17. TRAFFIC & TRANSPORTATION

17.1 INTRODUCTION

This chapter outlines the Traffic and Transportation Assessment (TTA) for the proposed project. The assessment considers the receiving environment, assesses the likely significant direct and indirect effects that the proposed project will have on the surrounding road network during construction, operation and decommissioning phases and identifies appropriate mitigation strategies, where required. Potential for cumulative effects with existing and proposed developments are also considered. The proposed project comprises the construction of 13 wind turbines and ancillary works, installation of an on-site control building and a 33 kV private grid connection cable (circa 8.7 km in length) from the on-site control building to a proposed 110 kV substation. The proposed 110 kV substation will connect to the adjacent overhead 110 kV transmission line. There will be temporary accommodation works on the proposed TDR. Refer to Chapter 2 of the EIAR for full details of the proposed project.

For developments of this nature, the construction phase constitutes the critical period of potential impact on the surrounding road network. These impacts primarily relate to the temporary increase in traffic volumes and the specific geometric requirements necessary to accommodate abnormal indivisible loads (AIL) associated with turbine components. The locations where temporary remedial works are required to facilitate turbine delivery have been identified and are detailed within this chapter. To mitigate these impacts during the construction stage, a comprehensive Traffic Management Plan (TMP) has been prepared and is provided in Appendix 17-1.

The purpose of the chapter is to assess likely significant effects of the proposed project on the existing local transport network and to ensure that the proposed site accesses and existing junctions which fall within the scope of the study will have adequate capacity to carry the development traffic and the future growth in existing road traffic to the design year and beyond. An assessment of the accessibility of the site for cyclists and pedestrian users has also been made.

17.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Francis Fidgeon of CST Group Chartered Consulting Engineers. CST Group are in operation for over 19 years and have carried out numerous Traffic and Transport Assessments (TTAs) for a wide variety of residential and commercial developments. CST Group has also produced Traffic and Transport Chapters for a number of EIARs for wind farm projects including Carrowkeel Wind Farm and Castlebanny Wind Farm. Additionally, CST have delivered on a number of Solar Farm and Battery Energy Storage System (BESS) projects in conjunction with Tobin such as Bracklone Solar Farm and BESS, Shannon Solar Farm and BESS and the Shessy Solar Farm and BESS project.

Francis is a Partner in CST Group and a Chartered Engineer with Engineers Ireland. Francis has a Bachelor of Engineering in Civil Engineering and over 36 years' experience in the industry. His career has revolved around infrastructure and road design and construction, urban renewal/public realm schemes, traffic management and more recently Smarter Travel/Active Travel schemes. He has been involved in traffic modelling and TTA's for over 25 years including EIAR's for renewable projects. Francis is a Transport Infrastructure Ireland (TII) Approved Road Safety Audit Team Leader and has undertaken over 500 Road Safety Audits on national and non-national roads throughout Ireland.

Francis has prepared numerous Traffic Chapters for EIAR's including several renewable projects as detailed above (wind farms, solar farms, Battery Energy Storage Systems, etc).

17.1.2 Limitations Encountered in Compiling Information

No limitations or difficulties were encountered in compiling information for the Traffic Chapter.

17.2 Scoping and Consultation

One pre-planning meeting was held with Mayo County Council, which occurred on Tuesday the 18 August 2026. Matters raised included the use of the adjacent quarry as a potential source of construction materials and the need to assess a range of material supply options within the EIAR rather than relying on a single source. Specific recommendations relating to Traffic and Transportation were as follows:

- Due consideration and assessment of the haul routes for material deliveries and turbine deliveries.
- Traffic and Transport Assessment would be required.

Three meetings were also held with An Comisiún Pleanála, the most recent on Monday 31 August 2026, at which matters relating to Traffic and Transportation were discussed. The Commission advised that the EIAR should address the key traffic and transportation issues identified through the consultation process and supporting documentation.

No response was received from Galway County Council. A response was received from Transport Infrastructure Ireland (TII). No site-specific concerns were raised at the scoping stage; however, TII provided guidance regarding assessment of haul routes, abnormal load movements, impacts on the National Road Network, road safety considerations, grid connection infrastructure and compliance with relevant TII guidance and standards. Further details of the scoping and consultation responses received are provided in Section 1.9.4 of Chapter 1 of this EIAR.

17.3 Assessment Methodology

17.3.1 Relevant Legislation and Guidance

The assessment has been carried out in accordance with the TII's Traffic and Transport Assessment Guidelines PE-PDV-02045 (May 2014) and makes reference to the Mayo County Development Plan 2022-2028. Sections from the Development Plan have been used to help describe the location of the proposed project and its local context.

17.3.2 Desk Study

The study area includes the development junctions, the junctions close to the site, the Haul Routes and the Grid Connection Route. The junctions were selected as the proposed wind farm site is accessed directly from Regional Road R334, and all the junctions selected are all along this road.

The methodology used to conduct the desk study includes:

- Establishing baseline and do-nothing conditions – The existing conditions will be recorded including existing site location and use, surrounding road network, baseline

traffic volumes, growth in baseline volumes (do-nothing) and committed development proposals in the area; and

- Defining the proposed project – This includes size, use, access arrangements, parking, staffing, trip generation and distribution, etc. for the construction, operation and decommission phases of the proposed project. Details relating to the peak construction phase will also be defined.

17.3.3 Field Surveys

The junctions in the vicinity of the proposed wind farm site that have been analysed are as follows:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads
- Junction 4: R334/ Northern Site Access Priority-Controlled T-Junction
- Junction 5: R334/ Southern Site Access Priority-Controlled T-Junction

17.3.4 Assessment Methodology

The methodology used to conduct the assessment includes:

Assessing impact of the proposed project – The impact of the proposed project on the surrounding road network will be assessed using the PICADY and LinSig Modelling Packages. PICADY is a software package for predicting capacities, queue lengths and delays at priority-controlled junctions. LinSig is a software package for predicting degree of saturation/ capacities, queue lengths and delays at signal-controlled junctions. The above software has been used for decades and are considered best practice and acceptable to local authorities.

For the baseline and proposed project conditions, the following years have been considered:

- Survey Year (2025 - baseline conditions only);
- Opening year (2030 - assume proposed project full operation);
- Future Year – 5 years after opening (i.e. 2035); and
- Horizon Year – 15 years after opening (i.e. 2045).
- Baseline conditions will then be compared to full operation case scenarios at the junctions (incorporating any changes in geometry into the models);
- The modelling results will be compiled to determine the operational traffic impact of the proposed project;
- The largest construction traffic impact will also be analysed for the peak construction traffic movements; and,
- Mitigation measures will then be proposed to offset any impacts that may result from the proposed project.

17.3.5 Haul Routes

For wind farm projects there are two types of haul routes required for the transport of the materials to the proposed wind farm during the construction phase. These haul routes are:

- Construction material haul route for standard axle loaded vehicles and
- Construction haul route for AILs i.e. the proposed TDR (Figure 2-3 in Chapter 2)

Deliveries of aggregates to the proposed wind farm site have been kept to a minimum as most will come from the proposed onsite excavation works and borrow pit.

The quarries that will be used and the haul routes to each quarry are shown in Figure 2-7 (see Chapter 2) with more detail in the Traffic Management Plan (TMP) which is provided in Appendix 17-1.

The turbine component delivery and transformer delivery are a specialist operation due to the size of the loads transported. The AIL vehicles will accommodate transport of all abnormal loads.

Proposed TDR Accommodation Works Areas:

For the proposed project, the temporary accommodation works area of the proposed TDR has been assessed based on several considerations including the following:

- Wind turbine specification;
- Ports suitable to receive the turbine components;
- Desk study of alternative proposed TDR; and,
- Swept path analysis of pinch points / junctions on the proposed TDR.

The turbine components will be delivered to the proposed wind farm site via Galway Harbour in Galway City. The route selected for the AILs utilises the national road network as much as feasible from Galway Harbour to the proposed wind farm site. Refer to the Turbine Blade Delivery Route Report in Appendix 2-4 for further details.

The deliveries of turbine components to the proposed wind farm site will be made in convoys of three to five vehicles and mostly at night when roads are quietest. Convoys will be accompanied by escorts at the front and rear operating a “stop and go” system. Although the turbine delivery vehicles are large, they will not prevent other road users or emergency vehicles passing, should the need arise. The delivery escort vehicles will ensure the turbine transport is carried out in a safe and efficient manner with minimal delay or inconvenience for other road users.

There will be some delays to local traffic at pinch points. During these periods, it may be necessary to operate local diversions for through traffic.

Prior to delivery of abnormal loads i.e. turbine components, the Applicant or their representatives, will consult with An Garda Síochána, Transport Infrastructure Ireland (TII), Public Private Partnership (PPP) operators and Mayo and Galway County Councils to obtain all necessary abnormal load permits and discuss the requirement for a Garda escort.

The route out of Galway Harbour has been used for multiple wind farms with similar sized components. The street furniture has already been made demountable for these previous projects and as such there are minimal disruptions anticipated within the city. The road from Galway city to the proposed wind farm site is generally quite straight, utilising National and

Regional road networks, reducing the potential for pinch points. The TDR is shown in Figure 2-3 of Chapter 2 in this EIAR.

17.4 GRID CONNECTION ROUTE

It is proposed to construct a 110 kV substation compound in the townland of Killamanagh, Co Galway. The proposed GCR between the proposed wind farm site and the proposed 110 kV substation will be via 33 kV cables and will partly utilise the public road network. From here, there will be a 110 kV substation with an associated underground loop-in connection to the existing adjacent overhead line via two steel lattice interface masts. This proposed 110 kV substation is entirely within private lands. The grid connection construction methodology is further described in Chapter 2 and Appendix 2-3. The grid connection route is shown in Figure 2-2 in Chapter 2 of this EIAR. Receiving Environment

17.4.1 Existing Site Location and Use

The proposed wind farm site is located approximately 2.5 km southwest of Shrule, Co. Mayo and approximately 3.5 km northwest of Headford, Co. Galway. The site falls within the boundary of the Mayo County Development Plan 2022-2028. The proposed wind farm site is located on either side of the R334 Regional Road. The proposed wind farm site location in relation to the wider road network is detailed in Figure 17- 1.

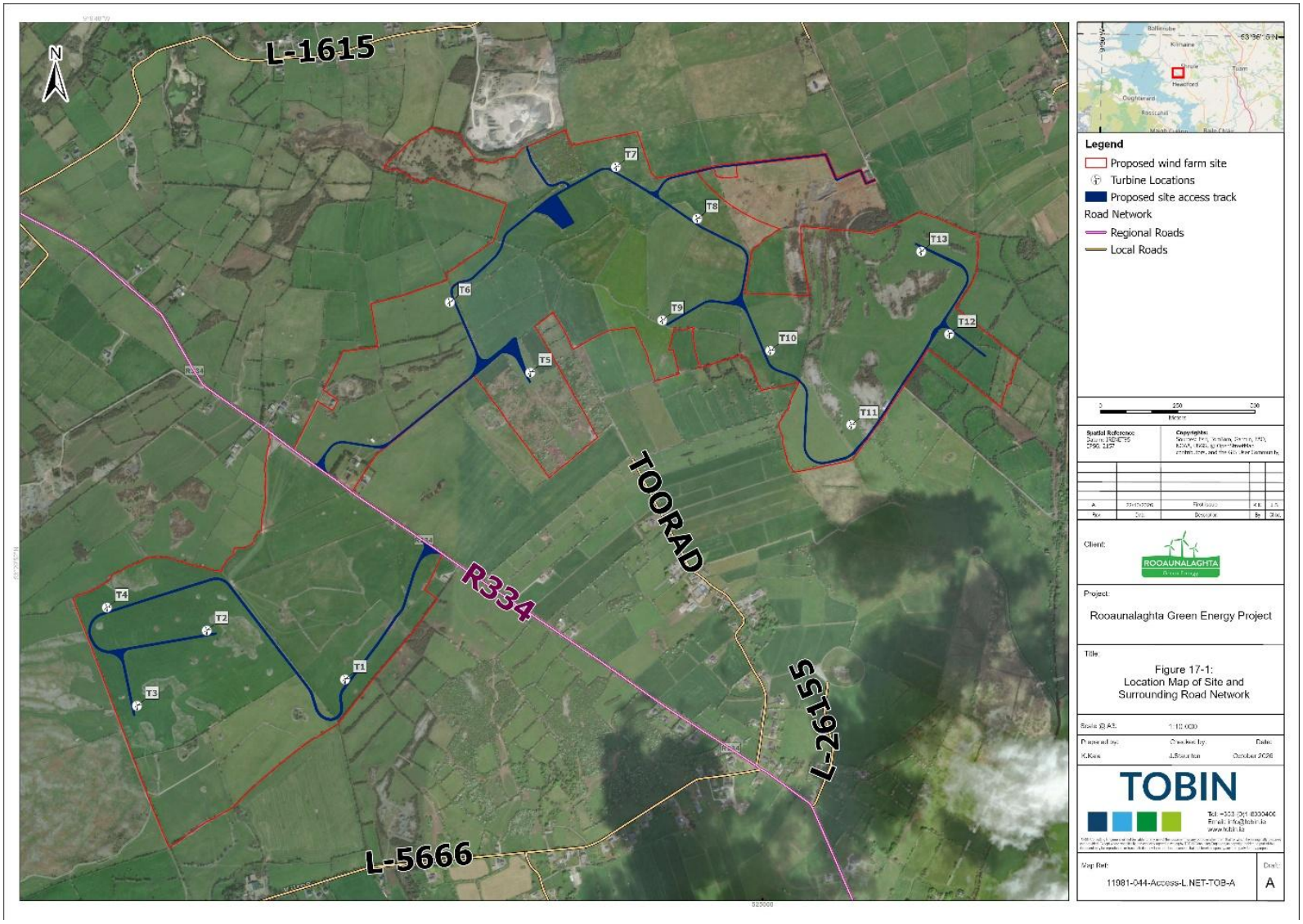


Figure 17- 1: Location Map of Site and Surrounding Road Network

17.4.2 Existing Road Network

The surrounding road network in the vicinity of the proposed wind farm site includes the R334 and the N84.

*R334*The R334 is a single carriageway road with one lane in each direction. The proposed wind farm will be accessed directly off this road via two new site entrances. There are currently no footpaths or cycle facilities on this road in the vicinity of the site.

N84
The R334 connects to the N84 south of the proposed wind farm site in Headford via a signal-controlled crossroads. The N84 is a single carriageway road with one lane in each direction. There are footpaths on both sides of the road within Headford but no cycle facilities.

L2104
The proposed 110 kV substation will be accessed off the L2104. This road connects to the N84 east of the proposed wind farm site. The L2104 is a single carriageway road with one lane in each direction. There are no footpaths or cycle facilities on this road.

It should also be noted there are several other Local Roads in the vicinity of the proposed project which carry low levels of traffic including the L1615, L5666 and the Toorard Road.

17.4.3 Existing Traffic Volumes

A 12-hour traffic survey was conducted at the following junction (see Appendix 17-2 for junction locations) on Thursday 1 May 2025 between 7am and 7pm to determine the baseline traffic flows:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads

Surveys were conducted by Traffic Track Surveys. Resulting peak hours from the surveys were found to be:

- Junction 1: 08:00-09:00 and 16:00-17:00 for AM and PM, respectively.
- Junction 2: 08:00-09:00 and 16:15-17:15 for AM and PM, respectively.
- Junction 3: 08:30-09:30 and 17:30-18:30 for AM and PM, respectively.

The traffic count results are included in Appendix 17-2 and include the calculated morning and evening peak hours. Turning count flows in the vicinity of the proposed wind farm site are detailed in the traffic flow diagrams presented in Appendix 17-3.

17.5 CHARACTERISTICS OF THE PROPOSED PROJECT

17.5.1 Trip Generation

17.5.1.1 Construction Phase Traffic

The construction phase traffic generations are estimated based on the materials / deliveries / disposals required at the site and attributing these deliveries to the associated construction activity according to the construction programme. Table 17- 1 below shows the 1-way and 2-way HV movements for materials and concrete:

Table 17- 1: HV Movements for Materials & Concrete

	1-Way	2-Way
Total HV movements to site (materials and concrete)	**3487**	**6974**
HV movements Concrete only (13 x turbine foundations)	1222	2444
GCR Material	628	1256
110 kV Substation	446	892
HV movements to site (material only, no concrete)	1191	2382

In relation to programme, the following assumptions have been made in the estimation:

- All construction deliveries (excluding concrete pours) have been averaged over the Monday-Friday and half day Saturday working week.
- Concrete pours for each foundation will occur on 1 day as required by the construction methodology.

The HV movements account for the import (stone material, steel, cabling, drainage etc.) and export of material to and from the proposed project site. Typically, the majority of construction work for one turbine will be completed before moving to the next turbine. The estimated peak construction staff expected on site per day is 60, with an assumed reduction to approximately 30 personnel during off-peak activities. It is assumed that not all staff will travel separately to and from the site and therefore less than 60 vehicles per day will likely be used. However, to ensure a robust and conservative assessment, the modelling includes for 60 staff vehicles at the peak period.

Concrete Pour Volumes

The construction methodology for the concrete turbine foundations occurs over 13 days, with each foundation poured in a single day, resulting in 94 HVs arriving onsite per day. Considering the working hours, it is expected that an average of 7-8 HVs will arrive on site per hour.

To mitigate the impact of the construction traffic on the road network and surrounding environment, during the days for the concrete pours all other construction HVs will be limited to essential deliveries and programmed to occur on other days of the construction programme.

Combined Construction Traffic Movements

Combining staff and HV movements we have estimated a maximum of 80 Passenger Car Units (PCUs) arriving in the AM and departing in the PM with an assumed 30 PCUs departing in the AM peak hour and arriving in the PM. These number of combined construction traffic movements have been calculated as follows in Table 17- 2 :

Table 17- 2: Breakdown of Combined Construction Traffic Movements

	Vehicles	PCU
Staff Vehicles	60	60
HGV	8-9	20
Total		**80**

From this, we have assumed a conservative approach that all 80 will arrive in the AM and depart in the PM with 30 PCUs departing in the AM and 30 arriving in the PM.

The modelled total number of vehicular trips generated by the proposed project is shown in Table 17- 3 (Construction Phase).

Table 17- 3: Traffic Generated by the Proposed Project for the Construction Phase

	AM Arrivals	AM Departures	PM Arrivals	PM Departures
Total	80	30	30	80

It should be noted that there is an adjacent quarry which could be used by traversing internal access tracks only and this would significantly reduce the HV content on the public roads.

17.5.1.2 Operation Phase Traffic

In order to estimate the likely volumes of traffic that will be generated by the proposed project, an assumption of 5 arrivals and 5 departures in the AM and the PM peak hours for the operational phase was made. Although only 2-3 staff are anticipated to be on site, this allows for a worst-case scenario of additional staff might be required on occasion for specific tasks or functions.

The modelled total number of vehicular trips generated by the proposed project during the operational phase is shown in Table 17- 4.

Table 17- 4: Traffic Generated by the Proposed Project for the Operational Phase

	AM Arrivals	AM Departures	PM Arrivals	PM Departures
Total	5	5	5	5

17.5.2 Modal Split

Modal split (or modal share) is the percentage of travellers using a particular type of transportation—such as walking, cycling, public transit, or private cars—compared to the total number of trips within a specific area. It measures the distribution of transport modes to analyse transportation efficiency and sustainability.

The general goal is to achieve a mode split of 45% trips by car drivers (maximum) and 55% trips by walking, cycling and public transport and other sustainable modes (minimum targets) as per Government policy stated in the document published by the Department of Transport entitled, 'Smarter Travel, A Sustainable Transport Future 2009-2020'.

The modal split for a development such as this is not very relevant as the operational traffic volumes are relatively low. However, a modal split analysis was carried out for completeness.

The Central Statistics Office (CSO) has previously established (in 2022 census) a modal split for people traveling to work, school or college in the locality as shown below in Table 17- 5and Figure 17- 3. Data was obtained from the Shrule (Mayo) Electoral Division which can be seen in Figure 17- 2 , in which the proposed wind farm site is located.

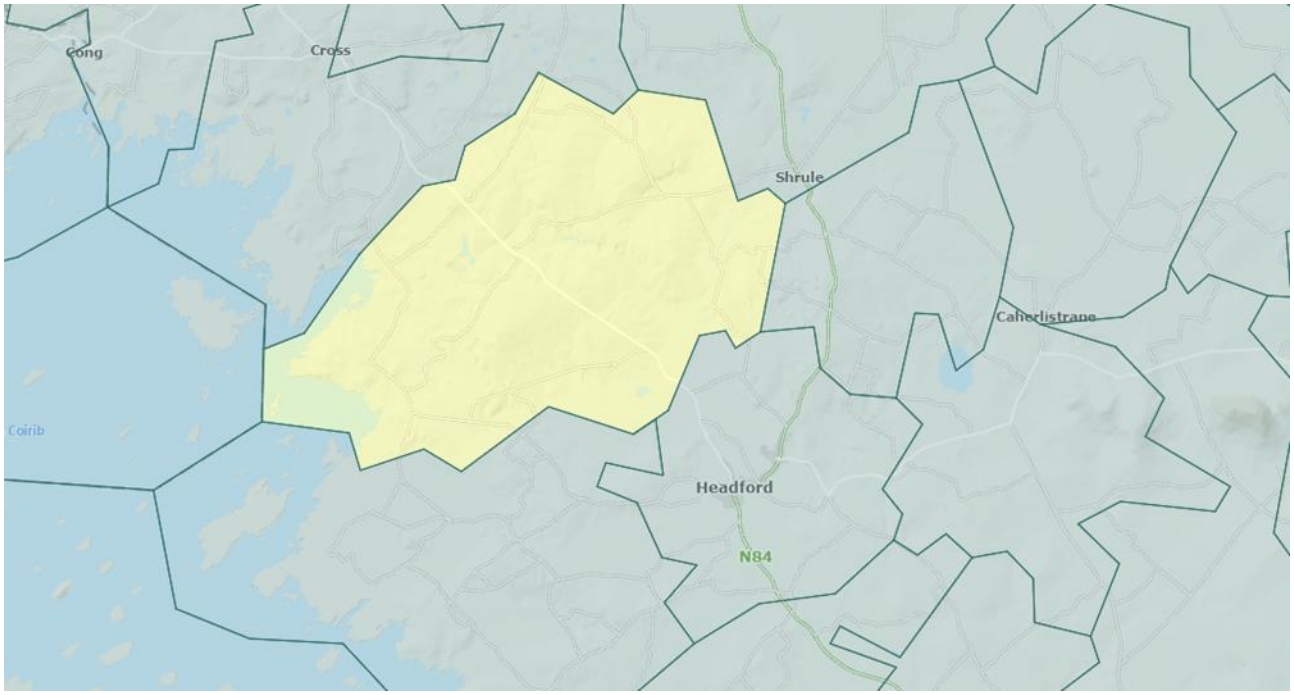


Figure 17- 2: Shrule (Mayo) Electoral Division

Table 17- 5: Mode Share by Trip Purpose (Source: SAPMAP CSO.ie)

Mode	Work	School, College or Childcare	Total
On Foot	10	10	20
Bicycle	2	5	7
Bus, Minibus or Coach	3	38	41
Train, DART or LUAS	1	2	3
Motorcycle or Scooter	1	0	1
Car Driver	367	27	394
Car Passenger	22	235	257
Van	66	1	67
Other (incl. lorry)	6	0	6
Work mainly at or from home	70	0	70
Not Stated	28	16	44
Total	**576**	**334**	**910**

Figure 17- 3, which was taken from the 2022 Census Data, is presented pictorially below to show the relative percentages.

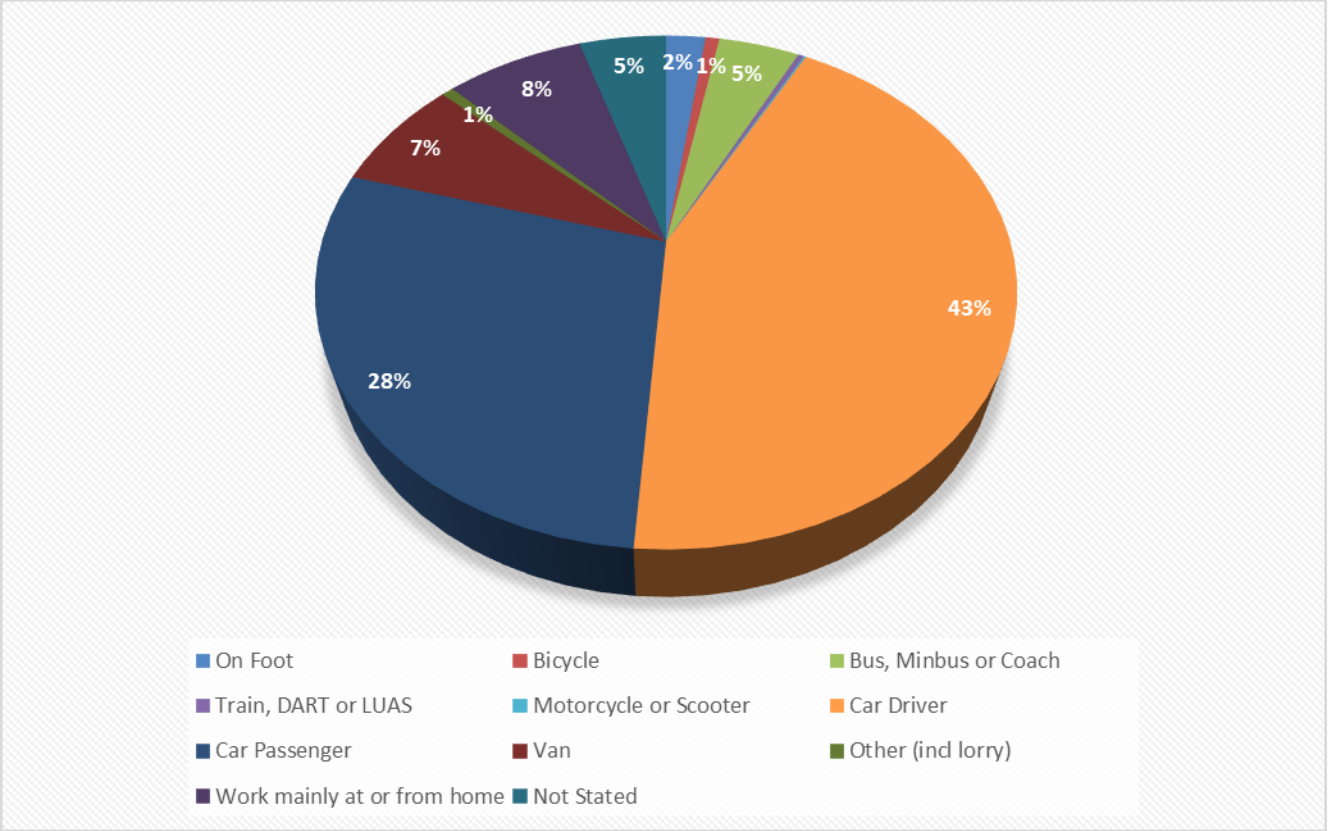


Figure 17- 3: Mode Share for all Trip Purposes (Source: SAPMAP CSO.ie)

As can be seen in the above chart (Figure 17- 3), the existing CSO modal split for the area is a little higher than the maximum of 45% of trips by motorcars stipulated in the Government policy referenced above. For this Electoral Division, approximately 50% of the mode split pertains to car and van drivers. This is a rural area and hence the slightly higher figure is to be expected. Walking provides for 2% overall mode share with bus accounting for 5%.

17.5.3 Trip Distribution

It has been assumed that all trips to the proposed wind farm site will be new trips (i.e. trips that would not appear on the road network without the proposed project). An estimation of an 80/20 split in/out of the sites has been made for traffic generated for both the construction and operation phases. This is based on the location of the wind farm relative to the N84 and Headford (towards Galway City) where the predominant traffic will be to the south but Ballinrobe, Castlebar and Westport are to the north and thus the 20% assumption is in that direction. The 80% of traffic generated will travel to/ from Headford and typically at the traffic signals junction in Headford, existing turning proportions observed from the traffic survey carried out would be used.

17.5.4 Trip Assignment

Vehicular traffic generated by the proposed project shall arrive and depart from/to the proposed wind farm site via the Regional Road R334 and surrounding road network.

It is assumed that the proposed project will be fully operational by 2030. Therefore, the traffic associated with the full operation of the proposed project would appear on the network in 2030.

The peak construction traffic will appear on the network the previous year, so thus the highest traffic to be generated by the proposed project will be in 2029.

The following assessment years have been analysed for the purpose of this report:

- Survey Year – 2025
- Opening year (full operation) – 2030
- Future year – 2035
- Horizon Year – 2045
- Peak Construction Stage - 2029

17.5.5 Parking

Car Parking

The Mayo County Development Plan 2022-2028 does not have a specific car parking standard for this type of development. Accordingly, parking provision has been determined based on the anticipated workforce, and the likely distribution of staff around the site of the proposed project. There are 20 parking spaces proposed within each temporary construction compound for onsite parking for construction vehicles, along with additional spaces at the proposed 110 kV substation. It is also anticipated that some staff vehicles will need to be parked at the location of work within the proposed wind farm site, such as on turbine hardstands. Construction staff will be distributed across the site and not all personnel will be present at a single location simultaneously.

During the Operational Phase maintenance staff visiting the on-site control building will park beside the building. Maintenance staff visiting the turbines will park on the hardstand areas. There are an estimated 2-3 direct jobs for the operational phase.

Bicycle Parking

The Mayo County Development Plan 2022-2028 does not have a specific bicycle parking standard for this type of development.

17.5.6 Pedestrian Facilities

There are currently no footpaths in the vicinity of the proposed wind farm site.

17.5.7 Cycle Facilities

There are currently no cycle lanes in the vicinity of the proposed wind farm site.

17.5.8 Road Safety

The only changes to the road network proposed are two new T-junction site entrances onto the R334 as well as the new 110 kV substation entrance on the L2104. The design team have ensured adequate sightlines are achieved as seen in planning drawing 11981-2049 to 11981-2051. A road safety audit (RSA) was carried out for these locations (See Appendix 17-9). The RSA identified a number of design recommendations relating to visibility provision, roadside drainage and livestock containment measures at the proposed junctions. These recommendations have been considered by the design team and incorporated into the final design, where appropriate. No significant road safety issues have been identified following this that would preclude the proposed development.

17.6 Assessment of Effects

17.6.1 Embedded Mitigation

17.6.1.1 Embedded Measures – Construction Phase

During the construction phase of the proposed project, the following measures will be put in place to reduce the effect on the surrounding environment:

- The site entrance location and design allow vehicles to clear the public road before entering through the site gates. This will ensure no risk of waiting vehicles in the public roadway if the gates are closed on arrival.
- As part of the proposed wind farm design, a wheel cleaning facility is proposed at the site entrances (see planning drawing 11981-2028), and regular cleaning of the sites' construction and main access tracks will be carried out.
- Temporary car parking facilities for the construction workforce will be provided within the temporary construction compound, and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining tracks.
- Monitoring and control of construction traffic will be ongoing during construction works. Construction traffic will be managed to avoid unnecessary trips during peak hours.

17.6.1.2 Embedded Measures – Haul Routes

- Mitigation measures associated with the proposed haul roads: Selection of a viable route with the lowest effect on the road network.
- Avoidance where possible of sensitive receptors and urban settings:
    - The site access route encourages the use of the existing infrastructure in the area while avoiding the local road and potential sensitive receptors. There is a possibility of utilising the direct internal access track to the adjacent quarry. However, as a worst-case scenario the traffic analysis does not include for this. If it is utilised, it will significantly reduce the traffic on local roads.
    - Proposed TDR along national roads with largest capacity to accommodate the vehicles.
    - The typical construction materials (i.e., gravel, aggregates, concrete, etc.) are obtained from borrow pits onsite and from local quarries in the proximity of site.
    - Restricting HV movements during peak sensitive times on the road networks (e.g., at school times).

To mitigate potential effects of the AIL deliveries, these deliveries will be undertaken under Garda (if required) and traffic management escort during off-peak (i.e., night-time) hours. The arrangement of the appropriate abnormal load licences will be obtained by the appointed contractor in a timely fashion on procurement of the AIL. The appointed contractor will liaise with the relevant road's authorities and, An Garda Síochána on the delivery schedule for the AILs.

17.6.1.3 Embedded Measures – Grid Connection Route

To mitigate the effect on the road network, at the time of the construction work and in advance of the required Road Closure, the appointed Contractor will consult and comply with the Roads

Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a Road Closure.

To mitigate the effect of the cable laid within the public road, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the Guidelines for Managing Openings in Public Roads from the Department of Transport, Tourism and Sport (2017), also known as the "Purple Book". The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities in advance of the works. The Contractor will be responsible for arranging for the required road opening licences.

17.6.1.4 Embedded Measures – Decommissioning Phase

During any decommissioning of the proposed project, the following measures will be put in place to reduce the effect on the surrounding environment:

- The contractor would be required to provide wheel cleaning facilities, and regular cleaning of the site's construction and main access tracks would also be required.
- Temporary car parking facilities for the construction workforce would be provided within the site, and the surface of the car park would be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining tracks.
- Monitoring and control of decommissioning traffic will be ongoing during decommissioning works. Decommissioning traffic will be managed to avoid unnecessary trips during peak hours.

17.6.2 Future Baseline Scenario

The future baseline scenario/ Do-Nothing scenario will be the surveyed traffic volumes increased by the predicted growth in traffic without the proposed wind farm.

17.6.2.1 Future Baseline Traffic Growth

In the absence of any specific local traffic growth information, it was assumed that baseline traffic will continue to grow at the levels recommended by TII in the Project Appraisal Guidelines (PAG) – Unit 5.3 'Travel Demand Projections' publication (PE-PAG-02017). The Project Appraisal Guidelines describe three levels of transport model functionality. The simple model, which reflects traffic volumes on the basis of link flows, is best suited to the proposed project. Such models do not attempt any route assignment and hence are applicable for networks where no change in traffic flows will result from a proposed scheme. Growth rates recommended in PAG – Unit 5.3 have been used to determine future traffic flows on the road network within the vicinity of the proposed project. Figures have been used for the Mayo County area which includes the proposed site.

The year of opening of the scheme was assumed to be 2030. The central growth factors from the Project Appraisal Guidelines – Unit 5.3 publication were used and are detailed below:

- TII Link Based Growth Rates: Annual Growth Factor for 2016-2030 = 1.0127 (LVs) and 1.0330 (HVs);
- TII Link Based Growth Rates: Annual Growth Factor for 2030-2040 = 1.0028 (LVs) and 1.0148 (HVs);
- TII Link Based Growth Rates: Annual Growth Factor for 2040-2050 = 1.0026 (LVs) and 1.0192 (HVs).

The annual growth factors for Light Vehicles (LVs) and Heavy Vehicles (HVs) were applied to surveyed values of vehicles counted. The survey (base) year was 2025 and the annual growth factors for the 2029 & 2030 years were taken from the 2016-2030 above. The 2035 was grown from the 2030 using the 2030-2040 above and the 2045 was grown from the 2035 using a combination of the 2030-2040 & 2040-2050 growth factors. Table 17- 6below shows the resultant factors.

Table 17- 6: Resultant Growth Factors

	Survey (Base) Year	Peak Const.	Opening Year	Opening +5 Years	Design Year
Year	2025	2029	2030	2035	2045
Growth Factor (LV)	1.00	1.05	1.07	1.08	1.11
Growth Factor (HV)	1.00	1.14	1.18	1.27	1.50

These growth factors have only been applied to the background traffic for the do-nothing scenario (i.e. not the traffic generated by the proposed project).

With regards to the volume of traffic using the road, the passenger car is adopted as the standard unit and other vehicles are assessed in terms of PCUs (Passenger Car Units). Cars and Light Goods Vehicles are grouped together as LV. All other Goods Vehicles, Buses, and Coaches are defined as HV.

The classification of vehicles in PCUs is shown in Table 17- 7:

Table 17- 7: Classification of Passenger Car Units

Vehicle	PCU
Car	1
Light Goods Vehicle	1
Other Goods Vehicle (2-3 axle)	1.5
Other Goods Vehicle (4-5 axle)	2.3
Bus	2
Motorcycle	0.33

Estimated future baseline traffic flows on the road network in the vicinity of the proposed project were calculated by applying these factors to the surveyed flows. The resulting projected flows are detailed in the traffic flow diagrams presented in Appendix 17-3.

The Do-Nothing traffic is presented in the next section for easy comparison with the Do-Something.

17.6.3 Likely Significant Effects - Construction

The construction phase will be short term in nature. It is anticipated that the construction phase will be approximately 24 months in total. The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 08:00hrs and 20:00hrs weekdays and between 08:00hrs and 13:00hrs on Saturdays.

Construction traffic would consist of the following:

- Private vehicles belonging to site construction staff;
- Private vehicles belonging to site security staff;
- Occasional private vehicles belonging to professional staff (i.e. design team, utility companies);
- Light Goods Vehicles (LV's);
- Heavy construction vehicles, including excavation plant, dumper trucks and other Heavy Vehicles (HV's).

It is anticipated that the largest construction traffic impact would occur in 2029. The maximum construction workforce on site will be approximately 60 personnel.

Junction Analysis

The following junctions on the road network in the vicinity of the proposed wind farm site were assessed for the construction phase, namely:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads
- Junction 4: R334/ Northern Site Access Priority-Controlled T-Junction
- Junction 5: R334/ Southern Site Access Priority-Controlled T-Junction
- Junction 6: N84/ L2104 Junction

These junctions were analysed for 2029 (peak construction) for 'Do Nothing' and 'Do Something' scenarios. However, the R334/ Site Access Priority-Controlled T-Junctions were only analysed with the construction traffic as these are proposed new junctions. Total traffic turning flow diagrams for each analysis scenario have been reproduced in the traffic flow diagrams in Appendix 17-3.

The junction capacity analysis for Junctions 1, 2, 4 & 5 were carried out using the PICADY computer-modelling program (Junctions 9), developed by the Transport Research Laboratory in the UK. This program models capacity, queues and delays at priority-controlled junctions. The capacity analysis for Junction 3 was carried out using the JCT Consultancy Traffic Signal Design & Analysis Software package LinSig. This program models capacity, queues and delays at signal-controlled junctions.

The results of the capacity analysis of the junctions are shown in Table 17- 8. Note that the 'Do Something' column in the table indicates 'plus the proposed project Construction Traffic' for the 2029 development case scenarios.

The R334/ Church Road/ N84 Signal-Controlled Crossroads will be over the recommended capacity (90%) in future years without the development in place. However, it is currently under recommended capacity and will remain so in 2029 and as the construction traffic generation for the proposed project is less than 10% no further analysis is required as stated in the TII Traffic

and Transport Assessment Guidelines PE-PDV-02045. This junction is also over 4km away from the site.

The two-way N84 monthly average daily traffic for September 2026 was 6,280 (Ref. TII Counter TMU N84 050.0 N). The 892 two-way trips for the proposed 110 kV substation construction will occur over a 12-month period giving an average daily addition of 4 two-way trips over the year which equals less than 1% of the N84 flow. Accounting for peaking within the main material haulage time of the programme, the flow would never be greater than 5% of the N84 flows. As the volume of traffic added to the N84/ L2104 junction will be less than 5%, modelling is not required at this junction.

Table 17- 8: Junction Capacity Results for Baseline (Do-nothing) and Construction Development Traffic Case Scenarios

Junction	Year	Peak Hour	RFC*		Max. Queue (pcu**		Max. Delay (s/pcu***	
			Do Nothing	Do Something	Do Nothing	Do Something	Do Nothing	Do Something
R334/ L1615 Priority-Controlled Staggered Crossroads	2029	AM	0.08	0.08	0.10	0.10	9.45	9.57
		PM	0.10	0.10	0.10	0.10	9.95	10.05
R334/ L5666/ Toorard Priority-Controlled Crossroads	2029	AM	0.04	0.04	0.00	0.00	8.10	8.54
		PM	0.02	0.02	0.00	0.00	8.85	9.27
R334/ Church Road/ N84 Signal-Controlled Crossroads	2029	AM	0.87	-	12.80	-	83.90	-
		PM	0.88	-	18.60	-	86.40	-
R334/ Northern Site Access Priority-Controlled T-Junction	2029	AM	-	0.14	-	0.20	-	8.42
		PM	-	0.18	-	0.20	-	9.24
R334/ Southern Site Access Priority-Controlled T-Junction	2029	AM	-	0.09	-	0.10	-	10.44
		PM	-	0.25	-	0.30	-	13.27

***RFC (Ratio of Flow to Capacity. A junction operating at capacity would have an RFC value of 1.**
****PCU (Passenger Car Unit. It is the impact that a vehicle has on the traffic variables compared to a single car.**
*****s/PCU. Delay in seconds experienced per PCU.**

R334/ L1615 Priority-Controlled Staggered Crossroads

2029 Peak Construction Year

The PICADY junction analysis indicates the following effects that the proposed project's construction phase will have on the performance of the junction in 2029, compared to "do nothing" case scenario in the same year:

- The Ratio of Flow to Capacity (RFC) value will remain the same during the AM and PM peak hours;
- The predicted maximum length of queueing vehicles will remain the same during the AM and PM peak hours;
- Delays will increase by less than 1 second on worst affected lane during AM and PM peaks.

While the performance of the junction does become lower, it will still operate well within capacity (with an RFC value of 0.08 in AM Peak, and 0.10 in PM Peak) and at a satisfactory level.

R334/ L5666/ Toorard Priority-Controlled Crossroads

2029 Peak Construction Year

The PICADY junction analysis indicates the following effects that the proposed project's construction phase will have on the performance of the junction in 2029, compared to "do nothing" case scenario in the same year:

- The Ratio of Flow to Capacity (RFC) value will remain the same during the AM and PM peak hours;
- The predicted maximum length of queueing vehicles will remain the same during the AM and PM peak hours;
- Delays will increase by less than 1 second on worst affected lane during AM and PM peaks.

While the performance of the junction does become lower, it will still operate well within capacity (with an RFC value of 0.04 in AM Peak, and 0.02 in PM Peak) and at a satisfactory level.

R334/ Church Road/ N84 Signal-Controlled Crossroads

2029 Peak Construction Year

The LinSig junction analysis indicates the following on the performance of the junction in 2029:

- The Degree of Saturation (DOS) value will be 0.87 during the AM peak hour and 0.88 in the PM peak hour;
- The predicted maximum length of queueing vehicles are predicted to be 12.80 PCUs during the AM peak hour and 18.60 PCUs during the PM peak hour;
- Delays are predicted to be 84 seconds on worst affected lane during the AM peak hour and 86 seconds on worst affected lane during the PM peak hour.

The junction is predicted to operate within capacity and at a satisfactory level in 2029.

R334/ Northern Site Access Priority-Controlled T-Junction

2029 Peak Construction Year

The PICADY junction analysis indicates the following main effects that the proposed project's construction phase will have on the performance of the junction in 2029.

- The Ratio of Flow to Capacity (RFC) value is predicted to be 0.14 during the AM peak hour and 0.18 during PM peak hour;
- The predicted maximum length of queueing vehicles are predicted to be 0.20 PCUs during the AM and PM peak hours;
- Delays are predicted to be 9 seconds on worst affected lane during AM and PM peaks.

The junction is predicted to operate well within capacity and at a satisfactory level.

R334/ Southern Site Access Priority-Controlled T-Junction

2029 Peak Construction Year

The PICADY junction analysis indicates the following main effects that the proposed project's construction phase will have on the performance of the junction in 2029.

- The Ratio of Flow to Capacity (RFC) value is predicted to be 0.09 during the AM peak hour and 0.25 during the PM peak hour;
- The predicted maximum length of queueing vehicles are predicted to be 0.10 PCUs during the AM peak hour and 0.30 PCUs during the PM peak hour;
- Delays are predicted to be 11 seconds on worst affected lane during AM peak and 13 seconds on worst affected lane during the PM peak.

The junction is predicted to operate well within capacity and at a satisfactory level. Given the temporary nature of the peak construction phase, the overall effect of the construction phase is considered **short-term**, **adverse** and **not significant**.

17.6.3.1 Proposed Turbine Delivery Route (TDR) Effect

The effect of the AIL deliveries on the existing road network has been assessed based on the longest component to be delivered to the proposed wind farm site, the turbine blade. The route has been assessed from Galway Harbour to the proposed wind farm site. The swept path analyses typically indicate locations where temporary works are required to accommodate the component deliveries, referred to as nodes. These works will result in relatively low volumes of traffic similar to maintenance works by the Local Authority and will be undertaken for a short period of time. Minor advanced works have been identified along the route including temporary hardstanding areas, temporary removal or relocation of existing signage, and pruning of vegetation. All these temporary works are reversible, and the nodes will be reinstated to their original condition.

During the construction phase, the appointed Contractor and Haulage Specialist/Company will be responsible for the temporary traffic management, agreements, and licensing with the Local Authorities and An Garda Síochána. The hardstanding areas will be temporary in nature, and the land will be reinstated to its original condition on completion of the deliveries. The hardstanding areas will be laid in advance of the delivery of the AILs to site and reinstated immediately after delivery of the final AIL components.

The construction related to the temporary accommodation works at each node will have a likely temporary moderate adverse effect. The adverse effect is due to delays caused to traffic due to the works and the associated traffic management. The hardstanding works at all the nodes is envisaged to take less than 2 weeks in total, with works at each node varying from 1 to 4 days. The removal of the hardstanding will be similar in nature and duration to the construction with a similar potential effect.

During the haul of the AILs limited works will be required at the hardstanding areas (i.e., laying mats, ramps at kerbs / islands, removal of temporary bolt down kerbs etc.) immediately in advance of the AIL movement through the nodes. These works will be undertaken under traffic management and have a brief moderate adverse effect lasting less than a few hours.

At locations requiring removal of traffic signs, these will be made demountable with retention sockets instead of fixed posts in foundation. This will facilitate the temporary removal of the sign face and post immediately in advance of the AIL movement through the node location and erecting after the AIL convoy has passed the node. Reducing the duration of effect at these locations and allowing for them to be readily open to background traffic without the need for significant temporary traffic management.

The making of street furniture demountable will be undertaken in conjunction with the hardstanding works and under the same traffic management. Once the AIL convoy passes the node, under this same traffic management the signs and posts will be reinstated within the retention sockets and the road open to traffic. The effect will be reversible between AIL delivery and on completion of AIL delivery.

The oversail works are primarily hedgerow and vegetation cutting performed by a single tractor with minimal traffic management. These works will be undertaken simultaneously with offsite works in advance of the AIL deliveries.

Description of Effects:

The likely significant effects associated with work areas on the proposed TDR, according to the EPA guidelines, are presented in Table 17- 9 below.

Table 17- 9: *Proposed TDR – EPA Criteria Effect*

Extent	Scenario	Significance	Duration
Proposed TDR	Advanced Works/ Maintenance Works	Moderate Adverse	Temporary
	AIL Convoy	Moderate Adverse	Brief/ Temporary

The advanced works to accommodate the haulage of the AILs will be moderate adverse due to the small volume of works required on the route. The vegetation pruning, and signage removal/relocation will be undertaken as per typical Local Authority maintenance works with low volumes of maintenance traffic associated.

For the transport of the AILs by convoy, the volume per convoy is low (i.e., 3 to 5 AILs). However, the effect on the existing road environment will be moderate. To allow the vehicles to travel on

some of the roads of narrower width, temporary traffic management operations will be required.

17.6.3.2 Proposed Grid Connection Route (GCR) and 110 kV substation Effect

As detailed in section 17.3, the overall length between the proposed 110 kV substation and the existing overhead line is approximately 1 km, all of which is within private lands, with no use of public roads.

It is anticipated that the grid connection works will progress by an average of 200 m per week, with no more than 100 m of trench open at any one time. The proposed GCR works will require a temporary road closure of local roads and a temporary lane closure of regional roads for trenched crossings and the longitudinal cable run.

The trench will be suitably backfilled at the end of the working day, with the provision of suitable temporary surfacing material, as may be requested by the local authority. Such closures will only be undertaken following consultation with the local authority and following any requests for notifications by the local authority. A road opening licence will also be applied for the principal contractor to the local authority.

Grid connection works will result in temporary disruption for local road users. However, diversions will be provided as work progresses, local accesses will be maintained, and activities will be carried out at off-peak times. The Contractor will carry out such temporary lane or road closures only for the duration of the working days. At the time of this construction work and in advance of the required lane or road closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing the closure.

Description of Effects:

Table 17- 10: Grid Connection Route – EPA Criteria Effect

Extent	Scenario	Significance	Duration
GCR	Construction Works	Moderate Adverse	Temporary

Due to the temporary lane and road closure required during the grid connection advanced works, the proposed GCR will have a moderate effect on the road network as shown in Table 17- 10.

17.6.4 Likely Significant Effects - Operation

Junction Analysis

The following junctions on the road network in the vicinity of the proposed wind farm site were assessed for opening, future and horizon years, namely:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads
- Junction 4: R334/ Northern Site Access Priority-Controlled T-Junction

- Junction 5: R334/ Southern Site Access Priority-Controlled T-Junction
- Junction 6: N84/ L2104 Junction

These junctions were analysed for 2030 (opening year), 2035 (future year) and 2045 (horizon year) for 'Do Nothing' and 'Do Something' scenarios. However, the R334/ Site Access Priority-Controlled T-Junctions were only analysed with the proposed project as these are proposed junctions. The proposed project would be operational in 2030 and thus its trip generation was included in opening, future and horizon year development case scenarios. Total traffic turning flow diagrams for each analysis scenario have been reproduced in the traffic flow diagrams in Appendix 17-3.

The junction capacity analysis for Junctions 1,2, 4 & 5 were carried out using the PICADY computer-modelling program (Junctions 9), developed by the Transport Research Laboratory in the UK. This program models capacity, queues and delays at priority-controlled junctions. The capacity analysis for Junction 3 was carried out using the JCT Consultancy Traffic Signal Design & Analysis Software package LinSig. This program models capacity, queues and delays at signal-controlled junctions.

The results of the capacity analysis of the junctions are shown in Table 17- 8. Note that the 'Do Something' column in the table indicates 'plus the proposed project' for the 2030 development case scenarios and 'plus the proposed project and the indicative future development' for the 2035 and 2045 case scenarios.

Table 17- 11shows "n/a" entries due to the fact that in May 2025, when the survey was carried out, the proposed project was not operational.

The R334/ Church Road/ N84 Signal-Controlled Crossroads will be over the recommended capacity (90%) in future years without the development in place however as the operational traffic generation for the proposed project is less than 5% no further analysis is required as stated in the TII Traffic and Transport Assessment Guidelines PE-PDV-02045. This junction is also over 4 km away from the site.

There will be no significant effect on Junction 6 as the additional traffic is very small relative to the N84 flows.

Table 17- 11: Junction Capacity Results for Baseline (Do-nothing) and Proposed Project Traffic Case Scenarios

Junction	Year	Peak Hour	RFC*		Max. Queue (pcu**		Max. Delay (s/pcu***	
			Do Nothing	Do Something	Do Nothing	Do Something	Do Nothing	Do Something
R334/ L1615 Priority-Controlled Staggered Crossroads	2025	AM	0.07	n/a	0.10	n/a	9.26	n/a
		PM	0.09	n/a	0.10	n/a	9.74	n/a
	2030	AM	0.08	0.08	0.10	0.10	9.44	9.45
		PM	0.10	0.10	0.10	0.10	10.06	10.07
	2035	AM	0.08	0.08	0.10	0.10	9.49	9.50

Junction	Year	Peak Hour	RFC*		Max. Queue (pcu**		Max. Delay (s/pcu***	
			Do Nothing	Do Something	Do Nothing	Do Something	Do Nothing	Do Something
		PM	0.10	0.10	0.10	0.10	10.18	10.19
	2045	AM	0.09	0.09	0.10	0.10	9.64	9.65
		PM	0.12	0.12	0.10	0.10	10.47	10.48
R334/ L5666/ Toorard Priority-Controlled Crossroads	2025	AM	0.04	n/a	0.00	n/a	8.01	n/a
		PM	0.02	n/a	0.00	n/a	8.71	n/a
	2030	AM	0.04	0.04	0.00	0.00	8.15	8.19
		PM	0.02	0.02	0.00	0.00	8.86	8.90
	2035	AM	0.04	0.04	0.00	0.00	8.19	8.22
		PM	0.02	0.02	0.00	0.00	8.92	8.96
	2045	AM	0.05	0.05	0.00	0.00	8.29	8.33
		PM	0.02	0.02	0.00	0.00	9.13	9.18
R334/ Church Road/ N84 Signal-Controlled Crossroads	2025	AM	0.82	-	11.10	-	75.60	-
		PM	0.83	-	16.20	-	78.40	-
	2030	AM	0.88	-	13.40	-	87.40	-
		PM	0.89	-	19.10	-	87.80	-
	2035	AM	0.90	-	14.30	-	93.40	-
		PM	0.90	-	20.10	-	92.80	-
	2045	AM	0.95	-	16.50	-	111.90	-
		PM	0.93	-	21.50	-	112.20	-
R334/ Northern Site Access Priority-Controlled T-Junction	2025	AM	-	n/a	-	n/a	-	n/a
		PM	-	n/a	-	n/a	-	n/a
	2030	AM	-	0.01	-	0.00	-	7.78
		PM	-	0.01	-	0.00	-	7.59
	2035	AM	-	0.01	-	0.00	-	7.82
		PM	-	0.01	-	0.00	-	7.61

Junction	Year	Peak Hour	RFC*		Max. Queue (pcu**		Max. Delay (s/pcu***	
			Do Nothing	Do Something	Do Nothing	Do Something	Do Nothing	Do Something
	2045	AM	-	0.01	-	0.00	-	7.89
		PM	-	0.01	-	0.00	-	7.67
R334/ Southern Site Access Priority-Controlled T-Junction	2025	AM	-	n/a	-	n/a	-	n/a
		PM	-	n/a	-	n/a	-	n/a
	2030	AM	-	0.01	-	0.00	-	9.44
		PM	-	0.02	-	0.00	-	10.12
	2035	AM	-	0.01	-	0.00	-	9.49
		PM	-	0.02	-	0.00	-	10.18
	2045	AM	-	0.01	-	0.00	-	9.60
		PM	-	0.02	-	0.00	-	10.32

***RFC (Ratio of Flow to Capacity. A junction operating at capacity would have an RFC value of 1.**
****PCU (Passenger Car Unit. It is the impact that a vehicle has on the traffic variables compared to a single car.**
*****s/PCU. Delay in seconds experienced per PCU.**

R334/ L1615 Priority-Controlled Staggered Crossroads

2045 Horizon-Year

The PICADY junction analysis indicates the following impact that the proposed project will have on the performance of the junction in the Horizon-Year 2045, compared to "do nothing" case scenario in the same year:

- The Ratio of Flow to Capacity (RFC) value will remain the same during the AM and PM peak hours;
- The predicted maximum length of queuing vehicles will remain the same during the AM and PM peak hours;
- Delays will remain the same during the AM and PM peak hours.

Due to the insignificant traffic added the capacity performance of the junction remains unchanged.

R334/ L5666/ Toorard Priority-Controlled Crossroads

2045 Horizon-Year

The PICADY junction analysis indicates the following impact that the proposed project will have on the performance of the junction in the Horizon-Year 2045, compared to "do nothing" case scenario in the same year:

- The Ratio of Flow to Capacity (RFC) value will remain the same during the AM and PM peak hours;
- The predicted maximum length of queuing vehicles will remain the same during the AM and PM peak hours;

- Delays will remain the same during the AM and PM peak hours.

Due to the insignificant traffic added the capacity performance of the junction remains unchanged. *R334/ Church Road/ N84 Signal-Controlled Crossroads*

2045 Horizon-Year

The LinSig junction analysis indicates the following on the performance of the junction in 2045:

- The Degree of Saturation (DOS) value will be 0.95 during the AM peak hour and 0.93 in the PM peak hour;
- The predicted maximum length of queueing vehicles are predicted to be 16.50 PCUs during the AM peak hour and 21.50 PCUs during the PM peak hour;
- Delays are predicted to be 112 seconds on worst affected lane during the AM and PM peak hours.

R334/ Northern Site Access Priority-Controlled T-Junction

2045 Horizon-Year

The PICADY junction analysis indicates the following main effects that the proposed project will have on the performance of the Junction in the Horizon-Year 2045:

- The Ratio of Flow to Capacity (RFC) value is predicted to be 0.01 during the AM and PM peak hours;
- The predicted maximum length of queuing vehicles are predicted to be 0.00 during the AM and PM peak hours;
- Delays are predicted to be 8 seconds on worst affected lane during AM and PM peaks.

The junction is predicted to operate well within capacity and at a satisfactory level.

R334/ Southern Site Access Priority-Controlled T-Junction

2045 Horizon-Year

The PICADY junction analysis indicates the following main effects that the proposed project will have on the performance of the Junction in the Horizon-Year 2045:

- The Ratio of Flow to Capacity (RFC) value is predicted to be 0.01 during the AM peak hour and at 0.02 during the PM peak hour;
- The predicted maximum length of queuing vehicles are predicted to be 0.00 during the AM and PM peak hours;
- Delays are predicted to be 10 seconds on worst affected lane during AM and PM peaks.

The junction is predicted to operate well within capacity and at a satisfactory level.

The overall effect of the operational phase is considered long-term, adverse and imperceptible.

The results of the PICADY & LinSig analysis for the junctions are reproduced in full in Appendices 17-4, 17-5, 17-6, 17-7 and 17-8.

17.6.4.1 Proposed Grid Connection Route (GCR) and 110 kV substation Effect

During the operational phase, the proposed GCR and 110 kV substation will require routine maintenance. The operational traffic volumes will result in a low increase in traffic due to a small

number of people accessing the site with imperceptible consequences on the road network over the 35 years of operation as shown in Table 17- 12 below.

The staff employed during the operational phase of the proposed project will also undertake routine inspection and maintenance of the proposed 110 kV substation and associated grid connection infrastructure (GCR). A maximum of 2-3 personnel are anticipated on site for very occasional maintenance visits.

Description of Effects:

Table 17- 12: Grid Connection Route – EPA Criteria Effect

Extent	Scenario	Significance	Duration
GCR and 110 kV Substation	Maintenance Works	Imperceptible	Long-Term (35 Years)

17.6.5 Likely Significant Effects – Decommissioning

The decommissioning will occur 35 years after opening, which would be 2065. The traffic volumes for decommissioning would be similar to the construction phase. Background traffic volumes at that time may be higher than at present but no traffic growth prediction factors are currently available beyond 2050. With the spare capacity that is available during the construction phase it is very likely the traffic effect of the decommissioning will be ***short-term, adverse and not significant.*** An updated TTA will be carried out at that time.

17.6.5.1 Proposed Turbine Removal Effect

The removal of the wind turbines will be a reverse of the AIL deliveries. Therefore, the effect will be similar and are shown in Table 17- 13.

Table 17- 13: Proposed TDR – EPA Criteria Effect

Extent	Scenario	Significance	Duration
Turbine Removal	Advanced Works/ Maintenance Works	Moderate Adverse	Temporary
	AIL Convoy	Moderate Adverse	Brief/ Temporary

17.6.5.2 Proposed Grid Connection Route (GCR) and 110 kV substation Effect

The proposed 110 kV substation and associated 110 kV grid connection infrastructure will remain in place following the lifecycle of the proposed project and will form part of the national electricity grid network. Therefore, this infrastructure will be retained as a permanent asset and will not be decommissioned.

The 8.7 km long 33 kV connection will be decommissioned but will not be dug out as this would cause unnecessary works as the redundant ducting and cabling can remain in the ground without causing significant effects (Table 17- 14). Thus, no traffic effect is anticipated.

Description of Effects:

Table 17- 14: Grid Connection Route – EPA Criteria Effect

Extent	Scenario	Significance	Duration
GCR	Maintenance Works	Imperceptible	Long-Term

17.7 MITIGATION MEASURES

17.7.1 Mitigation Measures – Construction Phase

During the project design, embedded mitigation was a fundamental part of the design process (see Section 17.6.1). This included the construction phase of the proposed project as outlined above.

A comprehensive Traffic Management Plan (TMP) has been prepared and is provided in Appendix 17-1. The mitigation measures outlined in that and below will be implemented during the construction phase of the Proposed Development and will be incorporated into the Construction Environmental Management Plan (CEMP) (Appendix 2-2) and TMP.

17.7.1.1 Proposed Wind Farm Mitigation Measures

The following measures will be implemented to minimise construction traffic effects associated with the wind farm infrastructure:

- Sufficient advance warning signage shall be provided in advance of all site entrances on the R334 and L2104 and maintained for the duration of the construction phase.
- HGV movements shall, where practicable, be scheduled to avoid peak traffic periods and school opening and closing times.
- Loading and unloading of deliveries shall be undertaken within designated areas inside the site compound to avoid obstruction of the public road network.
- Access for residents, agricultural traffic, businesses and emergency services shall be maintained throughout the construction phase, where practicable.
- Wheel wash facilities shall be provided at site exits, where required, to minimise the transfer of mud and debris onto public roads.
- Public roads in the vicinity of the site shall be inspected regularly and cleaned, where necessary, to maintain road safety and cleanliness.
- Adequate barriers, signage, cones and warning systems shall be provided around temporary works areas and excavations in accordance with relevant health and safety requirements.
- Pre-construction and post-construction condition surveys shall be undertaken along approved haul routes, including public roads, bridges and associated infrastructure.

- Any damage attributable to construction activities shall be repaired and reinstated following agreement with the relevant Roads Authority.

17.7.1.2 Proposed Turbine Delivery Route (TDR) Mitigation Measures

In addition to the measures in Section 17.7.1.1, the following measures will be implemented in relation to turbine component deliveries and AILs:

- Temporary traffic management measures, including stop/go systems, temporary traffic signals, escort vehicles and traffic marshals, shall be implemented where required.
- Temporary lane closures, road closures and traffic diversions shall be agreed in advance with the relevant Roads Authority and An Garda Síochána.
- Abnormal load deliveries shall be managed in accordance with agreed delivery protocols and permit requirements.
- Where sufficient road width is available, stop/go arrangements shall be utilised to minimise the requirement for road closures.
- Advance notification of abnormal load movements shall be provided to relevant stakeholders, road authorities and emergency services, where required.

17.7.1.3 Proposed Grid Connection Route (GCR) Mitigation Measures

In addition to the measures in Section 17.7.1.1, the following measures will be implemented during construction of the grid connection (including 110 kV substation and all underground cables) infrastructure:

- All road opening works shall be undertaken in accordance with the Guidelines for Managing Openings in Public Roads (Purple Book) and any relevant road opening licence requirements.
- All permits, licences and approvals required for works affecting the public road network shall be obtained prior to commencement of the relevant works.
- Traffic management measures shall be implemented at all locations where works have the potential to affect public roads.
- Temporary traffic management and reinstatement measures shall be undertaken in consultation with the relevant Roads Authorities.

The mitigation measures outlined above have been assessed as part of this EIAR and will be implemented through the CEMP (Appendix 2-2) and the TMP (Appendix 17-1) for the duration of the construction phase.

A Construction & Environmental Management Plan is included in Appendix 2-2 which also details the mitigation measures that will be implemented during the construction phase.

Pre and post construction pavement and bridge surveys will be carried out to determine any road deterioration that needs to be rectified. This will be agreed with the Planning Authority prior to construction and where damage is caused by the works road surfaces will be repaired and reinstated.

17.7.2 Mitigation Measures – Operational Phase

No mitigation measures are required during the operation phase as very few operational (maintenance) staff are required on site resulting in minimal traffic movements that would be no more than typical existing/ agricultural use.

17.7.3 Mitigation Measures – Decommissioning Phase

During the project design development, embedded mitigation was a fundamental part of the design process. This included the decommission phase of the proposed project as outlined above.

To allow the vehicles to travel on some of the roads of narrower width, temporary traffic management operations will be implemented.

17.8 Residual Effects

Most mitigation measures proposed (e.g. wheel washing, temporary car park, site entrance gate setback, etc.) are embedded measures as outlined above to offset any likely significant effects of the proposed project.

PICADY/LinSig results in Table 17- 8 and Table 17- 11 show that the RFC/ delay values do not experience significant change between the 'Do Nothing' scenario and the 'Do Something' scenario.

17.8.1 Residual Effects – Construction Phase

The residual traffic effects of the proposed project for the Construction Phase will be **short-term, adverse** and **not significant**.

17.8.1.1 Proposed Turbine Delivery Route (TDR) Effects

The residual traffic effects associated with the TDR will be **short-term, adverse** and **not significant.**

17.8.1.2 Proposed Grid Connection Route (GCR) Effects

The residual traffic effects associated with the GCR will be **short-term, adverse**, **slight** and **not significant.**

17.8.2 Residual Effects – Operational Phase

During operational phase, the proposed wind farm and GCR will require routine maintenance. The operational traffic volumes will result in a low increase in traffic with imperceptible consequences on the road network over the 35 years of operation. Therefore, the residual traffic effects of the proposed project for the Operational Phase will be **long-term**, **adverse**, **imperceptible** and **not significant**.

17.8.3 Residual Effects – Decommissioning Phase

The residual traffic effects of the proposed project for the Decommissioning Phase will be **short-term, adverse** and **not significant**.

17.8.3.1 Proposed Turbine Removal Effects

The residual traffic effects associated with the turbine removal are **short-term adverse** and **not significant.**

17.8.3.2 Proposed Grid Connection Route (GCR) Effects

The proposed 110 kV substation and the proposed GCR will remain in place following the lifecycle of the proposed project and will form part of the national electricity grid network. Therefore, the substation and proposed GCR will be retained as a permanent structure and will not be decommissioned. Therefore, the residual traffic effects associated with the decommissioning of the GCR will be **long term**, **imperceptible,** and **not significant** in EIA terms.

17.9 CUMULATIVE EFFECTS

17.9.1 Cumulative Effects – Construction Phase

A review of the planned and permitted projects within the vicinity of the proposed wind farm site (see Appendix 1-5) was undertaken to identify developments with the potential for cumulative construction phase impacts.

The traffic effect associated with the projects listed in Appendix 1-5, including the recently refused Shancloon Wind Farm and ongoing nearby quarry operations, would not be perceptible at the proposed wind farm site. Furthermore, the construction traffic associated with them may not coincide in any case. In any case, most junctions assessed for additional traffic effects have ample spare capacity for any other concurrent development in the area. In relation to Junction 3, the Degree of Saturation is predicted to be still less than 90% in 2030. The peak construction traffic for this proposed wind farm is predicted to occur in 2029 so the cumulative effect of other developments that may coincide is still likely to be less than 10% in 2030 and thus not a predicted significant effect.

17.9.2 Cumulative Effects – Operational Phase

As the operational traffic generated by the proposed project is a low number of maintenance trips only, it is no more than what would be accounted for in standard growth factors so any cumulative effects for the operational stage would not be significant.

17.9.3 Cumulative Effects – Decommissioning Phase

The decommissioning would likely occur in the year 2065 and the cumulative effects at that time cannot be reliably predicted/ accounted for at the time of writing.

17.10 CONCLUSION

A manual classified traffic count was carried out on the following junctions:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads

Resulting peak hours from the surveys were found to be:

- Junction 1: 08:00-09:00 and 16:00-17:00 for AM and PM, respectively.
- Junction 2: 08:00-09:00 and 16:15-17:15 for AM and PM, respectively.
- Junction 3: 08:30-09:30 and 17:30-18:30 for AM and PM, respectively.

An assumption of 5 arrivals and 5 departures in the AM and the PM peak hours for the operational phase was made. The estimated peak construction staff expected on site per day is 60, with an assumed reduction to approximately 30 personnel during off-peak activities. It is assumed that staff will not travel separately to and from the site and therefore less than 60 vehicles per day will likely be used. However, as a worst-case scenario the modelling includes for 60 staff vehicles at the peak period.

It is expected that an average of 7-8 HVs will arrive on site per hour at the busiest times (i.e. restricted to the 13 no. days of the concrete foundation pours).

Combining staff and HV movements we have estimated a maximum of 80 Passenger Car Units (PCUs) arriving in the AM and departing in the PM with an assumed 30 PCUs departing in the AM peak hour and arriving in the PM.

Capacity analysis was carried out on the following junctions:

- Junction 1: R334/ L1615 Priority-Controlled Staggered Crossroads
- Junction 2: R334/ L5666/ Toorard Priority-Controlled Crossroads
- Junction 3: R334/ Church Road/ N84 Signal-Controlled Crossroads
- Junction 4: R334/ Northern Site Access Priority-Controlled T-Junction
- Junction 5: R334/ Southern Site Access Priority-Controlled T-Junction

The priority-controlled junctions analysed are predicted to operate well-below the recommended maximum capacity (85%) for priority-controlled junctions with all development in place.

The R334/ Church Road/ N84 Signal-Controlled Crossroads will be over capacity in future years without the development in place however as the traffic generation for the proposed project is less than 5% no further analysis is required. This junction is also over 4km away from the site.

The overall construction, operational and decommissioning traffic effect is **not significant** on the surrounding road network. **No significant cumulative effects** are predicted either.

17.11 REFERENCES

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