

IN THE MATTER OF AN APPLICATION TO
AN BORD PLEANÁLA

FOR APPROVAL OF THE FOYNES TO LIMERICK ROAD (INCLUDING
ADARE BYPASS) COMPRISING:

- (I) FOYNES TO RATHKEALE PROTECTED ROAD SCHEME,
2019;
- (II) RATHKEALE TO ATTYFLIN MOTORWAY SCHEME, 2019;
- (III) FOYNES SERVICE AREA SCHEME, 2019.

ABP Ref. ABP-306146-19 and ABP-306199-19

ORAL HEARING

Brief of Evidence
Traffic Analysis

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February 2021

1. QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is Philip Shiels and I'm an Associate Director with AECOM consultant engineers. I hold a Bachelor of Engineering degree from Edinburgh Napier University in Civil and Transportation Engineering and a Diploma in Civil Engineering from the Dublin Institute of Technology. I'm a Chartered Engineer and member of Engineers Ireland.
- 1.2 I have been actively engaged in traffic, transportation and project appraisal work for over 14 years throughout Ireland. I have been the traffic lead on a number of major national road projects, including:
- N5 Ballaghaderreen to Scramoge Road Project;
 - M7 Naas to Newbridge Bypass Upgrade Scheme; and
 - N5 Westport to Turlough Road Project.

2. ROLE IN PROPOSED ROAD DEVELOPMENT

- 2.1 I appear on behalf of the Applicant covering issues relating to traffic analysis at this Oral Hearing. My role in the Foynes to Limerick Road Project (including Adare Bypass), hereafter referred to as the project, was to inform the selection of the preferred option, its design and to provide an analysis of its travel demand impacts to inform its environmental impacts.

3. SUMMARY OF EIAR APPRAISAL

- 3.1 The EIAR is to be taken as read as part of this evidence. To assist the Board in its consideration of the application for approval, and for the convenience of all participants at this hearing, the key items pertaining to the traffic assessment of the road development are summarised in the following sections, including the Applicant's response to submissions received by the Board in relation to traffic and access matters.
- 3.2 The objective of the traffic modelling and traffic assessment undertaken is to understand, firstly, the existing environment in relation to the demand for travel on the N21 and N69 corridors and on the surrounding road network and then, secondly, to assess how travel demand and patterns will change over time as a result of projected demographic (e.g. population/jobs) changes without the road development in place in order to provide a baseline scenario. Thirdly, the potential impacts of the project are then assessed against this baseline scenario.
- 3.3 Figure 1 below shows the existing road network and key settlements along both the N69 and N21 corridors. The N69 corridor passes through or close to a number of settlements including Askeaton, Kilcornan, Kildimo, Clarina and Mungret. While the N21 passes through Croagh and Adare. Figure 2 below shows the location of all residential and commercial address points in County Limerick (2017 GeoDirectory) and highlights the dispersed nature of housing within the county and the importance of

both corridors in providing access to these areas and not just the key settlements along the corridors.

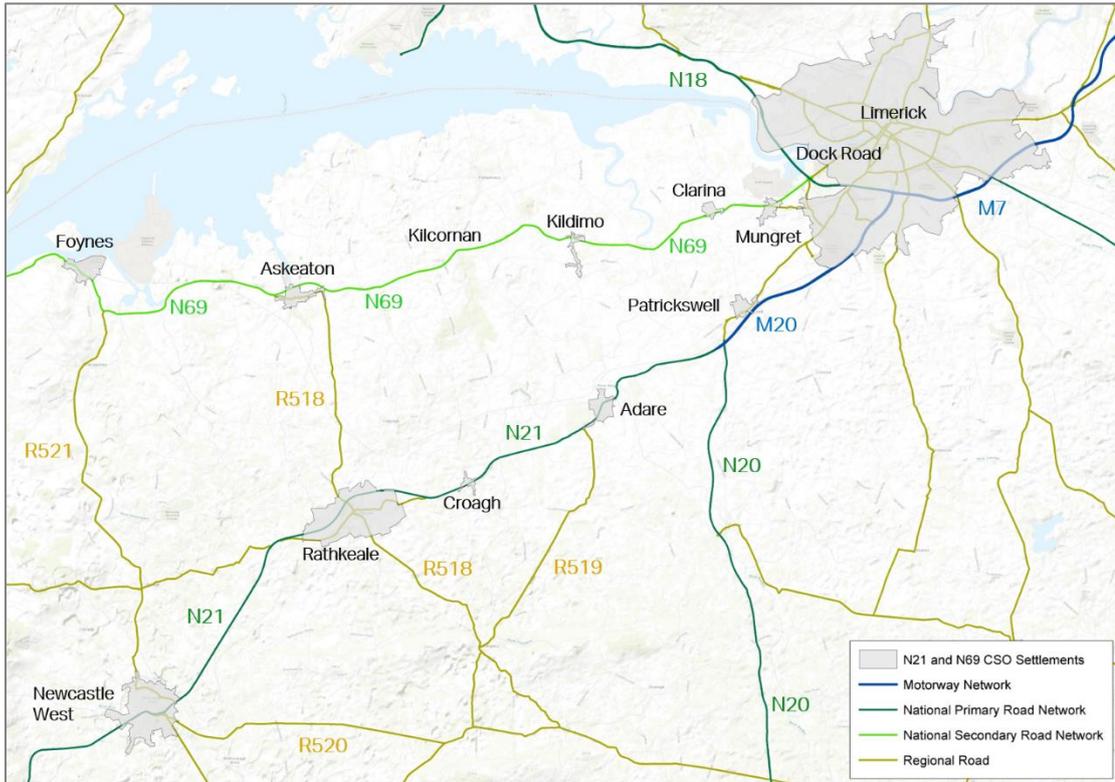


Figure 1 Existing Road Network

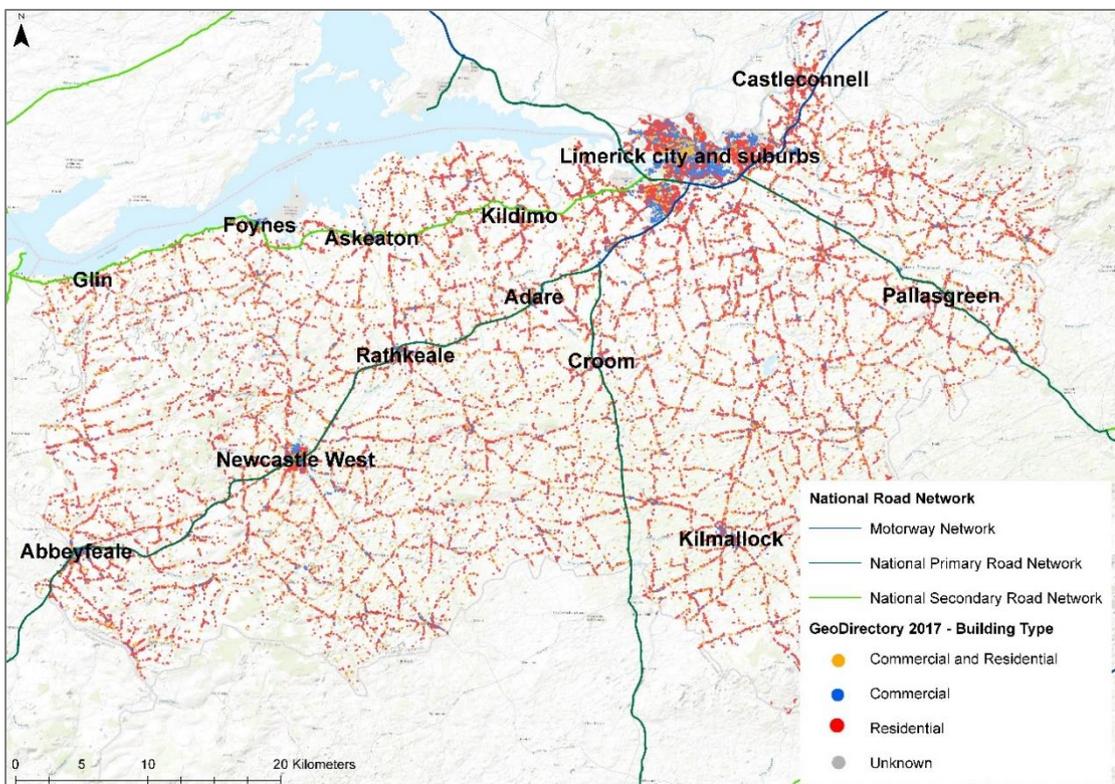


Figure 2 Location of Residential/Commercial Addresses (GeoDirectory)

N21 Corridor Overview

- 3.4 The base year traffic model for the project was developed using traffic survey data from 2017, as such the overview of existing traffic conditions presented in this Brief of Evidence is based on 2017 data. Further information on traffic growth between 2017 and 2020 is provided in Section 4 of this Brief of Evidence.
- 3.5 With reference to Table 5.6 of Chapter 5 of the EIAR “AADT Summary for 2039 Design Year (High Growth)”, the Annual Average Daily Traffic (AADT) volumes on the N21 in 2017 between Rathkeale (12,950 AADT) and Attyflin (16,900 AADT) are in excess of the operating capacity (11,600 AADT) of a single carriageway road operating at a Level of Service D.
- 3.6 The Level of Service of a road is a quality measure describing operational conditions within a traffic stream. Six LOS are defined from A to F, with LOS A representing the best operating conditions (i.e. free-flow operations) and LOS F the worst. At LOS D, freedom to manoeuvre within a traffic stream is more noticeably limited and the driver experiences reduced physical and physiological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- 3.7 Figure 3 compares the 2017 AADT at various points along the N21 between Rathkeale and Attyflin against the operating capacity of the road and it shows that all sections are currently operating in excess of capacity. Average weekday delays of approx. 6 minutes are currently experienced through Adare village (18,300 AADT) between Lantern Lodge and Murphy’s Cross (R519). At busy periods (weekends and holiday season) delays in excess of 30mins are experienced with queuing extending for several kilometres on both approaches to Adare.

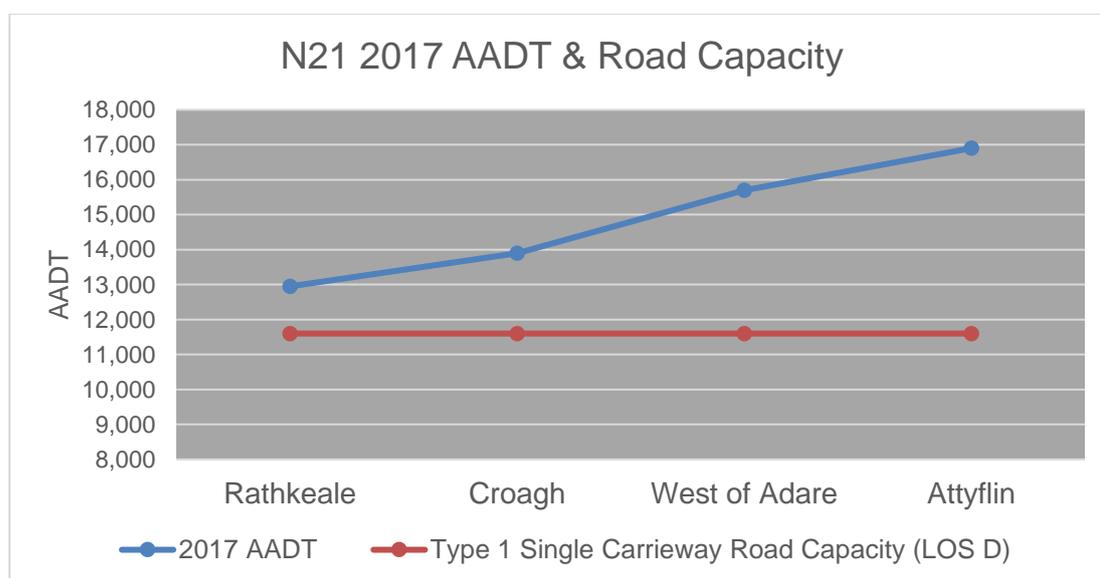


Figure 3 N21 Corridor (Rathkeale to Attyflin) 2017 AADT & Road Capacity

- 3.8 In terms of public transport there are approximately 30 daily bus services in each direction serving the N21 corridor between Tralee/Killarney and Limerick/Dublin (Bus Eireann 13, 14, 321 and Dublin Coach 300). Of the settlements and hinterlands served by the N21 between Rathkeale and Attyflin, only 0.8% of all commuting trips (2016

CSO Census) are undertaken by bus, with over 84% of trips undertaken by private motor vehicles. It is worth noting that as part of the same traffic stream, buses experience the same extent of delay as private vehicles on the N21 corridor.

3.9 Figure 4 shows the distribution of commuting trips (i.e. where people travel to work) of residents who live in the Electoral Districts along the N21 corridor between Rathkeale and Patrickswell. The figure shows the dispersed range of destinations of residents, some of which may not be feasible by public transport or may require multiple transfers between public transport services or active modes and this reflects the high use of private motor vehicles to access these destinations.

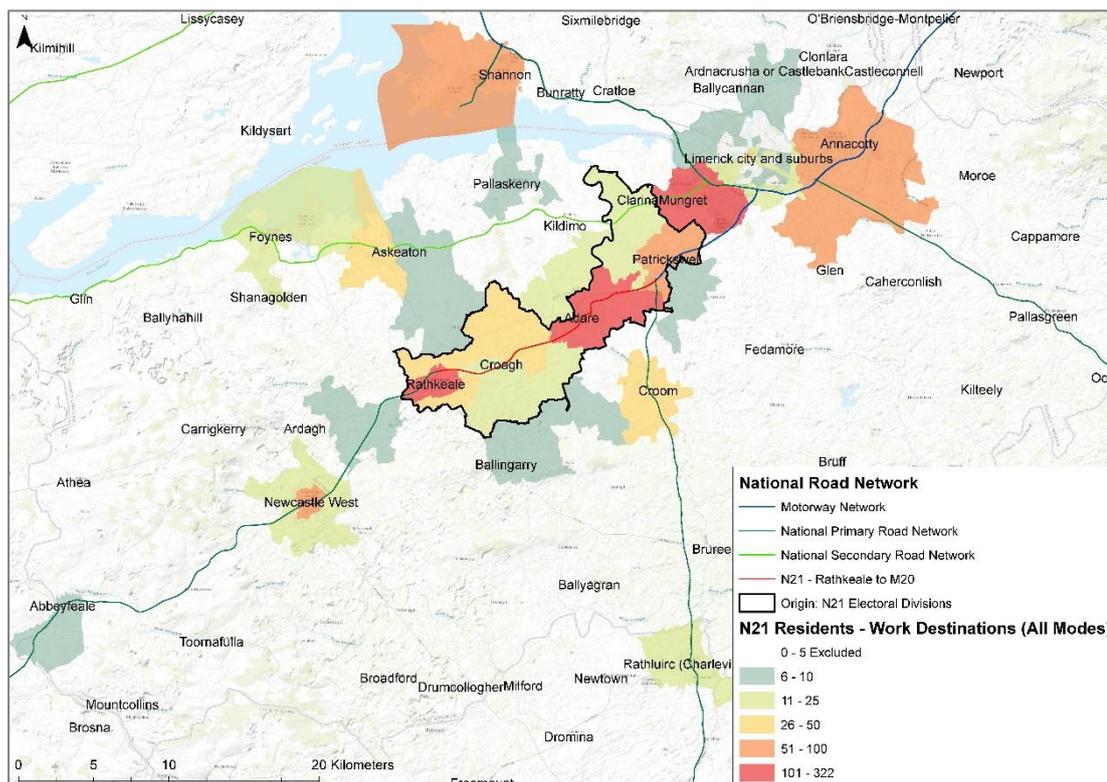


Figure 4 N21 Distribution of Commuting Trips (All Modes of Transport)

N69 Corridor Overview

3.10 With reference to Table 5.6 of Chapter 5 of the EIAR “AADT Summary for 2039 Design Year (High Growth)”, 2017 AADT volumes on the N69 between Foynes (6,350) and Mungret (11,750) are lower than the N21. However, the N69 has a lower operating capacity due to its varying road cross section, poor road alignment and lack of overtaking opportunities. Figure 5 compares the 2017 AADT at various points along the N69 between Foynes and Mungret against the operating capacity of the road at Level of Service D and shows that all sections are currently operating in excess of the road’s capacity.

3.11 Existing (2017) average speeds along the N69 between Foynes and the N18 Dock Road Interchange are approximately 63kph and are projected to reduce to 52kph by 2039 as traffic congestion increases. The typical average speed on a single carriageway road designed to standard (with a posted speed limit of 100kph) would be in excess of 90kph.

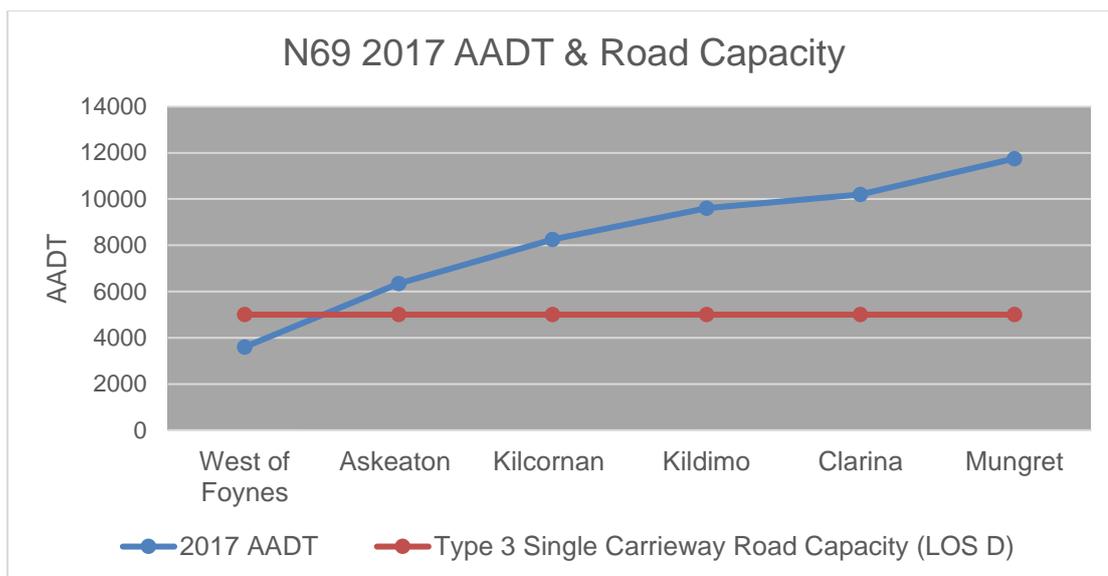


Figure 5 N69 Corridor (Foynes to Mungret) 2017 AADT and Road Capacity

- 3.12 There are 4 daily bus services in each direction serving the N69 corridor between Glin and Limerick (Bus Eireann 314 service). Of the settlements and hinterlands served by the N69 between Foynes and Mungret, 2.9% of all commuting trips (2016 CSO Census) are undertaken by bus while over 84% of trips undertaken by private motor vehicles.
- 3.13 The distribution of commuting trips (i.e. where people travel to work) of residents who live in the Electoral Districts along the N69 corridor between Foynes and Mungret is illustrated in Figure 6. The dispersed range of destinations of residents and unfeasible public transport alternatives reflects the high use of private motor vehicles to access these destinations.

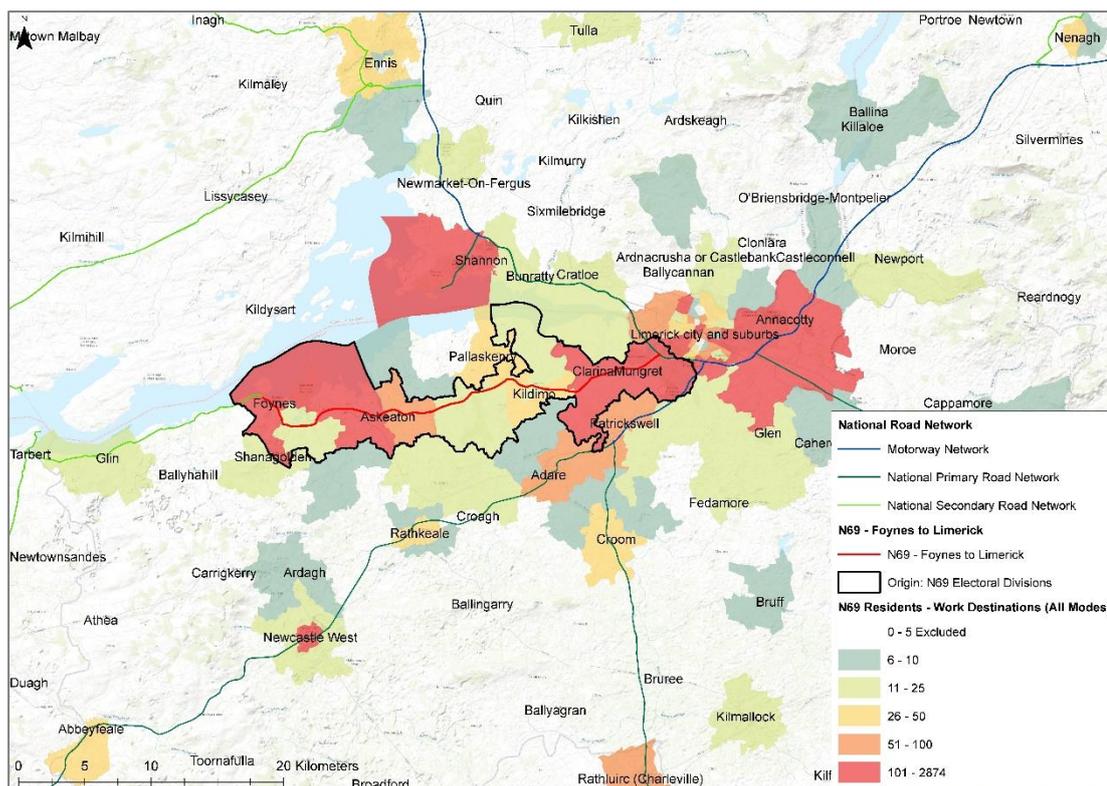


Figure 6 N69 Distribution of Commuting Trips (All Modes of Transport)

3.14 From a safety perspective, both the N69 and N21 corridors have an existing collision rate in excess of the national average. Figure 7 shows the location and severity of collisions (Road Safety Authority data 2008 – 2016) along both the N69 and N21 corridors. Between 2008 and 2016, there was 1 fatal, 5 serious and 95 minor casualties recorded on the N69 corridor. On the N21 corridor there were 7 fatal, 17 serious and 123 minor casualties.



Figure 7 N69 & N21 Corridor Collisions (RSA Data 2008 – 2016)

3.15 TII Standard GE-STY-01022 Network Safety Analysis is used to identify sections of the national road network which have a high concentration of collisions and to rank the safety of the road network. The ranking is based on the collision rate (number of collisions per 100 million vehicle kilometres travelled) on road sections of approximately 1km compared against the national average collision rate for a similar road type. Figure 8 shows the ranking of both the N69 and N21 corridor based on data between 2016 and 2018 (3 years inclusive). The figure highlights that several sections, most notably on the N69 corridor, have a collision above or twice above the average rate.



Figure 8 N69 & N21 Corridor Collisions (TII Network Safety Analysis)

3.16 On the basis of current trends in traffic growth from the Port of Foynes and on the basis of their latest forecasts, the overall percentage of Heavy Goods Vehicles (HGV) along the N69 currently passing through Kilcornan, Kildimo, Clarina and Mungret will effectively treble over time with the growth and expansion of Foynes Port. Clearly, such a very high increase in HGV traffic on the N69 would have significant negative impacts for the local communities along the route in terms of safety, security, amenity, noise and air quality, and particularly so in the case of vulnerable road users. Road safety on the N21 route will diminish due to growing traffic flows on the rural sections which already exceed the capacity of this single carriageway road.

Traffic Modelling

3.17 The traffic model was developed to inform the traffic assessment of the potential impacts of the project. As indicated in Section 5.4.2 the traffic model was developed, calibrated and validated in accordance with the Transport Infrastructure Ireland (TII) Project Appraisal Guidelines. Traffic growth over time is based on the TII growth projections (May 2019) which utilise the population/jobs projections set out in the Governments National Planning Framework (NPF).

3.18 The growth in traffic for Foynes Port was calculated using projected future tonnage provided by Shannon Foynes Port Company (SFPC) from their VISION 2041 masterplan document (2013). In addition, projected future tonnages for new expanding markets were also provided by SFPC. These new markets are in addition to the increase in tonnage already forecast in the VISION 2041 document.

3.19 As previously noted, both the N21 and N69 corridors are currently operating over capacity at current traffic levels and both corridors have collision rates in excess of the

national average. Any future growth in traffic will lead to a further deterioration in the safety and operation of both corridors for all road users.

- 3.20 The outcome of the traffic analysis assessment demonstrated that the project will substantially reduce the level of traffic on the existing N69 and N21 corridors, as traffic transfers from these roads to the new road. This will improve safety, journey time, journey time reliability and safety benefits for all road users, as traffic is reduced through Adare, Kilcornan, Kildimo, Clarina and Mungret. In addition while Croagh and Askeaton which are already bypassed they will also experience benefits in terms of safer access. In addition, the reduction in traffic through these existing settlements will have positive impacts from a noise and air quality perspective. Based on the findings of the assessment the project will have the following benefits:

Safety – Potential reduction of 659 casualties including 11 fatalities and 36 serious injuries over a 30 year appraisal period.

Physical Activity – Potential increase in the use of the existing corridors (N21 and N69) for both pedestrians and cyclists, due to improvements in safety, air quality, noise and severance.

Public Transport – Improvements in journey time and journey time reliability for bus services on both the existing N21 and N69 corridors. It also creates the potential for public or private bus operators to use the new road for new inter-urban or expressway services.

Accessibility – Improvements in accessibility to employment, education and healthcare for road users (both private vehicles and public transport).

Traffic Reduction through Urban Settlements – 77% reduction in traffic levels along the N21 through Adare Village in 2039 and up to a 40% reduction through the settlements along the N69.

Journey Time Savings – Reduced journey times between Foynes, Rathkeale, Adare and Limerick. Average time savings for the full extent of the route between Foynes and Limerick (M7/M20 Junction) will range from 9 to 15 minutes depending on the time of day.

Journey Time Reliability – Consistent journey times throughout the day for cars, freight and public transport.

Noise & Air Quality – Reduction in noise and improvements in air quality as traffic is reduced in populated areas.

- 3.21 Provision of improved road access to Foynes Port will provide a key support for the growth of the port and associated industries. The Tier 1 Port status of Foynes indicates the national and regional importance of the port as a major factor in the economic life of the Mid-West Region and the national economy. Growth of the port is currently constrained by the poor-quality road access that discourages industrial and commercial development relative to the opportunities associated with the port.
- 3.22 No new information or additional surveys in relation to this assessment have been carried out since the EIAR was published. However, observed information on traffic growth since the EIAR was published is provided in Section 4. This information was extracted from two permanent traffic counters located on the N69 and N21 corridors.

4. OBSERVED TRAFFIC GROWTH OVERVIEW

4.1 Overview

4.1.1 The base year traffic model used to inform the EIAR, was developed based on traffic survey data from 2017. The following sections provide an overview of the changes that have occurred in relation to traffic levels since 2017. The following two areas are assessed in this section:

- Traffic growth between 2017 - 2020; and
- Potential impact of COVID-19 on traffic levels.

4.2 Traffic Growth Between 2017 - 2020

4.2.1 Transport Infrastructure Ireland (TII) have a network on permanent traffic counters located throughout the country which are referred to as Traffic Monitoring Units (TMU). One such unit is located on the N69 approximately 3km west of Askeaton (TII TMU Site 1692). Traffic data from this TMU site for each year between 2013 and 2020 is presented in Figure 9. The figure shows both Annual Average Daily Traffic (AADT), which is the average daily 24 hour flow between Monday and Sunday and the Annual Average Weekly Traffic (AAWT) which is the average daily 24 hour flow between Monday and Friday.

4.2.2 Figure 9 shows that traffic levels, both AADT and AAWT, have increased year on year up to and including 2019, but reduced in 2020 due to the travel restrictions associated with COVID-19.

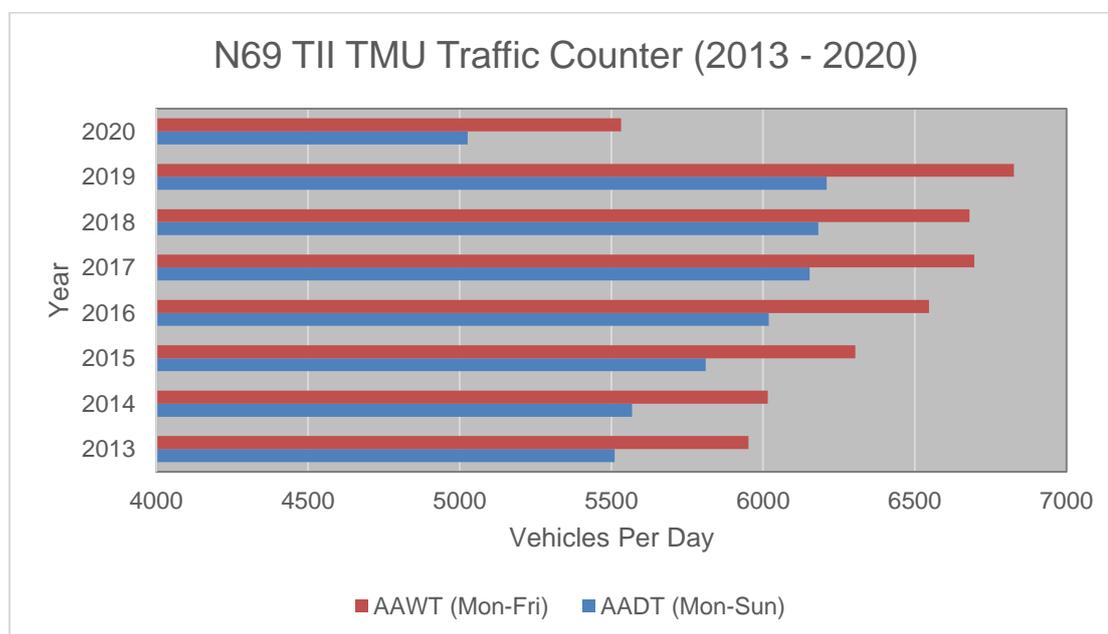


Figure 9 N69 TII TMU – AADT & AAWT (2013 – 2020)

4.2.3 Figure 10 shows that HGV levels at the N69 TII TMU site for an average working day (Mon-Fri) between 2013 and 2020. The figure shows that HGV levels have also been increasing year on year between 2013 and 2019, and that there was only a minimal drop off in levels in 2020.

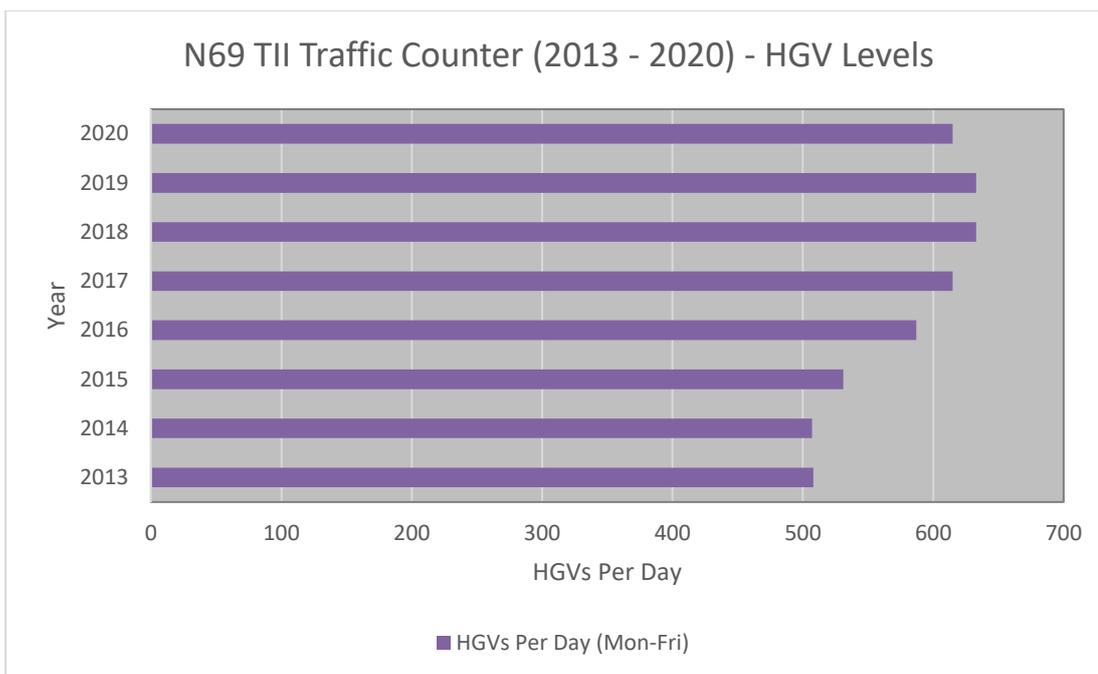


Figure 10 N69 TII TMU – HGV Levels (2013 – 2020)

4.2.4 A TII TMU site (Site 20212) is also located on the N21 east of Adare. Figure 11 shows that traffic levels, both AADT and AAWT at this site have also increased year on year up to and including 2019 but reduced in 2020 due to the COVID-19 travel restrictions.

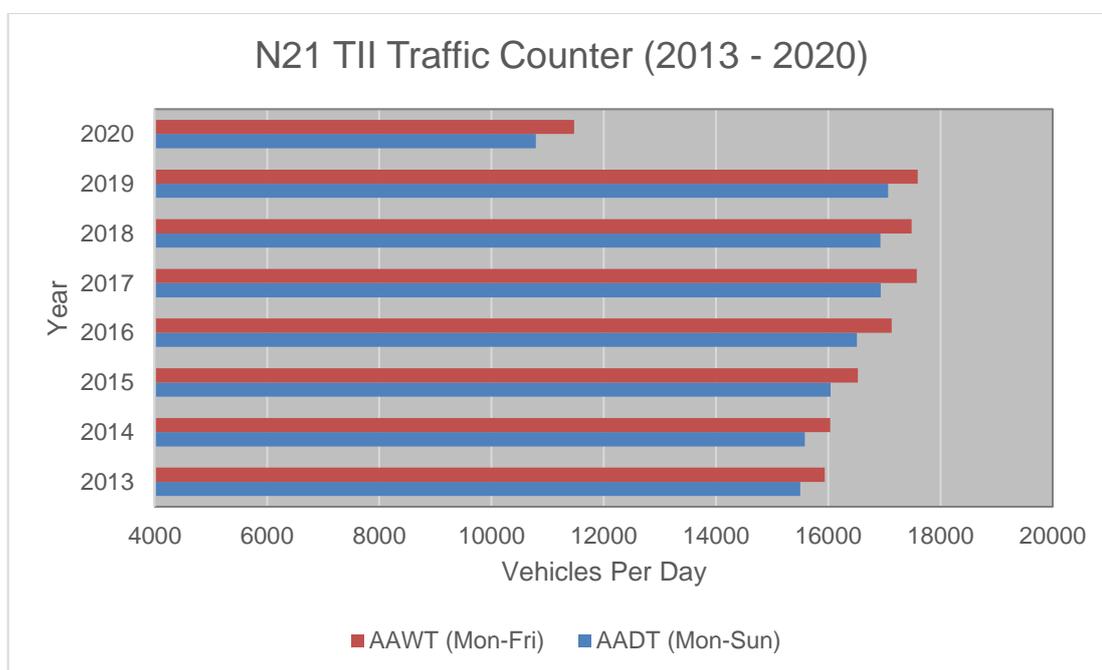


Figure 11 N21 TII TMU – AADT & AAWT (2013 – 2020)

4.3 Potential Impact of COVID-19 on Traffic Levels

4.3.1 While no submissions were received specifically in relation to the potential impact of COVID-19, this aspect has been considered as part of this Brief of Evidence in order to inform the fulsome consideration of the project.

4.3.2 Figure 12 shows the impact of COVID-19 on 2020 traffic levels at the TII permanent traffic counter on the N69 east of Foynes (Site 1692) compared to traffic levels in 2018 (traffic data is missing for 2019 so 2018 was used for comparison purposes). The figure shows that during the first lockdown period in March/April 2020 traffic levels reduced by over 65% from approx. 6,600 to 2,200 vehicles per day.

4.3.3 Traffic levels increased between May and August 2020 as travel restrictions were lifted and were in line with or above 2018 levels during September 2020. When national travel restrictions were reintroduced in October 2020 to combat the second wave of COVID-19, traffic levels reduced by approx. 30%. Due to schools, construction and manufacturing remaining open during the second national lockdown, the impact on travel levels was significantly less compared to the first national lockdown.

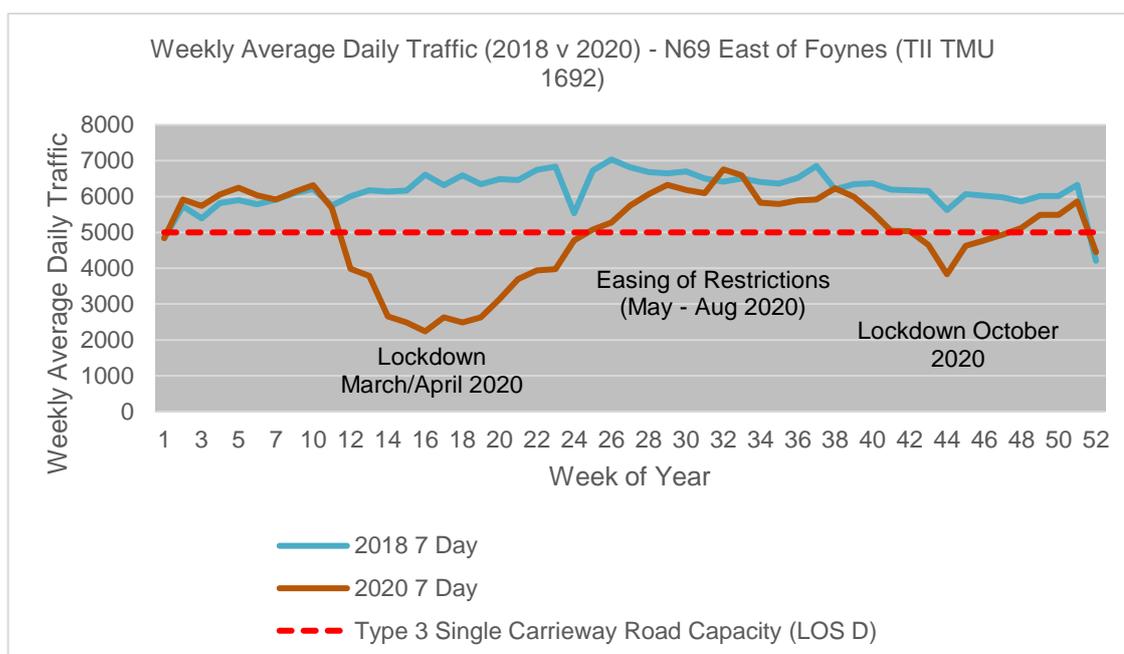


Figure 12 Weekly Average Daily Traffic (2018 v 2020) - N69 East of Foynes (TII TMU 1692)

4.3.4 Figure 13 shows the impact of COVID-19 on 2020 HGV traffic levels on the N69 east of Foynes (Site 1692) compared to traffic levels in 2018. During the first national lockdown HGV traffic levels reduced by approx. 39%, however HGV traffic levels soon increased and have fluctuated at or 2018 levels since.

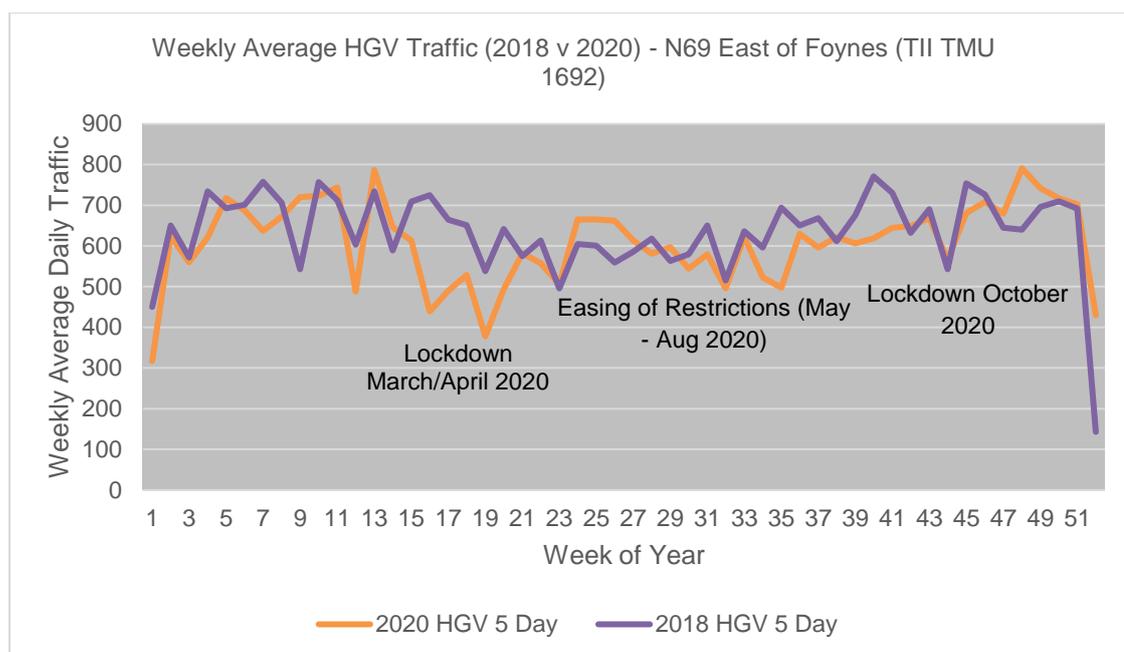


Figure 13 Weekly Average HGV Traffic (2018 v 2020) - N69 East of Foynes (TII TMU 1692)

- 4.3.5 COVID-19 has had a similar impact throughout the country on traffic levels. Excluding the immediate impact of the travel restrictions introduced nationally in March/April 2020, HGV traffic levels have in general been at or in excess of previous years. General traffic levels have followed the pattern of government travel restrictions, with the easing of restrictions showing traffic levels returning to similar levels as previous years even with a large cohort of people still working from home during this period.
- 4.3.6 With the implementation of the COVID-19 vaccination programme in 2021, it is likely that traffic levels will return to volumes in line with traffic levels experienced in previous years. However, changes in travel behaviour related to an increase in remote/flexible working may lead to a potential change in travel demand and travel patterns over time, including changes in overall travel demand, changes in the time of day of travel and changes in trip distance. These changes will likely vary throughout the country in terms of urban/rural travel demand and also by the type of travel on specific corridors (e.g. commuter routes), however freight demand is unlikely to be impacted.
- 4.3.7 The potential impact on the project may be limited, as the N21 corridor carries high volumes of traffic throughout the day and not just in the AM and PM commuting peaks. In addition freight demand will increase on the corridor as direct access is provided to Foynes Port. The TII low traffic growth sensitivity scenario takes into account a lower projected travel demand throughout the country. The analysis of this scenario shows that the traffic demand for the project still warrants the upgrade of the road to the proposed design standard.

5. RESPONSES TO SUBMISSIONS

5.1 Overview

5.1.1 Of the submissions made to An Bord Pleanála (ABP) in respect of the Application, fourteen raised traffic related aspects.

5.1.2 The issues raised included the following:

- Size and scale of the project;
- Volume of traffic generated by Foynes Port;
- Distribution of traffic to/from Foynes Port;
- Use of the proposed road by HGVs to/from Foynes Port;
- Transfer of traffic from the N69 to the proposed road; and
- Downstream impacts upon Newcastle West and Abbeyfeale.

5.1.3 I will address each issue separately in the following sections.

5.2 Size and Scale of the Project

Issues raised in submissions

Nine submissions outlined specific issues in relation to the size and scale of the project. These included the following submissions: ENV-3, SCH-14, 18, 28, 44, 47, 88, 102, and 111.

5.2.1 Submission ENV-3 outlines in relation to the M21 motorway section that it is an “*Over-scaled bypass which is unjustifiably supported by the Smarter Travel section in the EIAR*”.

5.2.2 Submission SCH-14 states that the “*size and scale of this proposed road scheme is excessive. Bypass of Adare and improvements to the N21 to Foynes is required*”.

5.2.3 Submissions SCH-18 and SCH-102 state that the “*size and scale of this proposed road scheme is excessive and realistically a bypass of Adare and upgrades to the N21 are required*”.

5.2.4 Submissions SCH-28 and SCH-44 suggest that “*the Motorway road scheme is not required and the existing road infrastructure should have been upgraded with local bypasses*”.

5.2.5 Submission SCH-47 states that “*the size and scale of this proposed road scheme is excessive*”.

5.2.6 Submission SCH-88 states that “*the size of this proposed road scheme is excessive. Realistically a bypass of Adare and improvements to the N21 to Foynes are required*”.

5.2.7 Submission SCH-111 states that the road development is “*not warranted due to availability of alternatives including existing local road network*”

Response

N21 Rathkeale to Attyflin (Motorway Cross Section)

- 5.2.8 From a policy perspective the project will form part of the Core Road Network in Ireland as defined under the European Union (EU) Trans European Transport Network (TEN-T) regulations, providing a high-quality road connection between the Tier 1 Port of Foynes and the existing Core Road Network near Limerick City. Under the TEN-T Regulations only a Motorway or an Express Road may be considered as a road option type on the Core TEN-T road network.
- 5.2.9 The projected traffic volumes for the project and the traffic levels on the surrounding road network in 2039 are illustrated in Figure 14 (Ref. – EIAR Chapter 5 Plate 5.11).

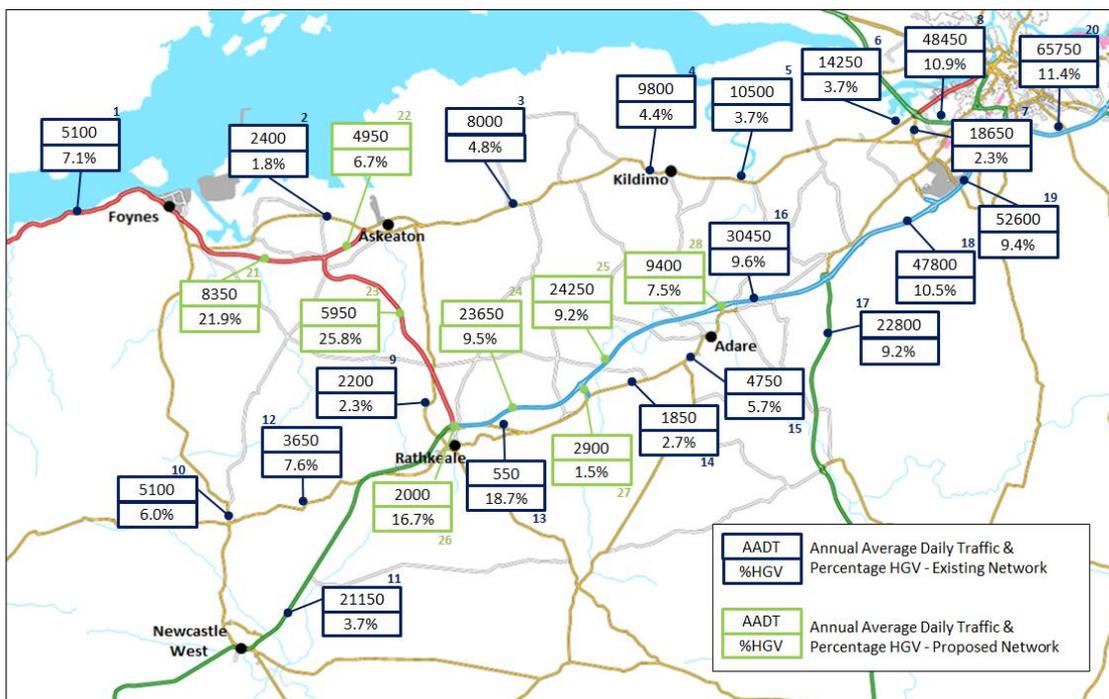


Figure 14 2039 Modelled Future AADT & Percentage HGV (Do-Something Network)

- 5.2.10 Traffic volumes on the project are projected to increase to 20,650 AADT at Rathkeale and 26,750 AADT at Attyflin by 2039 under the TII low traffic growth sensitivity scenario and to 23,650 AADT and 30,450 AADT under the TII high traffic growth scenario respectively. In Table 6.1 of TII Standard DN-GEO-03031, the minimum road type cross section of an Express Road to cater for the projected traffic demand is a Type 1 Dual Carriageway (capacity of 42,000 AADT).
- 5.2.11 A Type 2 Dual Carriageway (capacity of 20,000 AADT) is the next step down from a Type 1 Dual Carriageway but would not cater for the projected traffic levels on the N21 in 2039, as to do so would mean that the road would be over capacity only 15 years after the road opens even under the TII low traffic growth sensitivity scenario.
- 5.2.12 A Type 1 Dual Carriageway and Motorway have the exact same cross section; however a Motorway can only be accessed via full-grade separated junctions. The operating capacity of a Motorway is 52,000 AADT and will cater for the projected traffic

in 2039 in all TII traffic growth scenarios and provide sufficient capacity for the growth in traffic beyond 2039 thereby future proofing the capacity and safe operation of the road.

- 5.2.13 Motorways also have a lower recorded collision rate than Dual Carriageways owing to the treatment of access via grade separated junctions. A Motorway has a collision rate of 0.02 collisions per million vehicle travelled compared to 0.033 and 0.08 for Dual and Single Carriageways respectively.
- 5.2.14 As previously noted, the project will significantly reduce traffic on the existing N21 and N69 corridors, most notably a reduction in HGV traffic through Adare, Kilcornan, Kildimo, Clarina and Mungret. This reduction in traffic will improve safety, reduce severance, improve air quality and reduce noise, all of which create a safer road environment for the communities living in these villages and facilitate the potential for an increase in travel by active modes both within and between these settlements.
- 5.2.15 On the basis of the above, the cross section for the project between Rathkeale and Attyflin (i.e. Motorway) is considered appropriate in order to cater for the projected traffic and provide for a high level of safety for vehicles and the safety of the local communities.

Foynes to Rathkeale (Type 2 Dual Carriageway Cross Section)

- 5.2.16 The rationale for the selection of the carriageway type between Foynes and Rathkeale is presented in Section 5.6.3 of the EIAR but is set out here again here for ease of reference.
- 5.2.17 The selection of the appropriate cross section for the Foynes to Rathkeale section of the project was based on an incremental analysis assessment of alternative cross sections. This section of road will provide access from Foynes Port to the proposed M21 motorway at Rathkeale and is projected to carry a high proportion of Heavy Goods Vehicle (HGV) traffic, with proportions of up to 26% projected (i.e. at least one in every four vehicles will be a Heavy Goods Vehicle).
- 5.2.18 A Type 1 Single Carriageway cross section is the minimum road type cross section for an Express Road under the TEN-T regulations on the Core TEN-T road network. A Type 2 Dual Carriageway is the next step up from a Type 1 Single Carriageway for new offline road alignments.
- 5.2.19 The Foynes to Rathkeale section of the project is illustrated in Figure 15 (Ref. EIAR Chapter 5 – Plate 5.12) and consists of the following 3 key sections:
- Section A (Foynes to Ballyclogh);
 - Section B (Ballyclogh to Askeaton); and
 - Section C (Ballyclogh to Rathkeale).

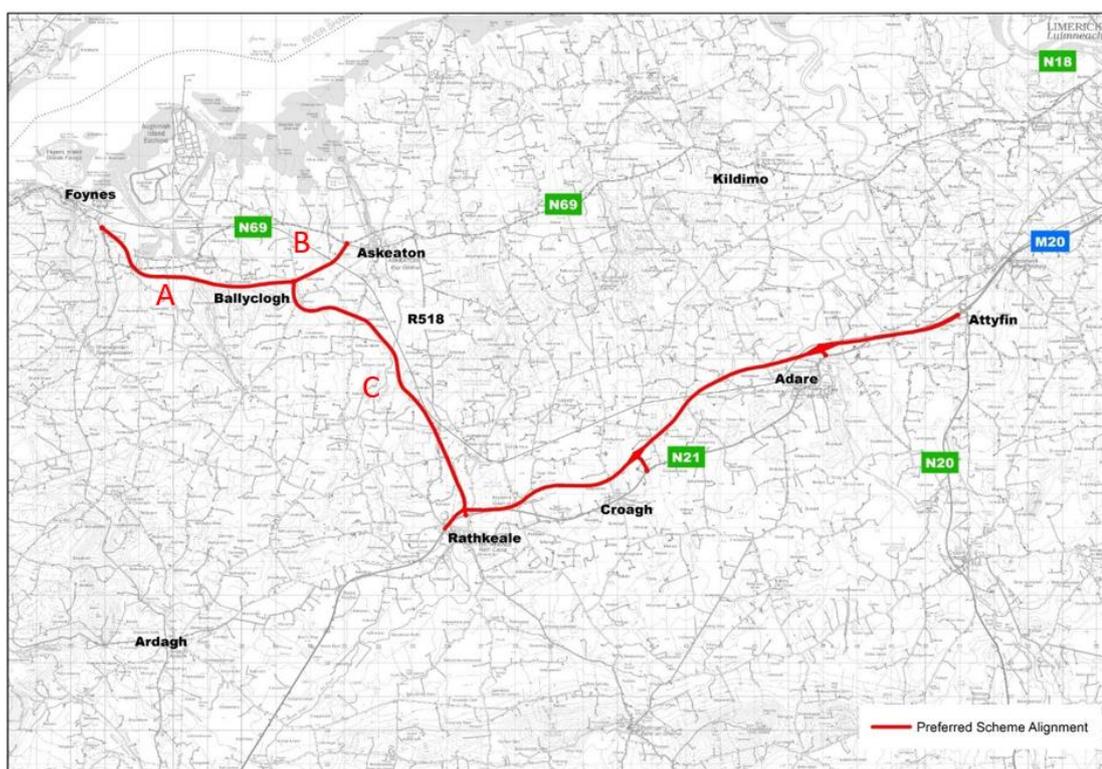


Figure 15 Proposed Road Alignment showing Section A, B and C of the Foynes to Rathkeale Section of the Project

5.2.20 With reference to Table 5.8 “Annual Average Weekday Traffic (AAWT) 2039 Design Year” of Chapter 5 of the EIAR. Section A of the Foynes to Rathkeale road (i.e. between Foynes and Ballyclogh) would be at capacity (95%) in 2039 if a Type 1 Single Carriageway was provided owing to the very high proportion of HGV traffic (21.9%) . A Type 2 Dual Carriageway would be required between Foynes and Ballyclogh to cater for the projected traffic demand in 2039 and for growth beyond this.

5.2.21 With reference to Table 5.8 “Annual Average Weekday Traffic (AAWT) 2039 Design Year” of Chapter 5 of the EIAR. A Type 1 Single Carriageway would have the required capacity (71%) in 2039 for the section between Ballyclogh and Rathkeale (Section C). However, the unusually high proportion of HGV traffic on this section (25.8%) raises concerns over the operating capacity, safety and reliability if delivered as a Type 1 Single Carriageway.

5.2.22 A Type 1 Single Carriageway cross section and a Type 2 Dual Carriageway cross section were therefore compared and appraised against a number of criteria including Safety, Reliability and Quality, Government Policy, Route Continuity, Future Proofing, Environment and Economy in order to understand the potential benefits and / or disbenefits of providing a Type 2 Dual Carriageway over a Type 1 Single Carriageway, these include:

- **Significantly Higher Safety Benefits** – The average number of collisions on a Dual Carriageway road (0.033 collisions per million vehicle kilometres) is less than half the number of collisions on a Single Carriageway road (0.08 collisions per million vehicle kilometres), which is due to the segregation of traffic by direction and safer overtaking. This is very important to the Foynes to Rathkeale

section given the high proportion of HGVs that will use this road on a daily basis to access Foynes Port. The additional capacity of a Dual Carriageway provides opportunities for the safe overtaking of convoys of trucks for example and also future proofs the road from a safety perspective;

- **Journey Time Reliability and Quality** - the additional residual capacity provided by a Type 2 Dual Carriageway would continue to provide a high level of service even if traffic growth was greater than projected. Reliability in terms of the time it takes to get to and from Foynes Port on the road network is vital to the management and efficiency of the Port for all freight but in particular for container freight;
- **Future Proofing Access to a Tier 1 Port** – A Type 1 Single or Type 2 Dual Carriageway for the Foynes to Rathkeale section will provide a vastly improved connection at year of opening to Foynes Port. Whilst it is acknowledged that, technically, it is possible to provide a Type 1 Single Carriageway now, a Type 1 Single Carriageway would represent a sub-optimal and unsustainable option on grounds of safety and because of the future proofing benefits. The design decision to develop a Type 2 Dual Carriageway has reinforced by a “what if” analysis which has demonstrated that there are no savings to be made and considerable future additional costly disruption and delays incurred, by providing the very significantly less safe Type 1 Single Carriageway now, and widening it to a Type 2 Dual Carriageway in the future, compared to the provision of a Type 2 Dual Carriageway now which is a much safer, future proofed and overall a better value for money solution;
- **Continuity of Cross Section between Foynes Port and the M21 at Rathkeale** - There should be a consistent cross section between Foynes Port and the M21 at Rathkeale in order to provide a safe and reliable route for traffic on the TEN-T Core road network, to reflect its strategic importance for major National, European and Global transport;
- **Environment** - The environmental impact of either road option would be similar whichever road type is adopted, given that the reduction in land take width resulting from a single carriageway would be only 4m. The average reduction in the overall width of land required was found to be 6%. In both cases the same traffic levels will use the new road regardless of its width, with similar emissions but reduced safety. The additional carbon footprint as a result of the increase in construction materials would however be worse, to some degree at least; and
- **Government Policy** - Under the Department of Transport, Tourism and Sport (DTTAS) National Ports Policy (2013), Shannon-Foynes Port is classified as a Tier 1 Port. The National Ports Policy has as a key strategic objective, “*the continued commercial development of Shannon Foynes Port Company*”, and “*clearly identifies as a matter of reasonable priority, the improvement of the road and rail freight connections*”. Therefore in order to maximise the potential of Foynes Port the road connection should be of a standard capable of maintaining a safe and reliable connection for the foreseeable future (i.e. beyond 2039).

5.2.23 Figure 16 illustrates the typical road cross section for a Type 1 Single Carriageway, a Type 2 Dual Carriageway and a Type 1 Dual Carriageway. There are a limited number of Type 2 Dual Carriageways in Ireland at present and in general people are more

familiar with the Type 1 Dual Carriageway as this is the typical cross section of the majority of 2 lane motorways in Ireland.

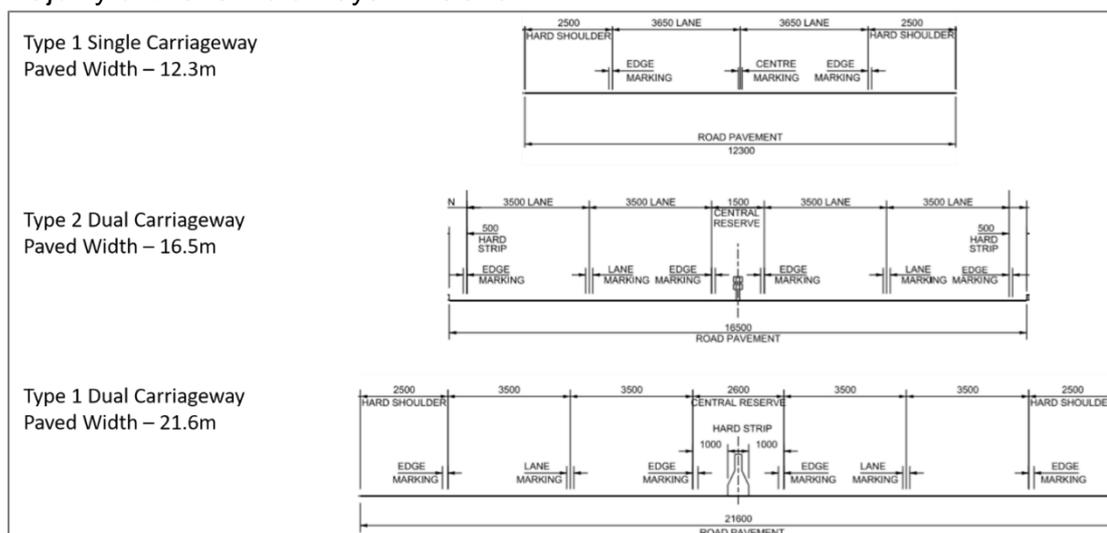


Figure 16 Comparison of Cross Sections (Type 1 Single, Type 2 Dual & Type 1 Dual)

5.2.24 The paved width of a Type 1 Single Carriageway is 12.3m and 21.6m for a Type 1 Dual Carriageway, however a Type 2 Dual Carriageway, as proposed for the Foynes to Rathkeale section, has a paved width of 16.5m, only 4 meters wider than a Type 1 single carriageway. The additional cost of providing this additional carriageway width is only 6% of the total cost of the project, which from an economic perspective is only a marginal cost increase relative to the array of additional benefits provided.

5.2.25 Accordingly, arising from the incremental analysis assessment, a Type 2 Dual Carriageway cross section was selected as the preferred cross section between Foynes and Rathkeale.

5.3 Volume of Traffic from Foynes Port

Four submissions outlined specific issues in relation to the volume of traffic generated by Foynes Port. These included the following submissions: ENV-3, ENV-31, FI-2 and FI-8.

5.3.1 Submission ENV-3, under policy justification for the proposed road cross section, states there is *“no breakdown of the Shannon Foynes Port Company cargo breakdown or continued demand”*. Submission ENV-31 states that the *“volume of traffic from the port doesn’t justify a new road”* and *“no evidence to support the expansion next to Foynes and its dependency on this route.”*

5.3.2 Submission FI-2, states that the *“traffic figures for the Port in VISION 2041 are aspirational and relate to 6 different terminals”*. Submission FI-8, states that there is a *“need to investigate the level of realism in the VISION 2041 growth projections”* in addition FI-8 also states in relation to Aughnish and Moneypoint that *“significant volumes of cargo unloaded or loaded at these deeper jetties will never be transported on the Foynes to Limerick road network”*.

Response

- 5.3.3 The Shannon Foynes Port Company VISION 2041 masterplan document (2013) sets out the anticipated growth for the Shannon Estuary and general cargo ports under three future growth scenario (baseline, midline and highline). The document provides a breakdown of the types of cargo goods handled by the Shannon Foynes Port Company and its potential future demand.
- 5.3.4 The VISION 2041 document provides the anticipated growth projections (in tonnages) for all port facilities combined on the Shannon Estuary (Moneypoint, Tarbert, Foynes, Aughnish, Shannon and Limerick Docks), in addition it also provides projections solely for General Cargo Ports (Foynes and Limerick Docks). In 2011, Shannon Foynes Port Company handled 10 million tonnes across the port facilities on the Shannon Estuary, 1.7 million of which was handled by the two general cargo ports.
- 5.3.5 As part of the traffic modelling exercise used to inform the EIAR, only the anticipated growth in tonnages for Foynes Port that will use the road network was included. All other growth projection for the Shannon Estuary were excluded from the traffic analysis.
- 5.3.6 With reference to Table 5.1 "HGV AADT Projections – Shannon-Foynes Port (2039 Design Year)" of Chapter 5 of the EIAR, the quantum of HGV demand generated by Foynes Port is projected to increase fourfold upon 2017 levels under the highline growth scenario. This equates to an additional 1,700 HGVs to and from the Port each day by 2039. In addition this growth in HGV demand will be supported by a growth in employment in the Port and also an increase in services to support the Port, which equates to an increase of approximately 2,100 vehicles per day.
- 5.3.7 As previously highlighted the existing N69 corridor is currently operating over capacity based on traffic levels in 2017. Increasing the level of traffic, most notably a large increase in HGV traffic on the existing N69 will lead to further congestion, safety, severance, air quality and noise issues. A new road is therefore required to both alleviate the existing issues experienced on the N69 and also to cater for the growth of Foynes Port.

5.4 Distribution of Traffic from Foynes Port

One submission outlined a specific issue in relation to the distribution of traffic from Foynes Port. This was outlined in submission SCH-30.

- 5.4.1 This submission outlined that the "*Project is not future proofed as it focuses on current distribution trends from the Port and not on the need to alter them in the future*".

Response

- 5.4.2 The future distribution of HGV traffic is expected to change as Foynes Port establishes itself as a growing Tier 1 port of National and European significance. The traffic assessment has taken this into consideration when assessing the traffic demands and the impacts of the project. In this context it is expected that HGV traffic from the port will become further reaching and a greater proportion of trips will avail of the proposed new route to reach the M21 motorway at Rathkeale, 15km to the southeast for travel to and beyond Limerick.

5.5 Use of the Proposed Road by Foynes Port HGVs

- 5.5.1 Three submissions, FI-2, FI-7 and FI-8 outlined specific issues in relation to the use of the proposed road by HGVs to/from Foynes Port. Submission FI-2 indicated *“that HGVs won't use the new scheme”*. Submission FI-7 outlines that *“there will be no journey time savings”* while submission FI-8, states that *“reduced journey time will not occur, only for traffic from certain starting points”*.

Response

- 5.5.2 While it is acknowledged that the existing N69 corridor is the most direct route between Foynes Port and the Dock Road Junction in terms of travel distance, the project will offer a safer, faster, reliable and higher quality route for HGVs between Foynes Port and all destinations. As outlined previously in Section 4.4.2, the future distribution of HGV traffic to and from Foynes Port is expected to change as Foynes Port establishes itself as a growing Tier 1 Port of National and European significance.
- 5.5.3 The existing N69 corridor between Foynes and Mungret has seen a number of traffic calming measures in recent years, including the recent N69 Kilcornan Traffic Calming Scheme (2020). These schemes improve safety for all road users, most importantly vulnerable road users by reducing the speed of traffic through or on the approaches to settlements along the N69. These measures increase the overall average end to end journey time between Foynes and Dock Road Junction and lead to an increase in braking/acceleration most notably for HGV traffic. These interventions further increase the delays experienced by HGV traffic on the N69 and increase the attractiveness of the project.

5.6 Transfer of Traffic from the N69 to the Proposed Road

One submission outlined a specific issue in relation to traffic transferring from the existing N69 corridor to the proposed road. This was outlined in submission FI-8.

- 5.6.1 This submission outlines that the transfer of traffic from the N69 to the project will be minimal.

Response

- 5.6.2 As illustrated previously in Figure 2, there are a high number of residential and commercial properties along or adjacent to the N69. In addition the N69 serves a vast geographical area which includes a high number of existing one off residential / commercial properties. A large proportion of these properties will continue to be served by the existing N69 with the project in place. For many the N69 will still continue to provide the fastest connection to work, education etc. in particular for trips with origins/destination along the N69.
- 5.6.3 With reference to Figure 5.10 of Chapter 5 of the EIAR “2039 Modelled Future AADT & Percentage HGV (Do-Minimum Network)” traffic levels will reduce from 16,700 AADT east of Kildimo to 10,500 AADT with the project in place (Figure 5.11 of Chapter 5 of the EIAR). This equates to a 40% reduction at this location. Most notable is the projected reduction in HGVs from 1770 per day to 390 per day as a result of the project.

5.7 Downstream Issues at Newcastle West and Abbeyfeale

Three submissions outlined a specific issue in relation to the downstream impacts of the project upon Newcastle West and/or Abbeyfeale. This was outlined in submissions FI-2, FI-7 and FI-8.

- 5.7.1 Submission FI-2, states *“in the event of bypassing Adare, any time savings gained will inevitably be lost as the road user faces congestion in the aforementioned towns”*. Submission FI-7 states that the *“future bottlenecks in Newcastle West will cause delays”* while FI-8 states that *“impacts will be passed on to Newcastle West and Abbeyfeale”*

Response

- 5.7.2 Limerick City and County Council are currently in the process of developing options for improving the road network in both Newcastle West (N21 Newcastle West Road Scheme) and Abbeyfeale (N21 Abbeyfeale Road Scheme). Short listed options are due to be issued for public consultation in the February 2021.

6. CONCLUSIONS

6.1 Impact of Not Progressing with the Project

- 6.1.1 Without the proposed bypass of Adare, major traffic delays would continue through the village during peak times with average speeds as low as 14 km/h projected in the Design Year (2039) .
- 6.1.2 Without the project, in addition, there will continue to be negative environmental impacts due to high traffic volumes through the villages along the existing N21 corridor at Adare and Croagh, and on the N69 at Kilcornan, Kildimo, Clarina and Mungret.
- 6.1.3 In the Do-Minimum Scenario, with no new access route to Foynes Port, the number of HGVs passing through the village of Kildimo daily would increase from approximately 500 at present (2017) to approximately 1,800 (2039), which is an increase of 360%. This equates to approximately 2.5 HGVs per minute or a HGV every 24 seconds on average passing through the village on the basis of the current 12 hour Shannon-Foynes Port operating hours.
- 6.1.4 Clearly such a high increase in heavy vehicle traffic would have significant negative impacts for the local communities along the route in terms of safety, security, amenity, noise and air quality, and particularly so in the case of vulnerable road users.
- 6.1.5 Road safety on the N21 route will diminish due to growing traffic flows on the rural sections which already exceed the capacity of this single carriageway road. Likewise the already very poor road safety rating on the N69 will worsen due to the very large projected increase in port related heavy vehicle traffic.
- 6.1.6 Without the project, there will be worsening journey time reliability between Foynes and the existing TEN-T core road network which will undermine the economic development of the Mid-West region and contravene the TEN-T requirement for core network access by 2030.

6.2 Benefits of the Project

6.2.1 Based on the findings of the assessment the project will have the following benefits:

Safety – Potential reduction of 659 casualties including 11 fatalities and 36 serious injuries over a 30 year appraisal period.

Physical Activity – Potential increase in the use of the existing corridors (N21 and N69) for both pedestrians and cyclists, due to improvements in safety, air quality, noise and severance.

Public Transport – Improvements in journey time and journey time reliability for bus services on both the existing N21 and N69 corridors. It also creates the potential for public or private bus operators to use the new road for new inter-urban or expressway services.

Accessibility – Improvements in accessibility to employment, education and healthcare for road users (both private vehicles and public transport).

Traffic Reduction in Urban Settlements – 77% reduction in traffic levels along the N21 through Adare Village in 2039 and up to a 40% reduction through settlements along the N69.

Journey Time Savings – Reduced journey times between Foynes, Rathkeale, Adare and Limerick. Average time savings for the full extent of the route between Foynes and Limerick (M7/M20 Junction) will range from 9 to 15 minutes depending on the time of day.

Journey Time Reliability – Consistent journey times throughout the day for cars, freight and public transport.

Noise & Air Quality – Reduction in noise and improvements in air quality as traffic is reduced in populated areas.

6.2.2 Improved amenity within towns will help encourage the uptake of walking and cycling for accessing amenities within the town which is also in line with NSO 2 of the National Planning Framework. Several local roads are currently subject to HGVs and cars trying to avoid the congestion in Adare. This can often lead to increased speeds and a reduction in safety on these rural local roads. The removal of this traffic onto the project will result in local roads being quieter and safer for use by cyclists and pedestrians.

6.2.3 In addition, reduced traffic levels as a result of the project, will improve the safety of pedestrians and cyclists throughout the wider rural area and will provide enhanced opportunity for a change of mode when travelling between the towns and villages in the area. Improved accessibility to and between centres and villages, and better integration with their surrounding areas will benefit the communities, enhancing job creation and improved quality of life using existing assets.

6.2.4 Chapter 4 of the EIAR (Section 4.8) outlines the benefits to cyclists and pedestrians which will be afforded along the combined length of 53km of existing roads due to reduced traffic flows. The cycle links outlined have the potential to account for modal shifts from private cars to cycling for local trips. Additional mitigation measures to further encourage a modal shift to cycling for local journeys and to enhance the local road network for cyclists were included in the Further Information Response Document submitted in September 2020, which will comprise directional signs to ensure that

cyclists and pedestrians are aware of available routes to follow and to provide information on towns and local amenities within the vicinity.

- 6.2.5 In summary, the project will substantially reduce the level of traffic on the existing N69 and N21 corridors, as traffic transfers to the project due to the journey time saving and reliability benefits it provides. This generates safety benefits for all road users as traffic is reduced through existing settlements. In addition, the reduction in traffic through these existing settlements will have a positive impact from a noise and air quality perspective.
- 6.2.6 The submissions highlighted in this Brief of Evidence and the responses thereto, do not result in any changes to the conclusion of Chapter 5 of the EIAR and therefore do not give rise to any additional mitigation measures.

Appendix 1

The following submissions have been responded to in this Brief of Evidence:

Submissions Responded to in the Brief of Evidence	
ENV-	3, 31
SCH-	14, 18, 28, 30, 44, 47, 88, 102, 111
FI-	2, 7, 8