



# **N25 Rosslare Europort Access Road**

Option Selection Report

November 2020



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# Executive Summary

Rosslare Europort is a key strategic transport link between Ireland and both the European mainland and the United Kingdom. It is an important ferry port for all major Roll-On, Roll-Off (RO-RO) passenger and freight services operating on UK and continental routes. Rosslare Europort is the State's second largest passenger port, and the fourth largest port in terms of overall tonnage. Significant growth is forecast in the coming years which will further increase the Port's strategic importance for trade, business and tourism.

The capacity and resilience of the access to the Port is critical to sustaining this strategic connection with the UK and continent. Existing access to Rosslare Europort is via the N25 National Primary Road which currently passes through the village of Rosslare Harbour. Wexford County Council is proposing to provide improved access to Rosslare Europort from the N25 National Primary Road to ensure and secure the sustainability and competitiveness of this key transport link.

Wexford County Council is working in consultation with Transportation Infrastructure Ireland to progress the scheme. Mott MacDonald Ireland has been appointed as technical advisor to assist in the development of the scheme, and Tramore House Regional Design Office is providing project management services on behalf of Wexford County Council.

The project is currently at Phase 2 'Option Selection' and the main objective of this phase is to examine alternative options to identify and confirm the preferred option that would best meet the objectives of the project. Option Selection is an integral part of the development of the project and this report outlines the Option Selection process for the selection of the preferred scheme option. This Option Selection Report has been prepared in accordance with the Transport Infrastructure Ireland (TII) Project Management Guidelines (PMG) and TII Project Appraisal Guidelines (PAG).

A Study Area was initially defined at the start of the Phase 2 process and a Constraints Study was undertaken on the scheme study area to identify and present all the characteristics and features of the study area, whether natural, artificial or external, which may influence the identification and appraisal of feasible scheme options. These constraints were considered carefully by the project team and helped to identify feasible scheme options. Three scheme options were developed for the project, which were;

- Scheme Option A – ‘Do-Minimum’ Option,
- Scheme Option B – ‘Do-Something’ Management Option,
- Scheme Option C – ‘Do-Something’ Development Option.

The findings of the constraints study and the feasible scheme options were presented to the public at a public consultation event held between Monday 15<sup>th</sup> June and Monday 29<sup>th</sup> June 2020. The public consultation event provided the project with an opportunity to present the constraints study and scheme options to the public and provided the public with an opportunity to provide information and observations on constraints and scheme options and to present any items of concern.

A package of on-line improvements measures were developed for the assessment of Option B which include following: the rationalisation of direct accesses onto the N25, provision of parallel service roads, left-in/left-out junctions, designated pedestrian crossing facilities, signalised junctions, and improvement works at Delap's Hill. This option will be developed to the “best possible standard” using the existing infrastructure.

For assessment purposes, an incremental approach was adopted in respect of the development of road cross-section type for Option C. Based on the future predicted traffic flow and the location of Option C within an urban environment, the following two road cross section types were chosen to be appraised during the Phase 2 option selection process:

- Sub Option C1 –Single Carriageway Urban Relief Road,
- Sub Option C2 – Dual Carriageway Urban Relief Road,

The purpose of the Option Selection process is to identify the preferred scheme option and progress this option through the Design and Environmental Evaluation Phase (Phase 3). In order to identify the preferred scheme option an appraisal of all the scheme options was undertaken in accordance with the TII Project Appraisal Guidelines (PAG). Each scheme option was appraised under the headings listed below in accordance with PAG Unit 7.0 – Multi Criteria Analysis (MCA) (PE-PAG-02031, October 2016) and PAG Unit 12: Minor Projects (€5m to €20m) (PE-PAG-02035, October 2016).

- Economy;
- Safety;
- Environment;
- Accessibility & Social Inclusion;
- Integration and;
- Physical Activity.

Following the appraisal of the scheme options under the above Multi Criteria Analysis headings, Option C was identified as the best performing option with only very marginal difference between sub-options C1 & C2. Option C has been identified as the scheme option that best meets the project objectives and is recommended as the preferred scheme option. A Project Appraisal Balance Sheet is presented for Option C which presents a summary of the expected impacts.

# 1 Introduction and Description

## 1.1 Introduction

The Option Selection Report has been prepared on behalf of Wexford County Council in accordance with the Transport Infrastructure Ireland (TII) Project Management Guidelines (PMG) and TII Project Appraisal Guidelines (PAG).

Wexford County Council is working in consultation with Transportation Infrastructure Ireland to progress the N25 Rosslare Europort Access Road Scheme. Mott MacDonald Ireland has been appointed as technical advisor to assist in the development of the scheme, and Tramore House Regional Design Office is providing project management services on behalf of Wexford County Council.

TII's Project Management Guidelines and Project Appraisal Guidelines divide the evolution and progression of a national road project into an eight-phase process as follows:

- Phase 0 - Scope & Pre-Appraisal
- Phase 1 - Concept & Feasibility
- Phase 2 - Option Selection
- Phase 3 - Design & Environmental Evaluation
- Phase 4 - Statutory Processes
- Phase 5 - Enabling & Procurement
- Phase 6 - Construction & Implementation
- Phase 7 - Close Out & Review

The Phase 0 process confirmed that the project is aligned with current strategic programmes, plans and policies at national, regional and local levels. The Phase 1 process identified the need for the project and the key objectives to be delivered by the project. The proposed structures and methodologies for the management and appraisal of the project were also established at Phase 1. The project is currently at Phase 2 'Option Selection'. The main objective of this phase is to examine alternative options to identify and confirm the preferred option that would best meet the objectives of the project.

A Study Area was initially defined at the start of the Phase 2 process. This defined the geographic area within which feasible options could reasonably be located. A constraints study was carried out within the study area to identify key constraints that could influence the identification and appraisal of feasible scheme options. Further details on the study area and constraints study are provided in chapter 4. Feasible scheme options were identified from the findings of the constraints study and these options are described in chapter 5.

The findings of the constraints study and the feasible scheme options were presented to the public at a public consultation held between Monday 15th June and Monday 29th June 2020. Further details on this public consultation are provided in chapter 6.

In accordance with guidance from the TII Project Management Guidelines and TII Project Appraisal Guidelines, the assessment of scheme options consisted of the following stages:

- A project appraisal of the feasible scheme options using the following criteria: Economy, Safety, Environment, Accessibility & Social Inclusion, Integration and Physical Activity.

- After Preferred Scheme Option was selected for the Scheme, a Project Appraisal Balance Sheet (PABS) was prepared for the Preferred Scheme Option as described in the TII Project Appraisal Guidelines.

This Option Selection Report presents in detail the different stages of the process which informed the selection of the Preferred Scheme Option.

## 1.2 Project description

The N25 is a strategically important national primary road along Ireland's southern coast linking Cork, Waterford, Wexford and Rosslare Europort. The N25 also connects with the N11/M11 north of Wexford town to provide a direct connection with Dublin. The N25/N11 road corridors and Rosslare Europort form part of the Trans-European Transport Network (TEN-T) and together form a critical inter-modal connection between Ireland and the rest of the European Union. The section of N25 in question also forms part of the European Designated E01 Route which provides a direct link to both mainland Europe and the United Kingdom via Rosslare Europort. The N25 commences east of Cork City at the Dunkettle Interchange and continues eastwards for approximately 170 km, bypassing the towns of Midleton, Youghal, Dungarvan, Waterford City and New Ross. To the west of Wexford Town, the road turns south before terminating at Rosslare Europort.

Rosslare Europort is a key strategic transport link between Ireland and both the European mainland and the United Kingdom. It is an important ferry port for all major Roll-On, Roll-Off (RO-RO) passenger and freight services operating on UK and continental routes. Rosslare Europort is the State's second largest passenger port, and the fourth largest port in terms of overall tonnage. Significant growth is forecast in the coming years which will further increase the Port's strategic importance for trade, business and tourism. The capacity and resilience of the access to the Port is critical to sustaining this strategic connection with the UK and continent. Access to Rosslare Europort is via the N25 National Primary Road which currently passes through the village of Rosslare Harbour. Wexford County Council is proposing to provide improved access to Rosslare Europort from the N25 National Primary Road to ensure and secure the sustainability and competitiveness of this key transport link.

## 1.3 Project Context

Wexford County Council previously (2016) developed a preliminary design for a new offline Port Access Road to remove port traffic from the village of Rosslare Harbour. The scheme layout is shown in Figure 1-1 below and consisted of approximately 1.5km of road carriageway, three roundabouts, a railway crossing and associated local road works. The scheme presented in 2016 did not proceed through the planning process, but the corridor is currently incorporated into the County Development Plan as part of the planning corridor for the N11/N25 Oilgate to Rosslare Harbour major road project.

The planning, design and construction of Ballygillane Roundabout (see Figure 1-1 below). is being developed by Wexford County Council as a standalone project and received planning approval in January 2020. It is anticipated that this project will be constructed in 2021 and the scheme options for the N25 Rosslare Europort Access Road project have been identified and appraised in full consideration of the approved scheme proposals.

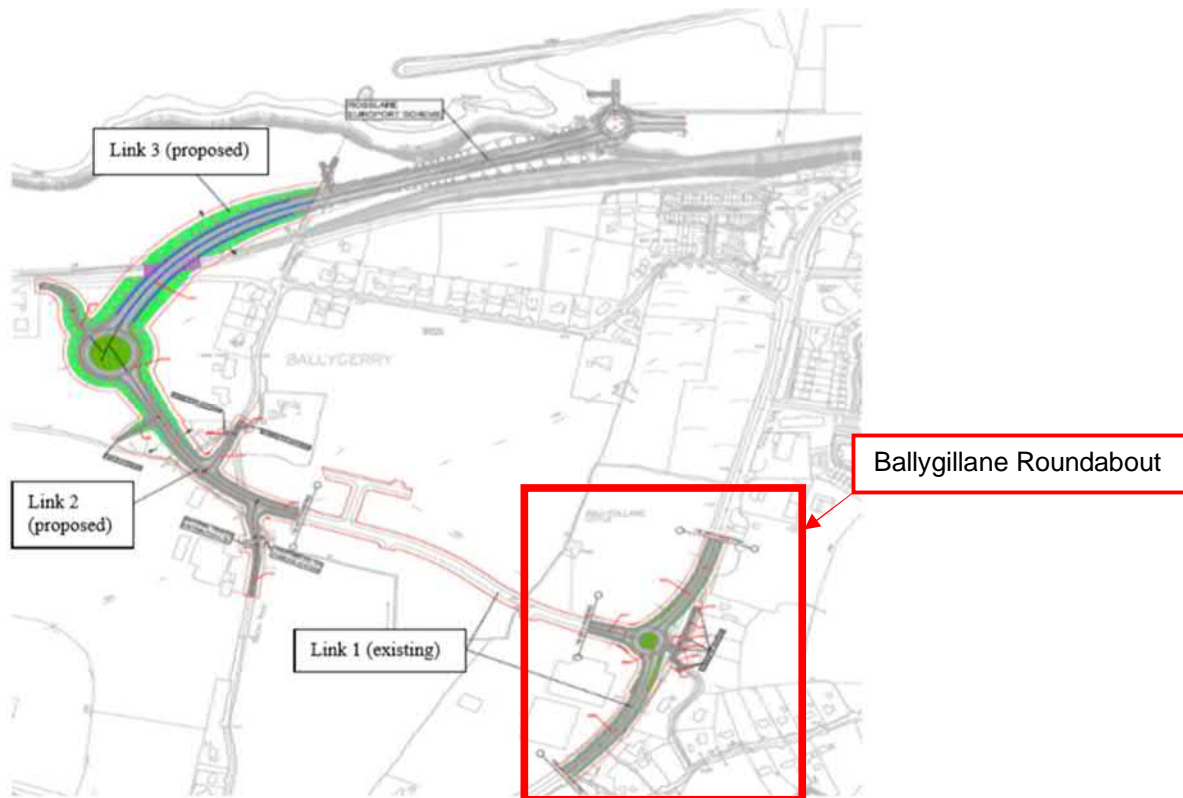
Wexford County Council is also developing a separate major roads project titled 'N11/N25 Oilgate to Rosslare Harbour' to improve the N11 & N25 road corridors from the southern end of the M11 Enniscorthy Bypass to Rosslare Harbour. That project is currently at Phase 2 Option Selection stage and a preferred scheme option had not been confirmed at the time of publication of this report. These respective projects have distinctive objectives and are being developed separately from each other. No assumptions have been made on the outcome of the option selection process



for 'N11/N25 Oilgate to Rosslare Harbour' in the appraisal of scheme options for N25 Rosslare Europort Access Road. The appraisal of scheme options for the N25 Rosslare Europort Access Road therefore assumes the continued use of the existing N25 road corridor on approach to the project from Wexford (i.e. a 'do-minimum' scenario). This approach ensures that the appraisal of the N25 Rosslare Europort Access Road Project is not dependent on the development of the N11/N25 Oilgate to Rosslare Harbour project but can be developed as a separate standalone project. It is anticipated that the preferred scheme option for the N11/N25 Oilgate to Rosslare Harbour project will be confirmed and taken into consideration during the development of the phase 3 design and environmental evaluation of the N25 Rosslare Europort Access Road project. It is intended that the separate projects will be developed independently of each other while also ensuring that they can be fully integrated upon completion to ensure the delivery of the optimal transport corridor.

The current phase 2 appraisal of scheme options was developed in consideration of proposals for the future development of Rosslare Europort and in particular proposals for the upgrade of internal port infrastructure as published in the Rosslare Europort Infrastructure Masterplan. The Rosslare Europort Infrastructure Masterplan received planning approval in August 2020. Rosslare Europort and CIE are key stakeholders in the N25 Rosslare Europort Access Road project and are represented on the Management Group for the project. The project is consulting closely with Rosslare Europort & CIE on all aspects of interface between the project, Rosslare Europort and the Dublin to Rosslare Europort railway line to ensure the full coordination and integration of infrastructure in order to deliver the optimal inter-modal transport network to ensure that the separate development proposals are compatible and capable of being fully integrated.

The phase 2 appraisal of the scheme was developed in consideration of proposals for the future development of the Waterford to Rosslare Harbour Greenway. A route corridor for the greenway has been identified and it is anticipated that a planning submission will be made before the end of 2020. The project is consulting closely with the greenway project to coordinate and integrate the respective proposals as they develop in order to deliver the optimal inter-modal transport network and promote active travel. The close consultation with the above projects will deliver a highly integrated and efficient transport network by road, rail, sea and cycle.



**Figure 1-1: Previous Rosslare Europort Access Road Scheme**

#### 1.4 TII Classification of Project

Project Appraisal Guidelines (PAG) classifies projects based on their estimated cost, with each classification requiring different and proportionate levels of appraisal. Projects under €20 million are classified as 'Minor Projects' and projects estimated to cost in excess of €20 million are classified as 'Major Projects'. As the extent of Rosslare Europort Access Road and upgrades may be of the order of approximately 1.5km in length, it is estimated the cost of the project will be less than €20 million, therefore it will be appraised as a Minor Project in accordance with TII's Project Appraisal Guidelines (PAG).

#### 1.5 TII Project Management Guideline and TII Appraisal Guidelines

The main reference documents for the appraisal of the scheme options were as follows:

- PE-PMG-02041 Project Management Guidelines
- PE-PMG-02042 Project Managers Manual for Major National Roads Projects (include a numbered footnote to clarify that pending the publication of a corresponding manual for minor projects, the manual for major projects was applied as appropriate and consistent with PAG requirements)
- PE-PAG-02013 - Project Appraisal Guidelines for National Roads Unit 4.0 - Consideration of Alternatives and Options
- PE-PAG-02031 - Project Appraisal Guidelines for National Roads Unit 7.0 - Multi Criteria Analysis
- PE-PAG-02035 - Project Appraisal Guidelines for National Roads Unit 12.0 - Minor Projects (5m to 20m)

PAG Unit 12.0 - Minor Projects (€5m to €20m), specifies that minor national roads projects should be appraised using the following six criteria; Economy, Safety, Environment, Accessibility & Social Inclusion, Integration, and Physical Activity. A multi criteria analysis (MCA) was undertaken of the scheme options in accordance with PE-PAG-02031 to identify the preferred scheme option. A Project Appraisal Balance Sheet (PABS) was then completed as a summary appraisal of the impacts of the preferred scheme option. Details of the option appraisal process are provided in chapter 7.

## 1.6 Purpose of the Option Selection Report

This Option Selection Report describes the process implemented to identify and evaluate feasible scheme options to identify the option that best meets the project objectives. The report also confirms the preferred scheme option, presents a summary of the impacts of the preferred scheme option and makes a recommendation for the progression to Phase 3 of the project.

## 1.7 Project Objectives

The framing of scheme specific objectives was undertaken in accordance with the guidance provided in the TII Project Appraisal Guidelines (PAG) and the Department of Transport, Tourism and Sport (DTTas) Common Appraisal Framework for Transport Projects and Programmes (CAF) and identified in the Phase 1 Project Appraisal Plan. These guidance documents include a recommendation that project objectives were established based on each of the following criteria:

- Economy;
- Safety;
- Environment;
- Accessibility & Social Inclusion; and
- Integration
- Physical Activity

Based on the characteristics of the existing road corridor, and responding to the aspirations of strategic policy documentation, a series of defined objectives have been identified. The objectives presented in Table 1-2 below allowed a focused definition of options and alternatives which could be examined both quantitatively and qualitatively against a series of required outcomes.

**Table 1-2: Scheme Specific Objectives**

Criteria	Scheme Specific Objective
Economy	<ul style="list-style-type: none"> <li>● To improve accessibility and connectivity to Rosslare Europort, secure the sustainability of access to the Port and mitigate the risks from current constraints and limitations of the existing access.</li> <li>● To improve the efficiency and capacity of the Rosslare Europort Access Route study area, and</li> <li>● To generate positive economic benefits to businesses and consumers by:                             <ul style="list-style-type: none"> <li>○ Reducing journey times; and</li> <li>○ Improving journey time reliability</li> </ul> </li> </ul>
Safety	<ul style="list-style-type: none"> <li>● To reduce the frequency and severity of collisions in the study area; and</li> <li>● To support the Government's Road Safety Strategy</li> <li>● Improve road safety in the village of Rosslare Harbour by removal of Europort HGV traffic from the more built up areas of the village.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>● To avoid or minimise negative impacts on the existing environment;</li> </ul>

Criteria	Scheme Specific Objective
Accessibility and Social Inclusion	<ul style="list-style-type: none"> <li>To improve road based public transport journey time and journey time reliability, and</li> <li>To complement wider government policy related to socially disadvantaged areas by improving accessibility</li> <li>Improve the local environment in and around Rosslare Harbour particularly for pedestrians and cyclists.</li> </ul>
Integration	<ul style="list-style-type: none"> <li>To improve connectivity to the national road network;</li> <li>To promote balanced regional development by improving access to the south-east and the international port of Rosslare Europort, and</li> <li>To promote the integration of transport infrastructure and services by focusing on gaps in the existing network and improving connectivity between modes, e.g. road, rail and sea.</li> <li>Facilitate the completion of the proposed N11/N25 Oilgate to Rosslare Harbour Scheme</li> </ul>
Physical Activity	<ul style="list-style-type: none"> <li>Improvements that further separate motorised traffic on the national primary route from the local road network utilised by walkers and cyclists may encourage increased levels of physical activity.</li> </ul>

These objectives may, at times, present conflicting requirements. Therefore, in order to ensure that appropriate consideration is given to all relevant factors as part of the selection of the Preferred Scheme Option, an integrated approach to this selection process is required. This process has been followed for the N25 Rosslare Europort Access Road Scheme and has involved a simultaneous and robust examination of the various issues that determine the selection of the Preferred Scheme Option.

## 2 Project Need, Strategic Fit and Priority

### 2.1 Strategic Fit and Priority

As outlined in chapter 1, the project aims to provide improved future access to Rosslare Europort from the N25 national primary road to secure the sustainability and competitiveness of this key transport corridor. The following sections outlines the projects compatibility with plans and programmes at European, national, regional and local levels.

#### 2.1.1 Trans-European Transport Network

The Trans-European Transport Network (TEN-T) is a European Union initiative directed towards the implementation and development of a Europe-wide network of transport infrastructure. The policy provides for the smooth functioning of the internal market and the strengthening of economic, social and territorial cohesion by delivering seamless, safe and sustainable mobility of persons and goods, ensuring accessibility and connectivity for all regions of the Union, and contributing to further economic growth and competitiveness. The N25/N11 road corridors and Rosslare Europort form part of the TEN-T comprehensive network and together form a critical inter-modal connection between Ireland and the rest of the European Union. EU Regulation No. 1315/2013 establishes guidelines for the development of TEN-T, and includes the following specific objectives:

- removing infrastructure bottlenecks and bridging missing infrastructure links within and between Member States,
- for both passenger and freight traffic, interconnection between transport infrastructure for, on the one hand, long-distance traffic and, on the other, regional and local traffic;
- the interconnection and interoperability of national transport networks and the optimal integration and interconnection of all transport modes;
- ensuring safe, secure and high-quality standards, for both passenger and freight transport.

The EU Commission's "Ports 2030 – Gateways for the TEN-T Network" directs that ports will be encouraged to act as enablers of inter-modality and notes that attention will be given to projects which contribute to the coordinated development and management of ports.

The Rosslare Europort Access Road project aims to deliver a high quality transport connection in compliance with TEN-T Requirements that will provide efficient and sustainable connectivity with Rosslare Europort and thus secure the future operational performance of the Port. It is also noted that the delivery of this objective may become of increasing strategic importance in the context of the evolving trade relationship between the European Union and the United Kingdom. The project directly supports the delivery of the objectives of TEN-T by providing safe, secure and high-quality infrastructure for both passenger and freight transport that provides interconnection and interoperability of national transport networks and the optimal integration and interconnection of transport modes.

#### 2.1.2 National Planning Framework/Project Ireland 2040

The National Planning Framework – Project Ireland 2040 (NPF) sets out a new strategic planning and development context for Ireland and all of its regions up to 2040, setting a high-level framework for the co-ordination of a range of national, regional and local authority policies and activities, planning and investment, both public and private. The NPF is structured around a set of shared goals which are expressed as National Strategic Outcomes (NSOs). Two of these NSOs which directly relate to the proposed road development are:

- Enhanced Regional Accessibility - National Strategic Outcome 2
- High Quality International Connectivity - National Strategic Outcome 6

Under “*Enhanced Regional Accessibility*” the NPF provides the following national strategic outcomes for inter-urban roads:

- Maintaining the strategic capacity and safety of the national road network including planning for future capacity enhancements; and
- Improving average journey time, targeting an average inter-urban speed of 90km/h.

In the context of international connectivity, the proximity of Rosslare Europort to mainland Europe is identified as an opportunity to leverage regional growth, and its proximity to EU trading partners is identified as important in Ireland’s response to Brexit.

The Rosslare Europort Access Road project directly supports the delivery of these strategic outcomes by improving accessibility and connectivity to Rosslare Europort, a critical international transport hub for the south east region and the wider country. The project also aims to secure the future strategic capacity of Rosslare Europort and its connection with the national road network by removing existing capacity constraints on the current road connection to the Europort.

### 2.1.3 National Development Plan/Project 2040

The National Development Plan 2018–2027 (NDP) will drive Ireland’s long term economic, environmental and social progress across all parts of the country over the next decade and will underpin the successful implementation of the new National Planning Framework. The Plan confirms that: “*strengthening access routes to Ireland’s ports through investment to upgrade and enhance the road transport network to improve journey times is and remains a Government priority*”. The Plan also references “*the ongoing development of the M11, in terms of improving connectivity to Rosslare in the southeast*”.

The UK’s exit from the EU is also highlighted as emphasising: “*the importance of continuing investment to further improve the quality of port facilities, particularly those in the South-East such as Rosslare and the Port of Waterford given their role in maintaining transportation linkages with crucial EU markets*”.

The project directly supports the delivery of these objectives by improving accessibility and connectivity to Rosslare Europort. The project also complements and supports the objectives of the ‘N11/N25 Oilgate to Rosslare Harbour’ scheme which is specifically referenced in the NDP.

### 2.1.4 Road Safety Strategy 2013-2020

The Road Safety Authority’s (RSA) Road Safety Strategy 2013 – 2020, sets out targets to be achieved in terms of road safety in Ireland as well as policy to achieve these targets. The primary target of this strategy is:

*“A reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020 is required to close the gap between Ireland and the safest countries. This means reducing deaths from 162 in 2012 to 124 or fewer by 2020”.*

*“A provisional target for the reduction of serious injuries by 30% from 472 (2011) to 330 or fewer by 2020 or 61 per million population has also been set.”*

The plan sets out strategies for engineering and infrastructure in terms of the benefits that they can have in terms of reducing collisions. The target of reducing road collision fatalities and serious injuries is consistent with the objectives of the subject project.

### 2.1.5 National Ports Policy, 2013

The National Ports Policy 2013 notes that Rosslare Europort enjoys a significant proportion of Irish Ro-Ro traffic, is the fourth largest port in terms of overall tonnage handled, and is the State's second largest passenger port. It also notes the inclusion of Rosslare Europort in the comprehensive TEN-T network as an integral part of the pan-European transportation network. The Policy identifies Rosslare Europort as having "*the clear, demonstrable potential to handle higher volumes of unitised traffic*", and confirms its commitment "*to ensuring that the full commercial and operational potential of Rosslare Europort is achieved*". The policy also notes that "*efficient hinterland connections are critically important to any port's ability to facilitate large volumes of traffic*", and highlights "*the importance of reliable and sustainable hinterland connections as part of an integrated transport chain*". The policy also recognises that:

"The vast majority of Ireland's freight movements to and from ports are via road. As acknowledged in the European Commission's White Paper, Roadmap to a Single European Transport Area – Towards a Competitive and Resource-Efficient Transport System, it is likely that "*freight movements over short and medium distances (below some 300km) will to a considerable extent remain on trucks*" (Commission of the European Communities, 2011c)."

The National Ports Policy recognises the strategic importance of Rosslare Europort project in delivering a competitive and effective market for maritime transport services. The project directly supports the delivery of the objectives of the National Ports Policy by securing a high quality and sustainable transport connection for Rosslare Europort that is critical to achieving its full commercial and operational potential.

### 2.1.6 Harnessing our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland - 2012

'Harnessing Our Ocean Wealth: An Integrated Marine Plan for Ireland' (IMP) was published in July 2012 by the Department of Agriculture, Food and the Marine. It sets out a roadmap for the government's vision, high level goals, and integrated actions across policy, governance, and business for the marine sector. The IMP recognises that the country's ocean wealth will be a key element of Ireland's sustainable growth, generating benefits for all citizens. The initiative also recognises the contribution the 'blue economy' can make to global economic growth and the need for appropriate policies, strategies, and funding mechanisms to achieve this objective. The IMP strikes a balance between protecting Ireland's marine ecosystems and maximising the use of its resources as a source of economic growth, and sets the following targets:

- Double the value of our ocean wealth to 2.4% of GDP by 2030.
- Increase the turnover from our ocean economy to €6.4bn by 2020.

To achieve these targets the plan identifies that enabling infrastructure is essential for harnessing Ireland's ocean wealth at national, regional, and local levels. Future growth opportunities identified within the plan which will enable the growth of the Rosslare Europort include cruise tourism and offshore renewable energy. The Plan identifies key actions that need to be taken including:

- Put in place clear integrated policies and strategies for the development of new key strategic infrastructures to support job creation and economic growth (e.g. port infrastructure to support renewable energy and export potential).
- Carry out national, regional, and local initiatives aimed at tapping into the potential of new and existing coastal infrastructure to develop sustainable products, services, and jobs. This would encourage investment along the coast. Initiatives include:
  - Supporting major national seaports in the implementation of their master plans to provide additional capacity and greater draft using their own resources.

- Investigating opportunities to increase Ireland’s share of the cruise tourism market and develop Ireland as a turnaround destination including supporting port companies in their plans to develop or expand cruise facilities using their own resources
- Progress a number of targeted emerging business development opportunities (e.g. offshore renewables, offshore services, maritime security and safety, shipping logistics and transport, ICT and sensors, biotechnology).
- Maximising the utilisation of existing state maritime infrastructure through multipurpose usage and sharing, in support of operational programmes, research, test, demonstration and monitoring.

The enhanced road transport network provided by N25 Rosslare Europort Access Road will support the aims and targets of the IMP by improving transport connectivity on the TEN-T Trans-European Transport Network between Rosslare Europort and the N25/N11 road network. The submission received from Rosslare Europort during stakeholder consultation (see Appendix M of this report) emphasises business opportunities that the Port has identified for the coming years. The offshore renewables market is identified as a key driver for future economic growth and Rosslare Europort is noted as being ideally located to service the demands of wind energy projects. The submission identifies the N25 Rosslare Europort Access Road as being essential “to enable the Port to grow to its full potential for the benefit of both the region and the country”.

### 2.1.7 Rosslare Europort Masterplan - 2020

The Rosslare Europort Infrastructure Masterplan received planning approval in August 2020 and a copy of the plan is included in Appendix N of this report. The Plan identifies Rosslare Europort as the key Irish Seaport on the Southern Corridor of the Irish Sea and outlines how the Port can expand its capacity, address current inefficiencies and develop a port that can cater for the changes in the next 5-10 years. Targeted improvements in operational efficiencies and investment are identified to reach staggered revenue growth of 20% by 2025, as a reasonable growth target.

The Plan identifies and addresses the main critical issues and potential future developments that will enable Rosslare Europort to provide the required infrastructure that is needed in the medium term, increase its operational efficiency and ensure there is capacity within the port to provide expansion in the long term. A phased development of infrastructure is planned which will allow Rosslare Europort to remain in operation while delivering a future layout incorporating desired improvements and allowing for known and anticipated developments in the future. The condition of the current Port access road at Delap’s Hill is identified in the Plan as a significant constraint and a hazard on the Port’s risk register, and the completion of the N25 Rosslare Europort Access Road is identified as a key development for the delivery of the strategic plan for the Port. The submission received from Rosslare Europort during stakeholder consultation (Appendix M of this report) further emphasises the completion of the N25 Rosslare Europort Access Road project as a key requirement for the successful delivery of the Masterplan.

The development of the N25 Rosslare Europort Access Road project is identified as being of critical importance to the successful delivery of the Rosslare Europort Masterplan and the two separate proposed developments are fully compatible and integrated to provide the most efficient road/port transport connection along this critical TEN-T corridor.

### 2.1.8 Climate Action Plan, 2019

The Climate Action Plan 2019 sets out the national strategy for arresting the accelerating impact of greenhouse gas emissions on climate disruption. The Plan notes that the most cost-effective carbon abatement opportunities for transport are in the electrification of transport. The Plan identifies the most influential instrument to reduce carbon intensity of travel will be fiscal incentives around motoring and prioritises the expansion of walking, cycling and public transport to promote modal shift as a key policy to make future growth less transport intensive.



The following specific targets are identified for the transport sector to meet the required reduction in emissions levels by 2030:

- Reduce CO<sub>2</sub> eq. emissions from the transport sector by 45–50% relative to 2030 pre-NDP projections
- Increase the number of EVs to 936,000, comprised of:
  - 840,000 passenger EVs
  - 95,000 electric vans and trucks
  - 1,200 electric buses
- Build the EV charging network to support the growth of EVs at the rate required, and develop our fast-charging infrastructure to stay ahead of demand
- Require at least one recharging point in new non-residential buildings with more than 10 parking spaces
- Raise the blend proportion of biofuels in road transport to 10% in petrol and 12% in diesel

The delivery of these targets is recognised as requiring a significant ramp-up in EVs from current levels (circa 10,000), increased penetration of cleaner, alternative fuels, and an irreversible shift to low-emission mobility. These changes will need to be underpinned by policy tools such as vehicle and fuel taxation measures, and a strong carbon tax trajectory. The importance of modal shift is also emphasised by providing good public transport, cycling and walking infrastructure, so people are less reliant on their cars. The Plan commits to an additional 500,000 public transport and active travel journeys daily by 2035. This will be achieved by promoting compact growth and greater integration of policies for land use and transport planning, and by expanding sustainable travel measures, including a comprehensive cycling and walking network (including greenways), with a particular emphasis on safety of cyclists.

The project aims to provide a more sustainable transport connection to Rosslare Europort and to integrate high quality sustainable travel measures for cyclists and walkers to promote modal shift to active travel. It is therefore considered that the project can contribute to the delivery of the Climate Action Plan 2019 and the performance of the selected scheme option will be further evaluated in this regard.

### 2.1.9 Strategic Investment Framework for Land and Transport Report (SIFLT)

The Strategic Investment Framework for Land Transport (SIFLT) outlines the key principles against which national and regional, comprehensive and single mode-based plans and programmes will be drawn up and assessed. The framework does not set out a list of projects to be prioritised however the following three priorities are noted in terms of investment:

- Priority 1 – Achieve steady state maintenance;
- Priority 2 – Address urban congestion; and
- Priority 3 – Maximise the value of the road network.

In terms of Priority 3, the report states that “*the value of the road network will be maximised through targeted investments that:*

- *Enhance the efficiency of our existing network, particularly through the increased use of ITS applications;*
- *Improve connections to key seaports and airports;*
- *Support identified national and regional spatial planning priorities”*

The proposed scheme will support the objectives of the SIFLT by improving the efficiency of a key section of the national road network, and improving connectivity to a key seaport, Rosslare Europort.

### 2.1.10 Infrastructure and Capital Investment Plan 2016-2021

The Plan highlights the importance of high-quality transport links to economic growth:

*“Economic growth is dependent on our capacity to move people and goods into and around the country quickly and easily, and significant strides have been made since 2000 in improving Ireland’s national transport infrastructure.”*

*“...transport also directly impacts on the cost base of businesses and their ability to access international markets.”*

The Plan also identifies a key priority to:

*“...to improve the efficiency and safety of existing transport networks.”*

Proposals for improved accessibility to Rosslare Europort are considered to support the development of high-quality transport links as a driver of economic growth and will also support improved access to international markets.

### 2.1.11 South East Regional Planning Guidelines 2010-2022

The Regional Planning Guidelines supports the development of the key economic corridors in the region, including the Rosslare–Cork N25 route. The guidelines list the ‘*Rosslare Harbour Access Road*’ as a critical enabling investment priority for the region.

The Guidelines note that *“Rosslare Europort handles the largest volume of passenger traffic in the Republic of Ireland. It is the hub for all of the major Roll-on Roll-off (Ro-Ro) Passenger and Freight services operating the southern Irish Sea and Continental routes”*. Strategic Goals in the Guidelines include:

- Enhancing access routes (road and rail) to the region’s ports, recognising the important contribution of Rosslare Europort to the economic infrastructure of the region.

One of ten *“Critical Enabling Investment Priorities”* in the Guidelines is to develop *“linkages on the N11 from Rosslare Europort and Wexford to Dublin, to the region and the rest of the country”*. The guidelines also state that,

*‘In order to maximise the benefit of the region’s ports and airport it is essential that access roads in their immediate vicinity and linkages to the wider region be improved’*.

The N25 Rosslare Europort Access Road is identified in the South East Regional Planning Guidelines as a critical investment priority for the region and the proposed scheme is considered to support the strategic goals of the Guidelines.

### 2.1.12 Wexford County Development Plan 2013-2019<sup>1</sup>

The Wexford County Development Plan 2013-2019 sets out Wexford County Council’s intentions for,

*“...the future development of land, including measures for the improvement of the natural and physical environment and the provision of infrastructure”*.

It is a principle aim of Wexford County Council’s transportation policy to enhance the strategic transportation infrastructure within the County. The Council recognises the important role a safe and efficient road system can play in economic, social and national prosperity.

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<sup>1</sup> The Draft Wexford County Development Plan 2021-2027 is at public consultation at the time of publication of this report. Upon publication the new County Development Plan will be reference document for subsequent project documents.

The proposed improvements match the intentions of the Wexford County Development Plan 2013 – 2019.

Objective TM08 of the Development Plan states that it is an objective of the Council:

*“To facilitate improved access to Rosslare Europort”.*

Objective T11 of the Development Plan states that it is an objective of the Council:

*“To support and facilitate the development of enhanced transport infrastructure at Rosslare Europort”.*

Section 8.6.1 of the Development Plan recognises that the:

*“enhancement of these routes is of great importance to the economic well-being of the Country as a whole and in ensuring ease of access to and from Rosslare Europort.”*

Development that facilitates improved access to Rosslare Europort is a strategic objective of the County Development Plan, and the N25 Rosslare Europort Access Road project will deliver this objective. The proposed scheme is therefore considered to support the strategic goals of the Plan.

### 2.1.13 Rosslare Harbour and Kilrane Local Development Plan 2012-2018

The Rosslare Harbour and Kilrane Local Development Plan 2012-2018 includes the area around Rosslare Europort.

Section 3 of the Development Plan identifies a ‘New access road to the Europort’ as an important opportunity which needs *“to be encouraged, protected and developed”*.

Section 4.3 of the Development Plan identifies as a key objective:

*“To improve the transport infrastructure and services in the area”.*

Section 5.11.1 of the Development Plan states that *“The Council recognises that the provision of roads infrastructure is an essential element of transport provision...with improved access to Rosslare Europort a priority.”*

The provision of improved access to Rosslare Europort is a strategic priority in the Local Development Plan, and the N25 Rosslare Europort Access Road project will deliver this objective. The proposed scheme is therefore considered to support the strategic goals of the Plan.

### 2.1.14 Strategic Fit & Priority Conclusion

The policy review has confirmed that the objectives of the project are consistent with, and support relevant policies at European, national, regional and local levels. It is considered that the review has also confirmed that the project adheres to the principles of proper planning and sustainable development in accordance with the Planning & Development Act 2000.

## 2.2 Project Specific Need

### 2.2.1 Overview of Project

This section of the report outlines and discusses the condition of the existing sections of the national road network under consideration and identifies any network deficiencies and problems. These deficiencies combined with the European, national, regional and local plans and programmes discussed in Section 2.1 of this report constitute the ‘Need for the Scheme’. The following areas are assessed in terms of network deficiencies:

- Road Safety

- Journey Times & Operating Efficiency
- Existing Road Characteristics
- Road Traffic Volumes
- Europort Throughput Volumes
- Levels of Service

### 2.2.2 Road Safety

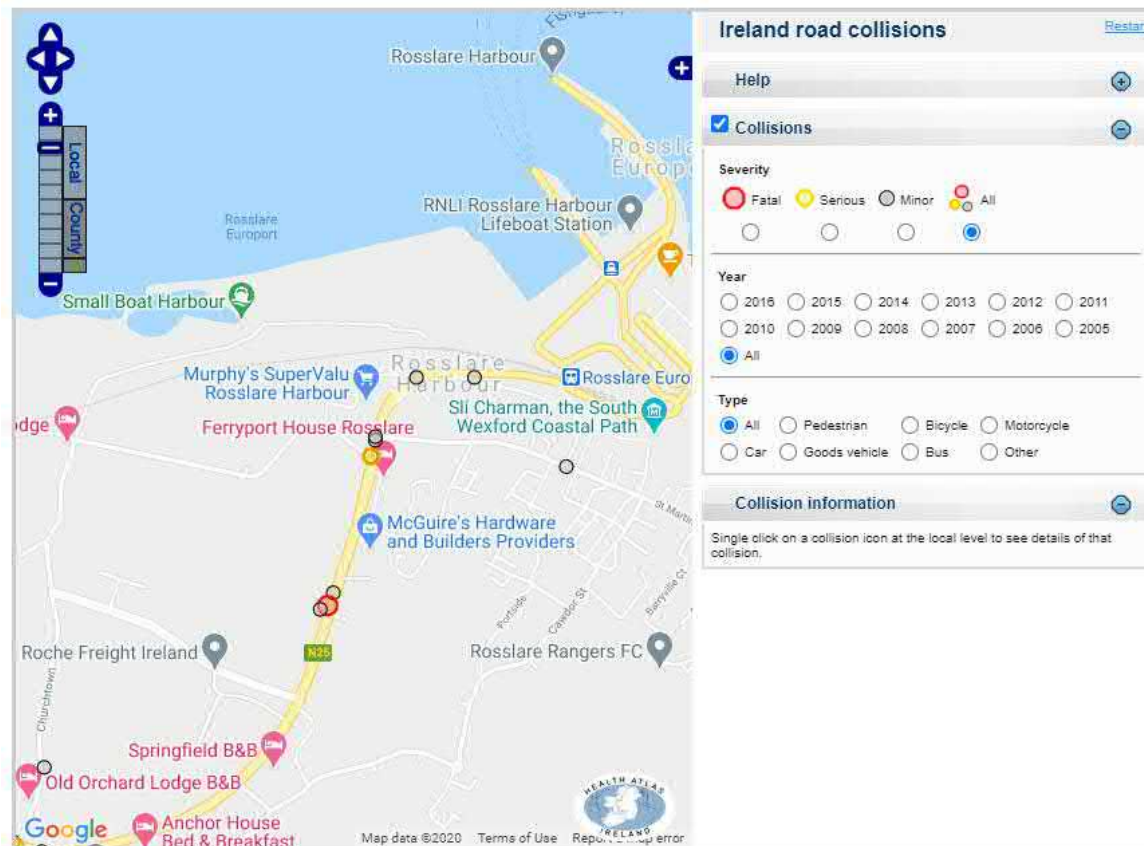
The Road Safety Authority (RSA) has published Personal Injury Collision (PIC) data including mapping for the period 2005-2016. The RSA PIC information relates to Fatal, Serious and Minor collisions and includes details on the number and type of casualties recorded. The number of collisions and subsequent casualties identified on the relevant section of the N25 heading towards Rosslare Harbour between 2005 and 2016 are illustrated in Table 2-1 and Figure 2-1.

**Table 2-1: N25 Study Area Collision Summary 2005-2016**

#### N25 Rosslare Europort Access Road Collision History 2005-2016 (RSA)

Data	Fatal	Serious	Minor	Total
Collisions	1	1	7	9
% of total collisions	11%	11%	78%	-
Casualties	1	1	9	11
% of total casualties	9%	9%	82%	-

**Figure 2-1: Collision Information for N25 heading towards Rosslare Harbour**



In addition, TII produce collision maps of the national road network that indicate the safety ranking of the network relative to the national average collisions for particular road types. Figure 2-2 illustrates the current available results for a 3-year period from 2015-2017 along the existing N25 study corridor.

**Figure 2-2: Collision Rate Results for N25 heading towards Rosslare Harbour 2015-2017 (Current Available Ranking)**

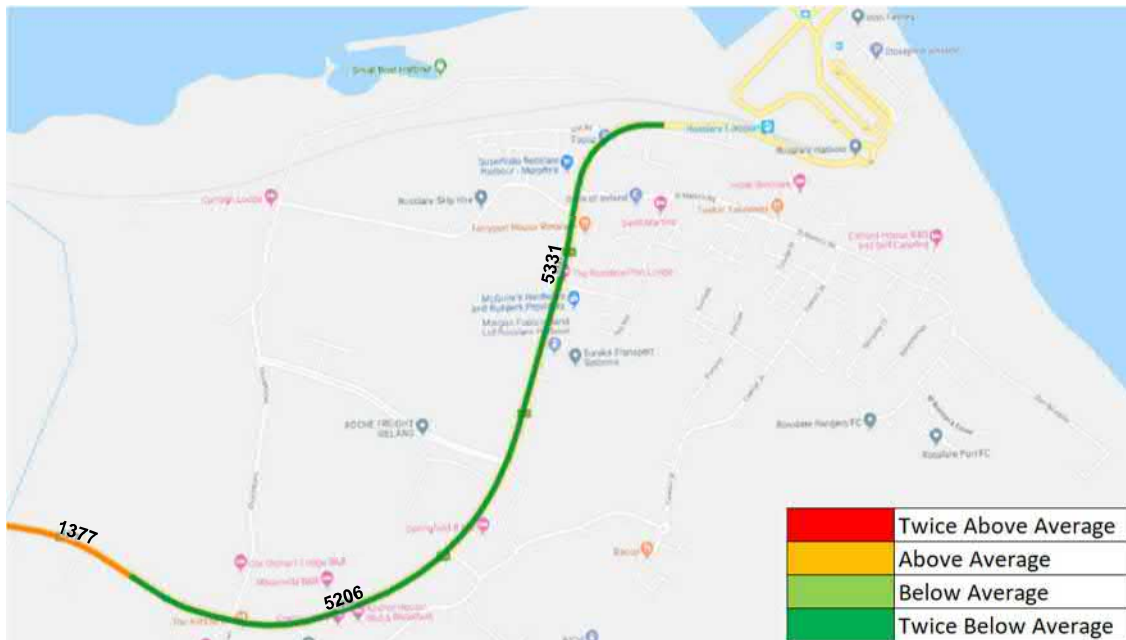


Figure 2-2 presents the collision rate results for the years 2015 to 2017. The numbers above each section correspond to the section ID given in Table 2-2 below. Also given in the table below are the collision rates for collisions per 100 million vehicle kilometres and collisions per million vehicle kilometres. This is compared to the average rate given in Table 2-2 of the TII Project Appraisal Guidelines Unit 6.11. The PAG benchmark rates are 0.08 c/mvkm for rural 2 lane single carriageway and 0.213 c/mvkm for urban 2 lane single carriageway.

**Table 2-2: Collision Rates for Collisions per 100 million vehicle kilometres and per million vehicle kilometres**

Section ID	N11/N25 Local ID	Injury Collision Rate (Collisions per 100 Million Veh Kms)	Injury Collision Rate (Collisions per Million Veh kms)	Average Injury Collision Rate (from Table 23 of TII PAG Unit 6.11)	Urban/Rural	Threshold*
5331	1	0	0	0.213	Urban	Twice Below Average Rate
5206	2	0	0	0.213	Urban	Twice Below Average Rate
1377	3	16.026823	0.16026823	0.08	Rural	Above Average Rate

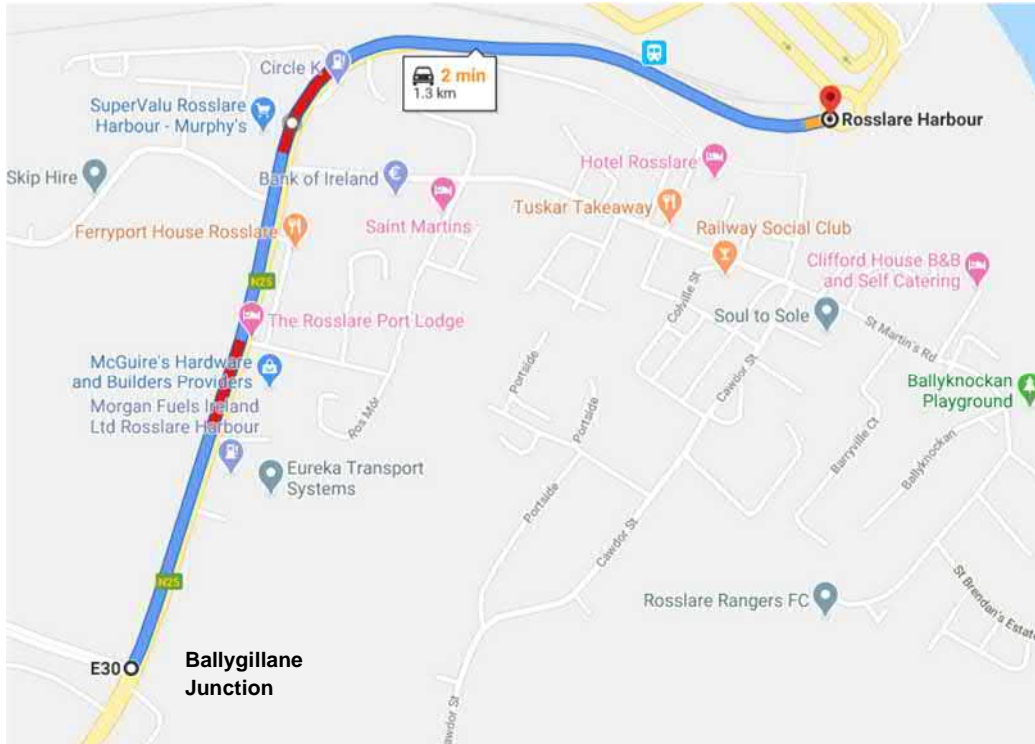
Source: <https://data.gov.ie/organization/transport-infrastructure-ireland>

\*based on 2015 to 2017 collision data

### 2.2.3 Journey Times and Operating Efficiency

Journey time data within the study corridor was collected using the Google maps distance matrix API which provides real travel distances and times for a matrix of origins and destinations, based on the recommended route between start and end points. The relevant journey time data is presented in Figure 2-3 below.

**Figure 2-3: Journey Time from Rosslare Europort to Ballygillane, Co. Wexford**



The journey time assessment indicates an average journey speed of 40km/h. It is noted that the speed limit on this section of road was increased from 50km/h to 60km/h in February 2020. Upon the anticipated completion of the Ballygillane roundabout in 2021, it is proposed that the speed limit from that Ballygillane roundabout into the village will reduce back down to 50km/h. The corridor is therefore considered to be contained within a 50km/h speed limit zone, see Figure 2-4 below, and this would suggest that average journey times along the corridor are not currently a significant problem. However, journey times may be particularly sensitive to seasonal and time factors, primarily the frequency and timing of ferry services to and from Rosslare Europort. Traffic volumes within the study area vary seasonally and are greatest during the peak tourist season towards the end of the summer when ferries are most frequent. The variable journey time factors may also impact on local traffic from Rosslare Harbour accessing onto the N25 through the village. Journey times and traffic impacts will be assessed as part of the transport modelling process in subsequent project phases as outlined in chapter 3. The provision of improved and more efficient access to Rosslare Europort, particularly for HGV traffic, will create improved journey time conditions and reliability for both Port traffic and local traffic.

**Figure 2-4: Speed Limits around Rosslare Harbour**



### 2.2.4 Existing Road Characteristics

The existing N25 within the section of the study corridor shares many of the characteristics of a standard Type 2 single carriageway road without any hard shoulders or hard strips. Cycle facilities are provided along the length of the N25 either as designated cycle lanes marked on the road carriageway or as cycle tracks adjacent to the footpaths. There are 5 existing road junctions along the 1km section of N25 road corridor within the study area as well as regular and numerous private accesses. This level of access and development limits the potential for online improvement of the existing road corridor to accommodate growth in traffic volumes and the proposed future expansion of the Rosslare Europort.

On the immediate approach to Rosslare Europort past the village of Rosslare Harbour, the N25 national road classification terminates and the road continues as an access road to the Port. The road runs parallel to the existing road runs parallel to the existing Iarnród Éireann railway track and is on top of a very steep embankment slope (Delap's Hill). From consultations with Rosslare Europort, the condition and suitability of the main port access road on Delap's Hill has been a concern since the early 2000's. This is the only access point available to and from the Port, and the fitness for purpose of this section of road in the medium to long term is considered to be a tangible risk to the operation of the Port. Over the past number of years Iarnród Éireann has undertaken various inspections, reports and works to mitigate against the instability of this existing section of access road. Below is a summary of the various inspections, reports and works carried out by Iarnród Éireann:

- October 2002 – An inspection was carried out following a slip on a section of slope during a period of heavy rain. Further investigations to determine the remedial works were recommended, including:
  - Completing a number of excavations within the road to locate any voids beneath the road surface and determine whether any stabilizing works required. It was recommended that the excavations had an approximate spacing of 10m.
  - Assessing the slip and the remedial works required. It was proposed that gabions backfilled with grout or concrete are installed.
  - Monitoring pins installed to record any further movement within the slope over a two-week period.
  - Investigating the large gully to understand its suitability as alternative outfall for surface water drainage. Work would require tracing the outfall, a hydraulic assessment and the removal of silt and debris to determine its suitability.

- April 2006 – Settlement in the carriageway was identified in two locations on Delap’s Hill after torrential rain. Remedial works were carried out to carriageway and monitoring was put in place;
- April 2007 – Further settlement identified at same locations and further repairs were carried out. Monitoring regimen intensified, to identify any further settlement;
- November 2007 – Inspection carried out by the Iarnród Éireann Structural Design Section and report prepared setting out a number of options for remedial works;
- March/April 2008 – Detailed ground investigations carried out on the port access road to determine the underlying conditions;
- November 2009 to April 2010 – Slope stabilisation works were carried out on a section of Delap’s Hill affected by the slip. Remediation works included;
  - Design and install ground anchorages through the existing concrete edge kerb beam at 2-3m centres, and anchor into the rock head or other stiff material. Stress anchorages to prevent further movement.
  - Install sub-horizontal drains below the carriageway sub-base to remove ground water or run off away from the intact surfacing or repair areas, and
  - Repair carriageway surface patching.
- 2010 to Present – Remedial works carried out to the port access road on an as required basis.

According to Rosslare Europort the condition and suitability of the main port access road on Delap’s Hill has been an item on the port’s risk register since 2006 and remains so at present. In this regard Rosslare Europort has identified the need for a new Port Access Road to mitigate this risk in the medium to long term.

## 2.2.5 Road Traffic Volumes

### 2.2.5.1 Road Traffic Volumes (N25 National Road)

Traffic data for the Rosslare Europort Access Road was collected from the existing TII Permanent Traffic Counter located outside the study area, on the N25 at Kilrane, on the approach to Rosslare Harbour. The Annual Average Daily Traffic (AADT) for this traffic counter is given below in Table 2-3 This data was obtained from the TII traffic count data website ([www.tii.ie](http://www.tii.ie)). Below in Figure 2-5: Location of Traffic Counter, a map of the location of the traffic counter near the study area is given.

**Table 2-3: AADT on the N25 Southwest of Rosslare Harbour**

Location of Traffic Counter	2020 <sup>1,2</sup>	2019	2018	2017	2016	2015
N25 Southwest of Rosslare Harbour	4787	5629	6052	6010	6072	5962

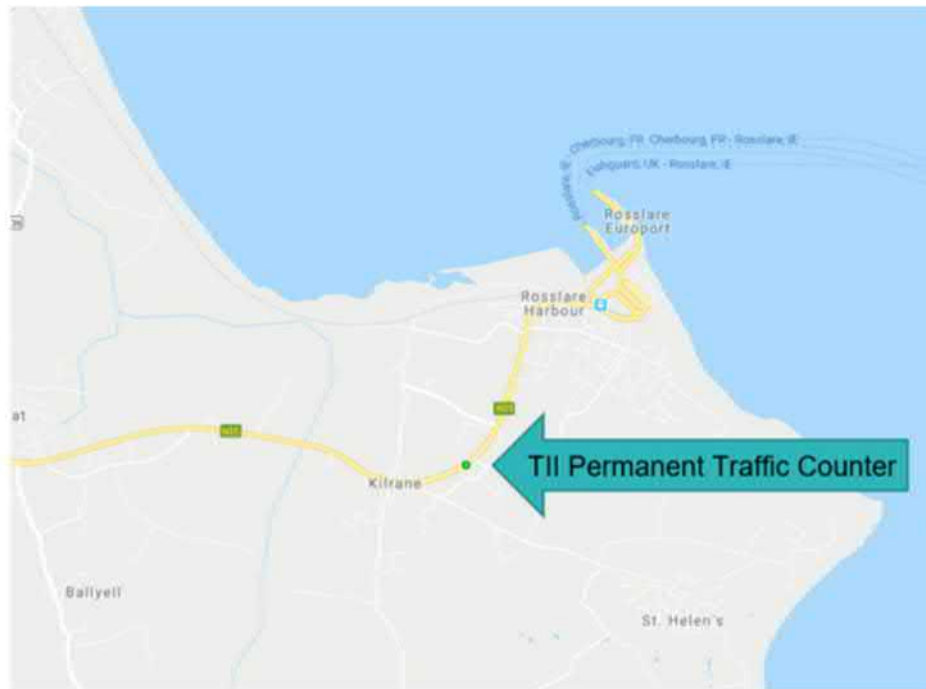
Source: [https://www.nrtraffdata.ie/c2/calendar\\_alt.asp?sqid=ZvyVmXU8iBt9PJE\\$c7UXt6&spid=NRA\\_00000020251](https://www.nrtraffdata.ie/c2/calendar_alt.asp?sqid=ZvyVmXU8iBt9PJE$c7UXt6&spid=NRA_00000020251)

<sup>1</sup>Data correct on the 22<sup>nd</sup> September 2020

<sup>2</sup>It is considered that 2020 traffic volumes have been suppressed by Covid-19 restrictions.



**Figure 2-5: Location of Traffic Counter**



A summary of the Average Annual Daily Traffic (AADT) and percentage Heavy Goods Vehicles (HGV) is provided in Table 2-4. The figures indicate that between 2014 and 2019, traffic volumes have decreased by 3.7% on the N25 Southwest of Rosslare Harbour, but HGV volumes have increased. In 2019 the HGV's represent 8.5% of the total AADT (vehicles/day) on the N25 Southwest of Rosslare Harbour, an increase of 0.8% since 2014. The data for 2020 has not been included in the assessment because the full year is not yet available.

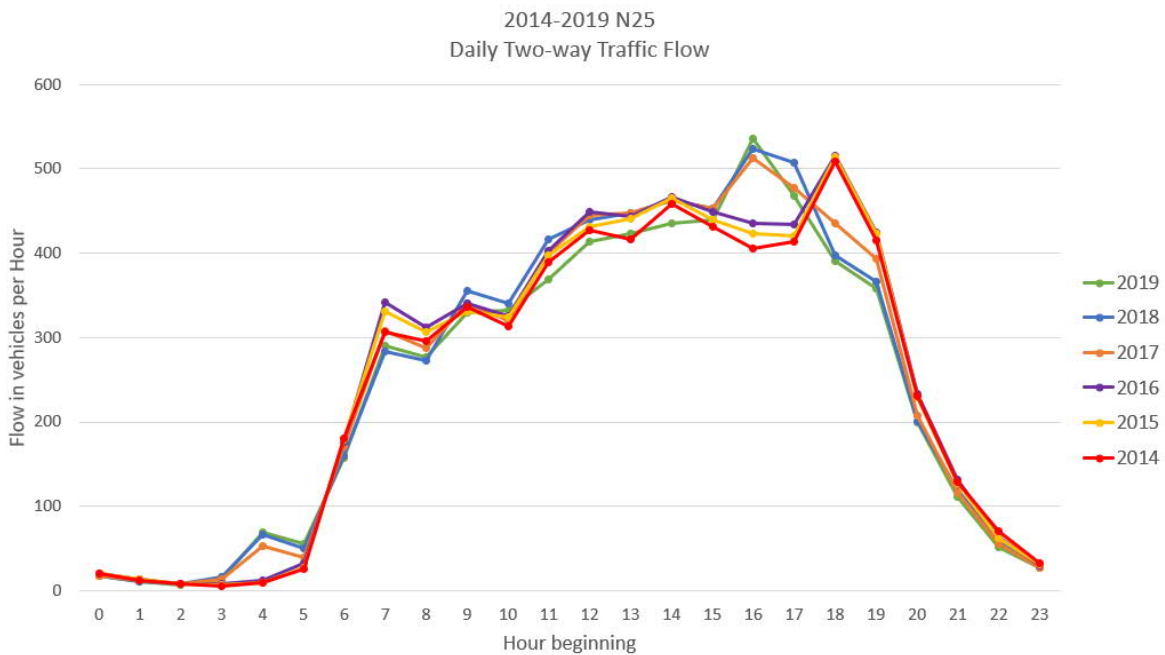
**Table 2-4: Summary of AADT (vehicles / day) on N25 Southwest of Rosslare Harbour**

	2019	2018	2017	2016	2015	2014
AADT	5629	6052	6010	6072	5962	5847
% HGV	8.5%	8.4%	8.4%	8.4%	8.4%	7.7%
% HGV increase since previous year	0.1%	0%	0%	0%	0.7%	-
% HGV increase since 2014	0.8%	0.7%	0.7%	0.7%	0.7%	-
Coverage	98.7%	99.7%	99.7%	99.7%	99.7%	99.7%
% AADT increase since previous year	-7%	0.7%	-1%	1.8%	2%	-
% AADT increase since 2014	-3.7%	3.5%	2.8%	3.8%	2%	-

Source: [https://www.nrtraffdata.ie/c2/qmapbasic.asp?sqid=ZvyVmXU8jBt9PJE\\$c7UXt6](https://www.nrtraffdata.ie/c2/qmapbasic.asp?sqid=ZvyVmXU8jBt9PJE$c7UXt6)

Figure 2-6 below presents the increase in hourly traffic flows on the N25 near Rosslare Europort between the years of 2014 and 2019. It is noted from this figure that the pm peak period has occurred between 4pm and 7pm daily between the years shown. The peak period is approximately 30% higher than the am peak period

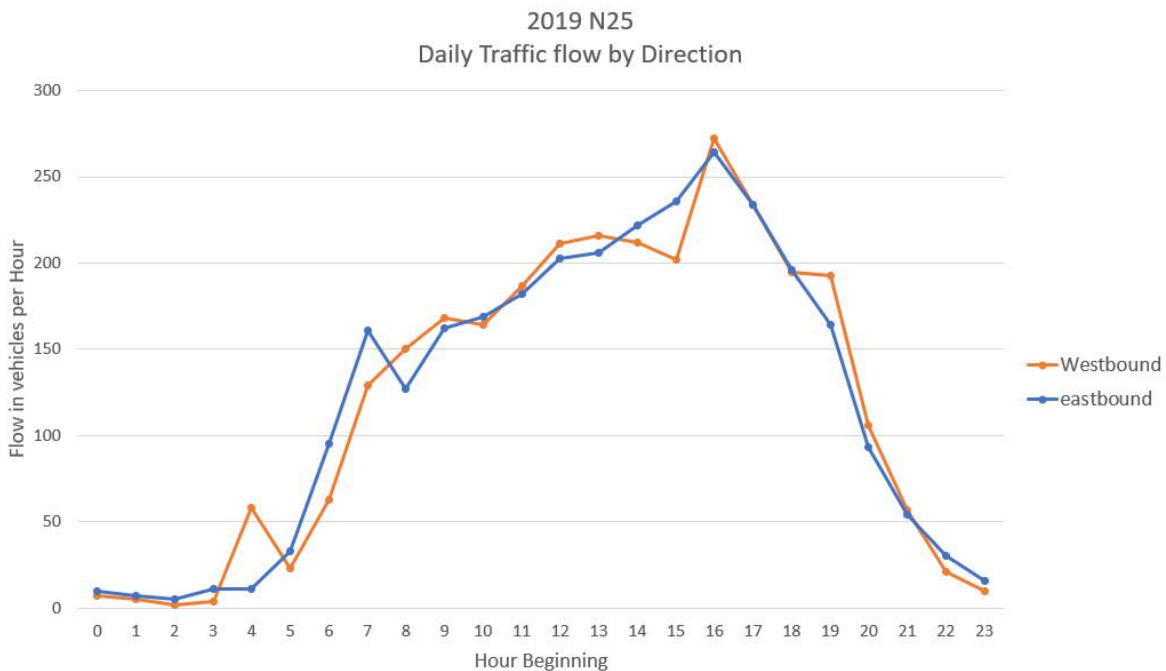
**Figure 2-6: N25 Daily Two-way Traffic Flow 2014-2019 Inclusive**



Source: nrtrafficdata.ie,

Figure 2-7 below shows the corresponding directional split. Traffic flow heading west bound peaks at 5pm in the evening, morning flows peak at 9am and there is a noticeable sub-peak at 4am which corresponds with the arrival of an early morning ferry. Traffic flow heading eastbound peaks at 7am and 5pm. Both traffic flows decrease similarly between 8 and 11pm and do not change much between 12pm and 3am.

**Figure 2-7: N25 Daily Traffic Flow by Direction 2019**



Source: nrtrafficdata.ie,

## 2.2.6 Europort Throughput Volumes

Rosslare Europort is a critically important international transport hub for the south east region and the wider country. The primary objective of the project is to provide improved and sustainable access to the Europort that will meet its current and future needs. The project has consulted closely with Rosslare Europort to establish current and future traffic levels generated by the port. The following sections detail the information collected to date from these consultations.

Port traffic data was collected for Rosslare Europort throughout 2018 by Rosslare Europort. Data was received from the Rosslare Europort operator Iarnród Éireann in December 2019. The port traffic data was organised into a number of headings outlined below;

- i. Category (the reason for using the port)
- ii. Shipper (the companies using the port)
- iii. Route (UK or Continental)
- iv. Direction (Coming into the port or going out from the port)

The port data shows the amount of traffic coming in and going out in the morning and the evening throughout the 12 months of 2018. These four categories will be analysed and explained further in the following sub-sections of this report.

### i. Category

The Port traffic data received from Rosslare Europort details that there were eight categories shipped in and out of Rosslare Europort in 2018; these include;

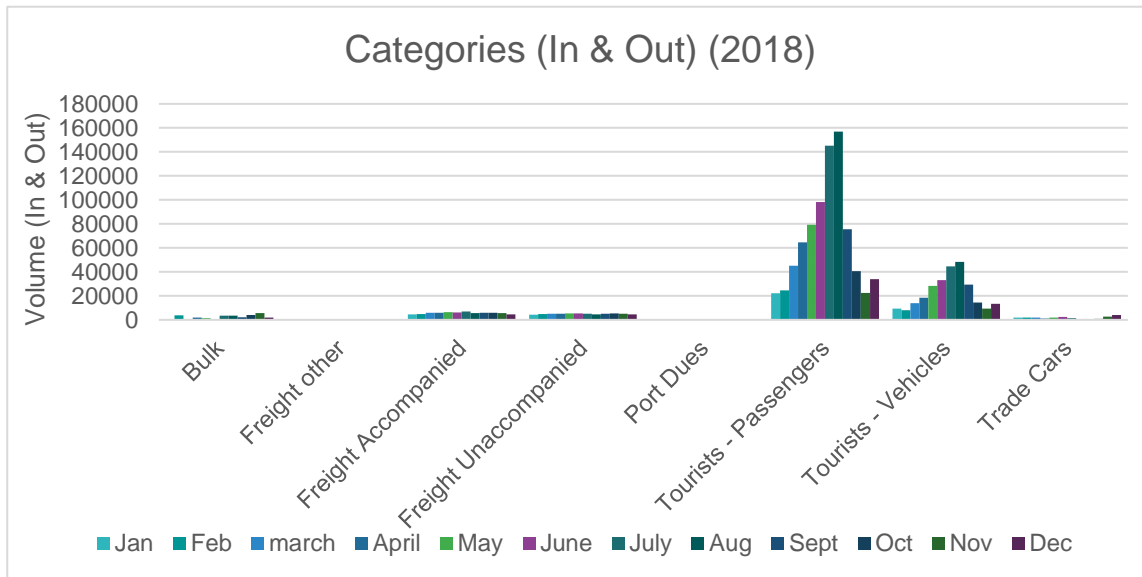
- Bulk
- Freight - Other
- Freight - Accompanied
- Freight - Unaccompanied
- Port Dues
- Tourist – Passengers
- Tourist – Vehicles and,
- Trade Cars

Table 2-5 below shows the shipped throughput volumes to and from Rosslare Europort for each month in 2018 for each of the eight categories and Figure 2-8 shows a graphical representation of the data received.

**Table 2-5: Unit Numbers Shipped per Category in 2018**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Bulk	0	3,800	0	1,987	1,429	0	3,614	3569	2,085	4,096	5,683	2,000	<b>28,263</b>
Freight other	73	119	110	80	127	80	72	39	44	73	87	92	<b>996</b>
Freight Accompanied	4,482	4,946	5,784	5,891	6,303	6,141	6,997	5,702	5,807	5,788	5,651	4,566	<b>68,058</b>
Freight Unaccompanied	4,334	4,745	5,124	5,143	5,312	5,405	5,172	4,687	5,175	5,476	5,197	4,576	<b>60,346</b>
Port Dues	115	94	137	149	157	155	159	157	149	136	130	118	<b>1,656</b>
<b>Tourists - Passengers</b>	<b>22,109</b>	<b>24,623</b>	<b>45,101</b>	<b>64,492</b>	<b>79,351</b>	<b>98,125</b>	<b>145,270</b>	<b>156,810</b>	<b>75,544</b>	<b>40,531</b>	<b>22,309</b>	<b>34,037</b>	<b>808,302</b>
<b>Tourists - Vehicles</b>	<b>9,279</b>	<b>8,014</b>	<b>13,941</b>	<b>18,304</b>	<b>28,426</b>	<b>32,975</b>	<b>44,521</b>	<b>48,433</b>	<b>29,251</b>	<b>14,401</b>	<b>9,362</b>	<b>13,312</b>	<b>270,219</b>
Trade Cars	1,839	1,936	1,894	1,122	1,895	2,302	1,258	590	452	731	2,794	4,034	<b>20,847</b>

**Figure 2-8: Volumes in & out of Rosslare Europort by Category in 2018**



As can be seen from the chart and table above, the highest category by far in 2018 with over 700,000 was ‘Tourist – Passengers’, and the next highest category in 2018 was ‘Tourist – Vehicles’. The smallest volume by category was ‘Freight Other’. It is noteworthy that the graphic as presented above overstates passenger volumes relative to freight volumes due to the disproportionate relative unit sizes applied for freight and passenger traffic

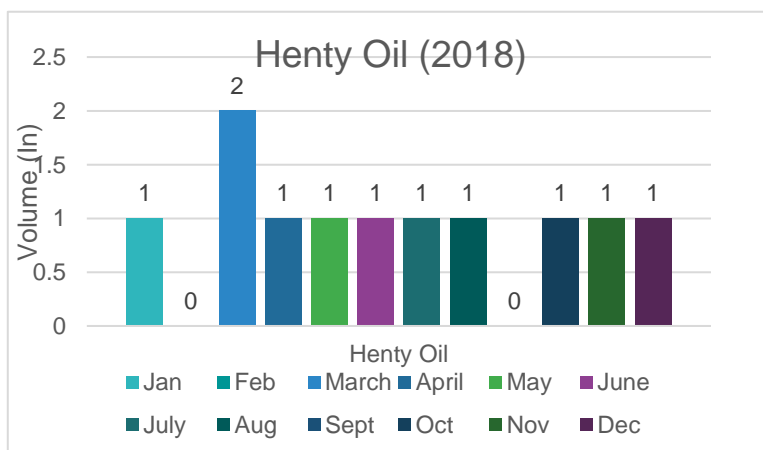
**ii. Shipper**

There were five companies in total utilising the port in 2018, three of which only shipped into Rosslare Europort the other two shipped in and out of Rosslare Europort. The three companies that shipped into Rosslare Europort were; Henty Oil, OTS Shipping and Neptune Lines. The two remaining companies that shipped in and out of Rosslare Europort were; Irish Ferries (UK and Continental) and Stena Line (UK and Continental).

*Henty Oil*

According to the Port traffic data Henty Oil only delivered products to the port. As can be seen from Figure 2-9, Henty Oil was not a big company using the port in 2018.

**Figure 2-9 - Shipper – Henty Oil (In) (2018)**

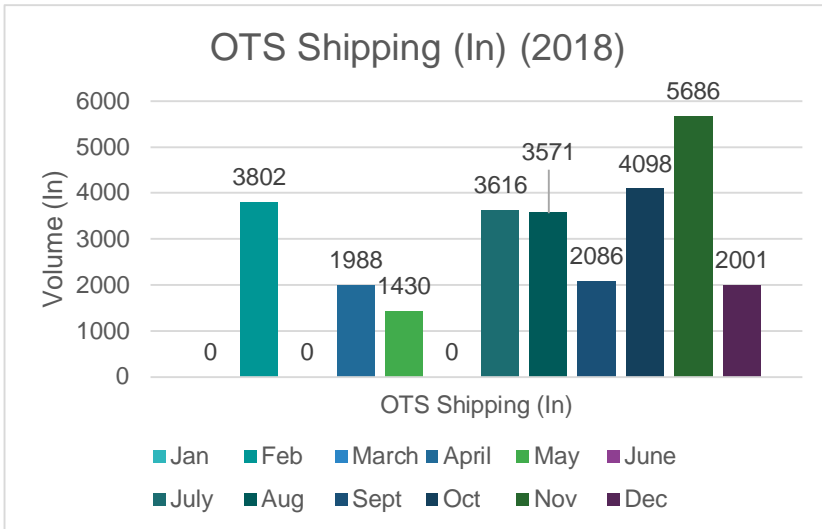


Henty Oil shipped oil from the UK to Rosslare Europort for the running of the port. March is the only month that shipped more than once in a month. In February and September there were no shipping's to Rosslare Europort. There was no data recorded for Henty Oil going out from Rosslare Europort.

### OTS Shipping Services Limited

According to the Port traffic data OTS Shipping Services Limited only shipped into Rosslare Europort from the UK in 2018 with over 28,000 of a throughput volume (mainly Bulk Category), they did not ship anything from Rosslare. Figure 2-10 shows the volume from OTS Shipping in 2018.

**Figure 2-10: Shipper – OTS Shipping (In) (2018)**

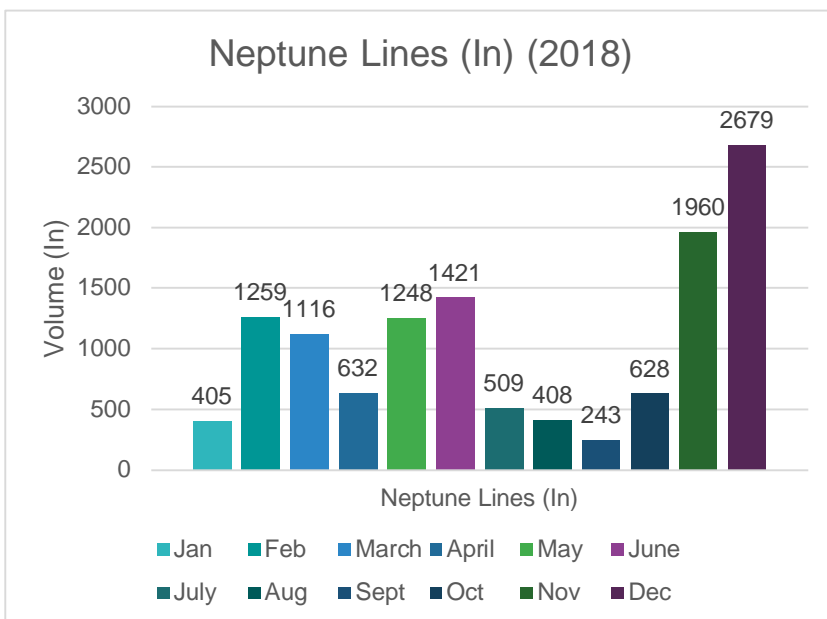


The busiest month in 2018 into Rosslare Europort for OTS Shipping was November and the quietest month was May apart from the three months with no shipments, January, February and April. OTS Shipping was one of the smaller shipment companies going to Rosslare Europort with just over 28,000 shipments in 2018.

### Neptune Lines

According to the Port traffic data Neptune Lines only shipped into Rosslare Europort, they shipped just over 12,500 of a throughput volume (mainly Trade-Car Category) in 2018. Figure 2-11 shows the data obtained from Rosslare Europort.

**Figure 2-11: Shipper - Neptune Lines (In) (2018)**

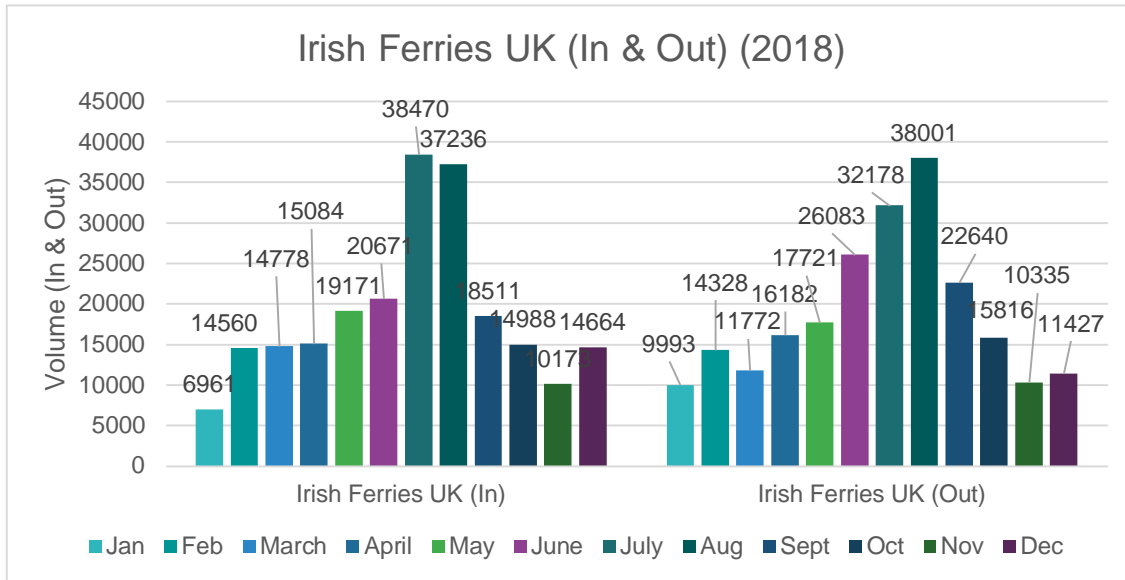


The busiest month in 2018 into Rosslare Europort for Neptune Lines was December and the quietest month was September. Similarly, to OTS Shipping and Henty Oil there was no data recorded for Neptune Lines going out of Rosslare Europort.

### Irish Ferries (UK)

According to the Port traffic data Irish Ferries (UK) was the biggest shipper to Rosslare Europort in 2018 with over 500,000 of a throughput volume (mainly Tourist Passenger/Vehicles Categories) coming in and going out of the port, details shown in Figure 2-12.

**Figure 2-12: Shipper – Irish Ferries UK (In & Out) (2018)**

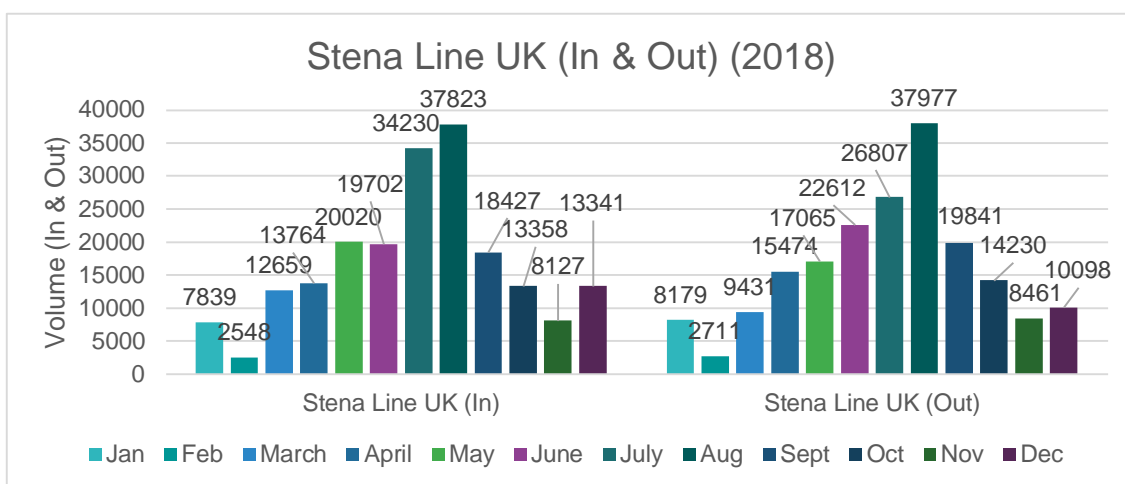


July and August were clearly the busiest months for Irish ferries UK both in and out of Rosslare Europort with over 37,000 in and out of the port. The quietest month for volume was January for both in and out.

### Stena Line (UK)

Stena Line (UK) was the second largest shipper to Rosslare Europort, with nearly 400,000 of a throughput volume shipped (mainly Tourist Passenger/ Vehicle Categories) in and out annually. Figure 2-13 shows the volume in and out of Rosslare Europort in 2018.

**Figure 2-13: Shipper - Stena Line UK (In & Out) (2018)**

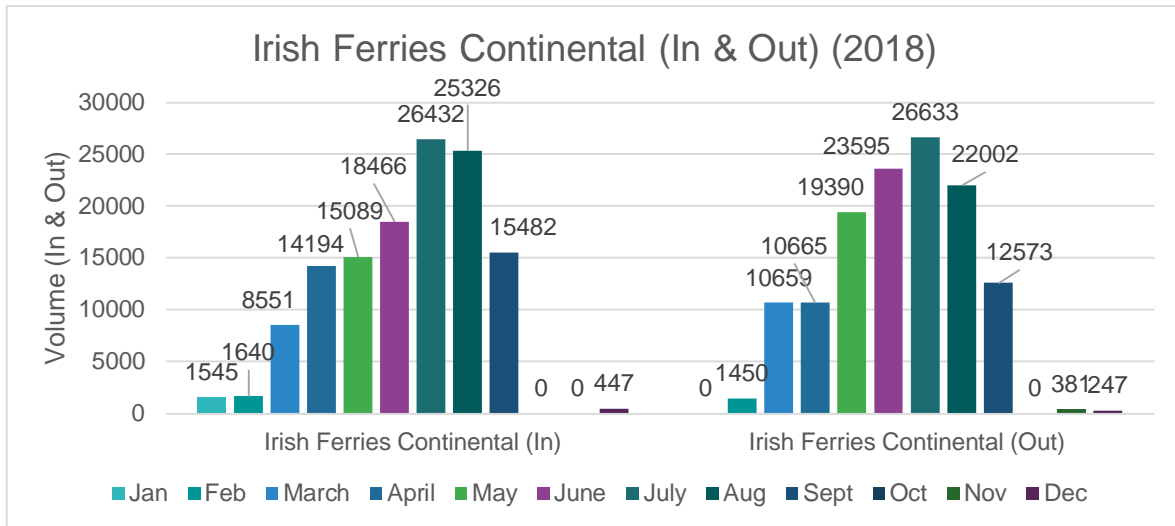


August was the busiest month for Stena Line (UK) both in and out of Rosslare Europort in 2018. The month with the smallest amount of volume to and from the port was February.

### Irish Ferries (Continental)

According to the Port traffic data Irish Ferries (Continental) had an approximate throughput volume (mainly Tourist Passenger/Vehicle Categories) of 260,000 in and out of Rosslare Europort in 2018. This data is shown in Figure 2-14. The busiest month in and out of Rosslare Europort for Irish Ferries (Continental) was July, and the quietest was December.

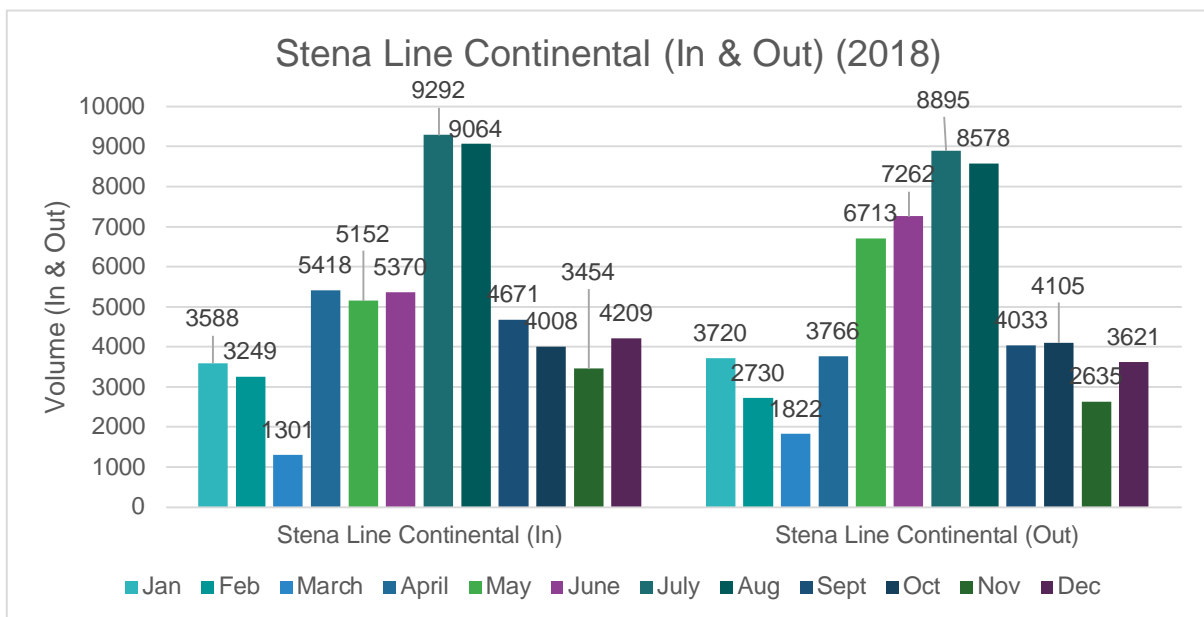
**Figure 2-14: Shipper - Irish Ferries Continental (In & Out) (2018)**



### Stena Line Continental

According to the Port traffic data Stena Line Continental had just under 120,000 of a throughput volume (mainly Tourist Passenger/Vehicle Categories) in and out of Rosslare Europort in 2018. Figure 2-15 shows the data obtained from Rosslare Europort.

**Figure 2-15: Shipper - Stena Line Continental (In & Out) (2018)**

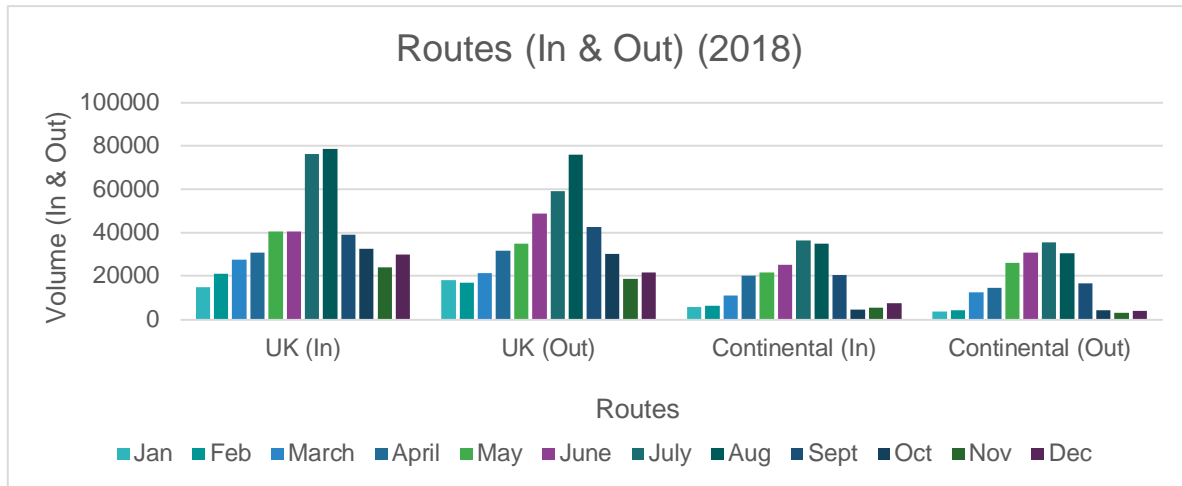


The busiest month in 2018 in and out of Rosslare Europort for Stena Line (Continental) was July and the quietest month was March.

### iii. Route

There were two main routes recorded in 2018 for Rosslare Europort, the UK and the Continental. Figure 2-16 shows a graphical representation of the data collected and Table 2-6 shows the quantity shipped per route.

**Figure 2-16: Volume in & out of Rosslare Europort by Routes in 2018**



**Table 2-6: Numbers Shipped by Route in 2018**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
UK (In)	14,801	20,910	27,439	30,837	40,622	40,374	76,317	<b>78,613</b>	39,024	32,445	23,987	30,007	<b>455,394</b>
UK (Out)	18,172	17,039	21,203	31,656	34,786	48,695	58,985	<b>75,978</b>	42,481	30,046	18,796	21,525	<b>419,362</b>
Continental (In)	5,538	6,148	10,968	20,244	21,489	25,257	<b>36,233</b>	34,789	20,396	4,636	5,414	7,335	<b>198,456</b>
Continental (Out)	3,720	4,180	12,481	14,431	26,103	30,857	<b>35,528</b>	30,580	16,606	4,105	3,016	3,868	<b>185,475</b>

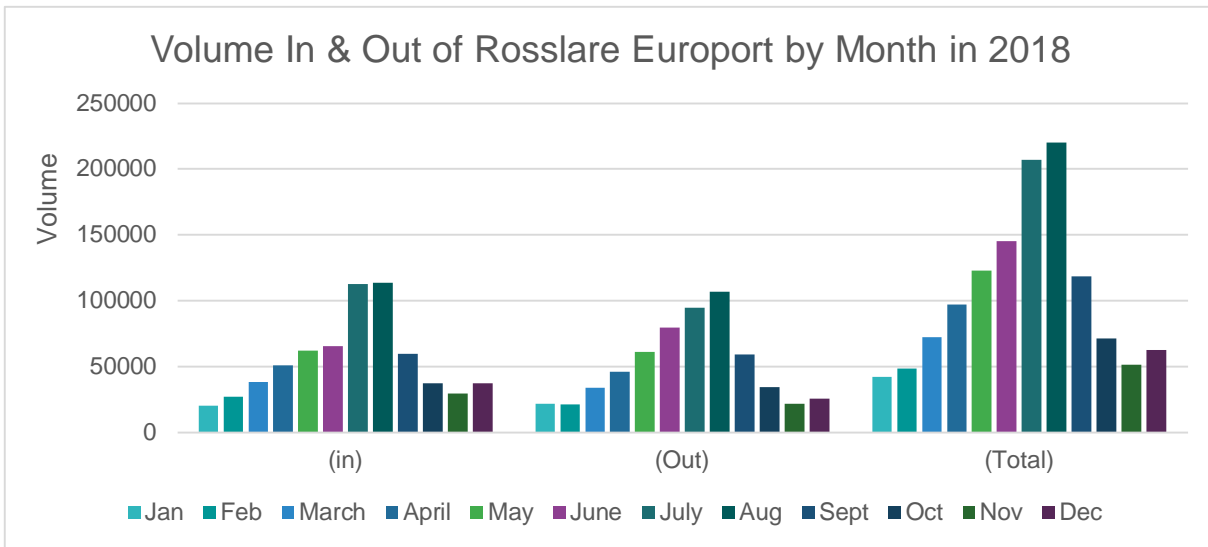
As can be seen from Figure 2-16 and Table 2-6 the numbers shipped to and from the UK in 2018 were over double those to and from the Continent. August was the busiest month to and from Rosslare for the UK route and July was the busiest month to and from Rosslare for the Continental route.

### iv. Direction

Figure 2-17 and Table 2-7 show the numbers shipped in and out of Rosslare Europort by month in 2018. The table and figure shows that the busiest month is August, and the quietest month throughout 2018 was January for incoming shipments and February for outgoing shipments. Passenger vs. Non-passenger data is shown in Figure 2-18 and Table 2-8.



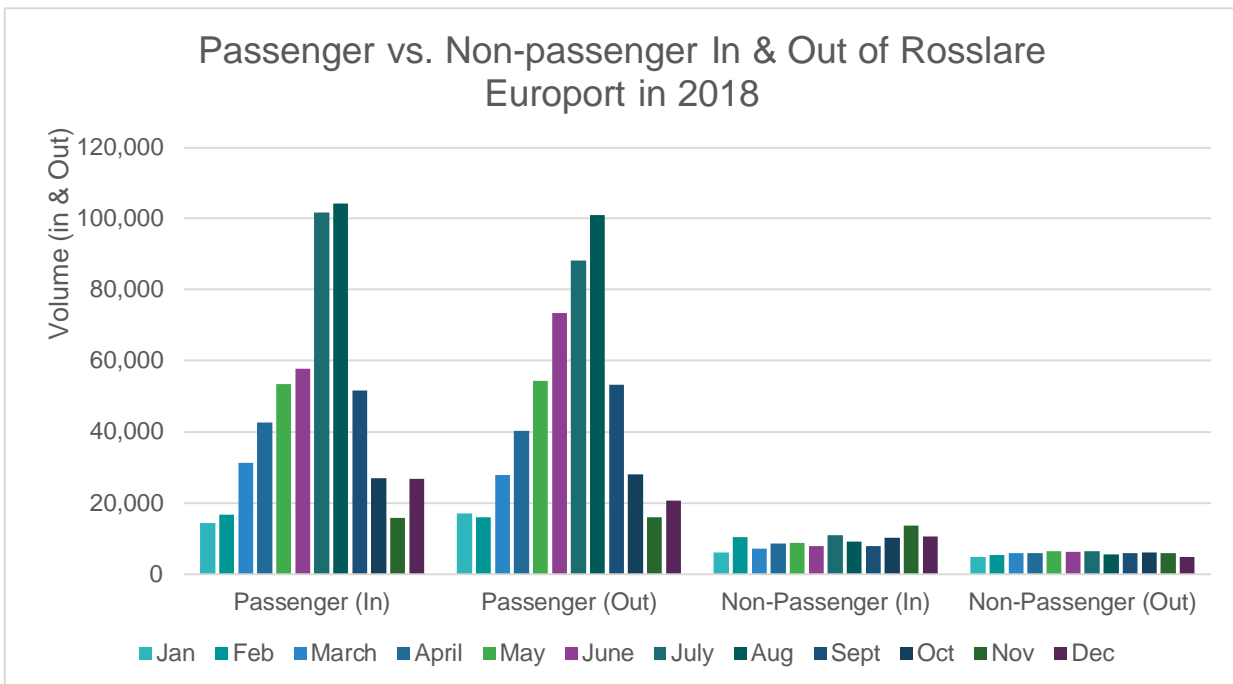
**Figure 2-17: Volume In & out of Rosslare Europort by Month in 2018**



**Table 2-7: Volume in & out of Rosslare Europort by Month in 2018**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Volume (in)	20,339	27,058	38,407	51,081	62,111	65,631	112,550	113,429	59,420	37,081	29,401	37,342	653,850
Volume (Out)	21,892	21,219	33,684	46,087	60,889	79,552	94,513	106,558	59,087	34,151	21,812	25,393	604,837
Volume (Total)	42,231	48,277	72,091	97,168	123,000	145,183	207,068	219,987	118,507	71,232	51,213	62,735	1,258,687

**Figure 2-18: Passenger & Non-Passenger Volume In & Out of Rosslare Europort in 2018**

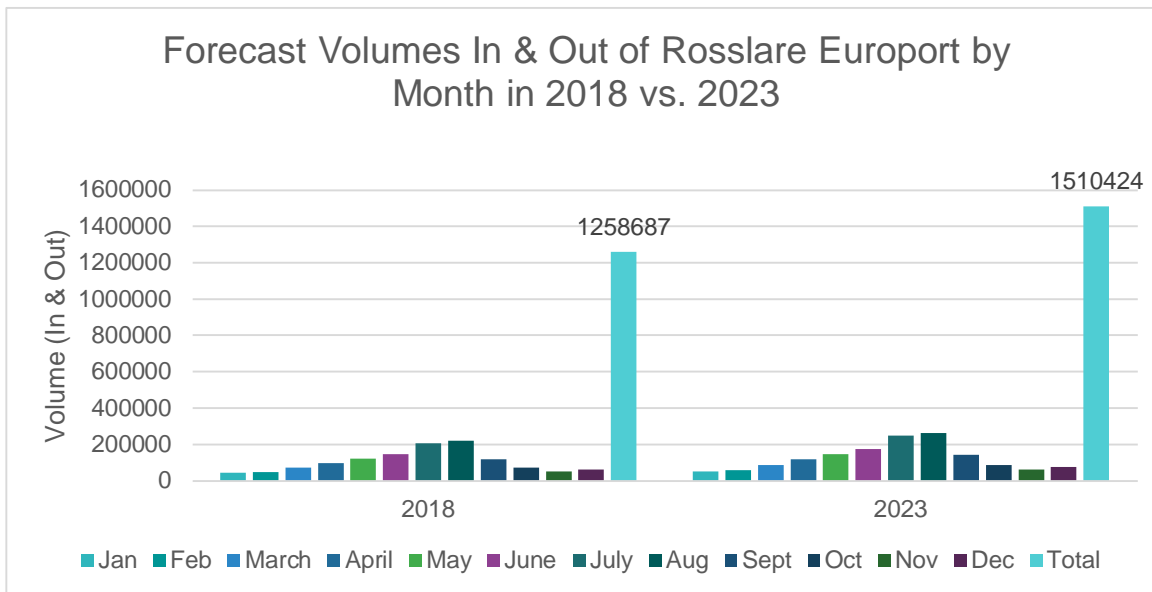


**Table 2-8: Passenger vs. Non-passenger In and Out of Rosslare Europort in 2018**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Passenger (In)	14,363	16,673	31,222	42,580	53,387	57,722	101,676	104,262	51,624	26,860	15,734	26,761	542,864
Passenger (Out)	17,025	15,964	27,820	40,216	54,390	73,378	88,115	100,981	53,171	28,072	15,937	20,588	535,657
Non-Passenger (In)	5,979	10,385	7,185	8,501	8,724	7,909	10,874	9,167	7,796	10,221	13,667	10,581	110,986
Non-Passenger (Out)	4,867	5,255	5,864	5,871	6,499	6,174	6,398	5,577	5,916	6,079	5,875	4,805	69,180

In general, the busiest months in and out of Rosslare Europort in 2018 were July and August, and the quietest months were January, February and November. Tourist passengers and vehicles had a big impact on the numbers in general, as can be seen from Table 2-8 and Figure 2-18. Particularly in the rise in numbers during the summer months and the dip around the winter months, because of the quantity of tourists that used Rosslare Europort in 2018. Rosslare Europort is forecasting a 20% growth on the Port traffic over the next five-year period from 2020-2025. This increase is shown below in Figure 2-19 and Table 2-9. According to the 20% increase, Rosslare Europort is expecting a throughput volume increase of nearly 250,000 in and out of the port in 2023. This expected increase is a major factor to impacting the need for the Rosslare Europort Access Road.

**Figure 2-19: Forecast Volumes In & Out of Rosslare Europort by Month in 2018 vs. 2023**



**Table 2-9: Forecast Volume In & Out of Rosslare Europort by Month in 2018 vs. 2023**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Volume (2018)	42,231	48,277	72,091	97,168	123,000	145,183	207,063	<b>219,987</b>	118,507	71,232	51,213	62,735	<b>1,258,687</b>
Volume (2023)	50,677	57,932	86,509	116,602	147,600	174,220	248,476	<b>263,984</b>	142,208	85,478	61,456	75,282	<b>1,510,424</b>

### 2.2.7 Level of Service

The level of service (LOS) being provided by a road is assessed using recognised international standards. LOS is a quality measure describing operational conditions within a traffic stream, and levels are categorised from LOS A which indicates free flow conditions, to LOS F which indicates a breakdown in flow. At Level of Service D, conditions are considered to be moving from stable flow to unstable flow. Speeds begin to decline slightly with slight increase of flows and density begins to increase somewhat more quickly. Freedom to manoeuvre within the traffic stream is more noticeably limited, and the driver experiences reduced comfort levels.

TII Road Link Design Standard provides guidance on the approximate capacity of different road types to provide a Level of Service D in terms of AADT. The N25 road within the study corridor is generally comparable to a type 2 single carriageway, though there are significant sections where no hard strips are provided. For a standard type 2 single carriageway, a capacity of 8,600 AADT is indicated for the provision of LOS D.

Traffic volumes along the N25 section are within the indicative capacity range for LOS D. It is noted however that the proportion of HGV's along this section closer to Rosslare Harbour are more elevated because of Rosslare Europort.

## 3 Traffic Assessment

### 3.1 Introduction

As part of the Scheme Option Selection process a traffic assessment was undertaken on the scheme options developed in accordance with Project Appraisal Guidelines for National Roads Unit 5.4 & Unit 12 and a Traffic Modelling report (TMR) was prepared to report the findings. A traffic model was developed in VISSIM to assess the impact of the scheme options on local traffic. The base model was developed using Ordnance Survey (OS) drawings and an illustration of model extents is shown in Figure 3-1 below. The model was built using traffic counts from surveys undertaken in 2016 and was calibrated against observed turning movement counts and validated against journey times along the N25. VISSIM 20 was used to develop the model and the VISSIM model was prepared in accordance with PAG Unit 5.1 “Guidelines for model development, calibration and validation”. The forecast models were based on the calibrated and validated base models and developed for the years 2023 (Opening Year), 2038 (Opening Year + 15 Years) and 2053 (Opening Year + 30 Years). Chapter 3 summarises the findings of the Traffic Modelling report and the full Traffic Modelling report is attached to Appendix J of this report.

**Figure 3-1: VISSIM Model Extents**



### 3.2 Traffic Model Type selection

The proposed traffic model type to be applied for the scheme has been informed by the Project Appraisal Guidelines (PAG) Unit 5.1 (Construction of Transport Models) and PAG Unit 12 (Minor Project). Table 5.1.1 of PAG Unit 5.1 advises that simple models or microsimulation models are most appropriate for minor projects and assignment models are most appropriate for major projects. Items which informed the selection of the most appropriate model type include the following:

- The area of influence for the model is very localised and well defined,

- The area of influence is located at the end point of the road transport corridor which simplifies reassignment,
- Route choices are relatively simple with no intermediate junctions,
- There is a clear delineation between Europort traffic and 'village' traffic for modelling purposes,
- Europort traffic has specific peaks and platooning characteristics corresponding to the arrival and departure of ferries,
- At phase 3 of the project, the transport model will need to be interfaced with the N11/N25 Oilgate to Rosslare Harbour scheme model to reflect the links between the respective selected scheme options.

Following a review of the Project Appraisal Guidelines, it was decided to use a microsimulation model using PTV VISSIM software as the preferred choice to assess the proposed N25 Rosslare Europort Access Road Scheme. It is noted that the above recommendation is consistent with the guidance provided in the Project Appraisal Guidelines (PAG) for National Roads, Units 5.1 (Construction of Transport Models - PE-PAG-02015) and Units 12 (Minor Projects – PE-PAG-02035). A simple model (manual assignment calculations) would not have sufficient complexity to replicate the site-specific characteristics and an assignment model is considered to be unnecessarily complex and disproportionate for the relatively straightforward route choices to be modelled.

### 3.3 Data Collection

Count data was provided from a data collection exercise previously undertaken in March 2016 including manual classified turning movement counts (MCTC) and from fixed site Automatic Traffic Counts (ATC) on the N25. The MCTC data was previously collected at 5 site locations within the model extents while the ATC traffic data for the N25 was collected from the existing TII Permanent Traffic Counter on the N25 road immediately east of Kilrane.

The ATC data was analysed to assess if the 2016 Manually Classified Turning Count (MCTC) data was representative of 2020 traffic flows and suitable for use in preparing a 2020 base model. The assessment showed that based on the ATC link counts the 2016 data was acceptable for use in the model. Ferry schedules and times were also provided by Rosslare Europort and these were cross referenced with the 2016 survey data.

The surveys completed were 12-hour surveys that identified the following peak time periods;

- Weekday AM (08:45-09:45); and,
- Weekday PM (16:30-17:30).

These traffic surveys have recorded each movement at every junction at 15-minute intervals for 8 categories of vehicles;

- Motorcycle;
- Cars;
- Taxis;
- Light Goods Vehicles;
- Other Goods Vehicles 1;
- Other Goods Vehicles 2;
- Public Service Vehicles.

The model network developed for the report included a number of identified uncontrolled pedestrian crossings.

### 3.4 Base Model Development

Following a review of the collected data, the base road network for the VISSIM model was constructed for all peaks based upon an Ordinance Survey CAD background in conjunction with aerial mapping. The simulations start at 08:30 and 16:15 for the AM and PM peaks respectively with evaluation starting 15 minutes after the warm-up period. The core peak hours were 08:45-09:45 and 16:30-17:30. VISSIM version 2020.00-06 was used to construct and run the model.

The model was calibrated against the observed turning movement counts and the model was validated against journey time data for sections in each direction on the N25 in accordance with PAG (Unit 5.1).

The VISSIM model comprised of five basic components:

- Highway network (links and connectors);
- Traffic control systems (signal, stop and give-way control);
- Traffic inputs;
- Vehicle type and compositions; and,
- Vehicle routes.

#### 3.4.1 Model Output

Measures of effectiveness were coded and output from VISSIM including the following during AM Peak and PM Peak hours:

- Junction performance (average and maximum queue lengths and delays);
- Journey times; and,
- Network performance.

### 3.5 Future Year Model Development

The future year models included option testing for each of the proposed scheme options to be appraised for Phase 2 “Option Selection” of the project. The scheme options are shown in Appendix B and are described in more detail in sections 5.2.1, 5.2.2 and 5.2.2 of this report.

- Scheme Option A – ‘Do-Minimum’ Option
- Scheme Option B – ‘Do-Something’ Management Option
- Scheme Option C – ‘Do-Something’ Development Option

Each option was tested for future demand and infrastructure changes based on traffic growth rates in line with PAG Guidance (Unit 5.3) and estimated independent port growth provided by Rosslare Europort port authority. The forecasted growth rates for the opening year, design year and forecast year based on the 2020 data are shown in Table 3-1 below.

**Table 3-1: Annual Growth Rates**

Year	Lights (%)	Heavies (%)	Port Lights (%)	Port Heavies (%)
<b>Opening Year (2023)</b>	2.05	6.46	12	12
<b>Design Year (2038)</b>	8.91	35.13	26.34	46.08
<b>Forecast Year (2053)</b>	10.05	58.91	27.66	71.79

Source: PE-PAG—2017 Table 6.2

### 3.6 Conclusions

The forecast models were based on the calibrated and validated base models and developed for the years 2023 (Opening Year), 2038 (Opening Year + 15 Years) and 2053 (Opening Year + 30 Years). For each of these years the three scheme options were tested:

- Option A - Base model with the Ballygillane Roundabout
- Option B - Option A with a parallel link road north of the Ballygillane Roundabout
- Option C - Option A with a new road to provide access route to Rosslare Europort that links to the West end of the existing Ballygerry link road

The future year option testing resulted in consistent results for all years (Opening/Design/Forecast). All options performed well and met an acceptable standard, however they clearly showed that Option B performed the worst with longer journey times and more stops due to the signalised junction at N25/Marys Terrace/St Martins Junction. The results for both Option A and C were very similar with Option A performing slightly better overall. However, Option C does result in fewer stops, separating port demand from local access roads for Rosslare Harbour village. The traffic model outputs were applied in the option appraisal process as described in chapter 7.

## 4 Constraints Study

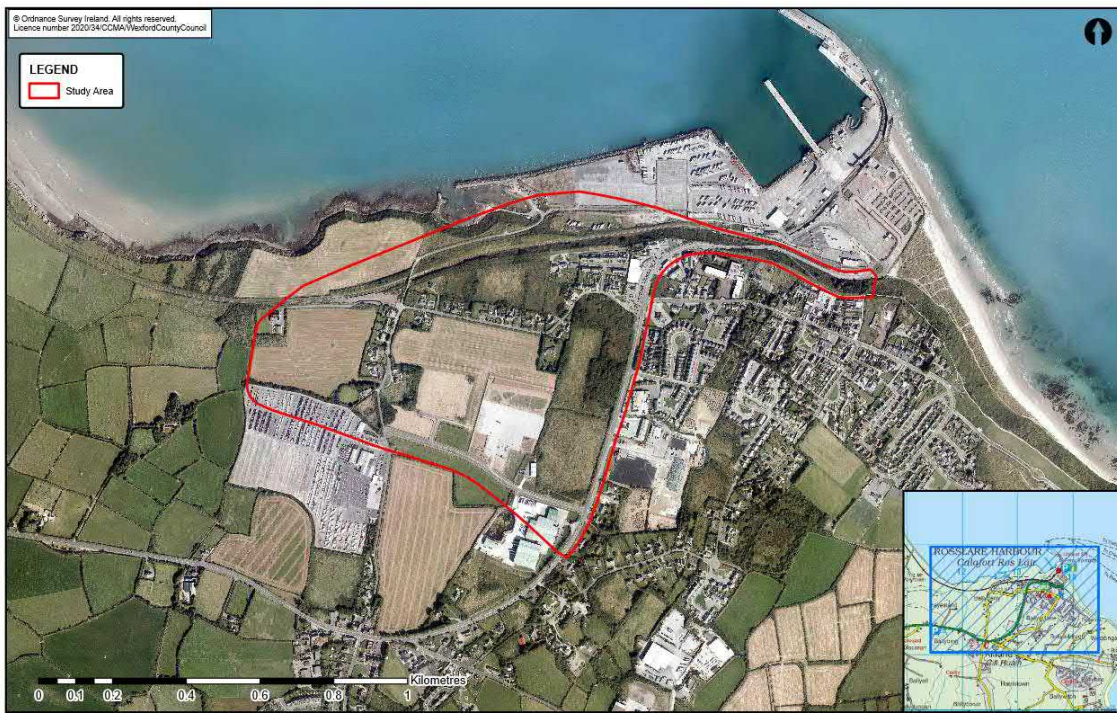
### 4.1 Introduction to Constraints Assessment

A constraints study was undertaken Ireland in February 2020 in accordance with the TII Project Management Guidelines (January 2019). The purpose of the constraint's assessment was to identify the key natural constraints, artificial constraints and external parameters within the study area that may inhibit the development or the design of the road scheme. Drawings have been prepared which outline the key constraints identified within the study area. These are presented in Appendix A of this report.

### 4.2 Study Area

The geographical location of the study area for the N25 Rosslare Europort Access Road is shown in Figure 4-1 below and Figure 2.2.1. in Appendix A. The study area at approx. 71.62 hectares, covers the potential extents of the proposed road scheme and was assessed for the presence of potential constraints to the scheme.

**Figure 4-1: Rosslare Europort Access Road Study Area**



### 4.3 Project Constraints

Constraints to the project have been identified having regard to the TII Project Management Guidelines. The constraints were identified via a desktop study of available information which was in some cases supported by site survey and consultation. The constraints identified cover three principal categories;

- Natural Constraints (naturally occurring landscapes and features, including underground features))
- Artificial Constraints (forming part of the built environment)



- External Parameters (design standards, policy, procedural, and legal issues)

The construction and operation of the road scheme would potentially impact on the receiving environment. This means that it is critical that there is a full understanding of the constraints within the study area prior to the process of identifying potential scheme options. This chapter of the report identifies the significant constraints identified at this stage within the study area, which addresses the three principal categories, under the following broad headings;

- Natural Constraints;
  - Biodiversity;
  - Geology, Hydrology and Hydrogeology;
  - Water Resources;
  - Landscape and Visual;
- Artificial Constraints;
  - Archaeology, Architecture and Cultural Heritage;
  - Air Quality and Climate;
  - Noise and Vibration;
  - Population and Land Use;
  - Material Assets; and
  - Topography.
- External Parameters
  - Funding and Scoping
  - Required Level of Service
  - Technical Standards
  - Access Control
  - Policy Documents
  - Procedural and Legal Requirements

#### 4.3.1 Principles of the Constraints Assessment

In undertaking the constraints assessment, the following guiding principles were adopted to ensure that the process resulted in an effective and robust output from this stage of scheme development:

- The integrity and quality of the information and data utilised in the development of constraints mapping is a critical element in the process. Data management is a key element of the constraints process which has been managed to ensure that the data utilised is accurate and up to date;
- Consultation is central to the process of identifying and sourcing of all required data on constraints within the study area;
- Constraints included on the constraints mapping should include only those constraints that are considered to significantly impact on the identification of feasible scheme options for the scheme.

#### 4.3.2 Identification of Constraints

The constraints assessment was primarily a Desktop Study, supported by site walkovers. The constraints assessment consists of the following principle steps:

- Information Gathering;

- Data Mapping;
- Preparation of Constraints Report

Each of these steps were undertaken in order to ensure that the most accurate and up to date constraints maps for the study area were compiled, prepared, and reported. The tasks undertaken to complete each of the principle steps are detailed below.

### 4.3.3 Information Gathering

A preliminary list of potentially relevant constraints data required for the purposes of the assessment was collated based on the principles outlined in Section 4.3.1, and the categories and sub-headings previously identified. The relevant datasets required were determined by the project team through desk-based assessment. Datasets were collected from existing available data relating to the study area through consultation with statutory bodies and the local authorities.

All available relevant datasets relating to the study area were collected and collated and, on this basis, a master data list was created. A hierarchical step by step approach was used to the sourcing of data, based on the ease of the availability of data.

- Identify dataset required;
- Download from websites of data suppliers;
- If dataset is not available to download, request from data supplier;
- If dataset is not available from data supplier, digitise data.

Where possible, all data was sourced in GIS format, compatible with ArcGIS v 10.2 software. Where digital data was not available in this format, it was accessed in available formats and translated to the format compatible with ArcGIS 10.2. In all cases, where data was digitised, it was done so using ArcGIS 10.2 software.

### 4.3.4 Data Collation & Quality Checking

Each dataset received was recorded in the data received database. Information was recorded for each dataset outlining the source of the data, date received, type of data, data format and quality of data.

All mapping data utilised for the purposes of generating Constraints Drawings was quality checked by an experienced GIS technical specialist. Data accuracy was assessed by comparing the data to other spatial datasets to determine the data is properly geo-located. Data was also compared to hardcopy information to check the spatial extent. In addition, the contents of the attribute tables were checked. Further data analysis was undertaken to identify any data errors such as “overlaps”, “slivers” etc. The quality of each dataset used in the constraints drawings was then recorded in the data received register based on this checking process.

### 4.3.5 Data Mapping

Constraints drawings were prepared using ArcGIS v 10.2 GIS software. Several constraints drawings were prepared to allow multiple data layers to be displayed concurrently. An experienced GIS technical specialist prepared the drawings to ensure that all relevant data is displayed clearly and concisely with legends indicating all the data contained on each constraint drawing. Constraints drawings are presented in Appendix A of this report.

## 4.4 Project Constraint Identified

### 4.4.1 Project Constraints Introduction

This section identifies the significant project constraints within the study area and are detailed in Table 4-1 below. These Project constraints are mapped on the associated constraints figures included in Appendix A.

**Table 4-1: Project Constraints**

**Constraint Type**

**Natural - Biodiversity**

**Designated Nature Conservation Sites**

The location of Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Proposed Natural Heritage Areas, Wildfowl Areas, RAMSAR Sites, and OSPAR sites were all considered as potential constraints to the study.

The study area does not fall within the boundary of any designated sites.

The location of designated sites in relation to the study area is presented in Figure 3.1.1. in Appendix A. The potential for connectivity is discussed hereunder:

- The nearest Special Area of Conservation (SAC) (Carnsore Point SAC 002269) to the study area is located 0.5km to the east. Hydrological connectivity to the coastal SACs (i.e. Slaney River Valley SAC, Raven Point Reserve SAC, Long Bank SAC, Blackwater Bank SAC, and Carnsore Point SAC) is present via the Grange Big river, which flows along the western boundary of the study area
- The nearest Special Protection Area (SPA) to the study area, Lady’s Island Lake SPA (004009), is located 3.7km to the south of the study area, although no hydrological connectivity was identified to it. Hydrological connectivity is present to Wexford Harbour and Slobs SPA, located approximately 3.9km to the north west of the study area, via the Grange Big River. There is also potential for birds associated with these sites to use habitats and features that occur outside of the designated site boundary.
- There are no Natural Heritage Areas (NHAs) within 15km of the study area. No connectivity has been identified to any NHA sites.
- The nearest proposed Natural Heritage Area (St Helen’s Burrow pNHA) is located 1.6km to the east of the study area. No connectivity was identified to St. Helen’s Burrow. Hydrological connectivity to the Wexford Slobs and Harbour pNHA was identified through the Grange Big River.
- The nearest wildfowl sanctuaries are located north of the study area. The closest (Rosslare Point and Tern Island) is located 6.7km to the North of the study area.
- There are no RAMSAR sites in close proximity to the study area. The closest, the Raven, is located approximately 9km from the study area.

A viable source of connectivity has been identified to designated sites through the Grange River. There is, however, potential for connectivity to these designated sites through other means outside than hydrology, e.g. through changes in air quality or through physical connectivity, or where qualifying features/features of interest for which the site is designated occur outside of the designated site boundary.

The potential for impact to these designated sites will be considered during the options selection and design stages of the scheme. Screening reports for Appropriate Assessment reports will be produced for options selection and ultimately for the scheme. This will determine potential for effects to European sites in the vicinity.

**Table 4-1: Project Constraints**

**Constraint Type**

**Natural - Biodiversity**

**Other Features of Ecological Value**

Records of habitats of ecological value, protected flora and fauna were examined to ascertain the potential for occurrence within the study area.

While there are no designated sites within the study area, there is potential for species associated with SACs and SPAs to occur outside of designated areas.

The Irish Wetland Bird Survey (I-WeBS), a joint scheme of BirdWatch Ireland and the National Parks and Wildlife Service, monitors the numbers of wintering waterbirds in Ireland at a range of sites throughout the country. The I-WeBS subsite which extends along the coast south from Wexford Harbour to Rosslare Harbour (code: 0O903) borders the northern extent of the study area. There are no identified wintering waterbird roosting locations within the study area, as recorded during the Waterbird Monitoring Programme.

Wintering bird surveys were carried out in the vicinity of Rosslare Harbour. The survey recorded a number of protected bird species foraging and roosting in a field in the north eastern extent of the study area. This field, named “the stubble field” in the report is a small area of foraging habitat that is utilised by “small to medium” number of curlew and black-tailed godwit. The stubble field does not constitute the principle supporting habitat for either curlew or black tailed godwit. Further, it does not constitute a significant roosting location for either bird species given the numbers recorded within the field. However, it is of note given its location in relation to the study area.

There are a number of records (NPWS & NBDC data) for protected mammal species in the vicinity of the study area. These include otter (*Lutra lutra*), badger (*Meles meles*), stoat (*Mustela erminea*), brown long eared bats (*Plecotus 41uratus*), and soprano pipistrelle bats (*Pipistrellus pygmaeus*).

There are records of common frog (*Rana temporaria*) and common lizard (*Zootoca vivipara*) within the 10km grid square encompassing the study area (NBDC, 2019).

There are records of the protected hairy bird's-foot trefoil (*Lotus subbiflorus*), and the endangered round leaved-crane bill (*Geranium rotundifolium*), and little robin (*Geranium purpureum*) in the vicinity of the study area (NPWS data).

The potential for ex-situ Annex I habitat, and rare or protected flora and fauna to be present within the study area will be taken into consideration during option selection stage, and during Appropriate Assessment of the scheme.

These receptors will be considered, with the aim to avoid impact where possible, during the selection of potential options and into design stage of the scheme.

**Table 4-1: Project Constraints**

**Constraint Type**

**Natural - Soils, Geology, Hydrology and Hydrogeology**

**Soils, Geology and Hydrogeology**

Mapping of soils, subsoils, bedrock geology and hydrogeology within the study area were reviewed to identify geohazards that might impact scheme selection and construction.

The study area is covered by made ground associated with the development of Rosslare Harbour and infrastructure and Macamore soils. The soils are underlain by till derived from Cambrian sandstones and shales. Till is typically composed of an unsorted sandy and gravelly clay and silt with occasional boulders. Alluvium is mapped adjacent to a small watercourse along the western boundary of the site. The soils and subsoils are underlain by metamorphic geology of the Greenore Point Group, a green, highly foliated Amphibolite likely to be of igneous origin with minor schists shown in Figure 3.2.1 in Appendix A.

There is only one watercourse within close proximity to the study area, the Grange Big Stream (River Waterbody Code: IE\_SH\_12M860440).

The Grange Big Stream which flows along the western boundary of the study area. The stream briefly runs along a section of the western boundary of the study area so care must be taken in this section. However, it should not pose an immediate risk to the project. Care should still be taken as the location is coastal, so ground water is a high possibility.

Any proposed design should keep the hydrology of the area in mind because of its close proximity to the coast, however there are no streams entering the study area to cause immediate concern.

The most significant geohazards within the study area include the following:

- Soft ground comprising of alluvium and made ground is present within the study area. Alluvium is present along the western boundary of the study area, adjacent to a small river. There is a risk of settlement or subsidence to any structures or infrastructure constructed above alluvium. Made ground associated with the construction of infrastructure. Due to the often highly heterogenous nature of made ground there is potential to encounter soft ground shown in Figure 3.2.2 in Appendix A.
- There is no known area of contaminated land recorded within the study area. However, there is potential to encounter contaminated land at the location of the historic Rosslare Harbour Railway Station.
- There is evidence of previous failures along a section of Delap's Hill. There is a risk that road construction could impact the slope stability around the Rosslare Europort, and significant remediation would be required to mitigate against any future failures on the slope.
- An area of extreme to high aquifer vulnerability is present within the study area shown in Figures 3.2.4 and 3.2.5 in Appendix A. It is recommended that the design and construction should consider the presence of the aquifer and ensure measures are in place to protect the aquifer during construction.
- Coastal erosion is a risk due to the low-lying nature of the coastal area and the cliffs comprising of quaternary deposits. Coastal protection might be required to prevent any coastal erosion within the study area. Flood Extents are shown in Figure 3.2.6. in Appendix A.

The geohazards identified within the study area shall be considered during the options assessment, and design phases of the scheme.

**Table 4-1: Project Constraints**

**Constraint Type**

**Natural - Soils, Geology, Hydrology and Hydrogeology**

**Hydrology**

A desk-based assessment was undertaken to determine the rivers and coastal domains within the study area that could cause a potential threat to the scheme selection and design

There is only one watercourse within close proximity to the study area, the Grange Big Stream (River Waterbody Code: IE\_SH\_12M860440).

The Grange Big Stream which flows along the western boundary of the study area. The stream briefly runs along a section of the western boundary of the study area so care must be taken in this section. However, it should not pose an immediate risk to the project. Care should still be taken as the location is coastal, so high ground water is a possibility.

Any proposed design should keep the hydrology of the area in mind because of its close proximity to the coast, however there are no streams entering the study area to cause immediate concern.

**Table 4-1: Project Constraints**

**Constraint Type**

**Natural - Water Resources**

**Water Framework Directive – Protected Areas**  
Mapping of drinking waterbodies, nutrient sensitive areas, shellfish waters, and recreational waters (bathing areas) were interrogated to determine potential for constraints within the study area.

The location of Water Framework Directive (WFD) protected areas in relation to the study area is presented in Figure 3.3.1 in Appendix A and is detailed hereunder:

- There are no drinking water abstractions identified within, or in close proximity to the study area shown in Figure 3.3.2. in Appendix A.
- The study area does not fall within any nutrient sensitive areas.
- Both the inner and outer extents of Wexford Harbour are designated as shellfish areas (IE\_SE\_040\_0200 & IE\_SE\_040\_0000). Wexford Harbour hosts several licensed aquaculture activities. These activities are reliant on the water quality of the bay. Hydrological connectivity is present to these areas via the Grange Big River. The WFD status for the Grange Big River is currently “unassigned”.
- There are no bathing areas within the study area. The closest bathing area to the study area is located approximately 3km to the northwest of the study area.

WFD Protected Areas, the Grange Big River and any other watercourses identified with direct connectivity to areas protected under the Water Framework Directive will be taken into consideration in the options appraisal stage and the design stage of the scheme.



**Table 4-1: Project Constraints**

**Constraint Type**

<b>Natural - Landscape and Visual</b>	<p><b>Landscape and Visual</b></p> <p>Landscape and visual constraints were reviewed, including statutory landscape designations, ecological designations and non-statutory designations to determine potential constraints within the study area.</p>	<p>The location of landscape and visual constraints in relation to the study area are presented in Figure 3.4.1 in Appendix A.</p> <p>The Landscape Character Assessment for County Wexford 2012 outlines four broad landscape character units; Uplands, Lowlands, River Valleys and Coastal. The study area is located entirely within the Coastal landscape character unit. The Wexford County Development plan states the following: <i>“The Coastal unit has a character that often overlaps with the Lowland landscape. The nearby presence of the sea gives these areas a more scenic appearance which is very sensitive to development.”</i></p> <p>The Wexford County Development Plan sets out landscapes of greater sensitivity within the identified landscape character units for the county. There are no landscapes of greater sensitivity units identified within or in close proximity to the study area.</p> <p>No ecological designations are present within the study area which will provide a constraint in terms of their landscape aspects.</p> <p>The study area includes urban development, and houses. The potential for visual impact to these receptors will require consideration at option appraisal and design stage.</p> <p>The Wexford County Development Plan 2013-2019 recognises the importance of hedgerows, treelines and woodlands to the landscape character of the county. Objective NH08 of the Development Plan aims <i>“to protect woodlands and hedgerows from damage and/or degradation and work to prevent the disruption of the connectivity of the woodlands and hedgerows of the County”</i>. There is potential for the road scheme to intersect with hedgerows and treelines in the study area. This will be considered in more detail during the options appraisal and design stages to limit this impact where possible.</p>
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### Cultural Heritage

Cultural heritage constraints were assessed by examining the Sites and Monuments Record (SMR) which was compiled by the Archaeological Study of Ireland (ASI), and the Wexford County Development Plan to ascertain if there any sensitive receptors within the study area.

There are six recorded sites and monuments within or close to the study area. These are:

- WX048-018 – Windmill
- WX048-155 – Excavation
- WX048-017 – 17th century house
- WX048-154001 – Ring Ditch
- WX048-154002 – Ring Ditch
- WX048-154003 – Ring Ditch

The location of recorded sites and monuments in relation to the study area is presented in Figure 3.5.1. in Appendix A. WX048-018, WX048-155, and WX048-017 are located within the study area. Cognisance will be taken of these recorded sites and monuments, and the potential for impact to same will be examined in future stages. WX048-154001, WX048-154002 and WX048-154003 are located outside of the study area boundary, however care will still be taken to avoid impacts to these sites and monuments.

The National Monuments Act 1930 (as amended) Section 12 (3) states *“When the owner or occupier (not being the Commissioners) of a monument or place which has been recorded under subsection (1) of this section or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Minister and shall not, except in the case of urgent necessity and with the consent of the Minister, commence the work for a period of two months after having given the notice”*.

It may be necessary to communicate with the Minister for Culture, Heritage and the Gaeltacht before works commence depending on scheme option chosen and design developed. Steps will be taken which will protect the integrity of the proposed monuments.

The National Inventory of Architectural Heritage (NIAH) sites were examined. None were observed within the boundary of the study area. Recorded NIAH sites within a 0.5km radius of the study area are:

- Reg. No. 15704834 Tuskar Dwellings
- Reg. No. 15704833 Rosslare Harbour Coastguard Station
- Reg. No. 15704830 House
- Reg. No. 15704831 House
- Reg. No. 15704832 House
- Reg. No. 15704828 Farmhouse
- Reg. No. 15704835 Lifeboat Station
- Reg. No. 15704836 House
- Reg. No. 15704840 House
- Reg. No. 15704839 House
- Reg. No. 15704838 House
- Reg. No. 15704825 Post Box
- Reg. No. 15704823 Church

**Table 4-1: Project Constraints**

**Constraint Type**

<b>Artificial - Air Quality and Climate</b>	<p><b>Air Quality and Climate</b> Air quality and climate constraints were assessed by examining existing background concentrations, existing sources of pollution, and sensitive receptors within the study area.</p>	<p>A list of Recorded Protected Structures (RPS) included in the Wexford County Development Plan (2013 – 2019) was assessed. It was found that there are no protected structures within the boundary of the study area, however there are some within 0.5km of the study area. These are:</p> <ul style="list-style-type: none"> <li>• Reg. No 15704834 Lighthouse keeper's house</li> <li>• Reg. No 15704833 Coastguard station</li> <li>• Reg. No 15704828 Farmhouse</li> <li>• Reg. No 15704826 House</li> <li>• Reg. No 15704823 Church/chapel</li> <li>• Reg. No 15704822 Farmhouse</li> </ul> <p>While a number of the SMR zones of notification intersect with the study area, none of the recorded protected structures themselves are within the study area boundary. As such, it is not anticipated that there will be any direct effect on the protected structures.</p> <p>The cultural heritage features identified within the study area shall be considered during the options assessment, and design phases of scheme.</p>
	<p><b>Air Quality and Climate</b> Air quality and climate constraints were assessed by examining existing background concentrations, existing sources of pollution, and sensitive receptors within the study area.</p>	<p>No baseline data was available from EPA within the study area. The nearest monitoring station to the study area is located at Carnsore Point approximately 6km from the study area. Most recent data available from this station show that air quality in this area is “good”.</p> <p>The EPA database was searched for facilities holding a valid IPPC licence within the study area; however, no facilities were identified.</p> <p>Sensitive receptors for the purposes of air quality are identified by TII as the following (NRA, 2011): Residential developments, schools, hospitals, places of worship, sports centres, shopping areas, designated conservation sites (e.g. SACs, SPAs), and protected habitats/species.</p> <p>The predominant sensitive receptors within the study area are residential developments and shopping areas shown in Figure 3.6.1. Appendix A. Residential development within the study area is defined as some rural ribbon development mixed with housing estates. Aside from housing, the nearest sensitive receptor as previously defined is a health centre located to the east of the study area.</p> <p>Proximity and potential impacts to health care, community and amenity and recreational areas within the study area will be considered at the next stage of the proposed scheme development.</p> <p>The potential for impacts to air quality at sensitive receptors will depend on changes to traffic levels and will be considered further at option selection and during the design stages.</p>

**Table 4-1: Project Constraints**

**Constraint Type**

**Artificial - Noise and Vibration**

**Noise and Vibration**

Noise and vibration constraints were assessed by examining sensitive receptors in the study area, existing noise climate, and the potential for noise and vibration related impacts

In terms of the existing noise climate:

- The study area is a mix of rural and suburban developments, comprising one-off housing and small-scale housing estates shown in Figure 3.6.1. in Appendix A.
- The most dominant noise contributor within the study area is likely road traffic along the existing road network. Along local roads the noise climate would be expected to be less dominated by road traffic, with natural sources (e.g. leaf rustle, birdsong) and farming machinery also prevailing. The activities associated with Rosslare Europort and railway line would be expected to also contribute to the existing noise climate in the study area.
- As part of the Draft Noise Action Plan 2019 – 2023, TII (on behalf of Wexford County Council) undertook strategic noise mapping on nine roads identified as Major Roads within the county. Major roads were considered as those with greater than three million vehicle passages per year. A section of one of these major roads is present within the study area: the N25 through the village.

Sensitive receptors in relation to noise and vibration are broadly identified in the TII “*Guidelines for the Treatment of Noise & Vibration in National Road Schemes*” (NRA, 2004) as follows: schools, hospitals, places of worship, heritage buildings, special habitats, amenity areas in common use, and potential designated quiet areas. In addition to this list, the following are also considered as sensitive receptors in relation to noise and vibration: residential developments, commercial developments, designated conservation sites (e.g. SACs, SPAs); and protected habitats/species.

The main sensitive receptors within the study area are residential and community and recreational areas. There is one health centre located to the east of the study area. The scheme also has the potential to have a positive impact on noise levels for receptors along the existing N25 through the village which may see a reduction in traffic volumes.

Wexford County Council have issued the Draft Noise Action Plan 2019 – 2023 which includes identification of potential quiet areas by Wexford County Council, including 10 areas in open country and 3 areas in settlements. There are no potential quiet areas identified within the study area, the closest being Drinagh Intake (west of Rosslare).

The potential for noise and vibration impact from the proposed development will depend on traffic volumes, surface finishes and location of sensitive receptors in relation to the scheme. The potential for impact to sensitive receptors will be examined further at scheme selection stage and during the design process.

**Table 4-1: Project Constraints**

**Constraint Type**

**Artificial - Population and Land Use**

**Population and Land Use**

Population and land-use constraints were examined in terms of population and settlement patterns, land use, community and residential facilities, and tourism and recreation activities.

County Wexford has undergone considerable growth in population in recent times, although this has slowed over the last few years. The 2016 Census results indicate a population increase of 3.0% in County Wexford from 2011 – 2016. The study area is on the western edge of Rosslare Harbour which has a total population of 1,200 (CSO 2016).

The majority of the land use in the study area is identified by Corine (2018) mapping as “Non-irrigated arable land” with “discontinuous urban fabric” on the eastern edge and a small area identified as “port area” shown in Figure 3.8.1. in Appendix A.

Important community and residential facilities were examined in terms of health facilities and education facilities:

- There are no health centres located within the study area. The nearest health centre is located to the east of the study area on St. Martin’s Road (HSE, 2019).
- There are no schools located within the study area. The closest school is located to the south of the study area.

Tourism is an important sector of the local economy and has potential for substantial future growth. Wexford is a particularly popular domestic tourism destination, ranking 5<sup>th</sup> in the country for the number domestic visitors.

It is noted within the Wexford County Development Plan that part of the Sustainable Tourism Development Strategy for Wexford County is to:

*“Promote improved access to the county through the further development of Rosslare Europort and the provision of enhanced public transport and road access throughout the county, to the South-East Region and the country”*

The plan also states:

*“Rosslare Europort is of strategic importance for the development of industry, tourism and commerce in the County and the South-East Region.”*

This is reflected in Objective TM08 of the Plan which states:

*“To facilitate improved access to Rosslare Europort and promote integrated access arrangements in accordance with Guidelines for Accessible Maritime Passenger Transport (Department of Transport, March 2010).”*

Data on the locations of tourist attractions within the study area was obtained from Fáilte Ireland. No attractions were recorded within the study area. Two attractions were noted just north of the study area. These are associated with the Rosslare Europort facility, relating to Stena Line and Celtic Link Ferries.

A number of cycling and walking trails intersect with the study area shown in Figure 3.8.2. in Appendix A.:

- Wexford Cycle Hub Loop 3;
- The Rosslare Harbour – Village Walking Trail;
- The Norman Way Heritage Route.
- The Eurovelo Cycle Route 1, and
- Developing proposals for Rosslare Strand to Rosslare Europort Greenway.

Changes to the current land use and potential impacts on tourist attractions will be considered during options assessment, and design phases of the scheme.

**Table 4-1: Project Constraints**

**Constraint Type**

**Artificial - Material Assets**

**Utilities**

All known service providers were consulted to provide details of the location of any existing and planned utilities within the study area which could result in potential constraints on the proposed scheme.

The location of existing and proposed services in the study area were determined through consultation with ESB, Gas Networks Ireland, Eir, Wexford County Council, Virgin Media Ireland and BT Ireland.

- Gas Networks Ireland –Gas Networks Ireland (GNI) provided mapping of GNI services within the study area. There are no GNI services located within the study area. See Figure 3.9.1 in Appendix A for details.
- ESB - Mott MacDonald centrally holds current existing ESB network information which gets updated from ESB approximately every 6 months. MM have isolated the electricity network in the vicinity of the scheme, and this is shown Figure 3.9.2 in Appendix A. The ESB have distribution network of MV 10-20KV and LV 230-400FV lines in the study area.
- Eir – Consultations have taken place with EIR to confirm the location of underground services and overhead lines within the study area. EIR services are located within the study area shown in Figure 3.9.3 in Appendix A. There are five sections where the EIR services indicated enter the study area, near Carragh Lodge, parallel to Churchtown road crossing an Ballygerry Link Road within the study area and three crossings of the N25 National Road in the study area by Rosslare Harbour's Supervalu.
- Virgin media – Virgin media Ireland provided mapping within the study area. There are no virgin media services located within the study area. See Figure 3.9.3 in Appendix A.
- BT Ireland – BT Ireland confirmed that there is no off-rail BT Ireland infrastructure within the study area.
- Water and Sanitary Services – Irish Water provided information in relation to water and sanitary services within the study area and they are shown in Figure 3.9.4 in Appendix A.

All the utilities highlighted are a key constraint and need to be included in the design and construction of the Rosslare Europort Access Road. Minimum disruption to these facilities is a high priority as this is a densely populated area. In the event disruption needs to be made the locals should be given adequate notice and alternatives to reduce the impact of the disruptions. The diversion of utilities within the study area will be considered during the Option Selection Stage.

### Transport Networks

A desk-based assessment was undertaken to determine the existing infrastructure (transport networks) within the study area and to identify potential constraints on the proposed scheme.

- Road Networks

The existing road network constraints for the Rosslare Europort Access Road include national, local/other roads and private access roads, which are shown in Figure 3.9.5. in Appendix A. The road networks within the study area are as follows;

- 1) National Roads – N25 National Road
- 2) Local/Other Roads – Churchtown Rd. (LP-3064-04), Ballygerry Link Rd., Ballyknockan Rd., St. Martin's Rd., Mary's terrace, Cliff Rd. and La Rochelle along with a number of unnamed other roads.
- 3) Private Access Roads

Traffic data on the N25 National Road was collected from the existing TII Permanent Traffic Counter located outside the study area, on the N25 at Kilrane, on the approach to Rosslare Harbour. The figures gathered from the traffic data indicate that between 2014 and 2019, traffic volumes have increased by 2.4% on the N25 Southwest of Rosslare Harbour.

- Iarnród Éireann

Rail infrastructure in County Wexford consists of the Rosslare to Dublin line which traverses in the study area. The Dublin / Rosslare line runs in a north south direction and serves County Wexford with stations at Gorey, Enniscorthy, Wexford, Rosslare Strand and Rosslare Europort. This railway line runs parallel to the Coast as it runs through the study area. The existing rail network in the study area is shown in Figure 3.9.5. in Appendix A. An Intercity rail service between Dublin Connolly and Rosslare Harbour runs four weekday services in each direction and three services at weekends. The line also serves Rosslare Strand, Wexford, Enniscorthy, Gorey, Arklow and other destinations further north. Rosslare Europort has no Load-On Load-Off facilities, and the primary mode of transport for freight to and from Rosslare Europort is by road. A Rail Review Report for 2016 states that there were 316,000 total passenger journeys on the Dublin to Rosslare Harbour service in 2015. A 2015 rail census identified that 50 rail journeys were generated in a day at Rosslare Harbour train station, and a further 66 at Rosslare Strand.

- Port

Rosslare Europort is the closest point from the southern part of Ireland to the European Mainland. It is an important ferry port for all major Roll-On, Roll Off (RO-RO) passenger and freight services operating on the southern Irish Sea and continental routes.

There are five companies in total that utilised the port in 2018, three of which only shipped into Rosslare Europort the other two shipped in and out of Rosslare Europort. The three companies that shipped into Rosslare Europort were; Henty Oil, OTS Shipping and Neptune Lines. The two remaining companies that shipped in and out of Rosslare Europort were; Irish Ferries (UK and Continental) and Stena Line (UK and Continental).

In general, the busiest months for shipments in and out of Rosslare Europort are July and August, and the quietest months for shipments are January, February and November. Tourist passengers and vehicles have a big impact on the numbers in general.

According to the Rosslare Europort Masterplan report, Rosslare Europort is forecasting a 20% growth on the Port traffic by 2025. According to the 20% increase, Rosslare Europort is expecting nearly 250,000 more shipments in

**Table 4-1: Project Constraints**

**Constraint Type**

	<p>and out of the port in 2025. This expected increase is a major factor to impacting the need for the Rosslare Europort Access Road.</p> <p>Iarnrod Eireann submitted a planning application in July 2020 for new infrastructure and facilities as phase one of the proposed Masterplan for the Port.</p> <ul style="list-style-type: none"> <li>• Airports</li> </ul> <p>There are no airports in the study area. The nearest airport is Waterford Airport in neighbouring Co Waterford, but it is a small regional airport, currently Waterford Airport does not have passenger services. The nearest major airports are Dublin and Cork airports, each about two hours' drive from Wexford.</p> <p>Road Network connectivity and Rail and Port interfaces will be considered when identifying potential scheme options and also during the design stages.</p>
<p><b>Artificial - Topography</b></p> <p><b>Topography</b></p> <p>A desk-based assessment was undertaken to determine the topography within the study area.</p>	<p>The Landscape Character Assessment for County Wexford 2012 outlines four broad landscape character units; Uplands, Lowlands, River Valleys and Coastal. The study area is located entirely within the Coastal landscape character unit. The Wexford County Development plan states the following: "The Coastal unit has a character that often overlaps with the Lowland landscape. The nearby presence of the sea gives these areas a more scenic appearance which is very sensitive to development."</p> <p>The key topographical constraint is the Coastal Topography;</p> <p>Rosslare's coast is characterised by long, relatively straight coasts of sand or shingle backed up by low cliffs. The topography becomes flatter further south towards Rosslare Harbour, dominated by low-lying agricultural land and the Wexford Slobs (at Drinagh Intake).</p> <p>Any proposed alignment design should be sensitive to the topography and landform of the study area and seek to minimise embankments and cuttings where possible, thereby reducing impacts upon the landscape. The area surrounding Rosslare harbour is characterised as a "vulnerable landscape and any new development is likely to have a significant visual impact. The Council will ensure that development shall not take place where it would adversely impact on the basic qualities and attractions of the coast. Views from the cliff-top overlooking the coastline and the sea will be protected where possible." (Wexford County Council, 2018).</p>



**Table 4-1: Project Constraints**

**Constraint Type**

<p><b>External Parameters – Funding &amp; Scoping</b></p>	<p><b>Funding and Scoping</b></p>	<p>The progression of the project is subject to the allocation of funding to Wexford County Council from the investment programme for national roads projects.</p>
<p><b>External Parameters – Level of Service</b></p>	<p><b>Level of Service</b></p>	<p>The Level of Service (LOS) of a road is a measure used to rate the service quality available to users on a given road type for a given traffic volume. Level of Service is graded at six levels from A to F, with 'A' representing free-flow conditions providing complete mobility between lanes, and 'F' representing breakdown traffic flows with constant delays and unpredictable journey times. TII classifies a LOS 'D' as being the minimum acceptable LOS on the national road network and TII technical standards are based on this minimum LOS. LOS 'D' describes traffic flows approaching instability where a road is nearing capacity and speeds reduce as volume increases. The project will be developed to achieve a minimum future LOS 'D' for road users.</p>
<p><b>External Parameters – Technical Standards</b></p>	<p><b>Technical Standards</b></p>	<p>The technical standards used in the design development of the project will be the TII technical standards. Project processes will follow the TII Project Management Guidelines and Project Appraisal Guidelines.</p>

**Table 4-1: Project Constraints**

**Constraint Type**

<b>External Parameters – Access Control</b>	<b>Access Control</b>	As part of the national road network and TEN-T transport network, direct access to the road will be minimised and access from local roads will be provided using a discrete number of junctions with the existing road network. As the scheme develops junction treatments and strategies will be developed in accordance with TII design standards.
<b>External Parameters – Policy Documents</b>	<b>Policy Documents</b>	The project is being proposed in the context of a planning structure that underpins the proposal in terms of planning objectives and policies. The project will be developed in accordance with all relevant statutory and non-statutory planning and development policies including National Planning Framework, National Development Plan, Capital Investment Plans, Climate Action Plan, Wexford County Development Plan and relevant local area plans. Further details of how the project meets the objectives of these plans and policies is outlined in chapter 2.
<b>External Parameters - Procedural &amp; legal Requirements</b>	<b>Procedural and legal requirements</b>	<p>Procedural and legal requirements which arise during the project's development will be considered at as early a stage as possible so as not to delay the progress and timely completion of the project. Statutory and non-statutory requirements will be addressed as the project progresses and develops, including:</p> <ul style="list-style-type: none"> <li>● European and Irish legislation and regulations for environment, planning and development, transportation and climate action;</li> <li>● Local authority development plans;</li> <li>● Guidelines and codes of practice relating to environmental aspects of road design and construction;</li> <li>● EIA, AA and CPO procedures;</li> <li>● Requirements under Section 50 of the 1945 Arterial Drainage Act for the construction or alteration of any bridge or culvert over any watercourse;</li> <li>● Rights of statutory undertakers;</li> <li>● Wayleaves, public and private rights of way.</li> </ul>

## 4.5 Conclusion

This constraints assessment has identified the principal natural constraints, artificial constraints and external parameters within the study area. These constraints have been illustrated on a set of constraints drawings which accompany this report (Appendix A). The drawings were prepared in order to best represent the constraints under the following principle headings:

- Biodiversity;
- Geology, Hydrology and Hydrogeology;
- Water Resources;
- Landscape and Visual;
- Archaeology, Architecture and Cultural Heritage;
- Air Quality and Climate;
- Noise and Vibration;
- Population and Land Use;
- Material Assets; and
- Topography.

The constraints identified through this process have been used in the identification of the preliminary scheme options for the road scheme.

# 5 Consideration of Options & Alternatives

## 5.1 Introduction

Following the Constraints Study, as outlined in chapter 4, consideration was given to identifying feasible scheme options to be brought through the option selection process that could possibly meet the objectives of the project. The following principles were applied in the consideration of feasible scheme options:

- The options should be potentially capable of addressing the specific project needs identified;
- A 'do-minimum' option and a 'do-something' management option should be included in the options to be considered.
- Options should be significantly different and take account of potential differences in alignment, design standard and junction strategy;
- Options should be developed from the start with environmental considerations in mind.

A 'do-minimum' option considers the retention of the existing road asset with no further development of the road apart from improvements that have already been committed to and have received planning approval. This option provides the base case for the appraisal of other scheme options. If the other scheme options do not demonstrate overall benefits when compared to this base case, then the 'do-minimum' option is considered to be preferred option. A 'do-something' management option seeks to utilise the existing road asset through online improvements to optimise the performance of the existing infrastructure.

An objective of the option selection process is to identify a preferred scheme option which would avoid, where possible, impacts on the environment at early stages of the project's development. This is achieved in the first instance through the avoidance of the major constraints identified during the constraints study. Where avoidance is not possible, the objective is to ensure that any interaction is minimised and mitigated.

In the development of the scheme options for assessment purposes, preliminary horizontal and vertical alignments were developed using road design software to ensure that the scheme options are capable of being developed in compliance with required technical standards and to derive road footprints, profiles and quantities for use in environmental and economic appraisals.

## 5.2 Feasible scheme options

Using the principles outlined above, three feasible scheme options were identified as follows; Scheme Option A – 'Do-Minimum' Option, Scheme Option B – 'Do-Something' Management Option and Scheme Option C – 'Do-Something' Development Option. It is important to note that no level of importance or preference should be attributed to, or assumed from, the lettering of the three primary feasible Scheme option corridors (Scheme Options A to C). These three scheme options are shown in Appendix B and are described in more detail below in sections 5.2.1, 5.2.2 and 5.2.3.

### 5.2.1 Scheme Option A – 'Do-Minimum' Option

Option A ('Do-Minimum' Option) utilises the existing N25 National Road as the access route to Rosslare Europort. It includes the N25 Ballygillane roundabout project which will provide a new roundabout at the existing junction between the N25 (St. Patrick's Road) and the existing L3068-1 (Ballygerry Link Road). This project received planning approval in January 2020, and Wexford County Council intends to proceed with the construction of the roundabout in 2021. Option A begins at this proposed roundabout with the Ballygerry Link Road, continues along the existing N25

National Road and terminates at the existing roundabout at Rosslare Europort. This 'Do-Minimum' option provides the baseline for the appraisal of all scheme options.

### 5.2.2 Scheme Option B – 'Do-Something' Management Option

Option B ("Do-Something" Management Option) proposes investment to improve the existing N25 National Road corridor which will remain the access route to Rosslare Europort. Option B seeks to utilise the existing asset where feasible through a package of on-line improvements which include a mix of the following: the rationalisation of direct accesses onto the N25, provision of parallel service roads, left-in/left-out junctions, designated pedestrian crossing facilities, signalised junctions, and improvement works at Delap's Hill. This option would be developed to the "best possible standard" using the existing infrastructure. It also includes the N25 Ballygillane roundabout project which will provide a new roundabout at the existing junction between the N25 (St. Patrick's Road) and the existing L3068-1 (Ballygerry Link Road). Option B begins at this proposed roundabout with the Ballygerry Link Road, continues along the existing N25 National Road and terminates at the existing roundabout at Rosslare Europort.

### 5.2.3 Scheme Option C – 'Do-Something' Development Option

Option C ("Do-Something" Development Option) consists of a combination of existing road infrastructure along with a new road corridor to provide a new access route to Rosslare Europort. This option utilises the existing Ballygerry Link Road and begins at its junction with the existing N25 National Road, where the proposed N25 Ballygillane Roundabout is again included. A new section of road then extends from the existing junction of the Ballygerry Link Road/Churchtown Road and loops to the north, crossing the existing Dublin to Rosslare Europort railway line before continuing east to connect into Rosslare Europort, via a new roundabout proposed as part of the development of the Rosslare Europort which received planning approval in August 2020. Consultations with Rosslare Europort have confirmed that this scheme option is compatible with the Port's own approved infrastructural plans.

A technical review has confirmed that a crossing of the railway track is feasible at the location in question. This technical review and consultations with Irish Rail has also confirmed that a railway overbridge crossing would be the preferred crossing type and an at-grade level crossing would not be preferred. Scheme Option C therefore incorporates a new railway overbridge and option costs have been developed on this basis.

In accordance with PAG Unit 4.0 and the Project Manager's Manual (PMM), an incremental approach was adopted in respect of the selection of road cross-section type for this "Do- Something Option". Based on the future predicted traffic flow and the location of Option C within an urban environment, the following two road cross section types were chosen to be appraised during the Phase 2 option selection process:

- Sub Option C1 –Single Carriageway Urban Relief Road,
- Sub Option C2 – Dual Carriageway Urban Relief Road,

## 5.3 Alternative Measures

Alternative measures to road-based solutions that were considered to deliver the project objectives as part of the option selection process are outlined below.

### 5.3.1 Public Transport Alternative – Rail

An Intercity rail service between Dublin Connolly and Rosslare Harbour runs four weekday services in each direction and three services at weekends. Rosslare Europort has no Load-On Load-Off facilities, and the primary mode of transport for freight to and from Rosslare Europort is by road. The Rosslare to Waterford rail service was cancelled in 2010.

A 2016 Rail Review by the National Transport Authority identified that cost savings would be made by suspending services south of Gorey but noted that a line closure from Gorey to Rosslare would impact on a relatively large number of passengers. No improvements or expansion of rail infrastructure or services were proposed and from consultations with Irish Rail no such improvements are currently being considered. The existing rail line does not facilitate commercial/freight traffic and Rosslare Europort and Irish Rail has no proposals to develop load-on load-off facilities. Therefore, for this localised minor project the implementation of a rail-based solution is not considered to be a viable alternative that could deliver the project objectives. It is noted that the option selection process for the separate N11/N25 Oilgate to Rosslare Harbour project includes a strategic consideration of rail alternatives for the Dublin to Rosslare Europort transport corridor. It is considered that the identified needs and objectives for the N25 Rosslare Europort Access Road will remain valid and relevant regardless of the outcome of the option selection process for the N11/N25 Oilgate to Rosslare Harbour project.

### **5.3.2 Public Transport Alternative – Bus**

There is no bus from Rosslare Harbour to Dublin, though there is a local connecting service from Rosslare Harbour to Wexford that runs once a day Monday to Saturday and has no running times on a Sunday. It is noted that the Rail Review discussed above undertook a high-level consideration of the need to provide replacement bus services in the event of the suspension of rail services currently operating between Gorey and Rosslare. This envisaged a direct bus service between Rosslare Harbour and Gorey is also serving Wexford, Oilgate and Enniscorthy, that would connect with train services between Gorey and Dublin.

The improvement of road based public transport journey times and journey time reliability are stated objectives of the project to promote accessibility and social inclusion. This road based public transport alternative is therefore considered to be integrated with the scheme options identified.

### **5.3.3 Vulnerable Road Users (VRU) – Cyclists & Pedestrians**

The Department of Transport's "Smarter Travel" policy and Climate Action Plan 2019 commits the Government to supporting walking and cycling and encouraging people to switch to more sustainable modes of travel. An important component of this is providing safe, attractive and well-designed facilities for pedestrians and cyclists. The removal of HGV traffic from the Rosslare Village or the segregation HGV traffic from other vulnerable road uses would offer potential benefits to local vulnerable road users in terms of amenity and safety. The improvement of the local environment in and around Rosslare Harbour particularly for pedestrians and cyclists is a stated project objective to promote accessibility and social inclusion. The project has consulted closely with the Waterford to Rosslare Harbour greenway project to coordinate and integrate the respective proposals in order to secure the provision of high-quality dedicated facilities for pedestrians and cyclists. The developed scheme options will therefore deliver high quality facilities for vulnerable road users.

## 6 Public Consultation Event

Wexford County Council held a Public Consultation to give the local residents and the general public an opportunity to provide feedback, comments, and observations to the project team on the constraints study and proposed scheme options that were identified.

A Public Consultation Report was published in August 2020 which summarises how the public consultation was managed and publicised, the level of public participation achieved, and the feedback received. This report remains available to view on the publications page of the project website. In accordance with HSE and Government Covid-19 guidance at the time, and in order to protect the public and project staff from the risk of the transmission, it was not considered appropriate to hold a public gathering at the time to engage directly with the public. Instead it was decided to hold an online public consultation event on the dedicated project website <http://rosslareeuroportaccessroad.ie>

The online consultation commenced on Monday 15<sup>th</sup> June and ended on Monday 29<sup>th</sup> June 2020 as it was not considered appropriate to hold a public gathering at the time to engage directly with the public. The website provided the most up to date information on the project, including:

- The Public Consultation Brochure
- A series of maps showing the study area and the identified constraints within the study area
- A map showing the preliminary scheme options
- An online feedback form

Comments and queries from the public could be submitted online via the website feedback form or via an email to [customerservice@wexfordcoco.ie](mailto:customerservice@wexfordcoco.ie)

The public consultation brochure and feedback form were distributed to almost 700 homes in the vicinity of Rosslare Harbour and members of the public had an opportunity to submit their observations before close of business on Monday the 29<sup>th</sup> June 2020. In order to ensure the most inclusive engagement with the public, those who may have limited online accessibility were invited to fill out the accompanying feedback form with the brochure and return it to Wexford County Council by freepost (no envelope was needed, just fold and seal the form). Feedback forms could be submitted online or by Freepost until 5pm Monday 29<sup>th</sup> June 2020. A number of feedback forms were received after the Monday deadline date, therefore the project team decided that the deadline would be extended until Friday 3<sup>rd</sup> July 2020.

With the restrictions on large gatherings in place at the time due to Covid-19, it was not possible to hold an information session, as during normal times. However, the public was able to express their views and have direct contact with the project team via phone conversations, as well as on-line and email services. The project team invited the public to contact them by telephone or email with any queries.

During this public consultation event, the project team which included staff members from Wexford County Council, Tramore House Regional Design Office (THRDO), and consultants Mott MacDonald were available to address any queries raised by the public.

Prior to the public consultation event opening to the public, a presentation (briefing) on the constraints study and scheme options, as well as the upcoming consultation event was made to the elected officials of Wexford County Council.

## 6.1 Public Consultation Material and Website

### 6.1.1 Public Consultation Brochure/Feedback Form

The brochure showed a map of the study area with the scheme option corridors as well as describing each scheme option. The main physical, engineering and environmental constraints identified within the study area were listed on the brochure. The brochure also contained information about the background to the project, scheme objectives and information on the subsequent phases of the project. The brochure was accompanied with a tear off feedback form which could be returned by freepost to Wexford County Council. The feedback form invited the public to submit comments on the constraint study area and on the scheme options. A copy of the brochure and feedback form are included in Appendix E of this report. An Irish version of the brochure was also prepared which was available on the project website for viewing by the public.

### 6.1.2 Public Consultation Drawings

A drawing showing a map of the scheme options as well as describing each scheme option was prepared, which is included in Appendix B of this report. Constraints study drawings were also prepared showing identified constraints within the study area. All these drawings were available for viewing on the project website during the public consultation event. The detailed constraint map drawings are included in Appendix A of this report.

### 6.1.3 Project Website

All of the information relating to the N25 Rosslare Europort Access Road project and the public consultation was available on the dedicated project website <http://rosslareeuroportaccessroad.ie>

The website provided the most up to date information on the project and it had pages dedicated to the public consultation where you could find the brochure, a map of the scheme options and maps of the constraints that have been identified in the study area. The website also has a Frequently Asked Question's (FAQ's) page which provided answers to some of the more common questions that might be asked by the public. An interactive version of the feedback form was also available on the website so people could fill in the form, provide their comments, and simply click a button to make their submission. An Irish version of the interactive feedback form was also available on the website. All of the public consultation material including the brochure, mapping, and feedback form was available for viewing by the public on the project website on Thursday 11<sup>th</sup> June 2020 in advance of the commencement of the public consultation.

## 6.2 Public Consultation Timeline

The following is a timeline summary of the public consultation event:

- Press release on all media platforms (i.e. local newspaper and radio etc.) on Tuesday 9<sup>th</sup> June 2020,
- Website updated to include the press release statement on Tuesday 9<sup>th</sup> June 2020,
- Briefing to the elected representatives of Wexford County Council on Wednesday 10<sup>th</sup> June 2020,
- Distribution of the brochure and feedback form to 700 homes in the vicinity of Rosslare Harbour on Wednesday 10<sup>th</sup> June 2020,
- Public consultation material (i.e. brochure, mapping, and feedback form) available for viewing on the project website on Thursday 11<sup>th</sup> June 2020,
- Start of the public consultation event on Monday 15<sup>th</sup> June 2020,
- End of online consultation event at 4pm on 16<sup>th</sup> June 2020 (i.e. end of phone queries/calls),



- The initial deadline for return of the feedback forms was 29<sup>th</sup> June 2020 (via website or freepost), however this was extended to Friday 3<sup>rd</sup> July 2020 by the project team.

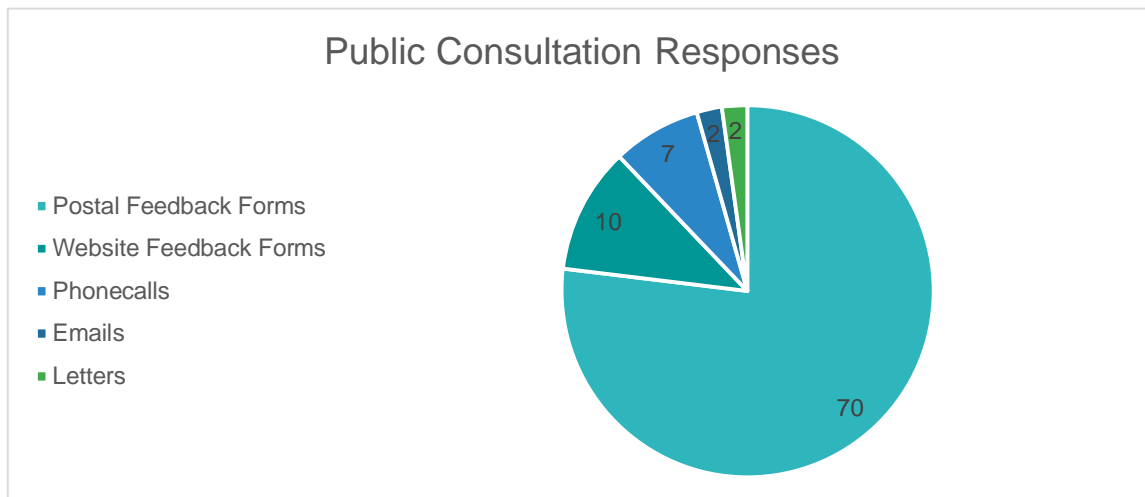
### 6.3 Public Consultation Responses

There was a large response by the public to the N25 Rosslare Europort Access Road “Constraints and Option Selection” Public Consultation.

The return date for the feedback forms was set for the 29<sup>th</sup> June 2010 (later extended to the 3<sup>rd</sup> July 2020 as a number of feedback forms were received after the Monday deadline date) while the last day to phone calls was 4:00pm on Tuesday 16<sup>th</sup> June 2020. All correspondence was input into databases that facilitated their review by members of the project team. Figure 6-1: Public Consultation Responses below provides a summary of the total correspondence received. A total of 91 responses were received during the public consultation event. Response were received under the following categories:

- Feedback Forms (website or postal)
- Phone calls
- Emails
- Letters

**Figure 6-1: Public Consultation Responses**



#### 6.3.1 Phone and Email Correspondence Received

A total of 11 phone calls, email and letter correspondence were received as part of the public consultation.

#### 6.3.2 Feedback Forms Received

A total of 80 feedback forms were received. Appendix F of this report provides a summary of the main findings and statistics from the feedback forms received. Table 6-2 shows the main comments received from the Feedback forms.

**Table 6-2: Top Items of Feedback Received**

No.	Main Comments Received
1.	Preferred scheme option is option 'C'
2.	Remove Heavy Good Vehicles (HGVs) from the village / Existing traffic congestion
3.	Ensure that the development does not impact on tourism/local economy of the village of Rosslare Harbour
4.	Port expansion and Improved Access to Port
5.	Pedestrians Safety - Currently difficult to cross roads/crossings & footpaths required
6.	Road Safety – Current speeds of vehicles
7.	Concerns regarding Delap's Hill
8.	Keep cars travelling through village and only HGV on new access road

#### **6.4 Application of Feedback from Public Consultation**

All of the correspondence/feedback received through the public consultation process has been reviewed by the project team and were considered when undertaking the assessment to select the preferred scheme option.

# 7 Appraisal of Scheme Options

## 7.1 Introduction

The feasible scheme options identified were appraised on an objective comparative basis in accordance with TII PAG Unit 12 (Minor Projects) & Unit 7 (Multi-Criteria Analysis). The appraisal applied a structured multi-criteria analysis to identify a preferred scheme option that best meets the project objectives.

The Multi-Criteria Analysis (MCA) appraisal tool was used to evaluate and rank the scheme options using a specific pre-defined set of criteria on the basis of a pre-defined scoring system. This criteria set and scoring system were applied using the Project Appraisal Matrix in accordance with TII PAG. The Project Appraisal Matrix was also used to develop the Project Appraisal Balance Sheet (PABS) for the preferred scheme option.

In accordance with the TII Project Appraisal Guidelines for National Roads Unit 7.0 – Multi Criteria Analysis (MCA) (PE-PAG-02031, October 2016) and Unit 12: Minor Projects (€5m to €20m) (PE-PAG-02035, October 2016) an appraisal has been made for each of the Scheme Options A to C described in section 5.2 of this report and shown in the figures included within Appendix B of this report.

- Scheme Option A – ‘Do-Minimum’ Option
- Scheme Option B – ‘Do-Something’ Management Option
- Scheme Option C – ‘Do-Something’ Development Option)
  - Sub Option C1 – Single Carriageway Urban Relief Road,
  - Sub Option C2 – Dual Carriageway Urban Relief Road,

Each scheme option has been appraised using the Project Appraisal Matrix under the headings of Economy, Safety, Environment, Accessibility & Social Inclusion, Integration and Physical Activity. A breakdown of the MCA Assessment Criterion and Sub-Criteria headings include the following:

- Economy;
  - Traffic Effectiveness and Efficiency
  - Wider Economic Impacts
  - Funding
- Safety;
- Environment;
  - Air Quality & Climate,
  - Noise,
  - Waste,
  - Biodiversity (Flora and Fauna),
  - Agriculture,
  - Non-Agricultural Properties,
  - Architectural Heritage,
  - Archaeological & Cultural Heritage,
  - Landscape & Visual,
  - Soils and Geology,
  - Hydrology,

- Hydrogeology,
- Accessibility & Social Inclusion;
  - Deprived Geographical Areas,
  - Vulnerable Groups.
- Integration;
  - Transport Integration,
  - Land Use Integration,
  - Geographical Integration,
  - Other Government Policy Integration: Regional Balance
- Physical Activity

### 7.1.1 Performance Matrix/Score

Multi-Criteria Analysis (MCA) as an appraisal tool is used during the Phase 2 Option Selection process to evaluate and rank project options against a set of criteria on the basis of a scoring procedure. The matrix shows how each option performs within each of the assessment criteria. Where possible, the performance matrix for each option includes both quantitative and qualitative assessments on each the criteria impacts. Each impact has been scored based on the seven-point scale shown below in Table 7-1.

**Table 7-1: Performance Assessment Score Matrix**

Score	Performance Assessment Matrix
7	Major or highly positive
6	Moderately positive
5	Minor or slightly positive
4	Not significant or neutral
3	Minor or slightly negative
2	Moderately negative
1	Major or highly negative

The results of the appraisal of the scheme options under the headings of Economy, Safety, Environment, Accessibility & Social Inclusion, and Integration are presented in sections 7.2 to 7.7 of this report.

## 7.2 Economy

### 7.2.1 Introduction

The TII Project Appraisal guidelines (PAG) and NRA Cost Management Manual (CMM) provide guidance for the economic appraisal of scheme options. The cost of each scheme option was estimated and Option Comparison Estimates (OCE) were prepared in accordance with the requirements of CMM and PAG Unit 6.2 (Preparation of Scheme Costs). Outputs from the OCE's and the traffic forecasts for each scheme option were then applied to a Cost Benefit Analysis (CBA) for the scheme options. The CBA was conducted using the TII 'Simple Appraisal Tool' in accordance with TII PAG Unit 12.

### 7.2.2 Option Comparison Estimate (OCE)

#### 7.2.2.1 Methodology

The economic assessment consists of a Level 2 Option Comparison Cost Estimate (OCE) prepared for each of the scheme options in accordance with the NRA Cost Management Manual March 2010.

NRA CMM requires cost estimates to be prepared under the following cost headings:

- Main Contract Construction
- Main Contract Supervision
- Archaeology
- Advance Works & Other Contract
- Walking/Cycling/Asset Renewal
- Land & Property
- Planning & Design

The methodology involved in preparing the Option Comparison Cost Estimates (OCEs) was as follows:

- Details for each scheme option were input into the Level 2 Estimate template sheet in Appendix C of the NRA Cost Management Manual March 2010 in order to produce a scheme cost estimate for each of the scheme options.
- The estimates were arrived at by using a combination of both the Elemental and Unit Cost Estimating approaches in accordance with NRA CMM.
- Quantities were grouped according to the TII Publication CC-RMP-00010 associated with the requirements for Measuring and Pricing
- Results of these OCEs were used to compare all of the scheme options.

No Base Cost Estimates has been developed for Scheme Option A, as this 'Do-Minimum' option does not include the development of any new infrastructure and therefore consists in maintaining the current situation along the N25 towards Rosslare Europort. The cost of maintaining the current situation is general maintenance costs which would apply to all of the scheme options once complete.

#### 7.2.2.2 Main Construction Costs – Base Cost Estimates

Construction cost estimates for each of the scheme options were based on outline preliminary layouts as described in section 5.2 above and as shown in the option layouts presented in Appendix B.

Current TII Schedule of Rates March 2019 (2019 CC-GMP-00054 October 2019) were used where relevant in estimating the cost of each of the scheme options.

It is further noted that some of the rates used for the main contract construction cost are based on analysis of recent road schemes constructed in Ireland, with cross checking to rates from other projects recently constructed, or currently under construction. Construction costs were also estimated against cost estimates previously prepared in 2016 for the proposed scheme prepared at that time by Wexford County Council. Where required, costs were projected to 2020 using the SCSi Tender Price Index of March 2020.

The data compiled from the quantity assessment under the main construction cost estimate are summarised below in Table 7-2 for each of the scheme options.

**Table 7-2: Main Construction Costs for each scheme option**

		Option B	Option C1	Option C2
100	Preliminaries	€559,166.68	€727,486.54	€1,100,114.71
200	Site Clearance	€3,992.29	€5,243.51	€7,765.43
300	Fencing	€18,480.00	€134,750.00	€134,750.00
400	Safety Barriers and Pedestrian Guardrails	€33,745.00	€42,994.00	€42,330.00
500	Drainage and Service Ducts	€177,207.80	€292,101.00	€486,835.00
600	Earthworks	€1,571,211.89	€2,272,500.97	€3,301,881.08
700	Pavement	€774,805.80	€693,799.50	€1,510,953.00
1100	Kerbs, Footways and Paved Areas	€208,436.15	€340,233.75	€468,288.75
1200	Traffic Signs	€84,806.00	€97,852.50	€130,470.00
1300	Lighting and Electrical	€34,624.00	€39,950.00	€39,950.00
1400	Electrical work for Lighting	€34,624.00	€39,950.00	€39,950.00
1700	Structures	€750,000.00	€1,018,640.20	€1,476,471.90
2700	Accommodation Works	€205,314.76	€121,517.03	€121,517.03
A	Statutory Authorities & Utilities	€73,500.00	€73,500.00	€73,500.00
B	Any Other Obligations and Liabilities of the Contractor	€23,300.00	€23,300.00	€23,300.00
<b>Main Construction Costs Totals (excluding VAT &amp; project risk allowance)</b>		<b>€4,553,214.36</b>	<b>€5,923,819.00</b>	<b>€8,957,311.79</b>

A 15% project risk allowance has been added to the construction costs to allow for potential risks and variations which cannot be accurately quantified at the scheme option selection stage. This contingency rate is comparable with recent historical rates applied for other road projects at Phase 2 and is considered to adequately cover site specific risks including geotechnical and rail risks (i.e. poor ground and railway line interface).

### 7.2.2.3 Other Cost Headings – Base Cost Estimates

The other six cost headings listed above were added to the Main Contract Construction Cost in order to determine the total Stage 2 Level 2 Estimate for each of the scheme options.

The characteristics of Options B and C are very different in terms of construction, terrain, surroundings etc. The options are therefore not considered to be directly comparable for the purposes of preparing cost estimates for the remaining six cost headings. It is therefore not considered appropriate to apply a constant percentage of construction costs for each option to

estimate costs for these cost headings. Applying variable percentage rates ensures that more realistic costs are applied for each option for each cost heading. Option specific estimates for each cost heading were prepared as outlined below and as presented in Table 7-3 below.

#### Land & Property:

Options B and C differ significantly in terms of the land type that would be acquired. As an online management option, Option B would require additional lands adjacent to the existing road corridor which are currently zoned for commercial use in the County Development Plan. Based on recent comparable rates in Rosslare Harbour for commercial sites, a compensation rate of €300,000 per hectare has been applied for the acquisition of these lands.

Lands that would be required for Option C are predominantly agricultural. Based on the most recent similar acquisitions in Co. Wexford a compensation rate of €125,000 per hectare has been applied to these lands. Option C would also require some non-agricultural lands, and a compensation rate of €150,000 per hectare has been applied to this plot.

The areas of land required for each option for each land type have been estimated and the overall cost estimate for each option has been calculated using the applicable compensation rate above.

#### Planning & Design:

It is considered that planning and design costs will not vary significantly between the options. The planning and design processes would be similar for each of the options and the scope of design & assessment work required would also be similar. As an online management option, Option B would involve some complex retrofit design and traffic management design work. The scope of design work for the single carriageway Option C1 and dual carriageway Option C2 are also considered to be similar and include for the design of a railway bridge. The overall planning and design costs for each of the options is considered to be of the order of €700,000 with Option B potentially slightly lower and Option C2 potentially slightly higher. The following option specific percentages have been applied to the main construction costs estimates for each option to determine planning and design costs:

- Option B @ 15% = €682,982.15
- Option C1 @ 12% = €707,985.48
- Option C2 @ 8% = €716,646.15

#### Archaeology:

The Project Archaeologist has advised that the following level 2 cost estimates are appropriate for each scheme option:

- Option B = €112,000
- Option C1 & C2 = €250,000

#### Advance Works & Other Contracts:

A cost allowance of 1% of estimated construction costs is considered to be reasonable for each scheme option.

#### Walking/Cycling/Asset Renewal

A cost allowance of 0.5% of estimated construction costs is considered to be reasonable for Scheme Option B and a cost allowance of 1% of estimated construction costs is considered to be reasonable for Scheme Options C1 & C2.

### Main Contract Supervision:

It is considered that the variability in construction costs between the options will not be fully reflected in construction supervision costs. The construction programme for Option B is likely to be somewhat shorter than for both Option C's but additional resources will be required for extensive traffic management operations throughout the construction programme. Additional resources will also be required for both Options C's for the construction of the railway bridge. The following option specific percentages of the main construction costs estimates have therefore been applied for main contract supervision costs:

- Option B @ 4% = €182,128.57
- Option C1 @ 4% = €236,952.76
- Option C2 @ 3% = €268,742.31

**Table 7-3: Costs, Rate €/km and Percentages of Main Construction Costs applied to other Cost Elements**

Other Cost Elements	Rate €/km, Costs & Percentage of Main Construction Contract Costs		
Scheme Options	Option B	Option C1	Option C2
<b>Land &amp; Property</b>	€480,000/km (zoned land)	€387,500/km (agricultural land)	€500,000/km (agricultural land)
<b>Planning &amp; Design</b>	15.00%	12.00%	8.00%
<b>Archaeology</b>	€112,000	€250,000	€250,000
<b>Advance Works and Other Contracts</b>	1.00%	1.00%	1.00%
<b>Walking/Cycling/Asset Renewal</b>	0.50%	1.00%	1.00%
<b>Main Contract Supervision</b>	4.00%	4.00%	3.00%
<b>Residual Network</b>	0.50%	1.00%	1.00%

### Project Risk Contingencies

The following project risk contingencies have been applied to each of the cost headings:

- Land & Property = 15%
- Planning & Design = 15%
- Archaeology = 10%
- Advance Works & Other Contracts = 10%
- Main Construction Supervision = 10%
- Walking/Cycling/Asset Renewal = 10%

These contingencies allow for potential risks and variations that cannot be accurately quantified at Phase 2 option selection stage. The contingency rates applied are comparable with historical rates applied to other road projects at Phase 2 and are considered to adequately cover uncertainty levels at this phase of the project.

#### 7.2.2.4 Option Comparison Estimates

Option Cost Estimates (OCE) for the scheme options were prepared using the base cost estimates above in accordance with NRA CMM. Table 7-4 below and Appendix H present the OCE's for each scheme option.



No OCE has been developed for Scheme Option A, as the option does not include the development of any new infrastructure and therefore consists in maintaining the current situation along the N25 towards Rosslare Europort. The cost of maintaining the current situation is general maintenance costs which would apply to all of the scheme options once complete, so no OCE was prepared for this option.

**Table 7-4: Options Comparison Estimate - OCE**

Economy			
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment
Option Comparison Estimate – OCE	Scheme Option A – ‘Do-Minimum’ Option	n/a	Option retains the current N25 towards Rosslare Europort. The cost of maintaining the current situation is general maintenance costs which would apply to all options once complete, so no OCE was prepared for this option.
	Scheme Option B – ‘Do-Something’ Management Option	€7,513,581.98	Option B utilises the existing asset where feasible through a package of on-line improvements. These include traffic calming, bottleneck removals, road safety works, traffic management measures or Intelligent Transport Systems. This option will be developed to represent the ‘best’ that can be done using the existing infrastructure, and also includes the N25 Ballygillane roundabout project.
	Scheme Option C1 – ‘Do-Something’ Development Option	€9,793,542.57	Option C1 consists of a combination of existing road infrastructure along with a new road corridor to provide a new access route to the Rosslare Europort. This option utilises the existing Ballygerry Link Road and begins at its junction with the existing N25 National Road, where the proposed N25 Ballygillane Roundabout is again included. A new section of road then extends from the existing junction of the Ballygerry Link Road/Churchtown Road and loops to the north, crossing the existing railway track before continuing east to connect into Rosslare Europort, via a new roundabout. This cross section of road proposed will be a single carriageway urban relief road.
	Scheme Option C2 – ‘Do-Something’ Development Option	€14,065,256.04	Option C2 is the same as Option C1 except the cross section of road proposed will be a dual carriageway urban relief road.

### 7.2.3 Traffic Model

As mentioned in Section 3.1, a Transport Modelling Report (TMR) was prepared for the Rosslare Europort Access Road scheme in accordance with the Project Appraisal Guidelines. As stated in Section 3.2 a microsimulation model using PTV VISSIM software was the preferred choice to assess the proposed N25 Rosslare Europort Access Road scheme. For details on the traffic modelling report see chapter 3 and Appendix J of this report. The Traffic Modelling Assessment is shown in Table 7-5. Traffic forecasts for each scheme option were applied in the economic appraisal of the options.

**Table 7-5: Traffic Modelling Assessment**

Economy			
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment
Traffic Modelling Assessment	Scheme Option A – ‘Do-Minimum’ Option	n/a (Note 1)	Option A performed slightly better overall in the traffic model developed, with shorter journey times and less stops due to the free flow nature.
	Scheme Option B – ‘Do-Something’ Management Option	n/a (Note 1)	Option B performed the worst with longer journey times and more stops due to the signalised junction at N25/Marys Terrace/St Martins Junction
	Scheme Option C – ‘Do-Something’ Development Option	n/a (Note 1)	Option C does result in fewer stops, separating port demand from local access roads for Rosslare village making a better improvement to the area overall similar to Option A in its free flow nature of design.

Note 1 In the case of some elements within each criterion the inclusion of a quantitative statement is not possible as only a qualitative assessment or examination is required, hence there are no quantitative amounts or values which can be included.

### 7.2.4 Transport Efficiency & Effectiveness (Cost Benefit Analysis – Economy)

The selection of the transport model type influences the selection of the economic appraisal tool for a project (TUBA or TII Simple Appraisal Tool).

Section 8 of the Project Appraisal Guidelines for National Roads Unit 12.0 - Minor Projects (PE-PAG-02035 Oct 16) states that for Minor Projects (€5m to €20m) the scheme options must be assessed under the Common Appraisal Framework appraisal criteria headings (Economy; Safety; Environment; Accessibility & Social Inclusion; Integration; and Physical Activity (if applicable)). In this regard, section 8.1 of the guidelines (PE-PAG-02035) refers to two different tools/approaches to be used when undertaking the Cost Benefit Analysis (CBA) (Economy) for a scheme:

- TII Simple Appraisal Tool
- TUBA

The Project Appraisal Guidelines (section 8.1 of PE-PAG-02035) indicate that TUBA should be used for more complex projects that require the development of an assignment traffic model. In this regard, as a microsimulation traffic model was developed for the scheme, it was therefore recommended that the ‘TII Simple Appraisal Tool’ approach be used for the economic assessment for the N25 Rosslare Europort Access Road scheme.

#### 7.2.4.1 Methodology

##### TII Simple Appraisal Tool

The economic appraisal of the project was carried out by Cost Benefit Analysis (CBA) calculated using the ‘TII Simple Appraisal Tool’ for minor projects in accordance with TII PAG Unit 12.0. The simple appraisal tool calculates change in journey times and vehicle operating costs as a result of the online and offline scheme options and calculates the expected monetary benefits. Scheme benefits are compared against scheme costs to generate a Net Present Value (NPV) and Benefit to Cost Ratio (BCR) for each option against the base case ‘Do-Minimum’ option.

The appraisal tool (version 3) was downloaded from the “Downloads” section of the TII Publications website under section PE-PAG-02035\_Unit 12.

The automated spreadsheet requires a number of inputs to quantify the impact of the proposed upgrade in terms of economy and is made up of four sections as follows:

- Part A (Overview): This section requests some general background on the project being assessed such as a brief project description and project management information;
- Part B (Scheme Information): This section deals with the specific scheme information for inclusion as part of the economic appraisal.
- Part C (Scheme Costs): This section deals with the scheme costs for inclusion as part of the economic appraisal.
- Part D (Target Performance): In this section the analyst inputs either/both the average (daily) journey time (minutes) and average speed (kilometres/hour) for both the existing conditions and target projections from the implementation of the scheme.
- Part E (Projected Benefits): This section generates the outputs of the spreadsheet tool including the NPV and BCR of the proposed minor project.
- Part F (Low Sensitivity): This section generates the outputs of the spreadsheet tool including the NPV and BCR of the proposed minor project with low sensitivity growth applied.
- Part G (High Sensitivity): This section generates the outputs of the spreadsheet tool including the NPV and BCR of the proposed minor project with high sensitivity growth applied.

### Rosslare Europort Masterplan Development

The Rosslare Europort Masterplan received planning approval in August 2020. Phase 1 of the plan includes the development of new infrastructure to improve operational efficiency and facilitate future growth. This infrastructure includes a new internal road layout to rationalise access and egress for freight and passenger traffic. The new road layout in the Port has been designed by Rosslare Europort to ensure full compatibility with all scheme options under consideration for the N25 Rosslare Europort Access Road project. Subject to receipt of planning consent and funding, it is anticipated that the N25 Rosslare Europort Access Road would be constructed after the completion of the new Port road layout, which is scheduled to commence in 2021.

As well as calculating the benefits arising from each of the scheme options, the CBA process also captures benefits (or disbenefits) to road users that arise from the separate development by Rosslare Europort of the new road layout into the Port. As the new Port road layout is compatible with all scheme options, any consequential benefits arising are calculated for all scheme options thereby ensuring that the economic appraisal process is unbiased. The CBA does not capture the external costs of the Port road development as this is accounted for in full by the third-party developers. In an economic context the development of the new Port road layout is therefore treated as an externality in the CBA as consequential benefits or disbenefits accrue to the project user directly as a result of third-party economic activity and the project or project user is not charged for the benefit. This approach is considered to be in accordance with guidance provided in the Public Spending Code – ‘A Guide to Economic Appraisal: Carrying Out a Cost Benefit Analysis’ and the ‘Common Appraisal Framework for Transport Projects and Programmes’. The approach is also considered to be consistent with the key project objective to improve accessibility and connectivity to Rosslare Europort.

The two separate proposed transport investments to improve the public road access to the Port and to improve road access within the Port share a common objective and synergy. It is considered that this common objective creates a common aspect to transport user benefits that should be reflected in the CBA, i.e. benefits to public road users and benefits to Port users. In effect these user sets are identical as the economic appraisal for the scheme options is only analysing benefits to road users whose origin or destination is the Port. The inclusion of the new road layout for the Port in the project CBA therefore captures the overall benefits to transport users in terms of journey times and vehicle operating costs. The interaction of the two separate transport investments is also considered in the Multi-Criteria Analysis of the scheme options under the Integration criterion. This criterion assesses non-economic impacts such as strategic connectivity between transport modes including the connectivity of the national road network to the international port of Rosslare Europort.

## Existing Infrastructure – Future Costs

Rosslare Europort’s 2020 Master Plan identifies that *“the condition and suitability of the existing main port access road on Delap’s Hill has been a concern since the early 2000’s and there have been a number of incidents since then where works have been required to ensure the continued operation of the port. The existing access road has been identified as a hazard on the port’s risk register, however a do minimum approach was always taken for any remedial works on the basis that the N25 Rosslare Europort Access Road project would be delivered in the short to medium term.”*

A detailed review of historical geotechnical data and consultations with Iarnród Éireann have confirmed that the stability of Delap’s Hill poses a significant potential risk to the operation of the sole road access to the Port. In a ‘Do-Nothing’ or ‘Do-Minimum’ scenario it is therefore considered that future geotechnical and/or structural works will be required at Delap’s Hill to secure the future sustainability of this road access. Should a future closure of this road be required in a ‘Do-Nothing’ or ‘Do-Minimum’ scenario due to instability or partial collapse of Delap’s Hill, the continued operation of the Port would be at risk for an undefined period of time. It is therefore considered that the ‘Do-Nothing’ scenario and ‘Do-Minimum’ base case (Option A) incorporates a requirement for future upgrade works to Delap’s Hill. The costs for Option B ‘Online Management Option’ include a sum of €1.5 million for such future upgrade works and the scope of works required in the ‘Do-Nothing’ and ‘Do-Minimum’ scenarios would be similar in scope. A future cost contingency of €1.5 million has therefore been allowed for as part of the ‘Do-Minimum’ base case (Option A). As this option is the baseline case against which the economic appraisal of the other scheme options are calculated, it is not possible to directly attribute this cost to Option A in the economic appraisal.

Therefore, for the purpose of economic appraisal of the ‘Do-Something’ scheme options, this cost has been deducted from overall scheme costs for these options to provide a ‘net’ cost for the options compared to the ‘Do-Minimum’ Option A. For example, such a deduction of the cost of future upgrade works to Delap’s Hill in the economic appraisal of Option B will provide a true comparison with the ‘base case’ as both scenarios would attract the same costs for upgrade works. For CBA discounting purposes this cost deduction has to be attributed to a particular future year. For equivalence, the deduction has been made in the same year that the cost was attributed in the Option B cost estimate. A similar deduction process has been implemented for the Option C CBA. The cost estimate for Option C includes contingencies for geotechnical risk associated with ground conditions on that corridor. Should the CBA for Option C fail to establish an adequate economic case for development against the Option A base case, then costs for future upgrade works associated with Option A will be realised. Therefore, the cost of future upgrade works to Delap’s Hill has also been deducted from the cost of Option C to provide a true CBA comparison with the ‘base case’ scenario.”

## TII Simple Appraisal Tool inputs

As mentioned above the TII ‘Simple Appraisal Tool’ requires inputs for the existing route length, new route length, existing speed, forecast speed and AADT figures.

### **Annual Average Daily Traffic (AADT):**

AADT figures inputted into the TII Simple Appraisal Tool were calculated from the Transport Modelling Report (TMR) which was prepared for the Rosslare Europort Access Road scheme. The existing TII Permanent Traffic counter located on the N25 at Kilrane recorded an AADT of 5,629 for 2019, with a percentage HGV of 8.5%. According to the Transport Modelling Report (TMR) approximately 40% of the total AADT goes to the Port (i.e. 2252). In order to undertake a true CBA comparison all scheme options the AADT figure of 2252 was used for the appraisal of all scheme options. This approach disregards potential benefits to non-Port traffic that may arise from the proposed investment. In particular, such benefits may arise for Option C due to the removal of Port

traffic from the existing road network which may improve journey times on the existing network. The Public Spending Code terms such benefits as "Additionality" which occur "when the funded project achieves benefits which otherwise would not have been achieved and these benefits can be attributed to the intervention". It is recognised that the exclusion of these potential benefits results in a more conservative analysis of benefits, particularly for Option C

Rosslare Europort is the origin and destination for the vast majority of HGV traffic on this section of the existing road network. Therefore, the HGV proportion (8.5%) in the overall AADT was assigned to the overall proportion of Port traffic (40%), resulting in a HGV percentage of 20% for all Port traffic

**Average journey lengths and average speeds:**

For each of the scheme options, freight traffic and cars/buses will take different routes on Rosslare Europort's new internal road layout when entering and leaving the Port. Therefore, as the route lengths are different for specific vehicle types, inputting a single route length in TII Appraisal Tool was not possible. It was therefore decided that an average length based on proportions of vehicle types would be calculated for input into the appraisal tool. Average journey lengths and average speeds based on the proportions of each journey type were calculated for each scheme option. Speed surveys were undertaken in Rosslare Harbour to determine the existing speed along sections of the N25 National road. Results of these surveys fed into determining the existing speeds to be inputted into the TII Simple Appraisal Tool. Table 7-6 below gives a breakdown of the journey lengths and speeds used to calculate the average journey lengths and the average speeds for each of the scheme options. Appendix L of this report shows the internal road layout within Rosslare Europort.

**Table 7-6: Journey lengths and speeds for each section of road**

Road Section	Distance (km)	Existing/Proposed Speeds (km/h)
Existing N25 National Road (from N25 Ballygerry roundabout to start of Delap's Hill)	0.80	50
Delap's Hill (existing access to Port)	0.50	30
New Port Internal Access Road (900m link road between the existing eastern Port roundabout to the proposed western Port Roundabout)	0.90	30
Scheme Option C	1.50	60

As mentioned previously all of the scheme options are compatible with the Port's approved planning for internal road infrastructure which aims to increase transit efficiency through the Port (via customs, inspections etc.). The Port's check-in areas for freight and cars/buses are located within different areas of the proposed new Port internal infrastructure. Freight check-in is proposed near the new proposed Port western roundabout while car/bus check-in is proposed adjacent to the existing eastern Port roundabout. The average journey lengths and average speeds for each scheme option were calculated to take account of the different check-in locations for each vehicle type. Table 7-7 below gives the calculated average journey lengths and average speeds for each of the scheme options based upon the following.

- Scheme Option B - all Port traffic will utilise the Port's eastern roundabout to enter/exit the Port.
  - Freight In – Enter via eastern roundabout and travel to western roundabout along 900m new Port internal road (1.3km+ 0.9km = 2.2km)

- Freight Out – Travel from western roundabout along 900m new Port internal road and exit via the eastern roundabout (0.9km + 1.3km = 2.2km)
- Cars/Buses In – Enter via eastern roundabout (1.3km)
- Cars/Buses Out – Travel from western roundabout along 900m new Port internal road and exit via the eastern roundabout (0.9km + 1.3km = 2.2km)
- Scheme Option C - all Port traffic will enter/exit the Port western roundabout to enter/exit the Port
  - Freight In – Enter via western roundabout = (1.5km)
  - Freight Out – Exit via western roundabout = (1.5km)
  - Cars/Buses In – Enter via western roundabout and travel to eastern roundabout along 900m new Port internal road (1.5km + 0.9km = 2.4km)
  - Cars/Buses Out – Exit via western roundabout = 1.5km

**Table 7-7: Average Journey lengths and average speeds for each scheme option**

	Scheme Option B			Scheme Option C	
	AADT %	Journey Length (km)	Journey Speed (km/h)	Journey Length (km)	Journey Speed (km/h)
Freight In/Out	20%	2.20	37.3	1.50	60
Cars/Buses Out	40%	2.20	37.3	1.50	60
Cars/Buses In	40%	1.30	42.3	2.40	48.75
<b>Average</b>	<b>39.3</b>	<b>1.84</b>	<b>39.3</b>	<b>1.86</b>	<b>55.5</b>

**7.2.4.2 Transport Efficiency & Effectiveness – CBA Results**

The Phase 2 economic appraisal also included a 'future scenario analysis' in accordance with the Public Spending Code and Common Appraisal Framework for Transport Projects and Programmes. This involved examining a range of different future "what if" scenarios taking into account levels of uncertainty about the future. For the purposes of identifying the preferred scheme option only the baseline scenario was appraised and scored for the economy criterion in Table 7-8 below and in the Project Appraisal Balance Sheet. It is noted that the future scenarios appraised all resulted in better economic outturns than the baseline scenario presented below. The future scenario analysis is reported separately in the Phase 2 Project Appraisal Report. Should the project proceed to Phase 3, more detailed appraisal of future scenarios will be undertaken.

**Table 7-8: Transport Efficiency and Effectiveness (CBA/TII Simple Appraisal Tool outputs)**

Economy				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
Transport Efficiency and Effectiveness – CBA (TII Simple Appraisal Tool)	Scheme Option A – 'Do-Minimum' Option	'Do-Minimum' base case	As this option is the baseline case against which the economic appraisal of the other scheme options are calculated.	4
	Scheme Option B – 'Do-Something'	TII Simple Appraisal Tool Output: Journey Time Impacts (€ Million) = €0.00	Scheme Option B presents no journey time or vehicle	2

Economy				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
	Management Option	Vehicle Operating Costs Impacts (€ Million) = €0.00 Present Value Benefits, PVB (€ Million) = €0.00 Present Value Costs, PVC (€ Million) = €5.71 Net Present Value (NPV) (€ Million) = -€5.71 Benefit to Cost Ratio (BCR) = 0.00	operating benefits for the investment. Therefore, the Benefit to Cost Ratio is 0.0 and the investment presents a significantly negative Net Present Value.	
	Scheme Option C1 – ‘Do-Something’ Development Option	<u>TII Simple Appraisal Tool Output:</u> Journey Time Impacts (€ Million) = €5.12 Vehicle Operating Costs Impacts (€ Million) = €0.34 Present Value Benefits, PVB (€ Million) = €9.11 Present Value Costs, PVC (€ Million) = €7.87 Net Present Value (NPV) (€ Million) = €1.25 Benefit to Cost Ratio (BCR) = 1.16	Scheme Option C1 presents significant journey time benefits and the best return on investment of all of the scheme options. It is noted that the benefit to cost ratio is in excess of 1.0, indicating a positive return on investment.	5
	Scheme Option C2 – ‘Do-Something’ Development Option	<u>TII Simple Appraisal Tool Output:</u> Journey Time Impacts (€ Million) = €5.12 Vehicle Operating Costs Impacts (€ Million) = €0.34 Present Value Benefits, PVB (€ Million) = €9.11 Present Value Costs, PVC (€ Million) = €11.92 Net Present Value (NPV) (€ Million) = -€2.81 Benefit to Cost Ratio (BCR) = 0.76	Scheme Option C2 presents the same benefits as Option C1, but as the costs are higher, the return on investment is reduced. It is noted that the benefit to cost ratio is less than 1.0, indicating a loss on the investment in terms of journey time benefits and vehicle operating costs.	3

The results of the Cost Benefit Analysis, shown in Table 7-8, show that Scheme Option C1 achieves the best economic outturn. The TII Simple Appraisal Tool for each scheme option (including inputs and outputs) is presented in Appendix I of this report.

### 7.2.5 Wider Economic Impacts

Rosslare Europort is a key strategic transport link between Ireland and both the European mainland and the United Kingdom. It is an important ferry port for all major Roll-On, Roll-Off (RORO) passenger and freight services operating on UK and continental routes. Rosslare Europort is the State’s second largest passenger port, and the fourth largest port in terms of overall tonnage. The N25 Rosslare Europort Access Road project recognises Rosslare Europort as a key strategic transport link between Ireland and both the European mainland and the United Kingdom and one of the key objectives of the project is to improve accessibility and connectivity to Rosslare Europort in order to secure sustainable future access and to mitigate the risks from current constraints and limitations of the existing access. Rosslare Europort is projecting a 20% increase in port traffic over the five-year period 2020-2025 and this expected increase is a major factor in the need for investment in the N25 Rosslare Europort Access Road Project. Rosslare Europort’s current and expected future share of national port traffic and its strategic importance as part of Ireland’s response to Brexit is considered to make the securing of high-quality access to the Port of key strategic importance. The Wider Economic Impacts appraisal for Scheme Options A, B and C is presented in Table 7-9 below.

**Table 7-9: Wider Economic Impacts Appraisal**

Economy				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
Wider Economic Impacts	Scheme Option A – ‘Do-Minimum’ Option	n/a (Note 1)	Option A is compatible with the Rosslare Europort Phase 1 Master Plan which received planning approval in August 2020 and proposes a new layout for Port road infrastructure and customs/check-in facilities however, no investment in the existing network does not improve access to Rosslare Europort. The wider potential economic impacts of the project will be considered “Moderately negative” as no improvements are proposed to improve the efficiency of this strategic multi-modal international transport corridor (road & sea travel)	2
	Scheme Option B – ‘Do-Something’ Management Option	n/a (Note 1)	Option B is compatible with the Rosslare Europort Phase 1 Master Plan which received planning approval in August 2020 and proposes a new layout for Port road infrastructure and customs/check-in facilities  This option provides for an upgrade to the existing N25 route which includes a parallel link road between the Ballygillane Roundabout and St Mary’s Terrace with improved local road junctions. This will add capacity to the existing route and improve access to Rosslare Europort  The wider potential economic impacts of the project will be considered “Minor or slightly positive” due to the removal of some of the existing capacity constraints on the current access route which will improve the efficiency of this strategic multi-modal international transport corridor (road & sea travel).	5
	Scheme Option C (C1 & C2) – ‘Do-Something’ Development Option	n/a (Note 1)	Rosslare Europort recently received planning approval in August 2020 for the development of a new road layout into the Port as part of Phase 1 of the Master Plan for the Port. Scheme Option C is compatible with the design of the new road layout in the Port and will connect directly to the proposed Western Roundabout within Rosslare Europort road layout.  The wider potential economic impacts of the project will be considered “Major or highly positive” due to improvements to the efficiency of this strategic multi-modal international transport corridor (road & sea travel). The proposed transport investment will therefore stimulate the potential for improved economic productivity, output and employment, particularly in the context of the economic challenges of Brexit.”	6

Note 1 In the case of some elements within each criterion the inclusion of a quantitative statement is not possible as only a qualitative assessment or examination is required, hence there are no quantitative amounts or values which can be included.



## 7.2.6 Funding

It is anticipated that the project will be exchequer funded. In this regard, all scheme options have been scored equally with a 'neutral' scoring. The Funding appraisal for Scheme Options A, B and C is presented in Table 7-10.

**Table 7-10: Funding Appraisal**

Economy				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
Funding	Scheme Option A – 'Do-Minimum' Option	n/a (Note 1)	It is anticipated that the project will be exchequer funded, therefore all scheme options have been scored equally.	4
	Scheme Option B – 'Do-Something' Management Option	n/a (Note 1)	It is anticipated that the project will be exchequer funded, therefore all scheme options have been scored equally.	4
	Scheme Option C (C1 & C2) – 'Do-Something' Development Option	n/a (Note 1)	It is anticipated that the project will be exchequer funded, therefore all scheme options have been scored equally.	4

Note 1 In the case of some elements within each criterion the inclusion of a quantitative statement is not possible as only a qualitative assessment or examination is required, hence there are no quantitative amounts or values which can be included.

## 7.2.7 Combined Economy Appraisal Matrix

An analysis was undertaken comparing the preferences for each scheme option identified under the economic appraisal heading. The results of all the economic assessments were considered in determining a Preferred Scheme Option.

Table 7-11 Combined Economy Appraisal Matrix below, outlines the preferences of each scheme option under each economy heading.

**Table 7-11: Combined Economy Appraisal Matrix**

Criterion	Sub Criteria	Scheme Option A	Scheme Option B	Scheme Option C	
				Scheme Option C1	Scheme Option C2
Economy	Transport Efficiency and Effectiveness - CBA	4	2	5	3
	Wider Economic Impacts	2	5	6	6
	Funding	4	4	4	4
<b>Total Economic Score</b>		10	11	15	13

## 7.3 Safety Appraisal

### 7.3.1 Introduction

Two principal road safety impacts are considered through the safety appraisal process:

- collision reduction
- security of road users.

As part of the safety appraisal for the scheme, a Stage F Road Safety Audit (Part 1) was carried out by an independent audit team in accordance with TII publication document GE-STY-01024 Road Safety Audit. The report is included in Appendix G of this report. The accident benefit program COBALT - Ireland has also been assessed as part of the appraisal.

### 7.3.2 Collision reduction (Cost Benefit Analysis – Safety)

A Cost Benefit Analysis (Safety) is required for the appraisal of the scheme options in accordance with the TII Project Management Guidelines 2019 and the TII Project Appraisal Guidelines 2019. A safety appraisal is required to be undertaken to assess the incident reduction delivered by each scheme option. The COBALT-Ireland program was used to undertake the analysis of the impact on collisions as part of the economic and safety appraisal for each scheme option.

#### 7.3.2.1 Software

COBALT (Cost and Benefit to Accidents – Light Touch) is a computer program developed by the UK Department for Transport (DfT) to assess and quantify the change in the number of collisions and casualties as a direct result of a new road scheme. The outputs of COBALT are used to inform both the economic and safety impacts of a scheme as part of the multi-criteria appraisal framework.

An Irish specific version of the COBALT program has now been developed by Transport Infrastructure Ireland (TII) for use on road schemes in the Republic of Ireland and is referred to as COBALT-Ireland. COBALT-Ireland has been developed to undertake analysis based on combined link and junction collision rates and does not provide options to conduct link only or junction only analysis as per the UK version.

The COBALT assessment is based on a comparison of collisions by severity and associated costs across the full extent of an identified network in a 'Without-Scheme' and 'With-Scheme' scenario, using details of link characteristics, collision rates, casualty costs and projected traffic volumes.

#### 7.3.2.2 Methodology

All appraisal parameters used in COBALT were taken directly from TII PAG Unit 6.11 – “National Parameters Values Sheet” and guidance on using the COBALT programme was provided in PAG Unit 6.4: “Guidance on Using COBALT”.

5-year accident data, obtained from the Road Safety Authority (RSA) website, was applied to the existing classified road network and extrapolated over a 30-year appraisal period, defined by COBALT, to produce a without-scheme or Do Minimum (DM) collision cost.

To compare the DM scenario with a Do Something (DS) scenario, collisions rates on unchanged links remained. Whilst for new links associated with the scheme, standard accident rates were applied (based on a number of factors including speed limit, road classification and road length).

Total collisions for both the DM & DS scenarios were then converted into a monetary collision cost using an economic parameter file, specific to IRISH COBALT.

### 7.3.2.3 COBALT Results

The Table 7-12 below shows the outcomes of the N25 Rosslare Europort Access Road COBALT Assessment. All totals are modelled over a 30-year period between the year 2020 and 2050 and cover the full extent of the localised VISSIM model.

**Table 7-12: Outcome of the COBALT Assessment**

Scheme Option	Option A (DM)	Option B	Option C1	Option C2
Collisions	37.00	33.30	41.80	39.50
Associated Cost	€1,428,400	€1,286,200	€1,598,900	€1,518,700
Realised Benefit	N/A	€142,400	-€170,500	-€90,300

#### Scheme Option A:

Option A, otherwise used as the DM scenario, models a total of 37 collisions of varying severity, producing a total collision cost of €1,428,400.

#### Scheme Option B:

Option B, the parallel link road, removes the ability to perform a right turn on the main carriageway heading north and reduces the total number of opposed movements along the corridor which are currently experiencing minor collision incidences. As the possibility of repeating these collisions is removed, total collisions within the network reduces to 33.3, reducing total collision cost to €1,286,200. Thus, providing a realised safety benefit of €142,200.

#### Scheme Option C:

Option C – the proposed Scheme Option C access road works, do not change the layout of the existing N25 northbound carriageway north of the Ballygillane Roundabout and does not remove any opposed movements on the exiting N25 road. Instead traffic routes to the west along the new access road, starting at the Ballygerry link road and heads north, providing a new access road to Rosslare Europort. Standard accident rates are applied to this new link based on speed limit, road classification and road length which increase the total number of collisions in the area.

For Option C1 the single carriageway road option - total collisions increase to 41.8, increasing total collision cost to €1,598,900, creating a realised safety disbenefit of -€170,500.

For Option C2 the dual carriageway road option - total collision increase to 39.5, increasing total collision cost to €1,518,700, creating a realised safety disbenefit of -€90,300.

The noted difference between C1 and C2 accident costs varies due to the change in COBALT classification between single and dual carriageways. Dual carriageways have a lower standardised accident cost associated with them due to the presence of a central reservation.

### 7.3.2.4 Conclusion and recommendation

The result of the COBALT assessment shows that Scheme Option B has the greatest accident benefit and the greatest reduction in accidents compared to the 'Do-Minimum' (Option A) while Scheme Option C has the least accident benefit and lowest reduction in accidents. It is noted however that as stated in section 7.3.2.1 above, COBALT-Ireland does not provide options to conduct link only or junction only analysis and the inclusion of a new additional road into the road network therefore results in a disbenefit for Scheme Option C.

While the COBALT assessment shows a disbenefit for Scheme Option C in collision costs compared to Scheme Option A, it is noted that the new off line scheme option will be of greater

standard than the existing road (option A) and will result in the segregated/removal of HCV Port traffic from the village of Rosslare Harbour. As a result, the severity of the accidents along Scheme Option C is considered likely to be reduced compared with the Scheme Option A route. It is also noted that Scheme Option C provides segregated infrastructure to cater for the needs of pedestrians and cyclists through the provision of segregated or off-road cycle/pedestrian facilities along the road which will therefore also reduce the likelihood of accidents occurring between cyclists/pedestrians and road traffic compared with the Scheme Option A route. The Collision Reduction (CBA-Safety) appraisal for Scheme Options A, B and C is presented in Table 7-13.

**Table 7-13: Collision Reduction (CBA -Safety – COBALT) Appraisal**

Safety				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
Collision reduction (CBA – Safety)	Scheme Option A – ‘Do-Minimum’ Option	total of 37 collisions of varying severity total collision cost of €1,428,400 safety benefit N/A.	This is the ‘Do-Minimum’ Option and as the layout of this option will not change from the existing road layout, the number and security of accidents will not reduce.	4
	Scheme Option B – ‘Do-Something’ Management Option	total collisions within the network reduces to 33.3 total collision cost to €1,286,200 safety benefit of €142,200.	The provision of the parallel link road along Option B will remove the ability to perform right turn movements on the main carriageway heading north and will therefore reduce the total number of opposed movements along the corridor which are currently experiencing minor collision incidences. As the possibility of repeating these collisions is removed, the total collisions within the network and the total collision cost will reduce thus providing a realised safety benefit compared with Scheme Option A	5
	Scheme Option C1 – ‘Do-Something’ Development Option	total collisions increase to 41.8 total collision cost to €1,598,900 realised safety disbenefit of - €170,500	While the COBALT assessment shows a disbenefit in collision costs compared to Scheme Option A (as a result of the inclusion of a new additional road into the road network), the severity of accidents along Scheme Option C is considered likely to be reduced due to segregated/removal of HCV Port traffic from the village of Rosslare Harbour. It is also considered that the likelihood of accidents occurring between cyclists/pedestrians and road traffic will be reduced compared with the Scheme Option A route due to the provision of segregated or off-road cycle/pedestrian facilities along the Option C road.	5
	Scheme Option C2 – ‘Do-Something’ Development Option	total collisions increase to 39.5 total collision cost to €1,518,700 realised safety disbenefit of - €90,300	While the COBALT assessment shows a disbenefit in collision costs compared to Scheme Option A (as a result of the inclusion of a new additional road into the road network), the severity of accidents along Scheme Option C is considered likely to be reduced due segregated/removal of HCV Port traffic from the village of Rosslare Harbour. Is also	6

Safety				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
			<p>considered that the likelihood of accidents occurring between cyclists/pedestrians and road traffic will be reduced compared with the Scheme Option A route due to the provision of segregated or off-road cycle/pedestrian facilities along the Option C road.</p> <p>C2 Option has a lower standardised accident cost (compared with C1 Option) due to the presence of a central reservation.</p>	

### 7.3.3 Security (Stage F Road Safety Audit - Part 1)

As part of the Security Appraisal a Stage F Part 1 Road Safety Audit was carried out on 30<sup>th</sup> June 2020. This section summaries the findings and recommendations of the audit.

The road safety audit considered each scheme option with regard to the following items:

- The removal of port traffic from Rosslare Harbour village;
- The number of junctions and accesses on the route through which traffic passes;
- Route length;
- The quality of the road alignment and the presence of significant roadside hazards;
- Facilities for vulnerable road users

#### 7.3.3.1 Scheme Option A

Potential problems of Option A relative to the other options are:

- In terms of the characteristics of the layout of the existing road:
  - It has a high frequency of roadside accesses and junctions; collision risk increases with intersection density.
  - There is a long, steep declivity on approach to the port roundabout from Delap's Hill, on which vehicles could experience difficulty stopping, thereby increasing the risk of rear end or loss of control collisions.
  - The N25 is cut into the hillside at Delap's Hill. The railway is on the low side of the N25 and there is a steep unprotected fall to it which would be a hazard to the occupants of an errant vehicle and a potential hazard to rail users.
- In terms of the impact on traffic:
  - Port traffic continues to travel through the village, giving rise to the risk of road safety conflicts with local traffic in the village, including pedestrians and cyclists
  - The presence of relatively high volumes of heavy commercial vehicles travelling through the village is a road safety risk to all other road users but particularly to pedestrians and cyclists.
  - There are special characteristics of port traffic that may increase road safety risk: vehicles may be right-hand drive and drivers may be unfamiliar with driving on the left; drivers may be tired due to overnight sailings or may be rushing if they are late for check-in; port traffic is not uniform and forms platoons when discharged by the ferry. Routeing such traffic through an urban area where demands on the driver are high, could increase collision risk.

### 7.3.3.2 Scheme Option B

Option B has characteristics and potential problems similar to those of Option A except that it includes works to mitigate the negative impacts of retaining port traffic on the N25 through the village.

The rationalisation of direct accesses onto the N25 and conversion of junctions to left-in/left-out operation will be beneficial in terms of improving their safety performance. However, it may be difficult to enforce the prohibition of right turns. Also, the left-in turns include the construction of a left turn parallel diverge lane which may lead to high sided vehicles in the left turn lane obstructing the visibility of drivers exiting the side road. This may result in rear-end or angle left turn collisions. The provision of pedestrian crossing facilities on this option is beneficial for the safety of vulnerable road users. Some pedestrians may attempt to cross remote from the provided facilities and in doing so will have to cross two carriageways putting themselves at greater risk of injury. There are six junctions on the N25 section, at the following locations:

- La Rochelle, T-junction;
- Cliff Road, T-junction;
- Saint Martin's Road, Signalised Junction;
- Mary's Terrace, Signalised Junction;
- Thorndale Road, Left-in/Left-out;
- OPW Property, Left-in/Left-out.

In addition, local traffic must negotiate three additional junctions at the following locations:

- OPW Property, effectively a cross roads;
- Thorndale Road, Mini roundabout;
- Saint Martin's Road, Mini roundabout;

Turning movements are complex at these junctions because of the proximity of the parallel road. It is likely that local traffic will continue to mainly use the existing road. Drivers leaving the port may think they are entering onto a dual carriageway when they reach the top of Delap's Hill resulting in possible head-on collisions. Improvement works at Delap's Hill would be expected to be beneficial in respect of the existing road safety problems identified at that location. The construction of the parallel road results in more vehicle conflicts than the existing and is likely to have a negative impact on road safety

### 7.3.3.3 Scheme Option C1

Potential problems of this option relative to the other options are:

- It may be difficult to restrain traffic speed on the proposed road because it is wide, is straight in some sections, and will be lightly trafficked during times when there is no ferry in the port. High speeds would pose a safety risk to any vulnerable road users travelling on or across the road and could also increase risk of loss-of-control collision on the long horizontal curve that crosses the railway, though the likelihood of the latter issue is considered small.

### 7.3.3.4 Scheme Option C2

Potential problems of this option relative to the other options are:

- It may be difficult to restrain traffic speed on the proposed road because it is wide, is straight in some sections, and will be lightly trafficked during times when there is no ferry in the port. High speeds would pose a safety risk to any vulnerable road users travelling on or across the road

and could also increase risk of loss-of-control collision on the long horizontal curve that crosses the railway, though the likelihood of the latter issue is considered small.

- Traffic approaching the Ballygillane Roundabout from the port will mainly be using the right lane. This may lead to sideswipe collisions as drivers in the left lane on approach attempt to merge into the faster traffic in the right lane.

### 7.3.3.5 Principal Road Safety Factors of the scheme options

The principal road safety characteristics that differentiate options on this scheme are:

- The removal of port traffic from Rosslare Harbour village; segregation of port traffic from local traffic is very beneficial, particularly in respect of the separation of heavy goods vehicles from vulnerable road users.
- The number of junctions and accesses on the route through which traffic passes; routes with fewer (and more lightly trafficked) junctions and accesses are safer.
- Route length: shorter routes have fewer collisions.
- The quality of the road alignment and the presence of significant roadside hazards: well aligned roads with fewer roadside hazards are safer.
- Facilities for vulnerable road users.

### 7.3.3.6 Conclusion and recommendation

The performance of the scheme options in relation to their principal road safety characteristics are stated in Table 7-14: below.

**Table 7-14: Road Safety Characteristics of each Scheme Option**

Safety Characteristic	Scheme Option A	Scheme Option B	Scheme Option C1	Scheme Option C2
Length (m)	1,300	1,300	1,600	1,600
Public Road Junctions (excludes terminal roundabout)	5 (unimproved)	6 plus 3 on parallel road (improved)	1	1
Alignment Hazards	Steep gradient Unprotected drop (no mitigation)	Steep gradient Unprotected drop (no mitigation)	None known	None known
Segregation of port traffic from local traffic	Not segregated. Port traffic remains in village (no mitigation)	Not segregated. Port traffic remains in village (some mitigation)	Segregated. New route for port traffic, away from village.	Segregated. New route for port traffic, away from village.
Vulnerable Road Users	Lack of crossing facilities	Crossing facilities provided but vulnerable road users must now cross two roads	Lack of crossing facilities	Lack of crossing facilities

Taking into consideration the number and severity of problems identified on each scheme option and the characteristics of each option that impact on road safety, the audit team has concluded that the scheme option proposals, as provided, rank as shown in Table 7-15 below in terms of road safety. The ranking shown is a relative grading of the scheme options with respect to each other.

**Table 7-15: Option Ranking**

Scheme Option	Rank
Scheme Option A	3
Scheme Option B	4
Scheme Option C1	2
Scheme Option C2	1

Scheme Options C1 and C2 are considered to be significantly superior to the others because the removal of port traffic from the village provides the greatest benefit to overall road safety. The scheme options provide segregated infrastructure to cater for the needs of pedestrians and cyclists through the provision of segregated or off-road cycle and pedestrian facilities along the road. Scheme Option C1 is considered to be marginally superior to C2 because:

- the dual carriageway may lead to excessive speed at off peak times leading to loss of control collisions;
- there is a risk of sideswipe collisions on the dual carriageway approach to Ballygillane Roundabout;
- vulnerable road users will find it difficult to cross a dual carriageway.

The Security appraisal for Scheme Options A, B and C is presented in Table 7-16.

**Table 7-16: Security Appraisal**

Safety				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
Security	Scheme Option A – ‘Do-Minimum’ Option	<p>Length: 1,300m – The length of all scheme options is quite similar and are therefore considered neutral (shorter routes have fewer collisions).</p> <p>Junctions: The 5 number public road junctions along the length of the scheme option will not be improved. The scheme option has a high frequency of roadside accesses and junctions; collision risk increases with intersection density.</p>	<p>Segregation: Port traffic continues to travel through the village, giving rise to the risk of road safety conflicts with local traffic in the village, including pedestrians and cyclists.</p> <p>Hazards: There is a long, steep declivity on approach to the port roundabout from Delap’s Hill, on which vehicles could experience difficulty stopping, thereby increasing the risk of rear end or loss of control collisions</p> <p>Hazard: The N25 is cut into the hillside at Delap’s Hill. The railway is on the low side of the N25 and there is a steep unprotected fall to it which would be a hazard to the occupants of an errant vehicle and a potential hazard to rail users.</p>	4
	Scheme Option B – ‘Do-Something’ Management Option	<p>Length 1,300m – The length of all scheme options is quite similar and are therefore considered neutral (shorter routes have fewer collisions).</p> <p>The rationalisation of direct accesses onto the N25 and conversion of junctions to left-in/left-out operation would be beneficial in terms of improving their safety performance, however, it may be difficult to enforce the prohibition of right turns</p>	<p>Option B has characteristics and potential problems similar to those of Option A except that is option includes works to mitigate the negative impacts of retaining port traffic on the N25 through the village.</p> <p>The provision of pedestrian crossing facilities on this option is beneficial for the safety of vulnerable road users however some pedestrians may attempt to cross remote from the provided</p>	3



Safety				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
		3 additional junctions are included on this scheme option and turning movements will be complex at these junctions because of the proximity of the parallel road. In this regard, it is likely that local traffic will continue to mainly use the existing road.	<p>facilities and in doing so will have to cross two carriageways putting themselves at greater risk of injury.</p> <p>Drivers leaving the port may think they are entering onto a dual carriageway when they reach the top of Delap's Hill resulting in possible head-on collisions.</p> <p>The construction of the parallel road results in more vehicle conflicts than the existing and is likely to have a negative impact on road safety.</p>	
	Scheme Option C1 – 'Do-Something' Development Option	<p>Length 1,600m – The length of all scheme options is quite similar and are therefore considered neutral (shorter routes have fewer collisions.</p> <p>Option C1 will have very limited junctions compared to Option B. Routes with fewer (and more lightly trafficked) junctions and accesses are safer.</p>	<p>Segregation: Port traffic is segregated from local traffic. New route for port traffic, away from village and provides the greatest benefit to overall road safety.</p> <p>Option C provides segregated infrastructure to cater for the needs of pedestrians and cyclists through the provision of segregated or off-road cycle and pedestrian facilities along the road.</p> <p>May be difficult to restrain traffic speed on the proposed road because it is wide, is straight in some sections, and will be lightly trafficked during times when there is no ferry in the port.</p> <p>A Stage F Road Safety Audit ranked Options C1 &amp; C2 as 'significantly superior' to the other options (including Do-Minimum) because removal of Port traffic from the village provides the greatest benefit to overall safety.</p>	6
	Scheme Option C2 – 'Do-Something' Development Option	<p>Length 1,600m – The length of all scheme options is quite similar and are therefore considered neutral (shorter routes have fewer collisions.</p> <p>Option C2 will have very limited junctions compared to Option B. Routes with fewer (and more lightly trafficked) junctions and accesses are safer.</p>	<p>Segregation: Port traffic is segregation from local traffic. New route for port traffic, away from village and provides the greatest benefit to overall road safety.</p> <p>Option C provides segregated infrastructure to cater for the needs of pedestrians and cyclists through the provision of segregated or off-road cycle and pedestrian facilities along the road.</p> <p>May be difficult to restrain traffic speed on the proposed road because it is wide, is straight in some sections, and will be lightly trafficked during times when there is no ferry in the port.</p> <p>Vulnerable road users will find it difficult to cross a dual carriageway compared to single carriageway on Option C1.</p> <p>A Stage F Road Safety Audit ranked Options C1 &amp; C2 as 'significantly superior' to the other options (including Do-Minimum)</p>	5

Safety				
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score
			because removal of Port traffic from the village provides the greatest benefit to overall safety.	

### 7.3.4 Combined Safety Appraisal Matrix

An analysis was undertaken comparing the preferences for each scheme option identified under each safety heading. The results of all the safety assessments were considered in determining a Preferred Scheme Option.

Table 7-17 Combined Safety Appraisal Matrix below, outlines the preferences of each scheme option under each safety heading.

**Table 7-17: Combined Safety Appraisal**

Criterion	Sub Criteria	Scheme Option A	Scheme Option B	Scheme Option C	
				Scheme Option C1	Scheme Option C2
Safety	Collision reduction	4	5	5	6
	Security	4	3	6	5
<b>Total Safety Score</b>		8	8	11	11

## 7.4 Environmental

The environmental scheme aims are to avoid or minimise negative impacts on the existing environment under the following headings;

- Air Quality & Climate,
- Noise,
- Waste,
- Biodiversity (Flora and Fauna),
- Agriculture,
- Non-Agricultural Properties,
- Architectural Heritage,
- Archaeological & Cultural Heritage,
- Landscape & Visual,
- Soils and Geology,
- Hydrology;
- Hydrogeology.

Each heading is detailed below including an assessment matrix of each scheme option under the corresponding heading.

### 7.4.1 Air Quality & Climate

This section examines the impact of the scheme options on air quality and climate.

#### 7.4.1.1 Methodology

##### **Air quality**

The assessment of air quality has been undertaken in accordance with the Transport Infrastructure Ireland (TII), formerly the National Roads Authority (NRA), 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes'. The assessment has considered:

- Existing air quality in the study area and nearby sensitive receptors
- The Index of Overall Change in Exposure to nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) for the different scheme options

Further details of the methodology adopted is presented in Section 7.4.1.3.

##### **Climate**

A high-level qualitative assessment has been undertaken based on the lengths and structures proposed for each of the scheme options. The assessment has considered:

- Greenhouse gas (GHG) emissions arising in the construction phase. These include indirect emissions from plant and equipment use, emissions from construction-related traffic, and embodied emissions within the materials used in the structures. Construction GHG emissions will typically increase if structures using GHG emissions intensive materials such as concrete are required, or there is a requirement for significant plant use (such as for excavation purposes).
- Operational emissions arising from fossil fuels combusted by vehicles using the road and from sources such as electricity for supporting infrastructure such as lighting. Operational GHG emissions can be influenced by the length of road, speed of traffic, and the potential for congestion.

### 7.4.1.2 Desk Study

#### Air quality

##### Monitoring data

Information on existing air quality in Ireland can be obtained from the Environmental Protection Agency, who undertake monitoring at a number of locations across the country. For the purpose of air quality management, Ireland is divided into four zones:

- Zone A: Dublin conurbation
- Zone B: Cork conurbation
- Zone C: 23 large towns with population >15,000
- Zone D: Remainder (i.e. rural Ireland)

The Scheme is located within Rosslare Harbour which is within Zone D and therefore monitoring data from other sites within Zone D have been considered. Monitoring sites in Zone D are classified as either 'rural' or 'suburban'. The environment surrounding the scheme is most similar to that of the suburban monitoring sites and therefore only the monitoring data from suburban, Zone D sites has been presented.

The closest monitoring site, which is most representative of the scheme location, is the Enniscorthy background monitor in County Wexford. The Enniscorthy site is located approximately 31km north west of the Scheme. This site was decommissioned in 2017 and therefore the most recent full year of data available for this site is from 2016. Data from the other suburban Zone D monitoring site at Castlebar has therefore been presented to provide a more comprehensive baseline. Although Castlebar is more than 200km away from the Scheme, concentrations monitored at this site are similar to those monitored at Enniscorthy in 2015 and 2016 as both sites are located in similar suburban environments.

Data for Enniscorthy and Castlebar has been obtained from the EPA data archive and is summarised in Table 7-18: Annual Mean Pollutant Concentrations. Annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations monitored at these sites are all well below the respective air quality standards.

**Table 7-18: Annual Mean Pollutant Concentrations**

Site name	Location		Pollutant	AQS (µg/m <sup>3</sup> )*	Annual mean concentration (µg/m <sup>3</sup> )					Mean
	X	Y			2014	2015	2016	2017	2018	
Enniscorthy	697902	639825	NO <sub>x</sub>	-	-(a)	9	17.3	-(b)	-(b)	12.0
Castlebar	514462	789842	NO <sub>x</sub>		12	11	13.4	10.5	11	
Enniscorthy	697902	639825	NO <sub>2</sub>	40	-(a)	9	9.6	-(b)	-(b)	8.4
Castlebar	514462	789842	NO <sub>2</sub>		8	8	8.5	7.4	8	
Enniscorthy	697902	639825	PM <sub>10</sub>	40	-(a)	18	17.3	-(b)	-(b)	13.4
Castlebar	514462	789842	PM <sub>10</sub>		12	13	11.9	11.2	11	

Source: EPA Data Archive

\* AQS = Air Quality Standard. AQS presented are for the annual averaging period as per the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). There is no AQS for NO<sub>x</sub> applicable for human health

(a) Data capture less than 40% and therefore annual mean concentration not presented – remaining sites have data capture greater than 90%

(b) No data available (site decommissioned)

##### Nearby emission sources

The Scheme is located within 1km of the Rosslare Europort. The port will be an additional source of NO<sub>2</sub> and PM<sub>10</sub> emissions, which could result in elevated background concentrations which are

greater than those presented above. However, the nearest meteorological station to the Scheme (Jamestown Castle) demonstrates that the prevailing wind direction in this area is from the south west. Therefore, most of the pollutant emissions from the port would disperse towards the north east in the sea, away from Rosslare Harbour and the Scheme. Therefore, the average pollutant concentrations presented above are considered suitable for use as the background concentrations within this assessment.

Another potential nearby emission source is the Dublin-Rosslare railway line, which connects the Rosslare Europort railway station to the rest of Ireland. This railway line is used by diesel trains and therefore will be an additional source of NO<sub>2</sub> emissions. However, due to the nature of emissions from diesel trains, elevated concentrations of NO<sub>2</sub> generally only affect the short-term averaging period. Therefore, the background long-term NO<sub>2</sub> concentration presented above is still considered suitable for use as the background concentrations within this assessment as the diesel railway will have a de minimis impact on background annual NO<sub>2</sub> concentrations.

#### *Nearby sensitive receptors*

Sensitive receptors are defined as per the “Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes”. These include:

- Residential Housing
- Schools
- Hospitals
- Places of Worship
- Sports Centres
- Shopping centres

Rosslare Harbour is a small village adjacent to the Rosslare Europort which has a small number of sensitive receptors within close proximity to the scheme options. Table 7-19: Nearby sensitive receptors below presents the number of sensitive receptors within 50m of the edge of the road carriageway alignments for the different scheme options. Option B has the greatest number of sensitive receptors while Option C has the least (the Option C alignment is located on industrial and arable land with few sensitive receptors nearby). The location of these sensitive receptors is presented in Figure 7-1.

**Table 7-19: Nearby sensitive receptors**

Option	Sensitive receptors within 50m of scheme option alignments
Option A	8 residential properties and one place of worship
Option B	11 residential properties and one place of worship
Option C	1 residential property

#### **Climate**

The GHG assessment was based on a qualitative assessment of the options. To inform the assessment, the Appendix B Scheme Option Selection (Rev. P6) map was used along with information contained in chapters 1 and 2 of this report.

#### 7.4.1.3 Impact Assessment Methodology

##### **Air quality**

The air quality impact associated with the scheme options has been assessed in accordance with the Stage 2 Project Appraisal Approach specified in the NRA, ‘Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes’. Under this approach, the guidance recommends calculating:

- The Index of Overall Change in Exposure to NO<sub>2</sub> and PM<sub>10</sub> for the different scheme options
- The change in NO<sub>2</sub> and PM<sub>10</sub> concentrations at some of the worst-case receptors in the opening year
- The change in nitrogen oxides (NO<sub>x</sub>) concentrations and nitrogen deposition rates at any relevant designated habitat sites within 200m of any scheme options with a significant change in emissions

There are no relevant designated habitat sites within 200m of roads anticipated to be affected by the scheme options and therefore no assessment of NO<sub>x</sub> concentrations or nitrogen deposition rates at designated sites has been undertaken. The nearest designated site is the Carnsore Point Special Area of Conservation (SAC), approximately 1km east of the scheme options.

No assessment of the change in NO<sub>2</sub> and PM<sub>10</sub> concentrations at the worst-case receptors has been undertaken either, as the NRA guidance recommends calculating the change at sensitive receptors within close proximity to the scheme options, which it defines as receptors within 10m of the edge of the road. However, for all scheme options, the nearest sensitive receptors are greater than 10m away from the edge of the road (the closest property to the alignment of a scheme option is approximately 25m away). Therefore, for this assessment, only the Index of Overall Change in Exposure has been calculated.

The calculation of the Index of Overall Change in Exposure considers:

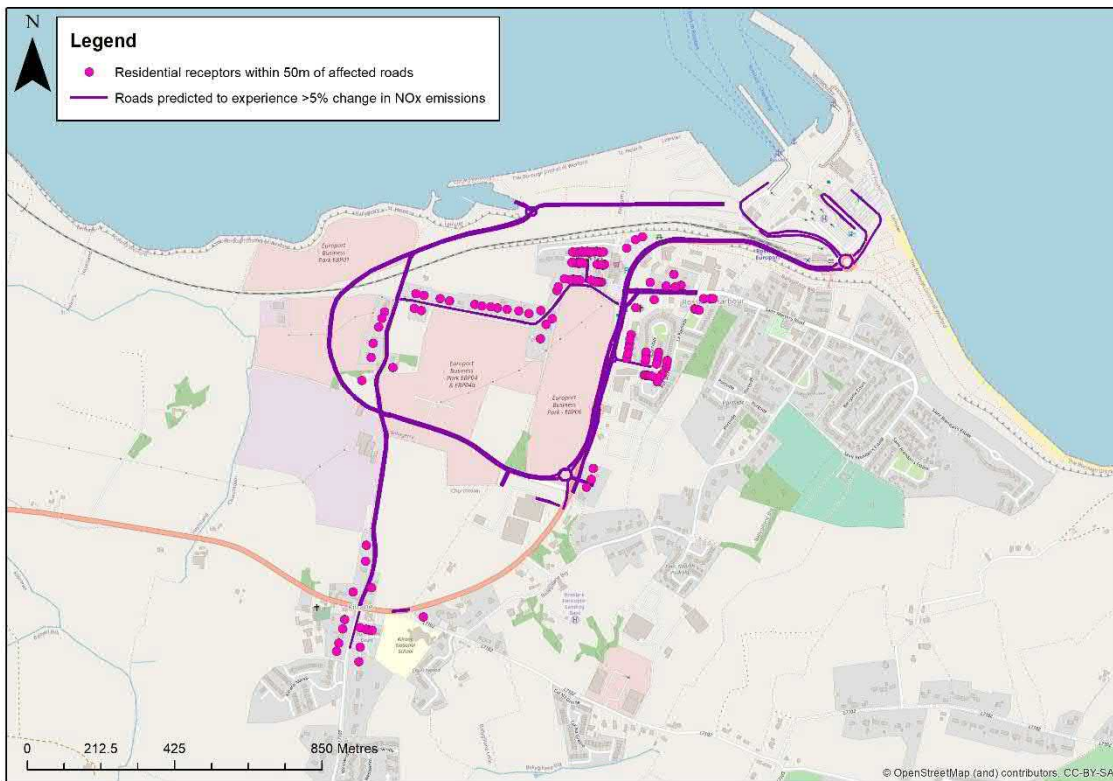
- The number of sensitive receptors within 50m of the carriageway of all road links within the study area
- The magnitude of the change in emissions on each road link within the study area as a result of changes in traffic flow, composition and speed associated with the scheme options

The study area includes any road which would experience a significant change in emissions. According to the guidance, a road link is defined as having a significant change in emissions if the change in emissions between the Do minimum and Do something scenario on a road link is greater than 5%. To allow a balanced comparison between the different scheme options, all scheme options must have the same study area. Therefore, some roads within the study area will have a change of less than 5% for the different scheme options. Figure 7-1 shows the extent of the study area and the locations of the road links and sensitive receptors considered within the assessment.

The number of properties within 50m of the carriageway of each link in the study area is then multiplied by the change in emission rate on each link and summed across all the links to provide an Index score. A negative Index score indicates there would be an overall reduction in exposure to pollutants across the study area while a positive Index score indicates there would be an increase in exposure.

Option A (the 'Do-minimum') has been compared to Option B and C (the 'Do-something' options) to determine the Index of Overall Change in Exposure for the different scheme options. The results from this assessment are presented in section 7.4.1.4.

**Figure 7-1: Study area for the Assessment**



Note: Roads within the study area are those within Option B and/or C which are expected to experience a change in NOx emissions of greater than 5% relative the Option A (Do-minimum)

## Climate

For GHG emissions the receptor is the global atmosphere and therefore, unlike other environmental impacts, the emissions of a single project cannot be linked to a location-specific receptor. The relationship of individual project emissions to global atmospheric emissions, and uncertainty about the global atmospheric response, is very complex and means that determining the significance of project emissions on a local scale is challenging. Where quantitative data is available, it is common for a project's GHG emissions to be presented relative to the host country's total national emissions of carbon budgets. In this assessment, the impacts of each scheme option have been qualitatively assessed relative to the other options.

A high-level qualitative assessment has been undertaken based on the lengths and structures proposed for each of the scheme options. The relative significance of different options have not been rated, however the IEMA Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance<sup>2</sup>, states that "GHG emissions have a combined environmental effect that is approaching a scientifically determined environmental limits, as such any GHG emissions or reductions from a project might be considered to be significant".

Construction and operational emissions have been assessed separately for each scheme option. Construction emissions from the N25 Ballygillane Roundabout project have been assumed to be

<sup>2</sup> Institute of Environmental Management and Assessment (2017). IEMA Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance [online]. Available at: [https://www.iema.net/assets/uploads/EIA%20Guide\\_GHG%20Assessment%20and%20Significance\\_IEMA\\_16May17.pdf](https://www.iema.net/assets/uploads/EIA%20Guide_GHG%20Assessment%20and%20Significance_IEMA_16May17.pdf) [Accessed July 2020]

consistent across all three options. A simple appraisal approach which is appropriate for the complexity of the scheme has been used to assess the GHG emissions.

#### 7.4.1.4 Assessment of impacts

##### Air quality

Table 7-20 presents the results from the assessment of the Index of Overall Change in Exposure for the different scheme options. Across the three options, the difference in the Index of Overall Change in Exposure is minimal. This is because there is a relatively low number of sensitive receptors within 50m of the roads affected by the scheme options. These receptors are also set back from the road (there are no sensitive receptors within 10m of the scheme options) so the change in exposure attributed to each road link is also relatively minor.

The NO<sub>x</sub> and PM<sub>10</sub> Index calculated for Option C is negative (indicating an improvement in level of exposure to NO<sub>x</sub> and PM<sub>10</sub>) while the Index for Option B is positive (indicating a worsening in level of exposure to NO<sub>x</sub> and PM<sub>10</sub>). Option C is predicted to result in an overall improvement as vehicles from the port are diverted away from the current N25 national road to a new N25 access road to the west, which has fewer sensitive receptors nearby. Option B is predicted to experience an overall slight worsening in exposure as there is an increase in the total number of vehicles on the section of road where the route alignment runs parallel to the existing N25 National Road. Therefore, there is an increase in the exposure sensitive receptors on this section of road to NO<sub>x</sub> and PM<sub>10</sub>. There is no change in the NO<sub>x</sub> and PM<sub>10</sub> Index for Option A as this is the 'Do minimum' option.

**Table 7-20: Index of Overall Change in Exposure for the different scheme options**

Option	NO <sub>x</sub> index	Better or worse?	PM <sub>10</sub> index	Better or worse?
Option A	0	No change	0	No change
Option B	656	Worse	59	Worse
Option C	-3,134	Better	-505	Better

##### Climate

The GHG impacts of the three scheme options have been assessed qualitatively. The categorisation method ranks the options from lowest to highest but does not make a judgement on the materiality of the level of GHG emissions Table 7-21. The results are presented relative to the other scheme options in Table 7-22. Option A has the lowest construction GHG emissions as the "Do-Minimum" Option uses the existing N25 National Road and it is understood there will be no additional construction activities requiring plant and material use. Option B would likely result in increased construction GHG emissions compared to Option A. Option C would likely result in the most construction GHG emissions being emitted. It has not been possible to differentiate the operational GHG emissions between the three scheme options. As such, Option A is the option with the lowest overall GHG emissions from construction and operation.

**Table 7-21: Key for ranking different scheme options qualitatively**

Key	
Lowest	Lowest GHG option
Intermediate	↓
Highest	Highest GHG option
No difference/only a minimal or negligible difference between options has been able to be determined at this stage	



**Table 7-22: Qualitative climate assessment of the scheme options**

Option	Description of summary results	Ranking
A	<p><b>Construction</b></p> <p>No additional construction activities as this is the ‘Do-Minimum’ Option so there will be no associated GHG emissions.</p> <hr/> <p><b>Operation</b></p> <p>No change in operational GHG emissions as this is the ‘Do-Minimum’ Option.</p>	Lowest
B	<p><b>Construction</b></p> <p>Option B seeks to utilise the existing asset where feasible through a package of on-line improvements. GHG emissions from the construction phase may be associated with the rationalisation of direct accesses onto the N25, provision of parallel service roads, left-in/left-out junctions, designated pedestrian crossing facilities, signalised junctions, and improvement works at Delap’s Hill. However, as the existing asset is used where possible and no new structures such as bridges are required, this will reduce the requirement for materials and plant to be used and limit the associated GHG emissions compared to constructing a new road.</p> <hr/> <p><b>Operation</b></p> <p>Option B (“Do-Something” Management Option) utilises the existing N25 National Road as the access route to Rosslare Europort. The length of the route (1.3 km) is the same as Option A (‘Do-Minimum’ Option). As such, there is likely to be a negligible difference in GHG emissions due to distances travelled between Option B and Option A.</p> <p>Section 2.2.3 indicates that congestion is not a major problem on the existing N25 National Road. As such, there is likely to be a minimal difference in GHG emissions due to congestion between Option B and Option A. The number of junctions on Option B is similar to Option A so traffic disruption (which is related to greater GHG emissions) is likely to be similar. However, these impacts along with congestion due to seasonal and time factors (i.e. frequency and timing of ferry services to and from Rosslare Europort) are not quantifiable given the available data.</p> <p>The average speed of vehicles on the different scheme options may affect operational GHG emissions but is not quantifiable at this stage.</p>	Intermediate
C	<p><b>Construction</b></p> <p>Option C consists of a combination of existing road infrastructure along with a new road corridor to provide a new access route to the Rosslare Europort. The requirement for a new road to be created, including an additional railway underbridge and underpass, means that there is likely to be a greater requirement for materials to be used including GHG intensive materials such as concrete and steel. In addition, there is likely to be more use of plant and equipment required compared to Option A (and B). This will likely increase the GHG emissions from construction activities.</p> <hr/> <p><b>Operation</b></p> <p>The length of the proposed “Do-Something” Development Option C (1.5km) is similar to the length of the Option A (‘Do-Minimum’ Option) route (1.3 km). As such, there is likely to be a minimal difference in GHG emissions due to distances travelled between Option C and Option A.</p> <p>Section 2.2.3 indicates that congestion is not a major problem on the existing N25 National Road. As such, there is likely to be a minimal difference in GHG emissions due to congestion between Option C and Option A. There are less junctions in Option C which could potentially lead to less traffic disruption and potentially fewer GHG emissions. However, these impacts along with congestion due to seasonal and time factors (i.e. the frequency and timing of ferry services to and from Rosslare Europort) are not quantifiable given the available data.</p> <p>The average speed of vehicles on the different scheme options may affect operational GHG emissions but is not quantifiable at this stage.</p>	Highest

### 7.4.1.5 Conclusion and recommendations

#### Air quality

The results from the assessment of the Index of Overall Change in Exposure indicate that Option C would have the most beneficial impact on air quality. This is because this scheme option would divert port traffic away from the N25 National Road to an area with fewer sensitive receptors. Option B is considered the least preferable scheme option as it is predicted to result in an increase exposure to NO<sub>x</sub> and PM<sub>10</sub> at nearby sensitive receptors (primarily along the N25 National Road corridor where this scheme option is located).

Background NO<sub>2</sub> and PM<sub>10</sub> concentrations are well below the air quality standards and therefore, given the proximity of sensitive receptors to the scheme options and the predicted change in exposure associated with the different scheme options, none of the scheme options are expected to result in exceedances of the air quality standards.

#### Climate

The results in Section 7.4.1.4 (summarised in Table 7-22) indicate that Option A would likely result in the lowest GHG emissions associated with the construction phase of the Scheme. This a reflection of the “Do-Minimum” Option using the existing N25 National Road and it is understood there will be no additional construction activities requiring plant and material. Option B would likely result in more GHG emissions from the construction phase as some new on-line improvements will be built but these will be less than for Option C. Option C will require the construction of a new road and associated structures such as underbridge and underpass, using more GHG emissions intensive materials, plant and transport.

It has not been possible to differentiate the operational GHG emissions for each scheme option as each of the three options is a similar length and congestion does not appear to be a major issue on the existing road (Section 2.2.3). To quantify the operational emissions for each option, further modelling would be needed to understand the impact of each option on average vehicle speeds and the effects of congestion due to junctions as well as seasonal and time factors. However, as additional traffic is not expected to be generated as a result of Options B and C, differences between operational GHG emissions for each scheme option are expected to be minimal.

**Table 7-23: Air Quality and Climate Appraisal**

Environmental					
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score	Combined Score*
Air Quality and climate	Scheme Option A – ‘Do-Minimum’ Option	<p><b>Air Quality</b></p> <p>No change in NO<sub>x</sub> or PM<sub>10</sub> Index of Overall Change in Exposure. NO<sub>x</sub> index = 0 PM<sub>10</sub> index = 0</p> <p><b>Climate</b></p> <p>Not assessed.</p>	<p><b>Air Quality</b></p> <p>No exceedances of air quality standards anticipated. No change in exposure to NO<sub>x</sub> and PM<sub>10</sub> at nearby sensitive receptors – Not significant or neutral</p> <p><b>Climate</b></p> <p>Lowest construction GHG emissions. No distinguishable differentiation between operational GHG emissions across all options – Not significant or neutral</p>	4	4
	Scheme Option B – ‘Do-Something’	<p><b>Air Quality</b></p> <p>Small worsening in the NO<sub>x</sub> and PM<sub>10</sub> Index of</p>	<p><b>Air Quality</b></p> <p>No exceedances of air quality standards anticipated. Small</p>	3	3

Environmental					
Criterion	Scheme Option	Quantitative Assessment	Qualitative Assessment	Score	Combined Score*
	Management Option	Overall Change in Exposure. NOx index = 656 PM10 index = 59	worsening in exposure to NOx and PM <sub>10</sub> at nearby sensitive receptors – Minor or slightly negative		
		<b>Climate</b> Not assessed.	<b>Climate</b> Moderate construction GHG emissions. No distinguishable differentiation between operational GHG emissions across all options – Minor or slightly negative	3	
	Scheme Option C (C1 & C2) – ‘Do-Something’ Development Option	<b>Air Quality</b> Small beneficial NOx and PM <sub>10</sub> Index of Overall Change in Exposure. NOx index = -3,134 PM10 index = -505	<b>Air Quality</b> No exceedances of air quality standards anticipated. Small improvement in exposure to NOx and PM <sub>10</sub> at nearby sensitive receptors – Minor or slightly positive	5	4
		<b>Climate</b> Not assessed.	<b>Climate</b> Highest construction GHG emissions. No distinguishable differentiation between operational GHG emissions across all options – Minor or slightly negative	3	

\*Average score for the combined air quality and climate impact assuming an equal weighting for air quality and climate.

## 7.4.2 Noise

This assessment examines the impacts of road traffic noise due to the proposed scheme options for the N25 Rosslare Europort Access Road.

### 7.4.2.1 Methodology

The following assessment was carried out having regard to the following guidance:

- Transport Infrastructure Ireland, National Roads Authority (2004) 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes';
- Transport Infrastructure Ireland, National Roads Authority (2014) 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes'; and
- Her Majesty's Stationery Office Department of Transport and Welsh Office (1988) 'Calculation of Road Traffic Noise'.

This desktop study assesses the noise impacts due to each of the three Scheme Options A, B and C presented in Appendix B.

### 7.4.2.2 Desk Study/ field study

The desktop study considered the following sources of information:

- Ordnance Survey Ireland mapping and aerial imagery;
- Scheme 2D CAD information describing route alignment;
- Eircode database of property designations; and
- Forecast road traffic data for the Rosslare Harbour scheme options area.

### 7.4.2.3 Impact Assessment Methodology

The impact of each scheme option has been undertaken in accordance with National Roads Authority (NRA) Guidelines for Route Corridor Selection and associated Good Practice Guidance.

The NRA Guidelines approach for the assessment of noise elements of route corridor selection is based on three aspects:

- Assessment of potential impact based on receptor counts;
- Likely changes in traffic flow; and
- Review of the need for and difficulties associated with the implementation of noise mitigation measures.

The Guidelines provide an assessment methodology to determine the Potential Impact Rating (PIR) which is the product of the number of sensitive receptors within distance bands taken from the scheme option centreline and a rating factor. The PIR provides a tool to enable preliminary assessment of noise impacts and the comparison of scheme options.

Good practice guidance advises that this assessment of receptor counts based on distance only provides limited value due to other dependant factors (e.g. traffic parameters including flow and speed, screening, topography and ease of mitigation etc).

An alternative method has been included in addition to the above to provide receptor counts based on receptors within the 60 dB  $L_{den}$  contour for each option. This approach takes into account other factors including changes in traffic flow on relevant road links including a part of the wider road network. Counts have been taken from all roads within the modelled road traffic network area. This approach provides a comparative assessment between options although it is dependent on the

traffic model network area and the absolute numbers of receptors counted for each option and should not be given significant weight when drawing conclusions.

Calculations have been undertaken for each option to determine the 60 dB  $L_{den}$  contour lines using Datakustik CadnaA software which implements the Calculation of Road Traffic Noise (CRTN) methodology in accordance with NRA Guidelines and Good Practice Guidance. Forecast Annual Average Daytime Traffic (AADT) data provided for the scheme options has been applied within the CRTN calculations to predict the  $L_{den}$  values using Method B as per Good Practice Guidance.

Receptor counts based on distance bands are taken from the centreline of each option. Option A and B are assumed to share the same centreline where they both represent an on-line design. Receptor counts are based on distance from scheme option only (i.e. main option corridor) and do not consider the wider road network.

#### 7.4.2.4 Assessment of impacts

The following tables (Table 7-24 to

Table 7-26) presents results from the NRA approach to determine the PIR from receptor counts based on distance bands taken from the centreline of each scheme alignment.

**Table 7-24: Scheme Option A, Distance Band Receptor Counts**

Band	Distance from centreline, m		A (Number of Receptors)	B (Rating Factor)	AxB
	From	To			
1	0	50	9	4	36
2	50	100	61	3	183
3	100	200	160	2	320
4	200	300	113	1	113
<b>Potential Impact Rating (PIR)</b>					<b>652</b>

**Table 7-25: Scheme Option B, Distance Band Receptor Counts**

Band	Distance from centreline, m		A (Number of Receptors)	B (Rating Factor)	AxB
	From	To			
1	0	50	9	4	36
2	50	100	61	3	183
3	100	200	160	2	320
4	200	300	113	1	113
<b>Potential Impact Rating (PIR)</b>					<b>652</b>

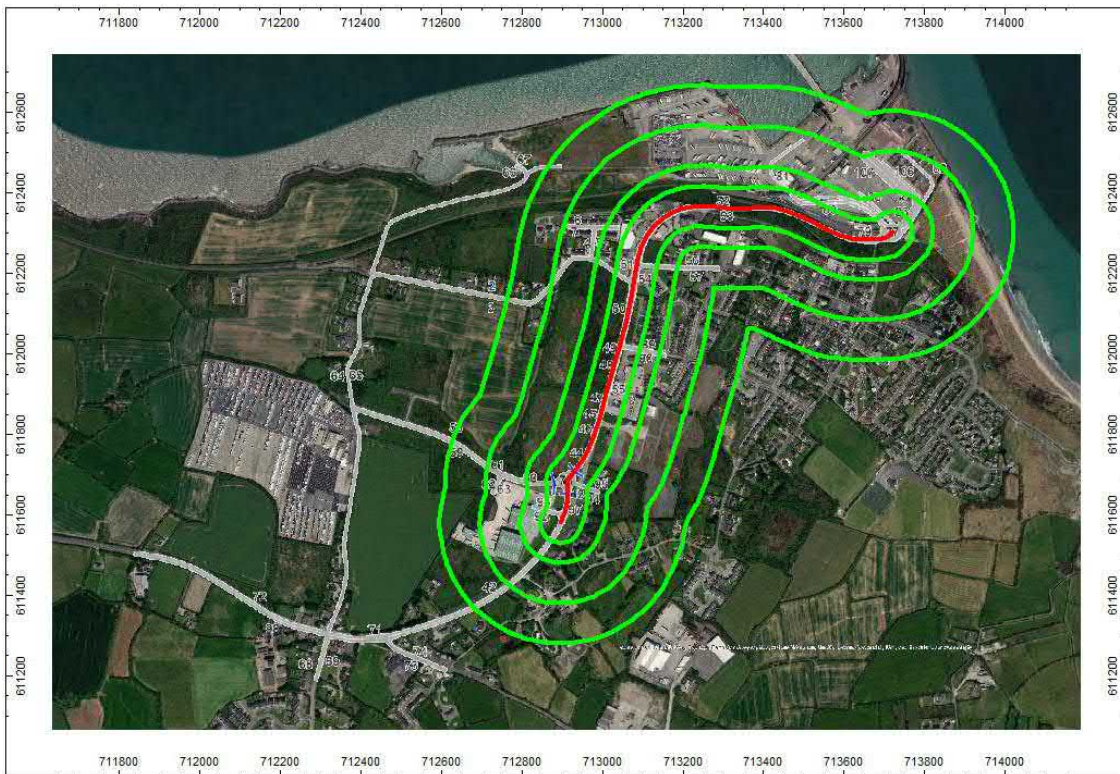
**Table 7-26: Scheme Option C, Distance Band Receptor Counts**

Band	Distance from centreline, m		A (Number of Receptors)	B (Rating Factor)	Ax B
	From	To			
1	0	50	0	4	0
2	50	100	5	3	15
3	100	200	33	2	66
4	200	300	56	1	58
<b>Potential Impact Rating (PIR)</b>					<b>137</b>

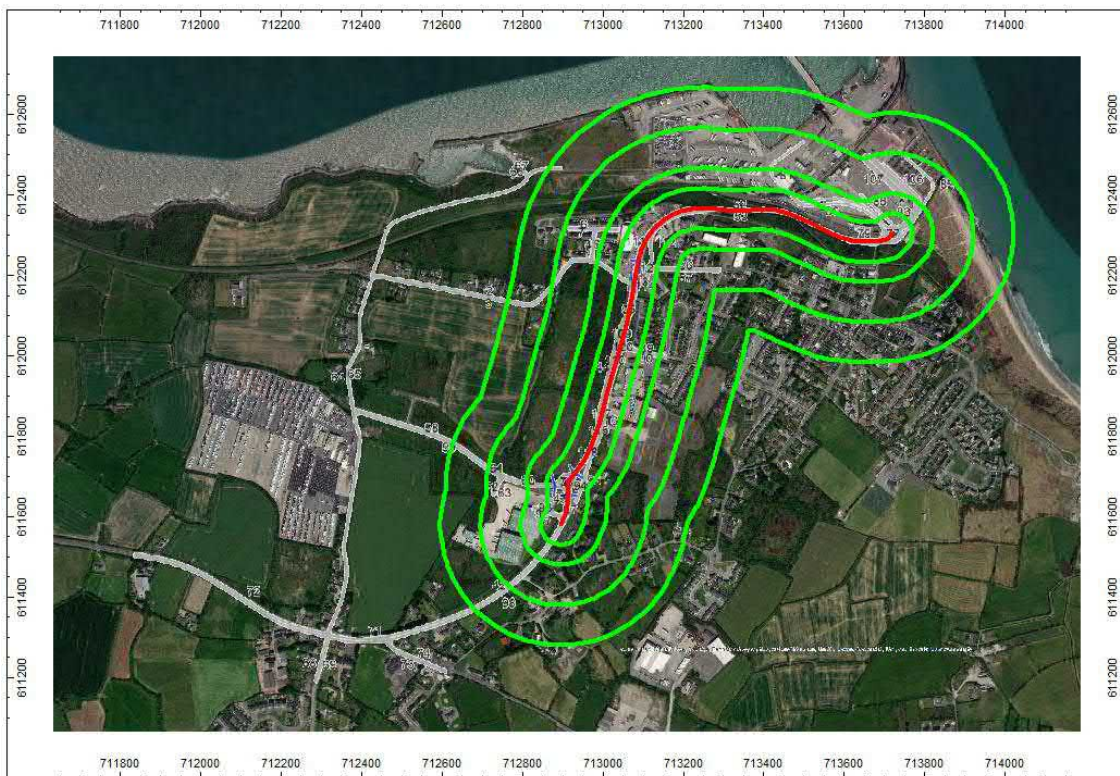
Results indicate that Options A and B present a greater Potential Impact Rating compared to Option C. This is due to the offline alignment of Option C which is generally located further from noise sensitive receptors.

The distance band contours (50, 100, 200 and 300m from the centreline of each scheme option) for each of the three options are presented in Figure 7-2 to Figure 7-4.

**Figure 7-2: Option A, distance band contours (50, 100, 200 and 300m from the centreline)**



**Figure 7-3: Option B, distance band contours (50, 100, 200 and 300m from the centreline)**



**Figure 7-4: Option C, distance band contours (50, 100, 200 and 300m from the centreline)**

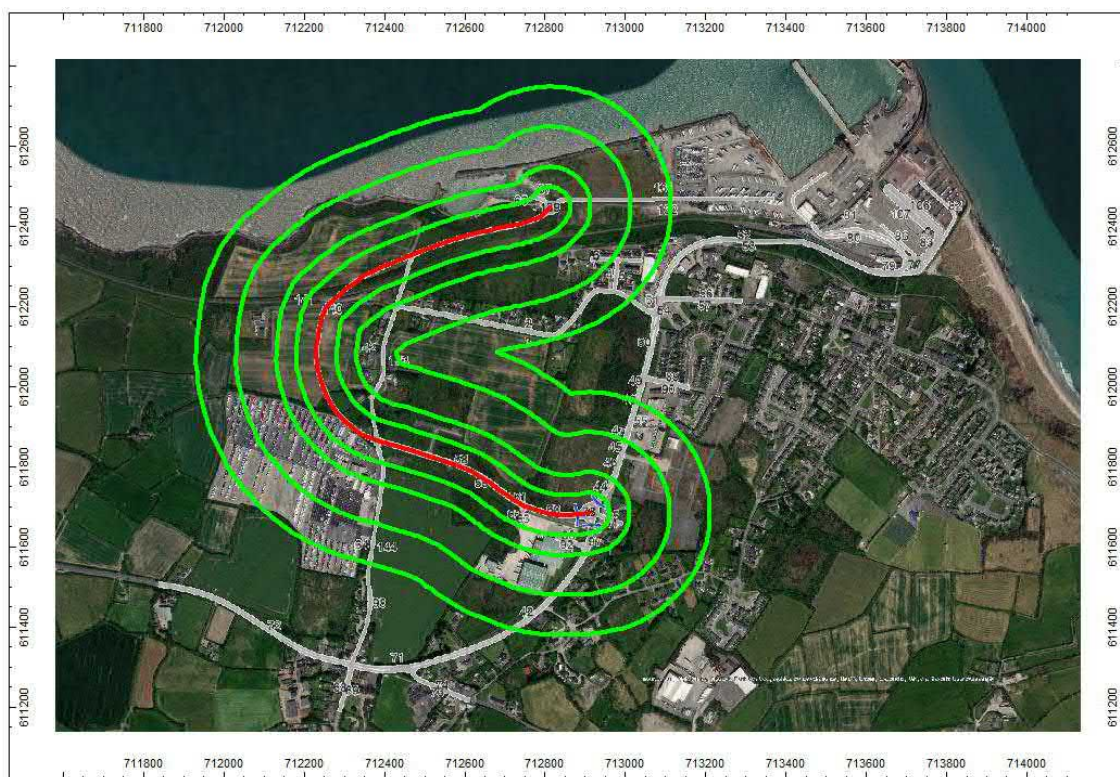


Table 7-27 presents results of the additional assessment which considers receptor counts within the 60 dB L<sub>den</sub> contour line for each option to provide a comparative assessment of impacts from option specific routes and the wider areas.

**Table 7-27: All Options Receptor Counts within 60 dB L<sub>den</sub> Contour**

Option	Number of sensitive receptors within calculated Option 60dB L <sub>den</sub> contour
A	83
B	81
C	56

Options A and B are found to have similar number of properties exposed to noise levels equal to or greater than 60 dB L<sub>den</sub>. Option C results in fewer sensitive receptors being exposed to noise levels equal to or greater than 60 dB L<sub>den</sub>. Option C shows fewer potential impacts due the transfer of traffic from existing routes onto the new offline route which reduces noise effects on sensitive receptors.

The 60 dB L<sub>den</sub> noise contours for each of the three options are presented in the following figures; Figure 7-5 to Figure 7-7

**Figure 7-5: Option A 60 dB L<sub>den</sub> noise contour**

