

# **Environmental Impact Assessment Report (EIAR)**

## **Volume 3 of 6: Environmental Assessment**

### **(Chapter 7) Traffic and Transport**

Document no: 32105801/EIARC7

Version: Final

December 2025

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## Acronyms and Abbreviations

Acronym	Meaning
AADT	Annual Average Daily Traffic
AE	Access and Egress
ATC	Automatic Traffic Counts
BPS	Booster Pumping Station
BPT	Break Pressure Tank
CC	Construction Compound
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
FCV	Flow Control Valve
FWD	Falling Weight Deflectometer
GDA WRZ	Greater Dublin Area Water Resource Zone
HLPS	High Lift Pumping Station
HV	Heavy Vehicle
IEMA	Institute of Environmental Management and Assessment
JTC	Junction Turning Counts
LA	Local Authority
LV	Light Vehicle
Mld	Megalitres per day
PAG	Project Appraisal Guidelines
PCU	Passenger Car Unit
PSD	Pipe Storage Depot
RDX	Road crossing
RFC	Ratio of Flow to Capacity
RTC	Road Traffic Collision
RWI&PS	Raw Water Intake and Pumping Station
RWRM	Raw Water Rising Main
TII	Transport Infrastructure Ireland
TMO	Traffic Management Operative
TMP	Traffic Management Plan
TPR	Termination Point Reservoir
TTA	Traffic and Transport Assessment
WTP	Water Treatment Plant

## 7. Traffic and Transport

### 7.1 Introduction

1. This chapter reports the traffic assessment of the likely significant effects of the Proposed Project, in accordance with the EIA Directive.
2. The Proposed Project will generate Construction Phase traffic requiring the use of agreed Haul Roads across Limerick, Clare, Tipperary, Offaly, Laois, Kildare, and South Dublin. A total of 57 junctions along these roads have been identified for the traffic assessment, together with existing pedestrian, cyclist, and public transport facilities.
3. This chapter sets out the methodology used, describes the existing environment, examines the predicted effects of the Proposed Project during the Construction and Operational Phases, proposes mitigation measures, and identifies residual effects. The assessment has been conducted in accordance with current relevant best practice, standards and guidance.
4. The assessment reported in this chapter has considered the mitigation that has been embedded into the design to avoid or minimise environmental effects. Embedded mitigation is an intrinsic part of the Proposed Project design and therefore the assessment of effects assumes all embedded design measures are in place. Embedded mitigation relevant to this topic is included in Section 7.5.2.
5. The traffic assessment considers the changes between the 'Do-Something' (with the Proposed Project) compared with the 'Do-Minimum' (without the Proposed Project) scenarios.
6. Table 7.1 provides a summary of the principal Proposed Project Infrastructure. A full description is provided in Chapter 4 (Proposed Project Description) of this Environmental Impact Assessment Report (EIAR).

**Table 7.1: Summary of Principal Proposed Project Infrastructure**

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<b>Permanent Infrastructure</b>	
Raw Water Intake and Pumping Station (RWI&PS) (Infrastructure Site) County Tipperary	<ul style="list-style-type: none"> <li>• The RWI&amp;PS would be located on a permanent site of approximately 4ha on the eastern shore of Parteen Basin in the townland of Garrynateel, County Tipperary. In addition, approximately 1ha of land would be required on a temporary basis during construction.</li> <li>• The RWI&amp;PS has been designed to abstract enough raw water from the River Shannon at Parteen Basin to provide up to 300Mld of treated water by 2050.</li> <li>• The RWI&amp;PS site would include a bankside Inlet Chamber, the Raw Water Pumping Station Building, two Microfiltration Buildings, an Electricity Substation and Power Distribution Building, and Dewatering Settlement Basins. The tallest building on the RWI&amp;PS site would be the Microfiltration Buildings which would be 10.9m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>• Power for the RWI&amp;PS would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation.</li> <li>• A new permanent access road from the R494 would be constructed to access the proposed RWI&amp;PS site. This access road would be 5m in width and 670m in length.</li> <li>• The RWI&amp;PS site boundary would be fenced with a stock proof fence and a 2.4m high paladin security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.</li> </ul>

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Raw Water Rising Mains (RWRMs) (Pipeline) County Tipperary	<ul style="list-style-type: none"> <li>The RWRMs would consist of two 1,500mm underground pipelines made from steel that would carry the raw water approximately 2km from the RWI&amp;PS to the Water Treatment Plant (WTP) at Incha Beg, County Tipperary. The water would be pumped from the pumping station at the RWI&amp;PS to the WTP.</li> <li>Twin RWRMs have been proposed so that one RWRM can be taken out of service for cleaning and maintenance while still providing an uninterrupted flow of raw water through the other RWRM.</li> <li>The RWRMs would include Line Valves, a Lay-By, Air Valves and Cathodic Protection.</li> <li>A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the RWRMs.</li> </ul>
Water Treatment Plant (WTP) (Infrastructure Site) County Tipperary	<ul style="list-style-type: none"> <li>The WTP would be located on a permanent site of approximately 31ha at Incha Beg, County Tipperary, 2.6km north-east of the village of Birdhill, and 2km east of the proposed RWI&amp;PS. In addition, approximately 2.5ha of land would be required on a temporary basis during construction.</li> <li>The WTP would treat the raw water received from the RWI&amp;PS via the RWRMs. Once treated, the High Lift Pumping Station (HLPS) would deliver the treated water onwards from the WTP to the Break Pressure Tank (BPT) at Knockanacree, County Tipperary, via the Treated Water Pipeline.</li> <li>The WTP would comprise of a series of tanks and buildings including the Raw Water Balancing Tanks, Water Treatment Module Buildings, Sludge Dewatering Buildings, Sludge Storage Buildings, Clear Water Storage Tanks and HLPS, an Electricity Substation and Power Distribution Building, and the Control Building. The tallest building on the WTP site would be the Water Treatment Module Buildings which would be up to 15.6m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>There would also be a potential future water supply connection point at the junction between the permanent access road and the R445.</li> <li>Power for the WTP would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation. Solar panels would be placed on the roofs of the Chemical Dosing Manifold Building, the Water Treatment Module Buildings, Clear Water Storage Tanks and Sludge Storage Buildings, and at a number of locations on the ground to supplement the mains power supply.</li> <li>A new permanent access road from the R445 would be constructed and would be 6m in width and 640m in length.</li> <li>The WTP site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.</li> </ul>
Treated Water Pipeline from the WTP to the BPT (Pipeline) County Tipperary	<ul style="list-style-type: none"> <li>The Treated Water Pipeline from the WTP to the BPT would consist of a single 1,600mm underground steel pipeline which would be approximately 37km long. The water would be pumped through this section of the Treated Water Pipeline by the HLPS.</li> <li>The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection and Lay-Bys.</li> <li>A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.</li> </ul>
Break Pressure Tank (BPT) (Infrastructure Site) County Tipperary	<ul style="list-style-type: none"> <li>The BPT would be located on a permanent site of approximately 7ha in the townland of Knockanacree, County Tipperary. In addition, approximately 0.8ha of land would be required on a temporary basis during construction.</li> <li>The BPT would be located at the highest point of the pipeline. It marks the end of the Treated Water Pipeline from the WTP to the BPT and the start of the Treated Water Pipeline from the BPT to the Termination Point Reservoir (TPR) in the townland of Loughtown Upper, at Peamount, County Dublin. It would act as a balancing tank and would be required to manage the water pressures in the entire Treated Water Pipeline during flow changes, particularly during start-up and shut-down.</li> <li>The BPT site would include the BPT and a Control Building. The BPT would be a concrete tank divided into three cells covered with an earth embankment. The BPT tanks would be 5m in height and partially buried below finished ground levels. The Control Building would be 7.5m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>Access to the BPT site would be via a new permanent access road from the L1064 which would be 5m wide and 794m in length.</li> <li>Power for the BPT would be supplied via an underground connection from the existing overhead power line. Solar panels would be placed on the south facing side of the control building roof, on the BPT and at ground level to the south of the site to supplement the mains power supply.</li> <li>The BPT site boundary would be bounded by the existing hedgerow / tree line with a 2.4m high palisade security fence around the permanent infrastructure. The site would be landscaped in line with the surrounding environment to reduce its visual impact.</li> </ul>

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<p>Treated Water Pipeline from the BPT to the TPR (Pipeline) Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> <li>The Treated Water Pipeline from the BPT to the TPR would consist of a single 1,600mm underground steel pipeline, approximately 133km long.</li> <li>The water would normally travel through the Treated Water Pipeline by gravity; however, flows greater than approximately 165Mld would require additional pumping from the Booster Pumping Station (BPS) in the townland of Coagh Upper, County Offaly.</li> <li>The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection, Lay-Bys and potential future connection points.</li> <li>A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.</li> </ul>
<p>Booster Pumping Station (BPS) (Infrastructure Site) County Offaly</p>	<ul style="list-style-type: none"> <li>The BPS would be located on a permanent site of approximately 2.6ha in the townland of Coagh Upper, County Offaly. It would be located approximately 30km downstream from the BPT. In addition, approximately 3ha of land would be required on a temporary basis during construction.</li> <li>The BPS would be required when the demand for water causes the flow through the pipeline to exceed approximately 165Mld.</li> <li>The BPS site would consist of a single-storey Control Building with a basement below. It would have a finished height of 7.6m above finished ground level. There would also be a separate Electricity Substation and Power Distribution Building. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>Power to the BPS would be supplied from an existing 38 kV electricity substation at Birr, through cable ducting laid within the public road network. There would be ground mounted solar panels on the southern side of the BPS site to supplement the mains power supply.</li> <li>The site would be accessed directly from the L3003.</li> <li>The BPS site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence between 5m -12m inside the boundary. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.</li> </ul>
<p>Flow Control Valve (FCV) (Infrastructure Site) County Kildare</p>	<ul style="list-style-type: none"> <li>The FCV controls the flows in the Treated Water Pipeline from the BPT to the TPR. It would be a small permanent site of approximately 0.5ha in the townland of Commons Upper in County Kildare. In addition, approximately 0.6ha of land would be required on a temporary basis during construction.</li> <li>It would consist of three 700mm diameter FCVs and three flow meters installed in parallel with the Line Valve and housed within an underground chamber.</li> <li>Access to the FCV site would be directly off the L1016 Commons Road Upper.</li> <li>Power supply to the FCV site would be provided from the existing low voltage network via a combination of overhead lines and buried cables. There would be ground mounted solar panels on the north-eastern side of the site to supplement the mains power supply.</li> <li>Kiosks at the FCV site would house the Programmable Logic Controller, telemetry and power supply for the Line Valve. There would also be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>The site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary.</li> </ul>

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<p>Termination Point Reservoir (TPR) (Infrastructure Site) County Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> <li>The TPR would be located on a permanent site of approximately 8.3ha adjacent to an existing treated water reservoir in the townland of Loughtown Upper, at Peamount, County Dublin (within the administrative area of South Dublin County Council) and would have capacity for 75MI of treated water supply. In addition, approximately 1.1ha of land would be required on a temporary basis during construction.</li> <li>It would be located at the downstream end of the Treated Water Pipeline from the BPT to the TPR and would be the termination point for the Proposed Project. It would be at this location that the Proposed Project would connect to the existing water supply network of the Greater Dublin Area Water Resource Zone (GDA WRZ).</li> <li>The TPR would consist of an above-ground storage structure, associated underground Scour Water and Overflow Water tanks and a Chlorine Dosing Control Building. The TPR would be a concrete tank divided into three cells and covered with an earth embankment. The top of the TPR would be 11.2m above finished ground level. The Chlorine Dosing Control Building would be 8.4m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level.</li> <li>Power for the TPR would be supplied via an underground connection to the existing electricity substation at Peamount Reservoir. There would be solar panels on top of a portion of the northern cell of the TPR to supplement the mains power supply.</li> <li>A new permanent access road from the R120 would be constructed and would be 5m wide and 342m in length.</li> <li>The TPR site would be bounded by the existing hedgerow to the west and existing fence to the east with a 2.4m high palisade security fence around the permanent infrastructure. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.</li> </ul>
<b>Proposed 38 kV Uprate Works – Power Supply to RWI&amp;PS and WTP</b>	
<p>Proposed 38 kV Uprate Works Ardnacrusha – Birdhill (Power Supply) Counties Clare, Limerick and Tipperary</p>	<ul style="list-style-type: none"> <li>The proposed 38 kV Uprate Works would be necessary to deliver adequate electrical power to the RWI&amp;PS and WTP.</li> <li>The proposed works would include the uprating of the existing Ardnacrusha – Birdhill Line and the replacement of polesets/structures with an underground cable along a section of the Ardnacrusha – Birdhill – Nenagh Line.</li> <li>There would also be works at the existing Birdhill 38 kV electricity substation including the provision of a new 38 kV modular Gas Insulated Switchgear Modular Building, new electrical equipment and lighting, together with new fencing and associated works.</li> </ul>
<b>Temporary Infrastructure – Required for Construction Phase Only</b>	
<p>Construction Working Width Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> <li>A Construction Working Width would be temporarily required for the construction of the RWRMs and the Treated Water Pipeline, and the subsequent reinstatement of the land.</li> <li>The Construction Working Width would generally be 50m in width but would be locally wider near features such as crossings, access and egress points from the public road network, Construction Compounds and Pipe Storage Depots.</li> </ul>
<p>Construction Compounds Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> <li>Eight Construction Compounds would be temporarily required to facilitate the works to construct the Proposed Project. Five Construction Compounds would be located along the route of the Treated Water Pipeline at the following Infrastructure Sites: RWI&amp;PS, WTP, BPT, BPS and TPR, with an additional three Construction Compounds located at Lisgariff (County Tipperary), Killananny (County Offaly) and Drummond (County Kildare). Construction Compounds would act as a hub for managing the works including plant/material/worker movement, general storage, administration and logistical support.</li> <li>The Principal Construction Compound at the WTP would require 30ha of land during construction.</li> <li>The other three Principal Construction Compounds would require land temporarily during construction ranging between approximately 12ha and 16ha.</li> <li>The four Satellite Construction Compounds at the other permanent Infrastructure Sites (excluding the FCV) would require land during construction ranging between approximately 3ha and 12ha.</li> </ul>
<p>Pipe Storage Depots Counties Tipperary, Offaly and Kildare</p>	<ul style="list-style-type: none"> <li>Nine Pipe Storage Depots would be temporarily required to supplement the Construction Compounds and would serve the installation of pipe between the WTP and the TPR.</li> <li>Pipe Storage Depots would take direct delivery of the pipe for storage before onward journey to the required location along the Construction Working Width.</li> <li>The Pipe Storage Depots would vary in size and require land temporarily during construction generally ranging between approximately 2ha and 7ha but with one site being larger at 11ha.</li> </ul>

\* Note all land take numbers in this table are affected by rounding to one decimal place.

7. The construction of the Proposed Project is anticipated to run from 2028 through to the works being substantially completed by 2032, with the first operational year anticipated to be 2033.
8. This chapter has been prepared in conjunction with the following EIAR chapters, and their appendices, which expand upon aspects of the Proposed Project relevant to:
  - Chapter 4 (Proposed Project Description)
  - Chapter 5 (Construction & Commissioning).
9. This chapter is also supported by the following appendices:
  - Appendix A7.1 (Traffic and Transport Assessment, hereafter referred to as the TTA)
  - Appendix A7.2 (Traffic Management Plan, hereafter referred to as the TMP)
  - Appendix A7.3 (Transport Infrastructure Ireland (TII) Correspondance).
10. Figures which are referenced in this chapter are provided in Volume 5 of this EIAR.
11. This assessment has been undertaken and reported by a team of competent experts. Refer to Chapter 2 (The Environmental Impact Assessment Process) for a description of the qualifications and expertise of the specialists that have inputted to this chapter.

## **7.2 Methodology**

12. To assess the traffic and transport effects resulting from the Construction and Operation Phases of the Proposed Project, the following approach was adopted:
  - Data collection consisting of:
    - A desktop study to comprehend the proposed Construction Working Width, Construction Compound locations, Pipe Storage Depots, required access points, required study area, existing road network and the proposed Haul Roads for construction material
    - A desktop study to establish the sensitive receptors, accident statistics and appropriate policy documents
    - In line with TII Planning and Development Traffic and Transport Assessment Guidelines, PE-PDV-02045 (TII 2014), consultation (as described in Section 7.2.4) undertaken with the appropriate Local Authorities (LAs) to confirm information gathered in the desktop study, agree the methodology for the traffic assessment, establish junctions to be assessed, establish planned works within the study area, discuss any special requirements of each LA and identify locations of traffic counts
    - Site visits to confirm desktop and scoping information and to record the affected junction geometry for use during the traffic assessment stage
    - Traffic counts were carried out at the affected junctions to establish existing traffic conditions and inform the assessment.
  - Identification of potential traffic impacts:
    - A TTA was carried out in accordance with the TII Planning and Development Traffic and Transport Assessment Guidelines, PE-PDV-02045. The potential traffic impacts of the Proposed Project were determined utilising best practice guidance (Appendix A7.1 presents the TTA).
  - Assessment of effects:
    - Prediction of the likely direct, indirect and cumulative effects of the Proposed Project on baseline traffic and transport in the area

- Determination of the significance of effects on traffic reception (junctions and road network) and pedestrian and cyclist amenities in accordance with Guidelines on the Information to be contained in Environmental Impact Assessment Reports Guidelines (Environmental Protection Agency (EPA) 2022)
- Assessment of effects on other road issues such as safety, vulnerable road users and public transport.
- Identification of mitigation and monitoring measures
- Reporting of residual effects after the application of mitigation measures.

### **7.2.1 Study Area**

13. The Proposed Project would comprise various sections of pipeline and water supply infrastructure, which would extend from Parteen Basin in County Tipperary, through the Midlands, to Peamount in County Dublin (Figure 7.1). The location of the Proposed Project is illustrated in Figure 4.1 and is presented in detail in Figures 4.2 to Figure 4.60 of Chapter 4 (Proposed Project Description).
14. The Construction Phase study area for traffic and transport was determined based on the Haul Roads for the Construction Phase of the Proposed Project. An initial desktop review of available ports, from which pipes and materials would be transported, and the required access points along the Construction Working Width, was conducted to identify preliminary Haul Roads. Following consultations with LAs, the final agreed Haul Roads were determined. These roads will be used by construction vehicles traveling to and from the Construction Working Width. The study area was then defined accordingly. This area was considered appropriate, as it represents the largest extent where impacts are anticipated. The impacts on the study area will occur primarily during the Construction Phase.
15. These Haul Roads include the administrative area of seven LAs: Clare County Council, Limerick City and County Council, Tipperary County Council, Offaly County Council, Laois County Council, Kildare County Council and South Dublin County Council. Figure 7.2 to Figure 7.8 show the agreed Haul Roads which define the study area.
16. The assessment has considered each of these Haul Roads from the relevant access point on the Proposed Project (the point a vehicle leaves the public road and enters the Planning Application Boundary) to the point that the road joins the National Road Network (national primary or national secondary roads).
17. Therefore, the study area comprised the junctions along the designated Haul Roads which have been scoped with each LA. This covered 57 junctions, including both existing and proposed junctions. Figure 7.9 to Figure 7.17 shows the location of each of the junctions along the Haul Roads.
18. The Operational Phase study area includes the six Infrastructure Sites: the RWI&PS, WTP, BPT, BPS, FCV and TPR. This area was deemed appropriate as these sites will be the permanent infrastructure where operational staff are based.

### **7.2.2 Scope of the Assessment**

19. The scope of the assessment was determined in consultation with the LAs and in accordance with best practice and guidance, described in Section 7.2.4. Impacts scoped into the assessment are set out in Table 7.2.

**Table 7.2: Potential Impacts Scoped Into the Assessment**

Impact	Notes
<b>Construction</b>	
Construction Phase Traffic – Road Network	<p>Traffic generation distributed on the road network is based on the assumptions and limitations as identified in Section 7.4.2.3. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached.</p> <p>This indicated traffic volumes above the TTA Guidelines (PE-PDV-02045) (TII 2014) thresholds and required a TTA to be undertaken.</p> <p>As detailed in Section 7.2.6.4, the volume of traffic required for the construction of the Proposed Project has been calculated according to the volume of materials that require transportation. The construction-generated traffic has been distributed across the road network utilising the 54 access points identified along the Construction Working Width.</p>
Construction Phase Traffic – Junctions	<p>Traffic generation distributed via the junctions is based on the assumptions and limitations as identified in Section 7.4.2.3. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached. This indicated traffic volumes are above the TII TTA Guidelines thresholds and required a TTA to be undertaken.</p> <p>The assessment looks at the junction capacity and the potential for queuing at junctions resulting in journey time delays. There are 57 junctions across the Haul Road network that were identified where potential traffic impacts may occur, as listed in Table 7.7.</p>
Construction Phase Traffic – Pedestrian and Cyclist Amenity and Delays	<p>Traffic generation distributed via the junctions is based on the assumptions and limitations as identified in Section 7.4.2.3. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached. This indicated traffic volumes are above the TII TTA Guidelines thresholds and required a TTA to be undertaken.</p> <p>Traffic volume, composition, and speeds, in combination with pedestrian footways and crossings, contribute to the level of general unpleasantness, fear, intimidation and delay experienced by pedestrians and other vulnerable road users. Construction-related traffic distributed over the road network in the vicinity of the pedestrian and cyclist facilities on each road scoped into the construction network capacity assessment, has been assessed.</p>
<b>Operation</b>	
Operational Phase Traffic – Road Network	<p>Traffic generation distributed on the road network is based on the assumptions and limitations as identified in Section 7.4.3.1. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached. This indicated traffic volumes above the TII TTA Guidelines thresholds and required a TTA to be undertaken. The same approach as used for construction traffic, as set out in Section 7.2.6.4, was adopted for operational traffic movements; however, the volume and type of materials to be transported was much smaller, mainly consisting of waste arisings from the operation of the WTP.</p>
Operational Phase Traffic – Junction	<p>Traffic generation distributed via the junctions is based on the assumptions and limitations as identified in Section 7.4.3.1. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached. This indicated traffic volumes are above the TII TTA Guidelines thresholds and required a TTA to be undertaken.</p> <p>The assessment looks at the junction capacity and the potential for queuing at junctions resulting in journey time delays. There are six junctions that are relevant. These junctions relate to the Infrastructure Sites which will be operating during the Operational Phase: Junction 3 (Proposed T-Junction RWI&amp;PS (CC0) on R494), Junction 4 (Proposed T-Junction WTP (CC1) on R445), Junction 13 (Proposed T-Junction BPT (CC3) on L1064), Junction 23 (Proposed T-Junction BPS (CC4) on L3003), Junction 56 (Proposed T-Junction TPR (CC7) on R120) and Junction 57 (Proposed T-Junction FCV on L1016).</p>
Operational Phase Traffic – Pedestrian and Cyclist Amenity and Delays	<p>Traffic generation distributed via the junctions is based on the assumptions and limitations as identified in Section 7.4.3.1. Any limitations have not affected the comprehensiveness of the assessment or prevented reasoned conclusions as to the significance of the effects from being reached. This indicated traffic volumes are above the TII TTA Guidelines thresholds and required a TTA to be undertaken.</p> <p>As with construction, operation-related traffic distributed over the road network in the vicinity of the pedestrian and cyclist facilities on each road scoped in to the operational network capacity assessment, has been assessed.</p>

20. Table 7.3 shows the matters that have been scoped out of the assessment, along with the justification on why no further assessment was required.

**Table 7.3: Potential Impacts Scoped Out of the Assessment**

Description of Impact	Justification for Scoping Out
Public Rights of Way	There are no public right of way closures proposed as part of the Proposed Project. During construction, any pedestrian rights of access across the Construction Working Width would be maintained, although there may be small temporary diversions of the rights of way. On this basis, there would be no likely significant effects on users of public rights of way and therefore it has been scoped out of this TTA.
Decommissioning	The Proposed Project would deliver nationally important strategic infrastructure with individual elements designed with a lifespan of 80 to 100 years. The strategic importance of the Proposed Project for the water supply in the Eastern and Midland Region is such that there is no plan to decommission these structures and Uisce Éireann is committed to maintaining and repairing them into the future. On this basis it is not likely that the structures will be decommissioned and therefore, decommissioning of the Proposed Project has not been considered further in this assessment.

### 7.2.3 Relevant Guidelines, Policy, and Legislation

21. The assessment has been undertaken with reference to the most appropriate best practice guidance and standards relating to traffic assessment which is set out in the following sections. There are no statutory standards in Ireland relating to traffic assessment. In the absence of specific statutory Irish guidelines, the traffic assessment has referred to non-statutory national guidelines, where available.
22. This chapter has been prepared with reference to the guidance outlined below and in accordance with relevant legislation and policy. Any references to legislation include any amendments thereto:
  - Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022)
  - Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report (European Commission 2017)
  - Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government 2018)
  - TII Planning and Development Traffic and Transport Assessment Guidelines, PE-PDV-02045 (TII 2014) (hereafter referred to as the TII TTA Guidelines)
  - TII Project Appraisal Guidelines for National Roads Unit 5.3: Travel Demand Projections, PE-PAG-02017 (TII 2021)
  - Institute of Environmental Management and Assessment (IEMA) Guidance: Environmental Assessment of Traffic and Movement (IEMA 2023)
  - Clare County Development Plan 2023 – 2029 (Clare County Council 2023)
  - Limerick Development Plan 2022 – 2028 (Limerick City and County Council 2022)
  - South Dublin County Development Plan 2022 – 2028 (South Dublin County Council 2022)
  - Kildare County Development Plan 2023 – 2029 (Kildare County Council 2023)
  - Offaly County Development Plan 2021 – 2027 (Offaly County Council 2021)
  - Laois County Development Plan 2021 – 2027 (Laois County Council 2022)
  - Tipperary County Development Plan 2022 – 2028 (Tipperary County Council 2022).

### 7.2.4 Consultation

23. Consultation responses from key stakeholders, landowners and the public were reviewed and considered in compiling this chapter. Chapter 2 (The Environmental Impact Assessment Process) of the EIAR sets out the approach the Proposed Project has taken with regard to environmental scoping, including the EIAR Scoping Methodology Report (Uisce Éireann 2023) in respect of the Proposed Project and the

Environmental Impact Statement Scoping Report (Irish Water 2016)<sup>1</sup> relating to a previous iteration of the project.

24. The scoping consultation responses relevant to traffic and transport received from stakeholders are provided in Table 7.4 including details of how they have been addressed within the EIAR. Further detail on the Proposed Project consultation is included in Chapter 2 (The Environmental Impact Assessment Process) and responses received are in the Water Supply Project: Eastern and Midlands Region – Consultation Report, which forms part of the Strategic Infrastructure Development planning application for the Proposed Project.

**Table 7.4: Traffic and Transport Issues Raised During Scoping Consultation**

Consultee	Comment	Relevant Section of the EIAR
Laois County Council	Laois County Council requests that it is included for consultation on traffic and transport impacts, given its proximity to the water supply area and the potential for extraction activities to arise in the County as a result of the Proposed Project.	Section 7.2.4 of this chapter details when the council has been engaged and the matters that were discussed.
Laois County Council	Traffic management – traffic volumes attending site.	Appendix A7.1 (Traffic and Transport Assessment).
Fáilte Ireland	Traffic and transport assessment should be carried out in accordance with relevant guidelines which are to note traffic volumes attending the site and traffic routes to/from the site. Impacts on National Road networks, associated junctions should also be included.	Appendix A7.1 (Traffic and Transport Assessment) contains detailed assessment information and has been undertaken in line with relevant guidelines.
Fáilte Ireland	National Road Authority's Traffic and Transport Assessment Guidelines (2014) should be referred to.	The previous guidelines have since been superseded. As set out in Section 7.2.3 of this chapter the current standard referenced and applied is: TII Planning and Development Traffic and Transport Assessment Guidelines, PE-PDV-02045 (TII 2014).
Transport Infrastructure Ireland (TII, formerly the National Roads Authority)	Traffic impact assessment should include road safety impacts on road users.	Road Safety Audits have been completed for the preliminary design and will progress through subsequent stages for the detailed design, construction and early operation as per TII guidance GE-STY-01024 (TII 2017).
TII	Impact of project-related traffic on tourism. Traffic congestion, especially in rural areas, can be an issue, in relation to tourism.	Chapter 14 (Population) considers impacts on tourism.
TII	Any crossing of the existing motorway network would require approval.	Appendix A7.3 (TII Correspondence).
Tipperary County Council	Indicate the location of sensitive neighbouring tourism resources that are likely to be directly affected by alteration of traffic flows	Chapter 14 (Population) considers impacts on tourism.
Offaly County Council	A number of locations could interface with both the existing and future national road network and have implications for the network with regard to construction/operations etc.	As stated in Section 7.2.9 a review of the Chapter 21 (Cumulative Effects & Interactions) longlist has been carried out to determine a shortlist. All other projects potentially contributing to combined traffic effects have been assessed in Appendix A7.1 (Traffic and Transport Assessment).

<sup>1</sup> As set out in Chapter 2 (The Environmental Impact Assessment Process), the Environmental Impact Statement Scoping Report (Irish Water 2016) was based on a previous iteration of the project; however, feedback received from stakeholders informed future scoping and design development and has been considered in this chapter where relevant to the Proposed Project.

25. In addition to the consultation on environmental scoping and to set the scope of the TTA, the relevant LAs have been consulted individually. Initial consultations were completed in 2017, with the following principles and parameters agreed:
- The roads proposed to be used as Haul Roads during the construction of the Proposed Project
  - The potentially impacted junctions for assessment (along the agreed Haul Roads)
  - The 'high' growth rate has been agreed to be used in the assessment, in accordance with TII Project Appraisal Guidelines Unit 5.3
  - The permitted developments identified by the consultants and LAs for inclusion in the traffic assessment
  - The requirement for pre and post-construction pavement condition surveys on Haul Roads to assess any deterioration during the Construction Phase
  - The requirement for a tracking system to monitor that only the agreed Haul Roads are utilised during the Construction Phase
  - The location of traffic counts to be undertaken for the assessment.
26. In addition to the principles agreed, Kildare County Council requested that Level 1 Falling Weight Deflectometer (FWD) surveys are completed on Haul Road locations in the Kildare County area.
27. Throughout the assessment period, the LAs have been reconsulted to confirm these outcomes and a list of consultation times and correspondence are presented in Table 7.5.

**Table 7.5: Engagement With LAs From 2017 to 2025**

Local Authority	Meeting	Correspondence
Limerick City and County Council	25 September 2025	7 April 2025 6 September 2021 6 April 2020
Clare County Council	26 September 2025	7 April 2025 6 September 2021 1 April 2020
Tipperary County Council	25 September 2025 26 June 2021 1 November 2017 25 May 2017	7 April 2025 1 April 2020
Offaly County Council	30 September 2025 13 June 2021 9 November 2017 13 June 2017	7 April 2025
Laois County Council	3 October 2025 30 September 2025 25 June 2021 26 October 2017 25 May 2017	7 April 2025
Kildare County Council	18 September 2025 24 June 2021 18 October 2017 24 April 2017	7 April 2025
South Dublin County Council	8 September 2025 24 June 2021 17 October 2017 12 July 2017	7 April 2025

28. The relevant Development Plans (see Section 7.7 for the complete list of county development plans) were reviewed prior to consultation with the LAs to identify proposed road improvement schemes in the vicinity of the Haul Roads to inform the traffic assessment. These proposed road improvement schemes were discussed with the LAs to determine the timeline of each scheme. The traffic assessment for committed developments has been updated since these discussions by analysing other planning applications identified in Chapter 21 (Cumulative Effects & Interactions) to determine if they would coincide with the Proposed Project.
29. As part of the 2021 correspondence with the LAs, the following assessment parameters were discussed and agreed:
- Previous agreements were discussed and it was agreed they were still relevant
  - Additional Haul Roads for the Proposed Project were agreed
  - Updated pavement condition rating surveys were requested from each LA
  - Future developments were highlighted for each county.
30. While the basis of assessment was identified in 2020 and subsequently updated in 2021, the LAs have been consulted again in 2025 to inform them of the assessment parameters previously agreed in 2020 and 2021. This consultation allowed the roads department teams in each affected LA to re-engage with the Proposed Project and the assessment parameters, originally updated in 2021, were re-stated in 2025.

## 7.2.5 Data Collection Methods

31. The following data were collated and mapped to confirm the existing situation at the junctions determined from the scoping process. This information was then used in the assessment of impacts of the Construction and Operational Phase generated traffic on the existing junctions' performance.

### 7.2.5.1 Desktop Study

32. Desktop information was collected to:
- Map and collate existing information for the junctions within the study area and access points identified in the scoping exercise
  - Obtain road collision data.
33. This information was then used to inform the identification of appropriate Haul Roads as described in Section 7.2.6.1.
34. The desktop study of the road collision data showed locations of existing clusters which informed the determination of the Haul Roads. Haul Roads were selected to avoid high collision locations, where possible, by considering the available data on road collisions, where available.

### 7.2.5.2 Haul Roads Site Visit

35. Site visits were carried out in 2018, 2020, 2024 and 2025 where Haul Roads were driven (Table 7.6).

**Table 7.6: Site Visit Periods**

Site Visit Periods	
February 2018	February 2024
September 2020	November 2025
March 2022	-

36. The following data was collected during these site visits:

- Junction geometry for input to assessment software
- Pavement and road condition
- Location of existing bridges
- RoadHawk video files and photos.

37. As well as informing the junction assessment, this information was also used to re-enforce the selection of the Haul Roads, whereby bridge height restrictions (as set out in Section 7.2.6.1) and other obstacles were avoided.

### 7.2.5.3 Traffic Surveys

38. In order to determine the magnitude of the existing traffic flows, the following traffic surveys were carried at 76 locations: including 39 no. Junction Turning Counts (JTCs) and 37 no. Automatic Traffic Counts (ATCs).

39. The 39 no. JTCs were agreed with the LAs during scoping stage. 18 no. of the ATCs were used to determine baseline data for proposed junctions (Infrastructure Sites, Construction Compounds (CCs) and Pipe Storage Depots (PSDs)). The additional ATCs were used to provide baseline information for air and noise modelling.

40. These surveys were carried out by TRACSIS between September 2024 and March 2025 as outlined in Table 7.7. The locations of the surveys are shown in Figure 7.9 to Figure 7.17.

41. The traffic counts were carried out as per TII Data Collection PE-PAG-02016 (TII 2023) during a neutral period: Thursday in September or November for the JTCs and for a two-week period for ATCs.

**Table 7.7: Dates of Traffic Counts**

Count Type	No	Junction/ATC Number	County	Location	Date
Junction Count	1	Junction 1	Limerick	R848/ Existing ESB Depot	26/9/2024
Junction Turning Count	2	Junction 2	Tipperary	R494/R445 Birdhill Roundabout	26/9/2024
Automatic Traffic Count	3	Junction 3	Tipperary	Proposed T-Junction RWI&PS (CC0) on R494	Week 1 03/03/2025 Week 2 10/03/2025
Automatic Traffic Count	4	Junction 4	Tipperary	Proposed T-Junction WTP (CC1) on R445	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	5	Junction 5	Tipperary	Proposed Staggered Junction to PSD1 on R445	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	6	Junction 6	Tipperary	N52/R445 Roundabout	26/9/2024
Junction Turning Count	7	Junction 7	Tipperary	N52/R494 Roundabout	26/9/2024
Junction Turning Count	8	Junction 8	Tipperary	N52/R495 Roundabout	26/9/2024
Junction Turning Count	9	Junction 9	Tipperary	N52/R497 Roundabout	26/9/2024

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Count Type	No	Junction/ATC Number	County	Location	Date
Automatic Traffic Count	10	Junction 10	Tipperary	Proposed T-Junction CC2 on N52	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	11	Junction 11	Tipperary	N52R490 T-Junction	26/9/2024
Junction Turning Count	12	Junction 12	Tipperary	N65/N52/L1092 Crossroad	26/9/2024
Automatic Traffic Count	13	Junction 13	Tipperary	Proposed T-Junction BPT (CC3) on L1064	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	14	Junction 14	Tipperary	R490/R491 T-Junction	26/9/2024
Automatic Traffic Count	15	Junction 15	Tipperary	Proposed T-Junction PSD2 on L4022	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	16	Junction 16	Offaly	N62/R492 Crossroads	26/9/2024
Automatic Traffic Count	17	Junction 17	Offaly	Proposed T-Junction PSD3 on N62	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	18	Junction 18	Offaly	N52/R440 Roundabout	26/9/2024
Junction Turning Count	19	Junction 19	Tipperary	N62/ R445 Roundabout	26/9/2024
Junction Turning Count	20	Junction 20	Tipperary	N62/ Dublin Road T-Junction	26/9/2024
Junction Turning Count	21	Junction 21	Tipperary	N62/R445 Roundabout	26/9/2024
Automatic Traffic Count	22	Junction 22	Offaly	Proposed T-Junctions PSD4 on L4004	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	23	Junction 23	Offaly	Proposed T-Junction BPS (CC4) on L3003	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	24	Junction 24	Offaly	R421/L4004 Crossroads	26/9/2024
Junction Turning Count	25	Junction 25	Offaly	R440/R421 T-Junction	26/9/2024
Automatic Traffic Count	26	Junction 26	Offaly	Proposed T-Junction PSD5 on L2027	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	27	Junction 27	Offaly	N52/L2027 T-Junction	26/9/2024
Automatic Traffic Count	28	Junction 28	Offaly	Proposed T-Junction CC5 on R421	Week 1 25/9/24 Week 2 2/10/24

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Count Type	No	Junction/ATC Number	County	Location	Date
Junction Turning Count	29	Junction 29	Offaly	N52/R421 Roundabout	26/9/2024
Junction Turning Count	30	Junction 30	Offaly	N52/R420 Roundabout	21/11/2024
Junction Turning Count	31	Junction 31	Offaly	R420/R402 T-Junction	21/11/2024
Junction Turning Count	32	Junction 32	Laois	N80/R422 Roundabout	21/11/2024
Junction Turning Count	33	Junction 33	Laois	R422/Connolly Street Roundabout	21/11/2024
Automatic Traffic Count	34	Junction 34	Offaly	Proposed T-Junction PSD6 on R420	Week 1 18/11/24 Week 2 25/11/24
Junction Turning Count	35	Junction 35	Offaly	R402/L1014 T-Junction	26/9/2024
Junction Turning Count	36	Junction 36	Offaly	R402/R400 Staggered Junction	26/9/2024
Junction Turning Count	37	Junction 37	Laois	R420/Main Street T-Junction	21/11/2024
Junction Turning Count	38	Junction 38	Laois	R419/R420 Staggered Junction	21/11/2024
Automatic Traffic Count	39	Junction 39	Offaly	Proposed T-Junction PSD8 on R402	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	40	Junction 40	Offaly	R402/R401 T-Junction	26/9/2024
Junction Turning Count	41	Junction 41	Offaly	R402/R401 Roundabout	26/9/2024
Junction Turning Count	42	Junction 42	Kildare	R402/R403 Roundabout	26/9/2024
Automatic Traffic Count	43	Junction 43	Kildare	Proposed T-Junction CC6 on R403	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	44	Junction 44	Kildare	R402/L5025/L5011 Staggered Junction	26/9/2024
Junction Turning Count	45	Junction 45	Kildare	R403/R415/L1020 Crossroads	26/9/2024
Junction Turning Count	46	Junction 46	Kildare	R407/L1010/L1017 Crossroads	26/9/2024
Automatic Traffic Count	47	Junction 47	Kildare	Proposed T-Junction PSD9 on R407	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	48	Junction 48	Kildare	R407/R408 T-Junction	26/9/2024
Junction Turning Count	49	Junction 49	Kildare	R403/Clane Ring Road Roundabout	26/9/2024
Junction Turning Count	50	Junction 50	Kildare	R407/ Clane Ring Road/ An Crochán Roundabout	26/9/2024
Junction Turning Count	51	Junction 51	Kildare	R403/R406 Roundabout	26/9/2024

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Count Type	No	Junction/ATC Number	County	Location	Date
Automatic Traffic Count	52	Junction 52	Kildare	Proposed T-Junction PSD10 on R403	Week 1 25/9/24 Week 2 2/10/24
Junction Turning Count	53	Junction 53	Kildare	R403/R405 Crossroads	26/9/2024
Junction Turning Count	54	Junction 54	South Dublin	R405/Hazelhatch Road T-Junction	26/9/2024
Junction Turning Count	55	Junction 55	South Dublin	R120/R405 T-Junction	26/9/2024
Automatic Traffic Count	56	Junction 56	South Dublin	Proposed T-Junction TPR (CC7) on R120	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	57	Junction 57	Kildare	Proposed T-Junction FCV on L1016	Week 1 3/3/25 Week 210/3/25
Automatic Traffic Count	1	ATC 1	Tipperary	R499	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	2	ATC 2	Tipperary	R493	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	3	ATC 3	Tipperary	R490	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	4	ATC 4	Tipperary	R491	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	5	ATC 5	Offaly	L8014	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	6	ATC 6	Offaly	L7004	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	7	ATC 7	Offaly	Unnamed Local Road	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	8	ATC 8	Offaly	L2021	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	9	ATC 9	Offaly	L2021	Week 1 25/9/24 Week 2 2/10/24

Count Type	No	Junction/ATC Number	County	Location	Date
Automatic Traffic Count	10	ATC 10	Offaly	L2002	Week 1 18/11/24 Week 2 25/11/24
Automatic Traffic Count	11	ATC 11	Offaly	N80	Week 1 18/11/24 Week 2 25/11/24
Automatic Traffic Count	12	ATC 12	Offaly	L1020	Week 1 18/11/24 Week 2 25/11/24
Automatic Traffic Count	13	ATC 13	Offaly	L1001	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	14	ATC 14	Kildare	Unnamed Local Road	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	15	ATC 15	Kildare	R402	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	16	ATC 16	Kildare	R407	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	17	ATC 17	Kildare	R407	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	18	ATC 18	Kildare	R407	Week 1 25/9/24 Week 2 2/10/24
Automatic Traffic Count	19	ATC 19	Kildare	R406	Week 1 25/9/24 Week 2 2/10/24

### 7.2.6 Appraisal Method for the Assessment of Effects

42. The following section outlines the methodology adopted for this assessment and the TTA, undertaken in accordance with the TII TTA Guidelines (TII 2014). As set out in Section 7.2.2, the following impacts have been scoped into the traffic assessment:

- Road network capacity assessment
- Junction assessment
- Pedestrian and cyclist amenity and delays
- Public transport operations and accessibility.

43. To assess the effects associated with the above impacts, the methodology included the following steps:

- Development of the proposed Haul Roads

- Development of the Do-Minimum and Do-Something scenarios
- Calculation of vehicle movements and assignment to the road network
- Determination of the need for traffic modelling
- Junction modelling
- Criteria for determining significance of effects.

44. The following sections describe these assessment steps in more detail.

#### 7.2.6.1 Development of Haul Roads

45. The Haul Roads were determined based on a review of all potential road crossings and access points along the pipeline route.
46. Haul Roads were selected by reviewing all potential crossings and access points along the pipeline route, focusing on collision risk, road condition, bridge clearance, width, and suitability for large vehicles. Only roads capable of accommodating traffic volumes for plant, construction staff, and materials, and requiring at most minor upgrades such as passing bays, were identified as suitable for the Proposed Project.
47. The collision data were analysed in order to determine if there were any clusters of fatal or serious collisions along the Haul Roads which may need to be avoided. An investigation was undertaken of road collision data between 2006 and 2016 from the Road Safety Authority online statistics, which provided details of all collisions on the Haul Roads of the Proposed Project. As of October 2024, the Road Safety Authority are in the process of reviewing road traffic collision (RTC) data sharing policies and procedures and RTC data cannot be shared until this review is complete. All collected collision data are shown in Figure 7.18 to Figure 7.21, subdivided into fatal, serious, and minor categories of accidents. The collisions along the Haul Roads showed 4% were fatal and 8% were serious collisions with the remaining collisions in the minor category.
48. Similarly, sensitive receptors, as described in Section 7.2.5 and defined in Section 3.1.2 of Appendix A7.1 of the TTA were avoided, as far as reasonably practicable, and therefore, the Haul Roads themselves include inherent embedded mitigation and consequently have been referenced in Section 7.5.
49. Once the Haul Roads had been identified and agreed with the LAs (as set out in Section 7.2.4), they formed the basis of the Do-Minimum and Do-Something assessment scenarios.
50. The Haul Roads have been defined into principal and minor Haul Roads. Principal Haul Roads have been defined as major roads like national roads and motorways (e.g. M7/N7) that form the strategic transport network. Minor Haul Roads have been defined as regional roads, local roads and streets like those serving residential areas or connecting to the principal Haul Roads.

#### 7.2.6.2 Development of Access/ Egress Points

51. To inform the assessment, access and egress points were established. An access and egress point is an interface between the Construction Working Width and the Haul Roads. These points are identified using the format AE0XX. There are 54 no. access and egress points that have been developed which are required for the duration of the construction works. Each point facilitates two-way vehicular movements during the Construction Phase. The access and egress points are listed in Table 7.8.
52. There is no provision for parking at the access points, but they would facilitate loading and off-loading plant and materials by allowing vehicles to temporarily stop along the Construction Working Width, rather than obstructing the public road. In addition, they would enable drop-off and collection for construction staff who would be bused to and from the Construction Compounds at the start and end of the working

day, or at lunch time to use the canteen facilities at the Construction Compounds. There would be no parking assigned for construction staff at the access points.

**Table 7.8: Access and Egress**

Section*	Access Point	County	Total Duration (weeks)	Servicing
1	AE001 (CC0 RWI)	County Tipperary	104 weeks	Access road for the RWI&PS (and CC0 during construction)
1	AE002	County Tipperary	126 weeks	2,000m of pipeline
1	AE003 (CC1 WTP)	County Tipperary	174 weeks	Access road for the WTP (and CC1 during construction)
1	AE051	County Tipperary	3 weeks	Access for railway crossing of 38 kV ducts to WTP
1	AE052	County Tipperary	3 weeks	Access for railway crossing of 38 kV ducts to WTP
1	AE053	County Tipperary	3 weeks	Access for railway crossing of 20 kV ducts to RWI&PS
1	AE054	County Tipperary	3 weeks	Access for railway crossing of 20 kV ducts to RWI&PS
2	AE004	County Tipperary	126 weeks	Serves 3,900m of pipeline construction
2	AE0041	County Tipperary	126 weeks	Serves 300m of pipeline construction
2	AE0042	County Tipperary	126 weeks	Serves 1,500m of pipeline construction
2	AE005	County Tipperary	122 weeks	Access for PSD1. Serves 7,000m of pipeline construction
2	AE006	County Tipperary	122 weeks	Serves 6,000m of pipeline construction
2	AE007	County Tipperary	122 weeks	Serves 2,800m of pipeline construction
2	AE008	County Tipperary	117 weeks	Serves 10,100m of pipeline construction
2	AE009	County Tipperary	70 weeks	Access for CC2. Serves 38,800m of pipeline construction
2	AE049	County Tipperary	70 weeks	Serves 13,200m of pipeline construction
2	AE010	County Tipperary	70 weeks	Serves 6,800m of pipeline construction
2	AE011	County Tipperary	70 weeks	Serves 4,100m of pipeline construction
3	AE012	County Offaly	126 weeks	Serves 5,000m of pipeline construction
3	AE013	County Offaly	126 weeks	Serves 4,100m of pipeline construction
3	AE014	County Offaly	126 weeks	Serves 1,100m of pipeline construction
3	AE015	County Offaly	126 weeks	Access for PSD2. Serves 9,400m of pipeline construction
3	AE016	County Offaly	126 weeks	Serves 8,100m of pipeline construction
3	AE017	County Offaly	126 weeks	Access for PSD3. Serves 12,100m of pipeline construction
3	AE018	County Offaly	117 weeks	Access for PSD4. Serves 14,000m of pipeline construction
3	AE044	County Offaly	122 weeks	Serves 4,600m of pipeline construction
3	AE019	County Offaly	122 weeks	Serves 1,400m of pipeline construction
3	AE047	County Offaly	122 weeks	Access for CC4 and BPS. Serves 7,600m of pipeline construction
3	AE020	County Offaly	122 weeks	Access for PSD5. Serves 13,000m of pipeline construction
3	AE043	County Offaly	70 weeks	Serves 12,300m of pipeline construction
3	AE021	County Offaly	122 weeks	Access for CC5. Serves 62,100m of pipeline construction

Section*	Access Point	County	Total Duration (weeks)	Servicing
3	AE048	County Offaly	70 weeks	Serves 5,900m of pipeline construction
3	AE045	County Offaly	70 weeks	Serves 500m of pipeline construction
3	AE022	County Offaly	70 weeks	Serves 7,900m of pipeline construction
3	AE023	County Offaly	70 weeks	Access for PSD6. Serves 17,300m of pipeline construction
4	AE050	County Offaly	126 weeks	Serves 5,500m of pipeline construction
4	AE024	County Offaly	126 weeks	Serves 10,200m of pipeline construction
4	AE025	County Offaly	126 weeks	Serves 6,400m of pipeline construction
4	AE026	County Offaly	126 weeks	Serves 5,600m of pipeline construction
4	AE027	County Offaly	117 weeks	Access for PSD8. Serves 29,300m of pipeline construction
4	AE028	County Offaly	122 weeks	Serves 16,300m of pipeline construction
4	AE046	County Kildare	111 weeks	Serves 12,000m of pipeline construction
4	AE029	County Kildare	122 weeks	Access for CC6. Serves 68,600m of pipeline construction
4	AE030	County Kildare	122 weeks	Serves 10,200m of pipeline construction
4	AE031	County Kildare	113 weeks	Serves 7,200m of pipeline construction
4	AE032	County Kildare	113 weeks	Serves 7,800m of pipeline construction
4	AE033	County Kildare	70 weeks	Access for PSD9. Serves 22,000m of pipeline construction
4	AE034	County Kildare	70 weeks	Serves 7,600m of pipeline construction
4	AE035	County Kildare	70 weeks	Access for PSD10. Serves 9,800m of pipeline construction
4	AE036	County Kildare	70 weeks	Serves 4,900m of pipeline construction
4	AE037	County Kildare	70 weeks	Serves 3,400m of pipeline construction
4	AE038	County Kildare	70 weeks	Serves 3,000m of pipeline construction
4	AE039	County Dublin	70 weeks	Serves 3,500m of pipeline construction
4	AE040	County Dublin	70 weeks	Access road for the TPR (and CC7 during construction)

\* See Section 5.3 in Chapter 5 (Construction & Commissioning) and Table 7.39 for description of construction sections.

### 7.2.6.3 Do-Minimum Scenario

53. The Do-Minimum scenario accounts for factors expected to alter traffic volumes or flows compared with baseline traffic counts. A robust Do-Minimum scenario was developed by considering committed developments and high growth rates for traffic generation.

#### 7.2.6.3.1 Committed Development

54. The TII TTA Guidelines state that all committed developments within the vicinity of the project should be considered for inclusion in traffic modelling. This includes sites which have previously been granted planning permission but which are yet to become operational as well as any planning applications that have been submitted but have yet to be determined.

55. In addition to these committed developments, a longlist of other projects potentially contributing to cumulative traffic effects (e.g. projects under construction) was developed from Chapter 21 (Cumulative Effects & Interactions). From this longlist, a shortlist was identified comprising projects that may overlap in time or location with the Proposed Project and therefore require detailed assessment. These shortlisted projects have been incorporated into the Do-Minimum scenario of the traffic assessment. Consequently,

the committed developments have been considered in the traffic assessment. It is anticipated that construction of these developments will be substantially completed prior to the commencement of construction of the Proposed Project. The operational traffic generated by these committed developments has also been included in the traffic assessment.

56. The nature of these projects is consistent with typical development and any construction-related impacts from them would be temporary in nature. However, the projects which have been granted permission have been incorporated into the traffic modelling and with the application of a high growth rate in the traffic model would cover the potential increased development along the Haul Roads of the Proposed Project.

#### 7.2.6.3.2 Traffic Growth

57. To undertake a robust and comparable traffic assessment, it was necessary for baseline traffic data to be factored, based on nationally adopted growth rates detailed in the TII Project Appraisal Guidelines (PAG) Unit 5.3 Travel Demand Projections (PE-PAG-02017) (hereafter referred to as 'PAG Unit 5.3') (TII 2021). The factoring of the traffic data enables the estimation of traffic volumes from the year the traffic counts were undertaken, to the assessment years for the Proposed Project.
58. During the scoping meetings with the LAs, it was agreed that high growth rates be applied to the baseline traffic counts. Table 7.9 shows the associated high growth rates, from the TII PAG Unit 5.3 utilised in the traffic assessment.
59. These factors have been applied to the seasonally adjusted baseline traffic flows on the existing road network.

**Table 7.9: Traffic Growth Rates Applied to the Seasonally Adjusted Baseline Traffic – Light Vehicle (LV) and Heavy Vehicle (HV)**

Region	County	2016-2030		2030-2040		2040-2050	
		LV	HV	LV	HV	LV	HV
Metropolitan	Limerick	1.0218	1.0364	1.0106	1.0171	1.0146	1.0273
County	County Clare	1.0191	1.0451	1.0075	1.0193	1.0105	1.0292
County	County Tipperary	1.0152	1.0340	1.0073	1.0152	1.0084	1.0250
County	County Offaly	1.0152	1.0357	1.0081	1.0176	1.0100	1.0272
County	County Laois	1.0179	1.0314	1.0082	1.0160	1.0090	1.0248
County	County Kildare	1.0229	1.0413	1.0098	1.0191	1.0107	1.0283
Metropolitan	County Dublin	1.0191	1.0328	1.0087	1.0172	1.0093	1.0256

#### 7.2.6.4 Do-Something

##### 7.2.6.4.1 Construction Phase Assessment Years

60. The Construction Phase of the Proposed Project is anticipated to run from 2028 through 2032 (subject to planning approval).
61. The approach adopted for developing the Do-Something scenario was to determine the maximum number of vehicular movements at any one time throughout the Construction Phase and use this peak as the basis of assessment. Therefore, all junctions were assessed considering individual junction peaks loaded with peak construction activity year traffic flows during the anticipated Construction Phase (2028–2032).

#### 7.2.6.4.2 Operational Phase Assessment Years

62. For the Operational Phase assessment, the following years were assessed based on the requirements of the TII TTA Guidelines (TII 2014):
- 2033 – Envisaged opening year
  - 2038 – Five years after year of opening
  - 2048 – 15 years beyond the year of opening.

#### 7.2.6.5 Trip Generation

##### 7.2.6.5.1 Construction Phase

63. The number of vehicles required for the Construction Phase of the Proposed Project has been estimated by the Proposed Project designers based on the volume of materials outlined in Chapter 19 (Resource & Waste Management) that requires transportation.
64. As stated in Chapter 5 earthworks operations would generally be carried out using excavators and dump trucks that would transport material to identified filling locations. Filling operations would involve using tractor mounted flat lift rippers, bulldozers and vibratory rollers.
65. The pipes would be transported to site on articulated lorries, or tractor and trailer, in individual lengths.
66. The full range of construction materials for the entire works was identified. This included all materials required for construction, such as:
- Hardcore for structures, pipe bedding, and Temporary Construction Roads
  - Delivery of precast concrete units and building supplies
  - Pavement materials, including kerbing
  - Pipe materials, including valves
  - In situ concrete deliveries and materials for use within concrete batching plants
  - Fencing, lighting, mechanical, electrical, and instrumentation equipment
  - Ducting and other associated construction components.
67. In addition, allowances were made for materials that may not form part of the permanent works, such as fencing for site establishment, which would be removed upon completion of the works. The determination included quantifying surplus excavated materials which could not be reused on-site and therefore would need to be moved to another location for re-use/disposal.
68. The quantities of the construction materials were then used to calculate the number of Heavy Vehicle (HV) traffic movements. The number of traffic movements required to bring the materials to site (and for the removal of any waste or material to be re-used at another location) were used to confirm the amount of HV traffic that construction of the Proposed Project would generate.

##### 7.2.6.5.2 Operation Phase

69. The number of vehicles required for the Operational Phase of the Proposed Project has been estimated based on the number of operatives and vehicles required during the operation and maintenance of the six Infrastructure Sites, sections of pipeline, and all ancillary infrastructure as described in Appendix A4.1 (Operational Strategy).

#### 7.2.6.6 Scoping of Junctions for Assessment

70. The TII TTA Guidelines (TII 2014) thresholds have been used to scope which junctions may be subject to traffic related impacts and to scope which junctions to analyse in detail.
71. Table 2.1 in the TII TTA Guidelines (TII 2014) sets out the following threshold to determine whether the preparation of a TTA is recommended:
- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road
  - Traffic to and from the development exceeds 5% of the traffic flow on the adjoining roads where congestion exists or the location is sensitive.

#### 7.2.6.7 Junction Modelling

72. Once, it has been established that a threshold will be exceeded in line with the parameters identified in Section 7.2.6.6, junction capacity analysis is required. In accordance with the TII TTA Guidelines (TII 2014), junction capacity analysis has been completed using Junctions 10 software for the assessment of priority-controlled junctions. The assessment has been undertaken using the Junctions 10 'Lane Simulation' advanced modelling feature, which allows lane utilisation on roundabout and priority-controlled T-junction approaches to be realistically modelled and simulated.
73. The junction capacity and operational performance for priority-controlled junctions have been summarised as Ratio of Flow to Capacity (RFC) and Mean Maximum Queue over the model period. Vehicle queue lengths, expressed as passenger car units (PCUs), have been rounded up to the nearest whole number.
74. The key parameters examined in the results of the analysis are:
- The RFC – The design RFC values for junctions assessed are less than 0.85. Values over 1.00 indicate that the approach arm is over capacity
  - Increase in the average queue length on the approaches to the junctions during the modelled period
  - Average delay for each vehicle passing through the junction during the modelled period.
75. All construction vehicle types have been segregated into Light Vehicle (LV) and HV prior to input to junction models to determine the percentage split of LVs and HVs. For estimating the total traffic flows input to junction models, all vehicle types are converted from vehicles to PCUs. A PCU is a common unit used in traffic modelling to confirm that larger vehicles such as HVs are proportionally represented when compared with the general traffic. When converting vehicles to PCUs, a factor of 1.0 is used for LVs (staff cars and vans), while a factor of 2.0 is used for HVs and Shuttle Buses.
76. All junction models were calibrated to 2024 observed queue lengths for the road network morning and evening peak hours, before being used for the future year reference and development case scenario traffic assessments.

#### 7.2.6.8 Criteria for Determining Significance of Effects

##### 7.2.6.8.1 Impact Assessment

77. The significance of traffic and transport effects has been evaluated using a systematic approach, based upon identification of the importance/value of receptors and their sensitivity, together with the predicted magnitude of the impact.

78. The terms used to define receptor sensitivity and magnitude of impact are based on:

- A comparison of the traffic volume change from the baseline traffic (i.e. baseflow) to the baseflow with the Proposed Project traffic volume on the road
- The sensitivity of the junction, determined by the importance of the surrounding road network
- The magnitude of the impact on the junction, determined from the increase in RFC from the baseline scenario as a result of the Proposed Project.

79. The sensitivity and magnitude criteria used for this assessment are set out in the next sections. This criteria has been developed to align with EPA Guidelines descriptions (2022) using professional judgement and the exemplar approach

#### 7.2.6.8.2 Sensitivity of Receptor

80. The assessment identifies receptors that are sensitive to future changes in traffic with an impact pathway to the Proposed Project.

81. The definitions of receptor sensitivity for the purpose of the TTA are provided in Table 7.10 with respect to traffic receptors, and Table 7.11 with respect to pedestrian and cyclist amenity and delay.

82. The sensitivity of the receptors (receiving road network) is based on the sensitivity to change, and the value or importance of a receptor.

**Table 7.10: Definition of Terms Relating to Sensitivity of Traffic Receptor (Junctions and Road Network)**

Sensitivity	Criteria
Very High	Very high importance and rarity, national scale and limited potential for substitution, i.e. the motorway road network
High	High importance and rarity, national scale and limited potential for substitution, i.e. the primary and secondary national road network
Medium	Medium importance and rarity, regional scale, limited potential for substitution, i.e. the regional road network
Low	Low importance and rarity, local scale, i.e. the local primary road network
Negligible	Very low importance and rarity, local scale, i.e. the local secondary and tertiary road network

**Table 7.11: Definition of Terms Relating to Sensitivity for Pedestrian and Cyclist Amenity and Delay**

Sensitivity	Criteria
Very High	Concentrations of sensitive receptors (e.g. hospitals, schools, residential dwellings, areas with high footfall) and no separation from traffic provided by the roadway environment
High	A low concentration of sensitive receptors and limited separation (e.g. infrequent on-street parking) from traffic provided by the roadway environment
Medium	A low concentration of sensitive receptors (e.g. residential dwellings, pedestrian desire lines) and some separation (e.g. on-street parking or grass strip/vegetation) from traffic provided by the roadway environment
Low	Few sensitive receptors and/or highway environment that can accommodate changes in volume of traffic
Negligible	Links with no pedestrian, cycle or equestrian environment

#### 7.2.6.8.3 Magnitude of Impact

83. The scale or magnitude of impacts (both beneficial and adverse) depends on the degree and extent to which the Proposed Project activities may change the environment, which usually varies according to project phase (i.e. construction, operation).

84. The criteria for determining the magnitude of impact for the junctions (i.e. priority and roundabout junctions) are shown in Table 7.12.

**Table 7.12: Criteria for Determination of Magnitude of Impact for Junction Capacity**

Magnitude	Definition (RFC*)
Very High	Above 1.0 RFC
High	Between 0.86 and 1.0 RFC
Medium	Between 0.51 and 0.85 RFC
Low	Between 0.31 and 0.5 RFC
Negligible	Less than 0.3 RFC

\*Ratio of Flow to Capacity

85. Other factors are also considered in determining magnitude, using professional judgement:

- Level of change from baseline conditions
- Duration of impact
- The queue in vehicles per arm.

86. The criteria for defining magnitude of impact for road network capacity are provided in Table 7.13.

**Table 7.13: Criteria for Determination of Magnitude of Impact for Road Network Capacity**

Magnitude	Definition
Very High	Either of: <ul style="list-style-type: none"> <li>• Change from baseflow traffic Annual Average Daily Traffic (AADT) above 15%</li> <li>• Change from baseflow HV content above 10%.</li> </ul>
High	Either of: <ul style="list-style-type: none"> <li>• Change from baseflow traffic AADT by 15%</li> <li>• Change from baseflow HV content by 10%.</li> </ul>
Medium	Either of: <ul style="list-style-type: none"> <li>• Change from baseflow traffic AADT by 10% to 14%</li> <li>• Change from baseflow HV content by 5% to 9%.</li> </ul>
Low	Either of: <ul style="list-style-type: none"> <li>• Change from baseflow traffic AADT by 5% to 9%</li> <li>• Change from baseflow HV content by 2% to 4%.</li> </ul>
Negligible	Either of: <ul style="list-style-type: none"> <li>• Change from baseflow traffic AADT by 0% to 4%</li> <li>• Change from baseflow HV content by 0% to 1%.</li> </ul>

87. The criteria for defining magnitude of impact for pedestrian and cyclist amenity and delays are provided in Table 7.14.

**Table 7.14: Criteria for Determination of Magnitude of Impact for Pedestrian and Cyclist Amenity**

Magnitude	Definition	
	Pedestrian and Cyclist Amenity	Pedestrian and Cyclist Delay
Very High	Greater than 100% increase in traffic (or HV component) and a review based upon the quantum of vehicles, vehicle speed and pedestrian footfall	Informed by a review of the existing pedestrian and cycle environment and forecast change in delay
High		
Medium		
Low		
Negligible	Change in traffic flows (or HV component) less than 100%	

88. The magnitude of impacts also considers the duration of effects on Road Network Capacity, Junction Capacity, and Pedestrian and Cyclist Amenity, following the methodology outlined in Table 7.15 for assessing road closures.

89. The criteria for defining the magnitude of the effect of the road closures are provided in Table 7.15.

**Table 7.15: Criteria for Determination of Magnitude of the Impact for Road Closures**

Magnitude	Definition
Very High	More than 2 months
High	More than 2 weeks
Medium	1 to 2 weeks
Low	Less than a week
Negligible	1 day

#### 7.2.6.8.4 Significance of Effect

90. The significance of an effect is a function of the sensitivity of the receptor and the magnitude of the impact, as shown by the matrix presented in Table 7.16. The matrix provides a framework for the consistent and transparent assessment of predicted effects from the TTA; however, it is important to note that the assessments are based on the application of expert judgement.

91. The matrix provides levels of effect significance ranging from Imperceptible to Profound, as defined in the EPA (2022) EIAR Guidelines. For the purposes of this assessment, effects rated as being ‘Significant – Moderate’ or above are considered to be significant in EIA terms. Effects rated as being ‘Moderate’ are assessed as significant or not significant subject to professional judgement, with a rationale provided for this in the main assessment. Effects identified as less than Moderate significance are not considered to be significant in EIA terms.

**Table 7.16: Impact Assessment Matrix for Determination of Significance of Effect**

Sensitivity of Receptor	Magnitude of Impact				
	Very High	High	Medium	Low	Negligible
Very High	Profound	Very Significant	Significant	Moderate	Slight
High	Very Significant	Significant	Significant – Moderate	Moderate – Slight	Not Significant
Medium	Significant	Significant – Moderate	Moderate	Slight	Imperceptible
Low	Moderate	Moderate – Slight	Slight	Not Significant	Imperceptible
Negligible	Slight	Not Significant	Imperceptible	Imperceptible	Imperceptible

### 7.2.7 Construction Flexibility

92. At this stage of the development of the Proposed Project there are a number of points of detail which cannot be finalised. This is due to factors such as unknown site constraints or obstacles that may affect the construction of the permanent infrastructure. Although a high level of ground investigation has been obtained to inform the planning application for the Proposed Project, further site investigations will be undertaken following grant of planning permission. This will inform a confirmed design for construction. This is a standard delivery approach and as a result, for a linear project of this nature, scale and complexity, it is typical that a level of construction flexibility is required. This flexibility in construction is necessary to provide a mechanism to overcome these matters during the later stages of the Proposed Project. The elements which are subject to construction flexibility are summarised in Table 7.17 and this also explains how this flexibility has been accounted for within the assessment reported in this chapter. Chapter 4 (Proposed Project Description) and Chapter 5 (Construction and Commissioning) in Volume 2 of this EIAR provides further detail.
93. The construction works necessary to deliver the permanent design (including the construction flexibility defined in Table 7.17) would take place within the Construction Working Width which defines the extent of the Planning Application Boundary. For the assessment reported in this EIAR this means that the construction works could take place anywhere within the Construction Working Width.
94. The assessment reported in this chapter has taken account of this construction flexibility and assessed all the likely significant effects that could arise. For this assessment, the likely significant effects reported in this chapter would not change regardless of the alignment or location of infrastructure elements within the defined construction flexibility in Table 7.17 (i.e. the difference in effects would be imperceptible for the purpose of the assessment).

**Table 7.17: Definition of Construction Flexibility**

Design Element	Construction Flexibility	How this has been Applied / Assessed in this Chapter
Pipeline	Treated Water Pipeline and RWRMs horizontal alignment – to allow for construction flexibility to overcome site constraints or obstacles the pipeline could be anywhere within a 20m Pipeline Corridor as defined in Chapter 4 (Proposed Project Description).	The horizontal alignment of the pipeline would not affect the outcome of this assessment, as the Haul Roads and junctions assessed would not change regardless of the alignment of the pipeline in the 20m corridor.
Pipeline	Treated Water Pipeline vertical alignment – to allow construction flexibility to overcome site constraints or obstacles, the vertical alignment of the pipeline could vary between 1.2m and 4.4m to the crown of the pipe. Exceptions would be at proposed trenchless crossing locations (which due to the construction approach would be deeper than 4.4m to crown) and where it has been identified that for hydraulic purposes, the crown of the pipeline would need to be deeper than 4.4m. These have been included in the vertical alignment set out in the Planning Application for the Proposed Project and consequently have been assessed for significant environmental effects as reported in this EIAR. These include e.g. TWB 27100 - 27700 and TWC 2600 - 2750. In these instances, the construction flexibility would be the crown of the pipe not being deeper than that shown in the Planning Application Drawings and not shallower than 1.2m. The excavation needed for the pipeline is assumed to be the largest needed for the lowest vertical parameter set out.	The vertical alignment would not affect the outcome of this assessment.
Valves	The location of valves, and associated pipeline features, that need to be above the pipeline could change if there is a change in the vertical or horizontal alignment of the pipeline, as a result of the construction flexibility defined in the two rows above. The construction flexibility would allow them to move within the 20m Pipeline Corridor. However, the location of these pipeline features would be limited to remaining within the land parcels as identified and assessed within the EIAR (but still remaining within the 20m Pipeline Corridor).	The location of valves would not affect the outcome of this assessment.

Design Element	Construction Flexibility	How this has been Applied / Assessed in this Chapter
Outfall connections	To construct the smaller connection pipes between washout valves and washout outfalls, a small amount of construction flexibility would be required to overcome onsite obstacles or constraints. To allow for this, the connecting pipe could be anywhere within a 10m corridor.	The location of outfall connections would not affect the outcome of this assessment.
Outfall locations	The outfall headwalls and discharge point would have to move with the alignment of the outfall pipeline, as set out above, and so the discharge point could move within the same 10m construction flexibility. To allow for the headwalls to move 10m either side of the current pipeline alignment, a total construction flexibility width of 20m has been allowed for the headwalls.	The location of outfalls would not affect the outcome of this assessment.

#### 7.2.7.1 Variation in Construction Methods

95. In addition to the construction flexibility defined in Table 7.17 there may also be the potential for variation in the method of construction to be used to build the Proposed Project. This variation would be necessary to deal with, for example, uncertainties in ground conditions or on-site constraints. Chapter 5 (Construction & Commissioning) includes further detail on these, including the reasoning why different techniques may be required. This could include:
- Use of raft foundations or concrete piled foundations at the WTP
  - Use of auger bore or pipe jacking for trenchless crossings
  - Using trenchless crossing or open excavation for the crossing of low voltage power lines
  - Different construction techniques for working in poor ground include peat materials.
96. The assessment reported in this chapter has been based on any of these construction techniques being adopted.
97. In addition, as set out in Appendix A5.3 (Methods of Working in Peat), four slightly different methods for constructing the pipeline in areas of peat soils have been defined. To allow for variation in ground conditions it has been assumed for the purpose of the assessment reported in this EIAR that either Method 2, 3 or 4 could be used in areas where the depth of peat is greater than 1m. Where the depth of peat is less than 1m, Method 1 is proposed to be used and it is not expected that there would be any deviation from this methodology. The environmental effects from Methods 2, 3, and 4 would be similar. However, Methods 3 and 4 would result in additional permanent infrastructure in the form of stone pillars (Method 3) or piled supports (Method 4) below the pipeline. Consequently, Method 4 would require piling and as such, would have a slighter greater environmental impact. Therefore, the EIAR is based on the application of Method 4 where the depth of peat is greater than 1m. However, in areas where Methods 2, 3, or 4 could be used, the environmental assessment has considered whether these different methods would result in different likely significant effects and therefore the assessment reported in this chapter has identified the likely significant effects from any of the three techniques. For the purposes of assessment all methods would have a similar effect for traffic generation because all methods require both equipment to be moved on vehicles and worker travel to be completed. The traffic and transport impacts for the different working in peat methods would be similar (differences between the methods would be imperceptible for the purposes of assessment), and therefore the likely significant effects reported in this chapter would not change regardless of the working in peat method used.

#### 7.2.8 Difficulties Encountered in Compiling Information

98. The information that has informed the assessment is sufficient to identify likely significant effects. The limitations described in this chapter are not considered to have a material impact on the assessment conclusions.

### 7.2.9 Cumulative Effects

99. The EIA Directive includes the consideration of existing projects within the cumulative effects assessment, and this is addressed through a consideration of the incremental impact of the Proposed Project within the context of the existing baseline as described, and where applicable, the carrying capacity of the environment. This assessment has been completed and presented in Chapter 21 (Cumulative Effects & Interactions).
100. As described in Section 7.2.6.3, in the Do-Minimum scenario other developments which result in potential cumulative (inter-project) impacts on the Proposed Project are identified in Appendix A7.1 (Traffic and Transportation Assessment). There are a number of proposed developments within the regions of the Proposed Project that have been considered.
101. All details of the cumulative assessment process, methodology, and outcomes are presented in Chapter 21. The shortlist of committed developments were added to baseline traffic flows. By including these committed developments alongside the TII high growth rates the assessment provided a robust and comprehensive analysis of future traffic impacts. The provision of a high growth rate in the traffic model would cater to further potential proposed developments along the Haul Roads for the Proposed Project. The traffic models is therefore inherently cumulative as the model factors in these future committed developments.
102. Intra-project effects of note in relation to traffic and transport include increased noise and air emissions from additional traffic, the impact on population and communities through a change in community amenity and severance, and human health from traffic emissions and nuisance. Identified interactions are assessed within the respective topic chapters and summarised in Chapter 21.

## 7.3 Baseline Environment

103. The Proposed Project includes works within six LAs: Limerick City and County Council, Clare County Council, Tipperary County Council, Offaly County Council, Kildare County Council and South Dublin County Council. Proposed Haul Roads would also travel through Laois County Council. The Proposed Project would be constructed and operated within predominantly open countryside, generally avoiding towns and villages.
104. Traffic surveys as agreed with the LAs, were completed in 2024. The following sections summarise the existing arrangement of the 57 junctions which are assessed in this chapter (excluding proposed new junctions that are part of the Proposed Project). The locations of the surveys are shown in Figure 7.9 to Figure 7.17.
105. The following sections detail the existing environment which would be impacted by the Proposed Project, and which also relates to the agreed Haul Roads, existing junctions and the new site access junctions (as per Table 7.18; permanent six Infrastructure Sites, PSDs and CCs) which are shown in the overview map in Figure 7.9.

**Table 7.18: New Site Access Junctions**

Section	Construction Compound/ Pipe Storage Depot		Infrastructure Site	Access/Egress	Junction	County
1	CC0	Satellite Construction Compound	RWI&PS	AE001	Junction 3	Tipperary
	CC1	Principal Construction Compound	WTP	AE003	Junction 4	Tipperary
2	PSD1	Pipe Storage Depot	-	AE005	Junction 5	Tipperary
	CC2	Principal Construction Compound	-	AE009	Junction 10	Tipperary
	CC3	Satellite Construction Compound	BPT	AE011	Junction 13	Tipperary

Section	Construction Compound/ Pipe Storage Depot		Infrastructure Site	Access/Egress	Junction	County
3	PSD2	Pipe Storage Depot	-	AE015	Junction 15	Offaly
	PSD3	Pipe Storage Depot	-	AE017	Junction 17	Offaly
	PSD4	Pipe Storage Depot	-	AE018	Junction 22	Offaly
	CC4	Satellite Construction Compound	BPS	AE047	Junction 23	Offaly
	PSD5	Pipe Storage Depot	-	AE020	Junction 26	Offaly
	CC5	Principal Construction Compound	-	AE021	Junction 28	Offaly
	PSD6	Pipe Storage Depot	-	AE023	Junction 34	Offaly
4	PSD8	Pipe Storage Depot	-	AE027	Junction 39	Offaly
	CC6	Principal Construction Compound	-	AE029	Junction 43	Kildare
	PSD9	Pipe Storage Depot	-	AE033	Junction 47	Kildare
	PSD10	Pipe Storage Depot	-	AE035	Junction 52	Kildare
	-	Flow Control Valve	FCV	AE037	Junction 57	Kildare
	CC7	Satellite Construction Compound	TPR	AE035	Junction 56	Dublin

\* See Section 5.3 in Chapter 5 (Construction & Commissioning) and Table 7.39 for description of construction sections.

### 7.3.1 County Clare

#### 7.3.1.1 Baseline Road Network (County Clare)

106. As shown in Figure 7.2, the agreed Haul Roads within the administrative area of Clare County Council include the N18 national road; the following regional roads: R445, R464, R463, R465, R471; and local roads L3056, L3046, L70382, and L7040. There are also two urban roads included as Haul Roads: Lackyle Heights and Millbrook Road.

107. The agreed Haul Roads would allow access to all necessary access points along the overhead line for the proposed 38 kV Uprate Works in County Clare.

108. Table 7.19 sets out the proposed Haul Roads within County Clare and the element of the Proposed Project the road would provide access to. It also sets out the junctions relevant to these Haul Roads.

109. The Haul Roads would provide access to the national motorway network via the M18 Junction 18, M7 Junction 30 and M20 Junction 1.

**Table 7.19: Clare Haul Roads**

Activity/Element	Haul Road	Haul Road Category	Relevant Junctions
Overhead Line (38 kV Uprate Works)	R445	Minor	None
Overhead Line (38 kV Uprate Works)	R464	Minor	None
Overhead Line (38 kV Uprate Works)	R463	Minor	None
Overhead Line (38 kV Uprate Works)	R465	Minor	None
Overhead Line (38 kV Uprate Works)	R471	Minor	None
Overhead Line (38 kV Uprate Works)	L3056	Minor	None
Overhead Line (38 kV Uprate Works)	L3046	Minor	None
Overhead Line (38 kV Uprate Works)	L70382	Minor	None
Overhead Line (38 kV Uprate Works)	L7040	Minor	None
Overhead Line (38 kV Uprate Works)	Lackyle Heights	Minor	None
Overhead Line (38 kV Uprate Works)	Millbrook Road	Minor	None

### 7.3.1.2 Baseline Junctions (County Clare)

110. During the scoping consultation with Clare County Council, Clare County Council confirmed that no junction assessments were required.

### 7.3.1.3 Baseline Pedestrians and Cyclists (County Clare)

111. A desktop review of the agreed Haul Roads within the administrative area of Clare County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes shared paths and continuous footpaths. Table 7.20 below lists the Haul Roads with existing vulnerable road user infrastructure.

**Table 7.20: Baseline Pedestrians and Cyclists (County Clare)**

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
N18	13.96	0.51 one side	N/A
R445	1.64	0.41 both sides 0.11 one side	N/A
R463	9.96	0.04 both sides 0.62 one side	N/A
R464	2.94	0.2 both sides 2.75 one side	N/A
R465	1.61	0.2 one side	N/A
R466	0.86	0.14 both sides 0.46 one side	N/A
R471	2.12	N/A	N/A
L3046	3.4	N/A	N/A
L3056	0.87	0.87 one side	N/A
L3070	4.8	N/A	N/A
L7040	1.7	N/A	N/A
L70382	1.95	N/A	N/A

### 7.3.1.4 Baseline Public Transport (County Clare)

112. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Clare County Council are shown in Table 7.21 below.

**Table 7.21: Baseline Public Transport (County Clare)**

Road	Length of Haul Road (km)	Bus Services
N18	13.96	317A, 343
R445	1.64	317, 317A, 343
R463	9.96	313, 318, 323
R464	2.94	313
R466	0.86	323, 345
L3056	0.87	313

## 7.3.2 County Limerick

### 7.3.2.1 Baseline Road Network (County Limerick)

113. As shown in Figure 7.3, the agreed Haul Roads within the administrative area of Limerick City and County Council include the N69, N18 and N20 national roads. The agreed Haul Roads also include the following local roads; L5001 and L6188, regional roads: R466, R525, R527, R858, and R464; and four urban roads, New Street Ashbourne Avenue, Courtbrack Avenue and Cratloe Road.

114. The agreed Haul Roads would allow access to all necessary access points along the overhead line for the proposed 38 kV Uprate Works in County Limerick.

115. Table 7.22 sets out the proposed Haul Roads in County Limerick and the element of the Proposed Project the roads would provide access to. It also sets out the junctions relevant to these Haul Roads.

116. The Haul Roads would provide access to the national motorway network via the M18 Junction 18, M7 Junction 30 and M20 Junction 1.

**Table 7.22: Limerick Haul Roads**

Activity/Element	Haul Road	Haul Road Category	Relevant Junctions
Overhead Line (38 kV Uprate Works)	N69	Principal	None
Overhead Line (38 kV Uprate Works)	R466	Minor	None
Overhead Line (38 kV Uprate Works)	R525	Minor	None
Overhead Line (38 kV Uprate Works)	R527	Minor	None
Overhead Line (38 kV Uprate Works)	R858	Minor	Junction 1
Overhead Line (38 kV Uprate Works)	R464	Minor	None
Overhead Line (38 kV Uprate Works)	New Street	Minor	None
Overhead Line (38 kV Uprate Works)	Ashbourne Avenue	Minor	None

### 7.3.2.2 Baseline Junctions (County Limerick)

117. The Haul Roads proposed in County Limerick would utilise Junction 1: R858/Existing ESB Depot.

118. Junction 1 is a T-junction between the R858 regional road and the existing ESB depot. The R858 is a regional road with a two-lane single carriageway. There are pedestrian facilities along the R858 with footpaths on both sides of the road. The arms of the junction are labelled on Image 7.1 as such: A – R858 (NE), B – ESB Depot, and C – R858 (SW).

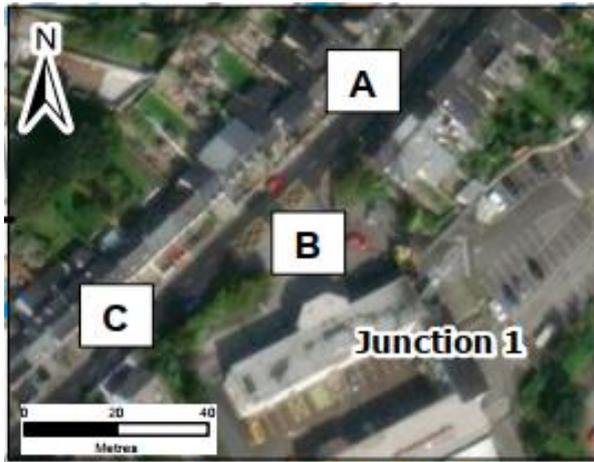


Image 7.1: Junction 1 R858/Existing ESB Depot Access <sup>2</sup>

### 7.3.2.3 Baseline Pedestrians and Cyclists (County Limerick)

119. A desktop review of the agreed Haul Roads within the administrative area of Limerick City and County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.23 below lists the Haul Roads with existing vulnerable road user infrastructure.

Table 7.23: Baseline Pedestrians and Cyclists (County Limerick)

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
N69	33.7	1.95 both sides 2.92 one side	0.96
N18	7.47	N/A	N/A
N20	23.73	0.5 both sides 0.3 one side	N/A
R445	1.96	1.6 both sides 0.22 one side	1
R464	2.45	2.45 both sides	N/A
R466	1.74	0.19 one side	N/A
R510	2.94	2.24 both sides 0.7 one side	N/A
R525	1.02	0.34 one side	N/A
R527	0.48	0.48 both sides	N/A
R858	1.5	1.5 both sides	N/A
L5001	0.56	N/A	N/A
L6188	2.47	N/A	N/A
Ashbrook Avenue	0.49	0.49 both sides	N/A
Courtbrack Avenue	0.31	0.31 both sides	N/A
Cratloe Road	1.5	1.5 both sides	N/A
New Street	0.27	0.27 both sides	N/A

<sup>2</sup> Image 7.1 to Image 7.39 (Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community). Letters shown on the images refer to the junction arms.

### 7.3.2.4 Baseline Public Transport (County Limerick)

120. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Limerick City and County Council are shown in Table 7.24 below.

**Table 7.24: Baseline Public Transport (County Limerick)**

Road	Length of Haul Road (km)	Bus Services
N69	33.7	314
N20	23.73	320, Expressway 51
R464	2.45	306, 313
R466	1.74	345
R525	1.02	323
Cratloe Road	1.5	302, 330X, 964

### 7.3.3 County Tipperary

#### 7.3.3.1 Baseline Road Network (County Tipperary)

121. As shown in Figure 7.4, the agreed Haul Roads within the administrative area of Tipperary County Council include the N65 and N52 national roads. The agreed Haul Roads also include the following regional roads: R494, R445, R495, R493, R490, R491 and R499; and the L1064 local road.

122. The Haul Roads would allow access to two Construction Compounds (CC1 and CC2), one Pipe Storage Depot (PSD1) and to three of the Infrastructure Sites: the RWI&PS (CC0), the WTP (CC1), and the BPT (CC3). The agreed Haul Roads would also allow access to the Construction Working Width via 19 Access and Egress Points (AE) along the route of the pipeline as shown Figure 7.4.

123. The RWI&PS access is located on the R494 regional road, which is 5.8m in width at the location of the proposed access. The proposed access into the RWI&PS is shown in Figure 4.62 of Chapter 4 (Proposed Project Description).

124. The WTP access is located on the R445 regional road, which is 9.2m in width (including hard strips) at the location of the proposed access. The proposed access into the WTP is shown in Figure 4.64 of Chapter 4 (Proposed Project Description) and is west of the RDX003 road crossing location.

125. The BPT access is located on the L1064 local road, which is 4.6m in width at the location of the proposed access. The proposed access into the BPT is shown in Figure 4.67 of Chapter 4 (Proposed Project Description).

126. Table 7.25 sets out the proposed Haul Roads within Tipperary and the element of the Proposed Project the roads would provide access to. It also sets out the junctions relevant to these Haul Roads.

127. The Haul Roads would provide access to the national motorway network via the M6 Junction 16 and the M7 Junctions 22, 23, 26 and 27.

**Table 7.25: Tipperary Haul Roads**

Activity/Element	Haul Road	Haul Road Category	Relevant Junction
AE001, RWI&PS (CC0)	R494	Minor	Junction 2,3
AE002	R494	Minor	Junction 2,3
AE003, WTP (CC1)	R445	Minor	Junction 2,3,4
AE051	R445	Minor	Junction 2,4
AE052	R445	Minor	Junction 2,4
AE053	R494	Minor	Junction 2,3
AE054	R494	Minor	Junction 2,3
AE004	R445	Minor	Junction 4,5
AE041	Unnamed Local Road	Minor	Junction 2,4,5
AE042	R499	Minor	Junction 2,4,5
AE005, PSD1	R445	Minor	Junction 5,6,7,8,9
AE006	R494	Minor	Junction 6,7,8,9
AE007	R495	Minor	Junction 6,7,8,9
AE008	R493	Minor	Junction 6,7,8,9
AE009 (AE049), CC2	N52	Principal	Junction 10,11,12
AE010	R490	Minor	Junction 14
AE011, BPT (CC3)	L1064	Minor	Junction 13,14
AE012	R491	Minor	Junction 14,15

### 7.3.3.2 Baseline Junctions (County Tipperary)

128. The proposed Haul Roads in County Tipperary would utilise Junction 2, Junction 6, Junction 7, Junction 8, Junction 9, Junction 11, Junction 12, Junction 14, Junction 19, Junction 20, and Junction 21.

#### 7.3.3.2.1 Junction 2: R494/R445 Birdhill Roundabout

129. Junction 2 is a four-arm roundabout on the R494 and the R445 regional roads. The R494 northern and southern arms provide two-lane entries to the roundabout. The R494 southern arm provides an uncontrolled pedestrian crossing, with deflection islands at all arms. The R445 eastern and western arms provide one-lane entries to the roundabout, with on-road cycle lane facilities. The arms of the junction are labelled on Image 7.2 as such: A – R494 (NNW), B – R445 (ENE), C – R494 (SSE) and D – R445 (WSW).

130. Junctions 3, 4, and 5 are proposed and are detailed in Section 7.3. The junction numbering follows a west-to-east sequence and encompasses both existing and proposed junctions. Throughout this section of the report, other proposed junctions are also absent from the sequence; these are described in Section 7.3 and include Junctions 10, 13, 15, 17, 22, 23, 26, 28, 34, 39, 43, 47, 52, 56, and 57.

#### 7.3.3.2.2 Junction 6: N52/R445 Three Arm Roundabout in Nenagh

131. Junction 6 is a three-arm roundabout on the N52 and the R445 regional road. All three arms contain short two-lane entries to the roundabout. The N52 northern arm provides uncontrolled pedestrian crossing facilities, with deflection islands at all arms. The arms of the junction are labelled on Image 7.3 as such: A – R445, B – N52 (SW) and C – N52 (NNW).

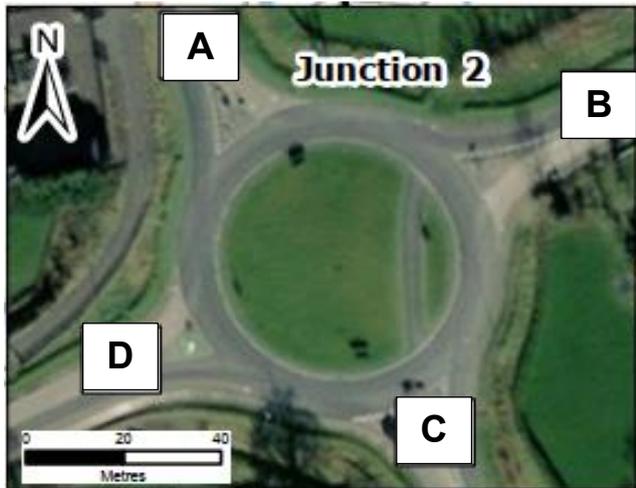


Image 7.2: Junction 2 R494 /R445 Roundabout

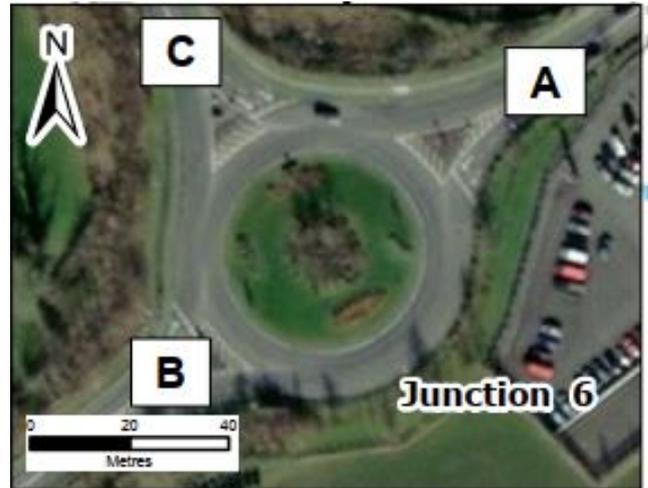


Image 7.3: Junction 6 N52/R445 Roundabout

#### 7.3.3.2.3 Junction 7: N52/R494 Roundabout in Nenagh

132. Junction 7 is a four-arm roundabout on the N52 and the R494 regional road. All four arms contain short two-lane entries to the roundabout, with uncontrolled pedestrian crossing facilities and deflection islands at all arms. The arms of the junction are labelled on Image 7.4 as such: A – N52 (N), B – R494 (E), C – N52 (SSW) and D – R494 (W).

#### 7.3.3.2.4 Junction 8: N52/R495 Roundabout in Nenagh

133. Junction 8 is a four-arm roundabout on the N52 and the R495 regional road. All four arms contain a two-lane entry to the roundabout, with uncontrolled pedestrian crossing facilities and deflection islands at all arms. The arms of the junction are labelled on Image 7.5 as such: A – N52 (NE), B – R495 (SE), C – N52 (SSW) and D – R495 (WNW).



Image 7.4: Junction 7 N52/R494 Roundabout

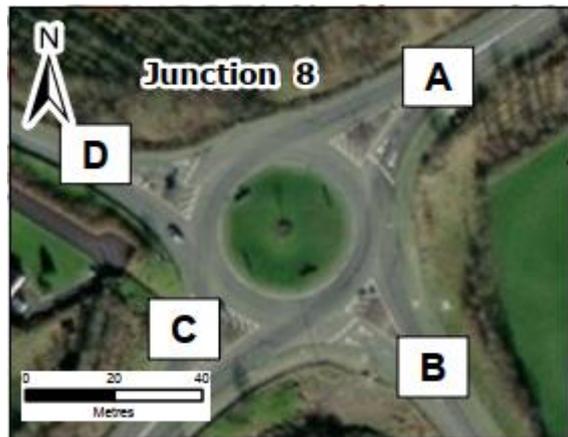


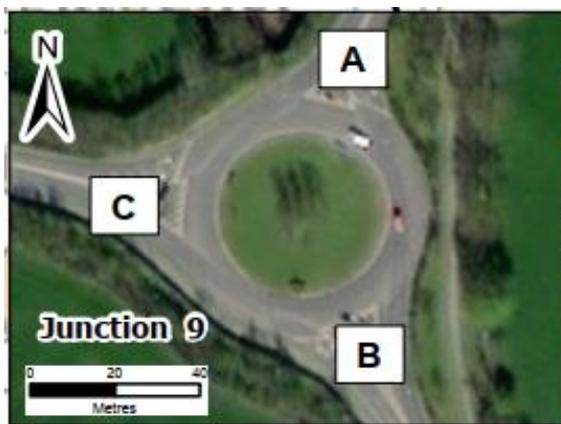
Image 7.5: Junction 8 N52/R495 Roundabout

**7.3.3.2.5 Junction 9: N52/R497 Roundabout in Nenagh**

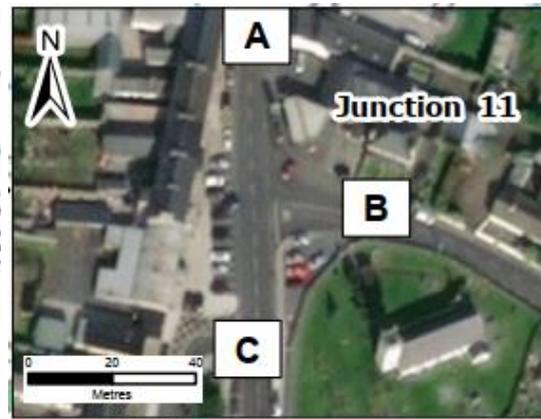
134. Junction 9 is a three-arm roundabout on the N52 and the R497 regional road. All three arms contain a two-lane entry to the roundabout, with uncontrolled pedestrian crossing facilities and deflection islands at all arms. The arms of the junction are labelled on Image 7.6 as such: A – N52 (NNE), B – R497 and C – N52 (W).

**7.3.3.2.6 Junction 11: N52/R490 T-Junction in Borrisokane**

135. Junction 11 is a T-junction between the N52 national road and the R490 regional road. The N52 is the major road, which is a two-lane single carriageway. The R490 (minor road) is also a two-lane single carriageway. There are no pedestrian crossing facilities at this junction. The arms of the junction are labelled on Image 7.7 as such: A – N52 Main Street, B – R490 and C – N52 Nenagh Road.



**Image 7.6: Junction 9 N52/R497 Roundabout**



**Image 7.7: Junction 11 N52/R490 T-Junction**

**7.3.3.2.7 Junction 12: N65/N52/L1092 Crossroad Junction**

136. Junction 12 is a crossroad junction between the N65, N52 national roads and L1092 local road. All four arms are two-lane single carriageways. The major arms are the N52 south and N65. The minor arms are the L1092 and N52 east. There are no pedestrian crossing facilities at this junction. The arms of the junction are labelled on Image 7.8 as such: A – N65, B – N52 Mill Street, C – N52 Main Street and D – L1092.

**7.3.3.2.8 Junction 14: R490/R491 T-Junction in Cloughjordan**

137. Junction 14 is a T-junction between the R490 and the R491 regional roads. The major road is the R490 and is a two-lane single carriageway. The R491 is also a two-lane single carriageway and is considered a minor road, giving way to traffic travelling on the R490. There are uncontrolled pedestrian crossing facilities via dropped kerbing and tactile paving on the R490 and R491 western arm. The arms of the junction are labelled on Image 7.9 as such: A – R490 Main Street, B – R491 and C – R490 Templemore Road.



Image 7.8: Junction 12 N65/N52/L1092 Crossroad

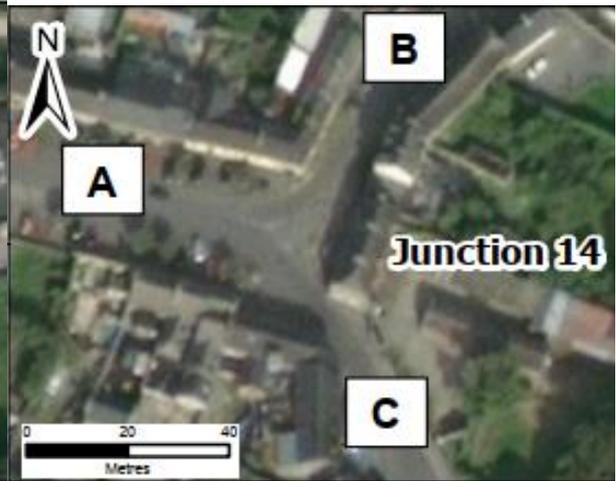


Image 7.9: Junction 14 R490/R491 T-Junction

**7.3.3.2.9** *Junction 19: N62/R445 Templemore Roundabout in Roscrea*

138. Junction 19 is a five-arm roundabout on the N62 and the R445 regional road. All five arms contain a one-lane entry to the roundabout, with uncontrolled pedestrian crossing facilities, with deflection islands at all arms. The arms of the junction are labelled on Image 7.10 as such: A – R445 (NE), B – N62 Tullaskeagh Road, C – Carrig Road, D – R445 (W) and E- N62.

**7.3.3.2.10** *Junction 20: N62/Dublin Road T-Junction in Roscrea*

139. Junction 20 is a T-junction between the N62 national road and the Dublin Road, L3142 local road. The major road is a two-lane single carriageway which contains the N62 and L3142. The major arm contains a ghost island, which provides a right turning lane onto the N62 north. The N62 north (minor arm) contains a short two-lane approach to the major road. There are no pedestrian crossing facilities at this junction. The arms of the junction are labelled on Image 7.11 as such: A – N62 Church Street, B – N62 Lourdes Road and C – L3142.

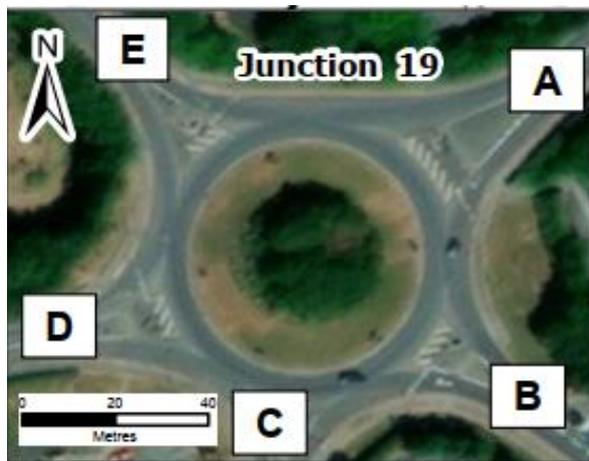


Image 7.10: Junction 19 N62/R445 Templemore Roundabout



Image 7.11: Junction 20 N62/L3142 T-Junction

7.3.3.2.11 Junction 21: N62/R445 Roundabout in Roscrea

140. Junction 21 is a four-arm roundabout on the N62 and the R445 regional road. All four arms contain a one-lane entry to the roundabout. The N62 north and R445 arms provide uncontrolled pedestrian crossing facilities, with deflection islands at all arms. The arms of the junction are labelled on Image 7.12 as such: A – N62, B – R445 (E), C – L3259 and D – R445 (W).

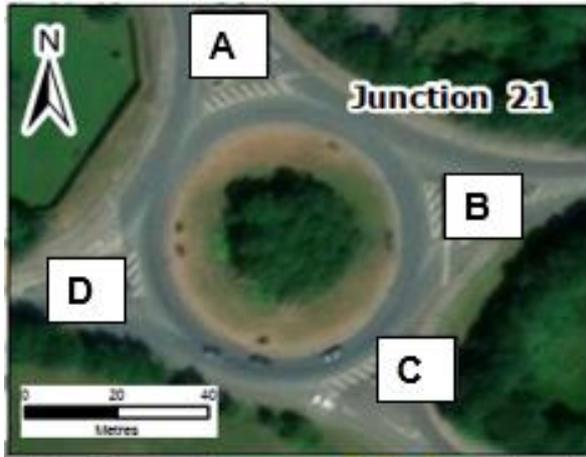


Image 7.12: Junction 21 N62/R445 Roundabout

7.3.3.3 Baseline Pedestrians and Cyclists (County Tipperary)

141. A desktop review of the agreed Haul Roads within the administrative area of Tipperary County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.26 below lists the Haul Roads with existing vulnerable road user infrastructure.

Table 7.26: Baseline Pedestrians and Cyclists (County Tipperary)

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
N52	21	1.37 both sides 5.74 one side	1.27
N62	8.82	3.18 both sides 1.53 one side	N/A
N65	12.9	0.37 both sides 0.58 one side	N/A
R445	15.47	0.6 one side	14.26
R490	7.07	1.08 both sides 0.75 one side	N/A
R491	5.5	0.16 both sides 0.97 one side	N/A
R493	2.92	N/A	N/A
R494	1.17	0.16 both sides	N/A
R495	1.8	N/A	N/A
R499	1.8	0.11 one side	N/A
L1064	1.34	N/A	N/A

#### 7.3.3.4 Baseline Public Transport (County Tipperary)

142. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Tipperary County Council are shown in Table 7.27 below.

**Table 7.27: Baseline Public Transport (County Tipperary)**

Road	Length of Haul Road (km)	Bus Services
N52	21	324, 72, 323X
N62	8.82	854
N65	12.9	322
R445	15.47	854
R490	7.07	854

#### 7.3.4 County Laois

##### 7.3.4.1 Baseline Road Network (County Laois)

143. As shown in Figure 7.6, the agreed Haul Roads within the administrative area of Laois County Council include the N80 national road and two regional roads: the R422 and the R420. No access points to the Construction Working Width are proposed in County Laois.

##### 7.3.4.2 Baseline Junctions (County Laois)

144. The proposed Haul Roads in County Laois would use Junction 32, Junction 33, Junction 37 and Junction 38.

###### 7.3.4.2.1 Junction 32: N80/R422 Mini-Roundabout in Mountmellick

145. Junction 32 is a three-arm mini-roundabout. The approaches from N80 and R422 are all single lane entries, with slight flares. The arms of the junction are labelled on Image 7.13 as such: A – N80 (S), B – R422 and C – N80 (N).

###### 7.3.4.2.2 Junction 33: R422/Connolly Street Mini-Roundabout in Mountmellick

146. Junction 33 is a three-arm mini-roundabout. The approaches from R422 and Connolly Street are all single lane entries, with slight flares. The R422 north has a signal-controlled pedestrian crossing. The arms of the junction are labelled on Image 7.14 as such: A – R422 Lord Edward Street, B – Connolly Street and C – R422 Sarsfield Street.

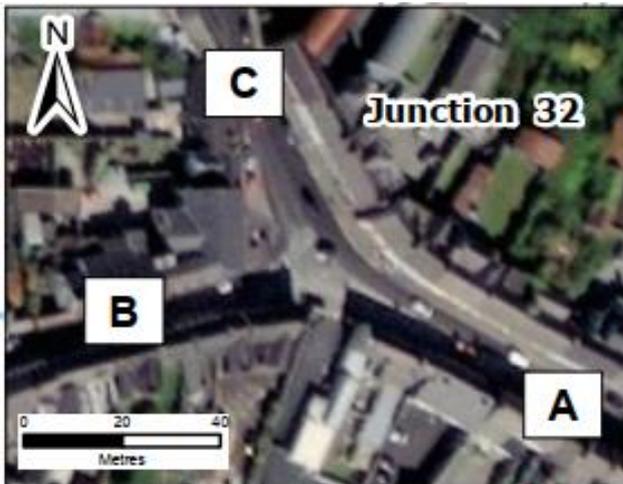


Image 7.13: Junction 32 N80/R422 Mini-Roundabout

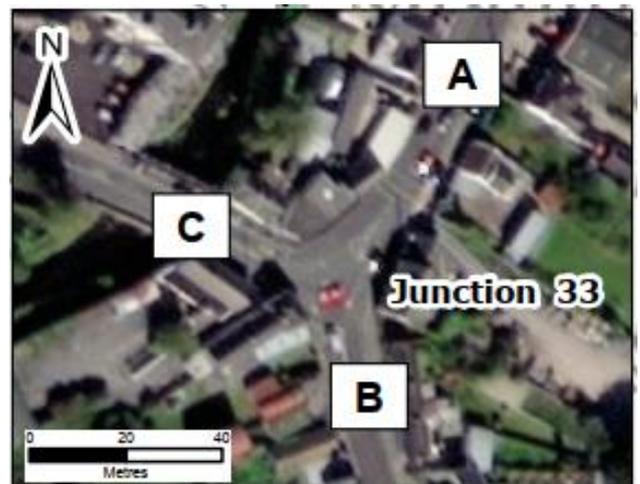


Image 7.14: Junction 33 R422/Connolly Street Mini-Roundabout

#### 7.3.4.2.3 Junction 37: R420/Main Street T-Junction in Portarlington

147. Junction 37 is a T-junction between the R420 and the main street in Portarlington. The R420 is the major road, which is a two-lane single carriageway. The main street is a one-lane exit only arm and is considered a minor road, giving way to traffic travelling on the R420 on the major road. The arms of the junction are labelled on Image 7.15 as such: A – R420 (NE), B – Main Street and C – R420 (W).

#### 7.3.4.2.4 Junction 38: R419/R420/Main Street Staggered Junction in Portarlington

148. Junction 38 is a staggered junction, with a ghost island between the R419 and R420 regional roads. There are zebra pedestrian crossings on the R420 major road, eastern and western arms. The R420 and R419 are both two-lane single carriageways; however, Main Street is a one-lane entry-only arm. The arms of the junction are labelled on Image 7.16 as such: A – R420, B – R419 Spa Street, C – R420 Link Road and D – Access Road.

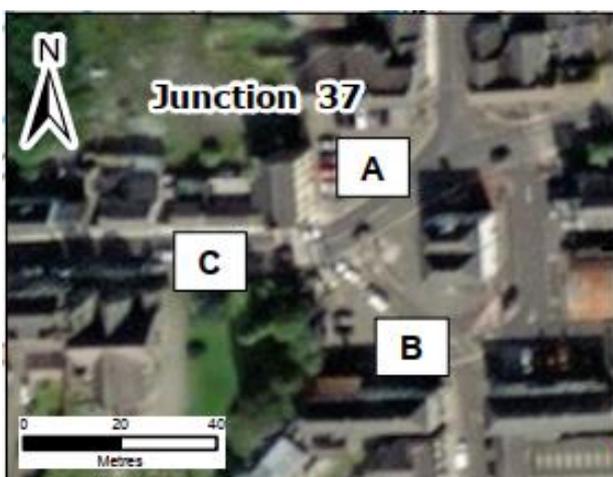


Image 7.15: Junction 37 R420/Main Street T-Junction in Portarlington

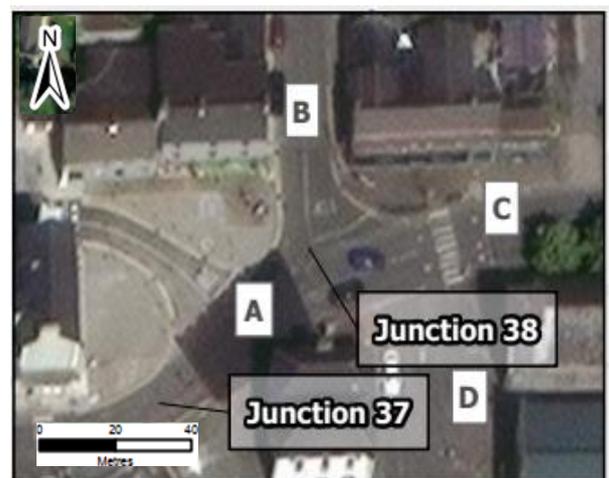


Image 7.16: Junction 38 R419/R420/Main Street Staggered Junction

### 7.3.4.3 Baseline Pedestrians and Cyclists (County Laois)

149. A desktop review of the agreed Haul Roads within the administrative area of Laois County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.28 below lists the Haul Roads with existing vulnerable road user infrastructure.

**Table 7.28: Baseline Pedestrians and Cyclists (County Laois)**

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
N80	12.3	1.4 both sides 0.13 one side	N/A
R419	1.36	1 both sides	N/A
R420	8.34	2 both sides 0.9 one side	N/A
R422	10.64	2 both sides 1.8 one side	N/A
R445	1.27	N/A	N/A

150. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Laois County Council are shown in Table 7.29 below.

### 7.3.4.4 Baseline Public Transport (County Laois)

**Table 7.29: Baseline Public Transport (County Laois)**

Road	Length of Haul Road (km)	Bus Services
N80	12.3	73, 823, IW04, LS1
R420	8.34	806, 829, IW04, LS1
R422	10.64	829, 830, UM14

## 7.3.5 County Offaly

### 7.3.5.1 Baseline Road Network (County Offaly)

151. As shown in Figure 7.5, the agreed Haul Roads within the administrative area of Offaly County Council include the following national roads: N62, N52 and N80. The agreed Haul Roads also include the following regional roads: R490, R491, R492, R440, R421, R420, R402, R400, R441, R442, R445, R401 and R419; and eight local roads: L7004, L3003, L4007, L4004, L1020, L4022, L2002 and L1014.

152. The agreed Haul Roads would allow access to Construction Compounds (CC5) and six of the Pipe Storage Depots (PSD2, PSD3, PSD4, PSD5, PSD6 and PSD8) and to one of the infrastructures sites, the BPS (CC4). The agreed Haul Roads would also allow access to 22 Access and Egress Points along the route of the pipeline.

153. The BPS access is located on the L3003 local road, which is 4.8m in width at the location of the proposed access. The proposed access into the BPS (CC4) is shown in Figure 4.68 of Chapter 4 (Proposed Project Description) and is located at the AE047.

154. Table 7.30 sets out the proposed Haul Roads in Offaly and the element of the Proposed Project the road would provide access to. It also sets out the junctions relevant to these Haul Roads.

155. The Haul Roads provide access to the national motorway network via the M6 Junctions 3, 5 and 8 and the M7 Junctions 15, 22 and 23.

**Table 7.30: Offaly Haul Roads**

Activity/Element	Haul Roads	Haul Road Category	Relevant Junction
AE013	R491	Minor	Junction 15,16
AE014	Unnamed Local Road	Minor	Junction 15,16
AE015, PSD2	L4022	Minor	Junction 15,16
AE016	R492	Minor	Junction 16,18
AE017, PSD3	N62	Principal	Junction 16,17,18,19,20,21
AE018, PSD4	L4007	Minor	Junction 18,22,24
AE044	L8014	Minor	Junction 30,32,33
AE019	R440	Minor	Junction 18,22,24,25
BPS (CC4), AE047	L3003	Minor	Junction 18,22,23,24,25,26,27
AE020, PSD5	L2027	Minor	Junction 18,22,23,24,25,26,27
AE043	Unnamed Local Road	Minor	Junction 27
AE021, CC5	R421	Minor	Junction 18,22,24,25,26,27,28,29
AE048	L2006	Minor	Junction 32,33
AE045	L2002	Minor	Junction 30,32,33
AE022	N82	Principal	Junction 18,22,24,25,27,28,29,30
AE023, PSD6	R420	Minor	Junction 30,31,34,37,38
AE050	L1020	Minor	Junction 31
AE024	Unnamed Local Road	Minor	Junction 30,31,35,37,38
AE025	R402	Minor	Junction 30,31,35,36,37,38
AE026	R400	Minor	Junction 30,31,35,36,37,38
AE027, PSD8	R402	Minor	Junction 30,31,35,36,37,38,39
AE028	R402	Minor	Junction 36,39,40,41,42,44

### 7.3.5.2 Baseline Junctions (County Offaly)

156. The Haul Roads in County Offaly would use the followings junctions in Offaly: Junction 16, Junction 18, Junction 24, Junction 25, Junction 27, Junction 28, Junction 29, Junction 30, Junction 31, Junction 35, Junction 36, Junction 40, and Junction 41.

#### 7.3.5.2.1 Junction 16: N62/R492 Crossroads South of Birr

157. Junction 16 is a crossroads between the N62 national road, R492 regional road and the L4008 local road. The N62 major road contains ghost islands, which provide right turning lanes onto the R492 and L4008. Left turn deflection lanes are also provided from the N62 onto R492 and L4008. The arms of the junction are labelled on Image 7.17 as such: A – N62 (NNW), B – R492 (NNE), C – N62 (SSE) and D – R492 (SW).

#### 7.3.5.2.2 Junction 18: N52/R440 Mini-Roundabout in Birr

158. Junction 18 is a four-arm mini-roundabout. The approaches from N52 north and south are single lane entries, with slight flares. The R440 has a two-lane approach to the junction. Connaught Street is a one-way street, which is an entry only and provides an uncontrolled pedestrian crossing. The arms of the junction are labelled on Image 7.18 as such: A – N52 John's Place, B – R440 John's Place, C – N52 Wilmer Road and D – Connaught Street.

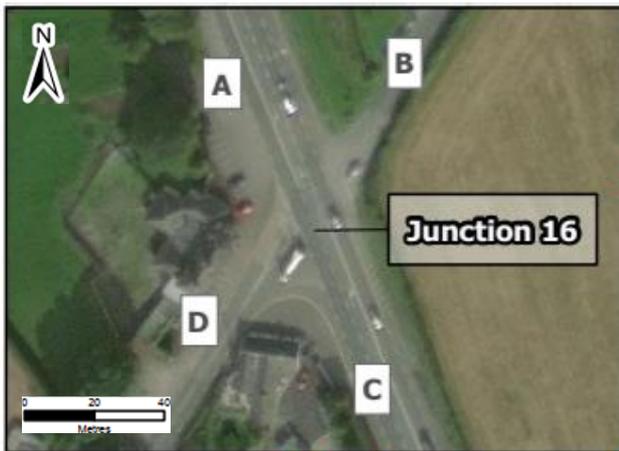


Image 7.17: Junction 16 N62/R492 Crossroads

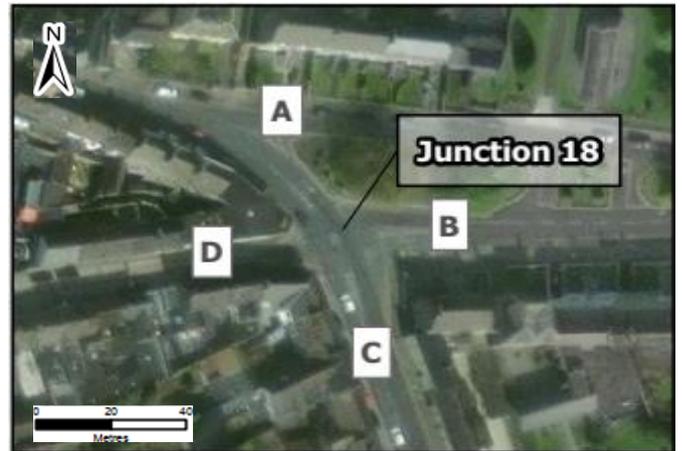


Image 7.18: Junction 18 N52/R440 Mini-Roundabout

#### 7.3.5.2.3 Junction 24: R421/L4004 Crossroads in Claren

159. Junction 24 is a crossroads between the R421 regional road (major road), L8008 (minor road) and L4004 (minor road) local roads. All four arms are two-lane single carriageways. There are no pedestrian crossing facilities at this junction. The arms of the junction are labelled on Image 7.19 as such: A – R421 (NNE), B – L8008, C – R421 (SSW) and D – L4004.

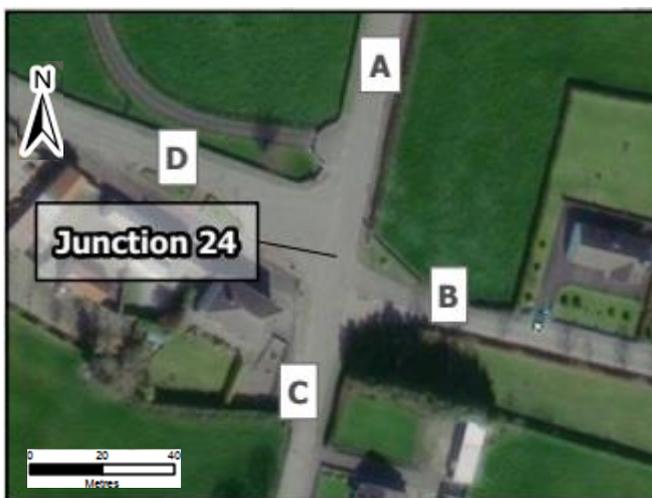


Image 7.19: Junction 24 R421/L4004 crossroads

#### 7.3.5.2.4 Junction 25: R440/R421 T-Junction West of Kinnity

160. Junction 25 is a T-junction between the R440 and the R421 regional roads. The major road is the R440 and is a two-lane single carriageway. The R421 is also a two-lane single carriageway and is considered a minor road, giving way to traffic travelling on the R440. The arms of the junction are labelled on Image 7.20 as such: A – R421 (E), B – R421 (SSW) and C – R440.

**7.3.5.2.5 Junction 27: N52/L2027 T-Junction in Kilcormac**

161. Junction 27 is a T-junction between the N52 national road and the L2027 local road. The major road is a two-lane single carriageway, which contains the N52. The L2027 is also a two-lane single carriageway and is considered a minor road, giving way to traffic travelling on the N52. There are no pedestrian facilities at this junction. The arms of the junction are labelled on Image 7.21 as such: A – N52 Bridge Street, B – Kinnity Road and C – N52 Main Street.

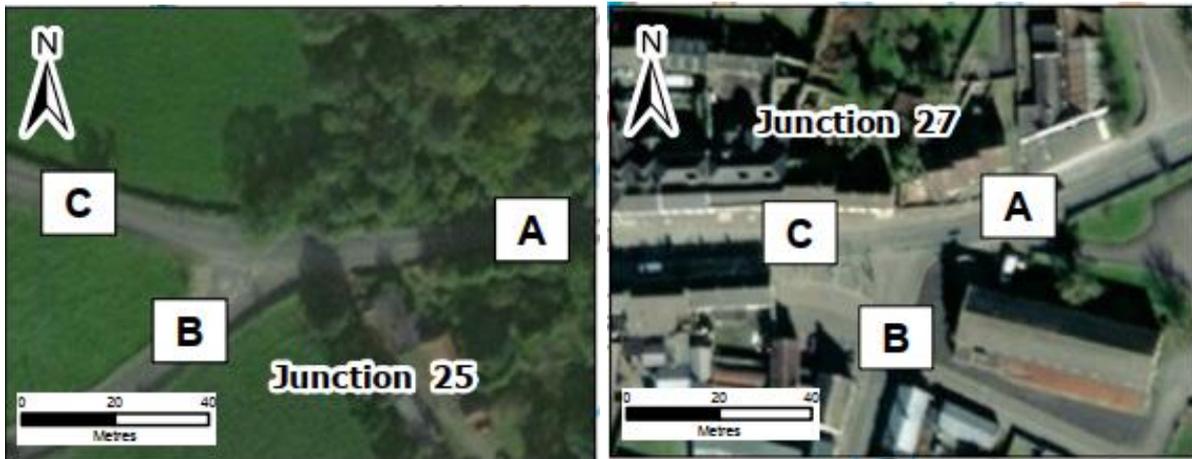


Image 7.20: Junction 25 R440/R421 T-Junction

Image 7.21: Junction 27 N52/L2027 T-Junction

**7.3.5.2.6 Junction 29: N52/R421 Roundabout Tullamore**

162. Junction 29 is a four-arm roundabout on the N52 and the R421 regional road. A fourth arm is currently closed to traffic, serving access to potential development lands. All three arms contain a two-lane entry to the roundabout, with uncontrolled pedestrian crossing facilities and deflection islands at all arms. The arms of the junction are labelled on Image 7.22 as such: A – N52 (ESE), B – R421 and C – N52 (WNW).

**7.3.5.2.7 Junction 30: N52/R420 Roundabout Tullamore**

163. Junction 30 is a four-arm roundabout on the N52 and the R420 regional road. All four arms contain a two-lane entry to the roundabout, with uncontrolled pedestrian crossing facilities via dropped kerbing and tactile paving and deflection islands at all arms. The arms of the junction are labelled on Image 7.23 as such: A – N52 (N), B – R420 (ESE), C – N52 (SSW) and D – R420 (WNW).

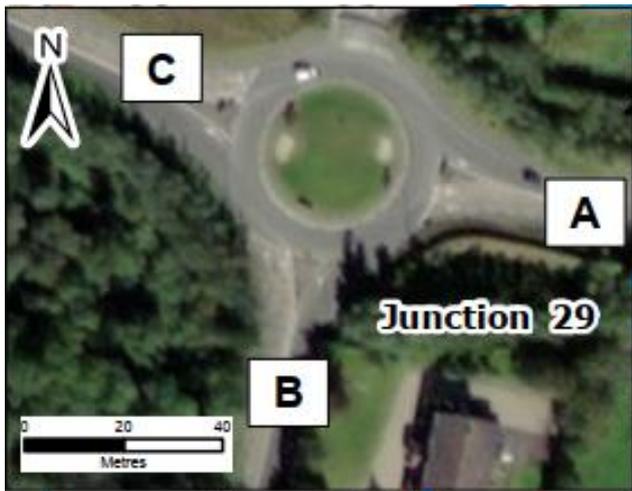


Image 7.22: Junction 29 N52/R421 Roundabout

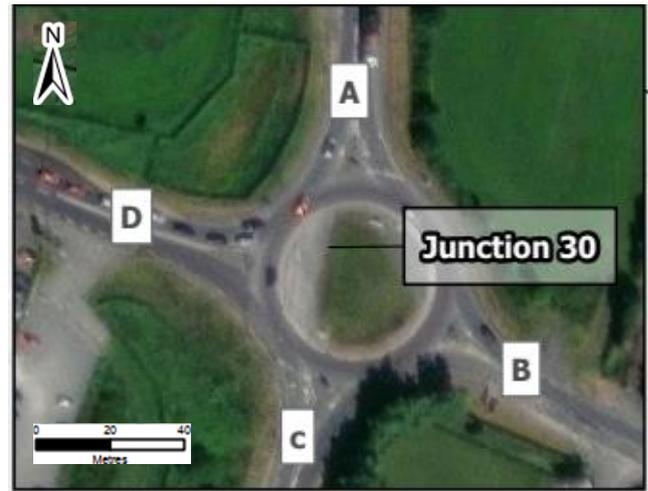


Image 7.23: Junction 30 N52/R420 Roundabout

#### 7.3.5.2.8 Junction 31: R420/R402 T-Junction East of Tullamore

164. Junction 31 is a T-junction between the R420 and the R402 regional roads. The R420 is the major road, which is a two-lane single carriageway containing a left turn lane onto R402. The R402 is also a two-lane single carriageway and is considered a minor road, giving way to traffic travelling on the R420. There are no pedestrian facilities at this junction. The arms of the junction are labelled on Image 7.24 as such: A – R420 (W), B – R402 and C – R420 (E).

#### 7.3.5.2.9 Junction 35: R402/L1014 T-Junction in Daingean

165. Junction 35 is a T-junction between the R402 regional road and the L1014 local road. The R402 (major road) and L1014 (minor road) are all two-lane single carriageways. Pedestrian crossing facilities via dropped kerbing and tactile paving are only provided on the unnamed local road. The arms of the junction are labelled on Image 7.25 as such: A – R402 Main Street (NNE), B – Church Road and C – R402 Main Street (SSW).

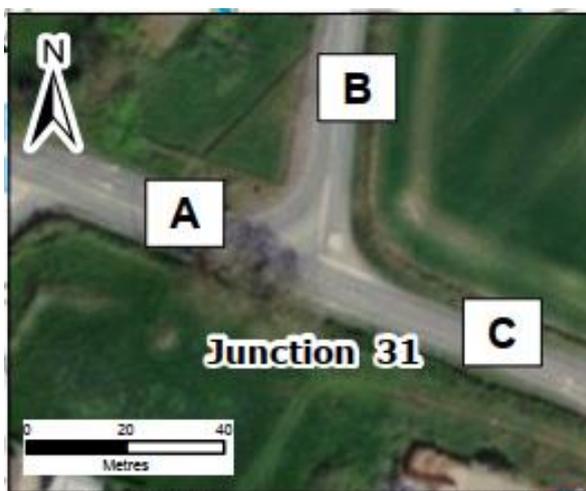


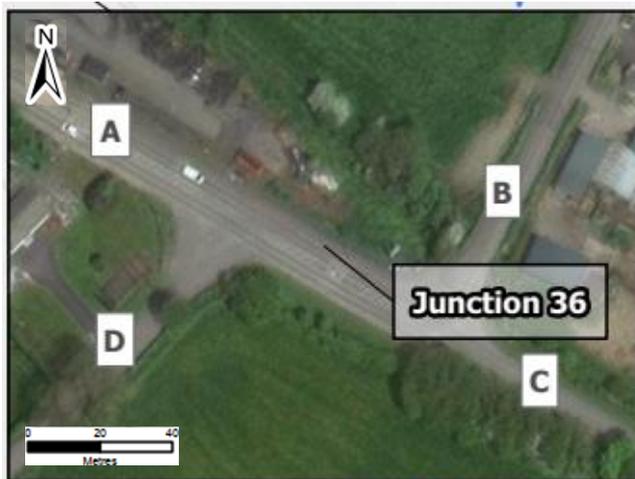
Image 7.24: Junction 31 R420/R402 T-Junction



Image 7.25: Junction 35 R402/L1014 T-Junction

**7.3.5.2.10 Junction 36: R402/R400 Staggered Junction West of Edenderry**

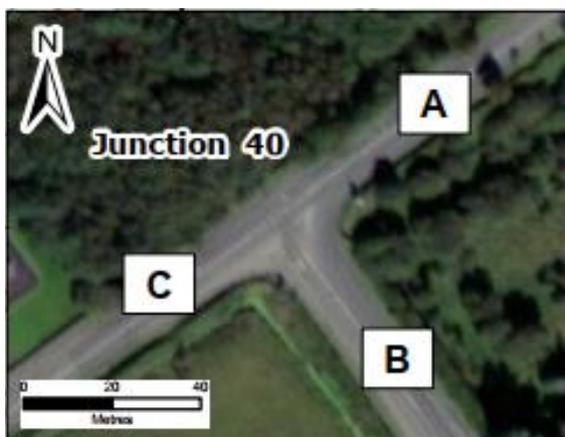
166. Junction 36 is a staggered junction between the R402 and R400 regional road. The junction is located within a traffic calming zone. The R402 (major road) and R400 (minor road) are two-lane single carriageways. Pedestrian crossing facilities via dropped kerbing are only provided on the R400 southern arm. The arms of the junction are labelled on Image 7.26 as such: A – R402 (WNW), B – R400 (NNE), C – R402 (ESE) and D – R400 (SW).



**Image 7.26: Junction 36 R402/R400 Staggered Junction West of Edenderry**

**7.3.5.2.11 Junction 40: R402/R401 T-Junction South of Edenderry**

167. Junction 40 is a T-junction between the R401 and the R402 regional roads. The R402 is the major road, which is a two-lane single carriageway. The R401 is also a two-lane single carriageway and is considered a minor road, giving way to traffic travelling on the R402. There are no pedestrian facilities at this junction. The arms of the junction are labelled on Image 7.27 as such: A – R402 (NE), B – R401 and C – R402 (SW).



**Image 7.27: Junction 40 R402/R401 T-Junction**

### 7.3.5.2.12 Junction 41: R402/R401 Mini-Roundabout in Edenderry

168. Junction 41 is a three-arm mini-roundabout between the R402 and R401 regional roads. All approaches are single lane entries, with slight flares and zebra pedestrian crossings. The arms of the junction are labelled on Image 7.28 as such: A – R401 Gleann Na Carraige, B – R402 Father Kearns Street and C – R402 JKL Street.

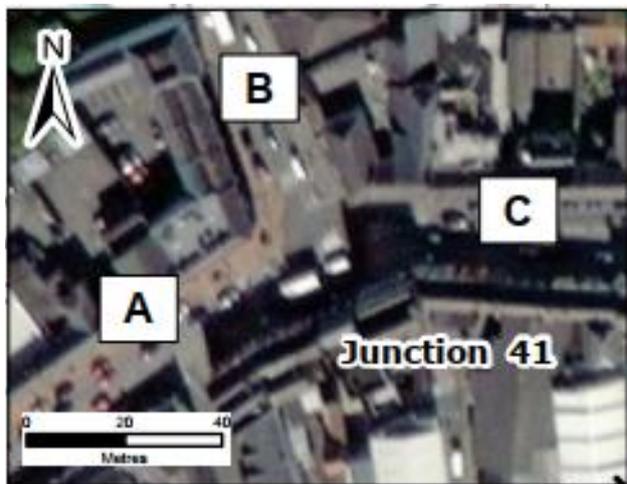


Image 7.28: Junction 41 R402/R401 Mini-Roundabout

### 7.3.5.3 Baseline Pedestrians and Cyclists (County Offaly)

169. A desktop review of the agreed Haul Roads within the administrative area of Offaly County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.31 below lists the Haul Roads with existing vulnerable road user infrastructure.

Table 7.31: Baseline Pedestrians and Cyclists (County Offaly)

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
N52	48.53	4.09 both sides 1.46 one side	1.15
N62	43.59	3.59 both sides 2.57 one side	0.35
N80	7.95	0.31 both sides 0.94 one side	N/A
R400	28.45	0.65 both sides 2.09 one side	N/A
R401	12.57	0.21 both sides 0.91 one side	N/A
R402	30	3.25 both sides 2.16 one side	1.23
R419	7.81	0.34 both sides 0.5 one side	N/A

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
R420	23.65	3.34 both sides 1.38 one side	0.33
R421	7.1	0.09 both sides 0.71 one side	0.22
R440	13.49	1.27 both sides 1.73 one side	0.14
R441	10.78	0.82 both sides 2.25 one side	0.62
R442	6.04	0.34 one side	N/A
R445	0.73	0.66 both sides 0.07 one side	N/A
R490	6.48	0.04 both sides 0.22 one side	N/A
R491	5.12	0.58 both sides	0.17
R492	6.07	0.42 both sides 0.88 one sides	N/A
L1014	3.56	0.38 both sides 0.17 one side	N/A
L1020	1.35	0.3 both sides 0.04 one side	N/A
L2002	3.38	0.26 both sides 0.13 one side	N/A
L2006	0.7	N/A	N/A
L2021	5.06	0.12 both sides 0.41 one side	N/A
L2027	7.59	0.09 both sides 0.27 one side	N/A
L3003	10.26	0.11 both sides 0.07 one side	N/A
L4004	5.06	0.4 one side	N/A
L4007	1.88	0.57 one side	N/A
L4022	1.06	N/A	N/A
L6041	0.42	0.42 both sides	N/A
L7004	0.28	0.03 one side	N/A
L8014	1.04	N/A	N/A
L8032	0.93	N/A	N/A
Unnamed Local Road	1.9	N/A	N/A

#### 7.3.5.4 Baseline Public Transport (County Offaly)

170. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Offaly County Council are shown in Table 7.32 below.

**Table 7.32: Baseline Public Transport (County Offaly)**

Road	Length of Haul Road (km)	Bus Services
N52	48.53	72, 823, 843, 844, 845, 847, 850, 323X
N62	43.49	72, 840, 850
N80	7.95	73
R400	28.45	LS1
R402	30	120, 120A, 120C, 120D, 120E, 120X
R420	23.65	806, 829, IW04, UM14
R440	13.49	823
R441	10.78	120C
R445	0.73	854
R491	5.12	854

### 7.3.6 County Kildare

#### 7.3.6.1 Baseline Road Network (County Kildare)

171. As shown in Figure 7.7, the agreed Haul Roads within the administrative area of Kildare County Council include the following regional roads: R403, R402, R406, R407 and the R408, the Clane Relief Road and four local roads: L1010, L1016, L5025 and an unknown local road.

172. The Haul Roads would allow access to a Construction Compound (CC6) and two of the Pipe Storage Depots (PSD9 and PSD10) and to one of the infrastructures sites, the FCV. They would also allow access to 11 Access and Egress Points along the route of the pipeline.

173. The FCV access is located on the L1016 local road, which is 5.5m in width at the location of the proposed access. The proposed access into the FCV is shown in Figure 4.69 of Chapter 4 (Proposed Project Description) and is located at the AE037.

174. Table 7.33 sets out the Haul Roads proposed in County Kildare and the element of the Proposed Project the road would provide access to. It also sets out the junctions relevant to these Haul Roads. The Haul Roads provide access to the national motorway network via the M4 Junctions 7, 8 and 9 and the M7 Junctions 9 and 14.

**Table 7.33: Kildare Haul Roads**

Activity/Element	Haul Road	Haul Road Category	Relevant Junction
AE046	Unnamed Local Road	Minor	Junction 42,43,44,45
AE029, CC6	R403 via R402	Minor	Junction 42,43,44,45
AE030	L5025 via R402	Minor	Junction 44
AE031	L1010	Minor	Junction 46,47
AE032	L1010	Minor	Junction 46,47
AE033, PSD9	R407	Minor	Junction 46,47,48,49,50
AE034	R408	Minor	Junction 46,47,48,49,50
AE035	R408	Minor	Junction 46,47,48,49,50,51
AE036, PSD10	R406	Minor	Junction 46,47,48,49,50,51,52
AE037, FCV	L1016	Minor	Junction 53
AE038	Unnamed Local Road	Minor	Junction 53

### 7.3.6.2 Baseline Junctions (County Kildare)

175. The proposed Haul Roads in County Kildare would use Junction 42, Junction 44, Junction 45, Junction 46, Junction 48, Junction 49, Junction 50, Junction 51, and Junction 53.

#### Junction 42: R402/R403 Roundabout (Carbury)

176. Junction 42 is a three-arm roundabout, where all the approaches are single lane with slight flares. All arms also include uncontrolled pedestrian crossing facilities and deflection islands. The R402 west includes a bus stop in the eastbound and westbound direction, approximately 50m from the roundabout. The arms of the junction are labelled on Image 7.29 as such: A – R402 (ENE), B – R403 and C – R402 (WSW).

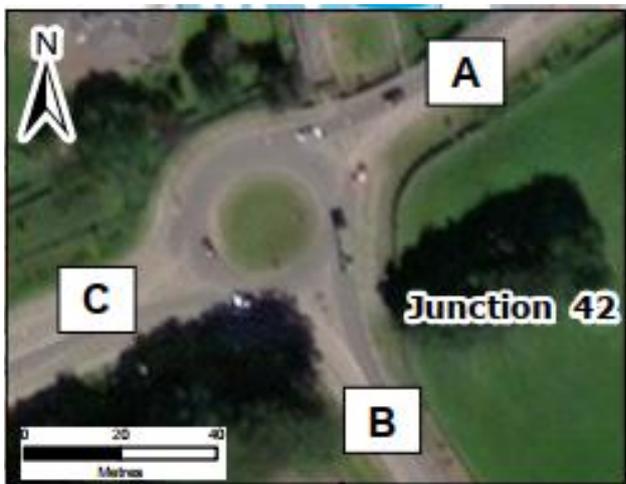


Image 7.29: Junction 42 R402/R403 Roundabout

#### 7.3.6.2.1 Junction 44: R402/L5025/L5011 Derrymahon Staggered Junction

177. Junction 44 is a staggered junction with a ghost island between the R402 regional road, L5025 and L5011 local roads. The ghost islands on the R402 provide right turning lanes onto the L5025 and L5011. Left turn deceleration lanes are provided from the R402 onto both minor roads: L5025 and L5011. The arms of the junction are labelled on Image 7.30 as such: A – R402 (NE), B – L5025, C – R402 (SW) and D – L5011.

#### 7.3.6.2.2 Junction 45: R403/R415/L1020 Crossroads Allenwood

178. Junction 45 is a crossroad junction between the R413 regional road, R415 regional road and the L1020 local road. The R403 major road is a two-lane single carriageway with a signal-controlled pedestrian crossing on the western arm. The junction includes a raised table (or platform) as a traffic calming measure, with high friction surfacing on top of the raised table. The arms of the junction are labelled on Image 7.31 as such: A – R403 (W), B – L1020 Station Road, C – R403 (E) and D – R415.

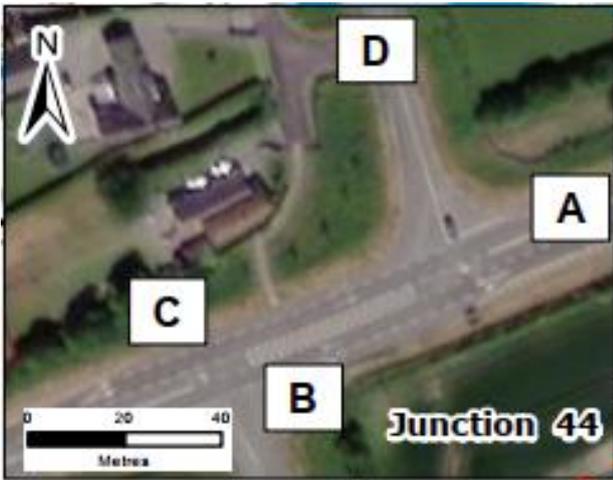


Image 7.30: Junction 44 R402/L5025/L5011 Derrymahon Staggered Junction

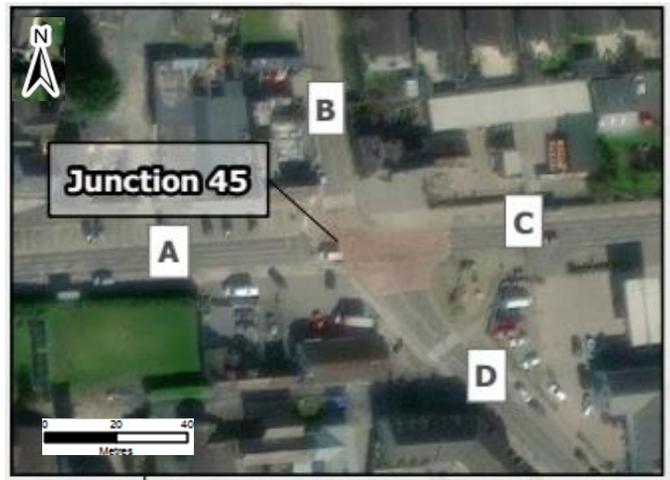


Image 7.31: Junction 45 R403/R415/L1020 Crossroads

**7.3.6.2.3** Junction 46: R407/L1010/L1017 Crossroads

179. Junction 46 is a crossroads between the R407 regional road, the L1010 and L1017 local roads. The R407 contains ghost islands which provide right turning lanes onto the minor roads: L1010 and L1017. The L1017 has a two-lane approach onto the R407. The arms of the junction are labelled on Image 7.32 as such: A – R407 (NNW), B – L1010, C – R407 (S) and D – Barberstown Road.

**7.3.6.2.4** Junction 48: R407/R408 T-Junction

180. Junction 48 is a T-junction, with a ghost island between the R407 and R408 regional roads. The ghost islands on the R407 provides a right turning lane onto the R408 minor road. The arms of the junction are labelled on Image 7.33 as such: A – R407 (N), B – R408 and C – R407 (S).



Image 7.32: Junction 46 R407/L1010/L1017 Crossroads

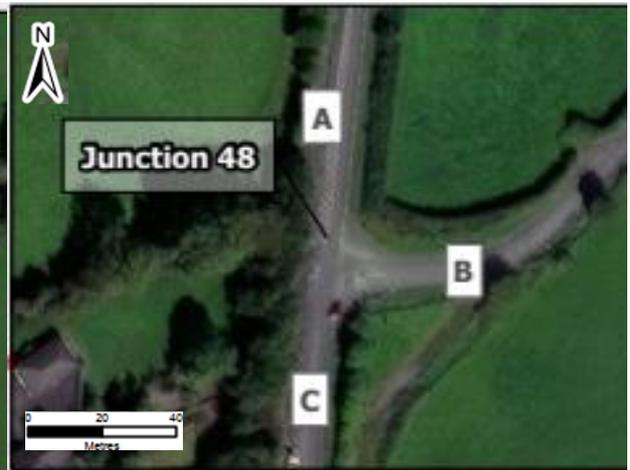


Image 7.33: Junction 48 R407/R408 T- Junction

#### 7.3.6.2.5 Junction 49: R403/Tesco/Clane Ring Road Roundabout

181. Junction 49 is a three-arm roundabout and is subject to a 50km/h speed limit. All the approaches from the R403 regional road and the Clane Ring Road are single lane, with slight flares. The R403 east and Clane Ring Road arms provide uncontrolled pedestrian crossing facilities and deflection islands. The R403 west has a signal-controlled pedestrian crossing, with a pedestrian guardrail guiding pedestrians to the crossing. The arms of the junction are labelled on Image 7.34 as such: A – R403 (NE), B – Clane Ring Road and C – R403 (SW).

#### 7.3.6.2.6 Junction 50: R407/Clane Ring Road/An Crochán Roundabout (Clane)

182. Junction 50 is a four-arm roundabout and is subject to a 50km/h speed limit. All approaches from the R407 regional road, An Crochán and the Clane Ring Road are single lane, with slight flares. All arms provide uncontrolled pedestrian crossing facilities and deflection islands. The arms of the junction are labelled on Image 7.35 as such: A – R407 Main Street (NNW), B – Clane Ring Road, C – R407 Main Street (SSE) and D – An Crochán.

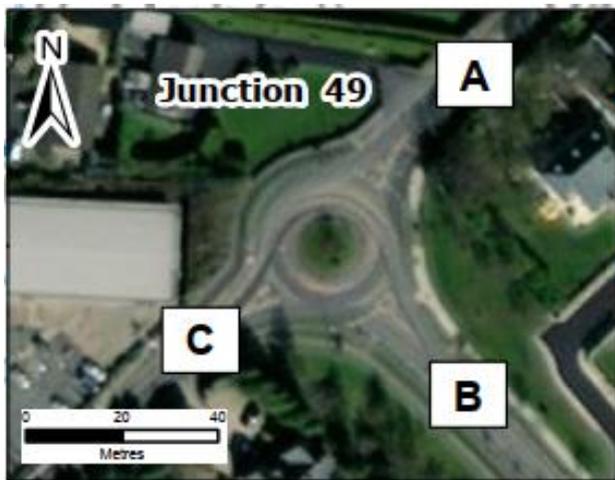


Image 7.34: Junction 49 R403/Tesco/Clane Ring Road Roundabout



Image 7.35: Junction 50 R407/Clane Ring Road/An Crochán Roundabout

#### 7.3.6.2.7 Junction 51: R403/R406 Roundabout

183. Junction 51 is a four-arm roundabout on the R403 and the R406 regional roads. All four arms contain short two-lane entries to the roundabout, with uncontrolled pedestrian crossing facilities and deflection islands on all arms. The arms of the junction are labelled on Image 7.36 as such: A – R406, B – R403 (ENE), C – Barberstown Road and D – R403 (WSW).

#### 7.3.6.2.8 Junction 53: R403/R405 Crossroads

184. Junction 53 is a crossroads between the R405 and R403 (two-lane single carriageway) and Newtown Road (two-lane single carriageway minor arm). Zebra pedestrian crossings are included on the R403 and Newtown Road, in close proximity to the junction. This junction is 6m away from another T-junction. During scoping meetings with Kildare County Council, it was agreed that the Haul Road through Celbridge would be utilised for night-time use only. The arms of the junction are labelled on Image 7.37 as such: A – Dublin Road, B – Newtown Road and C – R405 (NW).

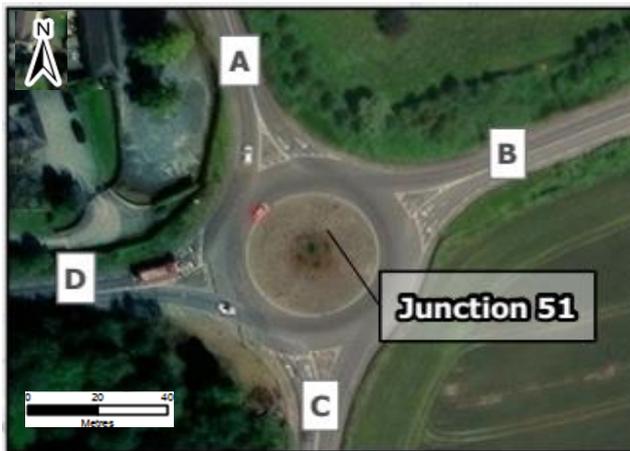


Image 7.36: Junction 51 R403/R406 Roundabout

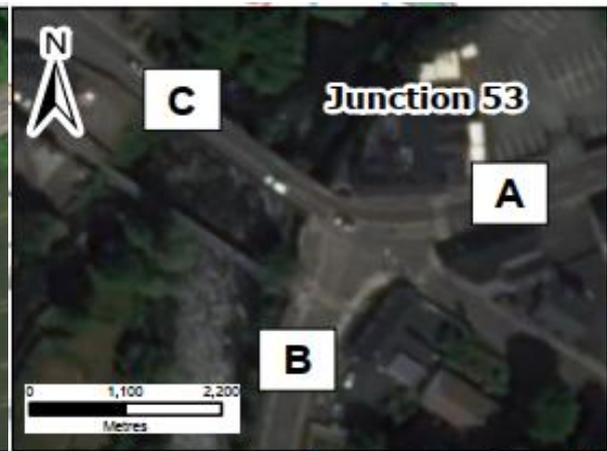


Image 7.37: Junction 53 R403/R405 Crossroads

### 7.3.6.3 Baseline Pedestrians and Cyclists (County Kildare)

185. A desktop review of the agreed Haul Roads within the administrative area of Kildare County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.34 below lists the Haul Roads with existing vulnerable road user infrastructure.

Table 7.34: Baseline Pedestrians and Cyclists (County Kildare)

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
R402	15	0.99 both sides 1.02 one side	1.23
R403	23.15	2.87 both sides 3.15 one side	N/A
R406	5.1	0.3 both sides 0.59 one side	N/A
R407	13.64	1.45 both sides 0.91 one side	1.22
R408	4.06	0.14 both sides 0.35 one side	N/A
R445	5.42	1.75 both sides 0.42 one side	N/A
L1009	2.53	N/A	N/A
L1010	2.34	N/A	N/A
L1016	2.63	0.16 both sides 1.74 one side	N/A
L1017	3.11	N/A	N/A
L1016	0.87	N/A	N/A
L5025	5.06	N/A	N/A
L5064	0.54	N/A	N/A
Clane Relief Road	0.87	0.87 both sides	N/A

### 7.3.6.4 Baseline Public Transport (County Kildare)

186. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of Kildare County Council are shown in Table 7.35 below.

**Table 7.35: Baseline Public Transport (County Kildare)**

Road	Length of Haul Road (km)	Bus Services
R402	15	120, 120A, 120C, 120E, 120X, 820
R403	23.15	120, 120A, 120B, 120E, 120F, 120X, 821
R406	5.1	115, 847, C3, C4, C5, C6, W6, X25, X26, Expressway 22 & 23
R407	13.64	139, 183, 821, 885, UM06, UM12, UM14
R408	4.06	139
R445	5.42	726, 806, 888, UM14

### 7.3.7 South Dublin County

#### 7.3.7.1 Baseline Road Networks (South Dublin County)

187. As shown in Figure 7.8, the agreed Haul Roads within the administrative area of South Dublin County Council include the R405, R403 and R120 regional roads.

188. The Haul Roads would allow access to the TPR (CC7) and two Access and Egress Points along the route of the pipeline.

189. Table 7.36 sets out the proposed Haul Roads in South Dublin County and the element within the Proposed Project the road would provide access to. It also sets out the junctions relevant to these Haul Roads. The Haul Roads provide access to the national motorway network via the N4 Junctions 4 and 5 and the N7 Junction 4.

**Table 7.36: South Dublin Haul Roads**

Activity/Element	Haul Roads	Haul Road Category	Relevant Junction
AE039	R405	Minor	Junction 54,55,56
AE040, TPR	R120	Minor	Junction 54,55,56

#### 7.3.7.2 Baseline Junctions (South Dublin County)

190. The proposed Haul Roads in South Dublin County would utilise Junction 54 and Junction 55.

##### 7.3.7.2.1 Junction 54: R405/Hazelhatch Road T-Junction

191. Junction 54 is a T-junction between the R405 and the L6002 local road. The major road is a two-lane single carriageway which contains the R405 and the L6002. The northern section of the R405 is considered a minor road, giving way to traffic travelling on the eastern section of the R405 and the L6001 on the major road. The arms of the junction are labelled on Image 7.38 as such: A – L6002 Athgoe Road, B – R405 Hazelhatch Road and C – R405 Main Street.

7.3.7.2 Junction 55: R120/R405 T-Junction in Newcastle

192. Junction 55 is a T-junction of the R120 and the R405 regional roads. The major road is a two-lane single carriageway. The R120, which is also a two-lane single carriageway, continues north and is considered a minor road, giving way to traffic travelling on the R405 and R120 on the major road. The arms of the junction are labelled on Image 7.39 as such: A – R405 Athgoe, B – R120 Peamount Road and C – R120 Main Street.

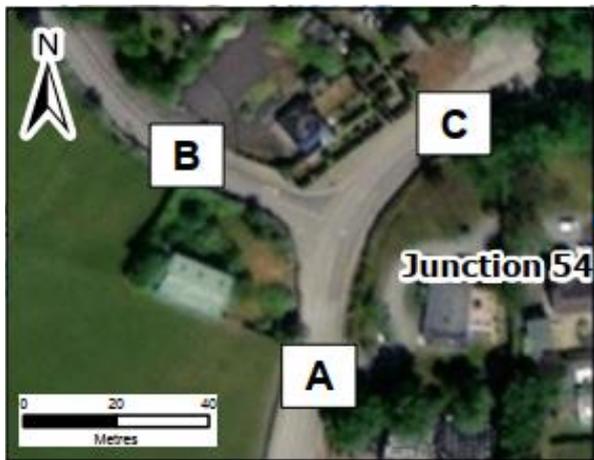


Image 7.38: Junction 54 R405/L6002 T-Junction

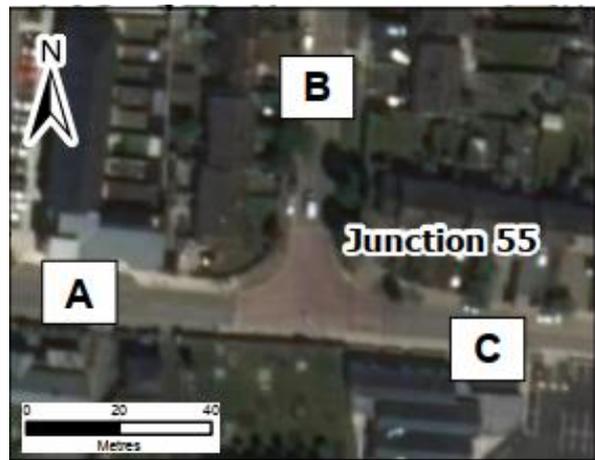


Image 7.39: Junction 55 R120/R405 T-Junction

193. The TPR access is located on the R120 regional road which is 6m in width. The proposed access into the TPR is shown in Figure 4.71 of Chapter 4 (Proposed Project Description).

7.3.7.3 Baseline Pedestrians and Cyclists (South Dublin County)

194. A desktop review of the agreed Haul Roads within the administrative area of South Dublin County Council to determine the existing vulnerable road user infrastructure was carried out. The existing infrastructure includes dedicated cycle lanes, shared paths and continuous footpaths. Table 7.37 below lists the Haul Roads with existing vulnerable road user infrastructure.

Table 7.37: Baseline Pedestrians and Cyclists (South Dublin County)

Road	Length of Haul Road (km)	Pedestrian Facilities (km)	Cyclist Facilities (km)
R120	7.47	4.32 both sides 6.26 one side	2.31
R403	5.13	2.37 both sides 3.04 one side	N/A
R405	2.72	0.4 both sides 0.97 one side	N/A

7.3.7.4 Baseline Public Transport (South Dublin County)

195. A further review of the existing public transport was undertaken where information was gathered on the existing bus routes and services along the agreed Haul Roads. The services within the administrative area of South Dublin County Council are shown in Table 7.38 below.

**Table 7.38: Baseline Public Transport (South Dublin County)**

Road	Length of Haul Road (km)	Bus Services
R120	7.47	68, C1, L53, P29
R403	5.13	C4, C6, L58, X27, X28
R405	2.72	W6

### 7.3.8 Future Baseline

#### 7.3.8.1 Climate Change and Natural Trends

196. In the future, climate change presents the potential for increased impacts to road infrastructure such as from fluvial flood risk, ice damage and erosion. These aspects of road infrastructure are considered at a national level and a series of measures to adapt to climate change are outlined in the Developing Resilience to Climate Change in the Irish Transport Sector (Department of Transport, Tourism and Sport 2019). In this regard, the implications of climate change would not significantly influence overall traffic volumes, which are the key consideration for this impact assessment.

197. Trends in traffic and transport are subject to various influences (i.e. proximity to education, national and local holiday periods). These trends have the potential to impact the baseline parameters (i.e. traffic volumes) depending on the time of year. To ameliorate this concern, the traffic counts were undertaken in accordance with the Project Appraisal Guidelines for National Roads Unit 5.2 – Data Collection PE-PAG-02016 (TII 2023) during the neutral period or representative months avoiding national and local holiday periods, local school holidays, mid-terms and any other abnormal periods. This helped to form an unbiased sample and an appropriate representative sample of traffic volumes.

198. Traffic associated with relevant committed future development has been included in the traffic model, as set out in Section 7.2.6.

#### 7.3.8.2 Forecasting Future Baseline Traffic Flow

199. The predicted future baseline year to be assessed is determined as per the TII TTA Guidelines (TII 2014). The future assessment years are the years when the Construction Phase is anticipated, from 2028 to 2032.

200. Forecasting baseflow traffic from a short-term peak (i.e. 24-hour traffic count) to an AADT was undertaken in accordance with the TII Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts PE-PAG-02039 (TII 2016) to factor up the short period traffic counts from daily to weekly, then monthly, to determine the AADT.

201. Forecasting traffic flows from the baseline year (i.e. 2024 and 2025) to a future year for assessment (i.e. 2028 to 2032) was undertaken in accordance with PAG Unit 5.3 (TII 2021). As discussed with the LAs during the scoping process, it was agreed the baseline traffic would be factored based on nationally adopted growth rates.

## 7.4 Assessment of Effects

202. The following sections outline the assessment of the potential traffic effects of the Proposed Project at the junctions scoped into the assessment using the TTA. The full TTA is in Appendix A7.1 (Traffic and Transport Assessment).

203. The relevant Haul Roads and junctions for assessment have been described in Section 7.3. This section considers the following:

- Do-Minimum Scenario
- Do-Something Scenario – Construction Phase
- Do-Something Scenario – Operational Phase.

204. This section presents an assessment in the absence of mitigation measures, except for embedded mitigation that has been incorporated into the design (e.g. selection of Haul Roads to avoid impacts on communities, where practicable). Mitigation measures have been proposed in Section 7.5 to prevent or reduce the potential significant effects, and the residual effects after the application of mitigation measures are reported in Section 7.6.

#### **7.4.1 Do-Minimum Scenario**

205. The Do-Minimum scenario is equivalent to the baseline environment with committed developments projected forward for the peak construction year for that junction. Therefore, as described in Section 7.2.6, the baseline traffic count data were factored, based on nationally adopted growth rates detailed in the PAG Unit 5.3 (TII 2021) and including the committed developments outlined in Section 10.4.2 of Appendix A7.1 (Traffic and Transportation Assessment).

206. The assessment of the existing environment/Do-Minimum scenario, without the Proposed Project, has been included for the Construction Phase and Operational Phase assessments for the design years, as summarised in Section 10 in Appendix A7.1 (Traffic and Transport Assessment).

207. The analysis provided in Section 10 in Appendix A7.1 (Traffic and Transport Assessment) presents the impact of the Proposed Project on each junction analysed. It assesses the capacity of the junctions, with and without the Proposed Project, for the future traffic assessment years.

#### **7.4.2 Do-Something Scenario – Construction Phase**

208. The Construction Phase of the Proposed Project would introduce additional vehicles to the road network and consequentially would be the phase of the Proposed Project most likely to have traffic and transportation effects.

209. During the Construction Phase, the traffic generated by the Proposed Project is expected to result in increased traffic flows on national, regional, and local roads providing access to and servicing the site. Accordingly, a TTA (Appendix A7.1) has been undertaken to evaluate the distribution of construction-related traffic across the surrounding road network. The assessment utilised the percentage increase in traffic volumes to determine whether individual junctions warranted detailed analysis. A threshold of 10% was applied to identify junctions requiring modelling within the TTA. In addition, a further review was undertaken for junctions where existing congestion is known to occur, applying a more conservative threshold of 5% to determine whether these junctions should also be included in the detailed assessment.

210. The construction activities most likely to result in impacts on traffic and transport would be:

- Establishment of four Principal Construction Compounds (CC1, CC2, CC5 and CC6) and four secondary Satellite Construction Compounds (CC0, CC3, CC4 and CC7), including parking areas, storage areas, power supply, welfare facilities
- Establishment of nine Pipe Storage Depots (PSD1 – PSD10)
- Construction of site roads and Temporary Construction Roads
- Construction of six Infrastructure Sites and pipeline – RWI&PS (CC0), WTP (CC1), BPT (CC3), BPS (CC4), FCV and TPR (CC7), Treated Water Pipelines and the proposed 38 kV Uprate Works
- Construction of Laybys off the existing road network, in conjunction with ancillary infrastructure, i.e. kiosks

- Delivery of materials to site
- Removal of surplus materials and waste from site
- Construction workers travelling to and from each site
- Site demobilisation and reinstatement.

211. Further information is available on these activities in Chapter 4 (Proposed Project Description) and Chapter 5 (Construction & Commissioning).

#### 7.4.2.1 Construction Management

212. As detailed in Chapter 5 (Construction & Commissioning), a review of possible locations for Construction Compounds and Pipe Storage Depots was undertaken. Further details are included in Chapter 3 (Consideration of Reasonable Alternatives). The Construction Compounds and Pipe Storage Depots that are included as part of the Proposed Project are shown in Table 7.39.

213. It is anticipated that the Proposed Project would be built based on the division of works into four geographical sections. This is necessary to allow a linear project to be delivered efficiently. Therefore, the Construction Compounds relate directly to the number of sections of construction, as stated in Chapter 5 (Construction & Commissioning). There are four Principal Construction Compounds and four Satellite<sup>3</sup> Construction Compounds. Construction Compounds would act as the appointed Contractor's central strategic (operational) hub for plant/material/ construction staff movement, general storage, administration, logistical support, and technical (design) staff.

214. The Pipe Storage Depots would take direct delivery of sections of pipe and ready it for onward distribution to the required point of access along the Construction Working Width.

**Table 7.39: Assumed Sections for the Proposed Project**

Section	Key Project Elements Included in Section	Associated Construction Compounds and Pipe Storage Depots
1 1	RWI&PS, RWRMs and WTP	Construction Compound 0 (CC0) RWI&PS Construction Compound 1 (CC1) WTP
Section 2	Treated Water Pipeline from WTP to the BPT and BPT	Pipe Storage Depot 1 (PSD1) Carrigatogher Construction Compound 2 (CC2) Lisgarriff Construction Compound 3 (CC3) BPT
Section 3	Treated Water Pipeline from the BPT and BPS, including the BPS itself	Pipe Storage Depot 2 (PSD2) Toora Pipe Storage Depot 3 (PSD3) Boveen Pipe Storage Depot 4 (PSD4) Fortel Construction Compound 4 (CC4) BPS Pipe Storage Depot (PSD5) Derrinboy Construction Compound 5 (CC5) Killananny Pipe Storage Depot (PSD6) Derryweelan
Section 4	Treated Water Pipeline from the BPS, FCV, including the TPR itself	Pipe Storage Depot 8 (PSD8) Rathlumber Construction Compound 6 (CC6) Drummond Pipe Storage Depot 9 (PSD9) Graiguepottle Pipe Storage Depot (PSD10) Barberstown Upper Construction Compound 7 (CC7) TPR

<sup>3</sup> Satellite Construction Compounds would provide materials storage and support plant and workers along the route to allow for an efficient construction programme.

#### 7.4.2.2 Construction Working Width – Site Access Locations

215. As listed in Table 7.40, 54 access points have been identified along the Construction Working Width as shown in Figure 7.2 to Figure 7.8. These access points would be utilised by construction staff and construction vehicles to access the Construction Working Width. Staff will be shuttled from the Principal Construction Compounds via bus. No parking will be permitted along the roadway of the access points.

216. Table 7.41 provides further information on the function of the access points and anticipated duration they would be used for.

217. Four of the access points provide crossings for ducts to the WTP and RWI&PS; three of the access points are required to access tunnelling equipment only. The remaining 47 are required to access the five CCs related to the five Infrastructure Sites, three additional CCs and nine PSDs, and the remaining 30 provide access to works areas for the pipeline construction. Temporary traffic management measures would be put in place to control the access/egress at the site accesses, as outlined in Appendix A7.2 (TMP).

**Table 7.40: Access Points Along the Construction Working Width and Infrastructure Sites**

Access and Egress ID	Crossing Reference	Chainage (Approximate)	Figure Reference
AE053	N/A	N/A	Figure 7.4
AE054	N/A	N/A	Figure 7.4
AE051	N/A	N/A	Figure 7.4
AE052	N/A	N/A	Figure 7.4
AE001	R494	Access Road for the RWI&PS	Figure 7.4
AE002	R494	RW – 800	Figure 7.4
AE003	R445	Access Road for the WTP	Figure 7.4
AE004	R445	TW – 1900	Figure 7.4
AE041	R445	TW – 4100	Figure 7.4
AE042	R499	TW – 6000	Figure 7.4
AE005	R445	TW – 12700	Figure 7.4
AE006	R494	TW – 16500	Figure 7.4
AE007	R495	TW – 18500	Figure 7.4
AE008	R493	TW – 21500	Figure 7.4
AE049	N/A	TW – 28900	Figure 7.4
AE009	N52	TW – 29100	Figure 7.4
AE010	R490	TW – 34700	Figure 7.4
AE011	L1058	TW – 35600	Figure 7.4
AE012	R491	TWA – 2000	Figure 7.4
AE013	R491	TWA – 4500	Figure 7.4
AE014	Unnamed Local Road	TWA – 5700	Figure 7.4
AE015	Unnamed Local Road	TWA – 6100	Figure 7.4
AE016	R492	TWA – 11400	Figure 7.4
AE017	N62	TWA – 14100	Figure 7.4
AE018	Unnamed Local Road	TWA – 23600	Figure 7.5
AE044	L8014	TWA – 25100	Figure 7.5
AE019	R440	TWA – 27900	Figure 7.5
AE047	L3003	Access Road for the BPS	Figure 7.5

Access and Egress ID	Crossing Reference	Chainage (Approximate)	Figure Reference
AE020	Unnamed Local Road	TWB – 7400	Figure 7.5
AE043	Unnamed Local Road	TWB – 11700	Figure 7.5
AE021	R421	TWB – 18700	Figure 7.5
AE048	L2006	TWB – 24700	Figure 7.5
AE045	Unnamed Local Road	TWB – 25200	Figure 7.5
AE022	N80	TWC – 100	Figure 7.5
AE023	R420	TWC – 7800	Figure 7.5
AE050	L1020	TWC – 9000	Figure 7.5
AE024	Unnamed Local Road	TWC – 13400	Figure 7.5
AE025	R402	TWC – 19200	Figure 7.5
AE026	R400	TWC – 19800	Figure 7.5
AE027	R402	TWD – 100	Figure 7.5
AE028	R401	TWD – 3600	Figure 7.5
AE046	Unnamed Local Road	TWD – 16100	Figure 7.7
AE029	R403	TWD – 16200	Figure 7.7
AE030	L5025	TWD – 21500	Figure 7.7
AE031	L1017	TWD – 26500	Figure 7.7
AE032	L1017	TWD – 28700	Figure 7.7
AE033	R407	TWE – 100	Figure 7.7
AE034	R408	TWE – 3900	Figure 7.7
AE035	R406	TWE – 7700	Figure 7.7
AE036	R403	TWE – 8500	Figure 7.7
AE037	L1016	TWE – 12100	Figure 7.7
AE038	L5064	TWE – 12600	Figure 7.7
AE039	R405	TWE – 14900	Figure 7.7
AE040	R120	Access Road for the TPR	Figure 7.7

**Table 7.41: Function of Access Points Along the Construction Working Width and Infrastructure Sites**

Access ID	Function	Approximate Duration at Peak Construction
AE051	Access for railway crossing of 38 kV ducts to WTP	2 to 3 weeks
AE052	Access for railway crossing of 38 kV ducts to WTP	2 to 3 weeks
AE053	Access for railway crossing of 20 kV ducts to RWI&PS	2 to 3 weeks
AE054	Access for railway crossing of 20 kV ducts to RWI&PS	2 to 3 weeks
AE001	Access road for the RWI&PS (and CC0 during construction)	Permanent access
AE002	2,000m of pipeline	2 to 3 weeks (incl. tunnelling section)
AE003	Access road for the WTP (and CC1 during construction)	Permanent access
AE004	Serves 3,900m of pipeline construction	4 to 6 weeks (incl. tunnelling section)
AE041	Serves 300m of pipeline construction	6 weeks (for tunnelling section only)
AE042	Serves 1,500m of pipeline construction	6 weeks (for tunnelling section only)
AE005	Access for PSD1. Serves 7,000m of pipeline construction	72 weeks – required for PSD1 (incl. tunnelling section)
AE006	Serves 6,000m of pipeline construction	6 to 7 weeks (incl. tunnelling section)
AE007	Serves 2,800m of pipeline construction	3 to 6 weeks (incl. tunnelling section)

Access ID	Function	Approximate Duration at Peak Construction
AE008	Serves 10,100m of pipeline construction	14 to 16 weeks (incl. tunnelling sections)
AE049	Access for CC2. Serves 38,800m of pipeline construction	216 weeks – required for CC2 (incl. tunnelling sections)
AE009	Serves 13,200m of pipeline construction	16 to 18 weeks (incl. tunnelling sections)
AE010	Serves 6,800m of pipeline construction	8 to 9 weeks
AE011	Serves 4,100m of pipeline construction	5 to 6 weeks (incl. tunnelling section)
AE012	Serves 5,000m of pipeline construction	5 to 6 weeks (incl. tunnelling section)
AE013	Serves 4,100m of pipeline construction	4 to 5 weeks
AE014	Serves 1,100m of pipeline construction	1 to 2 weeks
AE015	Access for PSD2. Serves 9,400m of pipeline construction	72 weeks – required for PSD2
AE016	Serves 8,100m of pipeline construction	9 to 10 weeks
AE017	Access for PSD3. Serves 12,100m of pipeline construction	72 weeks – required for PSD3 (incl. tunnelling section)
AE018	Access for PSD4. Serves 14,000m of pipeline construction	72 weeks – required for PSD4
AE044	Serves 4,600m of pipeline construction	5 to 6 weeks (incl. tunnelling section)
AE019	Serves 1,400m of pipeline construction	5 to 6 weeks (incl. tunnelling section)
AE047	Access for CC4 and BPS. Serves 7,600m of pipeline construction	216 weeks – required for CC4
AE020	Access for PSD5. Serves 13,000m of pipeline construction	72 weeks – required for PSD5
AE043	Serves 12,300m of pipeline construction	13 to 14 weeks
AE021	Access for CC5. Serves 62,100m of pipeline construction	216 weeks – required for CC5
AE048	Serves 5,900m of pipeline construction	6 to 7 weeks
AE045	Serves 500m of pipeline construction	6 weeks (for tunnelling section only)
AE022	Serves 7,900m of pipeline construction	6 to 7 weeks (incl. tunnelling section)
AE023	Access for PSD6. Serves 17,300m of pipeline construction	72 weeks – required for PSD6
AE050	Serves 5,500m of pipeline construction	8 to 9 weeks (incl. tunnelling sections)
AE024	Serves 10,200m of pipeline construction	18 to 20 weeks (peat area)
AE025	Serves 6,400m of pipeline construction	10 to 12 weeks (peat area)
AE026	Serves 5,600m of pipeline construction	8 to 10 weeks (peat area)
AE027	Access for PSD8. Serves 29,300m of pipeline construction	72 weeks – required for PSD8
AE028	Serves 16,300m of pipeline construction	30 to 32 weeks (peat area)
AE046	Serves 12,000m of pipeline construction	8 to 9 weeks
AE029	Access for CC6. Serves 68,600m of pipeline construction	216 weeks – required for CC6
AE030	Serves 10,200m of pipeline construction	30 to 32 weeks (peat area)
AE031	Serves 7,200m of pipeline construction	12 to 14 weeks (peat area)
AE032	Serves 7,800m of pipeline construction	12 to 14 weeks (peat area)
AE033	Access for PSD9. Serves 22,000m of pipeline construction	72 weeks – required for PSD9
AE034	Serves 7,600m of pipeline construction	8 to 9 weeks
AE035	Access for PSD10. Serves 9,800m of pipeline construction	72 weeks – required for PSD10
AE036	Serves 4,900m of pipeline construction	12 to 13 weeks (incl. tunnelling sections)
AE037	Serves 3,400m of pipeline construction	6 to 7 weeks (incl. tunnelling section)
AE038	Serves 3,000m of pipeline construction	12 to 13 weeks (incl. tunnelling sections)
AE039	Serves 3,500m of pipeline construction	12 to 13 weeks (incl. tunnelling sections)
AE040	Access road for the TPR (and CC7 during construction)	Permanent access

### 7.4.2.3 Construction Phase Trip Generation

#### 7.4.2.3.1 Light Vehicle Generated Traffic

218. Construction staff generate trips to and from the construction sites. Table 7.42 shows the cars and LVs construction generated traffic. Image 7.40 shows the programme of cars and LVs over the five-year Construction Phase, whereby the shaded cells represent when cars and LVs are proposed to be used during each construction element.

**Table 7.42: LVs Generated Construction Traffic for the Proposed Project**

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)		Duration Weeks	Average Daily Construction Traffic (Two-Way Vehicle Movements)		Average Hourly Construction Traffic (Two-Way Vehicle Movements)	
		Cars	Van		Cars	Van	Cars	Van
AE001	1	-	-	-	-	-	-	-
AE002	1	10680	15120	126	14	20	7	3
AE003	1	-	-	-	-	-	-	-
AE004	2	10680	15120	126	14	20	7	3
AE041	2	10680	15120	126	14	20	7	3
AE042	2	10680	15120	126	14	20	7	3
AE005	2	10200	14640	122	14	20	7	3
AE006	2	10200	14640	122	14	20	7	3
AE007	2	10200	14640	122	14	20	7	3
AE008	2	8340	14539	117	12	22	6	3
AE009 (AE049)	2	10440	11520	70	25	27	12	3
AE010	2	10440	11520	70	25	27	12	3
AE011	2	10440	11520	70	25	27	12	3
AE012	3	10680	15120	126	14	20	7	3
AE013	3	10680	15120	126	14	20	7	3
AE014	3	10680	15120	126	14	20	7	3
AE015	3	10680	15120	126	14	20	7	3
AE016	3	10680	15120	126	14	20	7	3
AE017	3	10680	15120	126	14	20	7	3
AE018	3	10140	14040	117	14	20	7	3
AE044	3	10200	14640	122	14	20	7	3
AE019	3	10200	14640	122	14	20	7	3
AE047	3	10200	14640	122	14	20	7	3
AE020	3	10200	14640	122	14	20	7	3
AE043	3	10440	15120	70	25	27	12	3
AE021	3	10200	14640	122	14	20	7	2

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)		Duration Weeks	Average Daily Construction Traffic (Two-Way Vehicle Movements)		Average Hourly Construction Traffic (Two-Way Vehicle Movements)	
		Cars	Van		Cars	Van	Cars	Van
AE048	3	6240	11520	70	15	27	7	3
AE045	3	10440	15120	70	25	27	12	3
AE022	3	10440	15120	70	25	27	12	3
AE023	3	10440	15120	70	25	15	12	2
AE050	4	10680	15120	126	9	12	4	2
AE024	4	10680	15120	126	14	20	7	3
AE025	4	10680	15120	126	14	20	7	3
AE026	4	10680	15120	126	14	20	7	3
AE027	4	10140	14040	117	14	20	7	3
AE028	4	10200	14640	122	14	20	7	2
AE046	4	10140	16035	111	15	24	8	3
AE029	4	10200	15000	122	14	20	7	3
AE030	4	7860	20760	122	14	28	7	4
AE031	4	7860	13560	113	12	20	6	3
AE032	4	7860	13440	113	12	20	6	3
AE033	4	10440	11520	113	15	17	8	2
AE034	4	10440	11520	70	25	27	12	3
AE035	4	10440	11520	70	25	27	12	3
AE036	4	10440	11520	70	25	27	12	3
AE037	4	10440	11520	70	25	27	12	3
AE038	4	10440	11520	70	25	27	12	3
AE039	4	10440	11520	70	25	27	12	3
AE040	4	10440	11520	70	25	27	12	3
AE051	1	-	-	-	-	-	-	-
AE052	1	-	-	-	-	-	-	-
AE053	1	-	-	-	-	-	-	-
AE054	1	-	-	-	-	-	-	-
CC2	2	46200	21360	178	43	20	22	3
CC5	3	46200	21360	178	43	20	22	3
CC6	4	46200	21360	178	43	20	22	3
PSD1	2	-	36360	165	-	35	-	18
PSD2	3	-	36865	174	-	35	-	18

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)		Duration Weeks	Average Daily Construction Traffic (Two-Way Vehicle Movements)		Average Hourly Construction Traffic (Two-Way Vehicle Movements)	
		Cars	Van		Cars	Van	Cars	Van
PSD3	3	-	36865	174	-	35	-	18
PSD4	3	-	36865	174	-	35	-	18
PSD5	3	-	36865	174	-	35	-	18
PSD6	3	-	36865	174	-	35	-	18
PSD8	4	-	36865	174	-	35	-	18
PSD9	4	-	36865	174	-	35	-	18
PSD10	4	-	36865	174	-	35	-	18
RWI&PS CC0	1	-	32284	174	-	31	-	15
WTP CC1	1	-	53923	174	-	52	-	26
BPT CC3	2	-	43453	117	-	62	-	31
TPR CC7	4	-	24038	117	-	34	-	17
RWRM	1	-	12309	104	-	11	-	5
Treated Water Pipeline from the WTP to the BPT	2	-	87410	187	-	78	-	39
Treated Water Pipeline from the BPT to the TPR	3&4	-	174819	187	-	304	-	152
BPS CC4	3	-	19028	96	-	33	-	17
R440 (BPS Power Supply)	3	-	588	28	-	1	-	-
Local Road (north of R440)	3	-	308	28	-	2	-	1
Local Road (east of L3003)	3	-	308	28	-	2	-	1
L3003 (BPS Power Supply)	3	-	588	28	-	4	-	2

Image 7.40: Proposed Project Construction Programme for LVs

	Year 1				Year 2				Year 3				Year 4				Year 5	
	Seasons																	
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S
	2028				2029				2030				2031				2032	
AE002 + WTP																		
AE004																		
AE0041																		
AE0042																		
AE005																		
AE006																		
AE007																		
AE008																		
AE049 (AE009)																		
AE010																		
AE011																		
AE012																		
AE013																		
AE014																		
AE015																		
AE016																		
AE017																		
AE018																		
AE044																		
AE019																		
AE047																		
AE020																		
AE043																		
AE021																		
AE048																		
AE045																		
AE022																		
AE023																		
AE050																		
AE024																		
AE025																		
AE026																		
AE027																		
AE028																		
AE046																		
AE029																		
AE030																		
AE031																		
AE032																		

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Seasons																			
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S		
	2028				2029				2030				2031				2032			
AE033																				
AE034																				
AE035																				
AE036																				
AE037																				
AE038																				
AE039																				
AE040																				
CC2 (Lisgariff)																				
CC5 (Killananny)																				
CC6 (Drummond)																				
Carrigatogher Depot PSD1																				
Toora Depot PSD2																				
Boveen Depot PSD3																				
Fortel Depot PSD4																				
Derrinboy Depot PSD5																				
Derryweelan Depot PSD6																				
Rathlumber Depot PSD8																				
Graiguepottle Depot PSD9																				
Barberstown Upper Depot PSD10																				
Raw Water Intake & Pumping Station and Access																				
Water Treatment Plant Site and Access Road CC1																				
Break Pressure Tank Site CC3																				
Termination Point Reservoir Site CC7																				
Raw Water Rising Main																				
Treated Water Pipeline from WTP to BPT																				
Treated Water Pipeline from BPT to TPR																				
Booster Pumping Station CC4																				
R440																				
Local Road (north of R440)																				
Local Road (east of L3003)																				
L3003																				

**Legend:**



7.4.2.3.2 Shuttle Bus Generated Traffic

219. Shuttle buses generate trips to and from the Principal Construction Compounds and AE locations. Table 7.43 shows the shuttle buses construction generated traffic. Image 7.41 shows the programme of shuttle buses over the five-year Construction Phase, whereby the shaded cells represent when shuttle buses are proposed to be used during each construction element.

Table 7.43: Shuttle Bus Generated Construction Traffic for the Proposed Project

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)	Duration	Average Daily Construction Traffic (Two-Way Vehicle Movements)	Average Hourly Construction Traffic (Two-Way Vehicle Movements)
		Shuttle Bus	Weeks	Shuttle Bus	Shuttle Bus
AE001	1	-	-	-	-
AE002	1	1860	74	4	2
AE003	1	-	-	-	-
AE004	2	3384	74	8	4
AE041	2	1356	74	3	2
AE042	2	3300	74	7	4
AE005	2	2112	74	5	2
AE006	2	1824	74	4	2
AE007	2	1392	74	3	2
AE008	2	2364	65	6	3
AE009 (AE049)	2	3396	44	13	6
AE010	2	1272	44	5	2
AE011	2	900	44	3	2
AE012	3	1860	74	4	2
AE013	3	888	74	2	1
AE014	3	420	35	2	1
AE015	3	1356	74	3	2
AE016	3	1860	74	4	2
AE017	3	2328	74	5	3
AE018	3	1644	65	4	2
AE044	3	1392	74	3	3
AE019	3	1896	74	4	2
AE047	3	1860	74	4	2
AE020	3	1356	74	3	2
AE043	3	1908	44	7	4
AE021	3	2292	74	5	3
AE048	3	1404	44	5	3

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)	Duration	Average Daily Construction Traffic (Two-Way Vehicle Movements)	Average Hourly Construction Traffic (Two-Way Vehicle Movements)
		Shuttle Bus	Weeks	Shuttle Bus	Shuttle Bus
AE045	3	528	44	2	1
AE022	3	2148	44	8	4
AE023	3	900	44	3	2
AE050	4	1392	74	3	2
AE024	4	2328	74	5	3
AE025	4	888	74	2	1
AE026	4	1356	74	3	2
AE027	4	1500	65	3	2
AE028	4	3300	74	3	2
AE046	4	1284	65	8	4
AE029	4	1860	74	3	1
AE030	4	1284	74	4	2
AE031	4	1644	65	5	2
AE032	4	900	65	3	2
AE033	4	900	44	6	3
AE034	4	1404	44	3	2
AE035	4	1032	44	5	3
AE036	4	1032	44	4	2
AE037	4	1032	44	4	2
AE038	4	1032	44	4	2
AE039	4	1032	44	4	2
AE040	4	528	44	4	2
AE051	1	-	-	-	-
AE052	1	-	-	-	-
AE053	1	-	-	-	-
AE054	1	-	-	-	-

Image 7.41: Proposed Project Construction Programme for Shuttle Buses

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Seasons																			
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S	S	
	2028				2029				2030				2031				2032			
AE002 + WTP																				
AE004																				
AE0041																				
AE0042																				
AE005																				
AE006																				
AE007																				
AE008																				
AE049 (AE009)																				
AE010																				
AE011																				
AE012																				
AE013																				
AE014																				
AE015																				
AE016																				
AE017																				
AE018																				
AE044																				
AE019																				
AE047																				
AE020																				
AE043																				
AE021																				
AE048																				
AE045																				
AE022																				
AE023																				
AE050																				
AE024																				
AE025																				
AE026																				
AE027																				
AE028																				
AE046																				
AE029																				
AE030																				
AE031																				
AE032																				

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Seasons																			
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S		
	2028				2029				2030				2031				2032			
AE033																				
AE034																				
AE035																				
AE036																				
AE037																				
AE038																				
AE039																				
AE040																				

**Legend:**

Spring	Summer	Autumn	Winter
Alternative Year			
Alternative Year			

7.4.2.3.3 Heavy Vehicle Generated Traffic

220. HVs Construction generated traffic relating to each construction site (AEs, PSD and CCs) is shown in Table 7.44. Image 7.42 shows the programme of HVs over the five-year Construction Phase, whereby the shaded cells represent when HVs are proposed to be used during each construction element.

**Table 7.44: HVs Generated Construction Traffic for the Proposed Project**

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)	Duration	Average Daily Construction Traffic (Two-Way Vehicle Movements)	Average Hourly Construction Traffic (Two-Way Vehicle Movements)
		HV	Weeks	HV	HV
AE001	1	-	-	-	-
AE002	1	8190	126	11	1
AE003	1	-	-	-	-
AE004	2	11771	126	16	2
AE041	2	3235	126	4	1
AE042	2	7720	126	10	1
AE005	2	12699	122	17	2
AE006	2	9749	122	13	2
AE007	2	4682	122	6	1
AE008	2	14119	117	20	3
AE009 (AE049)	2	15140	70	36	5
AE010	2	6812	70	16	2
AE011	2	3108	70	7	1
AE012	3	9585	126	13	9
AE013	3	6506	126	9	1
AE014	3	1523	126	2	1
AE015	3	8656	126	11	1
AE016	3	10439	126	14	2
AE017	3	16846	126	22	3
AE018	3	17128	117	24	3
AE044	3	10141	122	14	2
AE019	3	5887	122	8	1
AE047	3	10277	122	14	2
AE020	3	13658	122	19	2
AE043	3	9208	70	22	3
AE021	3	26939	122	37	5
AE048	3	9007	70	21	3
AE045	3	6077	70	14	2

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)	Duration  Weeks	Average Daily Construction Traffic (Two-Way Vehicle Movements)	Average Hourly Construction Traffic (Two-Way Vehicle Movements)
		HV		HV	HV
AE022	3	15454	70	37	5
AE023	3	10543	70	25	3
AE050	4	11398	126	15	2
AE024	4	27310	126	36	5
AE025	4	6724	126	9	1
AE026	4	15100	126	20	2
AE027	4	19266	117	27	3
AE028	4	39659	122	54	7
AE046	4	14176	117	20	3
AE029	4	15554	122	21	3
AE030	4	26208	122	36	4
AE031	4	15267	113	23	3
AE032	4	12137	113	18	2
AE033	4	10215	70	24	3
AE034	4	10894	70	26	3
AE035	4	5061	70	12	2
AE036	4	3786	70	9	1
AE037	4	8496	70	20	3
AE038	4	5096	70	12	2
AE039	4	4483	70	11	1
AE040	4	4711	70	11	1
AE051	1	-	-	-	-
AE052	1	-	-	-	-
AE053	1	-	-	-	-
AE054	1	-	-	-	-
CC2	2	5232	178	5	1
CC5	3	5232	178	5	1
CC6	4	5232	178	5	1
PSD1	2	4608	165	5	1
PSD2	3	4608	165	5	1
PSD3	3	4608	165	5	1
PSD4	3	4608	165	5	1
PSD5	3	4608	165	5	1

Construction Element	Section	Total Construction Traffic (Two-Way Vehicle Movements)	Duration	Average Daily Construction Traffic (Two-Way Vehicle Movements)	Average Hourly Construction Traffic (Two-Way Vehicle Movements)
		HV		Weeks	HV
PSD6	3	4608	165	5	1
PSD8	4	4608	165	5	1
PSD9	4	4608	165	5	1
PSD10	4	4608	165	5	1
RWI&PS CC0	1	3553	104	6	1
WTP CC1	1	136593	174	131	16
BPT CC3	2	21834	117	31	4
TPR CC7	4	35744	117	51	6
FCV	4	1839	25	12	2
BPS CC4	3	6358	96	11	1
R440 (BPS Power Supply)	3	5676	28	34	4
Local Road (north of R440)	3	2838	28	17	2
Local Road (east of L3003)	3	2838	28	17	2
L3003 (BPS Power Supply)	3	5676	28	34	4

Image 7.42: Proposed Project Construction Programme for HVs

	Year 1				Year 2				Year 3				Year 4				Year 5	
	Seasons																	
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S
	2028				2029				2030				2031				2032	
AE002 + WTP																		
AE004																		
AE0041																		
AE0042																		
AE005																		
AE006																		
AE007																		
AE008																		
AE049 (AE009)																		
AE010																		
AE011																		
AE012																		
AE013																		
AE014																		
AE015																		
AE016																		
AE017																		
AE018																		
AE044																		
AE019																		
AE047																		
AE020																		
AE043																		
AE021																		
AE048																		
AE045																		
AE022																		
AE023																		
AE050																		
AE024																		
AE025																		
AE026																		
AE027																		
AE028																		
AE046																		
AE029																		
AE030																		
AE031																		
AE032																		

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Seasons																			
	S	S	A	W	S	S	A	W	S	S	A	W	S	S	A	W	S	S		
	2028				2029				2030				2031				2032			
AE033																				
AE034																				
AE035																				
AE036																				
AE037																				
AE038																				
AE039																				
AE040																				
CC2 (Lisgariff)																				
CC5 (Killananny)																				
CC6 (Drummond)																				
Carrigatogher Depot PSD1																				
Toora Depot PSD2																				
Boveen Depot PSD3																				
Fortel Depot PSD4																				
Derrinboy Depot PSD5																				
Derryweelan Depot PSD6																				
Rathlumber Depot PSD8																				
Graigiepottle Depot PSD9																				
Barberstown Upper Depot PSD10																				
Raw Water Intake & Pumping Station and Access																				
Water Treatment Plant Site and Access Road CC1																				
Break Pressure Tank Site CC3																				
Termination Point Reservoir Site CC7																				
Flow Control Valve																				
Booster Pumping Station CC4																				
R440																				
Local Road (North of R440)																				
Local Road (East of L3003)																				
L3003																				

**Legend:**

Spring	Summer	Autumn	Winter
Alternative Year		Alternative Year	

221. For the overall Proposed Project, the anticipated peak construction activity period is Year 2 (2029) occurring for two weeks. However, the construction profile assessment (Table 5.4 Section 5.1.3, Appendix A7.1: Traffic and Transport Assessment) shows the duration of the peak construction varies from four weeks to 15 weeks. Therefore, to assess the reasonable worst-case all junctions were assessed considering the individual junction peaks during respective peak construction activity year for each junction location during the anticipated Construction Phase (2028–2032).
222. The peak traffic estimated to be generated for each junction during the Construction Phase is summarised in Table 7.45. These values are the worst-case scenario projections, in order to analyse the surrounding junctions. It should be noted that once construction starts, LV traffic in relation to staff will not be restricted to the Haul Roads in the same way that HV traffic is. However, in order to carry out a robust assessment, the LVs have been distributed along the Haul Roads for the purpose of modelling Construction Phase traffic. While LVs would not be restricted to the Haul Roads, they will be encouraged to use appropriate roads, and this is reflected in the TMP (Appendix A7.2).
223. Table 7.45 also demonstrates the percentage increase at each junction during the AM and PM peak. The percentage increase has been utilised to determine if a TTA is required for that junction. The threshold of 10% was used to determine if the junction should be modelled in the traffic assessment. An additional review of junctions where congestion exists was carried out using the more robust threshold of 5% and determined if the junction was modelled.

**Table 7.45: Construction Phase Percentage Increase in Flows**

Junction	AM Peak	AM Construction-Generated Traffic	% Increase	PM Peak	PM Construction-Generated Traffic	% Increase
Junction 1	500	16	3%	436	16	4%
Junction 2	1037	132	13%	865	132	15%
Junction 3	561	33	6%	490	33	7%
Junction 4	458	97	21%	429	97	23%
Junction 5	536	59	11%	568	59	10%
Junction 6	1393	94	7%	1357	94	7%
Junction 7	1245	82	7%	1109	82	7%
Junction 8	1294	82	6%	993	82	8%
Junction 9	1412	177	13%	1422	177	12%
Junction 10	696	194	28%	663	194	29%
Junction 11	1049	53	5%	957	53	6%
Junction 12	1121	53	5%	1036	53	5%
Junction 13	28	32	112%	28	32	112%
Junction 14	346	41	12%	330	41	12%
Junction 15	82	47	57%	70	47	67%
Junction 16	693	81	12%	724	81	11%
Junction 17	651	49	8%	711	49	7%
Junction 18	1809	105	6%	1769	105	6%
Junction 19	1729	41	2%	1715	41	2%
Junction 20	1064	41	4%	1523	41	3%
Junction 21	968	42	4%	1085	42	4%

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Junction	AM Peak	AM Construction-Generated Traffic	% Increase	PM Peak	PM Construction-Generated Traffic	% Increase
Junction 22	107	70	65%	95	70	73%
Junction 23	38	52	137%	35	52	147%
Junction 24	198	61	31%	162	61	38%
Junction 25	167	69	41%	154	69	45%
Junction 26	39	22	57%	42	22	52%
Junction 27	938	99	11%	880	99	11%
Junction 28	133	132	100%	142	132	93%
Junction 29	937	180	19%	875	180	21%
Junction 30	2378	97	4%	2840	97	3%
Junction 31	862	26	3%	951	26	3%
Junction 32	1116	66	6%	1427	66	5%
Junction 33	1348	66	5%	1445	66	5%
Junction 34	593	23	4%	598	23	4%
Junction 35	791	25	3%	764	25	3%
Junction 36	753	85	11%	679	85	13%
Junction 37	958	35	4%	1306	35	3%
Junction 38	1138	53	5%	1375	53	4%
Junction 39	452	79	18%	393	79	20%
Junction 40	759	79	10%	776	79	10%
Junction 41	1519	79	5%	1578	79	5%
Junction 42	1210	91	8%	1489	91	6%
Junction 43	583	302	52%	646	302	47%
Junction 44	840	48	6%	911	48	5%
Junction 45	1060	179	17%	1151	179	16%
Junction 46	1328	33	3%	1323	33	3%
Junction 47	1000	38	4%	975	38	4%
Junction 48	1576	60	4%	1648	60	4%
Junction 49	2114	106	5%	2146	106	5%
Junction 50	2387	130	5%	2091	130	6%
Junction 51	2483	22	1%	2342	22	1%
Junction 52	1707	97	6%	1697	97	6%
Junction 53*	1857	87	5%	1846	87	5%
Junction 54	1470	42	3%	1434	42	3%
Junction 55	1726	18	1%	1695	18	1%
Junction 56	1003	28	3%	955	28	3%
Junction 57	583	45	8%	430	45	10%

\*Junction 53 is located in Celbridge which is only accessible during night-time hours (19:00 to 07:00)

#### 7.4.2.4 Construction Phase Trip Distribution

##### 7.4.2.4.1 Light Vehicles

224. Section 6.1 of Appendix A7.1 (Traffic and Transportation Assessment) describes in detail the distribution of the LV vehicles. The cars and LV generated traffic was distributed considering the location of the surrounding towns and using the latest Central Statistics Office (CSO) data from 2022 to determine the population for the surrounding towns so that a percentage could be allocated from each origin.

##### 7.4.2.4.2 Shuttle Bus

225. Section 6.2 of Appendix A7.1 (Traffic and Transportation Assessment) demonstrates the methodology used to distribute the shuttle bus vehicles. The shuttle bus generated traffic was distributed where the origin for each construction section is the Principal Construction Compound for that section.

##### 7.4.2.4.3 Heavy Vehicles

226. Similarly Section 6.3 of Appendix A7.1 (Traffic and Transportation Assessment) outlines how the HV vehicles were distributed. HV traffic was assessed by considering each junction separately. It was assumed that HVs would travel to and from either the M4/M6 or the M7 motorway network. This approach represents a reasonable worst-case scenario, as the exact source of construction materials (e.g. pipelines and other infrastructure components) is unknown.

227. The planning stage design calculated the expected number of HVs per week for each location over the five-year programme, based on the function of each Infrastructure Site, PSD, CC and access points.

228. For each junction, total HV traffic was estimated by adding together the reasonable worst-case volumes from all relevant Infrastructure Sites, PSDs, CCs and access points passing through each junction. For example, at Junction 2 (R494/R445 Birdhill roundabout), the total includes AE001, AE002, AE003, AE004, AE051, AE052, AE053, AE054, AE041, RWI&PS (CC0) and WTP (CC1).

229. HVs would typically operate over a 12-hour period; however, for the purposes of this assessment, it was robustly assumed that all HGVs would arrive and depart within an 8-hour period. If arrivals and departures were evenly distributed over this period, this would equate to 12.5% of movements occurring during the AM peak hour and 12.5% during the PM peak hour. For a robust assessment it was assumed that double the amount (25%) of HGVs would arrive and depart during the AM peak hour and 25% during the PM peak hour.

#### 7.4.2.5 Construction Phase Traffic Assessment

230. The road network traffic assessment is the addition of the Construction Phase generated traffic and committed development traffic to the baseflow traffic for the year of assessment on each Haul Road.

231. As outlined in Section 7.2.9 a shortlist of other projects was created using the longlist provided in Chapter 21 (Cumulative Effects & Interactions) to determine if any projects would overlap in time or location with the Proposed Project. The list included is shown in Section 10.4.2 of Appendix A7.1 (Traffic and Transportation Assessment).

232. The key parameters for the road network traffic assessment are the AADT and the percentage of HVs. Comparing the Do-Minimum and Do-Something scenarios allows the effects of the Proposed Project on the study area road network to be assessed.

233. A summary of the road network analysis results for the Haul Roads shown in Figure 7.22 to Figure 7.26 is shown in Table 7.46. A comparison of the Do-Minimum and Do-Something scenarios was undertaken for each individual Haul Road where traffic surveys were conducted previously listed in Section 7.2.5.3. The results in Table 7.46 indicate the potential impacts for the peak year of the assessment.

#### *7.4.2.5.1 Road Network Analysis Results*

234. The results in Table 7.46 indicate the difference between the baseflow traffic for the year of the assessment. The impact assessment of the road network is described in Section 7.4.3.2.1.

**Table 7.46: Road Network Analysis Results (Construction)**

County	Road	Label	Do-Minimum		Do-Something		Difference Between Do-Minimum and Do-Something		
			AADT	% HV	AADT	% HV	AADT	% AADT	% HV
Limerick	R858	A	6922	1%	7008	3%	86	1%	1%
Tipperary	R494 NNW	B	4232	7%	4510	11%	277	7%	4%
Tipperary	R445	C	3741	12%	4308	18%	567	15%	6%
Tipperary	R499	D	746	12%	847	19%	101	14%	7%
Tipperary	R494 W	E	5826	3%	5933	5%	108	2%	1%
Tipperary	R495 WNW	F	3421	3%	3633	3%	212	6%	1%
Tipperary	R493	G	1929	9%	2052	13%	123	6%	4%
Tipperary	N52	H	6617	13%	7287	21%	670	10%	8%
Tipperary	N52N Main Street	I	10077	8%	11071	13%	994	10%	5%
Tipperary	L1064	J	308	11%	485	20%	178	58%	9%
Tipperary	R490 Templemore Road	K	2784	5%	3067	9%	283	10%	4%
Tipperary	R491	L	1993	4%	2232	6%	240	12%	2%
Offaly	L4022	M	573	11%	725	19%	152	26%	8%
Offaly	N52	N	16964	8%	17868	10%	905	5%	2%
Offaly	N52 Wilmer Road	O	17881	7%	18423	9%	542	3%	1%
Tipperary	N62	P	9732	3%	10233	7%	501	5%	4%
Offaly	L4004	Q	1033	5%	1233	16%	200	19%	11%
Offaly	L8014	R	288	12%	386	26%	97	34%	14%
Offaly	R440	S	1290	9%	1381	13%	91	7%	4%
Offaly	L3003	T	348	14%	637	26%	290	83%	12%
Offaly	L2027	U	347	10%	525	26%	178	51%	15%
Offaly	N52 Bridge Street	V	8367	10%	9116	12%	750	9%	2%
Offaly	L2021	W	872	9%	1017	14%	145	17%	5%

County	Road	Label	Do-Minimum		Do-Something		Difference Between Do-Minimum and Do-Something		
			AADT	% HV	AADT	% HV	AADT	% AADT	% HV
Offaly	Unknown Local Road	X	158	15%	303	29%	145	92%	14%
Offaly	R421	Y	1251	11%	1946	28%	696	56%	17%
Offaly	L2002	Z	680	11%	938	21%	258	38%	10%
Offaly	N52 N	AA	18163	11%	18469	11%	307	2%	0%
Offaly	N80	AB	9079	20%	9744	21%	664	7%	1%
Offaly	R420 ESE	AC	6089	8%	6297	9%	208	3%	1%
Offaly	L1020	AD	1185	14%	1293	19%	107	9%	5%
Laois	N80 S	AE	14815	9%	15479	10%	664	4%	1%
Laois	R422 Lord Edward Street	AF	10958	6%	13777	7%	2819	26%	0%
Offaly	R402 NNE	AG	7974	7%	8169	9%	195	2%	2%
Offaly	Church Road	AH	1909	3%	2110	11%	201	11%	8%
Laois	R420 W	AI	13558	5%	13845	7%	286	2%	1%
Laois	R419 Spa Street	AJ	7170	5%	7950	8%	780	11%	3%
Laois	R420 Link Road	AK	12557	5%	13129	9%	572	5%	4%
Offaly	R400 SW	AL	1021	6%	1581	34%	561	55%	28%
Offaly	R401	AM	2520	17%	2567	17%	48	2%	0%
Offaly	R402 Father Kearns Street	AN	17214	6%	17700	7%	486	3%	2%
Kildare	L5025	AO	1691	4%	1904	12%	213	13%	9%
Kildare	R403	AP	5602	17%	5914	19%	312	6%	2%
Kildare	Unknown Local Road	AQ	268	21%	406	40%	138	51%	19%
Kildare	R402	AR	8307	14%	8807	18%	500	6%	4%
Kildare	R403 E	AS	8400	7%	9277	9%	877	10%	2%
Kildare	Barberstown Road	AT	2517	5%	2755	12%	238	9%	7%
Kildare	R408	AU	4835	4%	4895	5%	60	1%	0%

County	Road	Label	Do-Minimum		Do-Something		Difference Between Do-Minimum and Do-Something		
			AADT	% HV	AADT	% HV	AADT	% AADT	% HV
Kildare	R407 S	AV	16036	9%	16383	10%	348	2%	1%
Kildare	R403 SW	AW	13199	5%	13584	6%	385	3%	1%
Kildare	R403 NE	AX	20666	5%	20991	5%	325	2%	0%
Kildare	R407	AY	19978	13%	20841	15%	863	4%	2%
Kildare	R406	AZ	19919	10%	20066	10%	147	1%	0%
Kildare	R403 Dublin Road	BA	14032	3%	14322	4%	290	2%	1%
Dublin	R405 Hazelhatch Road	BB	5670	3%	5816	4%	146	3%	1%
Dublin	L6002 Athgoe Road	BC	8071	3%	8218	4%	146	2%	1%
Dublin	R120 Main Street	BD	14126	4%	14310	5%	185	1%	1%
Dublin	R120	BE	7614	15%	7785	15%	171	2%	0%
Kildare	L1016	BF	3574	12%	3758	15%	184	5%	2%

#### 7.4.2.5.2 Road Network Analysis – Significance of Effect

235. The assessment of effect significance has considered the sensitivity of the road network and the magnitude of the impact on each Haul Road.

236. The significance of effect for each link is described in Table 7.47 to Table 7.52 based on the assessment methods identified in Section 7.2.6.

**Table 7.47: Significance of Effect – Road Network Impact (Construction) – County Limerick**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Limerick	A	R858	Medium	Negligible	Imperceptible	Not Significant

237. Impacts to the link in Limerick will not result in any likely significant effects.

**Table 7.48: Significance of Effect – Road Network Impact (Construction) – County Tipperary**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Tipperary	B	R494 NNW	Medium	Low	Slight	Not Significant
Tipperary	C	R445	Medium	High	Significant – Moderate	Significant
Tipperary	D	R499	Medium	Medium	Moderate	Not Significant
Tipperary	E	R494 W	Medium	Negligible	Imperceptible	Not Significant
Tipperary	F	R495 WNW	Medium	Low	Slight	Not Significant
Tipperary	G	R493	Medium	Low	Slight	Not Significant
Tipperary	H	N52	High	Medium	Significant – Moderate	Significant
Tipperary	I	N52N Main Street	High	Medium	Significant – Moderate	Significant
Tipperary	J	L1064	Low	Very High	Moderate	Not Significant
Tipperary	K	R490 Templemore Road	Medium	Medium	Moderate	Not Significant
Tipperary	L	R491	Medium	Medium	Moderate	Not Significant
Tipperary	P	N62	High	Low	Moderate – Slight	Not Significant

238. Two links (C (R445) and H/I (N52) in Tipperary would have potential for likely significant effects in the absence of mitigation measures.

239. The regional road link (R445) is a medium sensitivity receptor; the generated traffic AADT is 15% which is a high magnitude, resulting in a Significant – Moderate effect. The N52 national road has been deemed a high sensitivity receptor, and therefore a medium magnitude impact results in a Significant – Moderate effect. As a result, a likely Significant adverse effect was determined for both links.

240. As shown in Figure 7.22, Link C is located at the WTP (CC1) which is also a Principal Construction Compound and therefore has LV generated traffic for Section 1 and the infrastructure material for the WTP.

241. Links H and I are located at two points along the N52 as shown in Figure 7.23 which is a principal Haul Road connecting CC0 (RWI&PS), CC1 (WTP), PSD1 and 12 no. access points to the M4 motorway. For the purposes of the assessment, a robust scenario has been considered in which this Haul Road link is assumed to accommodate traffic for CC0 (RWI&PS), CC1 (WTP), PSD1 and 12 no. access points.

242. It is noted that alternative Haul Roads exist to each of these locations via the M7 motorway which provides alternative roads to reduce reliance.

**Table 7.49: Significance of Effect – Road Network Impact (Construction) – County Offaly**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Offaly	M	L4022	Low	Very High	Moderate	Not Significant
Offaly	N	N52	High	Low	Moderate – Slight	Not Significant
Offaly	O	N52	High	Negligible	Not Significant	Not Significant
Offaly	Q	L4004	Low	Very High	Moderate	Not Significant
Offaly	R	L8014	Negligible	Very High	Slight	Not Significant
Offaly	S	R440	Medium	Low	Slight	Not Significant
Offaly	T	L3003	Low	Very High	Moderate	Not Significant
Offaly	U	L2027	Low	Very High	Moderate	Not Significant
Offaly	V	N52 Bridge Street	High	Low	Moderate – Slight	Not Significant
Offaly	W	L2021	Low	Very High	Moderate	Not Significant
Offaly	X	Unnamed Local Road	Low	Very High	Moderate	Not Significant
Offaly	Y	R421	Medium	Very High	Significant	Significant
Offaly	Z	L2002	Low	Very High	Moderate	Not Significant
Offaly	AA	N52 N	High	Negligible	Not Significant	Not Significant
Offaly	AB	N80	High	Low	Moderate – Slight	Not Significant
Offaly	AC	R420 ESE	Medium	Negligible	Imperceptible	Not Significant
Offaly	AD	L1020	Low	Low	Not Significant	Not Significant
Offaly	AG	R402 NNE	Medium	Negligible	Imperceptible	Not Significant
Offaly	AH	Church Road	Low	Medium	Slight	Not Significant
Offaly	AL	R400 SW	Medium	Very High	Significant	Significant
Offaly	AM	R401	Medium	Negligible	Imperceptible	Not Significant
Offaly	AN	R402 Father Kearns Street	Medium	Negligible	Imperceptible	Not Significant

243. Two links (link Y (R421) and AL (R400)) in Offaly would have potential significant effects in the absence of mitigation measures. Both are regional roads (R421 and R400) which are medium sensitivity receptors, the generated traffic exceeds AADT increase of 15% and percentage HV of 10%, which is a very high magnitude, resulting in a likely Significant adverse effect. An overall Significant effect was determined for both links.

244. As shown in Figure 7.24, link Y is located at the Principal Construction Compound CC5 which provides parking for all LV staff for Section 3.

245. Figure 7.25 shows the location of AL which provides connectivity to PSD8 and 4 no. access points. For the purposes of the assessment, a scenario has been considered in which this Haul Road link is assumed to accommodate traffic for PSD8 and 4 no. access points.

246. It is recognised that alternative haul roads and four access points are available for PSD8. These options provide potential for distributing vehicle movements across the network. However, for assessment purposes, a reasonable worst-case assumption has been adopted for traffic demand on this link.

**Table 7.50: Significance of Effect – Road Network Impact (Construction) – County Laois**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Laois	AE	N80 S	High	Negligible	Not Significant	Not Significant
Laois	AF	R422 Lord Edward Street	Medium	Very High	Significant	Significant
Laois	AI	R420 W	Medium	Negligible	Imperceptible	Not Significant
Laois	AJ	R419 Spa Street	Medium	Medium	Moderate	Not Significant
Laois	AK	R420 Link Road	Medium	Low	Slight	Not Significant

247. One link (link AF (R422)) in Laois would have potential significant effects in the absence of mitigation measures. The regional road link is a medium sensitivity receptor where the generated traffic exceeds AADT increase of 15% which is a very high magnitude, resulting in a likely Significant adverse effect. An overall likely Significant adverse effect was determined during the Construction Phase.

248. As illustrated in Figure 7.24, the AF (R422) link is situated in Mountmellick and serves as a key connection to Junction 15 on the M7 motorway. This dedicated Haul Road link facilitates construction traffic movements by providing direct connectivity to several key locations, namely: PSD6 – a designated Pipe Storage Depot, CC5 (Principal Construction Compound), and four access points to the Construction Working Width.

249. For the purposes of the assessment, a scenario has been considered in which this Haul Road link is assumed to accommodate traffic for all of the above destinations simultaneously.

250. However, it is noted that alternative Haul Roads exist for PSD6, CC5, and the four access points. Consequently, in practice, traffic demand on this particular link is likely to be lower than the reasonable worst-case assumption, as vehicle movements can be distributed via these alternative roads to reduce reliance on the Mountmellick Haul Road.

**Table 7.51: Significance of Effect – Road Network Impact (Construction) – County Kildare**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Kildare	AO	L5025	Negligible	Medium	Imperceptible	Not Significant
Kildare	AP	R403	Medium	Low	Slight	Not Significant
Kildare	AQ	Unnamed Local Road	Low	Very High	Moderate	Not Significant
Kildare	AR	R402	Medium	Low	Slight	Not Significant
Kildare	AS	R403 E	Medium	Medium	Moderate	Not Significant
Kildare	AT	Barberstown Road	Low	Low	Not Significant	Not Significant
Kildare	AU	R408	Medium	Negligible	Imperceptible	Not Significant
Kildare	AV	R407 S	Medium	Negligible	Imperceptible	Not Significant

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Kildare	AW	R403 SW	Medium	Negligible	Imperceptible	Not Significant
Kildare	AX	R403 NE	Medium	Negligible	Imperceptible	Not Significant
Kildare	AY	R407	Medium	Negligible	Imperceptible	Not Significant
Kildare	AZ	R406	Medium	Negligible	Imperceptible	Not Significant
Kildare	BA	R403	Medium	Negligible	Imperceptible	Not Significant
Kildare	BF	L1016	Medium	Low	Imperceptible	Not Significant

251. None of the links in Kildare have been shown to be subject to any likely Significant effects, resulting in an overall Not Significant effect.

**Table 7.52: Significance of Effect – Road Network Impact (Construction) – County Dublin**

County	Label	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Dublin	BB	R405 Hazelhatch Road	Medium	Negligible	Imperceptible	Not Significant
Dublin	BC	L6002 Athgoe Road	Low	Negligible	Imperceptible	Not Significant
Dublin	BD	R120 Main Street	Medium	Negligible	Imperceptible	Not Significant
Dublin	BE	R120	Negligible	Negligible	Imperceptible	Not Significant

252. None of the links in Dublin have been shown to be subject to any likely Significant effects, resulting in an overall Not Significant effect.

#### 7.4.2.6 Construction Phase Junction Assessment

253. As shown in Table 7.45, 31 of the 57 junctions were above the 10% threshold and 5% threshold where congestion already exists as set out in the TTA Guidelines (TII 2014) and therefore, these were analysed further.

254. Junction capacity analysis has been carried out using Junctions 10 software for the assessment of priority-controlled junctions. The assessment has been undertaken using the Junctions 10 'Lane Simulation' advanced modelling feature, which allows lane utilisation on roundabout and priority-controlled T-junction approaches to be realistically modelled and simulated.

255. The assessment parameters are:

- 2024 and 2025 baseflow
- Baseflow traffic volumes factored up to peak year of construction for the specific junction (2028–2032)
- Peak year of construction plus committed development (cumulative): factored up baseflow traffic plus committed developments traffic
- Peak year of construction plus committed development (cumulative) plus estimated Construction Phase traffic.

#### 7.4.2.6.1 Junction Assessment Results

256. The results of the Junctions 10 software analysis are presented in Section 10.4.3 of Appendix A7.1 (Traffic and Transportation Assessment).

257. The analysis of the Barberns for the Construction Phase of the Proposed Project in the AM and PM peaks showed eight of the junctions would exceed the design capacity (RFC >0.85). This is presented in Section 10.4.3.1 in Appendix A7.1 (Traffic and Transport Assessment).

258. The eight junctions which would exceed the design capacity are listed below and summarised in Table 7.53:

- Junction 2 (Birdhill Roundabout)
- Junction 18 (mini-Roundabout in Birr)
- Junction 20 (T-junction in Roscrea)
- Junction 30 (Roundabout in Tullamore)
- Junction 32 (N80/R422 Roundabout Mountmellick)
- Junction 33 (R422/Connolly Street Roundabout Mountmellick)
- Junction 38 (R419/R420 Staggered Junction Portarlington)
- Junction 50 (Roundabout in Clane).

**Table 7.53: Summary of Construction Phase**

Summary of Construction Phase					
Junction	Junction Arms that exceed 0.85 RFC			Queue Length	Delay
	Arm	Peak Construction Year	RFC	Queue (PCU)	Delay (s)
Junction 2	B – R445 (ENE)	2028 AM no Construction	0.77	<1	37.43
		2028 AM with Construction	0.88	1	50.4
Junction 18	A – N52 (N)	2029 AM no Construction	0.87	11	66.70
		2029 AM with Construction	0.99	19	101.08
	B – R440	2029 AM no Construction	0.89	8	57.20
		2029 AM with Construction	0.89	12	76.23
	C – N52 (S)	2029 AM no Construction	0.93	11	43.47
		2029 AM with Construction	0.95	20	64.14
Junction 20	B – N62	2030 AM no Construction	1.00	13	93.69
		2030 AM with Construction	1.00	18	112.23

Summary of Construction Phase					
Junction	Junction Arms that exceed 0.85 RFC			Queue Length	Delay
	Arm	Peak Construction Year	RFC	Queue (PCU)	Delay (s)
Junction 30	A – N52 (N)	2029 AM no Construction	0.86	9	40.11
		2029 AM with Construction	0.96	15	53.02
	B – R420 (E)	2029 AM no Construction	1.03	27	141.17
		2029 AM with Construction	1.09	41	211.78
	C – N52 (S)	2029 AM no Construction	0.98	19	87.47
		2029 AM with Construction	0.98	22	106.18
	D – R420 (W)	2029 AM no Construction	0.77	6	49.39
		2029 AM with Construction	0.81	7	51.85
Junction 32	C – N80 (N)	2031 AM no Construction	0.87	6	239.25
		2031 AM with Construction	0.88	11	69.21
Junction 33	A – R422 (NE)	2031 AM no Construction	0.85	7	38.75
		2031 AM with Construction	0.93	10	56.45
	B – Connolly Street	2031 AM no Construction	0.88	7	57.91
		2031 AM with Construction	0.92	10	72.38
	C – R422 (W)	2031 AM no Construction	0.86	6	46.50
		2031 AM with Construction	0.88	8	56.57
Junction 38	B – R419	2029 AM no Construction	0.90	8	67.25
		2029 AM with Construction	0.94	10	87.91
Junction 50	A – R407 (NW)	2030 AM no Construction	0.94	17	71.63
		2030 AM with Construction	1.02	28	114.45
	B – Clane Ring Road	2031 AM no Construction	1.05	30	146.41
		2031 AM with Construction	1.14	59	302.25
	C – R407 (SE)	2031 AM no Construction	0.93	13	40.35
		2031 AM with Construction	0.99	16	48.93

7.4.2.6.2 Junction Assessment – Significance of Effect

259. The assessment of effect significance considered the sensitivity of the junctions and the magnitude of the impact on the eight junctions assessed.

260. The significance of effect for each junction is described in Table 7.54 based on the EPA’s criteria (EPA 2022) for describing effects (Table 7.16) and application of professional judgement.

**Table 7.54: Significance of Effect – Junction Impact (Construction)**

Junction	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Junction 2	Medium	Medium	Moderate	Not Significant
Junction 18	High	High	Significant	Significant
Junction 20	High	Low	Moderate – Slight	Not Significant
Junction 30	High	Very High	Very Significant	Significant
Junction 32	High	Low	Moderate – Slight	Not Significant
Junction 33	Medium	Medium	Moderate	Not Significant
Junction 38	Medium	Medium	Moderate	Not Significant
Junction 50	Medium	Very High	Significant	Significant

261. Three of the 8 no. junctions were shown to have potential significant effects in the absence of mitigation measure where both the AM and PM peaks exceeded the RFC of 0.85 on more than one arm and the queue lengths and delays may require monitoring during the Construction Phase.

262. Junction 18 in Offaly includes the N52 national road which has been deemed a high sensitivity receptor, and therefore a high magnitude impact results in a Significant effect. An overall Significant effect was determined.

263. As shown in Figure 7.12, Junction 18 is a central location providing access to both the M7 and M4/M6 motorways to CC0 (RWI&PS), CC1 (WTP), PSD1 and 12 no. access points. For the purposes of the assessment, a reasonable worst-case scenario has been considered in which this junction is assumed to accommodate traffic for CC0 (RWI&PS), CC1 (WTP), PSD1 and 12 no. access points.

264. It is noted that alternative Haul Roads exist to each of these locations via the M4 and M7 motorway which would provide additional routing options and help to reduce reliance on Junction 18.

265. In accordance with EPA Guidelines (EPA 2022), the impacts associated with construction traffic at Junction 18 are considered temporary, as the peak period of the Construction Phase is five weeks, i.e. less than one year.

266. Junction 30 in Offaly also includes the N52 national road which has been deemed a high sensitivity receptor, and therefore with a very high magnitude impact results in a likely Significant adverse effect. An overall Significant effect was determined.

267. As shown in Figure 7.13, Junction 30 is also a central location providing access to the M7 motorway to CC5, PSD6 and 5 no. access points. For the purposes of the assessment, a reasonable worst-case scenario has been considered in which this junction is assumed to accommodate traffic for CC5, PSD6 and 5 no. access points.

268. It is noted the Principal Construction Compound CC5 provides parking for all LV staff for Section 3.

269. It is noted that alternative Haul Roads exist to each of these locations via the M4 and M7 motorways which provides alternative roads to reduce reliance.
270. Similarly, at Junction 30, the impacts associated with construction traffic are considered temporary, as the peak period of the Construction Phase is four weeks, i.e. less than one year.
271. Junction 50 in Kildare includes the R407 regional road which has been deemed a medium sensitivity receptor, and therefore with a very high magnitude impact results in a likely Significant adverse effect. An overall Significant effect was determined.
272. As shown in Figure 7.16, Junction 50 provides a link to the M7 motorway to PSD9, PSD10 and 5 no. access points. For the purposes of the assessment, a reasonable worst-case scenario has been considered in which this junction is assumed to accommodate traffic for PSD9, PSD10 and 5 no. access points.
273. It is noted that alternative Haul Roads exist to each of these locations via the M4 motorway which provides an alternative road to reduce reliance.
274. At Junction 50, the impacts associated with construction traffic are considered temporary, as the peak period of the Construction Phase is five weeks, i.e. less than one year.

#### 7.4.2.7 Construction Phase Pedestrian and Cyclist Accessibility Assessment

275. Traffic volume, composition, and speeds, in combination with existing pedestrian footways and crossings, can contribute to the level of general unpleasantness, fear, intimidation and delay experienced by pedestrians and other vulnerable road users.
276. The assessment of effect significance has considered the sensitivity for pedestrian and cyclist amenity and delay, and the magnitude of the impact associated with the Proposed Project-generated Construction Phase traffic on pedestrian and cyclist facilities on each Haul Road.

##### 7.4.2.7.1 Pedestrian and Cyclist Accessibility Assessment Results

277. As illustrated in Figures 7.27 to 7.29, and Figures 7.33 to 7.38 the existing infrastructure at the Haul Road links and junctions identified as significant primarily comprises standard footpaths. The anticipated increase in Construction Phase traffic volumes at these locations has been detailed in Sections 7.4.2.5.1 and 7.4.2.6.1, forming the basis for the assessment of pedestrian and cyclist impacts.

##### 7.4.2.7.2 Pedestrian and Cyclist Accessibility Assessment – Significance of Effect

278. The significance of effect for each link and junction deemed significant in Section 7.4.2.5.2 and Section 7.4.2.6.2 in relation to Pedestrian and Cyclist Accessibility is described in Table 7.55 and Table 7.56 based on the EPA's criteria (EPA 2022) for describing effects (Table 7.16) and application of professional judgement.

**Table 7.55: Significance of Effect – Pedestrian and Cyclist Accessibility Along the Road Network (Construction)**

County	Link	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Tipperary	C	R445	Medium	Low	Slight	Not Significant
Tipperary	H	N52	High	Low	Moderate – Slight	Not Significant
Tipperary	I	N52N Main Street	High	Low	Moderate – Slight	Not Significant
Offaly	Y	R421	Medium	Low	Slight	Not Significant
Offaly	AL	R400 SW	Medium	Low	Slight	Not Significant
Laois	AF	R422 Lord Edward Street	Medium	Low	Slight	Not Significant

**Table 7.56: Significance of Effect for Pedestrian and Cyclist Accessibility at Junctions (Construction)**

Junction	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Junction 18	High	Low	Moderate – Slight	Not Significant
Junction 30	High	Low	Moderate – Slight	Not Significant
Junction 50	Medium	Low	Slight	Not Significant

279. All links and junctions assessed show low impact magnitudes, even where receptor sensitivity is high. Resulting significance of effect ratings range from Slight to Moderate – Slight, with all outcomes classified as Not Significant in accordance with EPA (2022) guidance.

280. This indicates that Construction Phase traffic is unlikely to cause material adverse effects on pedestrian or cyclist accessibility along the assessed Haul Roads and junctions. Safe local access will be maintained for pedestrians and cyclists during construction periods.

#### 7.4.2.8 Construction Phase Public Transport Assessment

281. The Construction Phase of the Proposed Project has the potential to influence public transport accessibility where Haul Roads and junctions coincide with existing bus routes or bus stop locations. Changes in traffic volumes, vehicle composition, and Haul Road operations can affect how buses operate, particularly in relation to:

- Service reliability and frequency
- Bus stop accessibility
- Passenger safety and comfort at roadside waiting areas.

282. This assessment examines whether construction-related traffic is likely to materially interfere with existing public transport services or diminish access for passengers. The evaluation follows the same significance criteria and professional judgement methodology applied to pedestrian and cyclist accessibility (Section 7.4.2.7).

##### 7.4.2.8.1 Construction Phase Public Transport Assessment Result

283. As shown in Section 7.3 the existing public transport infrastructure information was gathered during a desktop study. As illustrated in Figures 7.30 to 7.32 and Figures 7.33 to 7.38, the existing infrastructure at the Haul Road links and junctions identified as significant primarily comprises of individual bus stops.

#### **7.4.2.8.2 Public Transport Accessibility Assessment – Significance of Effect**

284. It is noted that bus service frequencies vary at the assessed junctions as follows:

- Junction 18: approximately every 2 hours
- Junction 30: no bus stops are provided in the immediate vicinity
- Junction 50: services operate at approximately 40-minute intervals.

285. The significance of impact on public transport accessibility at these junctions is considered to be comparable to the pedestrian and cyclist accessibility assessment (refer to Table 7.56). Accordingly, the impact would be classified as Not Significant.

#### **7.4.2.9 Construction Phase Road Crossings Assessment**

286. Road closures can affect local access, journey times, and connectivity for both vehicles and vulnerable road users. This section assesses the significance of these effects using the EPA (2022) criteria for describing effects (see Table 7.16) and professional judgement.

##### **7.4.2.9.1 Road Crossings Accessibility Assessment Results**

287. As outlined in Section 6.4 of Appendix A7.2 (Traffic Management Plan) road closures greater than 48 hours have been identified at several locations, as itemised in Section 3.3 of Appendix A5.4 (Schedule of Crossings). These road closures are required for the following reasons:

- Construction of a water connection to the BPT
- Construction of ducts for underground cabling, for the provision of power to the BPS
- Construction of ducts for underground cabling for the provision of power to the Line Valve at TWA – 10660.

##### **7.4.2.9.2 Road Crossings Accessibility Assessment – Significance of Effect**

288. The significance of effect associated with these road closures has been assessed using the EPA (2022) criteria for describing effects (refer to Table 7.16) and informed by professional judgement. The assessment considers both the magnitude of the duration of each closure and the sensitivity of affected receptors. Since all road closures exceed 48 hours, they are categorised as Significant impacts under the adopted criteria.

#### **7.4.3 Do-Something Scenario – Operational Phase**

##### **7.4.3.1 Operational Phase Traffic Generation**

289. The Operational Phase of the Proposed Project includes the operation and maintenance of the six Infrastructure Sites, sections of pipeline, and all ancillary infrastructure. Once the Proposed Project becomes operational there would be limited potential for impacts on traffic and transport. The relevant elements would be:

- Maintenance or other operational vehicle movements
- Operatives travelling to and from site
- Removal of waste arisings from the WTP.

290. The operational trip generation for the Operational Phase is detailed in Table 7.57.

291. A worst case for the sludge removal at the WTP has been assumed where six months' sludge is stored on-site and then needs to be cleared out all at once.

**Table 7.57: Generated Operational Phase Traffic for the Proposed Project**

Infrastructure Site	Peak Hourly Operation Traffic (One Way)	
	LV	HV
Raw Water Intake and Pumping Station (RWI&PS)	16	1
Water Treatment Plant (WTP)	16	15*
Booster Pumping Station (BPS)	2	1
Break Pressure Tank (BPT)	10	1
Flow Control Valve (FCV)	1	-
Termination Point Reservoir (TPR)	10	1

\*15 HV is the summation of sludge traffic (once every six months) and treatment process chemicals occurring at the same time.

292. The first operational year for the Proposed Project is anticipated to be 2033.

293. As per the Construction Phase the TTA thresholds were applied as shown in Table 7.58.

**Table 7.58: Operational Phase Percentage Increase in Flows**

Junction	AM Peak	AM Operation Generated traffic	% Increase	PM Peak	PM Operation Generated traffic	% Increase
Junction 3	592	91	15%	517	23	4%
Junction 4	483	33	7%	453	33	7%
Junction 13	29	14	48%	29	14	48%
Junction 23	39	6	16%	36	6	17%
Junction 56	1013	14	1%	965	14	1%
Junction 57	590	1	0%	436	1	0%

#### 7.4.3.2 Operational Phase Traffic Assessment on the Road Network

294. The road network traffic assessment is the addition of the Operational Phase Proposed Project-generated traffic and committed development traffic, to the baseflow traffic for the year of assessment on each affected road.

295. From the operational year of 2032 the traffic volumes associated with committed developments were reviewed to determine where the distribution of the traffic would overlap with the Proposed Project. It has been assumed that any increase in traffic will be accounted for in the high sensitivity growth rates.

296. The key parameters for the road network traffic assessment are the AADT and the percentage HV content.

297. The comparison between the baseflow traffic on each road and baseflow with the addition of the Proposed Project traffic was undertaken to determine the effect of the Proposed Project on the road network within the operational study area, including the roads providing access to the Infrastructure Sites.

##### 7.4.3.2.1 Road Network Analysis Results

298. A summary of the road network analysis results is shown in Table 7.59. The results in Table 7.59 indicate the potential impacts for the peak year of the assessment.

**Table 7.59: Road Network Analysis Results (Operation)**

County	Label	Road	Do-Minimum		Do-Something		Difference Between Do-Minimum and Do-Something		
			AADT	% HV	AADT	% HV	AADT	% AADT	% HV
Tipperary	B	R494	4371	8%	4405	5%	34	1%	3%
Tipperary	C	R445	3937	12%	4215	17%	278	7%	5%
Tipperary	J	L1064	313	11%	335	9%	22	7%	2%
Offaly	T	L3003	354	14%	360	13%	6	2%	1%
Dublin	BD	R120	14262	5%	14284	0%	22	0%	5%
Kildare	BF	L1016	3681	9%	3683	0%	2	0%	5%

299. The results in Table 7.59 indicate the difference between the baseflow traffic for the year of the assessment. The impact assessment of the road network is described in Section 7.4.3.2.2.

#### 7.4.3.2.2 Road Network Analysis – Significance of Effect

300. The assessment of effect significance has considered the sensitivity of the road network and the magnitude of the impact on affected roads within the study area.

301. The significance of effect for each link is described in Table 7.60 based on the EPA's criteria (EPA 2022) for describing effects (Table 7.16) and application of professional judgement.

**Table 7.60: Significance of the Effect – Road Network Impact (Operation)**

County	Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Tipperary	R494 NNW	Medium	Negligible	Imperceptible	Not Significant
Tipperary	R445	Medium	Low	Slight	Not Significant
Tipperary	L1064	Low	Negligible	Imperceptible	Not Significant
Offaly	L3003	Low	Negligible	Imperceptible	Not Significant
Dublin	R120 Main Street	Medium	Negligible	Imperceptible	Not Significant
Kildare	L1016	Low	Low	Not Significant	Not Significant

302. The significance of effects for the road network ranges from Imperceptible to Not Significant, as in all cases the percentage increase in AADT would be less than 10%, and percentage change in HV less than or equal to 5%, meaning there would be a low magnitude of impact at worst. On this basis, the effect on the road network during the Operational Phase of the Proposed Project is assessed as an overall Not Significant effect.

#### 7.4.3.3 Operational Phase Junction Assessment

303. As shown in Table 7.58, three of the six junctions that would be impacted by operational activities were above the 10% threshold set out in the TTA Guidelines (TII 2014) and therefore, these were analysed further.

304. The junctions on the road network have been analysed using the Junctions 10 software. These are widely accepted tools used for the analysis of priority junctions and roundabouts.

305. The assessment parameters are:

- 2024 and 2025 baseflow
- Baseflow traffic volumes factored up to year of opening, 2033
- Plus five years after opening, 2038
- Plus 15 years after opening, 2048.

306. The results of the Junctions 10 software analysis are presented in Section 10.4.4 of Appendix A7.1 (Traffic and Transportation Assessment) and summarised in Table 7.61.

**Table 7.61: Summary of Operational Phase**

Summary of Operation Phase						
Junction	Maximum Increase in RFC		Maximum Increase in Queue Length		Maximum Increase in Delay	
	Arm	RFC	Arm	Queue (PCU)	Arm	Delay (s)
Junction 3	B – CC0	0.06	All arms	0	B – CC0	9.88
Junction 13	Arm B – BPT	0.02	All arms	0	Arm B – BPT	7.66
Junction 23	All arms	0	All arms	0	C – L3003 (E)	0.36

307. The analysis of the three junctions for the Operational Phase of the Proposed Project in the AM and PM peaks showed none of the junctions would exceed the design capacity (RFC >0.85). This is presented in Section 10.4.4 in Appendix A7.1 (Traffic and Transport Assessment).

#### 7.4.3.3.1 Junction Assessment – Significance of Effect

308. The assessment of effect significance considered the sensitivity of the junctions and the magnitude of the impact on each of the three junctions assessed.

309. The significance of effect for each junction is described in Table 7.62 based on the EPA’s criteria (EPA 2022) for describing effects (Table 7.16) and application of professional judgement.

**Table 7.62: Significance of the Effect – Junction Impact (Operation)**

Road	Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance
Junction 3	Medium	Low	Slight	Not Significant
Junction 13	Low	Low	Not Significant	Not Significant
Junction 23	Low	Low	Not Significant	Not Significant

The significance of effects for the road network ranges from Not Significant to Slight. None of the arms of the junctions assessed exceed the RFC design capacity of 0.85, and in fact would be substantially below this level (maximum RFC would be 0.06). Queues would be negligible, not reaching one vehicle in queue length, and the maximum delay would be 9.88 seconds. Therefore the effect on the junctions during the Operational Phase of the Proposed Project is assessed as an overall Not Significant effect.

#### 7.4.3.4 Operational Phase Pedestrian and Cyclist Accessibility Assessment

310. During the Operational Phase, the assessment of pedestrian and cyclist accessibility has been deemed Not Significant. This conclusion reflects the fact that traffic volumes are very low, and the capacity of the junctions and road network does not exceed any thresholds, ensuring that pedestrian and cyclist movements are unlikely to be adversely affected.

## **7.5 Mitigation and Monitoring Measures**

### **7.5.1 General Mitigation**

311. The environment team has worked in close collaboration with the infrastructure design team to avoid or reduce environmental impacts through the Proposed Project design. This is referred to as embedded (or design) mitigation. Embedded mitigation is inherent to the Proposed Project design, and forms part of the project description and construction methodology described in Chapters 4 (Proposed Project Description) and 5 (Construction & Commissioning) of the EIAR. As such, embedded mitigation is considered in the assessment of pre-mitigation effects in Section 7.4. Chapter 3 (Consideration of Reasonable Alternatives) of the EIAR details the reasonable alternatives that have been considered throughout the design development of the Proposed Project, including the environmental factors which have influenced the decision making.

312. The approach to mitigation has followed the mitigation hierarchy. Where possible, the aim was to design out and eliminate potential impacts completely. Where this was not practicable, impacts have been reduced through use of specific mitigation measures.

### **7.5.2 Embedded Mitigation**

313. The following sections detail the embedded mitigation relevant to this chapter.

#### **7.5.2.1 Selection of Haul Roads**

314. The main embedded mitigation measures for traffic and transportation involved avoiding potential effects through the selection of the Haul Roads as described in Section 7.2.6.1. The LAs advised on settlements of concern and this has been considered when amending Haul Roads, where practicable, to avoid or reduce potential impacts. These amendments include the following:

- Haul Roads will not traverse the Ballina-Killaloe crossing due to the high density of existing traffic
- Haul Roads will utilise the realigned N62, bypassing Roscrea town which has a weight restriction
- Haul Roads will utilise the Nenagh Bypass, not Nenagh town
- No Haul Roads will pass through Rosenallis and Clonaslee
- No Haul Roads will pass through Portlaoise
- No Haul Roads will pass through Maynooth
- Construction traffic will only travel through Celbridge during the night
- Construction traffic will be restricted through Lucan village. A school time weight restriction of 12.5T will be imposed along a section of the R120 in Lucan village between the times of 08:00 and 09:30 and 13:00 and 16:00 Monday to Friday during the school academic year.

#### **7.5.2.2 Trenchless Crossings**

315. As described in Chapter 5 (Construction & Commissioning), in locations where a crossing is required for major roads, it is proposed to use trenchless crossing techniques. This would avoid disruption on these roads as no traffic management measures or road closures would be required during the works.

316. Any crossing of the existing motorway network will require a Section 38 (of the Road Traffic Act 1994, as amended) approval from TII. Section 38 of the Act sets out powers of a road authority in relation to the provision and removal of certain measures, categorised as 'traffic calming measures', in respect of public roads in their charge.

### 7.5.2.3 Infrastructure Sites

317. The following design measures would reduce the impacts of the Proposed Project during the Construction and Operational Phases:

- Sufficient car parking spaces and charging points will be provided within the RWI&PS, WTP, BPT, BPS, FCV and TPR to prevent vehicles associated with the Proposed Project parking along the public road network
- Sufficient space will be provided along the proposed T-junctions at the RWI&PS, WTP, BPT, BPS, FCV and TPR access road to accommodate one HV in advance of any proposed barrier, to prevent queuing
- Stop markings and signage, in accordance with the Traffic Signs Manual, will be provided at the proposed T-junctions at the RWI&PS, WTP, BPT, BPS, FCV and TPR
- Pedestrian facilities will be provided within the RWI&PS, WTP, BPT, BPS, FCV and TPR to tie into existing facilities on the public road network where present and incorporated into landscaping plans where appropriate
- Appropriate visibility splays will be provided at proposed T-junctions at the RWI&PS, WTP, BPT, BPS, FCV and TPR
- A Stage 2 Road Safety Audit will be carried out at detailed design stage and a Stage 3 Road Safety Audit following construction.

### 7.5.3 Specific Mitigation and Monitoring Measures

318. Specific mitigation measures are proposed to prevent or reduce significant adverse effects. Where appropriate, consideration has been given to the appropriateness of monitoring measures, the purpose of which is to check that the mitigation measures required to prevent or reduce significant adverse effects are delivered and perform as intended, in accordance with the requirements of the EIA Directive.

319. Mitigation and monitoring measures for traffic and transport are described below and are included in the Construction Environmental Management Plan (Appendix A5.1) which has been produced to support this EIAR, and Appendix A7.2 (TMP).

#### 7.5.3.1 Traffic Management Plan

320. Likely significant effects were identified on traffic and transport in Section 7.4. Standard good practice measures will be put in place to reduce disruption on the local road network during the Construction Phase. In addition, some specific measures have been agreed with the LAs.

321. A TMP has been prepared for the Proposed Project (see Appendix A7.2: TMP), which incorporates these mitigation measures. Key examples of measures in the TMP include:

- Use of temporary signals to manage the increase in delays at Junction 18, Junction 30, and Junction 50 during the peak construction activity period
- Limiting HV movements during the road network peak to reduce congestion risks
- Monitoring of the three junctions and six link locations where significant impacts were identified
- The Principal Construction Compounds (CC1, CC2, CC5 and CC6) will typically allow for 250 no. designated car parking spaces. The principal Satellite Compounds (CC0, CC3, CC4 and CC7) will have 20 no. designated parking spaces. All 9 no. Pipe Storage Depots will have 4-8 parking spaces. The Principal Construction Compounds have the largest number of parking spaces as they act as the central strategic hub for plant/material/worker movement, general storage, administration, logistical support, technical (design) staff, etc. Parking will not be permitted along the side of any road sections

- Uisce Éireann will undertake pre-construction and post-construction visual pavement surveys on the Haul Roads. Where the surveys conclude that damage on the roadway is attributable to the construction of the Proposed Project, Uisce Éireann will fund the appropriate reinstatement works required and agreed with the relevant Roads Authority
- For the proposed regional and local Haul Roads in County Kildare, it will be a contractual requirement that the appointed Contractor(s) undertake Level 1 FWD surveys pre- and post-construction (at 50m centres minimum in each carriageway), as agreed with Kildare County Council
- Construction of road crossings will be carried out prior to the main construction in order to allow for neighbouring roads to be utilised as a diversion route
- Contractual requirement that the appointed Contractor(s) provide a Traffic Management Operative (TMO) at all accesses where there are constraints to the visibility splay requirements/swept path requirements of vehicles
- Contractual requirement that the appointed Contractor(s) provide a TMO at all accesses and at the Infrastructure Sites implementing a convoy system to restrict the volume of traffic exiting onto the Haul Roads noted to have constraints
- Contractual requirement that the appointed Contractor(s) implement a priority system for two HVs to safely pass where existing infrastructure (i.e. parapets) reduce the road width locally
- Contractual requirement on the appointed Contractor(s) that they will not be permitted to undertake loading and unloading activities off the side of the existing road network
- HV deliveries will avoid passing schools at opening and closing times, where it is reasonably practical.

322. The TMP is a 'live document' and will be further developed by the appointed Contractor(s) and approved by the Roads Authority prior to commencement of the Construction Phase and throughout the Construction Phase as required. The Register of Environmental Actions and Commitments, which forms part of the Construction Environmental Management Plan (Appendix A5.1), includes a commitment to produce and implement the TMP during the Construction Phase.

#### 7.5.3.2 Operational Phase

323. For all of the infrastructure accesses, the junction's visibility splays will provide the minimum requirement set out in each LA Development Plan. The visibility envelope will be kept free of all restrictions including signage.

324. Stop markings and stop signs will be installed at the five proposed accesses.

325. Pedestrian footway links with associated dropped kerbing and tactile paving will be provided at all pedestrian crossing points internally to the four sites.

## 7.6 Residual Effects

326. This chapter of the EIAR has assessed the likely significant environmental effects on traffic and transport from the Construction and Operational Phases of the Proposed Project.

327. The proportional difference between Do-Minimum and Do-Something traffic flows on the receiving road network was determined for the various assessment years and assessment scenarios. Section 7.4 has assessed the significance of effects in the absence of mitigation using a systematic approach, based on the identification of the importance/value of receptors and their sensitivity to change, together with the predicted magnitude of the impact.

328. The residual effects, after the application of mitigation measures detailed in Section 7.5, are summarised in Table 7.63.

**Table 7.63: Summary of Residual Traffic and Transport Effects**

Element	Description of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance		Residual Magnitude	Residual Significance	Overall Significance
Construction Phase Assessment on the Road Network	Link C – R445 (Tipperary)	Medium	High	Significant – Moderate	Significant	Measures to control Construction Phase traffic are set out in Section 7.5.2.1 and Appendix A7.2 (TMP).	Medium	Moderate	Not Significant
	Link H – N52 (Tipperary)	High	Medium	Significant – Moderate	Significant		Low	Moderate – Slight	Not Significant
	Link I – N52 (Tipperary)	High	Medium	Significant – Moderate	Significant		Low	Moderate – Slight	Not Significant
	Link Y – R421 (Offaly)	Medium	Very High	Significant	Significant		High	Significant – Moderate	Significant
	Link AL – R400 (Offaly)	Medium	Very High	Significant	Significant		High	Significant – Moderate	Significant
	Link AF – R422 (Laois)	Medium	Very High	Significant	Significant		High	Significant – Moderate	Significant
Construction Phase Junction Assessment	Junction 18 (Offaly)	High	High	Significant	Significant	Measures to control Construction Phase traffic are set out in Section 7.5.2.1 and Appendix A7.2 (TMP).	Medium	Significant – Moderate	Significant
	Junction 30 (Offaly)	High	Very High	Very Significant	Significant		High	Significant	Significant
	Junction 50 (Kildare)	Medium	Very High	Significant	Significant		High	Significant – Moderate	Significant
Construction Phase Pedestrian and Cyclist Accessibility Assessment	All links and junctions assessed show low impact magnitudes, even where receptor sensitivity is high. Resulting significance of effect ratings range from Slight to Moderate – Slight, with all outcomes classified as Not Significant.	Low to High	Low	Moderate – Slight	Not Significant	No specific mitigation required; however, good practice measures set out in Appendix A7.2 (TMP) are applicable.	Low	Moderate – Slight	Not Significant
Operational Phase Assessment on the Road Network	The significance of effects for the road network ranges from Imperceptible to Not Significant, as in all cases the percentage increase in AADT would be less than 10%, and percentage change in HV less than 5%.	Low to Medium	Negligible to Low	Not Significant	Not Significant	No mitigation required.	Negligible to Low	Not Significant	Not Significant

Element	Description of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Overall Significance		Residual Magnitude	Residual Significance	Overall Significance
Operational Phase Junction Assessment	None of junctions assessed exceed the RFC design capacity of 0.85 and would have negligible queues and delays. The effect is assessed as an overall Slight effect as a worst case.	Low to Medium	Low	Slight	Not Significant	No mitigation required.	Low	Slight	Not Significant
Operational Phase Pedestrian and Cyclist Accessibility Assessment	During the Operational Phase, the assessment of pedestrian and cyclist accessibility has been deemed Not Significant. This conclusion reflects the fact that traffic volumes are very low, and the capacity of the junctions and road network does not exceed any thresholds	Low to High	Low	Moderate – Slight	Not Significant	No mitigation required.	Low	Moderate – Slight	Not Significant

329. The assessment of traffic and transport impacts associated with the Proposed Project has considered both the Construction and Operational Phases. During the Construction Phase, likely significant effects were identified on specific road links and junctions due to increased traffic volumes, higher proportions of HVs and temporary road closures.
330. Mitigation measures have been incorporated into the Proposed Project:
- Embedded design mitigation, including selection of Haul Roads, trenchless crossings for major roads, and infrastructure design features such as parking provision, visibility splays, and pedestrian facilities
  - A TMP with detailed operational measures, including temporary signals, HV movement controls, monitoring of key junctions and links, convoy systems, and timing restrictions near sensitive areas such as schools
  - Good practice measures in construction planning, including pre- and post-construction surveys and contractual requirements for the appointed Contractors to manage traffic safely
  - Further, the arrivals and departures of the HV during the peak hours will be monitored regularly through site traffic logs, GPS tracking, and coordination with the Traffic Management Team to confirm the limited movements of HVs during the peak hours.
331. In line with Section 3.3 of Appendix A5.1 (Construction Environmental Management Plan), the Contractor would liaise with Uisce Éireann and the Traffic Management Team to review the HV movements during the peak hours, agree peak-hour timelines, and confirm the monitoring of HVs takes place regularly to mitigate the temporary effects of the HVs during the peak construction activity period on the surrounding road network.
332. Following the application of these mitigation measures, the residual effects during the Construction Phase are reduced to 3 no. links and 3 no. junctions, with temporary significant effects: Junction 18 (5 weeks), Junction 30 (4 weeks), and Junction 50 (5 weeks); and Link Y R421 (9 weeks), Link AL R400 (5 weeks), and Link AF R422 (4 weeks).
333. These effects are expected to occur during peak construction periods.
334. During the Operational Phase, traffic volumes associated with the infrastructure are anticipated to be low. The existing road network and junctions have sufficient capacity to accommodate these vehicle movements without resulting in congestion or adverse effects on road safety. Pedestrian and cyclist accessibility is also expected to remain unchanged. Consequently, the overall effect on traffic and transport during operation is assessed as Not Significant.
335. Overall, with embedded mitigation, TMP measures, and good practice construction management, the Proposed Project is not expected to result in likely Significant long-term adverse effects on traffic, transport, or pedestrian and cyclist accessibility during either the Construction or Operational Phases.

## 7.7 References

Clare County Council (2023). Clare County Development Plan 2023 – 2029.

Department of Transport, Tourism and Sport (2019). Developing Resilience to Climate Change in the Irish Transport Sector.

Department of Housing, Planning & Local Government (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessments.

Environmental Protection Agency (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

European Commission (2017). Environmental Impact Assessment of Projects - Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU).

Institute of Environmental Management and Assessment (2023). IEMA Guidelines: Environmental Assessment of Traffic and Movement.

Irish Water (2016). Water Supply Project Eastern and Midlands Region Environmental Impact Statement Scoping Report.

Kildare County Council (2023). Kildare County Development Plan 2023 – 2029.

Laois County Council (2022). Laois County Development Plan 2021 – 2027.

Limerick City and County Council (2022). Limerick Development Plan 2022 – 2028.

National Statistics Office. (2022). *2022 Census of Population*. Retrieved from <https://www.census2022.gov/>

Offaly County Council (2021). Offaly County Development Plan 2021 – 2027.

South Dublin County Council (2022). South Dublin County Development Plan 2022 – 2028.

Tipperary County Council (2022). Tipperary County Development Plan 2022 – 2028.

Traffic Signs Manual 2025

Transport Infrastructure Ireland (2014). TII Publications. Traffic and Transport Assessment Guidelines. PE-PDV-02045.

Transport Infrastructure Ireland (2016). TII Publications. Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts. PE-PAG-02039.

Transport Infrastructure Ireland (2017). TII Publications. Road Safety Audit. GE-STY-01024.

Transport Infrastructure Ireland (2021). TII Publications. Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections. PE-PAG-02017.

Transport Infrastructure Ireland (2023). TII Publications. Project Appraisal Guidelines for National Roads Unit 5.2 – Data Collection. PE-PAG-02016.

Uisce Éireann (2023). Water Supply Project Eastern and Midlands Region, EIAR Scoping Methodology Report.