

## 12 Traffic & Transport

### 12.1 Introduction

The purpose of this chapter of the EIAR is to address the transport related issues that may arise in relation to the proposed Renewable Biogas Facility (herein referred to as the Proposed Development) during construction and operation and how the proposal will integrate with the existing traffic flows in the vicinity of the site.

Recommendations contained in this report are based on site observations, recorded traffic survey data, interpretation of collected data and information and consultation with relevant Authorities and interested parties.

The objectives of this report are to assess the impact the Proposed Development will have on the surrounding road network, with the assessment focusing primarily on the priority T- junction off the Regional Road R355 and the Local Road L8412, in the vicinity of the proposed site, shown in **Figure 12.1** overleaf.

The report is produced to demonstrate how the Proposed Development will integrate with the existing traffic flows in the vicinity of the site and how the proposed traffic flows accessing the site will affect the existing road network. Therefore, this section will assess the traffic volumes produced by the development and review the effects the proposal will generate along the road network in the vicinity of the site.

In summary, the objectives of this report are to assess:

- The prevailing traffic conditions on the public road network in the vicinity of the Proposed Development that may influence conditions;
- The potential effect on the surrounding road network due to the anticipated traffic generated by the Proposed Development;
- The proposed access arrangements for the Proposed Development;
- Review of committed developments adjacent to the Proposed Development site;
- The pedestrian, cyclist and public transport connectivity in the vicinity of the site; and
- The parking requirements for the site.

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Figure 12.1: Location of Assessed Junction

## 12.2 Consultation

ORS have been commissioned to assess the potential impacts of the Proposed Development in terms of Traffic and Transportation during the construction and operational phases.

The principal members of the ORS EIA team involved in this assessment include the following persons:

- **Project Scientist & Co-Author:**

Angeliki Kalatha – M.Sc. (Civil Engineering – Transport and Project Management), M.Sc. (Engineering Project Management). Current Role: Senior Transportation Engineer. Experience ca. 8 years

- **Project Coordinator & Reviewer:**

Oisín Doherty – B.Sc. (Geography with Environmental Science), MSc. (Environmental Management), CEnv, MIEEnvSc. Current Role: Senior Environmental Consultant. Experience ca. 16 years.

Consultation between ORS and other members of the planning/design team was made in order to obtain information required to assess the potential construction and operational phase impacts on traffic and transport.

## 12.3 Assessment Methodology & Significance Criteria

This report will follow the principles set out in the Transport Infrastructure Ireland (TII) Publication PE-PDV-02045 'Traffic and Transport Assessment Guidelines' and will assess the impact the Proposed Development, and the associated traffic flows, will have on the public road network in the vicinity of the site.

Reference was made to the following documents when preparing this report:

- Galway Development Plan 2022 – 2028;
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, published in May 2022;
- TII Publication PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, published in October 2021;
- TII Publication PE-PAG-02039 Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts;
- Traffic Management Guidelines, published in 2003; and
- DN-GEO-03060 – Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions), (May 2023) published by TII.

### 12.3.1 Traffic and Transport Assessment Guidelines – PE-PDV-02045

The Transport Infrastructure Ireland (TII) Publication PE-PDV-02045, published in May 2014 sets the methodology to be followed in any given Traffic and Transport Assessment. The methodology that will be used in this assessment follows the guidelines set in this document and can be outlined as follows:

- Automatic Junction Turning Counts (JTC) were carried out on Tuesday 15th of July 2025 at the priority T- junction formed by the R355 Regional Road and the L-8412 by IDASO. The traffic counts were carried out during a 12-hour period from 07:00 AM to 07:00 PM and encompass all movements at the junction. Automatic Traffic Counts (ATCs) and speed surveys were also conducted between Tuesday 15th July 2025 and Thursday 17th July 2025 at 3No. locations. Additionally, Manual Traffic Counts were carried out on Wednesday 3rd September 2025 by the ORS team, when local schools were fully operational, to compare against the July surveys.
- Details on the expected traffic generated by the Proposed Development during construction and operation, as well as the haulage routes, were obtained from CycleØ (IE) Limited.
- The impact of the change in traffic conditions following the opening of the development has then been determined and the operational performance of the existing junction on the adjacent network analysed. This has therefore enabled the parameters of the existing junction to be tested and to ensure that it can accommodate the resultant flows and movements.
- The effect the Proposed Development will have on the road network was assessed against the TII threshold and it was found that the junction is expected to exceed the threshold of

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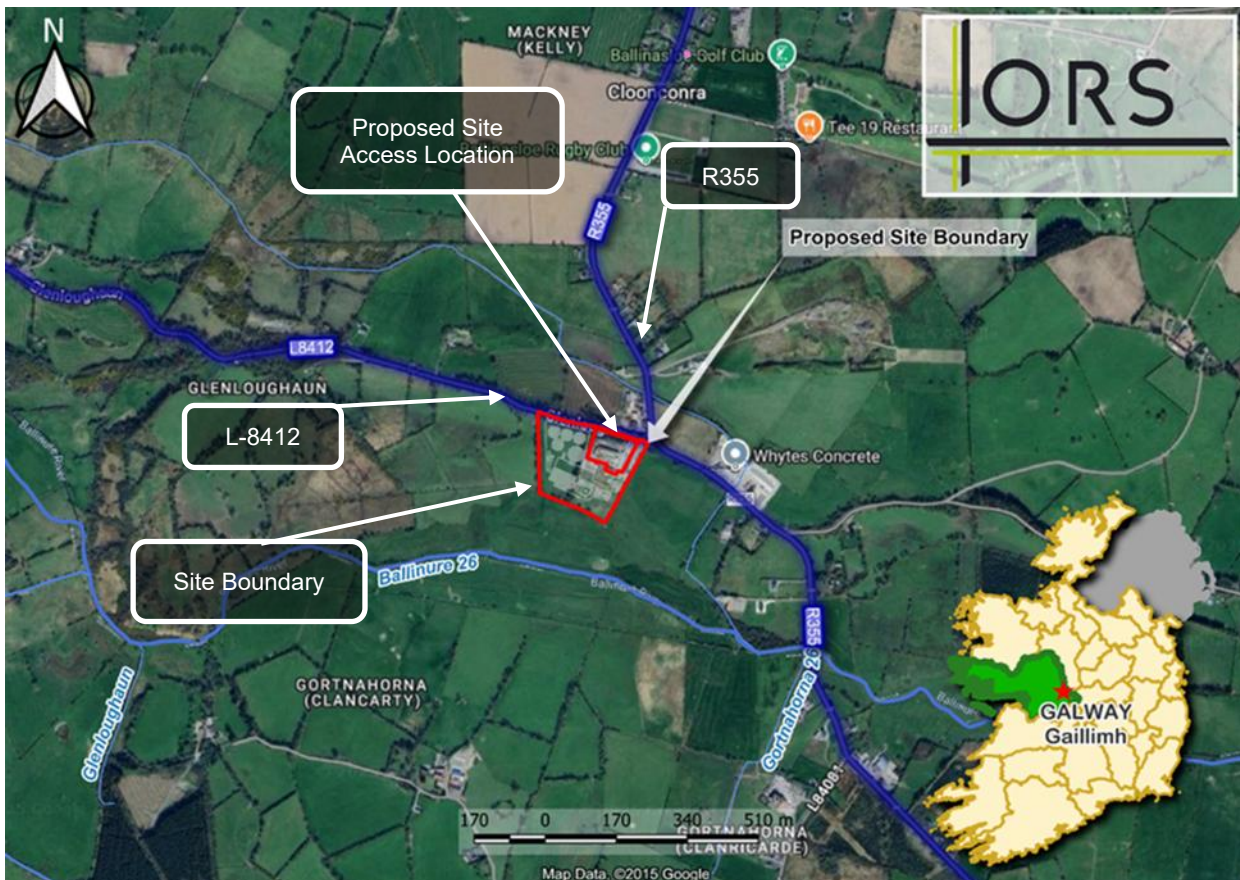
10% increase in traffic, therefore, a complete Traffic and Transport Assessment (TTA) is required. A capacity assessment was undertaken in the junction in order to reinforce the point that the traffic from the Proposed Development will not adversely affect the functionality of the neighbouring junction. Furthermore, the junction was subjected to analysis as the majority of the traffic generated by the site will be composed of HGVs.

- The modelling showed that the junction will function well below its theoretical capacity for all future design years with no queues or delays.
- Parking requirements were assessed against parking standards set in Section 15.5.2 – *Guidelines for Roads & Parking*, under Table 15.5 – *Car Parking Standards*, of the County Galway Development Plan 2022 – 2028.

**12.4 Description of Receiving Environment**

**12.4.1 Site Location**

The Proposed Development site is located in the townland of Glenloughaun, to the southwest side of the R355 Regional Road, south of Glenloughaun Road (L8412), and ca. 44m west of Glenloughaun Road and the R355 junction, approximately 3km south of the town of Ballinasloe, Co. Galway, and approximately 22km northeast of Loughrea, Co. Galway. The site boundary is shown in red in **Figure 12.2**.



**Figure 12.2:** Site Location

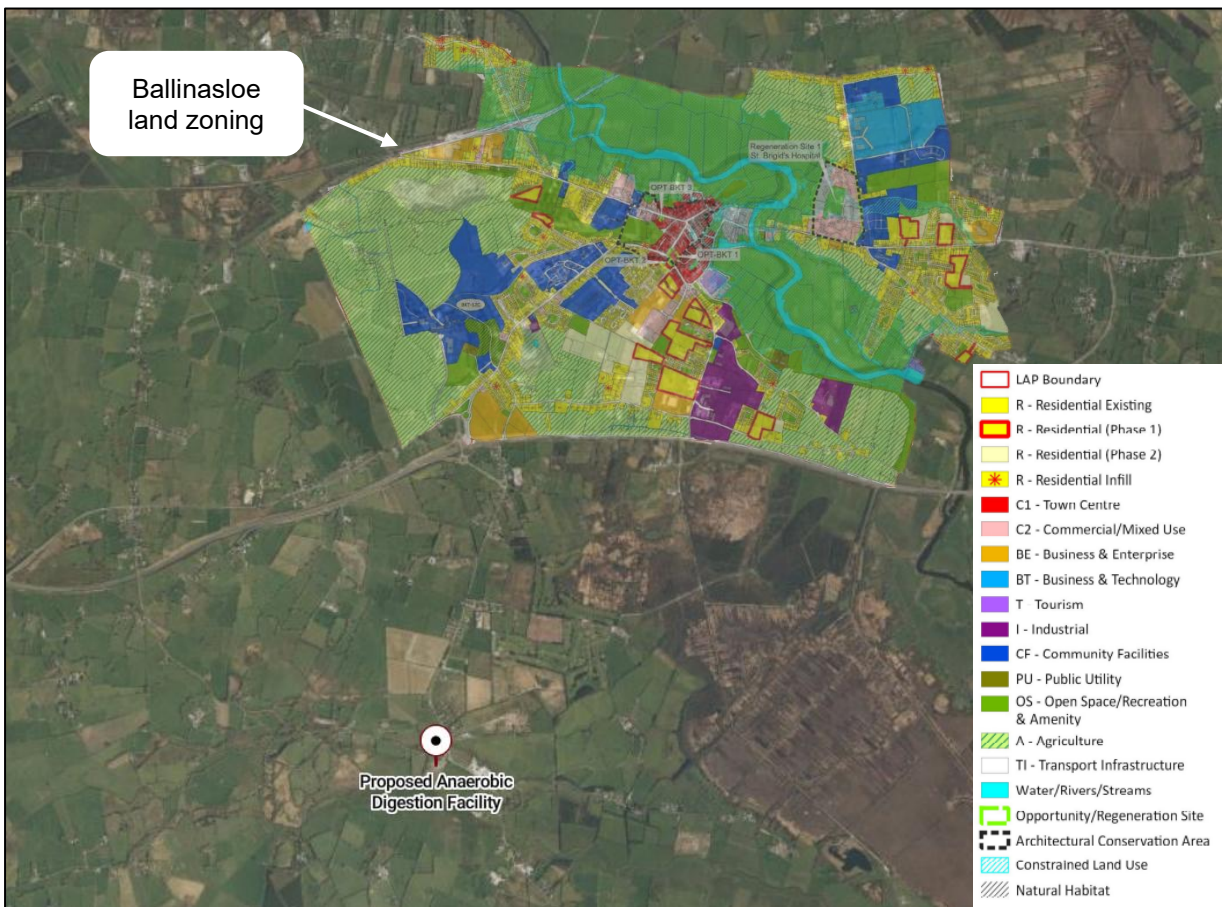
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The site is currently used as agricultural pastureland and bounded to the north, south, east, and west by mostly agricultural lands, one off residential units and farm buildings. There is a concrete supplier, Whyte concrete located ca. ca. 315m E of the site, Ballinasloe Rugby Club is located ca. 660m N of the site and Ballinasloe golf club is located ca. 815m NNE of the site.

The site is located along the Glenloughaun Road (L8412), which joins the R355 regional road almost immediately to the east of the site. The M6 motorway is accessed from this regional road, ca. 2km north of the site. The Proposed Development will be accessed via the Glenloughaun Road (L8412) local road.

### 12.4.2 Existing Premises and Land Use

The Galway Development Plan 2022 – 2028 was consulted to determine the zoning within and around the Proposed Development. The site is situated on unzoned land approximately 3km south of the town of Ballinasloe, Co. Galway, in a rural area with limited transport infrastructure in place, as shown in **Figure 12.3**.



**Figure 12.3:** Land zoning in the vicinity of the site

### 12.4.3 Proposed Development

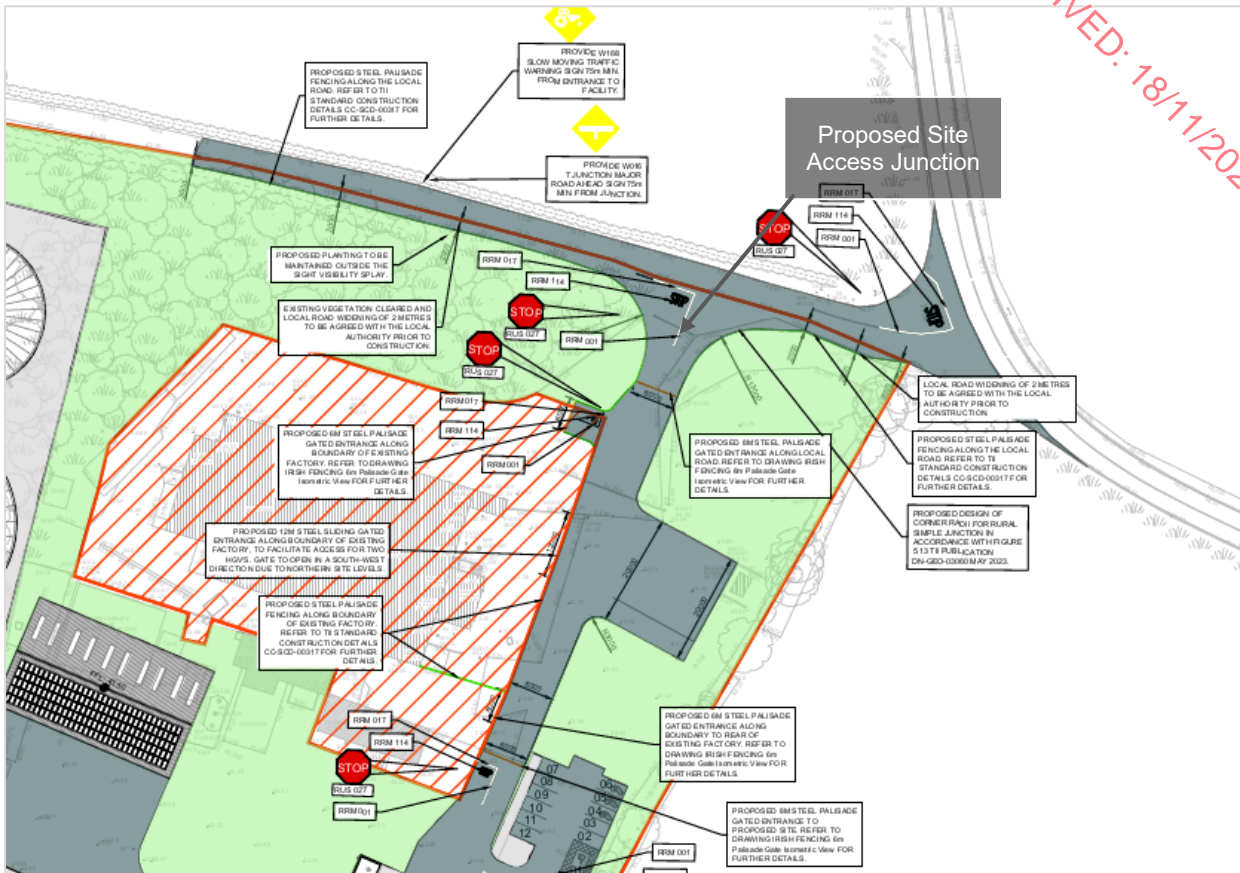
The Proposed Development is described in Section 2.1.1 in Chapter 2, with **Figure 12.4** overleaf showing the proposed site access layout along with the proposed road markings and signage (ORS Drawing Ref. **231960-ORS-ZZ-XX-DR-TII-1200**).

The Proposed Development will be capable of processing up to 90,000 tonnes of predominantly locally sourced agricultural manures, slurries and crop-based feedstock for the production of high quality biomethane (CH<sub>4</sub>) which will be compressed onsite and injected into the Gas Networks Ireland (GNI) distribution system via a Grid Injection Unit (GIU) that will be constructed onsite. This renewable natural gas (RNG) will directly replace conventional natural gas, contributing to the Government's target of generating 5.7 TWh of domestic biomethane annually. The feedstock will be transported to the facility via the public road network and access the site through the Regional Road R355 and the L8412 Road.

Up to 90,000 tonnes of organic feedstock will be required to generate biogas at the proposed Renewable Biogas Facility, and a biobased fertiliser will be created. It is anticipated that the volume of this biobased fertiliser will be approximately 78,000 tonnes per annum, approximately 87% of the total volume of feedstock accepted at the facility. The biobased fertiliser can be in liquid form or fibre form and will be used on agricultural lands as a direct replacement for chemical/mineral fertilisers.

The biogas collected from the digesters will be passed through a biogas upgrading unit. This includes scrubbing and drying of the biogas for the production of a high-quality biomethane (CH<sub>4</sub>) to supply the national gas network and renewable carbon dioxide (CO<sub>2</sub>).

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**Figure 12.4:** Proposed Site Access Including Road Markings and Traffic Signs. Cropped (ORS Ref.: 231960-ORS-ZZ-00-DR-TII-1200)

A detailed description of the Proposed Development is provided in **Chapter 2 – Project Description** of the Environmental Impact Assessment Report (EIAR).

**12.4.4 Site Access**

Vehicular access to the site is via an existing access on the L8412 local road and through a new proposed priority T-junction off the existing access road which intersects the L8412 Local Road to the northeast of the site. 12No. car parking bays are provided to the northeast of the office area, while the central circulation area (concrete apron) to the north of the feedstock reception building will be used for articulated lorry turning and manoeuvring.

**Figure 12.5** shows the proposed access junction layout off the L8412.

The proposed access was designed to accommodate the expected HGV traffic and was designed in accordance with the Transport Infrastructure Ireland (TII) publication DN-GEO-03060.

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**Figure 12.5:** Proposed Access Junction and Achieved Sightlines. Cropped (ORS Ref.: 231960-ORS-ZZ-XX-DR-TII-020)

**12.4.5 Car Parking**

There is no parking guidance set out in the Galway County Development Plan for this specific type of development. The client has put forward peak staffing figures and parking provision has been assigned based on the specific needs of the development.

The site will have ca. 3-5No. staff members on site at the same time. The number of parking spaces provided for staff and visitors of the development is 12No. spaces, located adjacent to the office building, with 1No. being an accessible parking space and 3No. being dedicated EV charging points. The parking spaces provided can be considered sufficient for the expected levels of traffic associated with the site.

According to the document, 1No. space every 5-25No. car parking spaces provided should be set aside for disabled car parking, aligning with minimum requirements and should be located in the most convenient locations for ease of uses. The number of disabled parking spaces represents 8% of the spaces within this development, and the minimum requirements are met within the proposal.

Moreover, regarding electric vehicles, the document specifies in DM Standard 31: Parking Standard, Paragraph g - Electric Charge Points Spaces, that all developments should provide facilities for the charging of battery operated cars at a rate of up to 20% of the total car parking spaces. The remainder of the parking spaces should be constructed so as to be capable of accommodating future charging points, as required. The Proposed Development aims to install

3No. EV charging points, in order to promote sustainable transportation.

## 12.4.6 Cycle Storage

Due to the nature of the development and the reduced number of staff accessing the site, trips by bicycle are not anticipated. There are currently no bicycle lanes on the R355 and the local roads in the vicinity, and no dedicated means of accessing the site by bicycle.

Despite this, the Proposed Development includes provision for 10No. bicycle parking spaces, in accordance with the standards outlined in the Galway County Development Plan.

## 12.4.7 Existing Road Network

The Proposed Development plans include provision of vehicular access from the L8412 to the northeast of the site. Arrivals and departures will be via the Regional Road R355, located northeast of the site, and all traffic will utilise the L8412/R355 priority T- junction to/from the proposed site.

The R355 is a two-way flow single carriageway road running in a north-south direction, connecting the site to the M6 Motorway and Ballinasloe in the north and Portumna in the south. The carriageway width varies along its length, measuring approximately 6m at its junction with the L8412. At this location, the R355 features continuous solid white double centreline, indicating no overtaking along this road section, and intermittent yellow edge road markings. The posted speed limit along this section of the R355 is 80 kph.

The L8412 is a single-lane carriageway, approximately 5-6 metres wide, that accommodates two-way traffic that gains access to the Regional Road R355 to the southeast, with an increasing width towards the mouth of the priority junction formed by the L8412 and the R355. At this junction, the road is equipped with road markings, which are essential for guiding vehicle drivers effectively, while a 'STOP' sign is in place.

The junction with the L8412 is a simple priority T-junction, with the minor road intersecting from the left (west) of the R355. Street lighting infrastructure is not available in the immediate vicinity.

At the junction with the R355, there are no dedicated right-turn lanes provided for vehicles turning onto the L8412. The surrounding environment is characteristically rural countryside, with mature hedgerows and vegetation lining both sides of the roadway. Agricultural fields extend beyond the boundary vegetation, and scattered residential properties are located in the vicinity. Boundary treatments consist primarily of natural hedgerows supplemented with post-and-wire fencing, creating defined edges to the road corridor. Directional signage is located on the eastern side of the junction, providing wayfinding information for drivers.

There are no footpaths or cycle lanes provided along the R355 and the L8412, in the vicinity of the site access. Additionally, the R355 road does not provide sufficient space for pedestrian or cyclist access to the site without the provision of substantial development of active travel infrastructure in the surrounding area.

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**Sightline Assessment**

Sightlines at the proposed site access and the junction formed between the L8412 and the access roads have been assessed in accordance with Section 5.6.3 of TII Publications Document DN-GEO-03060. This standard requires a minimum of 90 metres of unobstructed visibility in both directions, measured from a point 3.0 metres back from the edge of the carriageway (or 2.0 metres back for accesses/ lightly trafficked roads), where the design speed is 60 km/h.

Sightlines will be provided in full compliance with these standards, as illustrated in the Sightline Layout Drawing prepared by ORS (Drawing Ref. No. **231960-ORS-ZZ-XX-DR-TII-020**, see **Figure 12.5** above).

For visual details, please refer from **Figures 12.5 to 12.8** overleaf.



**Figure 12.6:** Overview of the road network in the vicinity of the development

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Figure 12.7: View of the access road leading to the Proposed Site



Figure 12.8: View of the L8412 Local Road in the vicinity of the L8412/R355 Junction

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Figure 12.9: View of the R355 at the junction with the L8412

#### 12.4.8 Proposed Road Network Improvements

At present, Galway County Council have no improvement schemes on the R355 or the L8412 that would affect the Proposed Development.

#### 12.4.9 Existing Traffic Flows

Automatic Junction Turning Counts (JTCs - The traffic counts were carried out during a 12-hour period from 07:00 AM to 07:00 PM) have been undertaken at the junction on Tuesday 15th July 2025 by a third-party company called IDASO, accompanied by Automatic Traffic Counts (ATCs) and speed surveys carried out between Tuesday 15th July 2025 and Thursday 17th July 2025. Manual Junction Turning Counts were also carried out on Thursday, 4th September 2025, by the ORS team during a 4-hour survey period (07:30-09:30 and 16:30-18:30). The survey was conducted when local schools were fully operational, providing a direct comparison against the July ATC surveys.

The traffic counts have been used to obtain accurate data on the prevailing traffic conditions along the road network in the vicinity of the site and to predict future traffic conditions. The traffic counts encompassed all movements of traffic: pedal cycles, cars, buses, LGVs and HGVs.

The final number of traffic is presented in **Passenger Car Unit (PCU)**. PCU is the impact that a mode of transport has on traffic compared to a single car, e.g., a private car represents 1 PCU whereas an HGV represents 2.3 PCUs.

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**12.4.9.1 Junction Turning Count (JTC) Results**

From the data obtained, it could be observed that, there were 357.3 PCU recorded during the AM peak hour and 434 PCU during the PM peak. The traffic counts indicate very low traffic volumes at the junction, with the majority of vehicles remaining on the R355 during both the morning and evening periods. Only a small percentage of vehicles, less than 30 PCUs of the total traffic along the junction turn onto or from the L8412, during the AM or PM peak period. Additionally, during the AM period, 63% of total traffic travels on the R355 northbound towards Ballinasloe, while in the PM period, the opposite trend was observed, with ca. 63% of the total traffic heading southbound.

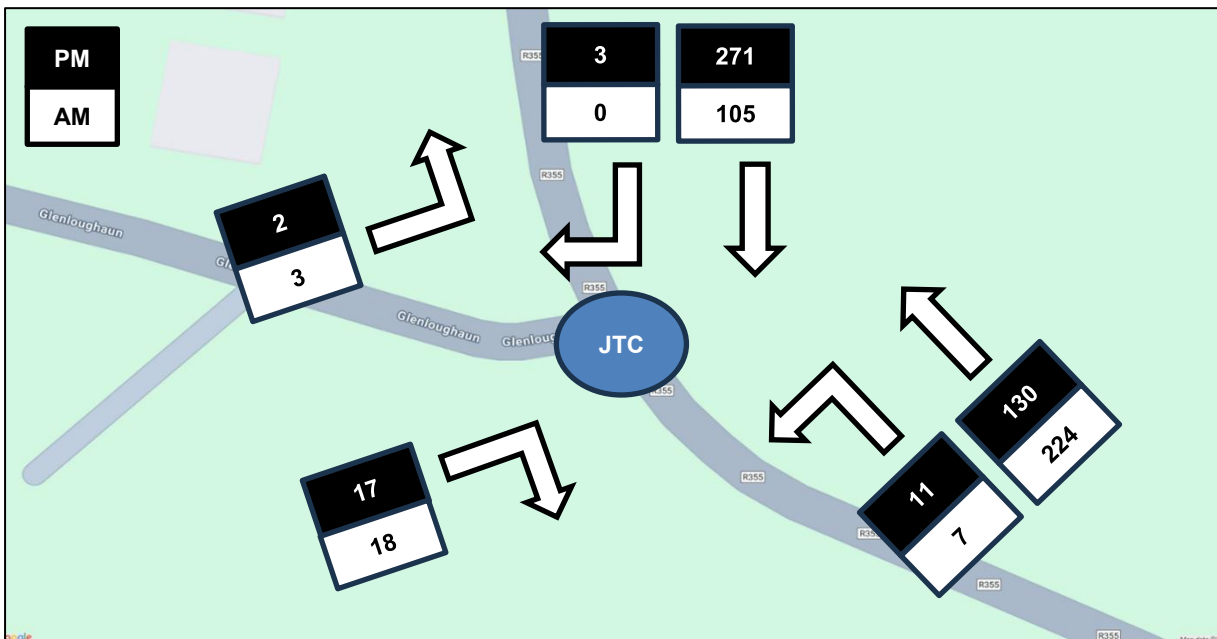
**Table 12.1** summarises the AM and PM peak traffic flows.

HGV movements along the R355 accounted for 5% and 14% of the traffic during the morning peak for the northbound and the southbound traffic, respectively. In the evening period, HGVs made up 2% of northbound traffic and 3% of southbound traffic.

**Table 12.1: July 2025 Traffic Counts**

Junction	AM Peak (PCU)	PM Peak (PCU)
1 – T-Junction L8412/ R355	357.3	434

**Figure 12.10** shows the recorded traffic flows during the morning and evening period along the R355 Regional Road and its junction with the L8412.



**Figure 12.10:** July 2025 AM and PM Traffic Counts in JTC1, along the R355 and L8412 (PCUs)

Based on the TII Publication Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts, the Annual Average Daily Traffic (AADT) could be calculated using the traffic counts obtained at the existing junction. The AADT is accounted to be 2,992 PCUs/day along the R355/L8412 junction in the vicinity of the site. The

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morning and evening peak periods correspond to ca. 26% of the traffic along the road.

**12.4.9.2 Automatic Traffic Counts Results and Speed Survey**

Automatic Traffic Counts (ATCs) were undertaken at the junction over a continuous three-day period from Tuesday 15 July 2025 to Thursday 17 July 2025. The counts were carried out using pneumatic tube counters installed at three strategic locations to capture vehicular volumes and speeds on each approach.

The equivalent 12-hour periods (07:00-19:00) were extracted from the continuous ATC data for each of the three survey days. This extraction process isolated the same temporal window as the JTC survey, enabling direct comparison between the two survey methodologies. **Table 12.2** the extracted 12-hour counts (07:00-19:00) for each arm in both directions for each of the three days surveyed to compare against the 12-hour JTC counts.

**Table 12.2: July 2025 ATC Results (PCU)**

Time Period	R355 N/O L8412, N	R355 N/O L8412, S	L8412 Westbound	L8412 Eastbound	R355 S/O L8412, N	R355 S/O L8412, S
<b>Day 1 – 15 July 2025</b>						
12-Hour	1975.4	1831.2	127.6	135.1	1931.5	1920.4
<b>Day 2 – 16 July 2025</b>						
12-Hour	1827.8	1788.1	151.4	135.9	1975.8	1846
<b>Day 3 – 17 July 2025</b>						
12-Hour	1903.9	1880.1	123	119.4	2011.5	1937.8

To validate the representativeness of the 12-hour JTCs, a direct comparison was undertaken between the JTC totals and the equivalent 12-hour period data extracted from the ATC datasets for each junction arm. **Table 12.3** shows the correlation analysis results for each location.

**Table 12.3: 12-Hour Period Validation**

Location	JTCs	ATC Equivalent	Difference	% Difference
R355 North	3638.5	3735.5	-97.0	-2.6%
L8412	289.1	264.1	+25.0	+9.5%
R355 South	3844.8	3874.3	-29.5	-0.8%

Overall, the validation results confirm that the 12-hour turning counts provide a representative and technically robust dataset for traffic assessment purposes. The strong correlation across the primary traffic movements on the R355 regional road, combined with acceptable correlation on the local road approach, demonstrates that the JTC survey successfully captured typical traffic conditions at the junction during the survey period.

As part of the Automatic Traffic Count (ATC) surveys, speed data was collected over a continuous three-day period from Tuesday 15 July 2025 to Thursday 17 July 2025. The surveys recorded individual vehicle speeds in both directions at three locations along the R355/L8412 (Glenloughaun Road) corridor. The purpose of the speed survey was to establish prevailing vehicle speeds, identify the 85th percentile speed and assess compliance with the existing speed environment.

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The speed surveys indicate that average speeds were generally within the range of 42-54 kph, with 85th percentile speeds between 51-61 kph, broadly consistent with the prevailing speed environment. A small number of vehicles exceeded 70-80 kph, with isolated maximum speeds approaching 87 kph.

**12.4.9.3 Manual Traffic Count Results**

Manual Junction Turning Counts were carried out on Wednesday, 3rd September 2025, by the ORS team during a 4-hour survey period (07:30-09:30 and 16:30-18:30). The survey was conducted when local schools were fully operational, providing a direct comparison against the July ATC surveys to ensure traffic volumes were accurately captured under typical weekday conditions with full educational traffic components.

The survey results are shown in **Table 12.4** below.

**Table 12.4: Manual Turning Count Results by Movement (Veh/PCUs)**

Movement	A	B	C	D	E	F	Total Veh/PCUs
<b>Morning Peak (08:00-09:00)</b>	287/296	113/121	21/22	7/8	14/14	3/4	<b>445/465</b>
<b>Evening Peak (17:00-18:00)</b>	136/141	239/240	22/22	5/5	13/13	4/4	<b>419/425</b>

The July counts represent valid traffic conditions during peak summer operational periods. While they may not fully capture school-term traffic volumes, they provide valuable data on seasonal peak conditions and tourism-related traffic demands. The data should be considered alongside September counts to provide a comprehensive understanding of the full range of operational traffic conditions throughout the year, with both datasets offering legitimate insights into different but equally valid traffic scenarios.

To ensure a robust and conservative assessment for junction capacity analysis, a precautionary approach will be adopted that utilises the higher traffic volumes from each respective peak period. Specifically, the manual traffic counts from September (465 PCUs) will be used for morning peak junction analysis, while the July JTC data (434 PCUs) will be employed for evening peak analysis. This methodology ensures that the junction capacity assessment is based on the most demanding traffic conditions observed during each peak period, thereby providing a worst-case scenario analysis that accounts for the highest traffic loads. This approach eliminates any potential underestimation of junction performance and ensures that the road network can accommodate traffic demands under the most challenging operational conditions identified across both survey periods.

**12.4.10 Committed Developments Traffic Generation**

As part of this Traffic Assessment, to assess the existing and expected traffic along the road network in the vicinity of the Proposed Development, the Galway County Council and the National Planning Application websites were consulted to include all committed developments in the area.

According to the records available on the planning website, no planning applications have been identified in the immediate vicinity of the junction under analysis that would be expected to

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significantly impact the R355 Regional Road or the junction itself. A limited number of applications located to the north and to the south of the junction under assessment relate to single-storey dwellings, extensions to existing dwellings, or minor works. These are not considered to have any material impact on the local road network and were therefore excluded from the traffic assessment.

Additionally, the proposed site is bounded to the north by Torva Ireland Limited, a meat processing and preserving facility which will be sharing the site entrance with the Proposed Development.

Information on traffic movement associated with the existing facility is presented in **Table 12.5**.

**Table 12.5: Torva Ireland Limited Traffic Movements**

Torva Ireland Limited Site	
Location of Development	North of Proposed Site
Operating Hours	6 AM to 12 PM
Staff Traffic	15 people (7-8 per shift) working on site each with a car
LGV Movements (vans)	Max. 10 deliveries
HGV Movements (trucks and lorries)	Max. 10 deliveries

**12.4.11 Future Year Traffic Growth**

Transport Infrastructure Ireland (TII) issues a range of forecasts: low growth, central growth and high growth. The implementation of policies relating to the National Sustainable Mobility Policy will act as a deterrent to high growth in car-based travel. Low growth factors are however likely to be equally unrealistic at present; therefore, this assessment has used central growth factors, which was extracted from the TII Publication PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, published in October 2021, outlined in **Tables 12.6 to 12.8** below.

The data used is for County Galway from 2016 to 2050 and is for Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs).

**Table 12.6: Development Location Information**

Development Location Information	
Location of Development	Galway
Sensitivity Area	Central
Year of Traffic Counts	2025
Year of Assessment	2025
Year of Development Construction	2027

**Table 12.7: TII Annual Growth Rates (Central Growth) For Co. Galway**

	LGV	HGV
2016 – 2030	1.0259	1.0446
2030 – 2040	1.0109	1.0198
2040 – 2050	1.0105	1.0236

**Table 12.8: Growth Factors for Future Design Years**

Counts	Opening	Opening +5	Opening +15
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Year	2025	2027	2032	2042
LGV	1.000	1.052	1.161	1.293
HGV	1.000	1.091	1.294	1.585

The traffic growth factors presented above have been used to predict the increase in the background traffic that will occur in future design years. The Proposed Development is expected to be fully constructed and operational in 2027.

**Table 12.9** shows the predicted traffic flows along the site access for the year of the development conclusion, 5-year and 15-year after the development conclusion.

**Table 12.9: Traffic Flows in Future Design Years (PCUs)**

Design Year		R355 Towards Ballinasloe	L8412	R355 southbound	Total Movements
2027	AM	316	32	142	490
	PM	139	16	302	457
2032	AM	349	35	157	540
	PM	153	17	334	504
2042	AM	388	39	175	602
	PM	170	19	372	561

## 12.5 Likely Significant Effects

### 12.5.1 Construction Phase

During the construction phase, deliveries and construction personnel will access the site on a daily basis. The arrivals and departures are expected to be spread out throughout the day; however, it is expected that they will be arranged in a manner to avoid traffic peak hours in the surrounding road network. The construction will operate within Galway County Council's recommended hours, which typically are from 08:00 to 18:00 from Monday to Friday and between 08:00 to 14:00 on Saturdays. No works shall be carried out on Sundays and public holidays or outside the aforementioned hours.

Construction traffic associated with the Proposed Development will include:

- Construction personnel accessing the site by private vehicles and vans.
- Delivery of materials by vans and HGVs.
- Earthworks machinery (excavators, rollers and dumper trucks) transported by HGVs.
- HGVs for the export surplus excavated material.

It is expected a maximum of 20No. to 30No. construction personnel to be at the site at the same time (typically 1.2 workers per car) that will arrive and depart outside the peak network times. Deliveries are expected to arrive at a steady rate throughout the day. It is anticipated that the generation of HGV traffic during the construction period will be evenly distributed throughout the day, ensuring minimal impact during peak traffic periods.

Haul routes for construction traffic are to be agreed upon with Galway County Council during the preparation of the Construction Traffic Management Plan (CTMP).

**Table 12.10** below shows the expected generated traffic during construction phase.

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**Table 12.10: Expected Traffic During Construction Phase**

Time Range	Arrivals	Departures	Total
08:00-09:00	25	0	25
17:00-18:00	0	25	25

**12.5.2 Operational Phase**

The operation of a Renewable Biogas Facility involves producing renewable biogas through the decomposition of organic feedstock. The site will be functional 24 hours a day for 7 days a week with staff onsite during normal working hours from 07:00 and 19:00 Monday to Friday, and 07:00 to 16:00 on Saturday. Outside of these hours, the process is monitored remotely. There are no shifts, and it is expected that ca. 3-5 staff members will be present at the premises during normal working hours. The Development will receive an intake of approximately 90,000 tonnes of feedstock per annum for anaerobic digestion. The process will produce a methane-rich biogas, which is converted into renewable energy or upgraded to biomethane which is injected to the natural gas grid, and a nutrient-rich fertiliser known as ‘biobased fertiliser’.

Feedstock will be transported to the Proposed Development using heavy goods vehicles (HGVs), enclosed trailers, and sealed vacuum tankers. The average tonnes per load are assumed to be 28-30 tonnes. It is expected that traffic will be spread out throughout the day in order to minimise traffic issues in the road network. However, in the event of deliveries arriving at the same time, the site will be able to cater for the traffic flows, as the access road and internal road layout of the site can accommodate the expected traffic without generating congestion on the main road.

Table 12.11 shows the expected feedstock accepted in the facility.

**Table 12.11: Feedstock Intake Data**

Feedstock in	Tonnes/year	Average Load (T)	Max. Loads Per Annum	Mean Deliveries/Day	Total In/Out Movements
Chicken Manure	3,000	28	107	0.4 (1 trip)	0.8 (2 trips)
Cattle Manure	6,000	28	214	0.85 (1 trip)	1.7 (2 trips)
Cattle Slurry	25,000	30	833	3.3 (4 trips)	6.6 (8 trips)
Pig Slurry	30,000	30	1000	4.0	8.0
Crops	7,000	28	250	1.0	2.0
Grass Silage	15,000	28	536	2.1 (3 trips)	4.2 (6 trips)
Belly Grass	1,000	28	36	0.1 (1 trip)	0.3 (2 trips)
Distillery Waste	1,500	30	50	0.2 (1 trip)	0.4 (2 trips)
Dairy Processing Waste	1,500	30	50	0.2 (1 trip)	0.4 (2 trips)
<b>Subtotal</b>	<b>90,000</b>			<b>12.15 (17 trips)</b>	<b>24.3 (34 trips)</b>

The feedstock will go through a digestion process and will produce a product named ‘biobased fertiliser’, which will be in form of fibre and liquid. Biobased fertiliser will be supplied for use on agricultural lands as a direct replacement for chemical/mineral fertilisers. It is proposed to provide biobased fertiliser to agricultural operators in the locality, particularly those who are providing crop-based feedstocks, thereby promoting a local circular bioeconomy.

Biobased fertiliser can be land spread during the spring, summer, and early autumn, but cannot be spread during the land spreading close period. During this winter period, will be stored on

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site. The number of transport movements will, therefore, generally remain the same throughout the year and reduce slightly during October-January.

**Table 12.12** shows the expected tonnes of biobased fertiliser produced by the facility.

**Table 12.12: Biobased Fertiliser Transport Data**

Product	Tonnes per annum	Average Load (T)	Loads per annum	HGV/Trailer/day	Total in/out Movements
Digestate Liquid	53,500	30	1,783	6	12
Digestate Fibre	24,500	28	875	3	6
<b>Subtotal</b>	<b>78,000</b>			<b>9</b>	<b>18</b>

One trip per day will be necessary for the export of CO<sub>2</sub>. This will result in one outbound and one inbound trip per day, as detailed in **Table 12.13**.

**Table 12.13: CO<sub>2</sub> Export**

Product	Loads per annum	Loads/day (vehicles/day)	Total in/out Movements
CO <sub>2</sub>	120	0.4 (1 trip)	<b>2</b>

As already mentioned, the Proposed Development will employ approximately 3-5No. full time staff to operate the facility. The traffic generated by the staff will consist of 5No. daily incoming trips and 5No. daily outgoing journeys.

**Table 12.14** contains the trip generation associated with staff.

**Table 12.14: Staff Traffic Generation**

	AM	PM
Arrivals	5	0
Departure	0	5
<b>Total staff movements</b>	<b>5</b>	<b>5</b>

**Table 12.15** summarises the expected traffic volumes and volumes of material generated by the feedstock input to the Proposed Development and the export of biobased fertiliser. The anticipated total traffic flows in and out of the site amount to an average of 32No. vehicles per day (64No. trips in and out in total), including approximately 27No. HGVs/Trailers/Tankers per day (or 54 trips in and out) associated with the input of material and the export of biobased fertiliser.

These estimates are based on the maximum amount of organic feedstock the development can process, the maximum amount of biobased fertiliser removal from the Proposed Development, and the predicted staffing levels required to operate the facility.

**Table 12.15: Total Movements In and Out of the Site on National Roads**

	HGV/Walking Floor/Tankers/day for intake	HGV/Walking Floor/Tankers/day for export	Staff (in/out)	Total in/out Movements
<b>Total Movements</b>	17 (34)	10 (20)	5 (10)	64

The site will be operational 24 hours a day, 7 days a week, however, delivery of feedstock and

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export of fertiliser will be limited to occur only between 07:00 and 19:00 Monday to Friday and 07:00 to 16:00 on Saturday. As can be noted from the traffic generation profile shown above, there is no particular peak of traffic generated by the development, save for the times when staff arrive and depart from work.

However, it has been assumed that in a worst-case scenario the projected delivery and export of material will take place during morning and evening peak hours, with an even spread of traffic for both periods.

**Table 12.16** illustrates the expected AM and PM traffic flows associated with the Proposed Development.

**Table 12.16: Expected AM and PM Traffic Flows**

	Arrivals (Vehicles/PCUs)	Departures (Vehicles/PCUs)	Total (Vehicles/PCUs)
AM	19/33	13/26	32/59
PM	13/26	19/33	32/59
<b>Average movements</b>			<b>64/118</b>

In summary, the trip rate profile for the Proposed Development has been interpreted from first principles and has been sufficiently loaded to reflect a 'worst-case scenario'. The trip rates are relevant given the type of development and the type of use. The trips found indicate that the level of traffic activity associated with this type of development is small and will correspond to approximately 3.9% of the AADT observed along the R355 and the junction with the L8412 in the vicinity of the site. The figures derived from the first principles analysis are very robust, as a 'worst case scenario', the total daily trips expected from the development are 64.

Regarding the HGV numbers generated from the site, of the 64No. trips associated with the site, 54No. will be composed of heavy vehicles. Traffic counts reveal that during the morning peak, approximately 6% of the traffic on the junction consisted of HGVs, with 4No. heavy vehicles travelling along the L8412. The similar pattern was observed during the PM peak, with 3% of the traffic composing HGVs, and 4No. HGVs along the L8412 local road.

### Traffic Distribution

The agricultural manures, slurries and crop-based feedstocks will be sourced from ca. 50 agricultural operators in the area in the vicinity of the site. The geographical spread of feedstock suppliers is shown in **Figure 12.11**, with 72% (36) are located within a 15 km radius of the site, and all are within a 30 km radius..

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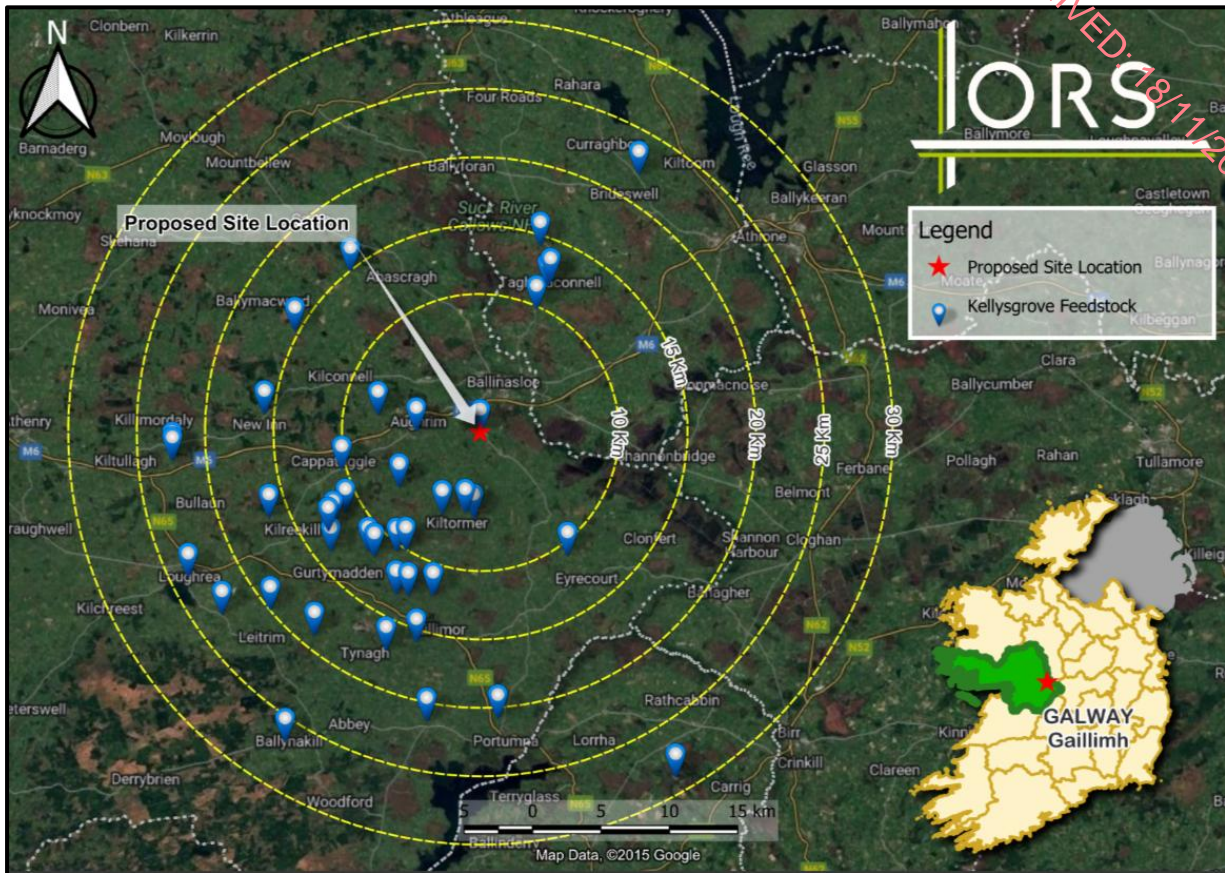


Figure 12.11: Location of Feedstock Suppliers and Digestate Receivers

As can be seen from the map, the deliveries to and from the site will travel through the extensive road network in the vicinity of the site, composed of the M6 Motorway, the National Roads N55 and N63, the Regional Roads R194, R348, R351, R355, R357, R358, R397, R438, R439, R466 and R942, and the local roads L8412 (**limited only to the section from the R355/L8412 junction up to site access**), L7183, L7423, L3415, L3202, L4209, L4211, L45322, L8225, L8754 and L4314. The roads are suitable to cater for the expected traffic volumes associated with the site.

**Traffic Impact Assessment**

The Galway Development Plan 2022 – 2028, in Section 15, under DM Standard 33: Traffic Impact Assessment, Traffic & Transport Assessment, Road Safety Audit & Noise Assessment, requires a Traffic and Transport Assessment to be provided as part of a development proposal in the case of developments with significant effect on the travel demand and capacity of the existing road network in the area.

The document states thresholds to be used as guidance when preparing a TTA, which are in accordance with the TII publication PE-PDV-02045 ‘Traffic and Transport Assessment Guidelines, published in May 2014.

During the operational phase, the site is projected to generate a total of 64No. vehicle trips or

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118PCUs per day. In a worst-case scenario, these trips are expected to distribute evenly between the AM and PM peak periods, with 32No. vehicles or 59PCUs during each peak. This results in a 12% increase in overall traffic flow during the AM peak and a 13% increase during the PM peak, meaning that the development is expected to exceed the 10% threshold which necessitates a Traffic and Transport Assessment (TTA). However, the anticipated increase in traffic is justified due to the low existing traffic volumes in the area, as these rural roads experience low vehicular activity.

The results of the TTA assessment are summarised in **Table 12.17**.

**Table 12.17: Traffic Management Guidelines Thresholds for Transport Assessments (TII)**

Applicable	Threshold for transport Assessment
Yes	Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
N/A	Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive
N/A	Residential development in excess of 200 dwellings
N/A	Office, education and hospital development in excess of 2,500m <sup>2</sup>
N/A	Retail and leisure development in excess of 1,000m <sup>2</sup>
Yes	Industrial development in excess of 5,000m <sup>2</sup>
N/A	Distribution and warehousing in excess of 10,000m <sup>2</sup>

Based on the traffic levels anticipated at the junction, the impact of the operational phase of the proposed facility will have on the road network could be calculated, as shown in **Table 12.18**. As can be seen, the Proposed Development will generate a maximum of 32No. vehicles or 59PCUs in both the morning and evening period that will utilise the junction assessed, which is accounted to represent an increase of a maximum of 13% in the expected traffic flows in the road network in 2027, the assumed year of the development conclusion.

As can be seen in **Table 12.17**, one additional condition applies in this case, the total proposed gross floor area of the development (including internal plant areas and ancillary structures) will exceed the 5,000 sq.m threshold for industrial developments.

**Table 12.18: Traffic Impact on the Neighbouring Junction**

Junction	2027 Projected Traffic		Traffic from Development to junction		Increase in Traffic		Threshold of 10% Increase	
	AM	PM	AM	PM	AM	PM	AM	PM
<b>R355/ L8412 Junction</b>	490	457	59	59	12%	13%	Above	Above

Consequently, the traffic generated by the Proposed Development meets the criteria for producing a full Traffic and Transport Assessment, with a higher than 10% increase in traffic, and given that the majority of site-related traffic will consist of HGVs, junction modelling has been conducted to assess the impact of the Proposed Development on the existing junction, in order to reinforce the point that the traffic from the Proposed Development will not adversely affect the functionality of the neighbouring junction.

**Table 12.19** shows the anticipated average increase in HGV movements resulting from the operations of the Proposed Development.

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**Table 12.19: Impact the Proposed Development will have at the R355/ L8412 Junction**

Assessment Year	Do-nothing		Do-something	
	HGV % *	AADT (vehicles)	HGV % *	AADT (vehicles)
2027, year of development conclusion	7%	2972	8.1%	3034
2032, 5 years after conclusion	7.5%	3206	8.5%	3268
2042, 15 years after conclusion	8.3%	3430	9%	3492

**Assessment of the R355/ L8412 Junction**

Traffic simulation was undertaken at the existing junction in order to obtain the Ratio of Flow to Capacity (RFC) and the queue levels to determine if the existing junction will cater for the predicted level of traffic by the Proposed Development when it becomes operational.

All traffic will utilise this junction when travelling to/from the site.

The **Ratio of Flow to Capacity (RFC)** describes the capacity of each approach to the junction and determines if the junction will cater for the predicted level of traffic. An RFC below 0.85 (85%) implies that an approach road is operating satisfactorily well within capacity; between 0.85 to 1.0 RFC means the approach operates well within capacity but at less optimal efficiency; and an RFC above 1.0 means that demand and capacity are equal and no further traffic can progress through the junction. The queue levels are presented in **Passenger Car Unit (PCU)** and quantify the total number of vehicles queuing on each arm.

Central Sensitivity traffic growth rates for Co. Galway, specified in the TII’s Publication PE-PAG-02017 of October 2021, were applied to the existing background traffic and were not applied to the Proposed Development, as the development is limited by size.

The capacity assessments were modelled for three different scenarios:

- Base-year: 2025 traffic flows modelled according to traffic counts obtained in July and September 2025.
- Do-nothing: modelled without the intervention of the Proposed Development. For this analysis, the traffic counts were factored up using TII’s Central Growth Factor for the design years 2027, 2032 and 2042, the year of development conclusion, 5 and 15 years after conclusion, respectively.
- Do-something: the impact of the traffic generated by the Proposed Development was added to the design years 2027, 2032 and 2042. This analysis will enable the comparison with the ‘Do-nothing’ scenario.

The junction was modelled using the TII approved TRL Software *PICADY* for priority junctions for the base year, the proposed year of development conclusion, 5 and 15 years after the development is fully concluded.

The results are shown in **Table 12.20** below. As can be seen from the table, the Proposed Development will have a negligible effect on the assessed junction, with a maximum Ratio of Flow to Capacity (RFC) of 0.10 (10%) in stream B (L8412) to A (R355, southbound) during the evening peak, which is well below the theoretical capacity of 0.85 RFC.

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Table 12.20: PICADY Results for the R355/L8412 Priority Junction

Analysis	Stream	AM		PM	
		Queue (PCU)	Ratio of Flow to Capacity (RFC)	Queue (PCU)	Ratio of Flow to Capacity (RFC)
1 – 2025, base year	B-C	0	0.01	0	0.00
	B-A	0	0.03	0	0.04
	C-AB	0	0.02	0	0.01
2 – 2027, do-nothing	B-C	0	0.01	0	0.00
	B-A	0	0.04	0	0.04
	C-AB	0	0.02	0	0.01
3 – 2027, do-something	B-C	0.1	0.03	0	0.03
	B-A	0.1	0.07	0.1	0.09
	C-AB	0.1	0.05	0.1	0.04
4 – 2032, do-nothing	B-C	0	0.01	0	0.00
	B-A	0	0.04	0.1	0.05
	C-AB	0	0.02	0	0.01
5 – 2032, do-something	B-C	0.1	0.03	0	0.03
	B-A	0.1	0.07	0.1	0.09
	C-AB	0.1	0.06	0.1	0.04
6 – 2042, do-nothing	B-C	0	0.01	0	0.00
	B-A	0	0.05	0.1	0.05
	C-AB	0	0.03	0	0.01
7 – 2042, do-something	B-C	0.1	0.03	0	0.03
	B-A	0.1	0.08	0.1	0.10
	C-AB	0.1	0.06	0.1	0.04

Therefore, it can be considered that **the junction will function comfortably below capacity for all design years** with the inclusion of the Proposed Development.

## 12.6 Mitigation Measures

This section will outline the proposed mitigation measures to reduce, minimise or eliminate the impact generated by the Proposed Development.

### 12.6.1 Construction

A detailed Traffic Management Plan (TMP), produced in accordance with Chapter 8 of the Traffic Signs Manual, will be finalised and agreed upon with the Local Authority prior to construction works commencement. The following mitigation measures are proposed during the construction phase of the development:

- Appointment of a Construction Project Manager to be responsible for the day-to-day implementation of measures outlined in the TMP;
- Identify routes to be used in the delivery and export of materials to the site and routes that shall be avoided by HGVs;
- Monitor the condition of the roads throughout the construction period and a truck-mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required; and
- Access to the site to be monitored at all times by a banksman who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles.

### 12.6.2 Operation

The operational phase of the development will generate a maximum of 64No. vehicle movements day, where 54No. are HGVs and 10No. are private vehicles and vans. The additional vehicles will represent a maximum of 13% increase in traffic under a very conservative scenario and will not generate queues and delays along the road network in the vicinity of the site, therefore, no mitigation measure is proposed for the operational phase of the development.

## 12.7 Cumulative Effects

Within the European Commission - Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, dated May 1999, cumulative effects are described as *"impacts that result from incremental changes caused by other development, plans or projects together with the Proposed Development or developments"*.

As discussed, the development will result in a relatively low increase in overall traffic flow in and around the proposed facility with an average increase in HGV volumes in the road network of ca. 1%, as indicated in Table **12.15** above. HGV's have a heavy bearing on road networks and inflict the highest damage/ wear to road infrastructure. An increase in HGV's transporting feedstock and digestate through-out the local and regional road network will increase wear and tear on networks not designed to facilitate consistent heavy capacities.

## 12.8 Residual Impacts

As mentioned in previous sections, the proposed construction and operational phase of the development will generate a minimal impact on the road network in the vicinity of the site. The proposed mitigation measures proposed in **Section 12.6** will also help reduce or eliminate any

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potential impact associated with the proposal. The proposal, located off the L8412 Local Road, is located in an 60km/h speed limit zone\* and the narrow road width will not give rise to potential hazards, on the other hand, will reduce traffic speeds and increase road safety benefits.

(\*As of February 7, 2025, the default speed limit for rural local roads in Ireland has been reduced from 80 km/h to 60 km/h. However, this change does not currently apply to regional roads like the R355; their speed limits remain unchanged unless otherwise specified.)

Queuing of vehicles is not anticipated on the L8412 due to the low number of vehicles predicted to enter the site on a daily basis. The proposal will have no negative impact on the overall road network associated with the proposed construction and operational phase of the site.

Overall, it is assessed that the development will have a **neutral, slight and long-term effect**.

## 12.9 Monitoring

The Construction Environmental Management Plan (CEMP) and Environmental Operating Plan (EOP) will include provision for the monitoring of construction and operational related traffic flows.

### 12.10 Summary of Significant Effects

This Traffic and Transport Assessment report was conducted to accompany the planning application for the proposed Renewable Biogas Facility in the townland of Glenloughaun, Co. Galway.

The internal road network has been designed to provide a safe and efficient circulatory system that reduces the potential for conflicting movements within the site. The internal layout will ensure that employee traffic and delivery traffic must be segregated as much as possible. All signage and safety measures possible will be implemented to ensure maximum safety on the site.

The methodology applied in this assessment follows standard practice for similar developments and aligns with typical traffic assessment approaches. The existing R355/ L8412 T- junction, which will serve as the main, key access junction for the site, was subjected to a capacity analysis to assess the potential impact of the proposed development on the surrounding road network. The recorded Annual Average Daily Traffic (AADT) was approximately 2,992 PCUs per day.

The Proposed Development is expected to generate a maximum of 64No. vehicles a day during the operational phase, associated with the delivery of feedstock, the export of digestate and from private cars, therefore, it will increase to a maximum of 13% of the existing traffic along the low trafficked R355 during AM and PM peak periods, which is above the threshold set in Galway Development Plan to produce a detailed Traffic and Transport Assessment (TTA). It should be noted that this represents a very conservative scenario. Since the majority of the traffic associated with the site will be composed of Heavy Goods Vehicles (HGV), the junction was modelled in detail, using the TII approved software *PICADY* (Priority Intersection

Capacity and Delay) for the AM and PM peak periods.

It is summarised that the development will have a **neutral, slight** and **long-term effect**.

### 12.11 Statement of Significance

From a transportation planning perspective, the Proposed Development will not adversely impact the functionality of the R355 Regional Road and the L8412 Local Road in the vicinity of the proposed site and the junction will function well below capacity for all future design years. There will be no queues or delays formed along both roads due to the Proposed Development, therefore, it can be concluded that the Proposed Development will not result in a detrimental effect on the existing road network in the vicinity of the site.

Where potential effects have been identified, mitigation measures have been provided which if implemented reduce the effect of significance. The mitigation steps are presented in **Section 12.6**.

Overall, it is assessed that the development will have a **neutral, slight** and **long-term effect**.

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