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15 Traffic & Transport

15.1 Introduction

This chapter describes the scope of works and methods applied in the identification and assessment of the potential effects of the construction and operation of the Ballyhale Flood Relief Scheme with the regard to Traffic and Transport.

The assessment techniques used are aimed at identifying the likely significant impacts, proposing suitable mitigation measures if required and identify the residual impacts.

The material assets considered in this traffic section include pedestrian, bicycle, public transport (bus) infrastructure and associated services in addition to the local road network and associated junction nodes.

This chapter was prepared by DBFL Consulting Engineers - Mark Kelly BAI(Hons), MSc, MA, PGDipPM, CEng and Elena Cuenca BEng, MEng.

Mark is a Chartered Traffic & Transportation Engineer with over 9 years' experience in Traffic Engineering and Transport Planning, with a degree in Civil, Structural and Environmental Engineering from Trinity College Dublin, a Master of Science in Transportation and Highways from Trinity College Dublin, a Master of Arts in Mathematics from Trinity College Dublin and a Post Graduate Diploma in Project Management from Trinity College Dublin.

Elena is a Graduate Transportation Engineer with over 2 years' experience in Traffic Engineering and Transport Planning, with a degree in Civil Engineering focused in Urban Services and Transportation from Seville University and a Master in Civil Engineering from Madrid Polytechnical University.

Roads and Traffic is included in the Material assets chapter in the EPA Guidelines as Information to be contained in Environmental Impact Assessment Reports (EPA, 2022):

'In Directive 2011/92/EU this factor included architectural and archaeological heritage. Directive 2014/52/EU includes those heritage aspects as components of cultural heritage. Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils.'

15.2 Assessment Methodology

The purpose of this assessment is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated with the proposed scheme. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include:

- ‘Guidelines on the information to be contained in Environmental Impact Assessment Reports’ (EPA 2022);
- ‘Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment’ (Department of Housing, Planning & Local Government, 2018);
- ‘Guidance on the preparation of the Environmental Impact Assessment Report’ (European Commission, 2017);
- ‘Guidelines on the information to be contained in Environmental Impact Statements’ (EPA, 2002);
- ‘Draft Advice Notes for Preparing Environmental Impact Statements’ (EPA, 2015);
- ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ (EPA, 2022);
- Transport Infrastructure Ireland’s (TII’s) ‘Traffic & Transport Assessment Guidelines’ (2014);
- ‘Guidelines for the Environmental Assessment of Road Traffic’ (Institute of Environmental Management & Assessment, 2003);
- ‘Kilkenny City and County Development Plan 2021-2027’
- ‘Kilkenny County Development Plan 2014 – 2020’,

The assessment of effects of the proposed development on material assets are assessed in terms of quality (positive, neutral or negative effects), significance (imperceptible, not significant, slight, moderate, significant, very significant or profound effects), extent, context, probability (likely, unlikely effects) and duration (temporary, short term, long term or permanent effects) in line with the criteria set out in Table 3.4 ‘Description of Effects’ of the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, May 2022).

15.3 Baseline Environment

15.3.1 Site Location

The Flood Relief Scheme consists of a range of interventions along the watercourse reach in Ballyhale, a village located in the south of County Kilkenny, within approximately 25 km south of Kilkenny City, halfway between Kilkenny and Waterford city, see Figure 15-1 below.

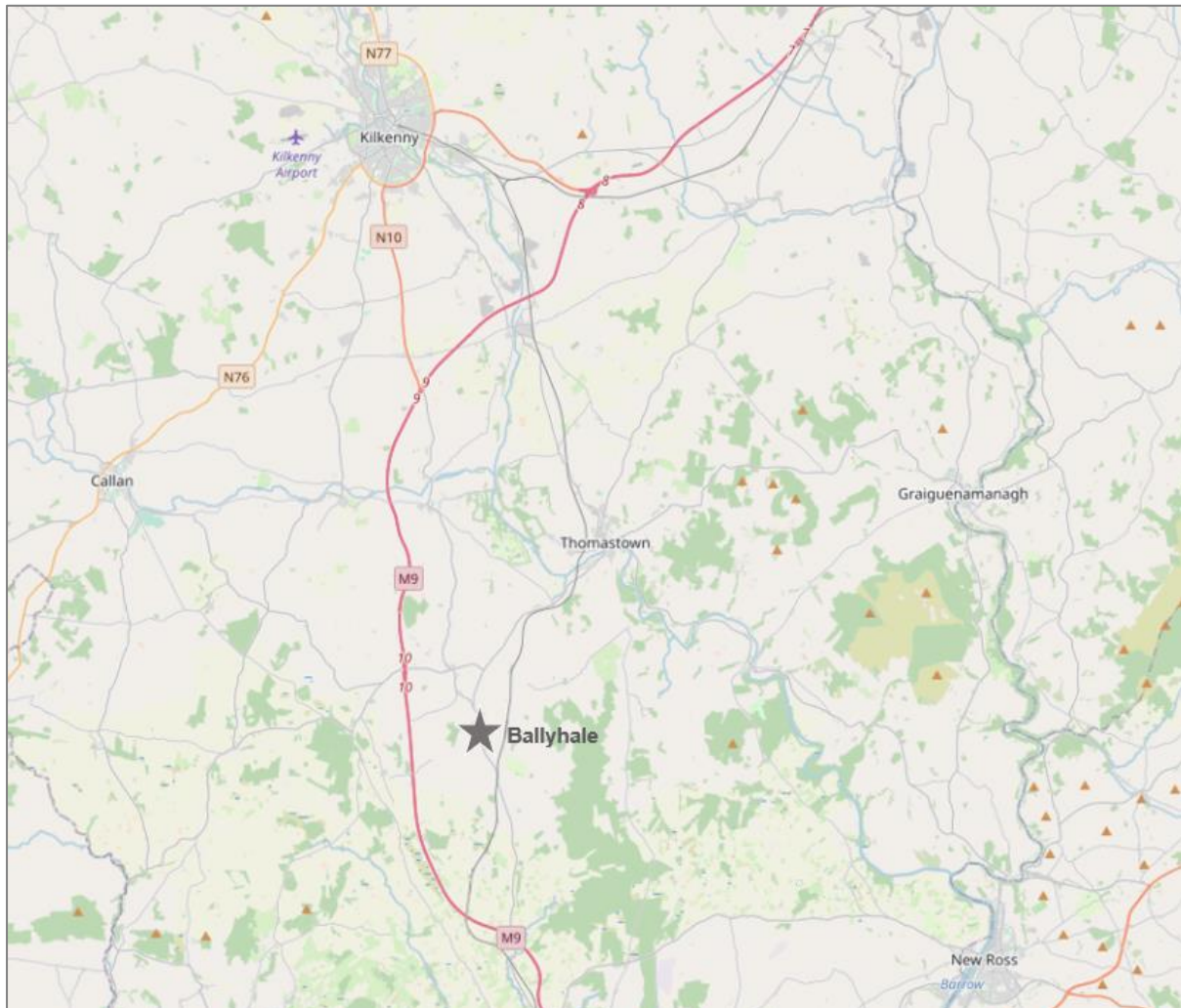


Figure 15-1 - Site Location

According to 2016 Census, the population of Ballyhale was 174 inhabitants. The area of Ballyhale is 172,935 m². Figure 15-2 illustrates the indicative Ballyhale boundary.



Figure 15-2 - Site Location

The layout of the proposed Flood Relief Scheme, as detailed in the Preliminary Construction Management Plan, is illustrated in Figure 15-3 below.

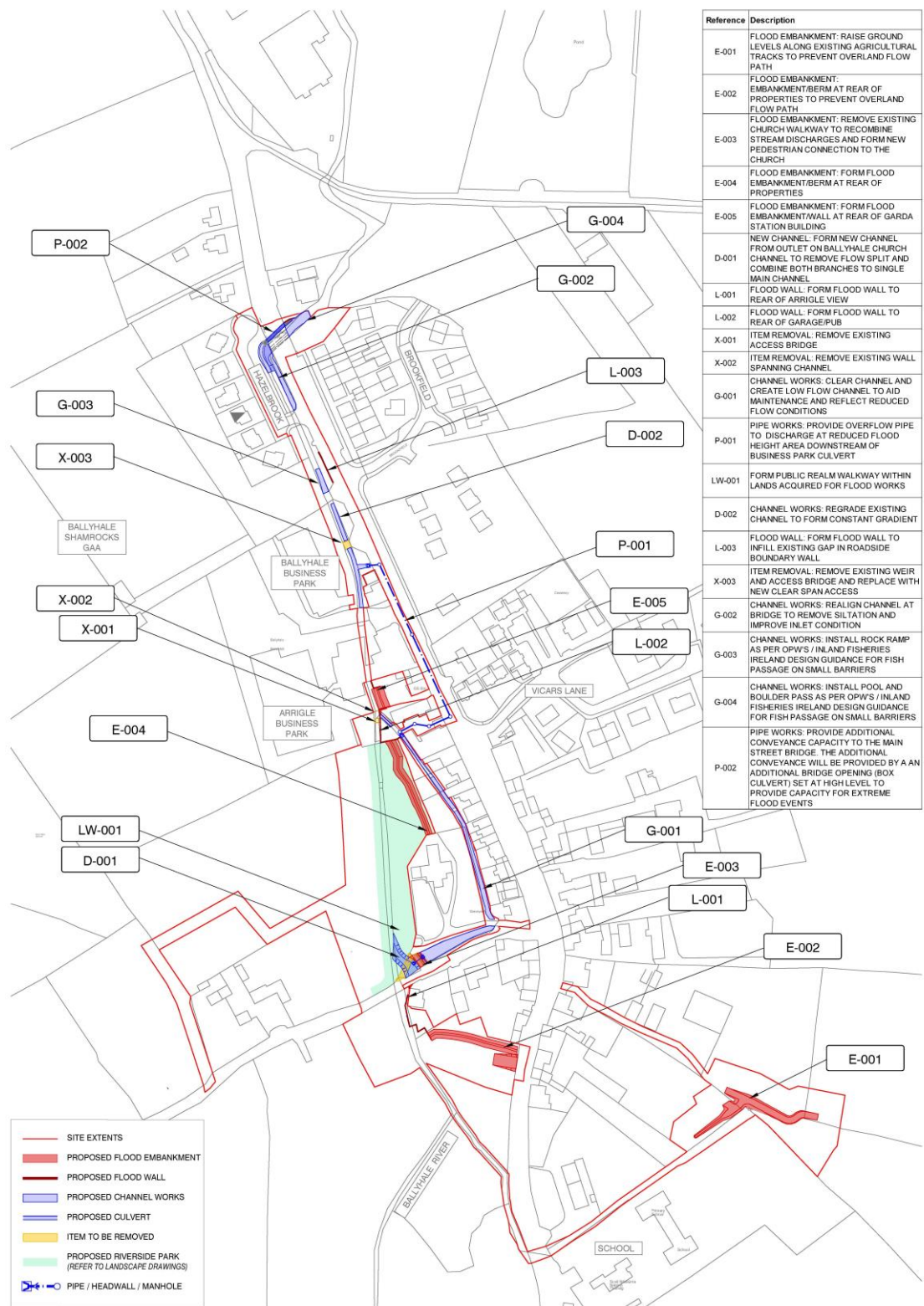


Figure 15-3 - Schematic Works Layout

15.3.2 Road Network

Ballyhale and its surrounding hinterland has a very accessible road network through the regional road R448. Ballyhale is predominantly orientated through a North-South axis as a result of its development along the R448.

The R448 was the former N9 national primary road from Naas (County Kildare) to Waterford, which was then designation a regional road (R448) when it was bypassed by the M9 motorway, which greatly reduced traffic through Ballyhale.

However, Ballyhale is still primarily connected by large roads, creating a highly car dominated environment with poor cycle and pedestrian facilities including narrow and sporadic footpaths.

The sections of the R448, that is Ballyhale's main road and thoroughfare through the village are Hazelbrook Drive and Main Street. Due to the fact that the main road is a regional road (R448) and was previously a national primary road (N9), the street is heavily car dominated, having relatively wide road space with on-street parking and narrow footpaths. The speed limit on this stretch of the R448 is 50kph. Public lighting is provided on both sides of the road.

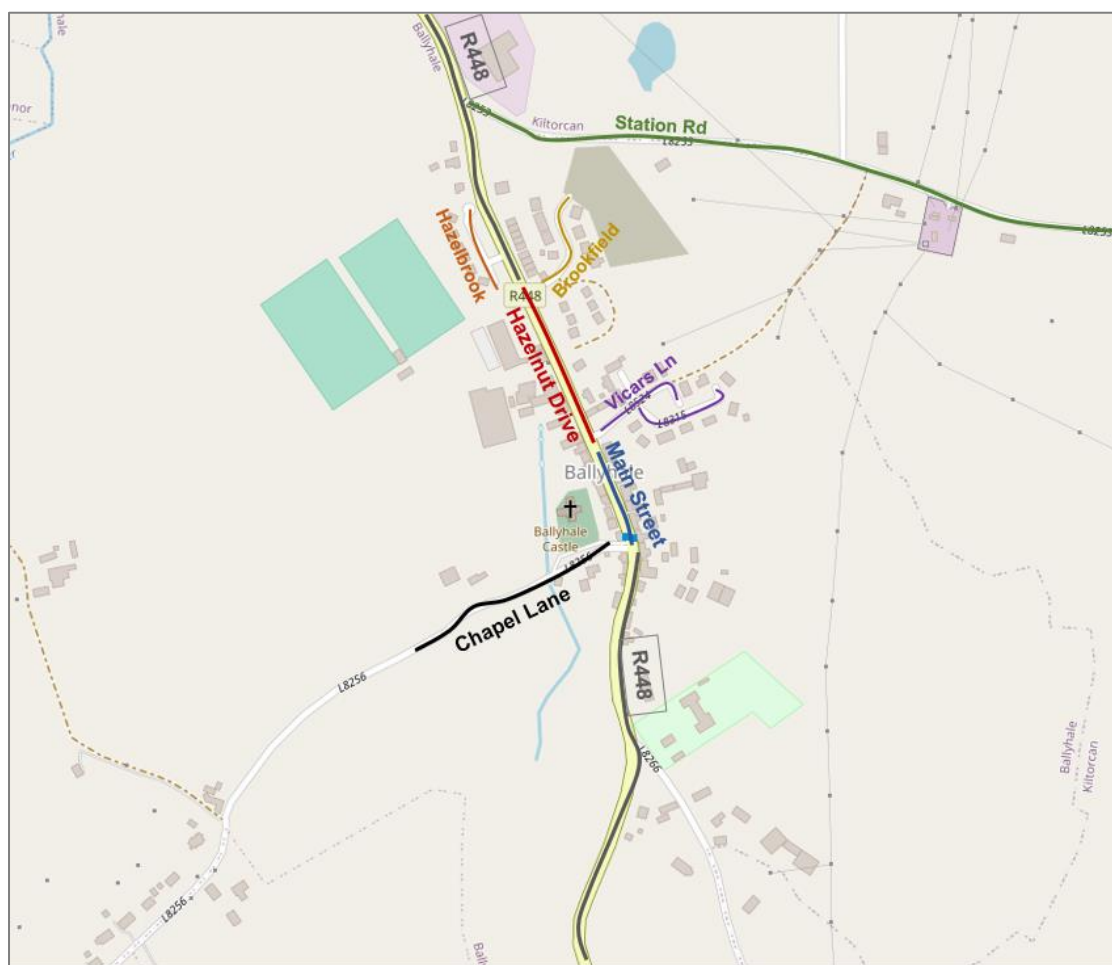


Figure 15-4 - Existing Road Network in Ballyhale

15.3.3 Existing Pedestrian Facilities

The Main Street along the R448 has dedicated pedestrian footways on both sides of the carriageway, that are both narrow and not continuous (see Figure 15-5). Along the R448 through Ballyhale, there is only one signalised pedestrian crossing provided, which is within close proximity to the north and southbound bus stops (see Figure 15-6).



Figure 15-5 - Existing Pedestrian Facilities along R448



Figure 15-6 - Signalized Pedestrian Crossing in R448

15.3.4 Existing Cycling Facilities

There are no dedicated cycling facilities in Ballyhale. Along the R448 and surrounding road network, cyclists must share the space with vehicular traffic. Dedicated cycle lanes are not provided.

15.3.5 Public Transport – Bus

Ballyhale is served by three bus routes, having direct connection to Waterford, Athlone, Thomastown and Dublin Airport. A summary of all bus routes and their frequencies for a typical week can be found in Table 15-1 below.

Bus route	Operator	Bus route description	Mon-Fri	Sat	Sun
73	Bus Eireann	Waterford to Athlone	2	2	1
73	Bus Eireann	Athlone to Waterford	2	2	1
4	Expressway	Waterford to Dublin Airport	7	7	7
4	Expressway	Dublin Airport to Waterford	9	9	9
365	Bus Eireann	Waterford to Thomastown	2*	-	-
365	Bus Eireann	Thomastown to Waterford	2*	-	-

*Only Thursdays

Table 15-1 - Bus Service Frequency

There are two bus stops within Ballyhale, both located along the R448, catering for both north and southbound direction of travel (see Figure 15-7).

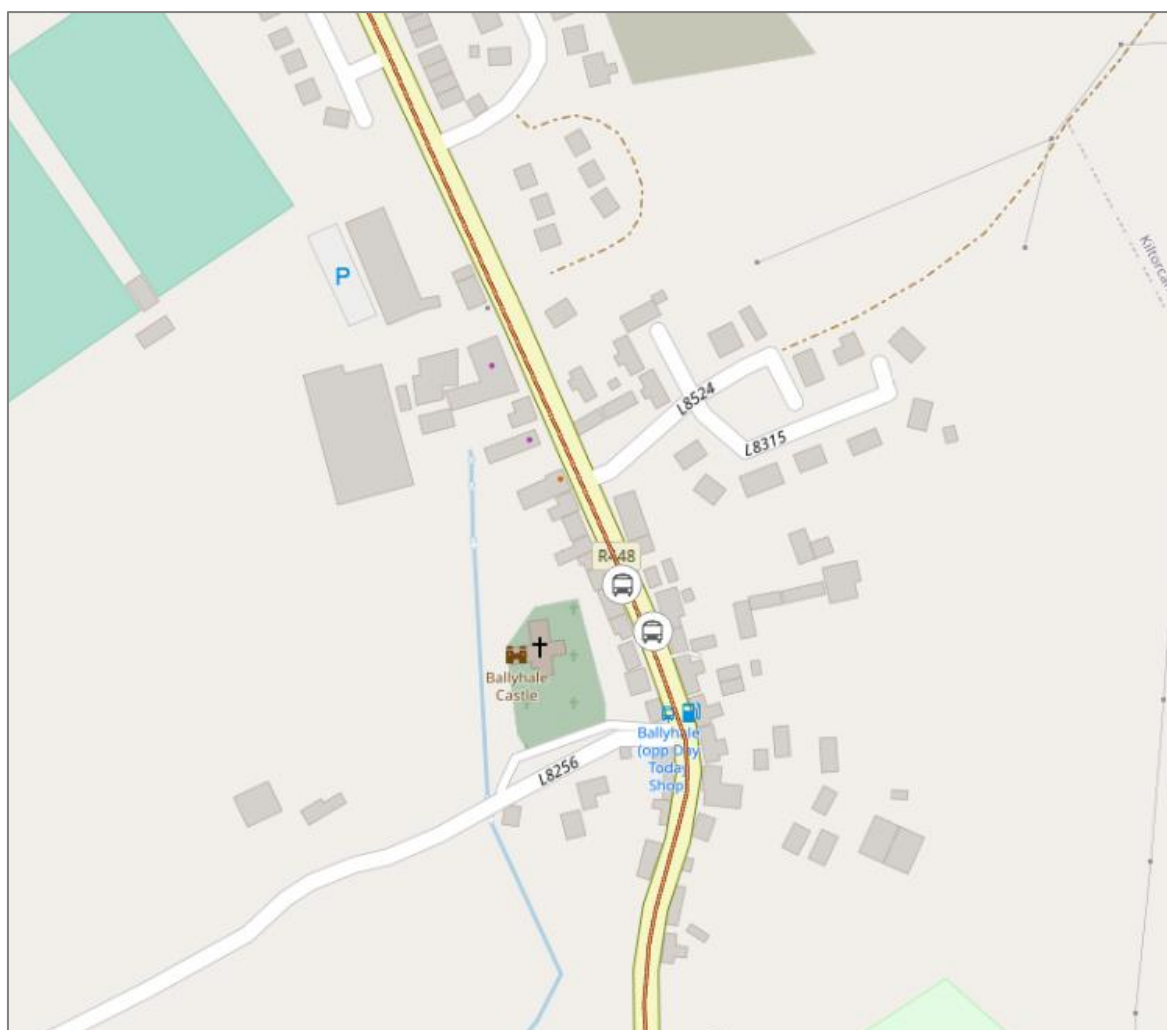


Figure 15-7 - Bus stops in Ballyhale

15.3.6 Local Amenities

Ballyhale is served with several amenities, as shown in Figure 15-8 below.



Figure 15-8 - Local Amenities in Ballyhale

There are two schools and a creche/Montessori in Ballyhale. Scoil Phádraig, a mixed primary school located in the southern part of Ballyhale on the R448 road towards Waterford. Scoil Aireagail, a mixed secondary school, located in the north. Montessori School and creche, located in Main Street (R448).

Regarding sport facilities, Ballyhale Shamrocks GAA is the local Gaelic football club.

15.3.7 Mobility patterns

According to the 2016 Census, 98 commuter trips (by all modes) are generated daily in Ballyhale. 73 of them are work trips and 25 school/college trips. Figure 15-9 illustrates the modal split for commuter travel.

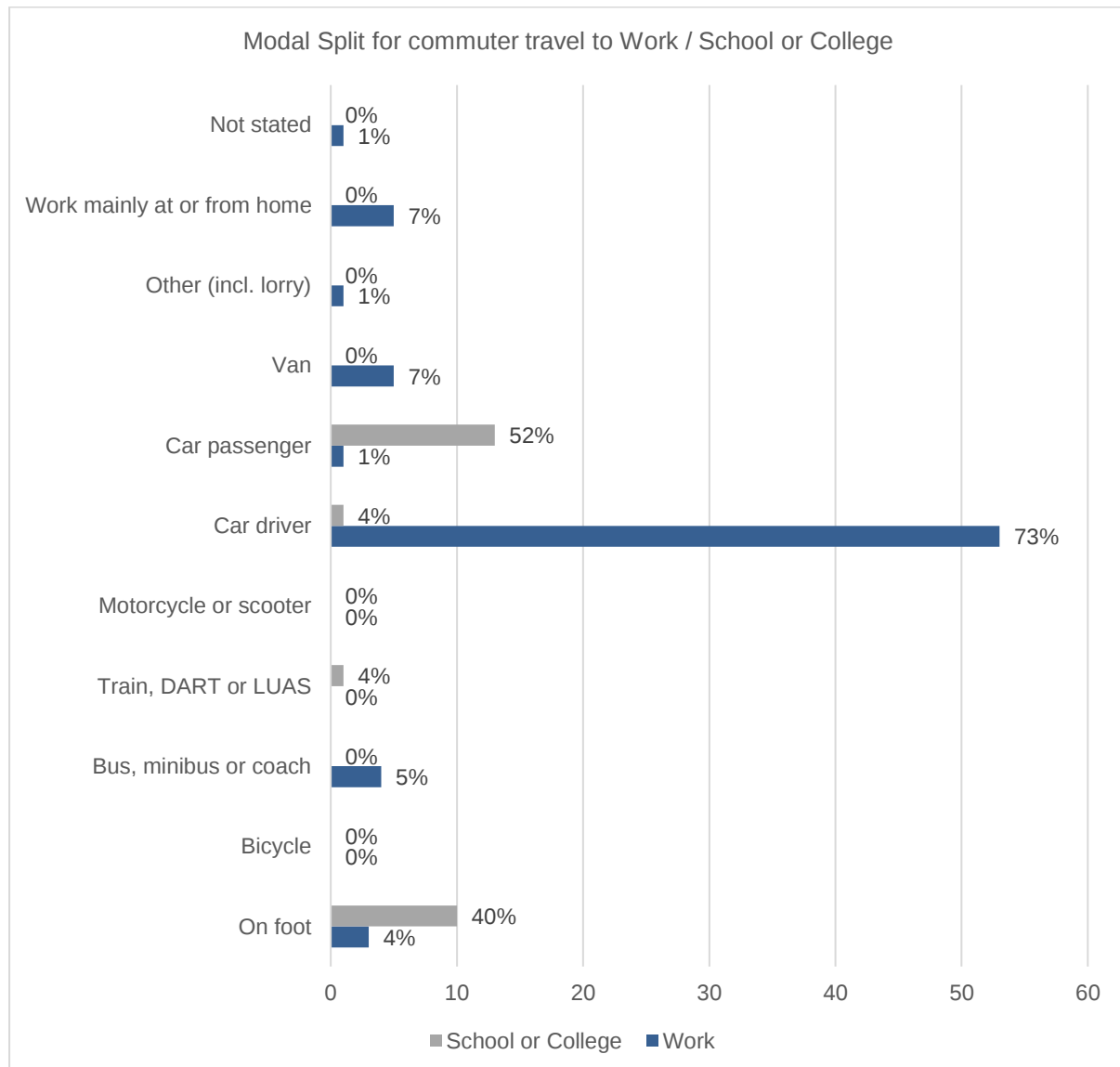


Figure 15-9 - Modal Split for commuter travel to Work / School or College

The most popular means of commuting to work is by car, accounting for 73% of all work trips. Commuting by bus has a low rate, with 5% of all work trips.

Regarding the school/college trips registered, the most popular means is as a car passenger, accounting for 52% of the trips. Followed by foot trips with 40%.

General modal split for Ballyhale reflects a strong emphasis on car use, that accounts for 69% of all commuter trips (55% drivers, 14% passengers). Public transport makes up 5% and on foot up to 13% of the total trips. This is depicted in Figure 15-10.

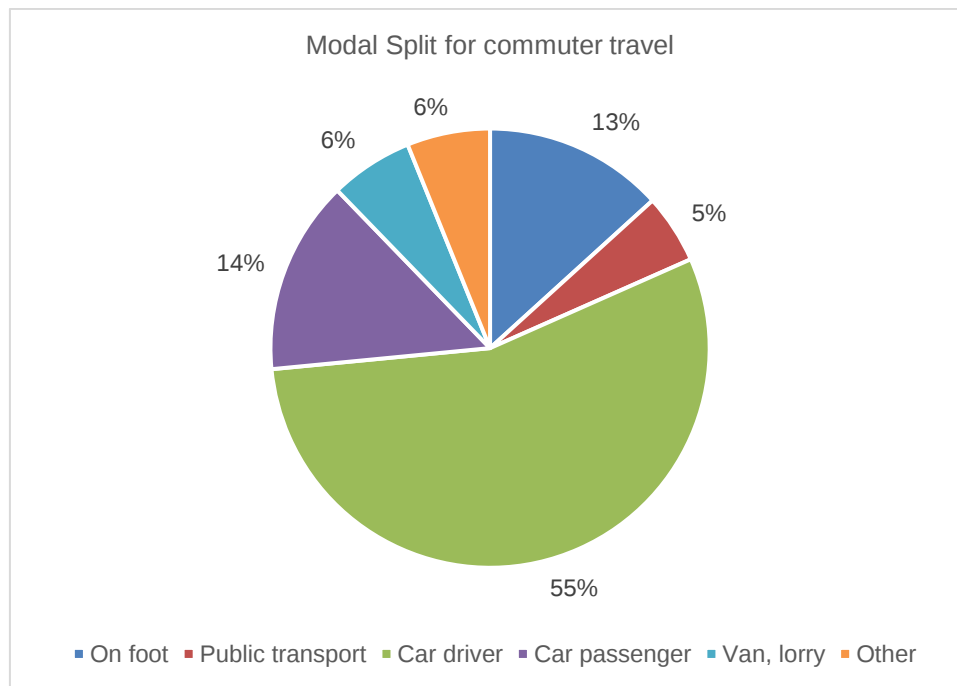


Figure 15-10 - Modal Split for commuter travel

Figure 15-11 sets out commuting times for all people over 5 years in Ballyhale. According to the 2016 Census, 71% of the workers/students in Ballyhale faces a commuting time of less than 30 minutes, while 40% less than 15mins.

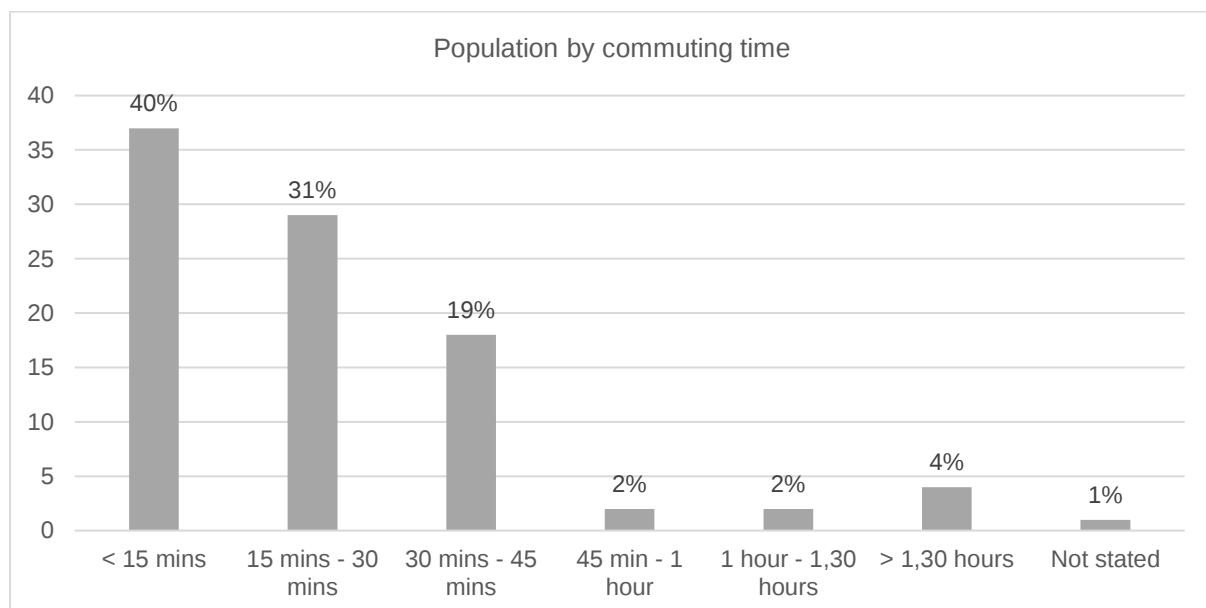


Figure 15-11 - Population by commuting time

Regarding the number of cars per household, 45% (34) of the households have just one car, followed by those having two cars (32%).

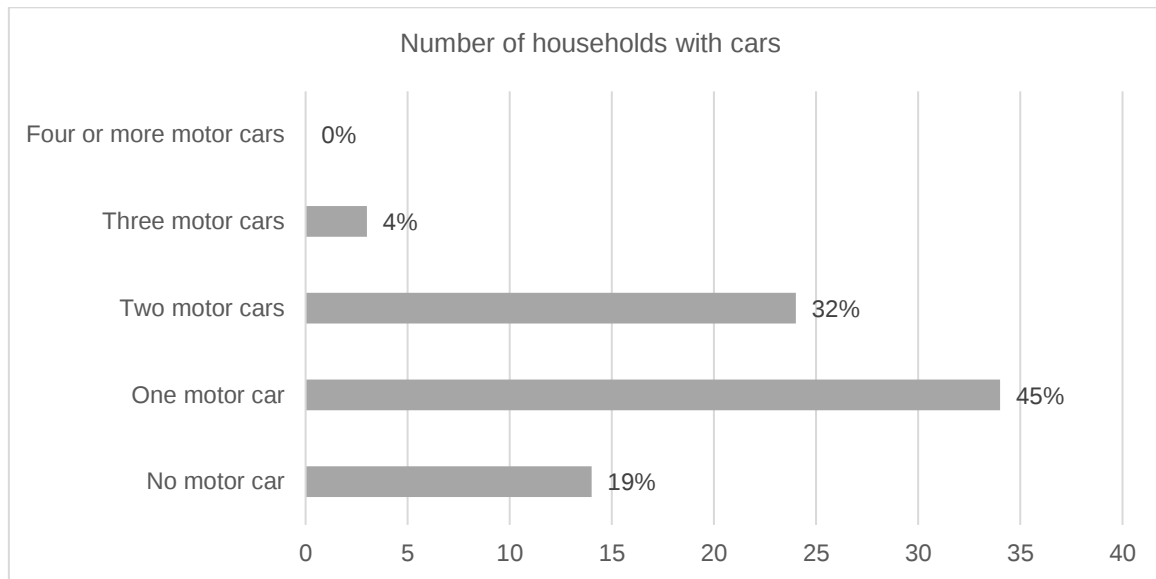


Figure 15-12 - Number of households with cars

15.3.8 Road Safety Review

With the objective of ascertaining the road safety record of the immediate routes leading to/from the subject site, the collision statistics as detailed on the Road Safety Authority's (RSA) website (www.rsa.ie) have been examined. The RSA website includes basic information relating to reported collisions over the most recent twelve-year period, from 2005 to 2016 inclusive.

The RSA database records details where collision events have been officially recorded such as when the Garda have been present to formally record details of the incident.

Figure 15-13 below shows the location and severity of all road traffic accidents recorded in the area in the period 2005-2016. As can be seen from the map, there was no collisions in the immediate vicinity of the subject site. In terms of those recorded along the R448, there were two serious accidents within 5km of Ballyhale, which both occurred in 2016.

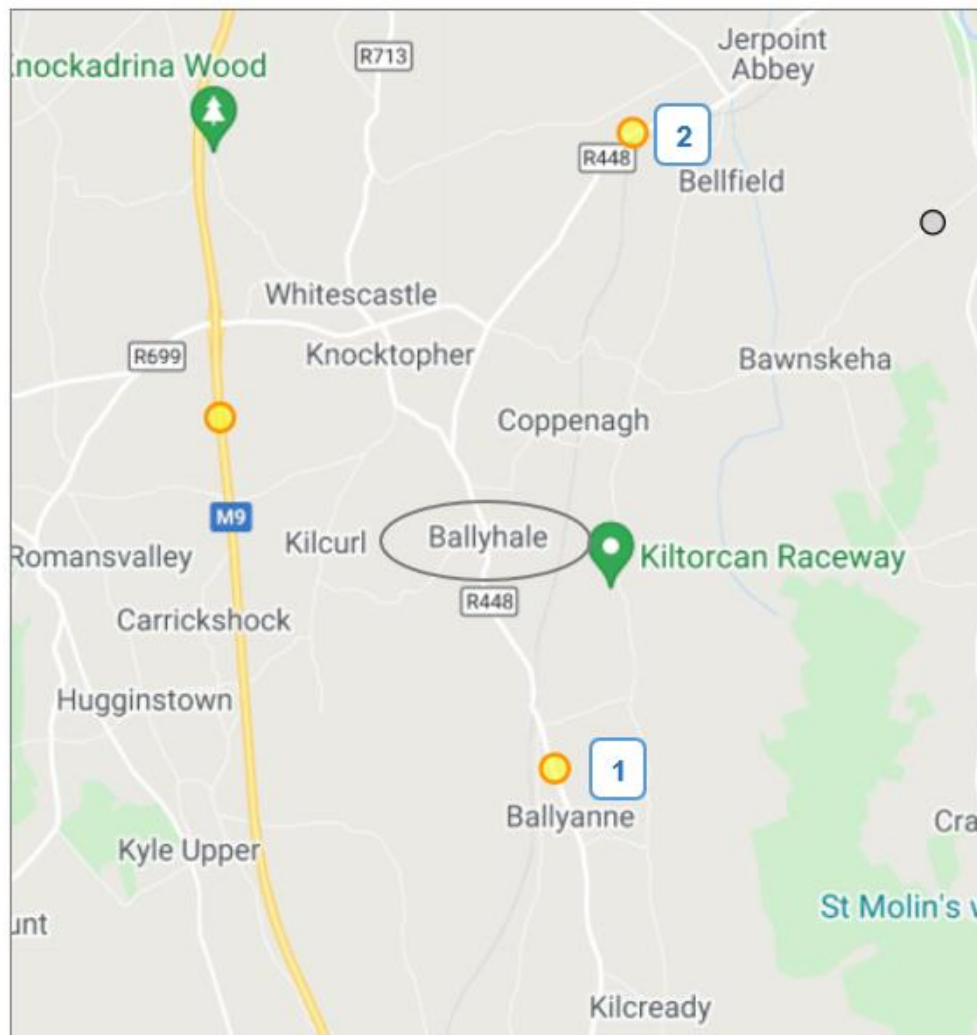


Figure 15-13 - Collision Records (Source: RSA)

Ref	Severity	Year	Vehicle	Circumstances	Day	Time	Casualty
1	Serious	2016	Bicycle	Other	Friday	19-23	1
2	Serious	2016	Car	Single vehicle only	Wednesday	07-10	1

Table 15-2. Collision Records (Source: RSA)

The review of the RSA data available reveals that there are no apparent trends in collisions which have occurred in the vicinity of the subject site during the most recent 12-year period (2005-2016).

15.3.9 Proposed Cycle Network

Kilkenny City and County Development Plan 2021-2027

In line with the National Cycle Policy Framework, future Kilkenny City and County Development Plan 2021-2027 will promote cycling and walking as efficient, fast and relatively inexpensive forms of transport. Policies of Compact Growth will re-focus the design and location of residential development so as to create an urban form which is more conducive to the provision of infrastructure for public transport, walking and cycling. Some of the cycling objectives considered in this plan that will have an effect in Ballyhale are:

- **Objective 12H** - To complete a Cycling Strategy for the County
- **Objective 12N** - To carry out an appraisal of each of the District Towns to determine measures to facilitate cycling and walking and improve connectivity within the town particularly from an age friendly perspective.

Draft CycleConnects – Ireland’s Cycle Network (2022)

CycleConnects is a proposed network of fully connected coherent and safe cycling routes in each county. This includes proposed cycle networks in towns with a population of at least 5,000 people (2016 Census) and fully connected networks in rural areas. The networks being consulted on include all counties outside of the Greater Dublin Area (ie. Dublin, Meath, Kildare and Wicklow).

At present, the plan does not prescribe any cycle infrastructure for the routes presented. This plan is being developed as part of the National Development Plan 2021-2030 and the Climate Action Plan 2021.

Cycle Connects is intended to form a comprehensive cycle network for all cycle user types across each county in Ireland.

The Draft Kilkenny Cycle Network include Interurban routes to connect primary towns with a population over 1000 and include, when possible, towns with lower population along the route.

Figure 15-14 below illustrates the proposed cycle network in Kilkenny, which include an interurban route going through Ballyhale, along the R448.

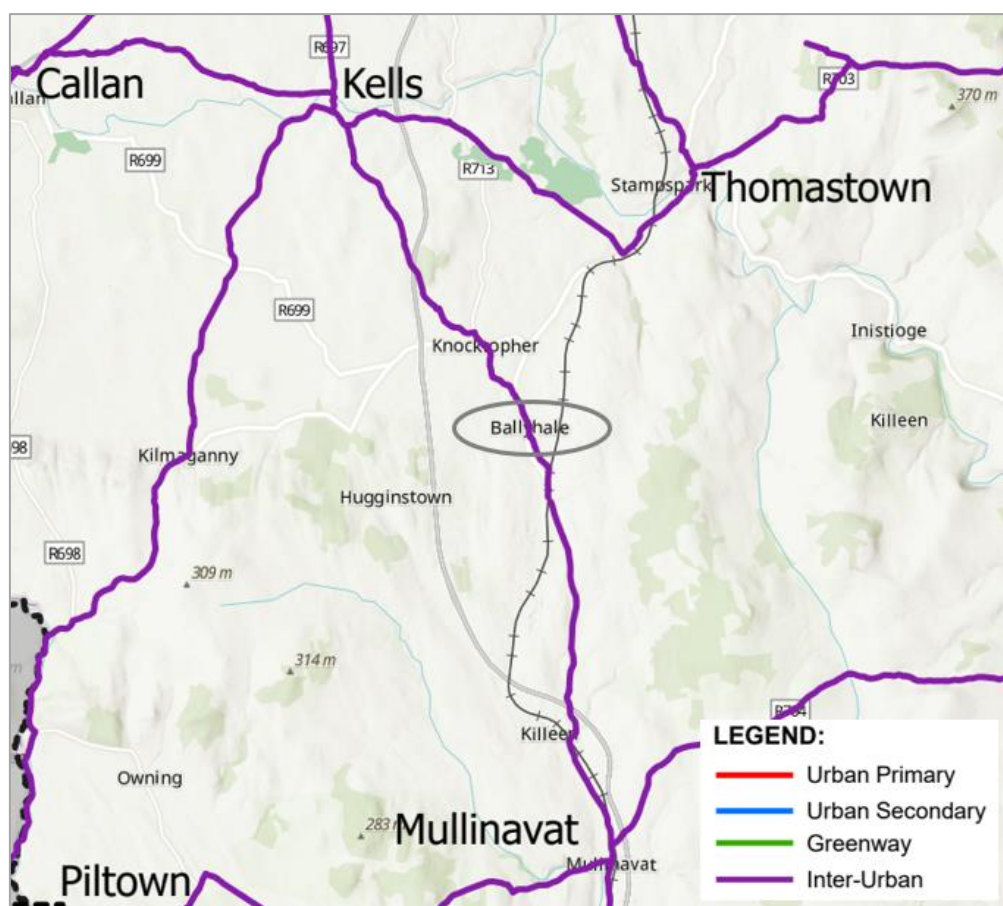


Figure 15-14 – Proposed Kilkenny Cycle Network (Source: Cycle Connects, NTA)

15.4 Predicted Impacts of the Proposed Development

15.4.1 Construction Phase

Management of Construction Activities

A Construction Management Plan (CEMP) has been produced and prior to any demolition, excavation or construction, the Contractor will take ownership of the PCEMP.

The Contractor will comply with the conditions of the EIAR and will produce a Construction Management Plan (CEMP) to detail how the project is to be executed in accordance with all project, statutory and environmental requirements.

The principal objective of the CMP is to ensure that the impacts of all building activities generated during the construction of the proposed development upon both the public (off-site) and internal (on-site) workers environments are fully considered and proactively managed / programmed respecting key stakeholders thereby ensuring that both the public's and construction workers safety is maintained at all times, disruptions minimised and undertaken

within a controlled hazard free / minimised environment. The impact of the construction period will be temporary in nature.

This chapter incorporates a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

Site Compound

A site compound is located to the north of the Kiltorcan Business Park. It is an area proximate to the works from which safe access to the surrounding road network can be provided. An indicative boundary for site compound is shown in Figure 15-15 below.



Construction Traffic

Proposed construction haul routes have been identified and agreed with the local authority. These are illustrated in Figure 15-16 below.

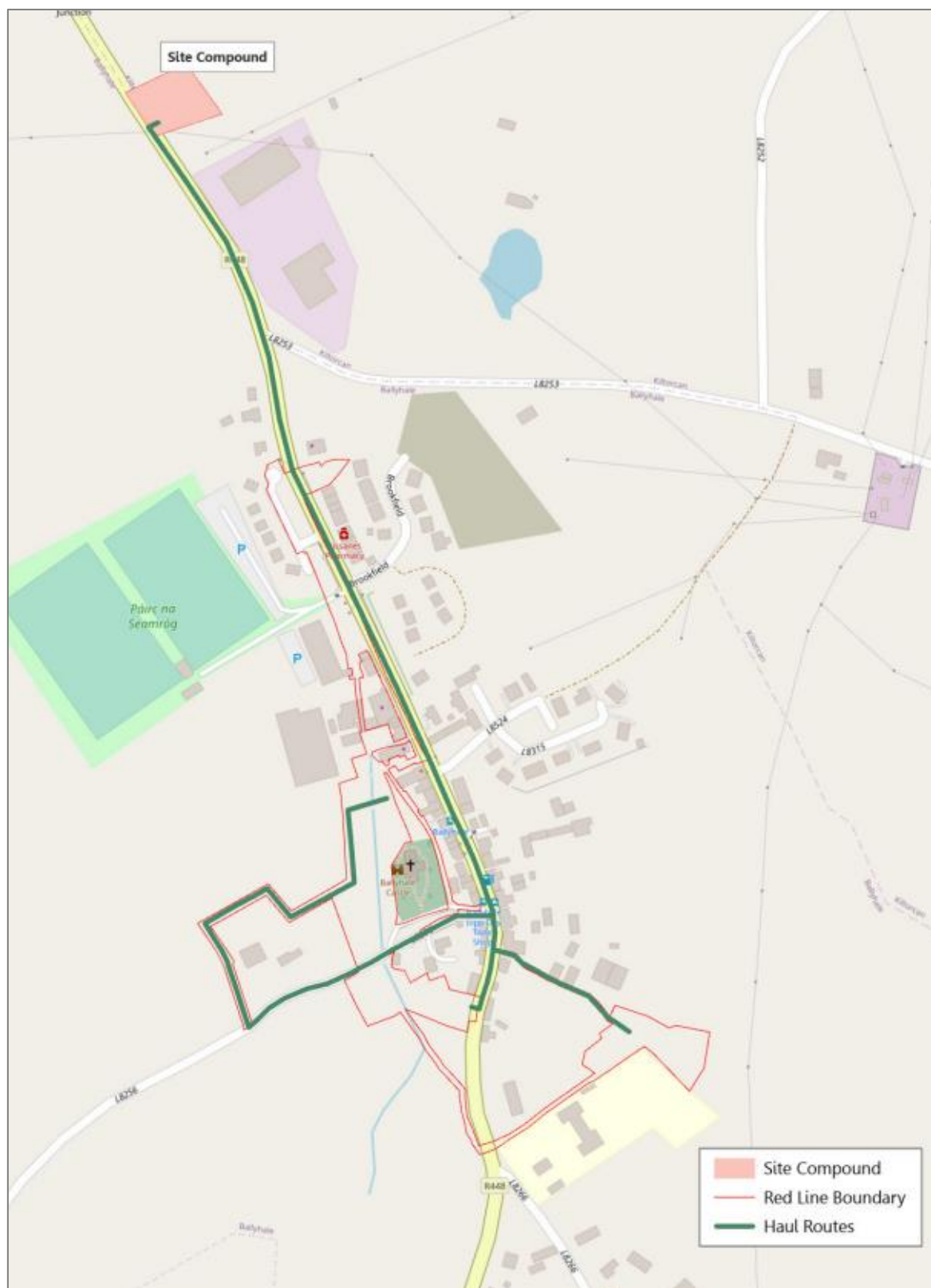


Figure 15-16 – Haul routes

Compulsory purchase orders (CPO) are required for the construction, operation and maintenance the proposed development. This includes the haul routes identified. The CPO schedule is further detailed in the EIAR *Chapter 14 - Material Assets for Land Impact Assessments*.

Construction traffic will only be generated on weekdays (07:00-17:00, subject to conditions of a planning permission) and will consist of the following two following categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Construction vehicles: Excavation plant, dumper trucks and delivery vehicles involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready-mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

On-site employees will generally arrive before 07:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 17:00. Deliveries will be actively controlled and subsequently arrive at a dispersed rate during the course of the working day.

A preliminary indication of material quantities associated with the proposed scheme is estimated in 1,800 m³ export and 2,100m³ import. It is noted that these volumes are based on preliminary design and will be further refined and optimized through a future detailed design process.

An appropriate control and routing strategy for HGVs will be implemented for the duration of site works. In relation to trip generation, it is not expected HGV vehicle movements to exceed 4 vehicles per hour during the busiest period of construction works based on the material quantities presented. It is not proposed to utilise any roads with weight/height restrictions as part of the routing of HGVs during the construction phase. HGVs will be directed to the site compound via the R448 and shall not be permitted to use local routes such as Chapel Lane except for essential deliveries on these routes.

Considering the site's proximity to the strategic road network and following the implementation of an appropriately detailed CTMP, it is concluded that construction traffic will not give rise to any significant traffic concerns or impede the operational performance of the local road network and its surrounding junctions.

The scheme shall be constructed in a manner to minimise disruption to road users, local residents and businesses. All construction works are to be undertaken in a clearly delineated site area which will have specific entry and exit points for construction traffic.

15.4.2 Operational Phase

Traffic volumes to and from the proposed scheme during the operational phase (i.e. maintenance vehicles) are expected to have negligible impact on the surrounding road network.

15.5 Mitigation Measures

15.5.1 Construction Phase

Construction of the proposed scheme will cause temporary short-term traffic impacts on the local road network. Enforcement of a range of integrated control measures and associated management initiatives, also included in the Construction Traffic Management Plan, will ensure that construction traffic impacts are minimised through the control of site access / egress routes and site access locations and any necessary temporary lane closure requirements.

The following initiatives will be implemented to avoid, minimise and/or mitigate against the anticipated construction period impacts:

- All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel.
- A dedicated 'construction' site access / egress junction will be provided during all construction phases.
- Adequate storage space on site to be provided.
- A regular programme of site tidying to be established to ensure a safe and orderly site.
- Use of precast / prefabricated materials where possible.
- A material storage zone will also be provided in the compound area. This storage zone will include material recycling areas and facilities.
- A series of 'way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.
- Consolidation of delivery loads to / from the site and management of large deliveries on site to occur outside of peak periods.
- Scheduling of movements to outside peak traffic times and school pick-up / drop-off times.
- Scheduling of deliveries to minimise number of HGV's at site during a single period.
- Mud spillages on roads and footpaths outside the site to be cleaned regularly and will not be allowed to accumulate.

- On completion of the works all construction materials, debris, temporary hardstands etc. from the site compound will be removed off site and the site compound area reinstated in full on completion of the works.
- Wheel-wash facilities will be provided whenever vehicles exit the sites and the site compound, entering back onto the public road network. Indicative wheel-wash locations are illustrated in Figure 15-17.
- Dedicated road sweeper will be put in place and will be located in the site compound. It will sweep the haul routes via public roads. During peak vehicle movements, where there is a likelihood of dirt on construction vehicles exiting the site, a dedicated road sweeper will be put in place until these works are completed. During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents.

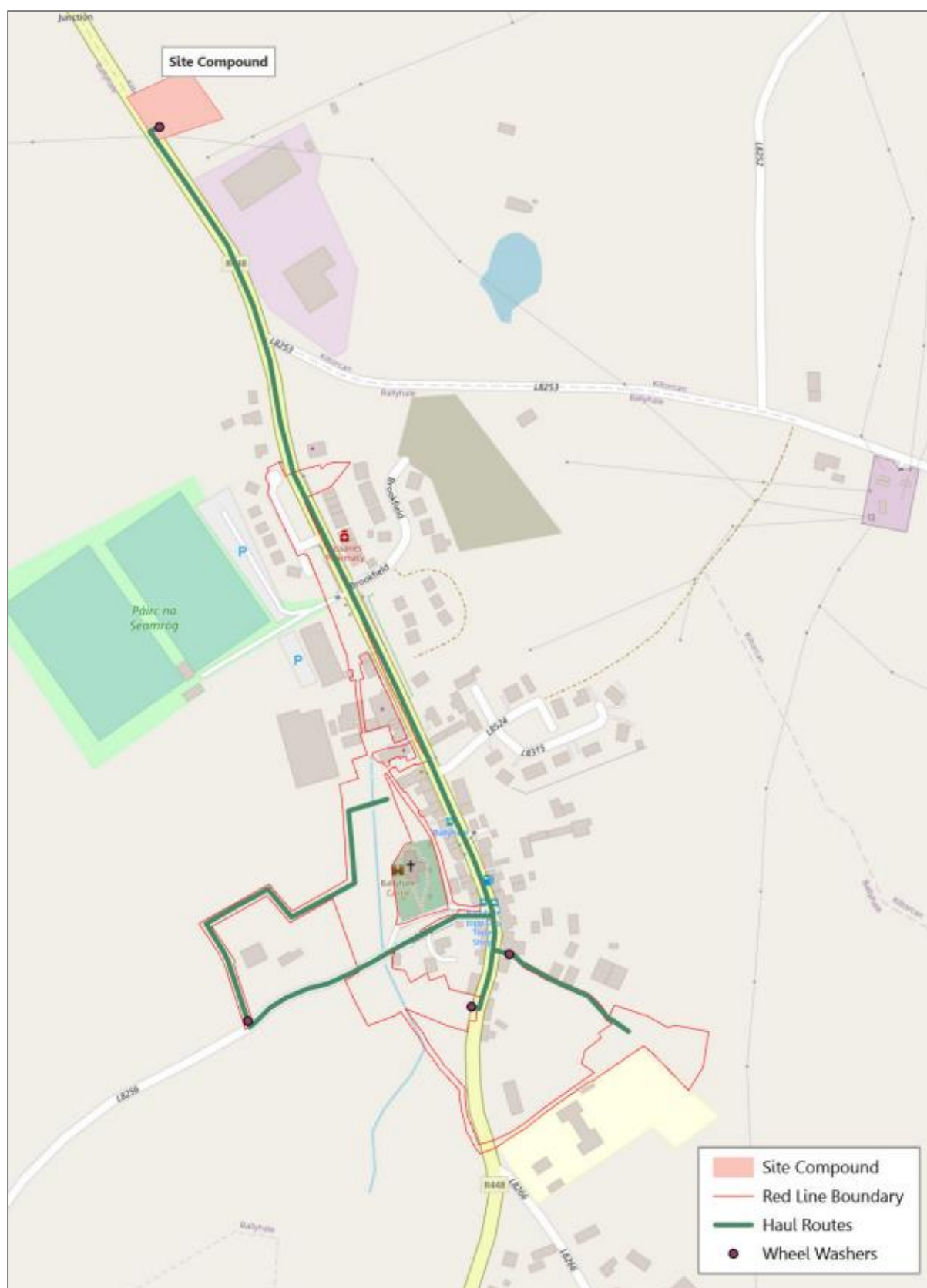


Figure 15-17 – Wheel Wash locations

15.5.2 Operational phase

Traffic volumes to and from the proposed scheme during the operational phase (i.e. maintenance vehicles) are expected to have negligible impact on the surrounding network, therefore, no mitigations measures would not be needed.

15.6 Residual Impacts

The implementation of the measures outlined in Section 15.5 will ensure that the potential effects of the proposed development on the road network will be minimal during the construction phase and that any residual effects will be short term and not significant.

The significance of the impacts has been determined in accordance with the classifications stipulated within the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports - (EPA, May 2022).

As shown in Table 15-3 below, the impact significance for both the AM and PM peak hours of a design year scenario is 'Not Significant' with the proposed development resulting in an environmental impact of only a 'Short-term' duration.

Point	Environment Character	Quality/Scale of Impact	Impact Significance	Duration
R448	Low Sensitivity	Low - Negligible	Not significant	Short term

Table 15-3 - Impact Significance – Design Year Scenario

15.7 In-combination Effects

Site activities during construction have potential to give rise to dust and noise impacts due to increased levels of traffic. However, these effects and mitigation measures to avoid cumulative effects are detailed in this Population and Human Health, Air Quality, Noise and Vibration.

15.8 Cumulative Effects

A search in relation to plans and projects that may have the potential to result in cumulative impact on the environment was carried out as part of the EIAR. Data sources included the following:

- 'Kilkenny City and County Development Plan 2021-2027'
- 'Kilkenny County Development Plan 2014 – 2020',
- Relevant Local Area Plans
- Myplan.ie
- Kilkenny County Council Planning Applications

The proposed flood relief scheme will provide increased protection to residential and commercial premises in Ballyhale. Property values will be maintained or increased and the ability to obtain housing insurance will be greatly improved. Overall, a long-term significant positive cumulative impact is anticipated.

The impact on transport infrastructure, access to properties, land use, utilities, and waste management is unlikely to occur cumulatively as a result of the proposed works. The potential impact on infrastructure and services is temporary and will not result in residual impact in combination with other plans or projects. Similarly, impacts on traffic and transport infrastructure and access to local properties will be temporary during the construction phase.

15.9 Difficulties Encountered in Assessment

No significant difficulties were encountered during the assessment.

15.10 References

- 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA 2022);
- Environmental Impact Assessment of National Road Schemes – A Practical Guide (NRA, 2008);
- Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (TII);
- Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports (EPA);
- Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA, 2003);
- Traffic and Transport Assessment Guidelines. (TII, 2014);
- Guidelines for Traffic Impact Assessments (The Institution of Highways and Transportation);
- Traffic Signs Manual (DTTAS, 2010).
- Guidance for the Control and Management of Traffic at Road Works (DTTAS, 2010)
- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)

