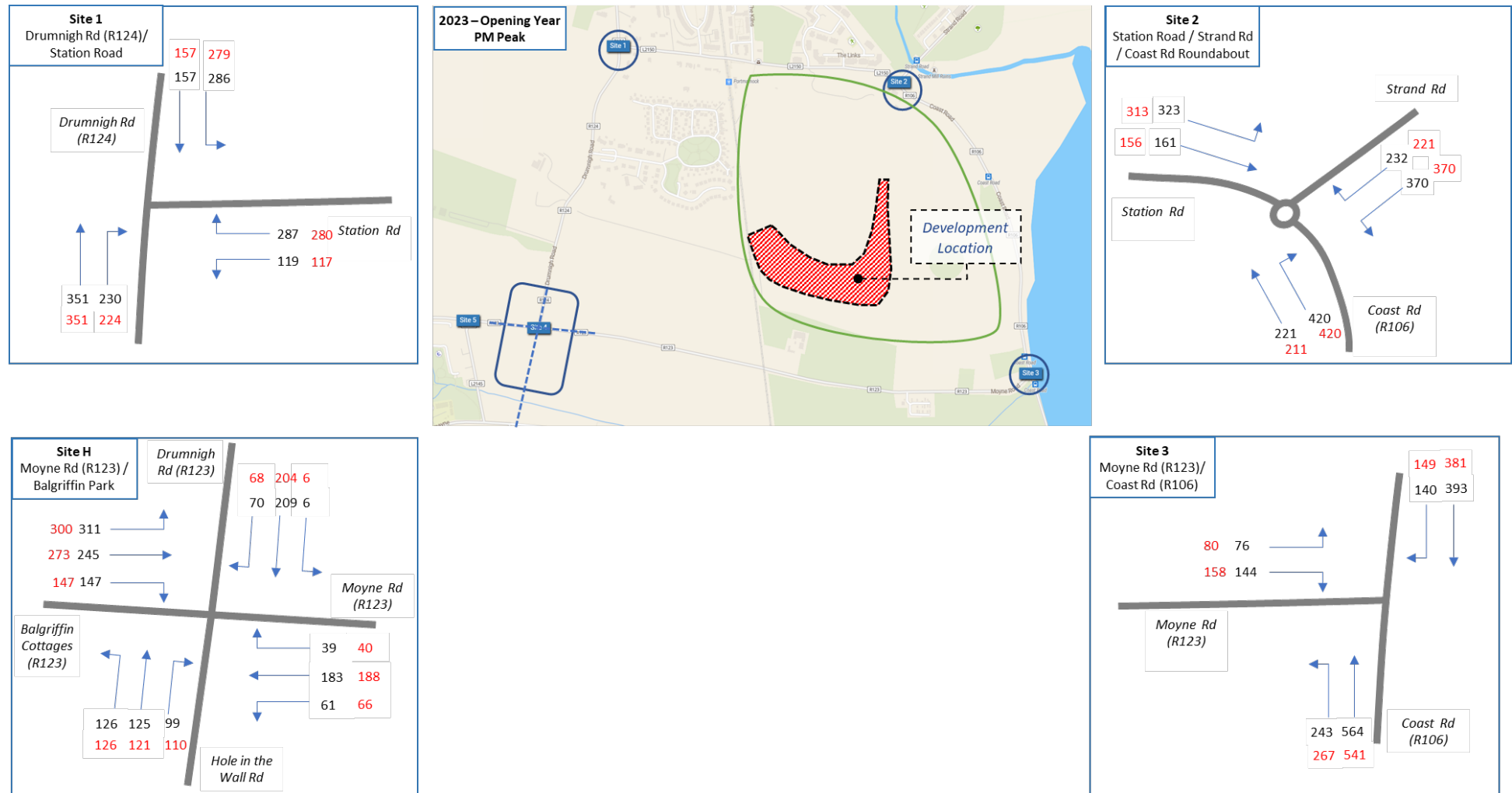


Figure 13.14: 2023 Evening Peak Hour Phase 1D Opening Year.

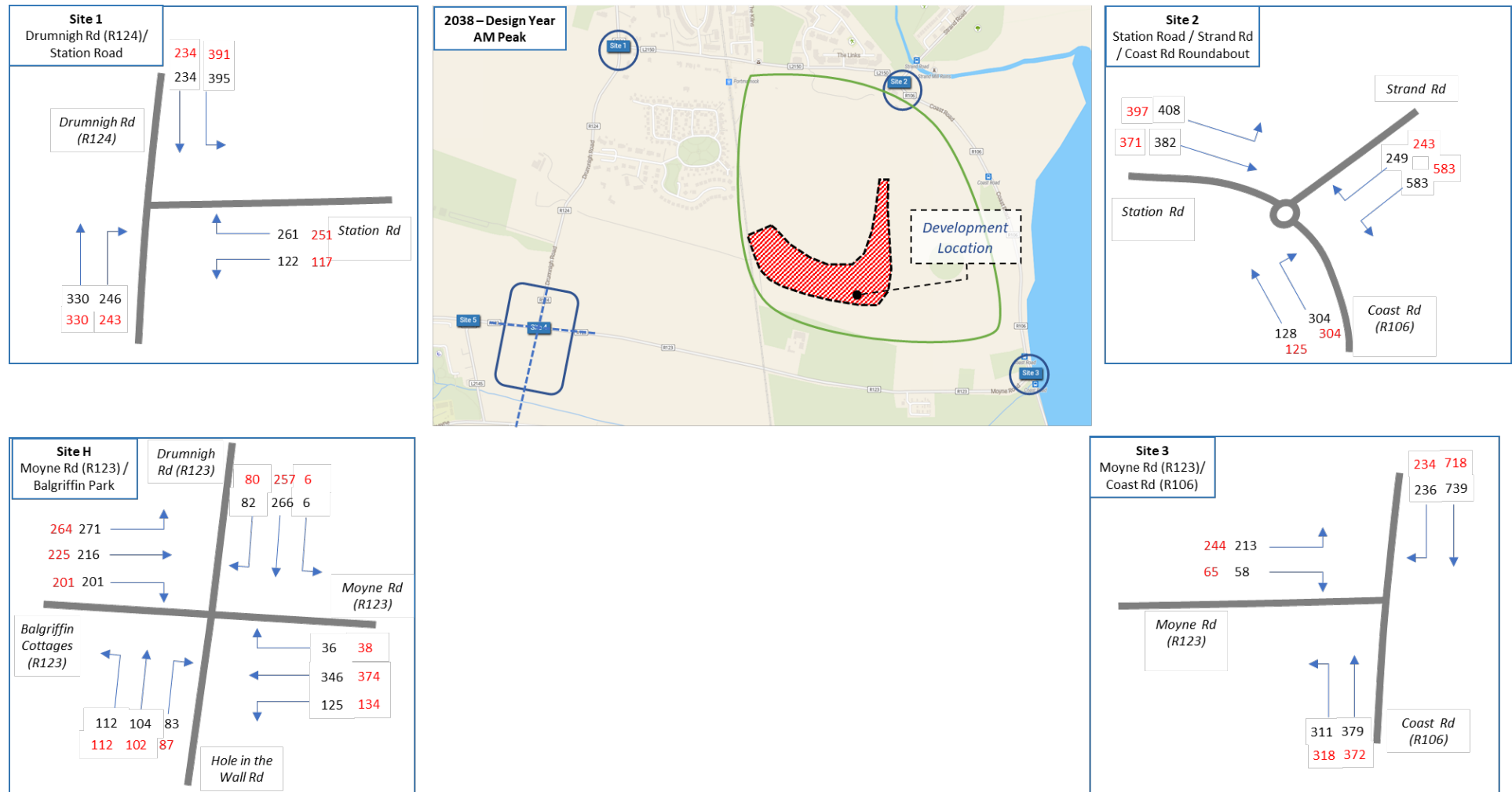


Figure 13.3: 2038 Morning Peak Hour Phase 1D Design Year.

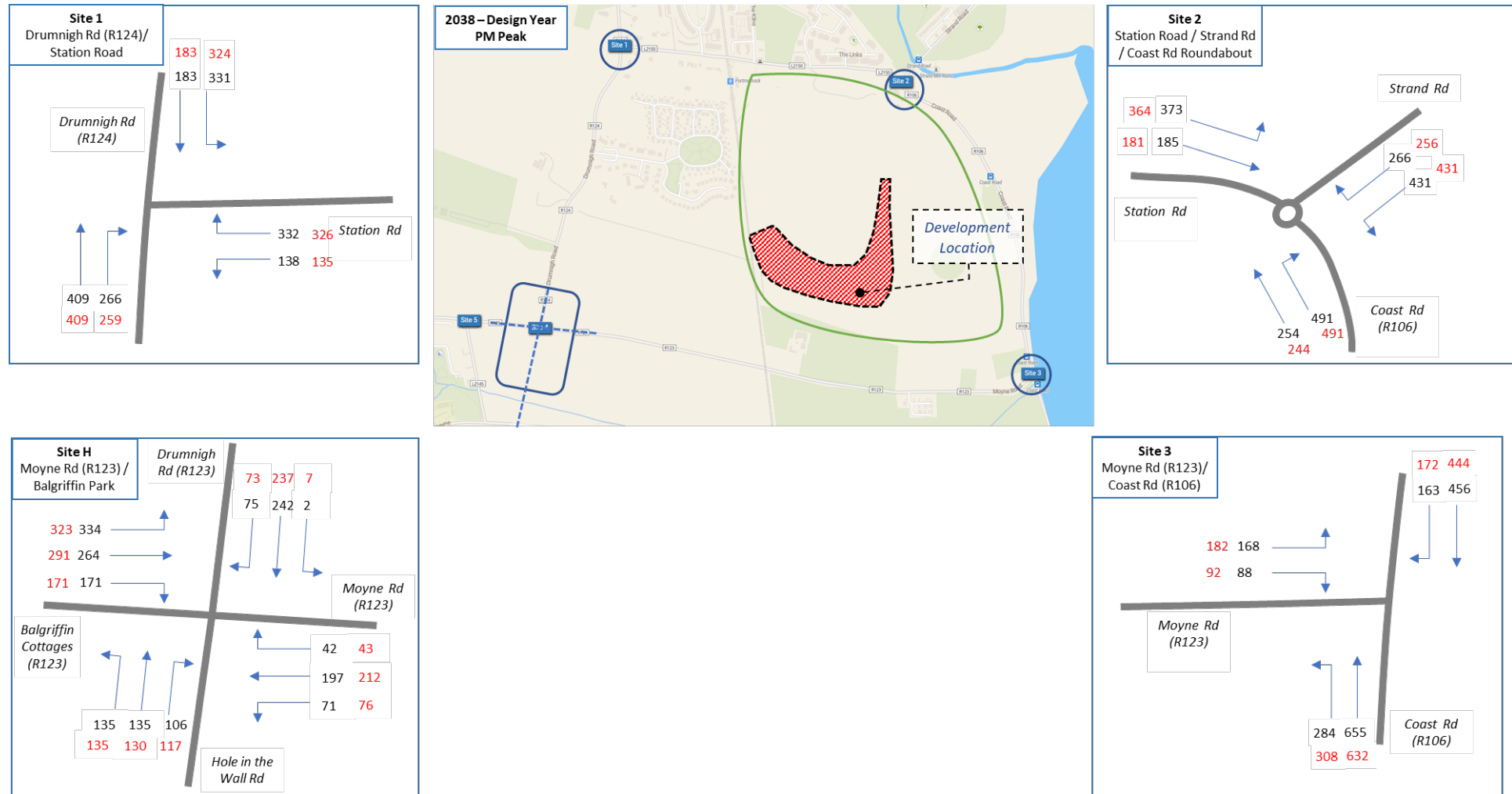


Figure 13.4: 2038 Evening Peak Hour Phase 1D Design Year.

13.5.3.5 Traffic Modelling Phase 1D

In order to assess the future traffic impact of the Proposed Development, capacity assessments were undertaken using TRL's PICADY and OSCADY software on the following junctions: -

- **Junction 1:** Station Road/Drumnigh Road R124 (to the north / west).
- **Junction 2:** Strand Road/Coast Road/Station Road (to the north / east).
- **Junction 3:** Moyne Road/Coast Road (to the south / east).
- **Junction H:** Hole in the Wall Road Upgrade (to the south / west).

The junctions were modelled for the 2023 year of Opening and 2038 (15 Year) Design Year for the morning and evening peak hour periods using the flow diagrams shown in Figures 13.13 to 13.16. The modelling scenarios for 2023 and 2038 will include the junction upgrades as outlined in Section 5.5.

To demonstrate the direct traffic impact associated with the Proposed Development on the key junction being considered, the traffic modelling exercise was carried out for the "without" development and "with" development scenarios. A sample traffic modelling output file is included in this report in Appendix 13.3.

13.5.3.6 Operational Phase 2023 Opening Year Phase 1D

A summary of the results for Junction 1: Station Road / Drumnigh Road R124, 2023 Phase 1D year of opening "without" and "with" the development, morning and evening peak hours is shown in Table 13.9. The proposed Junction 1 upgrade will have little effect on traffic movements but improve road safety.

Junction 1: Station Road / Drumnigh Road R124						
2023 Year of Opening						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Drumnigh Road R124 North	0 0	0 0	0 0	0 0	0 0	0 0
Station Road	1.01 0.96	1.25 1.21	15 10	53 46	149 113	456 381
Drumnigh Road R124 South	0.58 0.57	0.64 0.62	2 2	3 3	14 13	14 14

Table 13.9: Junction 1: Station Road / Drumnigh Road R124.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a priority junction. Table 13.9 demonstrates that Junction 1: Station Road / Drumnigh Road R124 will exceed the normal design threshold during the morning and evening peak hours considered. This is the case both "without" and "with" the development scenarios. This is the case in particular with the Station Road arm during the evening peak hour. The analysis concurs with the observations made in the South Fingal Transport Study (2012) referenced in the Portmarnock South LAP. The study concludes that this junction will undergo capacity issues in the future and recommended that an upgrade of the junction is explored. Once a junction is nearing or at capacity any slight increase, whether it is background traffic growth or a new residential development, will have a noticeable increase in queues / delays.

However, it is clear from the analysis that the Proposed Development (Phase 1D) will help the performance of Junction 1. During the “with” Phase 1D development scenario, the new primary access road onto Moyne Road will be constructed. This new access road going south onto Moyne Road will cater for a proportion of trips generated from the Phase 1A, 1B, 1C and 1D developments. A high percentage of these trips will likely travel south avoiding Junction 1 entirely. Due to the existing congested nature of Junction 1, the traffic generated from the Proposed Development will likely take an alternative route via Moyne Road or travel before / after the peak times thus reducing the impact on the junction. The Proposed Development (Phase 1D) will have a positive effect on the junction.

A summary of the results for Junction 2: Strand Road / Coast Road / Station Road, 2023 Phase 1D year of opening “without” and “with” the development, morning and evening peak hours is shown in Table 13.10 following. The proposed Junction 2 upgrade (converting junction from roundabout to signalized as per the condition attached to the grant of planning permission for Phase 1C and as agreed with Fingal County Council) will have a minor effect on traffic movements but improves road safety and provides a safer environment for pedestrians and cyclists.

Junction 2: Strand Road / Coast Road / Station Road 2023 Year of Opening						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Strand Road	0.88 0.87	0.76 0.78	16 15	12 12	43 39	33 35
Coast Road	0.44 0.44	0.71 0.67	5 5	8 7	15 14	19 16
Station Road	0.79 0.76	0.53 0.49	10 9	6 5	26 23	14 12

Table 13.10: Junction 2: Strand Road / Coast Road / Station Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.10 demonstrates that the Junction 2: Strand Road / Coast Road / Station Road will operate slightly below the normal design threshold during the morning and evening peak hours considered. The junction will still operate below the theoretical capacity of 1.0. This is the case both “without” and “with” the development scenarios with queues and delays for motorists evident.

However, it is clear from the analysis that Proposed Development (Phase 1D) will slightly help the performance of Junction 2. During the “with” Phase 1D development scenario, the new primary access road onto Moyne Road will be constructed. This new access road going south onto Moyne Road will cater for a proportion of trips generated from the Phase 1A, 1B, 1C and 1D developments. A high percentage of these trips will likely travel south avoiding Junction 2 entirely. Due to the existing congested nature of Junction 2, the traffic generated from the Proposed Development will likely take an alternative route via Moyne Road or travel before/after the peak times thus reducing the impact on the junction. The Proposed Development (Phase 1D) will have a slight positive effect on the junction.

A summary of the results for Junction 3: Moyne Road / Coast Road, 2023 Phase 1D year of opening “without” and “with” the development, morning and evening peak hours is shown in Table 13.11.

Junction 3: R123 Moyne Road/R106 Coast Road 2023 Year of Opening						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Coast Road South	0 0	0 0	0 0	0 0	0 0	0 0
Moyne Road	0.74 0.84	0.66 0.71	3 5	2 3	43 65	31 36
Coast Road North	0.67 0.65	0.42 0.44	4 4	1 1	12 11	9 9

Table 13.11: Junction 3: R123 Moyne Road/R106 Coast Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.11 demonstrates that Junction 3: Moyne Road / Coast Road will operate within the normal design threshold during the morning and evening peak hours considered. This was the case both “without” and “with” the development scenarios. It is clear that the traffic generated by the Proposed Development (Phase 1D) will have a minor effect on the Moyne Road junction. Additionally, the new southern development access onto Moyne Road does relieve pressure on Junction 1 and Junction 2, while having little effect on Moyne Road and Junction 3.

A summary of the results of the analysis of Junction H) Hole in the Wall Road, 2023 Phase 1D year of opening “without” and “with” the development, morning and evening peak hours is shown in Table 13.12.

Junction H: Hole in the Wall Road Upgrade 2023 Year of Opening						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Moyne Road East	0.54 0.55	0.31 0.32	6 6	3 3	17 17	14 14
Hole in the Wall Road	0.53 0.54	0.62 0.62	4 4	5 5	29 31	31 32
Moyne Road West	0.60 0.61	0.73 0.74	6 6	8 9	22 23	22 22
Drumnigh Road	0.60 0.59	0.51 0.51	5 5	4 4	31 32	28 29

Table 13.12: Junction H: Hole in the Wall Road Upgrade.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.12 demonstrates that Junction H: Hole in the Wall Road Upgrade will operate within the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios. It is clear that the traffic generated by the Proposed Development (Phase 1D) will have a negligible effect on the Moyne Road junction.

13.5.3.7 Operational Phase 2038 (Opening Year Phase 1D +15 Years)

A summary of the results for Junction 1) Station Road/ Drumnigh Road R124, 2038 Phase 1D design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.13. The proposed Junction 1 upgrade will little effect on traffic movements but improve road safety.

Junction 1: Station Road / Drumnigh Road R124						
2038 Design Year						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Drumnigh Road R124 North	0 0	0 0	0 0	0 0	0 0	0 0
Station Road	1.30 1.25	1.62 1.57	57 47	134 122	524 418	1231 1127
Drumnigh Road R124 South	0.75 0.74	0.81 0.78	5 4	6 6	22 21	26 23

Table 13.13: Junction 1: Station Road / Drumnigh Road R124.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a priority junction. Table 13.13 demonstrates that Junction 1: Station Road / Drumnigh Road R124 will exceed the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios. Once a junction is at capacity any slight increase, whether it is background traffic growth or a new residential development, will have a noticeable increase in queues / delays.

However, it is clear from the analysis that the Proposed Development (Phase 1D) will help the performance of Junction 1. During the “with” Phase 1D development scenario, the new primary access road onto Moyne Road will be constructed. This new access road going south onto Moyne Road will cater for a proportion of trips generated from the 1A, 1B, 1C and 1D developments. A high percentage of these trips will likely travel south avoiding Junction 1 entirely.

The capacity analysis indicates that the junction will not operate efficiently during the “without” and “with” the development scenarios. Any future traffic growth, irrespective of the subject development, will therefore result in an impact to the operation of the junction. Nevertheless, the Proposed Development (Phase 1D) will have a positive effect on the junction. The analysis concurs with the observations made in the South Fingal Transport Study (2012) referenced in the Portmarnock South LAP. The study concludes that this junction will undergo capacity issues in the future and recommends that an upgrade of the junction is explored.

A summary of the results for Junction 2: Strand Road / Coast Road / Station Road, 2038 Phase 1D design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.14. The proposed Junction 2 upgrade will have a minor effect on traffic movements but improve road safety and provide a safer environment for pedestrians and cyclists.

Junction 2: Strand Road / Coast Road / Station Road						
2038 Design Year						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Strand Road	1.06 1.03	0.94 0.92	65 57	32 30	157 137	87 80
Coast Road	0.44 0.45	0.73 0.72	13 13	16 15	28 28	27 27
Station Road	1.02 1.02	0.81 0.80	54 51	19 18	141 139	53 52

Table 13.14: Junction 2: Strand Road / Coast Road / Station Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.14 demonstrates that the Junction 2: Strand Road / Coast Road / Station Road will exceed the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios. This is particularly clear in the morning peak hour which reaches capacity with noticeable queues and delays for motorists. Once a junction is at capacity any slight increase, whether it is background traffic growth or a new residential development, will have a noticeable increase in queues/delays.

However, it is clear from the analysis that the Proposed Development (Phase 1D) will slightly help the performance of Junction 2. During the “with” Phase 1D development scenario, the new primary access road onto Moyne Road will be constructed. This new access road going south onto Moyne Road will cater for a proportion of trips generated from the 1A, 1B, 1C and 1D developments. A high percentage of these trips will likely travel south avoiding Junction 2 entirely. Due to the existing congested nature of Junction 2, the traffic generated from the Proposed Development will likely take an alternative route via Moyne Road or travel before/after the peak times thus reducing the impact on the junction. The Proposed Development (Phase 1D) will have a positive effect on the junction. The capacity analysis indicates that the junction will not operate efficiently in either the “without” and “with” the development scenarios, albeit slightly better with the development than without.

A summary of the results for Junction 3: Moyne Road/Coast Road, 2038 Phase 1D design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.15.

Junction 3: Moyne Road / Coast Road						
2038 Design Year						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Coast Road South	0 0	0 0	0 0	0 0	0 0	0 0
Moyne Road	1.08 1.19	0.90 0.96	18 32	7 10	208 325	94 126
Coast Road North	0.95 0.91	0.56 0.58	19 15	2 3	53 40	11 12

Table 13.15: Junction 3: Moyne Road / Coast Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.15 demonstrates that Junction 3: Moyne Road / Coast Road will operate above the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios.

It is clear that the traffic generated by the Proposed Development (Phase 1D) will have a minor effect on the Moyne Road junction. However, Junction 3 will still exceed the design threshold without any additional St. Marnock’s Bay developments. Additionally, the new southern development access onto Moyne Road does relieve pressure on Junction 1 and Junction 2, while having a minor effect on Moyne Road and Junction 3.

A summary of the results of the analysis of Junction H) Hole in the Wall Road, 2038 Phase 1D design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.16.

Junction H: Hole in the Wall Road Upgrade 2038 Design Year						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Moyne Road East	0.55 0.56	0.33 0.35	7 8	4 4	17 17	15 15
Hole in the Wall Road	0.55 0.57	0.64 0.64	5 5	6 6	32 36	34 36
Moyne Road West	0.74 0.77	0.76 0.77	7 7	9 10	29 33	24 25
Drumnigh Road	0.67 0.67	0.55 0.56	6 7	5 5	35 37	31 32

Table 13.16: Junction H: Hole in the Wall Road Upgrade.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.16 demonstrates that Junction H) Hole in the Wall Road Upgrade will operate within the normal design threshold during the morning and evening peak hours considered. This was the case both “without” and “with” the development scenarios. It is clear that the traffic generated by the Proposed Development (Phase 1D) will have a negligible effect on the upgraded Hole in the Wall junction.

13.5.4 Cumulative Development Impact

13.5.4.1 Introduction

In order to produce a robust assessment, this section will analyse the traffic impact of the entire Portmarnock Local Area Plan lands (hereafter the ‘Entire Development’) which will accommodate c. 1,100no. residential units and a small Local Centre (See Framework Plan, prepared by Burke Kennedy Doyle Architects). The Entire Development will be served by three new priority controlled junctions providing direct access from the external road network. Two of these junctions are on Station Road and one on Moyne Road. It is estimated that the Entire Development will be complete by the 15 year design horizon of 2038. Therefore, this will be used as the comparison year, “without” and “with” the Entire Development scenarios.

13.5.4.2 Trip Generation: Entire Development

The Trip Rate Information Computer System (TRICS) database was interrogated to derive the potential residential development trip generation rates. As the development includes 3 / 4 bedroom houses and 1 / 2 / 3 bedroom duplex / apartments, the trip rates were calculated “per bedroom” in order to get a more accurate result. The TRICS database was also interrogated to derive the potential trip generation rates for the permitted Local Centre (retail / café / restaurant units and medical / community unit).

13.5.4.3 Modal Split: Entire Development

When estimating trip generation for a residential development using TRICS the trip rate for car drivers accounts for a 65 – 70% modal split. This is in line with the national average modal split as well as the modal split at a location with a Public Transport Accessibility Level (PTAL) of 1 (see South Fingal Transport Study 2012: Section 5). As the Portmarnock South development has a PTAL of 4² (see South Fingal Transport Study 2012: Section 5), we propose to use the PTAL 4 modal split of 41% for car drivers. The South Fingal Transport Study 2019 does not reference “Public Transport Accessibility Level”; therefore the 2012 study is referenced.

The majority of trips generated by the Local Centre will likely come from within the St. Marnock’s Bay development and neighbouring developments without passing through Junctions 1 to 5. The trips will most likely form part of the residential trips (i.e. the people using the Local Centre will live within the St. Marnock’s Bay, rather than the surrounding Portmarnock / Clongriffin / Malahide area). However, to produce a robust, conservative scenario, it will be assumed that half of the trips generated by the local centre will be generated from outside the area immediately adjacent the development.

Utilising data supplied by the TRICS database including trip attenuation principles, Table 13.17 following details the estimated trip generation for the Entire Development and Local Centre during the morning and evening peak hours being considered for this study. The full TRICS output files are contained in Appendix 13.2.

	Time	Factor	TRICS Arrival Rate	TRICS Departure Rate	Hourly Trips (PTAL area of 1)		Attenuated Hourly Trips (PTAL area of 4)	
					Trips In	Trips Out	Trips In	Trips Out
Residential Units	Morning Peak Hour	c. 3,500 Bedrooms	0.040 <i>(per bedroom)</i>	0.118 <i>(per bedroom)</i>	140	413	88	260
	Evening Peak Hour		0.103 <i>(per bedroom)</i>	0.055 <i>(per bedroom)</i>	360	192	227	121
Local Centre: Retail and Café	Morning Peak Hour	443.8m ²	4.661 <i>(per 100m²)</i>	4.318 <i>(per 100m²)</i>	21	19	11	10
	Evening Peak Hour		6.874 <i>(per 100m²)</i>	7.345 <i>(per 100m²)</i>	31	33	16	17
Medical / Community Unit	Morning Peak Hour	86.9m ²	3.062 <i>(per 100m²)</i>	1.533 <i>(per 100m²)</i>	3	1	2	1

² A Public Transport Accessibility Level (PTAL) is defined as a numerical value which determines the quality of access to public transport from a particular location. The value is based on the proximity to a service, the frequency of the service, and the nature of the service. Portmarnock South has a PTAL of 4 due to the proximity of the DART and Bus.

	Evening Peak Hour		1.257 <i>(per 100m²)</i>	2.129 <i>(per 100m²)</i>	1	2	1	1
TOTAL	Morning Peak Hour		-	-	-	-	101	271
	Evening Peak Hour	-	-	-	-	-	244	139

Table 13.17: TRICS Trip Generation Entire Residential Housing Development and Local Centre.

13.5.4.4 Trip Distribution Entire Development

When the Entire Development is complete, residents will be able to use the primary access road onto Moyne Road as well as the existing access points on Station Rd. The access going south onto Moyne Road is likely to attract more of the trips generated within the Entire Development, with at least 60% likely to travel south (Moyne Rd) and 40% likely to travel north (Station Rd). The 60% / 40% for the Entire Development is an estimate derived from the existing traffic flows traveling north and south at each junction and the location of each phase within the overall development itself.

In reality, due to the existing congested nature of Junction 1 and Junction 2 along Station Road, the traffic generated from the Proposed Development will likely pre-sort within the development itself to avoid locations of congestion or travel before / after the peak times thus reducing the amount of traffic on Station Rd.

It was assumed for the purposes of this study that the future development traffic will mirror existing travel flows when exiting and entering the development. The existing traffic from the Phase 1A development was analysed for the morning and evening peak hours. Currently of the traffic from the existing Phase 1A leaving the development, during the morning and evening peak, 60% will travel east towards the Coast Road/Strand Road junction, while the remaining 40% will travel west towards the Drumnigh Road R124 junction. Currently the traffic on Moyne Road, during the morning peak, 50% will travel west towards the Balgriffin junction (Hole in Wall Road realignment junction), while the other 50% will travel east towards the Coast Road junction.

It has been assumed that the future development traffic distribution at the surrounding junctions will also mirror existing traffic patterns i.e. development generated flows will be split through the junction proportionally to existing flows.

13.5.4.5 Trip Assessment Years Entire Development

It is likely that the Entire Development will be fully operational well in advance of the 15 Year Design Horizon – 2038 used in the Phase 1D traffic analysis. Therefore, the traffic analysis associated with the Entire Development will focus on the 15 Year Design Horizon – 2038. The analysis will compare the 2038 “without” development scenario with a 2038 “with” Entire Development scenario. This will serve as a stress test scenario for the surrounding junctions when the Entire Development is complete.

Figures 13.17 and 13.18 illustrate the 2038 Design Year stress test for the “without” and “with” development scenarios for the morning and evening peak hours.

The Hole in the Wall Road realignment project, as noted earlier is substantially complete. The project replaced Junction 5: Balgriffin Park / Balgriffin Cottages / Moyne Road and Junction 4: Drumnigh Road / Moyne Road).

Additionally, Junction 1) Station Road/Drumnigh Rd (R124) and Junction 2) Strand Road/Coast Road/Station Road upgrades should be complete in March 2022.

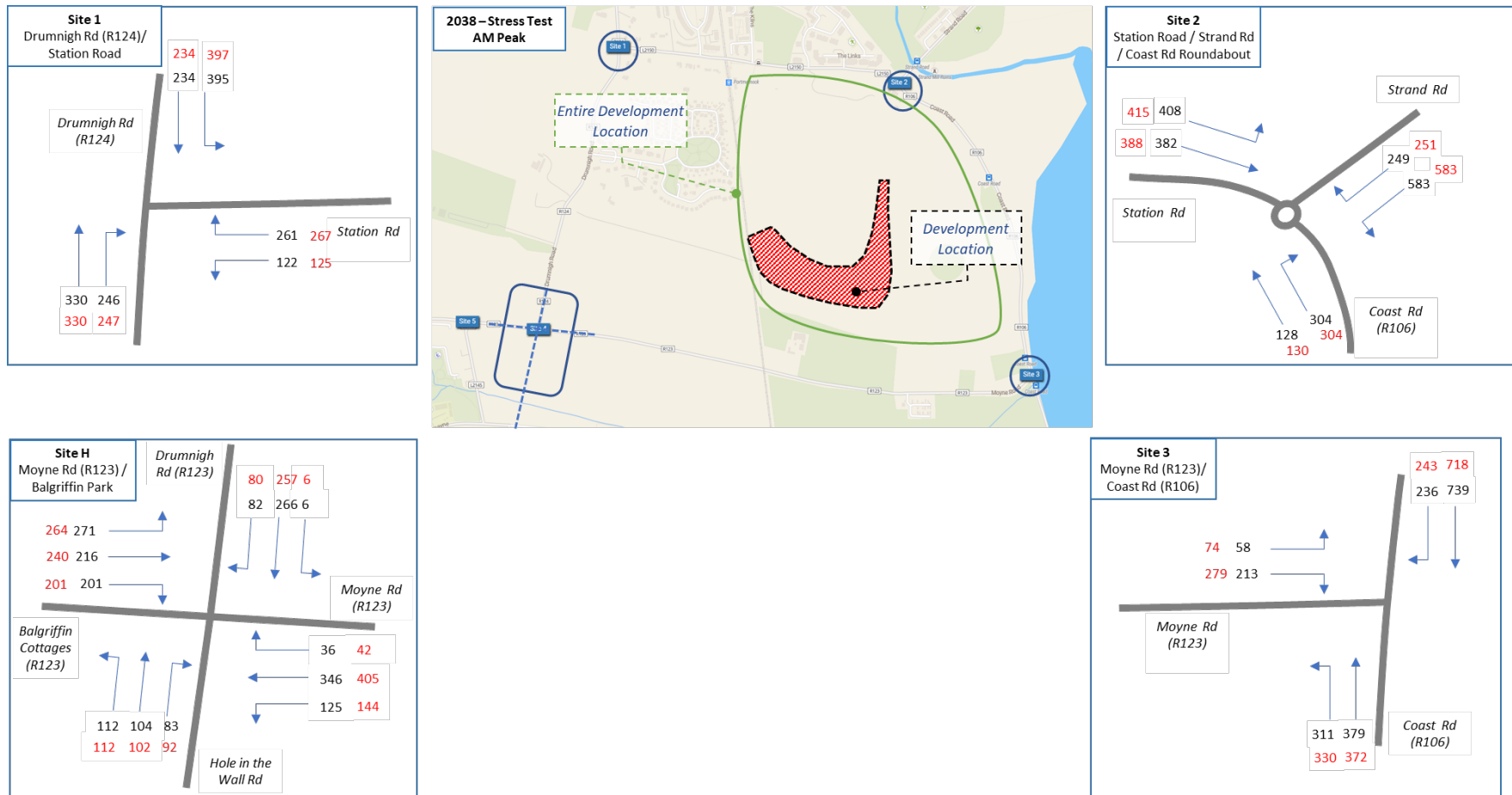


Figure 13.17: 2038 Morning Peak Hour Entire Development (Stress Test).

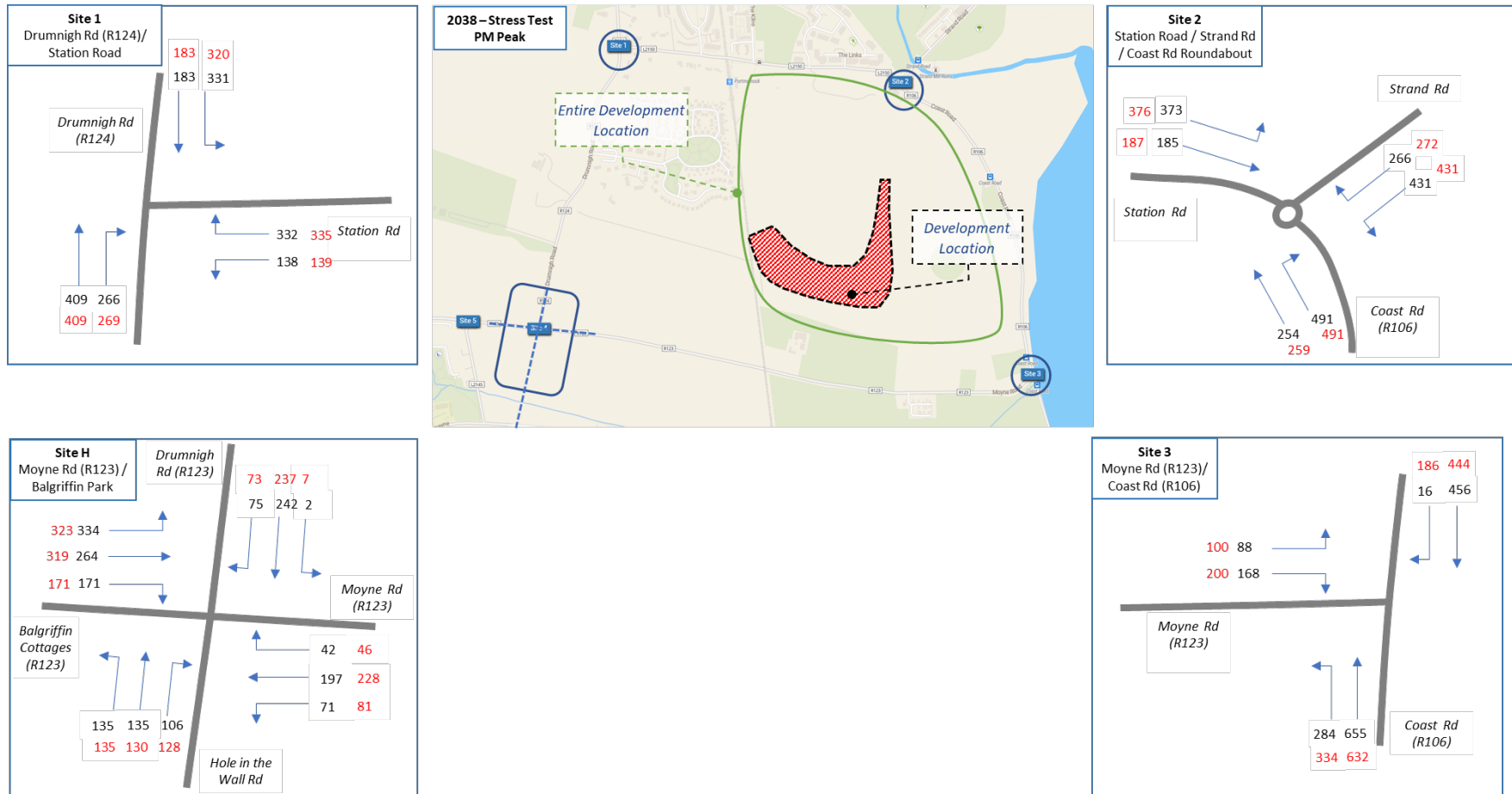


Figure 13.5: 2038 Evening Peak Hour Entire Development (Stress Test).

13.5.4.6 Traffic Modelling Entire Development

In order to assess the future traffic impact of the Proposed Development, capacity assessments were undertaken using TRL's PICADY and OSCADY software on the following junctions: -

- Junction 1: Station Road / Drumnigh Road R124 (to the north / west).
- Junction 2: Strand Road / Coast Road / Station Road (to the north / east).
- Junction 3: Moyne Road / Coast Road (to the south / east).
- Junction H: Hole in the Wall Road Upgrade (to the south / west).

The junctions were modelled for the 2038 (15-Year) Design Year Horizon for the morning and evening peak hour periods using the flow diagrams shown in Figures 13.17 & 13.18.

To demonstrate the direct traffic impact associated with the Entire Development on the key junctions being considered, the traffic modelling exercise was carried out for the "without" development and "with" development scenarios.

13.5.4.7 2038 Design Year Entire Development

A summary of the results for Junction 1: Station Road / Drumnigh Road R124, 2038 Entire Development "without" and "with" the development, morning and evening peak hours is shown in Table 13.18. The proposed Junction 1 upgrade will have little effect on traffic movements but improve road safety.

Junction 1) Station Road / Drumnigh Road R124						
2038 Design Year Entire Development						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Drumnigh Road R124 North	0 0	0 0	0 0	0 0	0 0	0 0
Station Road	1.37 1.35	1.66 1.65	68 62	142 140	653 587	1310 1282
Drumnigh Road R124 South	0.76 0.75	0.80 0.82	5 5	8 7	23 22	31 25

Table 13.18: Junction 1) Station Road / Drumnigh Road R124.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.85 for a priority junction. Table 13.18 demonstrates that Junction 1: Station Road/ Drumnigh Road R124 will exceed the normal design threshold during the morning and evening peak hours considered. This is the case both "without" and "with" the development scenarios. Once a junction is at capacity any slight increase, whether it is background traffic growth or a new residential development, will have a noticeable increase in queues /delays.

However, it is clear from the analysis that the Entire Development will help the performance of Junction 1. During the "with" Entire Development scenario, the new primary access road onto Moyne Road will have been constructed as part of the Proposed Development (Phase 1D). This new access road going south onto Moyne Road will cater for a proportion of trips generated from all phases of the development. A high percentage of these trips will likely travel south avoiding Junction 1 entirely.

The capacity analysis indicates that the junction will not operate efficiently during the “without” and “with” the development scenarios. Any future traffic growth, irrespective of the subject development, will therefore result in an impact to the operation of the junction. Nevertheless, the Entire Development will have a slight positive effect on the junction.

The analysis concurs with the observations made in the South Fingal Transport Study (2012) referenced in the Portmarnock South LAP. The study concludes that this junction will undergo capacity issues in the future and recommends that an upgrade of the junction is explored.

A summary of the results for Junction 2: Strand Road / Coast Road / Station Road, 2038 Entire Development Design Year “without” and “with” the development, morning and evening peak hours is shown in Table 13.19. The proposed Junction 2 upgrade will have a minor effect on traffic movements but improve road safety and provide a safer environment for pedestrians and cyclists.

Junction 2: Strand Road / Coast Road / Station Road 2038 Design Year Entire Development						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Strand Road	1.06 1.03	0.94 0.95	65 59	32 32	157 140	87 89
Coast Road	0.44 0.45	0.73 0.72	13 13	16 15	28 29	27 26
Station Road	1.02 1.03	0.81 0.80	54 54	19 18	141 146	53 53

Table 13.19: Junction 2: Strand Road / Coast Road / Station Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.19 demonstrates that the Junction 2: Strand Road / Coast Road / Station Road will operate above the normal design threshold during the morning and evening peak hour considered. This is the case both “without” and “with” the development scenarios with queues and delays evident.

However, it is clear from the analysis that the Entire Development will slightly help the performance of Junction 2. During the “with” Entire Development scenario, the new primary access road onto Moyne Road will have been constructed as part of the Proposed Development (Phase 1D). This new access road going south onto Moyne Road will cater for a proportion of trips generated from the Entire Development. A high percentage of these trips will likely travel south avoiding Junction 2 entirely. Due to the existing congested nature of Junction 2, the traffic generated from the Proposed Development will likely take an alternative route via Moyne Road or travel before / after the peak times thus reducing the impact on the junction. The Entire Development will have a slight positive effect on the junction.

A summary of the results for Junction 3: Moyne Road/Coast Road, 2038 Entire Development design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.20.

Junction 3: R123 Moyne Road / R106 Coast Road 2038 Design Year Entire Development						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Coast Road South	0 0	0 0	0 0	0 0	0 0	0 0
Moyne Road	1.10 1.41	0.92 1.09	20 60	8 22	227 572	105 230
Coast Road North	0.96 0.96	0.57 0.64	22 20	3 3	62 58	11 14

Table 13.20: Junction 3: R123 Moyne Road / R106 Coast Road.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.20 demonstrates that Junction 3: Moyne Road/Coast Road will operate above the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios.

It is clear that the traffic generated by the Entire Development will have a minor effect on the Moyne Road junction. However, Junction 3 will still exceed the design threshold without any additional residential development at St. Marnocks Bay. Additionally, the new southern development access onto Moyne Road does relieve pressure on Junction 1 and Junction 2, while having a minor effect on Moyne Road and Junction 3.

A summary of the results of the analysis of Junction H: Hole in the Wall Road, 2038 Entire Development design year “without” and “with” the development, morning and evening peak hours is shown in Table 13.21.

Junction H: Hole in the Wall Road Upgrade 2038 Design Year Entire Development						
Approach Arm	Max. RFC		Max. Queue (PCU)		Average Delay (Seconds)	
	AM	PM	AM	PM	AM	PM
Moyne Road East	0.55 0.58	0.33 0.37	7 8	4 4	17 17	15 15
Hole in the Wall Road	0.55 0.59	0.64 0.64	5 6	6 6	32 42	34 39
Moyne Road West	0.74 0.80	0.76 0.78	7 7	9 11	29 37	24 24
Drumnigh Road	0.67 0.68	0.55 0.56	6 7	5 5	35 40	31 32

Table 13.21: Junction H: Hole in the Wall Road Upgrade.

The normal design threshold for the ratio of flow to capacity (RFC) is 0.9 for a signalised junction. Table 13.21 demonstrates that Junction H) Hole in the Wall Road Upgrade will operate within the normal design threshold during the morning and evening peak hours considered. This is the case both “without” and “with” the development scenarios. It is clear that the traffic generated by the Entire Development will have a negligible effect on the upgraded Hole in the Wall junction.

13.5.4.8 Summary

It is noted that the junction analysis for the Entire Development is a robust and conservative analysis. The Entire Development 2038 Stress Test assumes that little additional transport interventions have been applied to the road network in the Fingal area and presents a “worst-case” situation where the full impact of population growth and employment distribution is assigned to the existing road network. Several committed road schemes and junction upgrades in the Fingal / North Dublin City area are to be implemented in the coming years.

It is difficult to quantify the exact impact these upgrades will have on the surrounding road network, but it is clear it will be positive. These road / junction upgrades will likely take traffic away from the smaller junctions around the Portmarnock Local Area Plan lands and wider local area.

The analysis does not consider that by 2038 further sustainable transport improvements in the Fingal area such as improved DART services, BusConnects, cycle schemes and additional government initiatives will all have a positive effect on the modal split, reducing the impact of surrounding junctions.

13.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

13.6.1 Proposed Development

With the objective of mitigating the potential impact of the Proposed Development during its Construction and Operational Phase, the following proposals have been identified and subsequently form an integral part of the subject development proposals.

13.6.1.1 Construction Phase

Managing construction traffic is an ongoing collaborative process. In advance of work starting on site the works Contractor will prepare a updated and revised construction management plan and traffic management plan to be submitted to Fingal County Development Plan for approval. Refer to Construction Environmental Management Plan prepared for this application for further details.

The Construction Phase management plan will be based on the plans used for the previous phases of the development, it will act as a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the Construction Phase and will include the relevant mitigation measures outlined in the EIAR and any subsequent conditions relevant to the Proposed Development. The document will include lessons learned from the previous phases. The following mitigation measures have been identified which will form part of a plan: -

- Good construction management practices will be employed such as fencing the site off from the public and neighbouring sites, adequate external/internal signage, secure internal site offices, dedicated construction access points all to ensure the safety construction staff and the public.
- Appropriate levels of staff parking and compounding will be provided to ensure no potential overflow or haphazard parking in the area. The Site will be able to accommodate employee and visitor parking throughout.
- Set construction traffic routes to and from the site will be agreed with FCC prior to the commencement of constructions activities onsite. The time of day permissible for such routes will also be agreed upon and outside of the morning / evening peak hours.

- Wheel wash facilities will be provided on site to ensure that construction debris will not have an impact on the quality of roads in the Portmarnock area.

Mitigation measures as part of previous phases of the development have already been introduced, as construction traffic is forbidden from travelling through Junction 1: Station Road / Drumnigh Road junction and will have to use the Coast Road as outlined in Section 13.4.1.1. Additionally, it is important to note that Permission was granted (FCC Reg. Ref. F20A/0700 – May 2021) for the construction of a new temporary Haul Road to the south connecting into Moyne Road, to link both the development under construction (1C) and any future phases, until such time as the permanent Access Road to Moyne Road is delivered under this Proposed Development. This temporary Haul Road will be completed in December 2021.

When complete, the new temporary Haul Road (and future Access Road) will allow construction traffic to access the site from the south, minimising the interaction with Phases 1A / B / C, the Station Road junctions and the general public.

13.6.1.2 Operational Phase

A number of measures have been and will be implemented prior to the subject scheme opening which include: -

- **Junction Upgrades:** As outlined in section 13.4.1.1, a number of proposed junction upgrades are planned for the area. Junction H: Hole in the Wall Road is nearing completion which will greatly increase traffic capacity in the area. Junction 1: Drumnigh Road / Station Road will be improved with traffic calming measures and changes to the kerb lines/footpaths. The Junction 2: Strand Road / Coast Road / Station Road mini roundabout will be turned into a signalised junction. All three junction upgrades will improve traffic movements in the area, improve road safety, and for Junctions H and 2, provide a safer environment for pedestrians and cyclists, encouraging sustainable transport.
- **Parking:** All car parking and bicycle parking within the development will comply with the Development Plan. The apartments and duplex units within all phases have been provided with cycle parking in excess of the Development Plan minimum requirement. It was agreed with Fingal County Council that a sustainable approach to parking would be incorporated into the development. This leads to a strong emphasis on bicycle parking, thus reducing the need for private single occupancy vehicles.
- **Mobility Management (MMP):** A MMP is to be rolled out with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the Site. Details of the MMP are contained below.

13.6.1.3 Mobility Management Plan

Introduction

A Mobility Management Plan, also known as a Travel Plan, is a long-term management strategy which identifies a package of measures to encourage residents and visitors to use sustainable forms of transport such as walking, cycling and public transport and to reduce dependency on private car single-occupancy use. By providing for the transportation needs of people and goods in an ordered and planned manner the environmental, economic and social impacts of travel may be greatly reduced. This section of the EIAR relates to Mobility Management and outlines its aims/objectives and an action plan to achieve these objectives and how to implement this plan.

The objective of this Mobility Management section of the EIAR is to improve accessibility to the site, whilst providing a more sustainable approach to the site's transportation requirements.

Developing this plan will allow the development of managed travel options and more informed travel choices for residents and visitors whilst reducing dependency on private car use associated primarily with commuter travel.

Upon completion and occupation of the development, this Mobility Management Plan will provide the basis for an examination of the commuting patterns associated with the site to be undertaken. With the information gathered, a strategy to promote sustainable travel decisions for the site will be devised. It is envisaged that occupants of the site will derive the following benefits: -

- Healthier commute to work for residents.
- More informed travel options for residents and visitors.
- A reduction in the demand for parking spaces (and as a consequence reduce parking practices).
- Improved environmental performance.
- On-going liaison with Fingal County Council and public transport providers to maintain, improve and support transportation services to and from the site.
- Promotion of social networks within the development.
- Reduced congestion around the site.
- Cheaper commutes for residents.

Influencing Travel Patterns

In order to give the strategy a good founding it will be necessary to fully understand the nature of the trip patterns associated with the Operational Phase of the Proposed Development. In order to achieve this, trip movements to and from the site must be examined and assessed for potential future influence.

Table 13.22 below lists the likely nature and extent of anticipated traffic movements to and from the Proposed Development. It also highlights those trips where change is most possible to influence.

Nature of Traffic Movements to Residential Development	Increasing with Development	Possible to Influence?
Residents commuting to and from work	Yes	Yes
Leisure Related Journeys	Yes	Yes, but more difficult
Deliveries	Yes	Yes, but more difficult
Members of the Public/Visitors	Yes	Difficult and impractical

Table 13.22: Nature of traffic movements & ability to influence.

As visitor journeys are difficult to predict and influence, this mobility management plan will focus on commuting journeys for residents. As commuting journeys are by their very nature regular and predictable i.e., they generally happen in the same period every morning and every evening, they will form the focus of the Mobility Management Plan.

The setting of realistic and achievable modal split targets is vital if all or any of the measures are to be successful. The targets need to be attainable and most importantly correspond with the development's goals i.e. deliver the benefits listed above.

Accessibility Audit

Section 13.3 provides a summary of the receiving environment, by way of the existing and proposed public transport services in the vicinity of the development. The section also looks at the existing road infrastructure and facilities and contains a summary of the existing and proposed facilities for pedestrians and cyclists.

In summary, the principle of providing sustainable transport which is embodied in the Portmarnock South Local Area Plan will be given physical expression in the Proposed Development. The form and structure of the Proposed Development will encourage the use of public transport, cycling and walking in preference to the private car.

Action Plan

Commuter journeys by their very nature usually occur between the same two points (eg home and work) and at regular times. The successful implementation of the mobility management plan will provide the development with a number of advantages, which include: -

- Improved environmental performance.
- Improved social networks between residents.
- Improved health and well-being for those staff using active transport modes.
- Reduced demand for car parking spaces.

The following details the available initiatives to reduce the environmental impact of commuter journeys.

Car Pooling Scheme

While use of the car will be essential for a proportion of residents, car sharing schemes have the potential to deliver a significant reduction in private vehicle trips by promoting more residents to travel in each vehicle, thereby lowering single occupancy vehicle (SOV) trips to the site.

A car pooling scheme relies on a database to match residents, using information about their work addresses, their working hours, their preferences such as gender/driver or passenger and their preferred route to and from work. Depending on the desired level of on-going Management Company / Residents Association input, a number of database options exist, some examples include: -

- Message boards (either paper, electronic or web-based).
- Manually administered system championed by an individual, who's function is to match individuals interested in car sharing.
- Websites that have automated functions to match people and provide contact details.
- Websites that have automated functions to match people and provides a message service to potential matches.
- Dedicated phone line systems in cases where people are unlikely to have internet access.

The most successful car sharing schemes rely on strong promotion, are internet based and use an operator to contact members on a regular basis to inform them of potential lifts.

A number of car sharing initiatives have been launched recently in Dublin, including the "Gocar" pay-as-you-drive scheme which allows subscribed members to share in the use of a pool of vehicles by reserving a time allocation online in advance and "carsharing.ie", a car pooling service that facilitates people looking to trip share. The local centre, which is included in the Phase 1C development currently under construction, can be used to help promote these initiatives when completed.

Walking

It is proposed to provide a network of footpaths that will permeate the residential area and provide a high degree of accessibility to local facilities and to bus and rail transport. Initiatives such as the development of a support forum whereby any localised problems can be discussed, with the aim of pursuing corrective action from the local authority may encourage walking amongst residents.

On the basis that 30 mins is considered an acceptable walking distance, residents can walk to an area that includes Portmarnock Village, Baldoyle and Clongriffin.

Refer to Figure 13.19 following for illustration of 30min walking cordon.

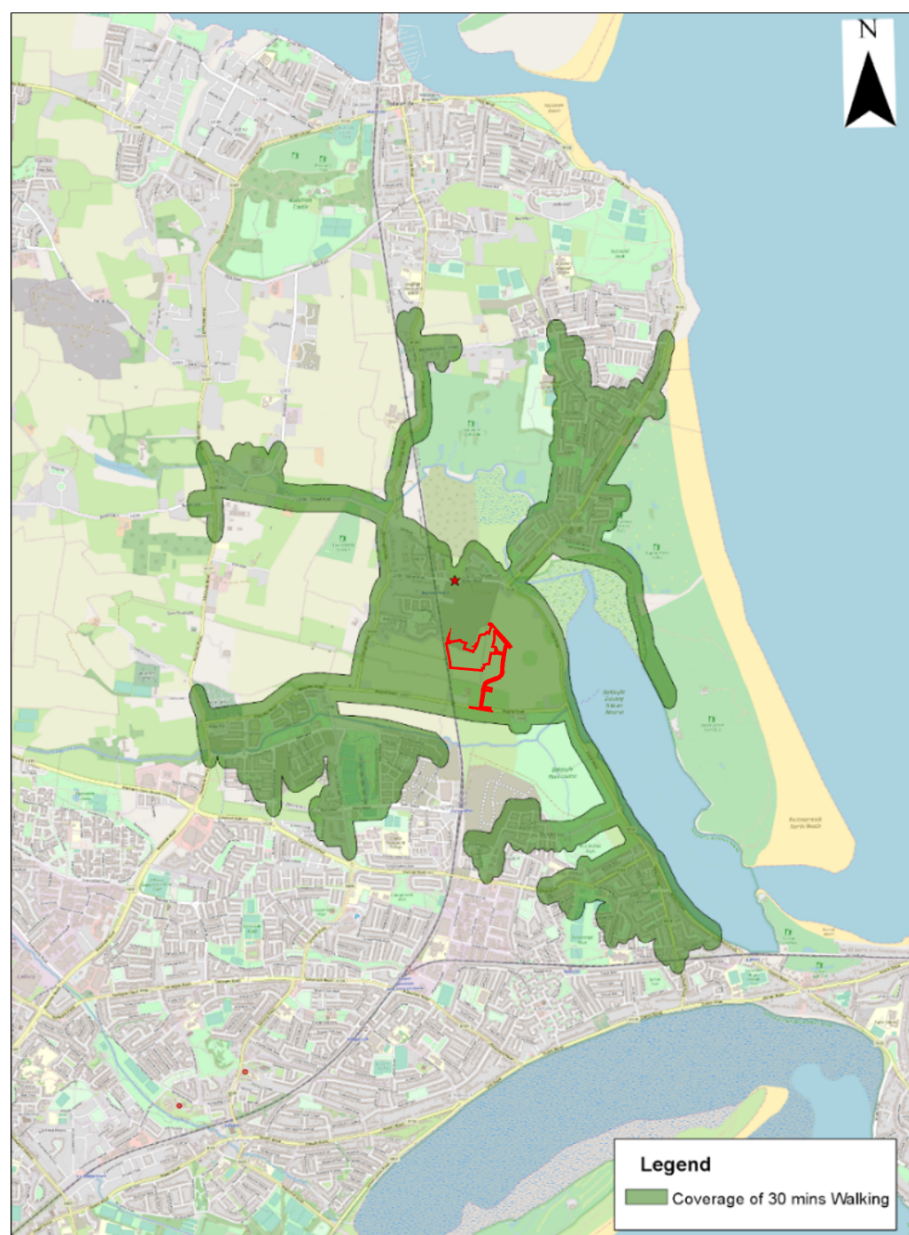


Figure 13.6: 30 min Walking Cordon from the Proposed Development / Portmarnock Local Area Plan lands.

Cycling

A number of segregated combined cycle and footpath routes through the development and a circular cycle/footpath route will connect homes to the DART station, commercial area and open space. For commuter journeys, cycling is a feasible mode of transport for those working within 30 mins of the site. Cyclists could therefore be expected to travel to an area encompassed by Clontarf, Howth, Malahide and Beaumont. Greater distances such as to the city centre, could be expected from cycle enthusiasts and regular cyclists.

Refer to Figure 13.20 following for illustration of 30 min cycling cordon.

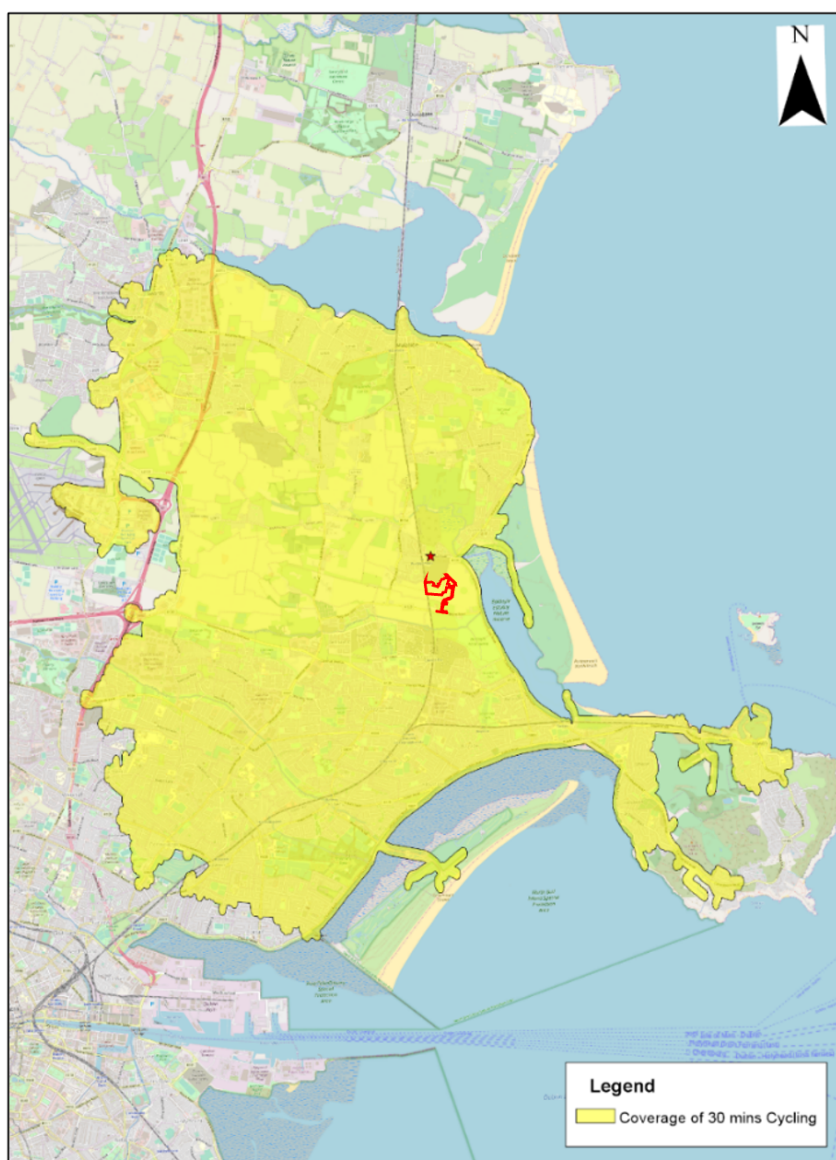


Figure 13.20: 30min Cycling Cordon from the Proposed Development / Portmarnock Local Area Plan lands.

The Government led initiative “Bike to Work” scheme allows employers to purchase a bicycle and safety equipment up to the value of €1,500. Employees can then use a salary sacrifice to pay for the bike, allowing them to save up to 52% on the retail price of the bike and safety equipment. Employers benefit by PRSI savings of 10.75%, as well as a reduced parking demand, a fitter and healthier workforce and improved environmental image.

Public Transport

The residential development and surrounding lands are currently well serviced by public transport between the Dart and Dublin Bus routes. To encourage patronage within the development for public transport the following measures could be set in motion: -

- Generate a site-specific leaflet showing all public transport routes;
- Promotion of a more environmentally friendly way to travel to work.
- Encourage Dublin Bus/Irish Rail to provide better public transport services to the site as demand grows.

Monitoring

Details on how best to implement and monitor the MMP is outlined in Section 13.8.1.3.

13.6.2 Cumulative Development

13.6.2.1 Construction Phase

The mitigation measures utilised for the Proposed Development (Phase 1D) will also be used in all future phases going forward. The construction management plan and traffic management plan to be submitted to FCC for approval will constantly be updated for future phases. It will set out requirements and standards which must be met during the Construction Phase and will include the relevant mitigation measures outlined in the EIAR and any subsequent conditions relevant to the Proposed Development. The document will include lessons learned from the previous phases.

13.6.2.2 Operational Phase

As per Section 13.6.2.1.

Additionally, the mobility management plan is not a one-off event, more so it is an on-going iterative process. The plan will constantly be updated and find new ways to reduce the developments' reliability on private cars.

13.7 Residual Impact of the Proposed Development

13.7.1 Proposed Development

13.7.1.1 Construction Phase

There will be minor impacts on the safety or operation of the road network as a result of the construction phase of all phases of the Portmarnock Development. Having consideration for the mitigation measures outlined above, any impacts during the construction phase will be negligible. All construction related traffic will be outside the morning and evening peak hours and will not have a significant impact the operation of the adjoining junctions.

13.7.1.2 Operational Phase

The traffic analysis demonstrated that Junction 1) Station Road / Drumnigh Road R124 and Junction 2) Strand Road / Coast Road / Station Road will exceed the normal design threshold during the morning and evening peak hours considered. This is the case both for the "without" and "with" development scenarios. This concurs with the observations made on site. Any future traffic growth, irrespective of the subject development, will therefore result in an impact to the operation of these junctions.

However, it is clear from the analysis that Phase 1D development will help, albeit to a minor extent, the performance of Junctions 1 and 2. During the "with" Phase 1D development scenario, the new primary access road to Moyne Road will be constructed. This new access road going south onto Moyne Road will cater for a proportion of trips generated from the 1A, 1B, 1C and 1D developments. A high percentage of these trips will likely travel south avoiding Junction 1 and 2 entirely and improving the current traffic situation at these junctions.

When the cumulative Entire Development is complete, Junction 3: Moyne Road/Coast Road will also exceed the normal design threshold during the morning and evening peak hours considered.

The residual impacts from both the Proposed Development and background traffic growth will be mitigated with the improvements of the public transport network (DART and BusConnects) and cycling infrastructure throughout Dublin. The Proposed Development will provide adequate pedestrian and cycle linkages to both existing and future sustainable travel facilities and modes which will encourage a greater number of Portmarnock residents to choose sustainable transport modes.

13.7.1.3 Worst Case Impact

It is noted that the junction analysis for the Entire Development is a robust and conservative analysis. The Entire Development 2038 Stress Test assumes that little additional transport interventions have been applied to the road network in the Fingal area and presents a “worst-case” situation where the full impact of population growth and employment distribution is assigned to the existing road network. Several committed road schemes and junction upgrades in the Fingal / North Dublin City area are to be implemented in the coming years.

It is difficult to quantify the exact impact these upgrades will have on the surrounding road network, but it is clear it will be positive. These road/junction upgrades will likely take traffic away from the smaller junctions around the St. Marnock’s Bay site.

The analysis does not consider that by 2038 further sustainable transport improvements in the Fingal area such as improved DART services, Bus Connects, cycle schemes and additional government initiatives will all have a positive effect on the modal split, reducing the impact of surrounding junctions.

13.7.2 Cumulative Development

13.7.2.1 Construction Phase

As per Section 13.7.1.1

13.7.2.2 Operational Phase

As per Section 13.7.1.2

13.7.2.3 Worst case Impact

As per Section 13.7.1.3.

13.8 Monitoring

13.8.1 Proposed Development and Cumulative Development

13.8.1.1 Construction Phase

During the Construction Phase a number of monitoring exercises have been implemented in previous phases (Phase 1A, 1B and 1C) and will be utilised in the Proposed Development (Phase 1D) and going forward. The specific exercises implemented come from the range of measures detailed in the final construction management plan will be agreed with the planning authority: -

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

13.8.1.2 Operational Phase

During the Operational Phase it is anticipated that the residual impacts from both the Proposed Development and background traffic growth will be mitigated with the improvements of the public transport network (DART and BusConnects) and cycling infrastructure throughout Dublin. Therefore no significant monitoring has been proposed. However, the MMP sections of the EIAR have set out ways to monitor progress.

13.8.1.3 Mobility Management Plan

As outlined in Section 13.6.1.3 the MMP will set out a strategy which identifies a package of measures to encourage residents and visitors to use sustainable forms of transport such as walking, cycling and public transport and to reduce dependency on private car single-occupancy use. Whilst it is difficult to continuously monitor the progress, the setting of targets and promotion of the plan will be vital.

Implementing and Monitoring the Plan

The setting of realistic targets and a sustained approach to the promotion of the Mobility Management Plan is vital if all or any of the measures are to be successful. The objectives and benefits of the Plan to both the individual and the development should be made clear and broadcast during the full lifecycle of the Plan. Modal split targets need to be attainable and most importantly correspond with the development's goals i.e. supporting and enhancing the lives the residents involved. As well as reviewing objectives and initiatives regularly, it is equally important to measure results. This ensures that the targets are realistic and are being met and most importantly they correspond with the development's goals.

The target modal splits for Portmarnock South Residential Development are identified in Table 13.23 following. They correlate closely with the goals set out in the South Fingal Transport Study.

	Initiative	Impact on Delivery	Difficulty in Delivering	Target Modal Split
Resident Commuter Journeys and Initiatives	Cycling	Medium	Medium	8%
	Walking	Medium	Medium	5%
	DART	High	Low	35%
	Bus	High	Low	8%
	Other	Low	High	4%
	SOV Cars	NA	NA	40%

Table 13.23: Portmarnock South Target Modal Splits.

Conclusion

With congestion becoming an ever-increasing problem in Ireland, providing more road network capacity is considered an un-sustainable option. Therefore, managing transportation demand at source using mobility management measures remains an attractive, low cost and viable option.

Mobility management measures are relatively new to Ireland and are therefore not widely understood. In the absence of extensive Irish based performance data associated with such measures, expectations for their implementation and performance are often idealistic. Mobility management measures for residential developments are difficult to arrange and monitor. The proposals set out herein however give a framework for adopting mobility management principles.

A mobility management plan is not a one-off event, more so it is an on-going iterative process. This section of the provides guidance for its potential success. The collection of commuter data, and on-going monitoring and reviewing of the initiatives set out within the plan will form a far greater part of the Mobility Management Plan itself.

Preliminary targets should be reviewed and adjusted as required. Failing to meet initial targets should not be seen as failure, as the initial 12 to 18 months of the plan should be viewed as a calibration exercise for target setting.

13.9 Reinstatement

Reinstatement is not applicable to the Material Assets (Transportation) of this EIAR.

13.10 Difficulties Encountered

No difficulties were encountered in completing this chapter of the EIAR.