8. Traffic

8.1. Introduction

This chapter of the EIAR reviews the current receiving environment in terms of existing road traffic characteristics and quantifies the associated baseline scenario whilst undertaking an assessment of the proposed development to identify its likely impacts on the traffic environment.

In identifying the scope of this Traffic Chapter, consultations were undertaken with Louth County Council Transport & Infrastructure Department. The Traffic and Transport Assessment scoping document, which outlined the proposed content and methodology of the full Traffic and Transport Assessment process, was issued to and agreed with Louth County Council in January 2018. This document is thus formed on the basis of the traffic and transport assessment as agreed with the Louth County Council. In general terms the scope of this assessment covers all transport related issues including private vehicles, pedestrian, cyclist and public transport access.

8.2. Methodology

This Traffic Chapter and associated assessment has been carried out in accordance with European Union and National level policy. It has also been carried out in accordance with the following local level policy documents and best practice guidance documents:

- Louth County Council - Development Plan 2017 – 2023;
- Dundalk and Environs Development Plan Variation No. 1 2011;
- Environmental Protection Agency – Guidelines on the information to be contained in Environmental Impact Assessment Reports Draft August 2017;
- Transport Infrastructure Ireland - Traffic and Transport Assessment Guidelines 2014; and,
- Transport Infrastructure Ireland - PAG Unit 5.3 Travel Demand Projections 2016.

The following tasks were considered during the preparation of the Traffic Chapter:

- Assess surrounding road and transport infrastructure;
- Identify plans for future road infrastructure and transport upgrades;
- Undertake traffic counts to quantify the base line traffic scenario;
- Determine trip generation, distribution and assignment associated with the proposed development;
- Establish future years and associated traffic flows; and,
- Quantify the predicted traffic impact of the proposed development.

8.3. Receiving Environment

8.3.1. Site Location

The proposed development is located within the townland of Haggardstown, Blackrock, Co. Louth. The location of the Site is shown in Figure 8.1 below.

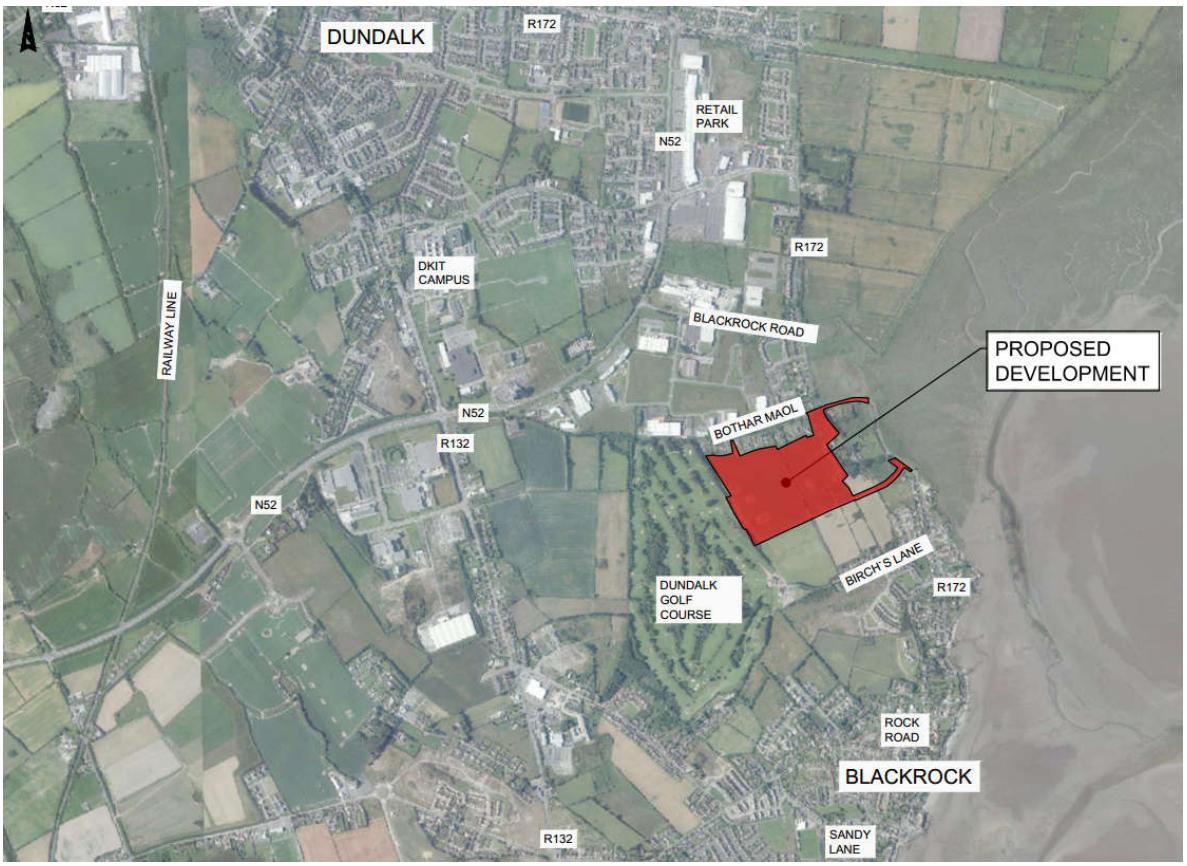

Figure 8.1 - Site Location

To the north the proposed development Site is bounded by the rear of a number of private dwellings that access directly onto the local cul-de-sac laneway referred to as Bóthar Maol. The north east corner directly bounds Bóthar Maol for c. 60m. To the proposed Sites eastern boundary there lies a number of private properties with associated lands and outbuildings. The Site is ultimately bounded to the east by the R172 which adjoins the Dundalk Bay SAC. The vehicular access to the Site will be provided off the R172.

The southern boundary of the proposed Site is bounded by agricultural lands and ultimately by Birches lane and the rear of a number of properties that access onto said lane. The Site layout facilitates future pedestrian, cyclist and vehicular access onto the zoned lands to the south. The west of the proposed Site is directly bounded by Dundalk Golf Club.

8.3.2. Pedestrian and Cyclist Facilities

The proposed layout of the development will allow for extensive pedestrian permeability and connectivity throughout the Site. It will also allow for good connection to external pedestrian facilities on the local road network. These will predominantly be provided through pedestrian and cyclist access onto both the R172 and Bóthar Maol. The pedestrian and cyclist access onto the R172 are in combination with the main vehicular Site entrance, whilst the access onto Bóthar Maol are pedestrian and cyclist only access, one provided to the north east of the Site in vicinity of the Bóthar Maol / R172 junction and one provided further west along Bóthar Maol.

The proposed development is well located in terms of access to local services, amenities and employment opportunities and many of these are located within a 2km walking distance of the Site. A 2km walking distance equates to a 24 minute journey time based on a comfortable walking speed of 1.4m/s. Drawing 5161486/HTR/SK/007 as contained within Appendix F illustrates the catchment area achievable within 6, 12 and 24 minutes walking journey time based on the existing walking links to and from the Site. It can be seen that many significant land-uses such as the IDA lands, Dundalk Retail Park and Blackrock Village are within these comfortable walking distances from the proposed Site.

In terms of cycling, there is an extensive area within a cycling distance of 4.8km. This equates to a journey time of 24 minutes based on a comfortable cycling speed of 3.3m/s. Drawing

5161486/HTR/SK/008 as contained within Appendix F illustrates the catchment area achievable within 6, 12 and 24 minutes cycling journey time based on the existing cycling links to and from the Site. It can be seen that all of Blackrock and a significant portion of Dundalk, including the Town Centre, DKIT and local employment opportunities to the south and east of the town, are within these comfortable cycling distances from the Site.

8.3.3. Existing Public Transport

The following existing bus services operate within vicinity of the proposed development Site. These are shown on drawing 5161486/HTR/SK/004 as contained within Appendix F.

8.3.3.1. Local Routes:

- Route 169 - Blackrock to Dundalk:

  This local route, operated by Halpenny Travel, runs from Blackrock Village to Dundalk with stops along Avenue Road, DKIT and St Patricks Cathedral. There are 11no. daily weekday services outbound from Blackrock, 7no. services on a Saturday and 2 no. on a Sunday. There are 10no. daily weekday services inbound to Blackrock, 6no. services on a Saturday and 2no. on a Sunday. Services to DKIT only run during college term.

8.3.3.2. Commuter Routes:

- Route 900 & 901 - Dundalk to Dublin:

  This commuter route, operated by Matthews, runs from Dundalk to Dublin via. Drogheda with stops at the Marshes Shopping Centre-Dundalk, DKIT campus, Georges Street-Drogheda and Cathal Brugha Street-Dublin. There are over 20 daily weekday services each way and a number of services operating on Saturday and Sunday. The 900 does not service Drogheda, whilst the 901 does. The 901D services the DCU campus with 1 daily service.

- Route 902 & 903 - Dundalk to Dublin:

  This commuter route, operated by Matthews, runs from Dundalk to Dublin via. Drogheda with stops at the Marshes Shopping Centre-Dundalk, DKIT campus, Georges Street-Drogheda and the IFSC-Dublin with 2 daily weekday services each way. The 902 does not service Drogheda, whilst the 903 does.

- Route 904 - Dundalk to Dublin:

  This commuter route, operated by Matthews, runs from Dundalk to Dublin via. Drogheda with the main stops at the Marshes Shopping Centre-Dundalk, DKIT campus, Georges Street-Drogheda and the UCD Campus-Dublin with 2 daily weekday services each way.

- Route 100X - Dundalk to Dublin:

  This commuter route, operated by Bus Eireann, runs from Dundalk to Dublin via. Dublin Airport, with stops at Dundalk Bus Station, DKIT campus, Castlebellingham, Dunleer, Drogheda, Balbriggan, Dublin Airport and Dublin City Centre (Wilton Terrace). There are hourly services between 03:30 to 20:30 from Dundalk and hourly services between 06:40 to 23:40 to Dundalk from Monday to Sunday.

It is considered that the proposed development is well located, granting opportunity to access both services and employment opportunities in the local environs via. public transport. The existing route of the 169 bus routes along the R172 presents the opportunity to provide a bus stop directly outside or within the proposed development and therefore a direct public transport link to Dundalk town centre and Blackrock village.

In a wider sense there are also significant accessibility opportunities for commuter access to employment and college destinations in Dublin via. public transport.

8.3.4. Existing Road Network

As noted the proposed development will access onto the R172 north of Blackrock Village. The R172 is the main link between Blackrock and Dundalk. In a southerly direction it proceeds through the Blackrock Village providing access to all main residential areas, community services, retail stores and amenities. Further south it intersects with the R132 Dublin Road connecting Dundalk with Drogheda. In a northerly direction the R172 provides access to residential, retail and employment lands to the south east of Dundalk and the town centre. It provides connection with the N52 at three locations via. its links with Finnabair Crescent, Hoeys Lane and Avenue Road. The N52 acts as a distributor road bordering the east of the town centre providing access to numerous residential commercial and

employment lands. It also provides access to both main Dundalk interchanges on the Dublin to Belfast M1 motorway.

Junction turning counts have been undertaken at 9no. locations as shown on Figure 8.2 below (a larger scale Figure is included within Appendix F). 6no. of these are located to the north of the development and include junctions on the R172 and junctions with the N52. A further 3 no. junctions along the R172 to the south on approach to Blackrock Village are also included. In addition, volume and speed surveys have also been undertaken in vicinity of R172 and Bothár Maol junction.

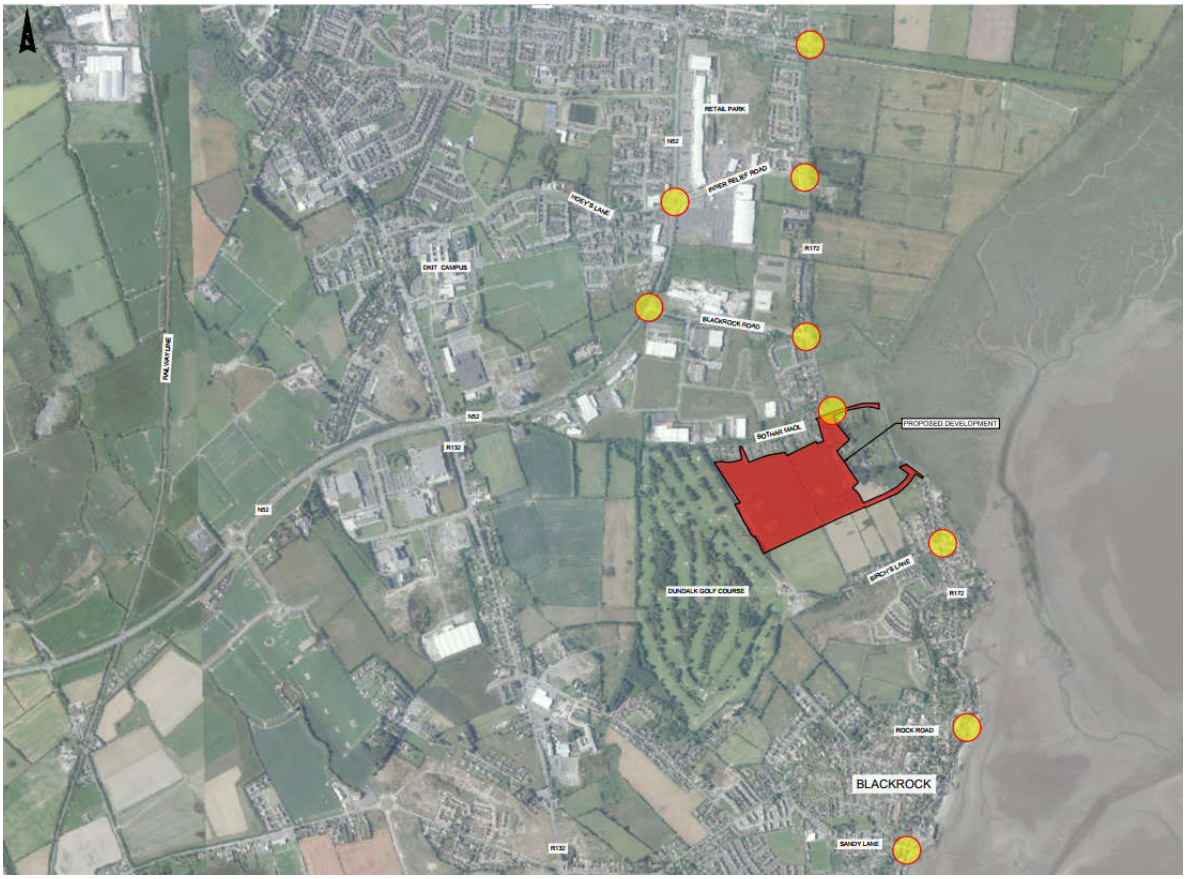

Figure 8.2 - Junction Turning Count Locations

8.3.5. Local Amenities

As discussed above, the proposed development Site is well placed in terms of availability of local amenities. There are a number of schools within 5 km of the Site including St. Francis National School Blackrock, Scoil na gCreagacha Dubha Blackrock, St. Josephs National School Dundalk, Muire Na nGael National School Dundalk, Gaelscoil Dhun Gealghan Dundalk and Ó'Fiaich Secondary School Dundalk. The proposed Site is also located within 1km of DKIT.

In addition, the subject Site is also conveniently located close to a number of sports and leisure facilities such as Dundalk Golf Club, Na Piarsaigh GAA Club, Bay Football Club, DKIT Sports Arena and Fitness Centre and Dundalk Cinema. Furthermore, the subject Site has good access to Dundalk Retail Park which offers retail outlets such as computer stores, homes stores, DIY stores, sports stores and cafes and restaurants. There is also another retail area south west of the Hoey's Lane / N52 roundabout which is anchored by a large grocery store with adjoining units including a pharmacy.

8.3.6. Future Transport Infrastructure

A review of the Louth County Development Plan and Dundalk and Environs Development Plan indicate that there are no new road upgrades proposed in the vicinity of the proposed development Site.

However, there are proposals for improving and upgrading a number of key existing routes, in particular the following:

- Finnabair Crescent;
- N52 (between Finnabair Crescent and Tom Bellewe Avenue);
- Hoey's Lane (between N52 and R172 Blackrock Road);
- Elements of R172 Blackrock road and N52 further north;
- Old Golf Links Road;
- Seafield Road; and,
- R172 Blackrock road (between Sandy Lane and R132).

The above road upgrades will consist of improved pedestrian and cycle facilities.

8.4. Proposed Development

The proposed development is residential in nature consisting of 6 no. duplexes, 219 no. apartments and 258 housing units equating to a total provision of 483 dwelling units, a 677 m^2 crèche, undercroft parking facilities and associated open space. It is proposed that all 483 units of the proposed development will be served by a new access junction accessing onto the R172, approximately 300m north of Birches Lane. The proposed Site Layout is shown in Figure 8.3 below.

Figure 8.3 - Site Layout

The street layout of the proposed development is being developed in accordance with the Design Manual for Urban Roads & Streets (DMURS) and thus the appropriate measures have been considered in order to facilitate an accessible, permeable, connected and socially inclusive street network for pedestrian and cyclist movement in line with the design ethos contained within DMURS.

Full details of the proposed street layout are contained within the Engineering Report, the DMURS Statement and the relevant engineering and architectural drawings submitted as part of this planning application.

8.5. Potential Traffic Impacts on the Local Road Network during Construction Phase

All construction activities will be managed and directed by a Construction Traffic Management Plan (CTMP). The details of the CTMP will be agreed with the roads department of the Local Authority in advance of construction activities commencing on-Site.

The objective of the CTMP is to ensure that the impacts of all related construction activities generated during the construction phase of the proposed development upon both the public (off-Site) and internal (on-Site) construction workers environments are fully considered and proactively managed and scheduled with full consideration of the requirements of key stakeholders. This will ensure that the safety, health and well-being of both the public and construction workers is maintained at all times.

The likely impact of the construction works will be short-term in nature. The number of staff on Site will fluctuate over the construction phase of the subject development. Based on previous experience of similar developments, it would be envisaged that at any one time approximately 40 - 50 staff could be on Site. Consequently, it is expected that two-way vehicle traffic generation during the construction phase would be of a low level during the peak AM and PM periods over the construction period of the works. It should also be noted that construction workers will typically make use of shared transport thereby further reducing traffic generation. In terms of arrivals and departure times, on-Site employees will typically arrive before 08:00 and will generally depart before 17:00. These arrival and departure times are outside the general commuter AM and PM peak periods, therefore further reducing the impact of the construction phase.

In terms of deliveries to the Site, these would likely be expected to arrive at a steady rate during the course of the day over the entire duration of the construction phase. The majority of deliveries would be expected to be rigid HGV's with inert material. The main haul routes for deliveries will generally arrive from the direction of the strategic motorway network via. the N52 / M1 interchange. This interchange will allow access to the N52 national road from which access to the R172 can be gained via. the Finnabair Crescent, a wide single carriageway distributor road serving the adjacent industrial estates with minimal frontage and access points connecting the N52 to the R172. Once on the R172 deliveries will proceed south until they reach the proposed access junction off the R172.

The potential impact during the construction phase is considered to have a short-term slight impact on the surrounding network. The implementation of the CTMP and active management of traffic generated by construction workers and deliveries will serve to reduce these potential impacts, thereby having an imperceptible impact on Dundalk Town Centre and key road corridors into the town and its environs.

8.6. Potential Traffic Impacts on the Local Road Network during Operational Phase

8.6.1. Trip Generation

A trip rate estimation exercise has been undertaken using the TRICS (Trip Rate Information Computer System) online system. The land-uses chosen for the trip rate analysis were '03 Residential/K–Mixed Private House (Flats and Houses)' and '04 Educational/D–Nursery' for the crèche unit. Given the location of the proposed development and the breakdown in terms of unit types (i.e. over 80% of apartment units are 2 beds or more) it is considered that apartment trip rates would be of a higher rate compared to more urban town centre areas, thus it is considered that application of a mixed unit trip rate inclusive of houses, apartments and duplexes is appropriate.

Trip rates calculated are derived from multimodal surveys and thus the trip rates presented below relate to total people arriving and departing. Given the diverse breakdown in units in terms of beds, it is considered appropriate that trip rates associated with the residential element are calculated per bedroom. The non-residential crèche rates are per 100 m^2. A number of selection criteria have been applied to obtain a representative sample size of comparable Sites. Refer to Appendix F for full

details of the TRICS data. Table 8.1 below details the total vehicle trip rates estimated for the development during 08:00 – 09:00 AM and 17:00 – 18:00 PM peak hours.

Table 8.1 - Total People Multimodal Trip Rates (per Bedroom)

Type	Period	No. Units	No. Bedrooms	Arrival		Departure		Two-way	
				Rate	Volume	Rate	Volume	Rate	Volume
Houses / Apartments / Duplexes	AM	483 Dwelling	1349	0.061	82	0.262	355	0.342	437
	PM			0.238	323	0.102	138	0.342	461
Crèche	AM	677 m^2 Sqm	n/a	7.097	48	4.516	31	11.61	79
	PM			3.594	24	5.346	36	8.940	61

In order to determine an appropriate mode share associated with private vehicles arriving and departing the proposed development, a review of Census 2016 was undertaken. A review of the 'Small Areas' adjacent to the Site was undertaken and amalgamated to derive an appropriate mode share. The 'Small Areas' utilised are all located in close proximity to the proposed Site and are presented below:

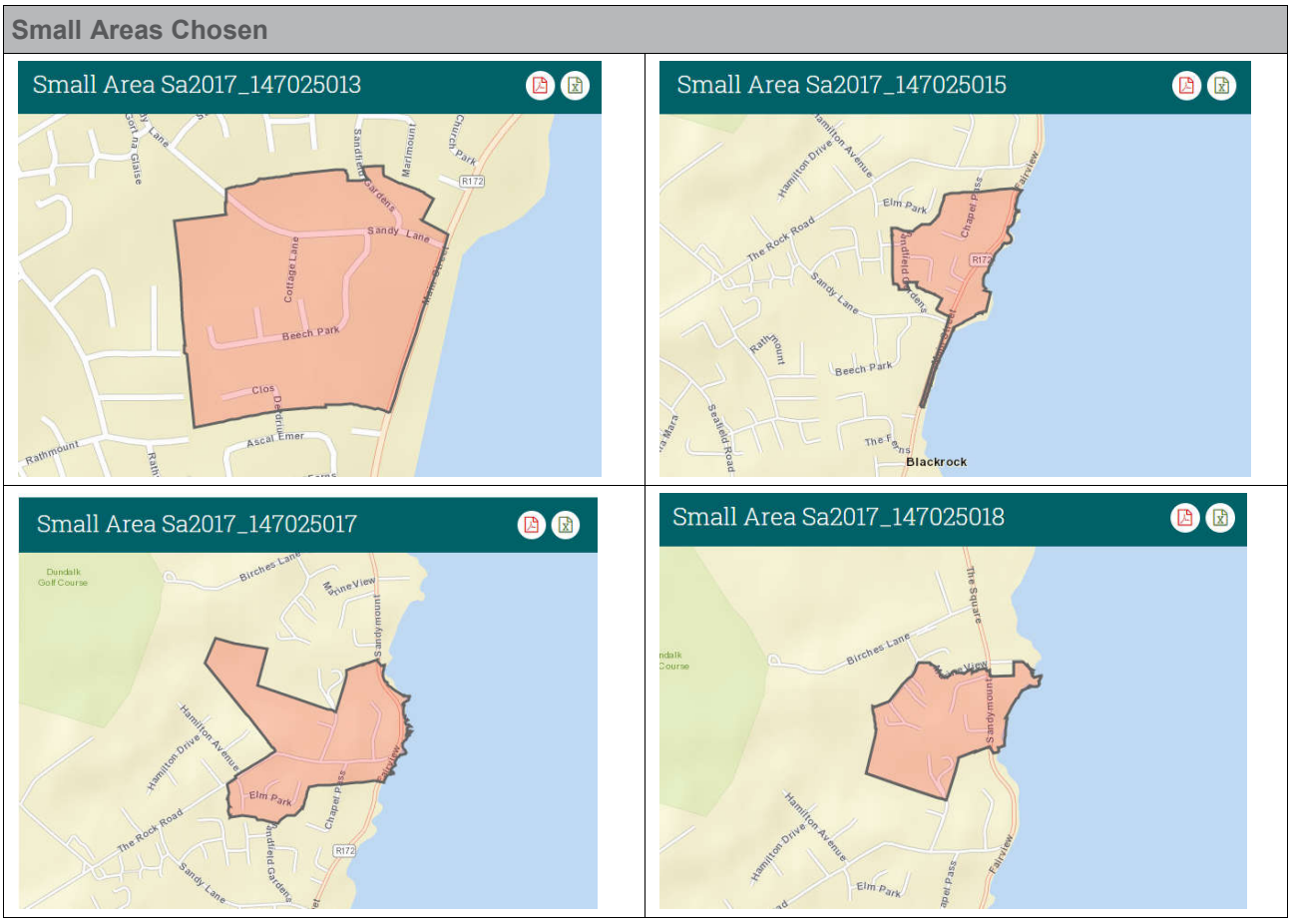

Figure 8.4 - Small Area Sites

The amalgamation of the above 'Small Areas' results in the following mode shares:

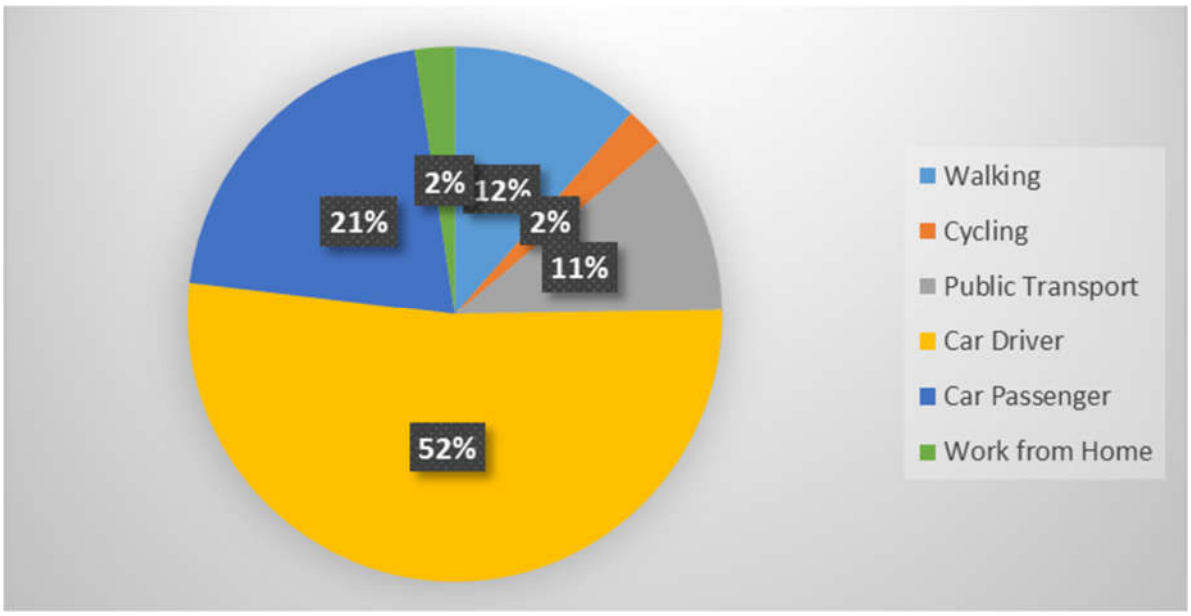

Figure 8.5 - Localised Mode Share

As such a mode share of 52% has been applied to the total people trip rates to derive localised vehicle trip rates. Table 8.2 below indicates these.

Table 8.2 - Localised Vehicle Trip Rate (per Bedroom)

Type	Period	Size	No. Bedrooms	Arrival	Departure	Two-way
Houses / Apartments / Duplex	AM	483 (Units)	1,349	0.032	0.137	0.168
	PM			0.124	0.054	0.177
Crèche	AM	677 Sqm	n/a	3.699	2.354	6.053
	PM			1.873	2.787	4.660

The resultant vehicle traffic generation in terms of volumes for the proposed development is presented below in Table 8.3.

Table 8.3 - Vehicle Traffic Generation

Type	Period	Size	No. Bedrooms	Arrival	Departure	Two-way
Houses	AM	483 (Units)	1,353	43	185	228
	PM			168	72	240
Crèche	AM	677 Sqm	n/a	22	14	36
	PM			11	17	28
Total (AM)				65	199	264
Total (PM)				179	89	268

8.6.2. Trip Distribution and Assignment

The trip distribution of vehicles originating and terminating at the proposed development has been based on the distribution of traffic arriving and departing the local road as defined by the traffic survey locations agreed as part of the TTA scoping exercise. The distribution percentages for each entry and exit point to this local road network has been calculated from the available traffic turning proportions from the January 2018 traffic surveys. These percentages are presented in Table 8.4 below.

Table 8.4 - Trip Distribution Percentages

Zone		AM				PM			
ID	Description	In	Out	%In	%Out	In	Out	%In	%Out
1	Red Barns Road	392	306	12%	10%	273	428	10%	14%
2	Main St.	316	221	10%	7%	194	370	7%	12%
3	Sandy Lane	207	158	6%	5%	97	124	3%	4%
4	Rock Rd.	193	200	6%	6%	86	212	3%	7%
5	Birch's Lane	82	44	2%	1%	71	67	3%	2%
6	Proposed Access	0	0	0%	0%	0	0	0%	0%
7	Bothar Maol	14	2	0%	0%	5	1	0%	0%
8	N52(SW)	775	586	23%	19%	743	428	27%	14%
9	Hoey's lane (from/to IRR)	184	277	6%	9%	190	228	7%	7%
10	Hoey's lane (from/to N52 S)	188	198	6%	6%	162	243	6%	8%
11	N52(N) (from/to IRR)	172	142	5%	4%	217	243	8%	8%
12	N52(N) (from/to N52 S)	586	583	18%	18%	351	529	13%	17%
13	Avenue Rd.	206	446	6%	14%	392	279	14%	9%
Total		2780	3151	100%	100%	2780	3151	100%	100%

The resultant distribution and assignment of development traffic generation volumes are illustrated in Appendix F.

8.6.3. Traffic Growth and Assessment periods

To determine the impact of the proposed development Site and to demonstrate that it can operate sustainably within the local road network, the following assessment years have been considered:

- Base Year: 2018;
- Opening Year: 2020;
- Opening plus five: 2025; and,
- Opening plus fifteen: 2035.

The 'Link Based Methodology' outlined within TII Project Appraisal Guidelines Unit 5.3 'Travel Demand Projections' has been utilised and 'Central' growth factors as associated with Region 1 'Dublin' have been applied. The baseline flows have been factored up to the 2020 opening year, the 2025 opening year plus five and the 2035 opening year plus fifteen. Refer to Appendix F for an extract of the growth rates from the TII guidance document.

This growth in background traffic would be considered to be a conservative estimate however it would also be considered to account for traffic from adjacent zoned land that would be subject to future planning approvals.

The AM and PM peak hour traffic periods have been identified as occurring between 08:00 to 09:00 and 17:00 to 18:00 respectively.

8.6.4. Percentage Traffic Impact

An initial assessment was undertaken to quantify the additional traffic from the proposed development that will be loaded onto the local road network.

In order to determine what level of increase is considered acceptable, reference has been made to the TII Traffic and Transport Assessment Guidelines (May 2014). This document outlines the following thresholds:

- Traffic to and from the development which exceeds 10% of the traffic flow on the adjoining road; and,
- Traffic to and from the development which exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive.

Based on review of video footage and on-Site observations during the peak hour periods it is considered that the local road network junctions of interest are not congested. Thus, only junctions where the percentage traffic increase, due to the proposed development, exceeds 10% will be subject to further detailed junction assessment. In order to identify these junctions, the traffic increase resulting from the proposed development have been calculated and are outlined in Table 8.5 below.

Table 8.5 - Percentage Traffic Increase

Junction		Period	Existing Traffic	Development Traffic	Predicted Traffic	Traffic Increase
ID	Description					
J1	Red Barns Road / Avenue Road / R172 Blackrock Road Roundabout	AM	1237	59	1296	4.80%
		PM	1252	63	1315	5.03%
J2	Inner relief Road / R172 Blackrock Road Priority Junction	AM	1151	93	1244	8.06%
		PM	1229	103	1332	8.35%
J3	Hoey's Lane / N52 Roundabout Junction	AM	2109	98	2207	4.66%
		PM	2027	95	2122	4.67%
J4	Finnabair Crescent / N52 Priority Junction	AM	1569	117	1686	7.46%
		PM	1347	210	1557	15.58%
J5	Finnabair Crescent / R172 Blackrock Road Priority Junction	AM	996	210	1206	21.07%
		PM	1128	218	1346	19.31%
J6	Birches Lane / R172 Blackrock Road Priority Junction	AM	865	55	920	6.38%
		PM	918	51	969	5.54%
J7	Rock Road / R172 Blackrock Road Priority Junction	AM	916	51	967	5.54%
		PM	844	44	888	5.26%
J8	Sandy Lane / R172 Blackrock Road Priority Junction	AM	778	34	813	4.40%
		PM	706	33	739	4.65%

The above assessment indicates that 2 no. junctions exceed the 10% threshold. These are the Finnabair Crescent / N52 priority junction (Junction 4) and the Finnabair Road / R172 Blackrock Road priority junction (Junction 5). Notwithstanding given that the N52 / Hoey's Lane roundabout junction (Junction 3) is situated on a national route and is within the development sphere of influence as agreed with the Local Authority, it is considered prudent to also analyse the impact on this junction. In addition, it is also considered necessary to assess the traffic impact of the proposed development access, Junction 10, onto the R172 as this is where the proposed development traffic is most concentrated.

8.6.5. Junction Assessment Terminology

All junctions assessed on the local road network are either roundabout junctions or priority-controlled junctions. Thus, all junctions have been assessed using TRL Junctions software programme. Specifically, roundabouts have been assessed using the ARCADY module and priority-controlled junctions have been assessed using the PICADY module of this programme.

As both modules are developed by TRL, the terminology for results of roundabout and priority junction analysis are the same. As such, the following terminology should be referenced when interpreting the assessment results:

- **RFC**: This is the ratio of demand flow to capacity. The practical capacity threshold is normally 0.85. An RFC below 0.85 represents a junction which is operating in an efficient and stable condition. An RFC of between 0.85 and 1 represents variable operation, and may be said to be operating adequately, if the queueing and delay are deemed acceptable. RFC values in excess of 1 represent an oversaturated condition;
- **Max Queue Length**: This represents the maximum queue length of vehicles waiting to enter the junction on each arm;
- **Average Delay**: This shows the average amount of traffic delay at the junction per vehicle over the peak hour period; and,
- **PCU**: Passenger Car Unit. 1 car / LGV equals 1 PCU, 1 Medium HGV equals 1.5 PCU, 1 Bus equals 2.0 PCU, 1 Large HGV equals 2.3 PCU. 1 PCU equals 5.75m.

In order to ascertain what level of delay is acceptable for a priority junction, the Level of Service (LoS) Criteria from the Highway Capacity Manual (HCM) 2010 has been referenced. Figure 8.6 below outlines the LoS from A to F for the relevant average delay in seconds per vehicle.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Figure 8.6 - Level of Service Criteria

The below tables present the RFC results of the junction assessment. Full junction modelling results are contained within Appendix F.

8.7. Do Nothing Scenario - Detailed Traffic Impact

In the absence of the proposed development, the operational performance of the existing junctions on the surrounding road network will remain relatively unchanged with the exception of the impact caused by the forecast network traffic growth. The table below outlines the resultant capacity of the relevant local road network.

Table 8.6 – 'Do Nothing' Traffic Impact

Assessment Year	Junction 3		Junction 4		Junction 5		Junction 10	
	AM	PM	AM	PM	AM	PM	AM	PM
2020	0.69	0.64	0.32	0.36	0.26	0.35	n/a	n/a
2025	0.75	0.64	0.32	0.36	0.26	0.35	n/a	n/a
2035	0.84	0.78	0.40	0.48	0.33	0.44	n/a	n/a

* Results are RFC

As can be seen from the above table, the local road network with no development in place is operating to a satisfactory level during all assessment years. It should however be noted that during the 2035

opening +15 assessment year, the RFC associated with Junction 3, the Hoey's Lane / N52 Roundabout Junction, is approaching its theoretical capacity of 0.85.

8.8. Do Something Scenario - Detailed Traffic Impact

An assessment of the operational performance of the key local road junctions following the implementation of the proposed residential scheme in the '*Do Something'* scenarios is summarised in the below table.

Table 8.7 – 'Do Something' Traffic Impact

Assessment Year	Junction 3		Junction 4		Junction 5		Junction 10	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
2020	0.71	0.67	0.38	0.49	0.29	0.60	0.52	0.48
2025	0.77	0.67	0.38	0.49	0.29	0.60	0.52	0.48
2035	0.86	0.81	0.54	0.66	0.38	0.73	0.56	0.54

* Results are RFC

In overall terms, the quality of the impact in terms of traffic and transportation are likely to be a neutral or negative impact. Once in operation the proposed development is predicted to establish permanent travel patterns onto the surrounding local road network by virtue of its predicted traffic generation. These travel patterns would be considered to be reflective of the existing traffic characteristics of the local road network in Blackrock and Dundalk. The predicted impact at key junction locations as presented in the above table are predicted to have a slight to moderate negative effect in both the AM and PM peaks but would remain consistent with baseline trends.

The main junction impacted upon by the proposed development is Junction 3, the Hoey's Lane / N52 Roundabout Junction. The above results indicate that this junction is operating slightly over its the theoretical capacity threshold of 0.85 during the 2035 assessment year. However, when compared to the '*Do Nothing'* scenario in the same assessment year it can be seen that the impact due to the proposed development is negligible, rising from 0.84 to 0.86 RFC. Notwithstanding, consideration of all the modelled data indicates a maximum queue length of less than 6 PCU and a delay of less than 21 seconds per vehicle. These results indicate that the junction is operating within acceptable limits in terms of Level of Service.

8.9. Development Access – Sensitivity Analysis

In order to ensure that the proposed development access junction is appropriately designed to accommodate the potential future development of adjacent residential zoned lands to the east and south, a sensitivity analysis has been undertaken.

In order to take account of the surrounding zoned residential lands and their potential development a number of assumptions were made as follows:

- A density of 35 dwellings per hectare has been applied. This is considered to be an appropriate assumption in comparison to the proposed development and allows for a robust assessment to be undertaken.
- The resultant number of dwellings were then split in a similar ratio of houses to apartments as that of the proposed development.
- The dwellings (associated with the adjacent residential zoned lands) were then added to the proposed development to generate a total development (proposed development + adjacent zoned lands) consisting of 832 dwellings.

Trip rates are the same as those estimated for the proposed development. Table 8.8 below details the vehicle traffic generation estimated for the total lands during 08:00-09:00 AM and 17:00-18:00 PM peak hours.

Table 8.8 – 'Proposed Development + Adjacent Zoned Lands – Traffic Generation

	Period	**Units**	**Arrival**	**Departure**	**Two-way**
Trip Rate	AM	2597 Beds	0.032	0.137	0.168

Beds	PM		0.124	0.053	0.177
Trip Rate Creche	AM	677 sq. m	3.699	2.354	6.053
	PM		1.873	2.787	4.660
Traffic Generation	AM	Total Development and Adjacent Lands	104	367	472
	PM		332	154	486

* Results are RFC

The trip distribution of vehicles originating and terminating at the adjacent zoned lands has been taken as the same as that of the proposed Site outlined in Section 8.6.2. As such, the distribution percentages for each entry and exit point to this local road network has been calculated from the available traffic turning proportions form the January 2018 traffic surveys. These percentages are presented in Table 8.4 previously.

The proposed development access junction has been analysed during the 2020 Opening Year, 2025 Opening Year + 5 and 2035 Opening Year + 15 scenarios using the PICADY module contained within the TRL junction modelling software programme Junctions.

The results of the junction assessment are detailed in the table below.

Table 8.9 – 'Proposed Development + Adjacent Zoned Lands – Junction Assessment Results

Assessment Year	Junction 3	
	AM	**PM**
2020	0.83	0.78
2025	0.83	0.78
2035	0.90	0.89

* Results are RFC

The above results show that with the introduction of traffic generation from the proposed development, potential future development lands and the associated traffic growth of the R172, the proposed new access junction will operate near capacity during the 2020 Opening Year and 2025 Opening Year +5 with an RFC of 0.83 during the AM peak. During the PM period the junction is operating with an RFC of 0.78. With reference to the full modelling result, queuing on either arm is minimal during the AM and PM peaks, however the delay on the minor road arm for traffic exiting the development in the morning peak is at 46 seconds, which is somewhat above the expected levels of acceptability. It is worth noting that this delay would not impact on the R172 and would be contained within the proposed development. Delays during the PM are of an acceptable level.

During the final design year 2035 the junction is operating just above capacity with an RFC of 0.90, again occurring on the minor road arm during the AM period. During the PM period the major road arm is also operating above capacity with an RFC of 0.89. Again, with reference to the full modelling result, queueing on the major road for traffic entering the development has more than doubled to 12 PCU's in the PM peak which may impact on the straight-ahead traffic on the R172. All other queuing is at an acceptable level. Maximum delays at the junction have also risen from opening year to 70.20 seconds during the AM peak on the minor road arm. This is considered to be above what would be deemed tolerable.

Based on the junction assessment carried out it can be concluded that a priority junction will provide an adequate means of access and egress to the proposed development. Based on the supplementary sensitivity analysis undertaken, in order to facilitate the future full development of the adjacent lands to the proposed development, it is considered that the proposed priority-controlled development access junction is designed and constructed so as to easily and efficiently allow for future potential upgrading to a signal-controlled junction.

8.10. Cumulative Impacts

As outlined previously within this Chapter there are no impending permitted transport schemes proposed for the Blackrock and south eastern Dundalk area.

It is considered that other developments that may be currently under construction or other potentially committed development in the vicinity of the proposed Site are likely to have similar traffic and transportation impacts during the construction phase.

A desktop study of the Louth County Council Planning Applications search tool 'ePlan' was undertaken in the vicinity of the proposed development Site to assess any cumulative impacts from granted or committed applications. Planning applications found that may have a cumulative impact to traffic or to the proposed development are as follows:

- **Reg.Ref.18817**: Mullagharlin and Haynestown townlands Dundalk Co Louth. The application seeks amendments to the permitted development (LCC Reg. Ref. 08/822), which has been extended in duration under Reg. Ref.18/187) and relate to the medium to large scale biopharmaceutical manufacturing facility, referred to as Site 2 in the planning permission. The area of the overall Site subject to amendments in this application is c.20.74 hectares. The overall GFA of buildings on Site 2 is proposed to reduce from 57,700m2 to 54,232m2. See Site Notice for Comprehensive Description of Amendments. Permission granted with conditions.
- **ABP-303253-18**: Old Golf Links Road & Tuite's Lane, Blackrock, Dundalk, Co. Louth SHD: Pre-Application request comprising, Residential development of 166 no. 2/3/4-bedroom units comprising 67 no. apartments within 12 no. 2/3-storey blocks, and 99 no. 2-storey houses comprising two to four bed, semi-detached / detached / terraced houses. Provision of a crèche (c.250 sq.m), bike and bin stores. 294 no. car parking spaces. Provision of open spaces and completion of street network and link roads. Main access to Old Golf Links Road vis existing estate road within adjoining Cois Farraige estate. Separate access provided to serve 4 houses. Additional pedestrian/cyclist access via. Tuite's Lane and extension of public footpath along Old Golf Links Road. All associated Site development works, landscaping, boundary treatments and services provision. Grant of Permission, subject to conditions.
- **Reg.Ref.18231**: EXTENSION OF DURATION: Parent ref: 16/61 - Permission for development to vary previously permitted developments as granted under P.A Ref. No. 04/1451 (the appropriate period of which was extended under P.A. Ref. 12/75) and as varied under P.A. Ref. No. 14/534 and P.A. Ref. No. 15/212. The development will consist of the change in house type to comprise 50 no. 2 storey houses and 6 no. apartments in a 2-storey building, reducing the overall number of permitted dwellings on the Site from 212 to 198. In addition, 2 no. single storey assisted living units are proposed. The proposal also includes revisions to the internal road layout, open space areas and all associated Site development works including modifications to general infrastructure, foul drainage and surface water drainage. Permission Granted with Conditions.
- **Reg.Ref.17784**: Blackrock Cove, Golf Links Road, Haggardstown, Blackrock, Co. Louth. Permission for development to vary previously permitted development granted under P.A. Ref No. 08/650 as extended under P.A. Ref 13/379 and as varied under P.A. Ref. No.'s 14/450 (PL.15.244462) and P.A. Ref. No. 15/658. The development will consist of the replacement of 18 no. permitted 2 storeys detached and semi-detached dwellings with 26 no. 2 storey semi-detached bringing the overall numbers of dwellings on the Site to 137, and the omission of the permitted crèche. Permission Granted with Conditions.
- **Reg.Ref.17440**: Permission for development to consist of a mixed-use development consisting of: a) extensions and alterations to the Hotel Building and b) the construction of 48 no. dwellings towards the southern part of the Site. The proposed extensions and alterations to the hotel consist of the addition of a new 3 storey block to the north accommodating a new reception/foyer/bar/restaurant at ground floor level, with bedrooms located on the upper floors and the provision of a new 3 storey bedroom wing to the south of the existing 3 storey bedroom block to provide a hotel with 102 no. bedrooms overall. The proposed extensions and alterations to the hotel will also provide for upgrade and reconfiguration works to the existing 3 storey bedroom block that includes enclosing balconies to existing bedrooms at 2nd floor level in the front west elevation as well as a new external facade and internal reconfiguration including partial demolition of some internal/external walls. The proposed extensions and alterations also provide for a covered pedestrian walkway along the northern elevation leading from a proposed car parking area (to the east) to a new 'side' entrance located in the northern elevation of the hotel. In addition, new internal and external service facilities are proposed along with new signage. The proposed new signage consists of facade signage as well as totem signage at Site entrance. The proposed residential element of the development comprises 40 no. houses and 8 no. apartments. The proposed houses are in detached and semi-detached format and range in height from 2-3 storeys. The apartments are accommodated in 2 no. 2 storey buildings, all with own door access. The proposed development will also provide for all associated Site development works including car parking, alterations to ground levels, open space, landscaping and boundary treatments

(including the construction of a section of retaining wall along the south-western boundary of the Site), public lighting and services. Vehicular access to the proposed development (hotel and residential) will be provided via. the existing permitted and established access to the Fairways Hotel Site off the Dublin Road (R132). Permission Granted with Conditions.

- **Reg.Ref.1597**: Extension of Duration ref 08/1309. Permission for the construction of a residential development consisting of 257 no. dwellings (in lieu of 285 no. previously approved dwellings in sector 1 of approved development 03/1754) consisting of 61 no. 2 bedroom, two storey dwellings (Type A), 100 no. 3 bedroom, two storey dwellings (Type B), 62 no. 3 bedroom, two storey dwellings (Type C), 34 no. 4 bedroom, 2 storey dwellings (Type E with optional 4 bedroom, 2 storey dwelling without ground floor extension, house type D) all contained in 56 no. semi-detached blocks (8 no. type BB, 31 no. type CC, 17 no. type EE (Optional 17 no. type DD), 6 no. 3 unit terraced blocks (Type BAB), 26 no. 4 unit terraced blocks (Type BAAB), 1 no. 3 unit terraced block (Type AAA) and 5 no. 4 unit terraced blocks (Type BBBB) and all associated Site development works including outfall foul and surface water sewers, landscaping, boundary treatments, open spaces and car parking with relocated vehicular access point provided from new distributor road currently under construction under Reg. Ref. 03/1754 (relocated circa. 1.m north of previously approved location). The total area of lands the subject of this application is circa 8.11Ha. (20.04Ac). Permission Granted with Conditions.
- **Reg.Ref.15296**: Extension of Duration ref. 09813. Permission for 138 *(reduced to 126)* residential units comprising of: 18no. 2 bedroom 2 storey mid terrace dwelling house, 10no. 2 bedroom 2 storey end of terrace dwelling houses, 6no. 3 bedroom 2 storey end of terrace dwelling houses, 2no. 3 bedroom 2 storey detached dwelling houses, 34no. 3 bedroom 2 storey semi-detached dwelling houses, 56no. 4 bedroom 2 storey semi-detached dwelling houses, 12 no. apartments in two no. 2.5 storey blocks each block comprising of 4no. 2 bedroom apartments, 2no. 1 bedroom apartments, 1 no. crèche 262m² with car parking, private open space & associated Site development works. Permission Granted with Conditions.
- **Reg.Ref.1443**: Old Golf Links Road, Blackrock, Co. Louth. Extension of Duration of Planning Permission Ref. No. 08/886 which consists of Permission for the removal of 36 no. apartments in 3 no. blocks previously granted Planning Permission under Reg. Ref. 05/1518, and replacement with 16 no. houses comprising 12 no. 4 bedroom 2 storey semi-detached dwellings and 4 no. 3 bedroom 2 storey terraced houses. Permission is also sought for the relocation of the crèche also granted Planning under the above Permission. Significant Further Information: replacement of 2 no. 4 bedroom houses with 3 no. 2 bedroom houses - total 17 houses. Extension of Duration, Permission Granted with Conditions.

It has been noted that these applications given above will have no impact on the proposed development due to their location and as such will have no impact on the immediate junctions and R172 surrounding the site.

8.11. Mitigation Measures

The following mitigation measure shall apply:

- All construction activities will be managed and directed by a Construction Traffic Management Plan (CTMP). The details of the CTMP will be agreed with the roads department of the Local Authority in advance of construction activities commencing on-Site.

8.12. Residual Impacts

In the short term there will be a slight negative impact due to construction traffic. This will be mitigated by the introduction of a construction traffic management plan.

During the operation of the proposed development there will be a long term, slight to moderate negative impact due to increased traffic flows. This will be mitigated by travel planning measures.

Similarly, during the operation of the proposed development there will be a long term, imperceptible positive impact due to improved access to local and regional bus service. This will positively impact the proposed development and reduce the dependency on car travel.

Additionally, during operation there will be an increase in pedestrian and cyclist movements, this will have a long term, imperceptible positive impact. This will positively impact the proposed development and reduce the dependency on car travel.