

HARMONY SOLAR
EAST LIMERICK LTD.
East Limerick Substation
Development,
Hospital,
Co. Limerick
Traffic and Transport Assessment
Report (TTA)

September 2026



Consulting Engineers
Ormonde Road
Kilkenny

For Further Information:

T: + 353 56 7702761

F: + 353 56 7790728

E: info@mpa.ie

W: www.mpa.ie

Prepared By:



Brian Condon BSc CMILT, MCIHT

Checked By:



Martin Peters BSc Eng, MSc Eng, CEng
MIEI, MIStructE, Dip Planning, MCIHT, FConsEI

For and on behalf of
MPA Consulting Engineers

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 Martin Peters Associates (MPA Consulting Engineers) has been appointed by Harmony Solar East Limerick Ltd. (the Client) to provide Transportation Engineering services for a proposed Substation Development within the townland of Gotoon, Coolscart, and Kilfrush in County Limerick.
- 1.1.2 The Proposed Substation Development consists of the following elements:
- A new 220kV substation development, Battery Energy Storage System (BESS) and associated grid infrastructure (hereafter referred to as the Proposed Substation Development), for which planning consent will be sought from An Coimisiún Pleanála (ACP) as a Strategic Infrastructure Development (SID) under Section 182A of the Planning and Development Act 2000 (as amended).
- 1.1.3 The Proposed Substation Development forms part of a wider “Overall Project” with the Proposed Solar Farm Development, summarised as follows:
- A solar farm and associated cable route (the Proposed Solar Farm Development), for which planning consent is sought from Limerick City and County Council (LCCC) under Section 34 of the Planning and Development Act 2000 (as amended).
- 1.1.4 The Proposed Solar Farm Development comprises 210ha. over 8 land parcels in the east of County Limerick. The land parcels are located to the west and south of Hospital village and north-west of Knocklong village.
- 1.1.5 This Traffic and Transport Assessment (TTA) has been prepared to assess the impact of the Proposed Substation Development and the Overall Project on the adjacent road network. The Overall Project is split across several land parcels with different owners, with the general locations shown in **Figure 1.1** and **Figure 1.2**.



FIGURE 1.1: OVERALL PROJECT SITE LOCATION

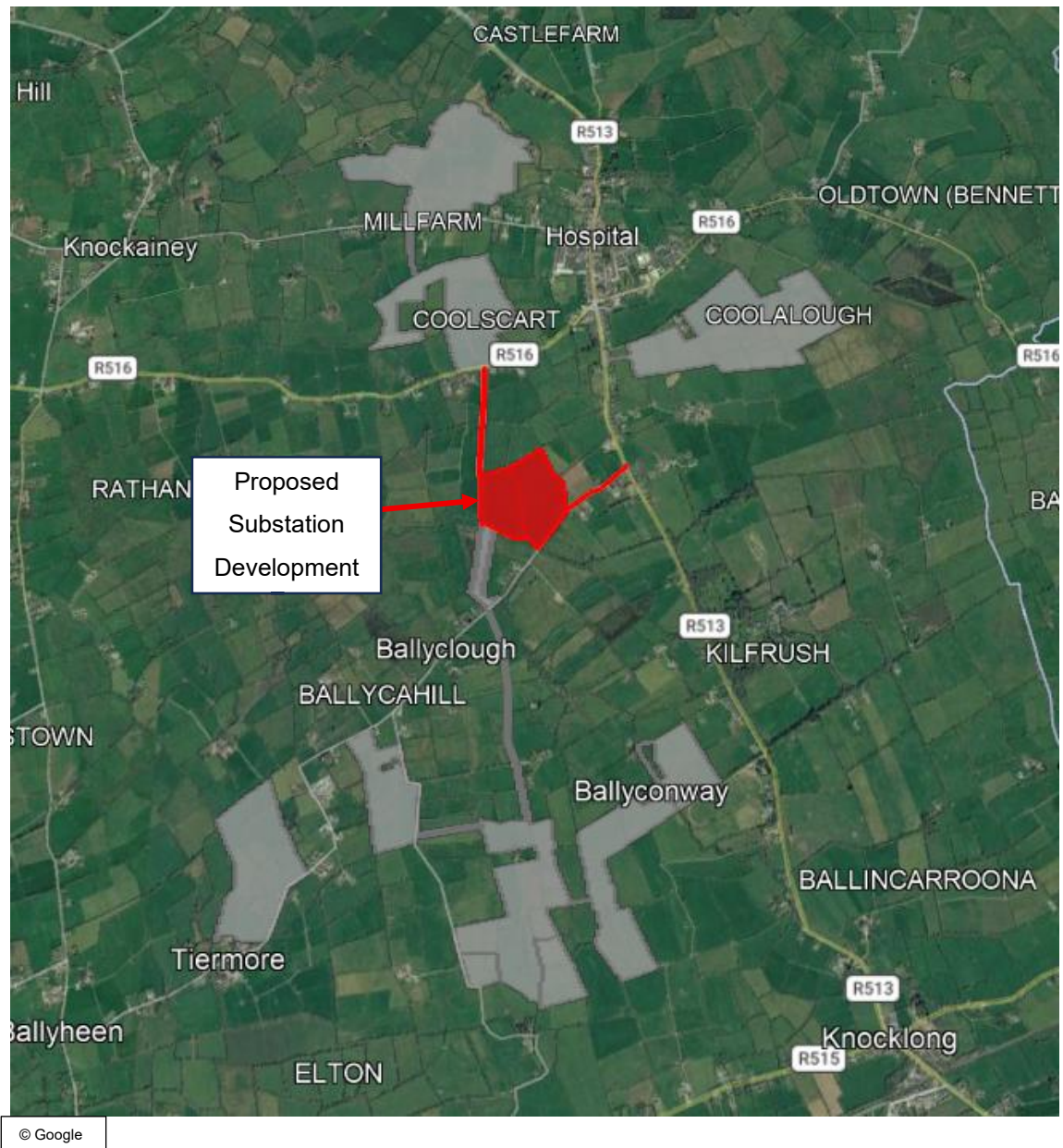


FIGURE 1.2: LOCAL SITE LOCATION INCLUDING SUBSTATION LOCATION

1.2 Scope

- 1.2.1 This report has been prepared to assess the cumulative traffic and transportation impacts of the Proposed Substation Development, subject to this SID application, along with Proposed Solar Farm Development, considered cumulatively as the Overall Project.
- 1.2.2 The purpose of this Traffic and Transport Assessment Report is to set out the key facts, details and results of assessment work undertaken to identify the potential level of traffic and transport impact generated as a result of the proposed development.
- 1.2.3 The report assesses the impact of the additional vehicle trips associated with the Overall Project, along the key routes to/from the site.

1.3 Methodology

- 1.3.1 Our approach to the study accords with policy and guidance both at a national and local level. The

methodology adopted aligns with best practice and current and emerging guidance, as exemplified by a series of publications that advocate this method of analysis. Key publications consulted include;

- *'Traffic Management Guidelines'* Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- *'Guidance on Transport Assessments'* Department for Transport (March 2007);
- *'Traffic & Transport Assessment Guidelines'* TII (2014).
- *'National Planning Framework, Project Ireland 2040'* Department of Housing, Planning & Local Government
- *'Regional Spatial & Economic Strategy for the Southern Region, Project Ireland 2040'* Department of Housing, Planning & Local Government
- *'Limerick County Development Plan 2022-28'* Limerick City & County Council

1.3.2 Our methodology incorporated a number of key stages, including;

- **Site Audit:** A site audit was undertaken on 18th April 2025 to quantify existing road network issues and identify local traffic characteristics, in addition to establishing the level of accessibility to the site.
- **Traffic Counts:** Traffic counts undertaken by Nationwide Data Collection (NDC) in the vicinity of the proposed site from Saturday, 22nd November 2025, to Friday, 28th November 2025, have been used to establish local traffic characteristics in the immediate area of the proposed development.
- **Trip Generation:** A trip generation exercise has been undertaken based on first principles using information on the scale of the proposed development and engineering calculations.
- **Trip Distribution:** A distribution exercise has been undertaken to assign the development-generated vehicle trips across the local road network. This has been based on the construction traffic routes and the site's access arrangements.
- **Network Impact:** Following on from generation and distribution, we have ascertained the specific level of impact generated by the proposed development upon the local road network.
- **Network Assessment:** Drawing upon the findings of the previous stages, a capacity assessment of the local road network has been undertaken to evaluate the operational performance of the National, Regional & Local roads which will serve the development.

1.4 Structure of Report

1.4.1 As introduced above, this TTA seeks to set out the potential level of traffic and transport impact generated by the development of the Proposed Substation Development cumulatively as part of the Overall Project and subsequently ascertain the existing and future operational performance of the local network.

- **Section 2:** Describes the existing conditions on the transportation network within the vicinity of the site.

- **Section 3:** Outlines the relevant characteristics of the Proposed Substation Development and the Overall Project, including details of the access arrangements and transport infrastructure proposed to serve the site.
- **Section 4:** Outlines the Assessment Methodology, including the estimates of the number of additional trips that would be generated by the Proposed Substation Development and the Overall Project, and identifies where these trips would be travelling to and from.
- **Section 5:** Assesses future traffic growth and then assesses the impact of the additional trips upon the surrounding transport network.
- **Section 6:** Presents a summary of the report and identifies the main conclusions that can be drawn.

2.0 EXISTING CONDITIONS

2.1 National and Regional Road Network

2.1.1 The existing wider National and Regional road network surrounding the development site that is relevant to this assessment includes the following Roads, as shown in **Figure 2.1** below.



FIGURE 2.1: NATIONAL AND REGIONAL ROAD NETWORK

2.1.2 The National and Regional roads pertaining to the Proposed Substation Development include:

- M7 Motorway
- M8 Motorway
- M20 Motorway
- N24 National Primary Road
- R513 Strategic Regional Road
- R515 Regional Road

2.1.3 The M7 provides a motorway link from Dublin to Limerick in Co. Limerick. The main characteristics are:

- A divided 4-lane (2 each direction) motorway
 - Typical width 13m, with 3.5m lane widths
 - Hard shoulders of 3.5m in each direction
 - Road making (edge & central)
 - 120km/h speed limit
- 2.1.4 The M8 provides a motorway link from Dublin (via the M7) to Cork on the south coast. The main characteristics are:
- A divided 4-lane (2 each direction) motorway
 - Typical width 13m, with 3.5m lane widths
 - Hard shoulders of 3.5m in each direction
 - Road making (edge & central)
 - 120km/h speed limit
- 2.1.5 The M20 provides a motorway on the southern side of Limerick, providing a link from the N20 and N21 to Junction 30 of the M7 and has the following characteristics:
- A divided 4-lane (2 each direction) motorway
 - Typical width 13m, with 3.5m lane widths
 - Hard shoulders of 3.5m in each direction
 - Road making (edge & central)
 - 120km/h speed limit
- 2.1.6 The N24 is a National Road that links Limerick to Cahir via Tipperary. It has the following characteristics in rural locations:
- A single carriageway 2-lane road
 - A typical width of 12.75m with 7.5m (2 no. 3.75m lanes)
 - Hard shoulders of 3.0m in each direction
 - Road markings (edge & central)
 - Junctions are typically simple T-junctions
 - 50km/h to 100km/h speed limit
- 2.1.7 Within urban areas, such as within Tipperary, the N24 has the following characteristics:
- A single carriageway 2-lane road
 - A typical width of 7.5m (2 no. 3.75m lanes)
 - Road markings (edge & central)
 - Junctions are typically simple T-junctions, with occasional signal-controlled junctions, and roundabouts
 - 50km/h speed limit
- 2.1.8 The N73 is a National Road linking the M8 motorway at Kilbeheny to Mitchelstown and Mallow. It has the following characteristics in rural locations:
- A single carriageway 2-lane road with climbing lanes
 - A typical width of 7.0m (2 no. 3.5m lanes)
 - Hard shoulders of 3.0m in each direction

- Road markings (edge & central)
- Junctions are typically T-junctions with ghost islands, and roundabouts
- 80km/h to 100km/h speed limit

2.1.9 The R513 is a Regional Road that links the town of Hospital to N24 to the north and to the N73 at Mitchelstown to the south. It has the following characteristics in rural locations:

- A single carriageway 2-lane road
- A typical width range of between 6.0m and 7.0m
- Road markings (edge & central)
- Junctions are typically simple T-junctions
- 50km/h to 100km/h speed limit

2.1.10 Within villages, such as Emly, the characteristics of the R513 are:

- Single carriageway 2-lane road
- A typical width range between 7.0m and 8.0m
- Central Road markings
- Junctions are typically simple T-junctions
- Some on-street parking and some parking restrictions
- Street lighting and footpaths on both sides of the road

2.1.11 The R515 is a Regional Road that links the R513 at Knocklong (south of Hospital) with the N24 in Tipperary to the east. It has the following characteristics in rural locations:

- A single carriageway 2-lane road
- A typical width range of between 6.0m and 7.0m
- Road markings (edge & central)
- Junctions are typically simple T-junctions
- 50km/h to 80km/h speed limit

2.2 Local Road Network

2.2.1 The existing local road providing access for the Proposed Substation Development is the L1509. The L1509 operates as a local road linking the R513 to the south of Hospital to several villages and farmsteads to the southwest of the town. It has the following characteristics:

- A single carriageway 2-lane road
- A typical width of 5.0m
- No road markings (edge & central)
- No footpath or cycling provision
- Junctions are simple T-junctions
- 60km/h speed limit

2.2.2 The local road network providing access for the Proposed Solar Farm Development forms part of a cumulative assessment for the Overall Project, they include the following Roads, as shown in **Figure 2.2**, and summarised below.

- R516

- L1507 (Millfarm)
- L51309

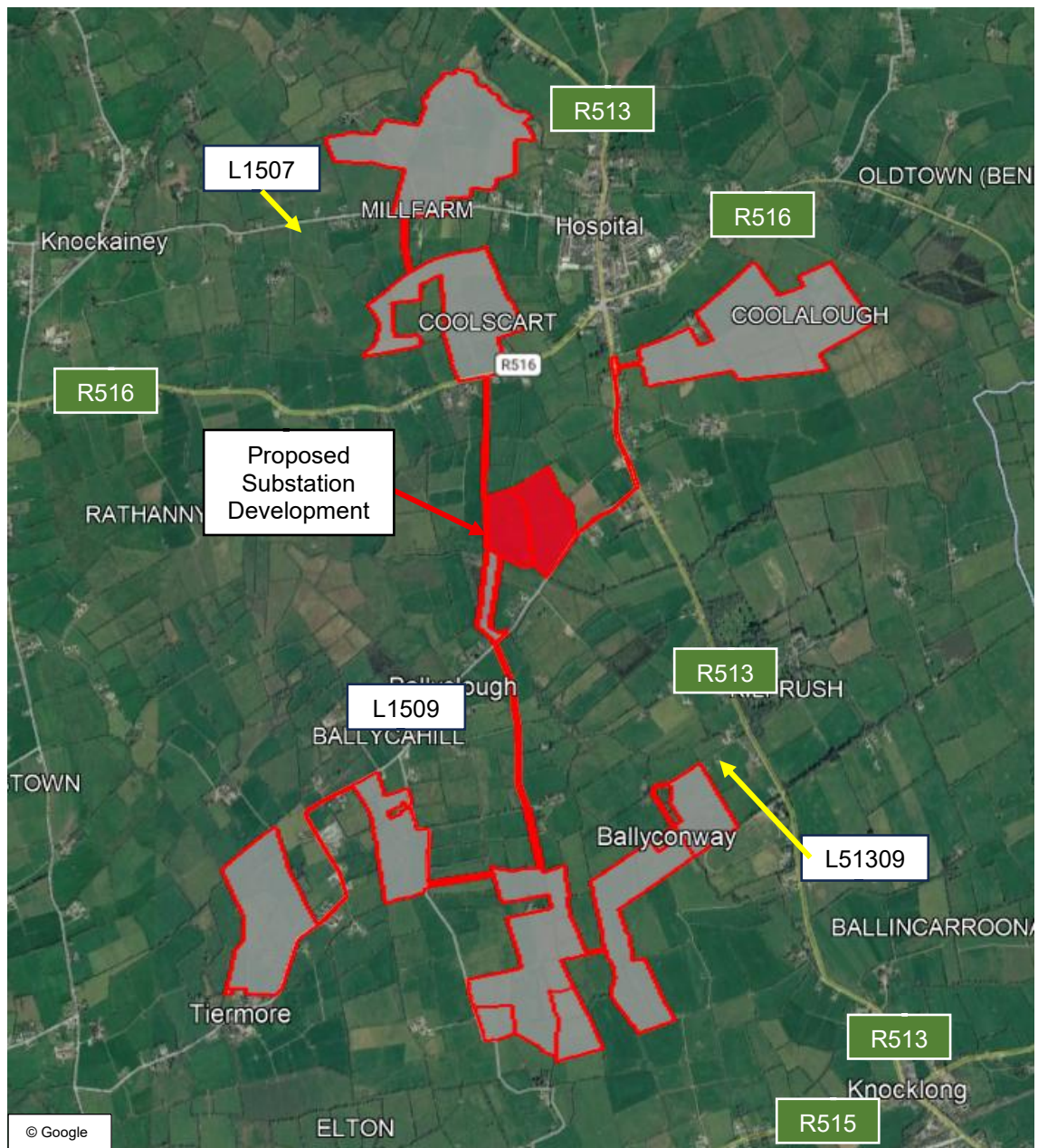


FIGURE 2.2: LOCAL ROAD NETWORK

2.2.3 The R516 is a Regional Road that links the N20 at Croom (west of Hospital) with the R515 at Bartoose to the east and passes through the southern part of Hospital. It has the following characteristics:

- A single carriageway 2-lane road
- A typical width range of between 5.0m and 6.0m
- Road markings (edge & central)
- Junctions are typically simple T-junctions
- 50km/h to 80km/h speed limit

2.2.4 The L1507 (Millfarm) is a local road linking the R513 in Hospital to Knockainey, to the west of the town. It has the following characteristics within the urban extents of Hospital:

- A single carriageway 2-lane road
- A typical width range of between 5.0m and 6.0m
- Footpaths and street lighting
- Road markings (edge & central)
- Junctions are typically simple T-junctions
- 50km/h speed limit

2.2.5 In rural areas, the L1507 (Millfarm) has the following characteristics:

- A single carriageway 2-lane road
- A typical width range of between 5.0m and 5.5m
- No Road markings
- Junctions are typically simple T-junctions
- 60km/h speed limit

2.2.6 The L51309 is a cul-de-sac local road that provides access for several farmsteads to the R513. It has the following characteristics:

- A single carriageway 1 lane road
- A typical width of 2.8m – 3.0m.
- No Road markings (edge & central)
- Grass verges / hedgerow each side
- 60km/h speed limit

2.3 Traffic Counts

2.3.1 Traffic surveys were commissioned to establish the baseline traffic flows for the Overall Project study area, accordingly some of the baseline survey area extends beyond the roads serving the Proposed Substation Development.

2.3.2 While the R513 and L1509 form the principal access roads for the Proposed Substation Development, this data is retained here to facilitate the cumulative assessment of the Overall Project.

2.3.3 Automatic Traffic Counts (ATCs) were installed on several roads surrounding the proposed development. The Roads surveyed are:

- ATC 1: R513 north of Hospital;
- ATC 2: L1507 (Millfarm);
- ATC 3: R513 south of Hospital;
- ATC 4: R516 southwest of Hospital;
- ATC 5: L1509 southwest of Hospital;
- ATC 6: L51309 southwest of Hospital;
- ATC 7: R513 south of L51309.

2.3.4 The locations are shown in **Figure 2.3**.

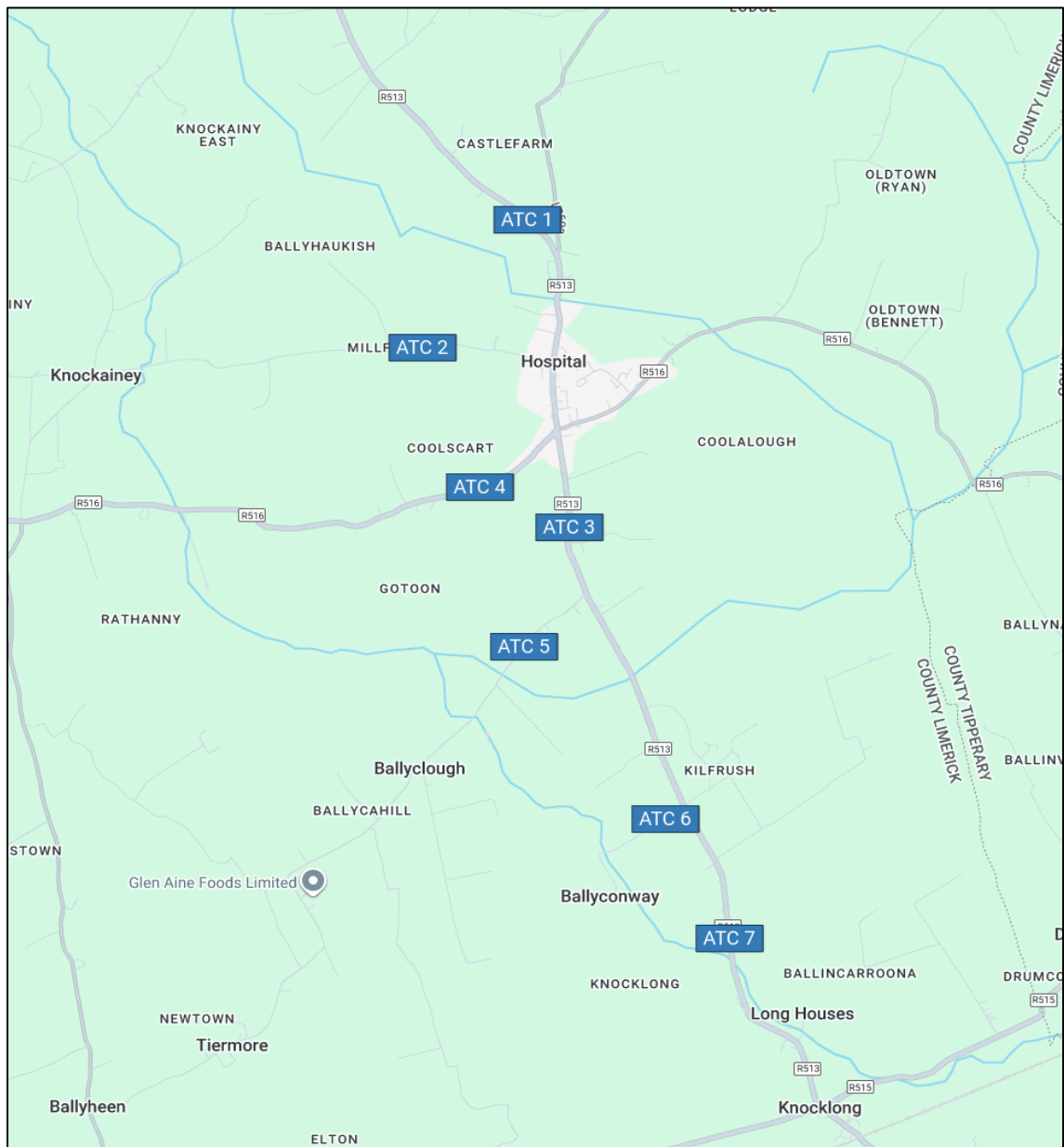


FIGURE 2.3 – ATC LOCATIONS

- 2.3.5 In addition to the commissioned ATCs, traffic data has been obtained for the M8 to the east of Mitchelstown, and the N24, north of the R513 junction, by extracting traffic count data from Transport Infrastructure Ireland (TII) website.
- 2.3.6 Data for the M8 and N24 have been extracted for TMU M08 090.0N, TMU M08 105.0 S, and TMU N24 000.0 W, respectively, as shown in **Figure 2.4**. Click [TII-M8 090](#), [TII-M8 105](#), or [TII-N24](#) for links to the relevant TII webpages.

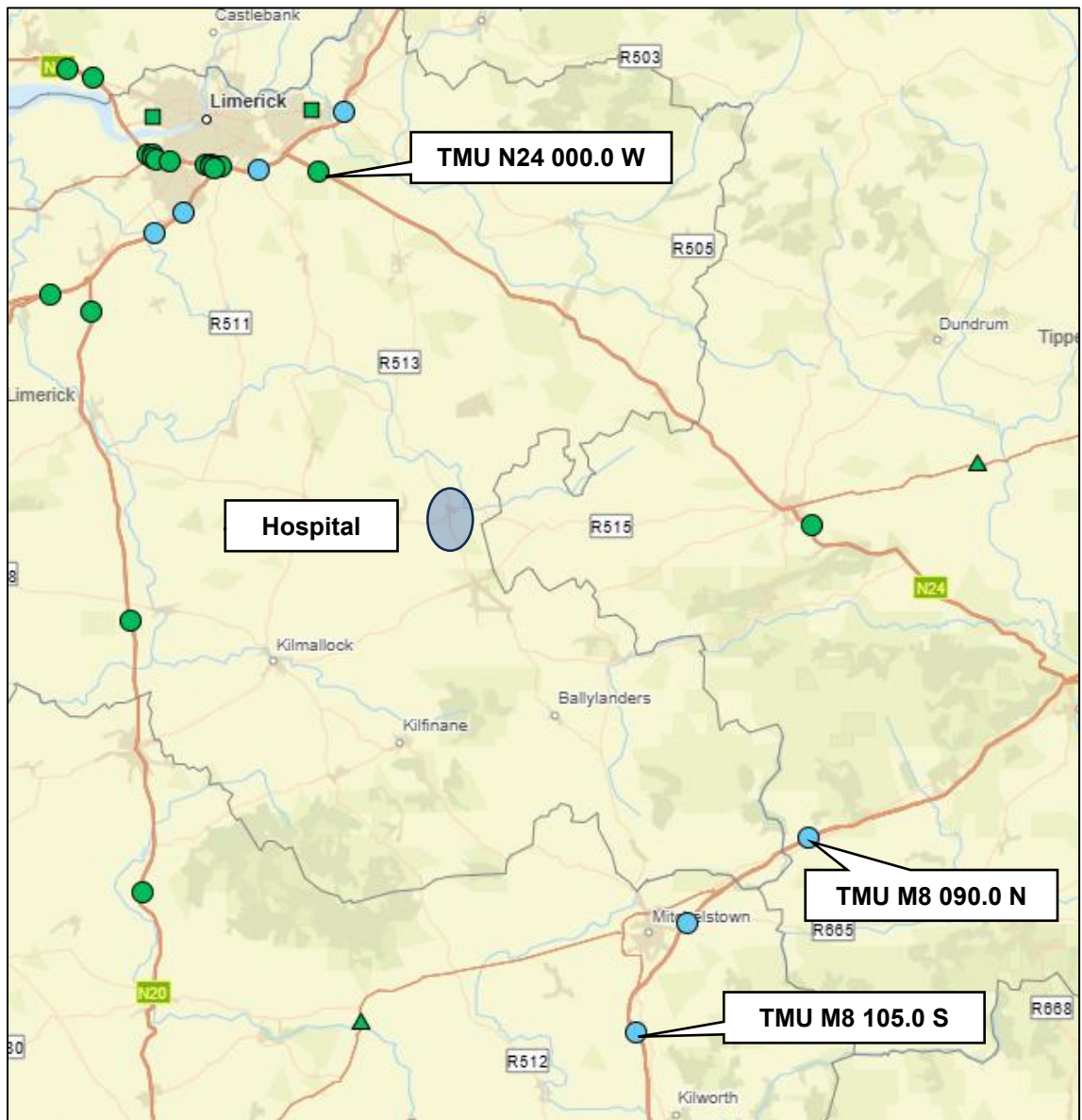


FIGURE 2.4 – TII COUNT LOCATION

- 2.3.7 The ATCs were undertaken between Saturday, 22nd November and Friday, 28th November 2025. The results are attached as **Appendix A** of this report, and the weekly averages (WADT – Weekly Average Daily Traffic) are summarised in **Table 2.1**. Accompanying Traffic Flow Diagrams are included in **Appendix C**.
- 2.3.8 The 7-day average traffic on the M8 and N24 for the same period as the ATC surveys is also included in **Table 2.1**.

Location	Time Period	Westbound / Northbound (7-day average)	Eastbound / Southbound (7-day average)	Two-Way (7-day average)
Site 1: R513 North of Hospital	AM Peak	264	203	467
	PM Peak	210	298	508
	WADT	2,927	2,800	5,728
Site 2: L1507 West of Hospital	AM Peak	46	64	109
	PM Peak	33	23	56
	WADT	397	387	784
Site 3: R513 Within Hospital	AM Peak	272	170	442
	PM Peak	228	286	514
	WADT	2,947	2,812	5,759
Site 4: R516 West of Hospital	AM Peak	45	49	93
	PM Peak	58	61	119
	WADT	619	652	1,271
Site 5: L1509 West of Hospital	AM Peak	20	12	32
	PM Peak	13	16	30
	WADT	183	188	371
Site 6: L51309 Southwest of Hospital	AM Peak	1	1	2
	PM Peak	1	1	2
	WADT	18	18	36
Site 7: R513 South of Hospital	AM Peak	242	159	400
	PM Peak	219	261	480
	WADT	2,699	2,557	5,256
Site 8: N24 North of R513	AM Peak	422	663	1,085
	PM Peak	886	583	1,469
	WADT	9,285	9,207	18,492
Site 9: M8 East of Mitchelstown	AM Peak	579	550	1,129
	PM Peak	667	710	1,377
	WADT	8,904	9,117	18,021
Site 10: M8 South of Mitchelstown	AM Peak	623	752	1,375
	PM Peak	987	811	1,798
	WADT	10,921	10,931	21,852

TABLE 2.1: SUMMARY OF ATC RESULTS

2.3.9 The traffic flow data indicates a clear hierarchy in road usage within the study area. The highest traffic volumes are recorded on the strategic road network, comprising the M8 motorway (Sites 9 and 10) and the N24 (Site 8). The M8 south of Mitchelstown (Site 10) records the highest flows, with a WADT of approximately 21,852 vehicles, followed by the N24 north of the R513 (Site 8) with approximately 18,492 vehicles per day and the M8 east of Mitchelstown (Site 9) with approximately 18,021 vehicles per day. These routes also experience the highest peak hour flows, with PM peak

two-way flows reaching up to 1,798 vehicles.

- 2.3.10 The R513 corridor (Sites 1, 3 and 7) carries the next highest traffic volumes, with two-way WADT flows ranging from approximately 5,256 to 5,759 vehicles per day and peak-hour flows generally between 400 and 514 vehicles.
- 2.3.11 Traffic volumes further decrease on the surrounding roads, including the R516 (Site 4) and the L1507 (Millfarm) access road (Site 2), which record WADT flows of approximately 1,271 and 784 vehicles, respectively. The lowest flows occur on the local road network, including the L1509 (Site 5) and L51309 (Site 6), where WADT flows are approximately 371 vehicles and 36 vehicles, respectively. Overall, the results demonstrate a typical rural road hierarchy, with the highest traffic volumes on the motorway and national road network and substantially lower volumes on the surrounding regional and local roads.

2.4 AADT Estimates

- 2.4.1 These traffic counts have been converted from WADT to AADT (Annual Average Daily Traffic) using the TII publication, Project Appraisal Guidelines, Unit 16.1: Expansion Factors for Short Period Traffic Counts. From which, in Appendix C, a monthly flow index for the Mid West of Ireland for the November counts 0.97. The estimated AADT for the roads are shown in **Table 2.2** below.

Location	2025 AADT
Site 1: R513 North of Hospital	5,728
Site 2: L1507 West of Hospital	761
Site 3: R513 Within Hospital	5,587
Site 4: R516 West of Hospital	1,233
Site 5: L1509 West of Hospital	360
Site 6: L51309 Southwest of Hospital	35
Site 7: R513 South of Hospital	5,098
Site 8: N24 North of R513	17,937
Site 9: M8 East of Mitchelstown	17,480
Site 10: M8 South of Mitchelstown	21,196

TABLE 2.2: ESTIMATED 2025 AADT

3.0 PROPOSED DEVELOPMENT

3.1 Proposed Substation Development

3.1.1 The Proposed Substation Development will consist of a 10-year planning permission for the construction of a 220kV Loop In Loop Out (LILO) substation and associated works within a site of 17.02 hectares which will include the following:

- Transmission System Operator (TSO) compound with an area of approximately 14,158m², containing a two-storey 220kV GIS substation building with a footprint of approximately 1,844m², a total floor area of 3,550.8m², and a height of 20.7m.
- Customer compound with an area of approximately 4,576m², containing a customer building with a footprint of approximately 346.2m², a total floor area of 311.8m² and a height of 7.62m.
- 220kV customer transformer positioned within bunded enclosures, with a height of 9.5m above finished ground level.
- 220kV electrical infrastructure including transformers, switchgear, gantries, insulators, conductors, protection and control equipment, and all associated electrical plant and apparatus.
- A Battery Energy Storage System located within a dedicated BESS compound and including:
 - 55 no. containerised battery storage module(s), each measuring 6.06m long, 2.44m wide and 2.9m high.
 - 28 no. containerised transformer and power conversion / conditioning unit(s), each measuring 6.06m long, 2.44m wide and 2.9m high.
 - Ancillary BESS infrastructure including inverters, transformers, switchgear, control equipment, thermal management systems, fire detection and suppression systems, acoustic screening, and associated electrical plant.
- Removal of 1 no. existing 25m high steel lattice tower, and the installation of 2 no. steel lattice towers of 26.5m high, foundations and associated insulators, hardware and conductor.
- 4no. lightning protection mast(s), with a height of 18m.
- 1 no. telecommunications mast, with a height of 37.52m.
- 140m of underground electrical cable and associated ducting, including joint bays, cable sealing end compounds, marker posts and associated infrastructure.
- Internal access tracks.
- A new access point from the L1509 public road.
- Removal of derelict farm building.
- Landscaping and biodiversity enhancement measures.
- Security gates, boundary fencing and all associated ancillary development, site works and services.

3.1.2 The Proposed Substation Development forms part of a wider “Overall Project”, which includes the Proposed Solar Farm Development.

3.2 Development Parcels

3.2.1 The Proposed Substation Development is located in Parcel 4 within the townlands of Gotoon,

Coolscart and Kilfrush, to the south of Parcel 2. The land parcel contains the Proposed Substation Development and is located south-west of the village of Hospital.

3.2.2 The Overall Project, which includes the Proposed Solar Farm Development includes the following development parcels, which are described below and shown in **Figure 3.1**.

- Parcel 1 is the most northerly parcel is within the townlands of Ballyhaukish and Millfarm and is accessed via the L1507.
- Parcel 2 is within the townland of Coolscart, to the south of Parcel 1, and is accessed via the R516.
- Parcel 3 is located within the townland of Coolalough, to the east of Parcel 2. The parcel sits just outside the village of Hospital and is accessed via the R513.
- Parcel 5 is located within the townland of Newtown. This is the most south-westerly parcel and is accessed via the L1509.
- Parcel 6 is located within the townland of Ballycahill, to the east of Parcel 5, also accessed via the L1509
- Parcel 7 is located within the townland of Ballycahill, south-east of Parcel 6. The parcel is located to the north-west of the village of Knocklong and is accessed via the L51309.
- Parcel 8 is located within the townlands of Kilfrush and Knocklong. The parcel is located to the east of Parcel 7, north-west of the village of Knocklong and is also accessed via the L51309.

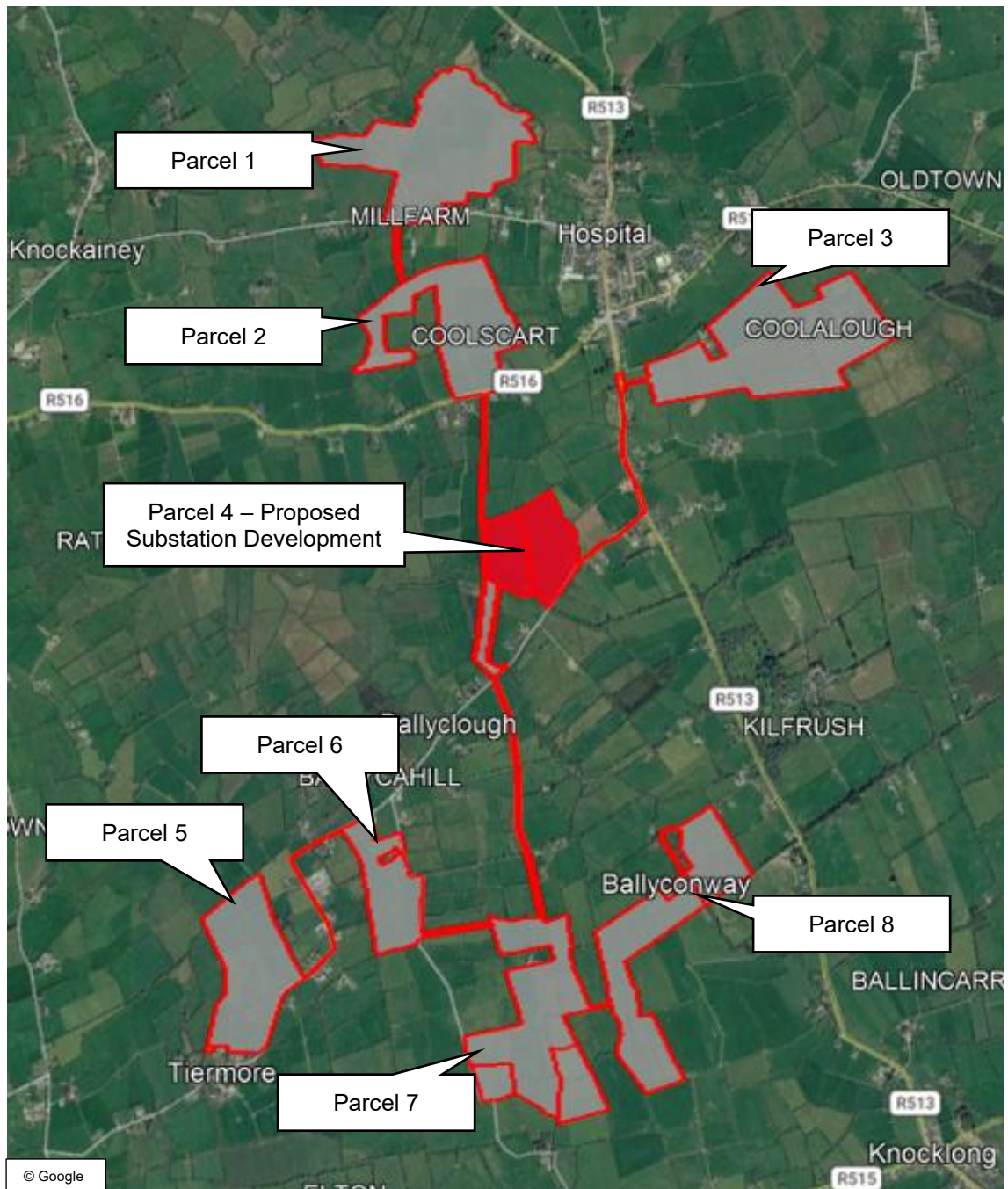


FIGURE 3.1 – PROPOSED DEVELOPMENT PARCELS

3.2.3 For the purposes of this assessment, the development parcels have been grouped based on their respective access route:

- Parcel 4 – Proposed Substation Development – Accessed via the L1509
- Parcel 1 – Accessed via the L1507
- Parcel 2 – Accessed via the R516
- Parcel 3 – Accessed via the R513
- Parcels 5 & 6 – Accessed via the L1509
- Parcels 7 & 8 – Accessed via the L51309

3.2.4 The Proposed Substation Development will comprise the following elements:

- 220kV Substation including TSO compound including all associated electrical infrastructure such as switchgear, gantries, insulators, conductors, protection and control equipment, and all associated electrical plant and apparatus required to facilitate the loop-in/loop-out connection to the existing 220kV overhead line,
- Construction of the customer (IPP) building accommodating a switchgear room, SCADA room, office, storeroom, hall, mess room and WC facilities and the construction of a 220kV transformer within a bunded enclosure,
- Construction of proposed internal access tracks to the respective compounds,
- Construction of a Battery Energy Storage System (BESS), including inverters, transformers, switchgear, control equipment, heating, ventilation and air conditioning units, fire detection and suppression systems, cabling, ducting and associated electrical plant,
- Underground power and communications cabling,
- Perimeter fencing and security gates and all associated security infrastructure including CCTV installation,
- Emergency lighting in TSO compound as per Eirgrid requirements,
- All associated ancillary development.

3.3 Committed & Future Development

- 3.3.1 There are no known major committed developments within the vicinity of the application sites.
- 3.3.2 The Proposed Substation Development is required to facilitate the connection of the Proposed Solar Farm Development to the national electricity transmission network.
- 3.3.3 Although this forms part of a separate application, the Proposed Solar Farm Development has been included in this assessment to provide a comprehensive appraisal of the traffic related impact on the local road network as the construction of it will likely overlap with the Proposed Substation Development.

3.4 Site Access Points

- 3.4.1 The access for the Proposed Substation Development will be taken from the L1509 existing public road. This access point has been subject to a detailed assessment as part of the TTA, which reviewed sightlines, visibility splays, geometry, surfacing, and constraints, including overhead services and adjacent features.
- 3.4.2 The access location is shown in **Figure 3.2** overleaf, and an extract from Drawing No. 251014-MPA-SS-X-X-XXX-DR-CE-1200 is shown in **Figure 3.3**.
- 3.4.3 As part of the cumulative assessment, the same criteria as above has been used to assess the accesses for the Proposed Solar Farm Development, included in a separate application to Limerick City & County Council.



FIGURE 3.2: PARCEL NO. 4 ACCESS FROM L1509



FIGURE 3.3: SUBSTATION ACCESS ASSESSMENT EXTRACT

3.4.4 Additionally, a second temporary access from the R516 to the north has been assessed as a contingency route for the transformer delivery if required, as shown in **Figure 3.4** overleaf.



FIGURE 3.4: TEMPORARY ACCESS FROM R516

- 3.4.5 The primary access is located directly off the L1509 local road, whilst the additional temporary access is located directly from the R516 Regional Road. Each access will be subject to improvements as necessary.
- 3.4.6 Accesses from Regional and Local Roads have been assessed for 3.0m x 90m sight lines for a 60km/h speed limit.
- 3.4.7 An Autotrack vehicle tracking assessment has been carried out by TLI and examined how construction related vehicles can navigate the local road network and access the sites.
- 3.4.8 Details of the sightlines and Autotrack assessment are shown on MPA Drawings 251014-MPA-SS-X-X-XXX-DR-CE-1200.

Access Routes

- 3.4.9 At the time of this assessment, the preferred access route from the motorway network is unknown, as this will be determined by the port of entry for overseas materials (Dublin, Cork, Limerick or Foynes). Therefore, two access routes are considered as shown in **Figure 3.5** and summarised below:
- To the north from Junction 29 of the M7 via the N24 and R513; and
 - To the south from either Junctions 12 and 13 of the M8 near Mitchelstown via the R513.

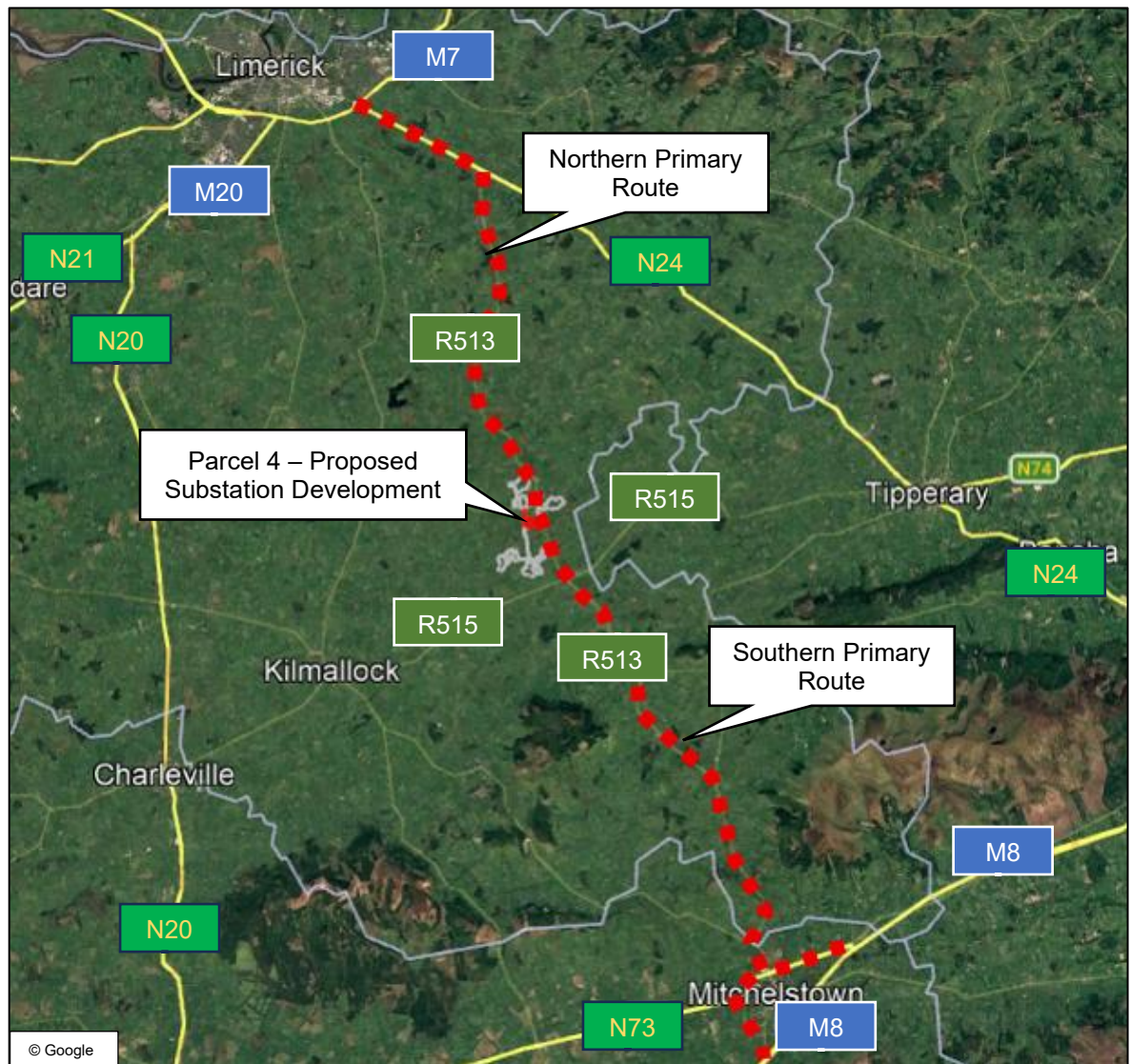


FIGURE 3.5: PRIMARY ACCESS ROUTES

3.4.10 Closer to the development sites, the R513 will operate as the Primary Route to the National Road Network. Within the vicinity of the sites, other Regional and Local roads will form the Secondary Routes to the individual parcels, as summarised below and shown in **Figure 3.6**:

- The L1509;
- The R516;
- The L1507 (Millfarm); and
- The L51309.

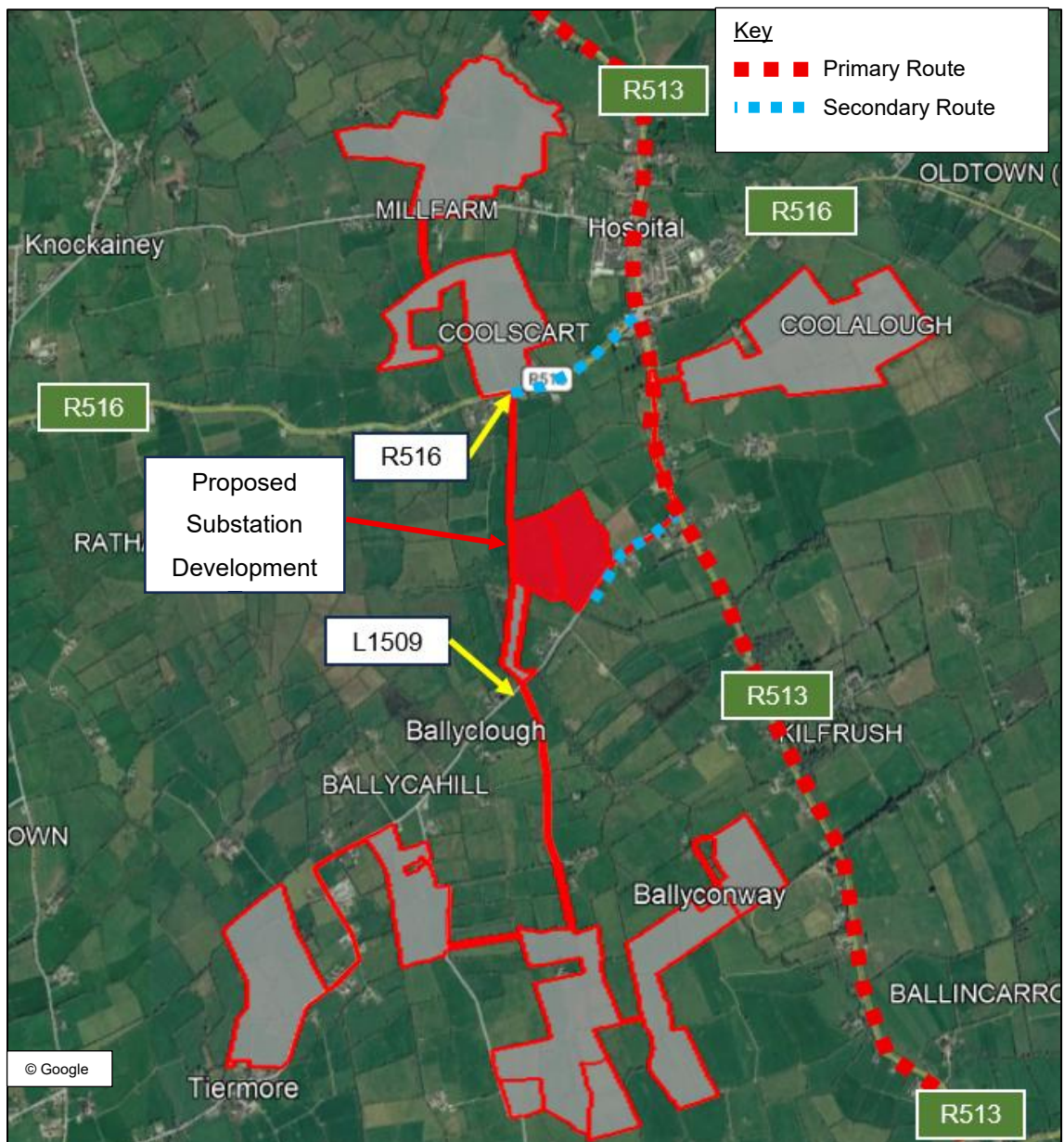


FIGURE 3.6: PRIMARY AND SECONDARY CONSTRUCTION ACCESS ROUTES

3.4.11 In addition to the public roads, an internal haul route, as shown in **Figure 3.6**, will be constructed to connect Parcel 7 to Parcel 8.

Access Route Improvements

3.4.12 To facilitate safe access for HGVs, a range of temporary and/or permanent improvement works may be required. These may include:

- Regrading and surfacing of entrances
- Removal or trimming of boundary vegetation and trees
- Setback of stone walls to improve sightlines
- Localised widening and strengthening of verges
- Construction of temporary overrun areas or bell mouths

3.4.13 Localised road widening works are proposed on the L1509, the extent of these works are shown on MPA Drawings 251014-MPA-SS-X-X-XXX-DR-CE-1201 and 251014-MPA-SS-X-X-XXX-DR-CE

1202.

- 3.4.14 All works will be designed in accordance with the relevant Limerick City & County Council & TII standards and in consultation with Limerick City & County Council where public road interfaces are involved.

4.0 ASSESSMENT METHODOLOGY

4.1 Introduction

4.1.1 This Section outlines the process for determining the potential number of vehicle trips associated with the Proposed Substation Development, as part of the Overall Project, and their assignment to the local road network. The existing traffic movements on the network were summarised previously in Section 2.0.

4.2 Construction Programme

4.2.1 It is not possible to provide a definitive construction programme at this application stage; it is, however expected that the works will take up to 18 months to complete, broken down as follows:

- Parcel 4: Proposed Substation Development – 18 months
- Parcel 1: Solar Farm – 6 months
- Parcel 2: Solar Farm – 6 months
- Parcel 3: Solar Farm – 6 months
- Parcels 5 & 6: Solar Farm – 6 Months
- Parcels 7 & 8: Solar Farm – 6 Months

4.2.2 The overall construction programme illustrating the different parcels of the development and how the peaks in construction trips (shown red below) in each parcel will occur over the programme is shown in **Figure 4.1**.

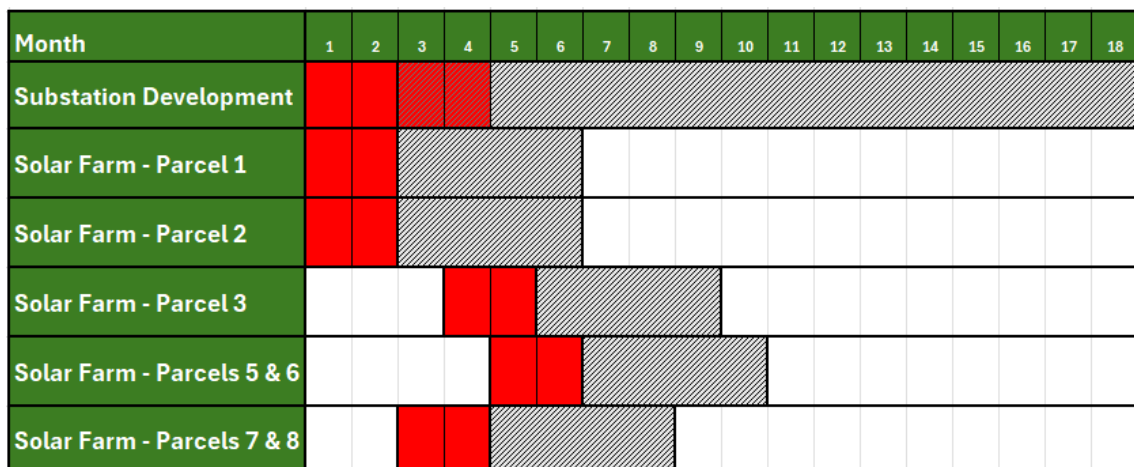


FIGURE 4.1: PRELIMINARY CONSTRUCTION SCHEDULE WITH INDICATIVE PEAKS

4.2.3 The works will involve rolling crews, which will move across the Proposed Solar Farm Development as the works progress. It is foreseeable that work could be ongoing in several parcels simultaneously. As such, construction activities have been considered for up to six parcels at one time.

4.3 East Limerick Trip Generation

4.3.1 The total daily construction traffic trip generation for the Overall Project has been calculated based on previous experience of similar schemes, both locally and nationally. This approach reflects that, irrespective of a solar farm's overall size, the daily number of operatives and deliveries remains broadly consistent; the construction duration increases for larger sites.

- 4.3.2 The trip generation calculations for each element of the development are included in **Appendix B**.
- 4.3.3 It is accepted that developments of this nature will bring peaks and troughs in terms of traffic flows. Hence, trip generation and subsequent network impacts have been assessed for average and peak construction trips cumulatively for each element of the Overall Project, broken down as the substation and BESS, and the Proposed Solar Farm Development.

4.4 Proposed Substation Development Trip Generation

- 4.4.1 The substation and BESS have been individually assessed in terms of construction trip generation but have been considered together in terms of their impact on the local road network.
- 4.4.2 The average number of two-way daily HGV trips associated with the substation is 2 and the BESS is 5, yielding a combined total of 7.
- 4.4.3 Peak construction-related periods are associated with earthworks and the import of materials, such as gravel for access tracks, hardstandings, and site compounds. It is expected that 5 HGVs will serve the development, each making 5 return trips resulting in a daily peak of 50 two-way HGV trips.
- 4.4.4 Peak construction periods in each parcel are expected to last 1-2 months, with intermittent peaks possible throughout the works.
- 4.4.5 The daily peak will be 52 two-way HGV trips, which represents 50 two-way peak trips for the BESS and 2 two-way average trips for the substation, as both elements will not peak at the same time.
- 4.4.6 In addition to HGV movements, there will be a number of car and van (LGV) movements related to the construction workforce. There will also be a number of non-commuting trips for light vehicles, such as for lunch, tools or supplies.
- 4.4.7 Average LGV movements are anticipated at 28 two-way trips over the duration of the works, based on 14 staff on site, a vehicle occupancy of 2 people per vehicle, and 14 incidental trips per day. This figure is the same for both elements, and as the substation and BESS elements may overlap, as a result 56 two-way trips have been used for the assessment.
- 4.4.8 Peak LGV movements are anticipated at 65 two-way trips over the duration of the works, based on 35 staff on site, a vehicle occupancy of 2 people per vehicle, and 30 incidental trips per day. This must be considered alongside average LGV movements for the possibility of an overlap between the substation and BESS, yielding 93 two-way LGV trips.
- 4.4.9 The trip generation for the Proposed Substation Development is summarised in **Table 4.1** overleaf.

Proposed Substation Development – Trip Generation			
Type	HGV's	LGV's	Total Trips
Average Construction Daily Trips	7 (2 Substation & 5 BESS)	56 (28 Substation & 28 BESS)	63
Peak Construction Daily Trips	52 (2 Substation & 50 BESS)	93 (28 Substation & 65 BESS)	145

TABLE 4.1: SUBSTATION & BESS – AVERAGE AND PEAK DAILY CONSTRUCTION TRIPS**4.5 Solar Farm Trip Generation**

- 4.5.1 For a comprehensive assessment, the trip generation for the Proposed Solar Farm Development must be considered in tandem with the Proposed Substation Development.
- 4.5.2 It is estimated that the daily average HGV trips (two-way) for the Proposed Development will be 21.
- 4.5.3 Peak construction-related periods for the Proposed Solar Farm Development result in a daily peak of 50 two-way HGV trips.
- 4.5.4 On average, 11 staff are expected to be on site at one time. A vehicle occupancy of 2 people per vehicle. This equates to 11 two-way commuting trips per day, and incidental trips have been estimated at an average of 14 two-way trips per day.
- 4.5.5 This means the anticipated average daily trip generation for staff is 25 two-way trips.
- 4.5.6 During peak construction, this could increase to up to 111 two-way trips per day, based on information provided by the client.
- 4.5.7 The trip generation for the solar farm is summarised in **Table 4.2** below.

Solar Farm – Trip Generation			
Type	HGV's	LGV's	Total Trips
Average Construction Daily Trips	21	25	46
Peak Construction Daily Trips	50	111	161

TABLE 4.2: SOLAR FARM – AVERAGE AND PEAK DAILY CONSTRUCTION TRIPS

- 4.5.8 Anticipated average and peak daily trips for each element are summarised in **Table 4.3** overleaf.

Type	Description	Vehicles Per Day (Proposed Solar Farm Development)	Vehicles Per Day (Proposed Substation Development)
Average Construction Daily Trips	The typical number of construction vehicle trips expected during normal working days	46 (21 HGV & 25 Staff)	63 (7 HGV & 56 Staff)
Peak Construction Daily Trips	The maximum number of daily trips likely to occur on exceptional days, such as during site start-up	161 (50 HGV & 111 Staff)	145 (52 HGV & 93 Staff)

TABLE 4.3: AVERAGE DAILY AND PEAK DAILY CONSTRUCTION TRIPS

4.6 Cumulative Assessment

- 4.6.1 In order to fully assess the impact of the proposed development on the local road network, it is necessary to consider the various elements of the development in unison.
- 4.6.2 All construction vehicle trips will occur cumulatively on the primary access routes (M8, N24 and R513). From there, the trips are disseminated through the different haul routes.
- 4.6.3 Due to the dispersed nature of the development, it is foreseen that three portions of the site could generate peak daily trips at the same time, while three remaining portions could generate average daily trips. This represents a worst-case scenario and will be short in duration. Based on **Figure 4.1**, multiple peaks will occur at the start of the works. This will be managed to ensure that peak traffic volumes for the various land parcels will not occur at the same time on the same secondary access route.
- 4.6.4 Peak cumulative construction trips on the primary access routes account for the three land parcels operating at peak construction, as well as the remaining three parcels operating at average construction, resulting in 592 two-way trips.
- 4.6.5 Average cumulative construction trip generation on the primary access routes comprises of three solar farm parcels at average trip generation, along with Substation and BESS average trip generation figures. This represents a total of 247 two-way trips.
- 4.6.6 The L1509 provides access to multiple elements of the works, the average trip generation on the L1509 consists of combined average trip generation figures for the solar farm, substation and BESS, yielding 109 two-way trips. For peak construction, peak solar farm trips are added to the average substation and BESS trips, yielding 224 two-way trips.
- 4.6.7 All other routes only serve a single solar farm parcel, as such, the average trip generation for those parcels is 46 two-way trips, and peak trip generation is 161 two-way trips.
- 4.6.8 The vehicle movements for the development have been calculated based on the trip generation figures above. As the works progress, the likelihood of active works in multiple parcels decreases.
- 4.6.9 The breakdown of cumulative construction trips is shown in **Table 4.4** below.

Access Route	Cumulative Average Construction Trips	Cumulative Peak Construction Trips
M7, M8, N24 & R513 (Primary Access Route)	247	592
L1509 (Secondary Access Route serving Multiple Parcels - Solar Farm, Substation & BESS)	109	224
R516	46	161
L1507	46	161
L51309	46	161

TABLE 4.4: CUMULATIVE CONSTRUCTION TRIP GENERATION ON ACCESS ROUTES

4.7 Trip Assignment

4.7.1 As noted above, trip assignment for construction related trips on the primary routes accounts for each parcel operating concurrently, up to three operating at peak construction and three operating at average construction.

4.7.2 Development construction trips have been assigned to the secondary access roads based on the following routes:

- Proposed Substation Development & Parcels 5 & 6: via the L1509.
- Parcel 1: via L1507 (Millfarm) to the R513
- Parcel 2: via the R516 to the R513
- Parcel 3: direct from the R513
- Parcels 7 & 8: via internal haul road and the L51309

4.7.3 Note that there will be a single access point for each development parcel.

5.0 TRAFFIC IMPACT ASSESSMENT

5.1 Background

- 5.1.1 This network assessment is based on the cumulative assessment of construction trips related to the Overall Project, with the Propsoed Substation Development considered in tandem with Propsoed Solar Farm Development. Details for the trip generation for the Propsoed Substation Development are included in Section 4.4, and **Table 4.1**.

5.2 Traffic Growth

- 5.2.1 Given that the background traffic estimates are based on 2025 counts and the solar farm development's opening/construction year is expected to be 2030, these counts need to be adjusted for the development's opening year.
- 5.2.2 Traffic growth has been calculated using the growth factors contained in the TII 'Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections PE-PAG-02017' (May 2019), as shown in **Figure 5.1** below.

TII Publications
Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections

PE-PAG-02017
October 2021

Table 6.2: Link-Based Growth Rates: County Annual Growth Rates (excluding Metropolitan Area)

County	Low Sensitivity Growth Rates						Central Growth Rates						High Sensitivity Growth Rates					
	2016-2030		2030-2040		2040-2050		2016-2030		2030-2040		2040-2050		2016-2030		2030-2040		2040-2050	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Dublin	1.0163	1.0303	1.0046	1.0123	1.0036	1.0143	1.0180	1.0317	1.0062	1.0139	1.0050	1.0158	1.0211	1.0348	1.0100	1.0170	1.0099	1.0250
Kildare	1.0180	1.0363	1.0044	1.0135	1.0035	1.0169	1.0197	1.0378	1.0062	1.0155	1.0053	1.0187	1.0229	1.0413	1.0098	1.0191	1.0107	1.0283
Laois	1.0130	1.0265	1.003	1.0105	1.0018	1.0136	1.0147	1.0280	1.0047	1.0125	1.0036	1.0155	1.0179	1.0314	1.0082	1.0160	1.0090	1.0248
Longford	1.0119	1.0298	1.0019	1.0104	1.0000	1.0138	1.0134	1.0313	1.0038	1.0124	1.0027	1.0157	1.0167	1.0347	1.0072	1.0161	1.0073	1.0256
Louth	1.0134	1.0347	1.0054	1.0153	1.0048	1.0180	1.0148	1.0363	1.0070	1.0174	1.0063	1.0198	1.0177	1.0397	1.0100	1.0211	1.0103	1.0295
Meath	1.0156	1.0349	1.0052	1.0164	1.0043	1.0189	1.0173	1.0365	1.0070	1.0186	1.0059	1.0207	1.0205	1.0400	1.0108	1.0226	1.0116	1.0304
Offlay	1.0103	1.0307	1.0021	1.0119	1.0014	1.0158	1.0118	1.0323	1.0042	1.0139	1.0033	1.0176	1.0152	1.0357	1.0081	1.0176	1.0100	1.0272
Westmeath	1.0145	1.0300	1.0042	1.0126	1.0033	1.0156	1.0161	1.0316	1.0062	1.0147	1.0053	1.0176	1.0194	1.0352	1.0101	1.0185	1.0100	1.0279
Wicklow	1.0140	1.0361	1.0033	1.0153	1.0029	1.0185	1.0157	1.0377	1.0051	1.0173	1.0047	1.0204	1.0189	1.0412	1.0091	1.0211	1.0110	1.0305
Cavan	1.0098	1.0295	1.0024	1.0108	1.0010	1.0140	1.0112	1.0311	1.0041	1.0127	1.0028	1.0158	1.0141	1.0345	1.0076	1.0164	1.0084	1.0256
Donegal	1.0097	1.0270	1.0024	1.0123	1.0017	1.0142	1.0111	1.0286	1.0039	1.0141	1.0035	1.0161	1.0139	1.0320	1.0072	1.0178	1.0094	1.0258
Galway	1.0243	1.0430	1.0087	1.0177	1.0088	1.0218	1.0259	1.0446	1.0109	1.0198	1.0105	1.0236	1.0294	1.0480	1.0148	1.0236	1.0181	1.0336
Leitrim	1.0044	1.0299	0.9973	1.0105	0.9927	1.0140	1.0060	1.0313	0.9990	1.0124	0.9971	1.0157	1.0090	1.0348	1.0025	1.0161	1.0029	1.0257
Mayo	1.0111	1.0314	1.0009	1.0128	1.0005	1.0173	1.0127	1.0330	1.0028	1.0148	1.0026	1.0192	1.0161	1.0364	1.0063	1.0186	1.0097	1.0290
Monaghan	1.0103	1.0236	1.0032	1.0093	1.0021	1.0119	1.0115	1.0252	1.0047	1.0112	1.0041	1.0138	1.0141	1.0285	1.0079	1.0147	1.0080	1.0234
Roscommon	1.0092	1.0267	1.0012	1.0115	1.0001	1.0152	1.0107	1.0284	1.0031	1.0135	1.0022	1.0172	1.0142	1.0318	1.0069	1.0174	1.0075	1.0270
Sligo	1.0133	1.0307	1.0028	1.0118	1.0018	1.0154	1.0147	1.0323	1.0045	1.0136	1.0041	1.0171	1.0178	1.0357	1.0082	1.0173	1.0107	1.0268
Carlow	1.0116	1.0309	1.0027	1.0124	1.0016	1.0161	1.0133	1.0324	1.0047	1.0144	1.0034	1.0178	1.0165	1.0359	1.0085	1.0180	1.0093	1.0275
Clare	1.0139	1.0402	1.0019	1.0138	1.0011	1.0179	1.0156	1.0417	1.0038	1.0157	1.0029	1.0197	1.0191	1.0451	1.0075	1.0193	1.0105	1.0292
Cork	1.0173	1.0361	1.0067	1.0141	1.0059	1.0181	1.0189	1.0377	1.0087	1.0160	1.0078	1.0200	1.0223	1.0411	1.0124	1.0197	1.0154	1.0297
Kerry	1.0094	1.0269	0.9990	1.0094	0.9983	1.0129	1.0111	1.0285	1.0011	1.0113	1.0000	1.0146	1.0144	1.0319	1.0048	1.0150	1.0079	1.0245
Kilkenny	1.0108	1.0253	1.0016	1.0109	1.0006	1.0147	1.0124	1.0268	1.0037	1.0129	1.0027	1.0166	1.0157	1.0302	1.0075	1.0166	1.0087	1.0261
Limerick	1.0199	1.0307	1.0071	1.0110	1.0069	1.0158	1.0215	1.0323	1.0092	1.0130	1.0088	1.0177	1.0249	1.0357	1.0129	1.0167	1.0163	1.0274
Tipperary	1.0102	1.0290	1.0019	1.0096	1.0008	1.0136	1.0119	1.0306	1.0037	1.0116	1.0027	1.0155	1.0152	1.0340	1.0073	1.0152	1.0084	1.0250
Waterford	1.0154	1.0342	1.0059	1.0157	1.0053	1.0203	1.0171	1.0358	1.0079	1.0179	1.0073	1.0220	1.0205	1.0393	1.0119	1.0218	1.0143	1.0319
Wexford	1.0051	1.0196	0.9999	1.0096	0.9989	1.0122	1.0068	1.0211	1.0022	1.0116	1.0006	1.0140	1.0100	1.0245	1.0060	1.0152	1.0077	1.0232

FIGURE 5.1: EXTRACT OF TII LINK BASED GROWTH FACTORS – TABLE 6.2

- 5.2.3 The central growth rate factor has been used to determine traffic growth. Therefore, using the rates in Table 6.2 of the Project Appraisal Guidelines, an annual growth rate of 1.0215 for Co. Limerick is used. The growth rate for 2025 – 2030 is shown in **Table 5.1**.

Period	Factor
2025-2030	1.0860

TABLE 5.1: FUTURE YEAR GROWTH RATES

- 5.2.4 For this assessment, traffic growth has been applied to the 2025 AADT flows in Table 2.2 to derive the 2030 – Opening / Construction Year AADTs, which are presented in **Table 5.2** below.
- 5.2.5 As the main impact from the proposed development will occur during the construction phase, with only very limited operational traffic, a Future Year Assessment (i.e., Opening year + 15 Years) as per TII Guidelines is not considered necessary.

Location	2030 AADT
Site 1: R513 North of Hospital	6,220
Site 2: L1507 (Millfarm)	826
Site 3: R513 Within Hospital	6,067
Site 4: R516 West of Hospital	1,339
Site 5: L1509 West of Hospital	391
Site 6: L51309 Southwest of Hospital	38
Site 7: R513 South of Hospital	5,537
Site 8: N24 North of R513	19,480
Site 9: M8 East of Mitchelstown	18,984
Site 10: M8 South of Mitchelstown	23,019

TABLE 5.2: ESTIMATED 2030 AADT

5.3 Network Impact

- 5.3.1 The construction vehicle trips have been applied to the base 2030 AADT (**Table 5.2**) to determine the impact of construction vehicles. These are shown in **Table 5.3**.
- 5.3.2 It should be noted that the base traffic flows on the R516, L1509, and L51309 are minimal, so any increase in traffic will appear proportionally significant, whereas, in fact, the absolute increases are not significant over the full day.
- 5.3.3 **Table 5.3** demonstrates that the greatest proportional increase occurs on the L51309 southwest of Hospital, where, during peak construction, an additional 161 two-way daily trips would represent a 426.2% uplift. Based on average construction activity, the increase would be 46 trips per day (121.8%).
- 5.3.4 These figures correlate to an additional 13 vehicles per hour during periods of peak construction activity, and 4 vehicles per hour during average construction periods, based on a 12-hour working day.
- 5.3.5 Whilst these percentage increases are high, they arise from a very low baseline flow (38 AADT) and therefore represent relatively few vehicle movements in absolute terms. The effects would also be temporary and associated only with the construction phase.

Road Location	2029 AADT (Two-Way)	Average Daily Traffic from Project (Two-Way)	%age Increase	Peak Daily Traffic from Project (Two-Way)	%age Increase
Site 1: R513 North of Hospital	6,220	247	4.0%	592	9.5%
Site 2: L1507 West of Hospital	826	46	5.6%	161	19.5%
Site 3: R513 Within Hospital	6,067	247	4.1%	592	9.8%
Site 4: R516 West of Hospital	1,339	46	3.4%	161	12.0%
Site 5: L1509 West of Hospital	391	109	27.9%	224	57.3%
Site 6: L51309 Southwest of Hospital	38	46	121.8%	161	426.2%
Site 7: R513 South of Hospital	5,537	247	4.5%	592	10.7%
Site 8: N24 North of R513	19,480	247	1.3%	592	3.0%
Site 9: M8 East of Mitchelstown	18,984	247	1.3%	592	3.1%
Site 10: M8 South of Mitchelstown	23,019	247	1.1%	592	2.6%

TABLE 5.3: IMPACT OF CONSTRUCTION TRAFFIC ON LOCAL ROADS

- 5.3.6 As seen in **Table 5.3** above, trip generation on the primary routes is cumulative, including 5 solar farm parcels and the Proposed Substation Development, all operating at average construction.
- 5.3.7 At peak, 3 portions of the site are operating at peak trip generation, while the 3 remaining portions are at average.
- 5.3.8 A notable proportional increase is recorded on the L1509 west of Hospital, where peak construction traffic would generate an additional 224 two-way daily trips (57.3%), reducing to 109 trips (27.9%) on an average day. Whilst more pronounced than on other parts of the network, these increases remain moderate in absolute terms.
- 5.3.9 Along the R513 corridor (North of Hospital, within Hospital, and South of Hospital), the proportional increases are consistent and relatively modest. Peak construction traffic would result in increases of 604 two-way daily trips (9.5%–10.7%), with average daily increases of 247 trips (4.0%–4.5%). Given the R513's characteristics as a strategic regional road, these changes are not considered material. Further details on road capacity are shown in **Table 5.4** and **Table 5.5**.
- 5.3.10 At other locations, including L1507 and the R516 west of Hospital, increases remain limited. On the L1507, peak construction traffic would result in an increase of 161 trips (19.5%), with an average increase of 46 trips (5.6%). On the R516, the corresponding increases are 161 trips (12.0%) at peak and 46 trips (3.4%) on average.
- 5.3.11 On the wider strategic network, including the N24 north of the R513 and the M8 east and south of Mitchelstown, the proportional increases are negligible. Peak construction traffic would generate

increases of 592 two-way daily trips, equating to 2.6%–3.1%, with average increases of 247 trips (1.1%–1.3%). These changes would not materially affect the operation of the strategic road network.

5.3.12 In general, the impact on the Regional and National road network is not considered significant. On the National routes (N24 and M8), the predicted increases are well below the TII guideline thresholds of 10% (normal conditions) and 5% (congested conditions), typically in the order of 1.5%–4.0%.

5.3.13 On the Regional network, including the R513 and R516, percentage increases are higher and, in some cases, exceed the 10% guideline threshold during peak construction activity. However, these increases represent relatively modest changes in absolute traffic flows, are temporary in nature, and would not materially affect the operation or capacity of the network. As such, the overall impact is not considered significant in the context of the TII “Traffic and Transport Assessment Guidelines”.

5.4 Road Link Capacity Assessment

Construction Phase

5.4.1 Capacity assessments for the local roads have been carried out based on the link capacity of rural roads as set out in TII Publications - TA 46/97, Rural Road Link Design April 2017 – Table 6.1, which is reproduced in **Figure 5.2**. It is acknowledged that the TA 46/97 was updated in May 2023. However, the updated document does not include Capacity based on AADT. Therefore, Table 6.1 from the April 2017 version has been used.

5.4.2 As shown in **Figure 5.2**, the minimum road specification is a Type 3 Single (6.0m) Carriageway, which has an Annual Average Daily Traffic (AADT) capacity of 5,000 vehicles.

5.4.3 The M8 is classified as a Motorway Divided 2 +2 Lanes with an AADT capacity of 52,000 vehicles per day.

5.4.4 The N24 is classified as a Type 1 single-carriageway road with a width of 7.5m. On this basis, it has a capacity of 11,600 AADT. However, it is known anecdotally that there is consistent queueing in the AM peak along this road entering Limerick City.

5.4.5 The R513 is taken as a Type 2 Single Carriageway with an average width of 7.0m. As such, the daily capacity is taken as 8,600 AADT.

5.4.6 The L1509 is classified as a Type 3 single-carriageway road with an average width of 4.5m, and there are instances where opposing traffic has to give way to each other. On this basis, the rural link road's capacity is reduced pro rata by 50%, resulting in an AADT estimate of 2,500 vehicles per day. This is considered a conservative estimate and would provide a baseline for a robust capacity assessment.

5.4.7 The R516 is taken as a Type 3 Single Carriageway with an average width of 5.0m. On this basis, the rural link road's capacity is reduced pro rata by 25%, resulting in an AADT estimate of 3,750 vehicles per day. This is considered a conservative estimate and would provide a baseline for a robust capacity assessment.

5.4.8 The L1507 is classified as a Type 3 single-carriageway road with an average width of 5.0m. Based on the average width, the rural link road's capacity is reduced pro rata by 25%, resulting in an AADT

estimate of 3,750 vehicles per day.

- 5.4.9 The L51309 is a cul-de-sac serving several properties and farmsteads. It is typically 3.0 m wide, and there are instances where opposing traffic has to give way to each other. On this basis, the rural link road capacity is reduced by 50% to account for the road width, and by another 50% to account for opposing traffic, yielding an AADT estimate of 1,250 vehicles per day.

Type of Road 1.	Capacity ² (AADT) for Level of Service D	Edge Treatment	Access Treatment	Junction Treatment at Minor Road	Junction Treatment at Major Road
Type 3 Single (6.0m) Carriageway (National Secondary Roads Only)	5,000	0.5m hard strip. Cycle Facilities Footways	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Simple Priority Junctions ⁵	Priority junctions, with ghost islands where necessary ⁵ or roundabouts.
Type 2 Single (7.0m) Carriageway	8,600	0.5m hard strips. Cycle Facilities Footways	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary ⁵ .	Priority junctions, with ghost islands ³ , compact grade separation where necessary.
Type 1 Single ⁴ (7.3m) Carriageway	11,600	2.5m hard shoulders	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary ⁵ .	Ghost islands ⁵ or roundabouts or, compact grade separation where necessary
Motorway Divided 2 +2 Lane ⁶ (2X7.0m)	52,000	2.5m hard shoulders	Motorway Regulations	No gaps in the central reserve.	Motorway standards Full-grade separation.

FIGURE 5.2: EXTRACT OF TII RURAL LINK DESIGN – TABLE 6.1

- 5.4.10 Based on the above, a capacity impact assessment for the public roads used for construction access is provided in **Table 5.4** and **Table 5.5**.
- 5.4.11 **Tables 5.4** and **5.5** indicate that the highest utilisation of capacity on the road network occurs on the R513 corridor (north of Hospital, within Hospital and south of Hospital). In the 2030 base scenario, these links operate at between 64.4% and 72.3% of capacity. With average construction traffic, this increases to 69.2%–75.6%, and up to 73.3%–79.6% during peak construction periods. Whilst this represents the highest level of utilisation within the study area, the roads would continue to operate within theoretical capacity, and the increases are temporary.
- 5.4.12 The L1509 west of Hospital experiences a more noticeable proportional change, increasing from 16.1% of capacity in the base scenario to 20.5% with average construction traffic and 25.1% during peak construction. Notwithstanding this uplift, the road would continue to operate well within its theoretical capacity.
- 5.4.13 In the base year, the R516 west of Hospital operates at 35.7%, increasing to 38.0% with average construction trips and then to 41.1% during peak construction activity. These results indicate that construction traffic would have a negligible effect on the operation of these routes.
- 5.4.14 On the L1507 at Millfarm, the network operates well within capacity. The L1507 increases from 22.0% in the base scenario to 23.9% (average construction) and 27.0% (peak construction).

Scenario	Site 1: R513 North of Hospital	Site 2: L1507 Millfarm	Site 3: R513 Within Hospital	Site 4: R516 West of Hospital	Site 5: L1509 West of Hospital
Capacity (AADT)	8,600	3,750	8,600	3,750	2,500
2030 Base (AADT)	6,220	826	6,067	1,339	403
2030 Volume / Capacity	72.3%	22.0%	70.5%	35.7%	16.1%
2030 + Average Construction Traffic (AADT)	6,467	898	6,502	1,427	512
Volume (2030 + Average) / Capacity	75.2%	23.9%	75.6%	38.0%	20.5%
2030 + Peak Construction Traffic (AADT)	6,812	1,013	6,847	1,542	627
Volume (2030 + Peak) / Capacity	79.2%	27.0%	79.6%	41.1%	25.1%

TABLE 5.4: CAPACITY ASSESSMENT OF SITES 1 TO 5

Scenario	Site 6: L51309 Southwest of Hospital	Site 7: R513 South of Hospital	Site 8: N24 North of R513	Site 9: M8 East of Mitchelsto wn	Site 10: M8 South of Mitchelsto wn
Capacity (AADT)	1,250	8,600	11,600	52,000	52,000
2030 Base (AADT)	38	5,537	19,480	18,984	23,019
2030 Volume / Capacity	3.0%	64.4%	167.9%	36.5%	44.3%
2030 + Average Construction Traffic (AADT)	85	5,955	20,329	19,818	23,978
Volume (2030 + Average Additional) / Capacity	6.8%	69.2%	175.3%	38.1%	46.1%
2030 + Peak Construction Traffic (AADT)	200	6,300	20,674	20,163	24,323
Volume (2030 + Peak) / Capacity	16.0%	73.3%	178.2%	38.8%	46.8%

TABLE 5.5: CAPACITY ASSESSMENT OF SITES 6 TO 10

5.4.15 The L51309 southwest of Hospital, despite experiencing the largest proportional increases in traffic, operates from a very low baseline and remains comfortably within capacity. The utilisation increases from 3.0% in the base scenario to 6.8% (average construction) and 16.0% (peak construction). As

such, there are no capacity concerns on this link.

- 5.4.16 On the wider network, including the N24 north of the R513 and the M8 east and south of Mitchelstown, the impact of construction traffic on capacity is negligible. The M8 operates between 36.5% and 44.3% of capacity in the base scenario, increasing marginally to 38.1%–46.1% (average construction) and 38.8%–46.8% (peak construction).
- 5.4.17 The N24 is shown to operate above theoretical capacity for Level of Service D in all scenarios with consistent queueing noted in peak hours; however, this reflects the conservative nature of the applied capacity assumptions for national roads.
- 5.4.18 The addition of construction traffic will be managed to avoid morning and evening peaks and will result in only a 3.1% increase in the overall traffic volume as a result of peak construction periods. As such, this is not considered a material impact.
- 5.4.19 Overall, all assessed links continue to operate within, or effectively within, their practical capacity. The temporary increases associated with the construction phase would not give rise to any material operational or capacity issues on the surrounding highway network.

Operation Phase

- 5.4.20 By their nature, the Proposed Development and the Proposed Substation Development do not generate much operational traffic, aside from maintenance and inspection visits. It is understood that these trips would amount to 1–2 visits per week, which would have a negligible impact on the capacity of the Regional and Local roads.

6.0 SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 This Traffic and Transport Assessment has been prepared to support a SID application to An Coimisiún Pleanála for a Proposed Substation Development, containing a proposed substation and BESS and all associated ancillary development. This has been assessed cumulatively with a Proposed Solar Farm Development, as part of the Overall Project.

6.1.2 This TTA has provided details of:

- Existing traffic flows along the adjacent road network.
- Proposed construction trip generation and assignment on the National, Regional and Local road networks.
- An impact assessment of construction traffic on the National, Regional and Local Road network. This is demonstrated to be not a material impact.
- A link capacity assessment using TII guidance, confirming that all affected roads would operate well within capacity during construction.
- Cumulative traffic has been assessed on the primary access routes, which include the R513, N24 and M8, and the secondary access route, includes the L1509.
- The greatest proportional increase in daily traffic occurs on the L51309 southwest of Hospital (an increase of 426.2% with peak construction traffic), although this reflects a very low baseline flow, and the road would still operate at only 16.0% of link capacity, with less than 4 vehicles per hour during average construction traffic and 13 during peak construction traffic.
- A further notable proportional increase occurs on the L1509 west of Hospital (an increase of 57.3% with peak construction traffic), with the road continuing to operate at just 25.1% of capacity, the increase equates to 9 vehicles per hour during average construction traffic and 18 during peak construction traffic.
- On the R513 corridor (north of Hospital, within Hospital, and south of Hospital), peak construction traffic would result in increases of approximately 9.5%–10.7%, with the road operating at up to 79.6% of capacity, which remains within acceptable limits.
- Impacts on higher-order routes, including the N24 north of the R513 and the M8 east and south of Mitchelstown, are negligible, with peak construction traffic increases of approximately 2.5%–3.1%, and capacity utilisation remaining below 50% on the M8.
- Operational traffic is just 1 – 2 trips per week and will not impact the National, Regional or Local Roads.

6.2 Conclusions

6.2.1 The assessment demonstrates that the Proposed Substation Development and Overall Project can be accommodated on the surrounding road network without creating capacity or safety issues. Even under conservative, worst-case assumptions for trip generation and routing, all National, Regional and Local roads would continue to operate well within their design capacities.

6.2.2 In percentage terms, some local roads experience moderate increases in traffic during peak

construction, but the absolute numbers are low, and the effects are short-term. On higher-volume Regional and National routes, changes are negligible.

- 6.2.3 Given the low level of operational traffic once the Overall Project is complete, no ongoing impacts on material transport are expected. The proposals are therefore considered acceptable in terms of traffic and transport.

APPENDIX A

2025 Traffic Survey Data



Project Reference:

251128 - East Limerick SF, Hospital, Limerick
ATC

UK	+44 (0)20 3883 7753
Ireland	+353 (0)44 931 8019
Belgium	+32 (0)334 606 35

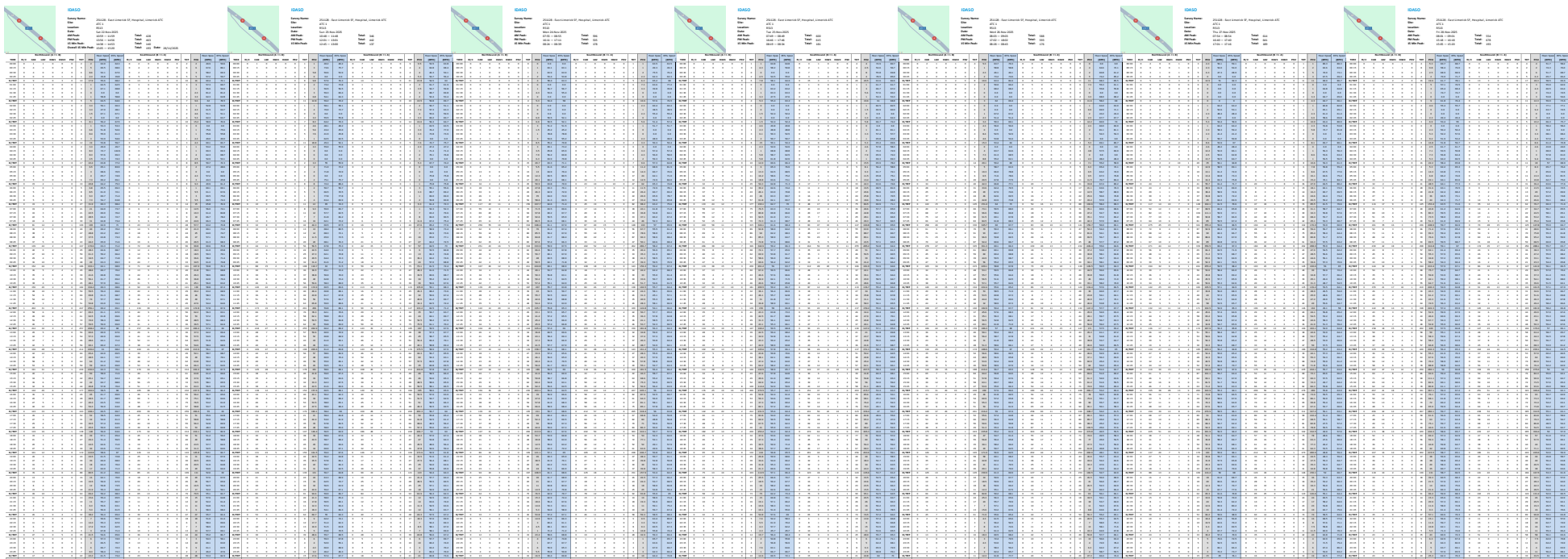
Website: idaso.co
info@idasoltd.com

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC

Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

ATC 2: For ATC 2, we've observed that few Cars are being misclassified as LGV's in B=>A movement. This typically happens because both vehicle types often have similar axle configurations and widths. Since the automatic counters primarily rely on axle spacing and width to classify vehicles, it becomes difficult for the system to distinguish between the two.







IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 1
Location: R513
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

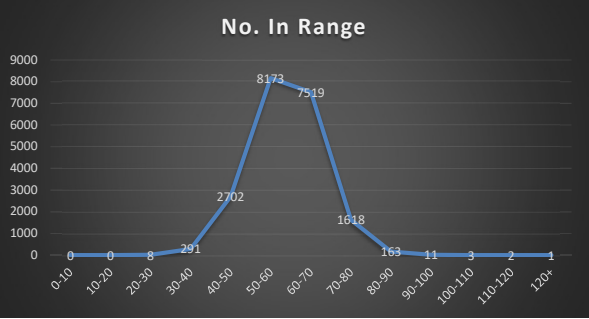
Speed Survey

Cummulative 85% Speed 66.2 KPH
Cummulative Minimum Speed 6.5 KPH
Cummulative Maximum Speed 146.2 KPH
Cummulative Average Speed 57.0 KPH

Northbound (A => B)

No. of Vehicles 20491
85% Speed 67.4 KPH
Minimum Speed 21.6 KPH
Maximum Speed 146.2 KPH
Average Speed 58.9 KPH

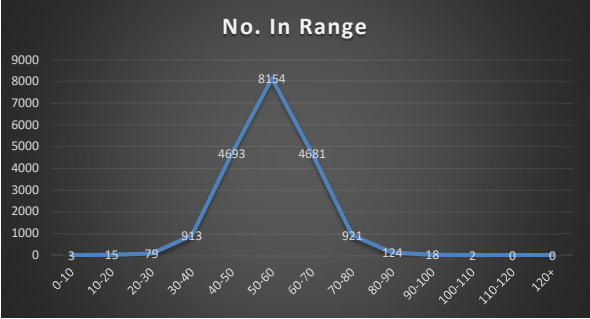
Speed KPH	No. In Range
0-10	0
10-20	0
20-30	8
30-40	291
40-50	2702
50-60	8173
60-70	7519
70-80	1618
80-90	163
90-100	11
100-110	3
110-120	2
120+	1



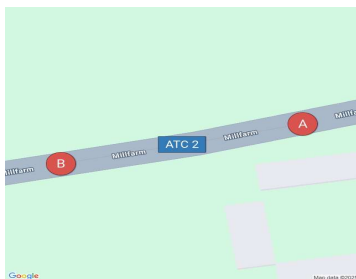
Southbound (B => A)

No. of Vehicles 19603
85% Speed 64.5 KPH
Minimum Speed 6.5 KPH
Maximum Speed 106.8 KPH
Average Speed 55.1 KPH

Speed KPH	No. In Range
0-10	3
10-20	15
20-30	79
30-40	913
40-50	4693
50-60	8154
60-70	4681
70-80	921
80-90	124
90-100	18
100-110	2
110-120	0
120+	0



[illegible]



IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 2
Location: Millfarm
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

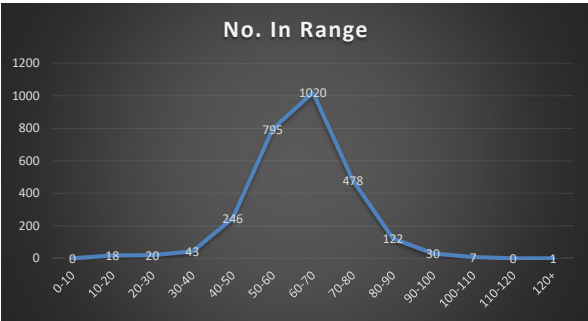
Speed Survey

Cummulative 85% Speed 73.7 KPH
Cummulative Minimum Speed 10.5 KPH
Cummulative Maximum Speed 121.4 KPH
Cummulative Average Speed 62.6 KPH

Westbound (A => B)

No. of Vehicles 2780
85% Speed 72.9 KPH
Minimum Speed 10.5 KPH
Maximum Speed 121.4 KPH
Average Speed 62.3 KPH

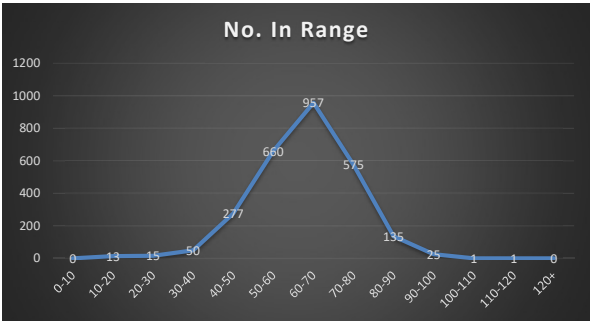
Speed KPH	No. In Range
0-10	0
10-20	18
20-30	20
30-40	43
40-50	246
50-60	795
60-70	1020
70-80	478
80-90	122
90-100	30
100-110	7
110-120	0
120+	1

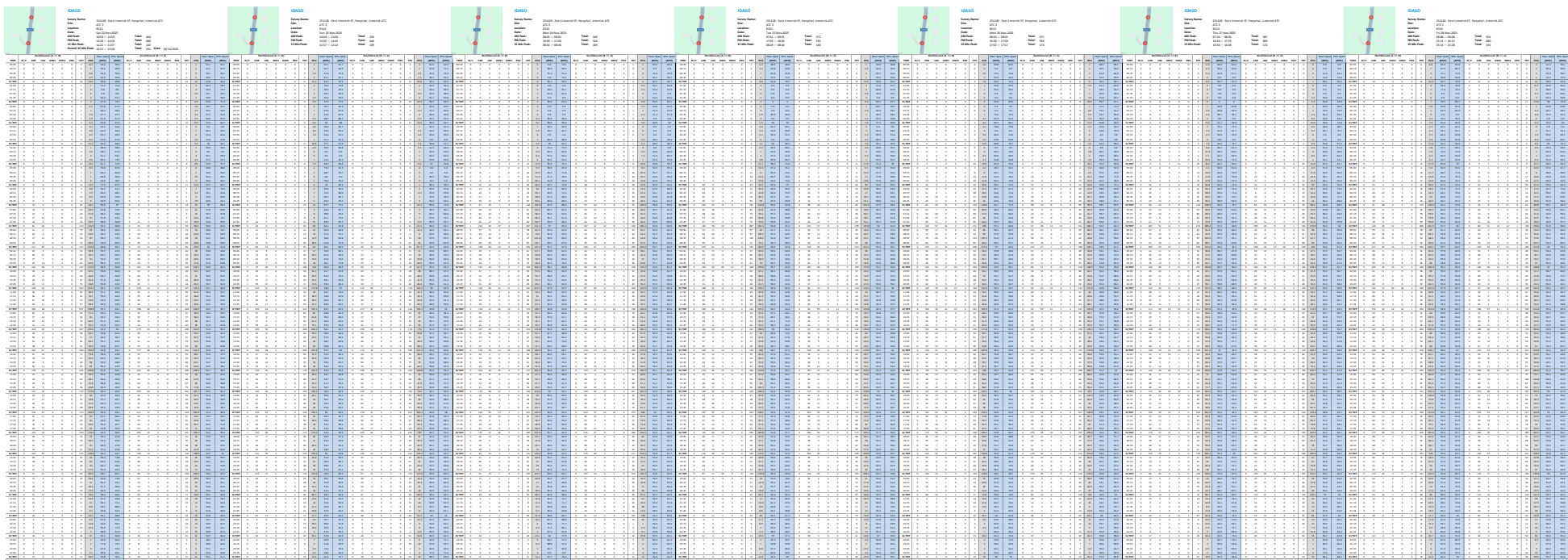


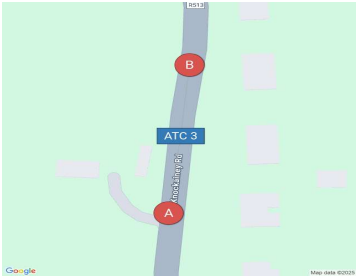
Eastbound (B => A)

No. of Vehicles 2709
85% Speed 74.4 KPH
Minimum Speed 13.3 KPH
Maximum Speed 117.7 KPH
Average Speed 62.9 KPH

Speed KPH	No. In Range
0-10	0
10-20	13
20-30	15
30-40	50
40-50	277
50-60	660
60-70	957
70-80	575
80-90	135
90-100	25
100-110	1
110-120	1
120+	0







IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 3
Location: R513
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

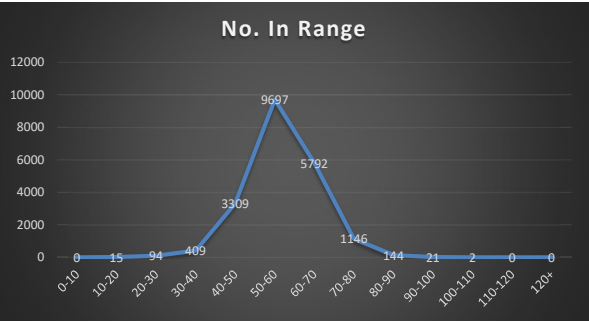
Speed Survey

Cummulative 85% Speed 63.3 KPH
Cummulative Minimum Speed 15.8 KPH
Cummulative Maximum Speed 106.1 KPH
Cummulative Average Speed 55.3 KPH

Northbound (A => B)

No. of Vehicles 20629
85% Speed 65.3 KPH
Minimum Speed 15.8 KPH
Maximum Speed 106.1 KPH
Average Speed 57.0 KPH

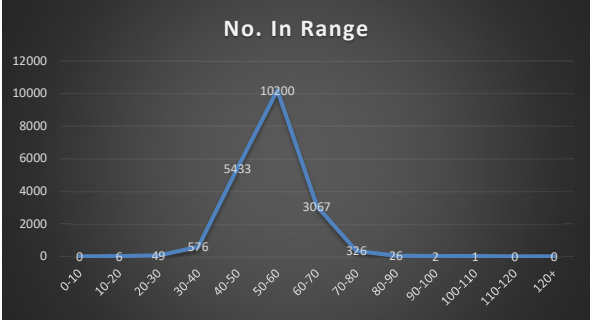
Speed KPH	No. In Range
0-10	0
10-20	15
20-30	94
30-40	409
40-50	3309
50-60	9697
60-70	5792
70-80	1146
80-90	144
90-100	21
100-110	2
110-120	0
120+	0

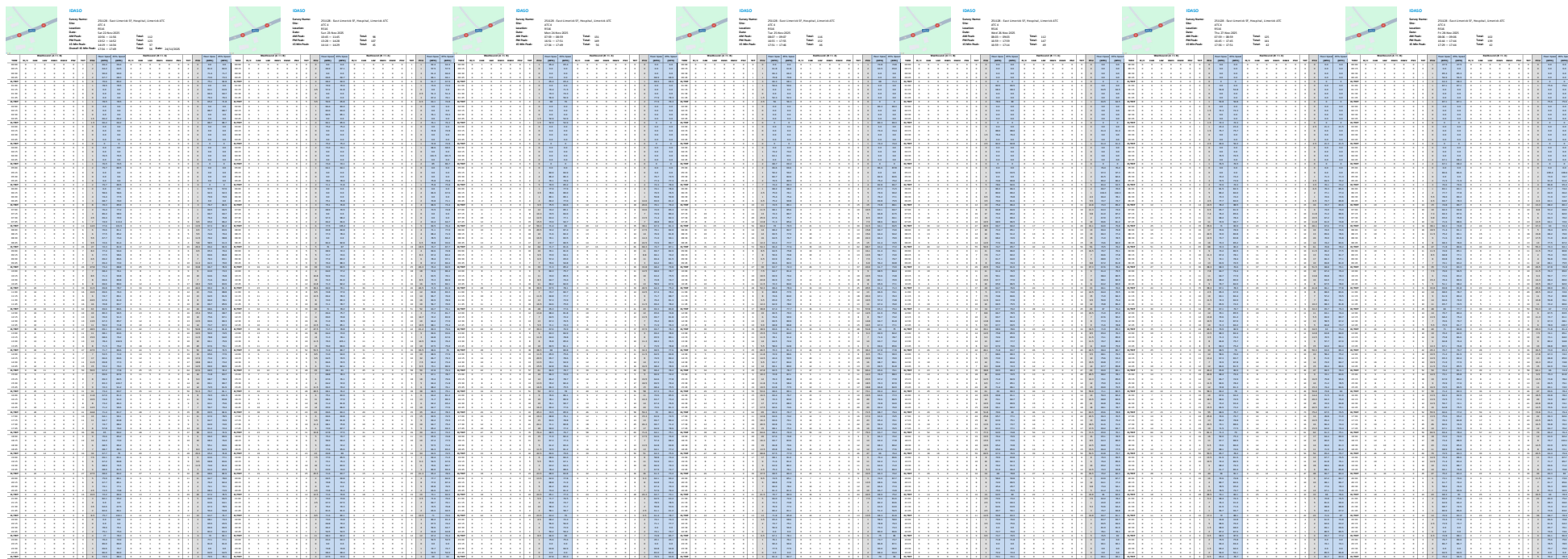


Southbound (B => A)

No. of Vehicles 19686
85% Speed 60.7 KPH
Minimum Speed 17.2 KPH
Maximum Speed 100.2 KPH
Average Speed 53.5 KPH

Speed KPH	No. In Range
0-10	0
10-20	6
20-30	49
30-40	576
40-50	5433
50-60	10200
60-70	3067
70-80	326
80-90	26
90-100	2
100-110	1
110-120	0
120+	0







IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 4
Location: R516
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

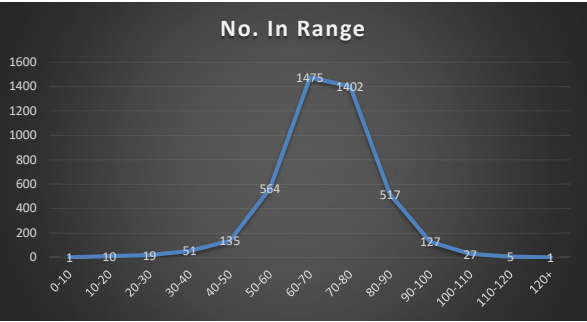
Speed Survey

Cumulative 85% Speed 79.5 KPH
 Cumulative Minimum Speed 8.6 KPH
 Cumulative Maximum Speed 127.2 KPH
 Cumulative Average Speed 68.4 KPH

Westbound (A => B)

No. of Vehicles 4334
 85% Speed 80.3 KPH
 Minimum Speed 9.5 KPH
 Maximum Speed 127.2 KPH
 Average Speed 69.3 KPH

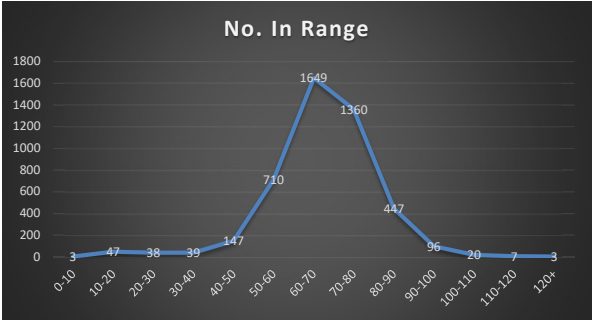
Speed KPH	No. In Range
0-10	1
10-20	10
20-30	19
30-40	51
40-50	135
50-60	564
60-70	1475
70-80	1402
80-90	517
90-100	127
100-110	27
110-120	5
120+	1



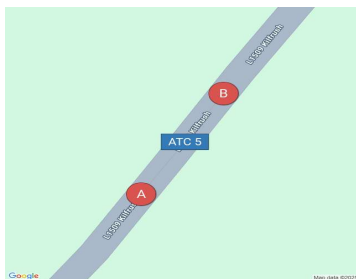
Eastbound (B => A)

No. of Vehicles 4566
 85% Speed 78.6 KPH
 Minimum Speed 8.6 KPH
 Maximum Speed 126.5 KPH
 Average Speed 67.5 KPH

Speed KPH	No. In Range
0-10	3
10-20	47
20-30	38
30-40	39
40-50	147
50-60	710
60-70	1649
70-80	1360
80-90	447
90-100	96
100-110	20
110-120	7
120+	3



The figure displays a 10x10 grid of 100 small plots, each showing the evolution of the number of particles in a system over time. The plots are arranged in a grid where the rows represent different initial conditions and the columns represent different parameter values. Each plot has a title indicating the initial condition (e.g., "Initial Condition: 1000 particles") and the parameter being varied (e.g., "Parameter: 0.5"). The x-axis represents time (0 to 100) and the y-axis represents the number of particles (0 to 1000). The plots show a general trend of decreasing particle count over time, with some plots showing a sharp initial drop followed by a slower decline, and others showing a more gradual decrease. The plots are color-coded by parameter value, with a color bar on the right side of the grid.



IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 5
Location: L1509
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

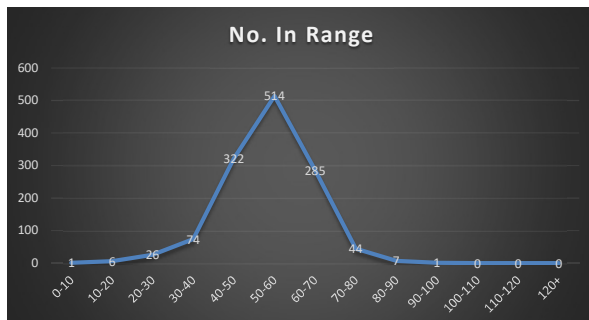
Speed Survey

Cummulative 85% Speed 63.4 KPH
 Cummulative Minimum Speed 9.4 KPH
 Cummulative Maximum Speed 92.2 KPH
 Cummulative Average Speed 53.3 KPH

Northbound (A => B)

No. of Vehicles 1280
 85% Speed 63.4 KPH
 Minimum Speed 9.4 KPH
 Maximum Speed 90.6 KPH
 Average Speed 53.6 KPH

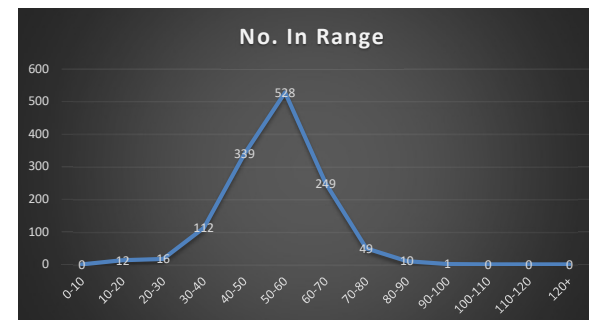
Speed KPH	No. In Range
0-10	1
10-20	6
20-30	26
30-40	74
40-50	322
50-60	514
60-70	285
70-80	44
80-90	7
90-100	1
100-110	0
110-120	0
120+	0



Southbound (B => A)

No. of Vehicles 1316
 85% Speed 63.3 KPH
 Minimum Speed 13.9 KPH
 Maximum Speed 92.2 KPH
 Average Speed 53.0 KPH

Speed KPH	No. In Range
0-10	0
10-20	12
20-30	16
30-40	112
40-50	339
50-60	528
60-70	249
70-80	49
80-90	10
90-100	1
100-110	0
110-120	0
120+	0



[illegible]



IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 6
Location: L51309
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

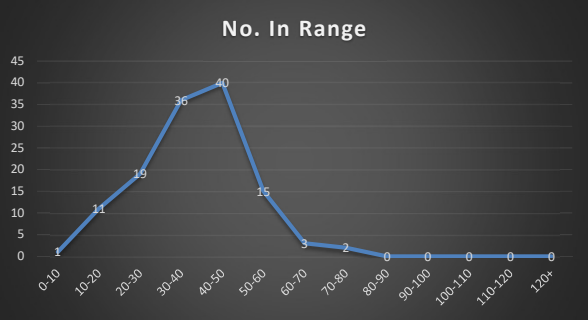
Speed Survey

Cummulative 85% Speed 47.7 KPH
Cummulative Minimum Speed 4.7 KPH
Cummulative Maximum Speed 77.4 KPH
Cummulative Average Speed 37.5 KPH

Westbound (A => B)

No. of Vehicles 127
85% Speed 50.1 KPH
Minimum Speed 8.8 KPH
Maximum Speed 77.4 KPH
Average Speed 37.9 KPH

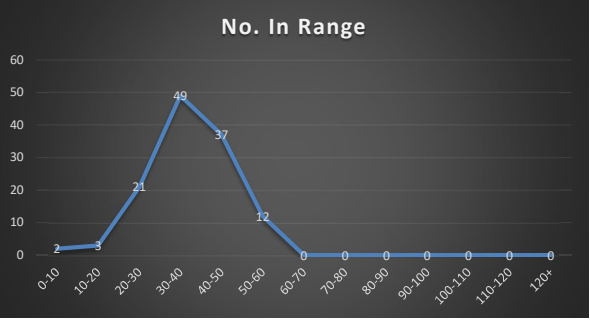
Speed KPH	No. In Range
0-10	1
10-20	11
20-30	19
30-40	36
40-50	40
50-60	15
60-70	3
70-80	2
80-90	0
90-100	0
100-110	0
110-120	0
120+	0



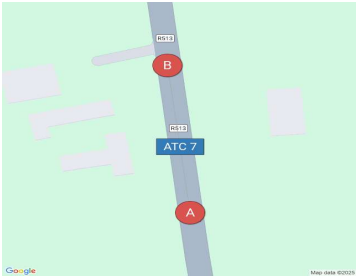
Eastbound (B => A)

No. of Vehicles 124
85% Speed 46.1 KPH
Minimum Speed 4.7 KPH
Maximum Speed 59.8 KPH
Average Speed 37.0 KPH

Speed KPH	No. In Range
0-10	2
10-20	3
20-30	21
30-40	49
40-50	37
50-60	12
60-70	0
70-80	0
80-90	0
90-100	0
100-110	0
110-120	0
120+	0



[illegible]



IDASO

Survey Name: 251128 - East Limerick SF, Hospital, Limerick ATC
Site: ATC 7
Location: R513
Date: Sat 22 Nov 2025 — Fri 28 Nov 2025

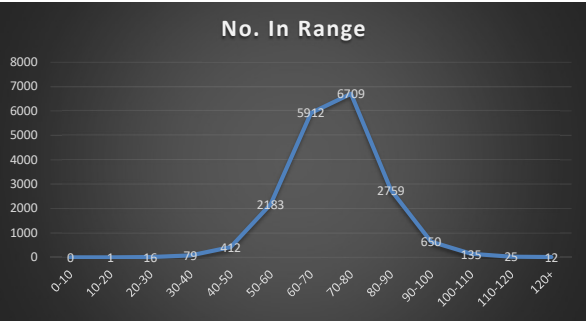
Speed Survey

Cummulative 85% Speed 81.0 KPH
Cummulative Minimum Speed 19.1 KPH
Cummulative Maximum Speed 153.0 KPH
Cummulative Average Speed 71.0 KPH

Northbound (A => B)

No. of Vehicles 18893
85% Speed 81.6 KPH
Minimum Speed 19.1 KPH
Maximum Speed 153.0 KPH
Average Speed 71.1 KPH

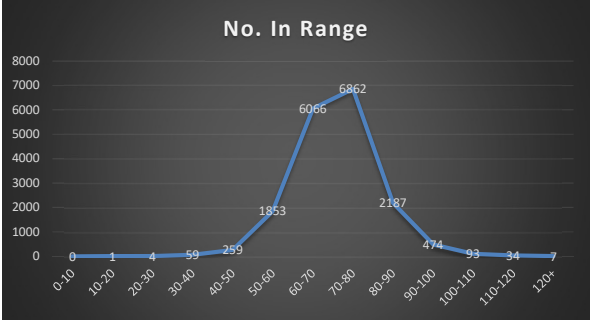
Speed KPH	No. In Range
0-10	0
10-20	1
20-30	16
30-40	79
40-50	412
50-60	2183
60-70	5912
70-80	6709
80-90	2759
90-100	650
100-110	135
110-120	25
120+	12



Southbound (B => A)

No. of Vehicles 17899
85% Speed 80.3 KPH
Minimum Speed 19.4 KPH
Maximum Speed 129.6 KPH
Average Speed 71.0 KPH

Speed KPH	No. In Range
0-10	0
10-20	1
20-30	4
30-40	59
40-50	259
50-60	1853
60-70	6066
70-80	6862
80-90	2187
90-100	474
100-110	93
110-120	34
120+	7



APPENDIX B

Trip Generation Calculations

Project Hospital SF, Limerick
m2 of panels ---
Size of panel (sq m) 2.6
No of panels 315,504
Duration of Works 78 weeks

Solar Farm Related Trips			
Deliveries to site		Details	
Solar Panels	Container size	40	ft
	No per Container	297	
	No of Containers	1063	
	Number of HGV	1063	
	Number of HGV movements	2126	
Frames for solar panels	Approx 60 Panels per T of steel	60	Based on review of planning drawings
	Tonnes of steel required for project	5,258	
	Tonnes of steel delivered per lorry	20	Estimated assuming formed steel and volume maxes out rather than weight
	No of HGV	263	
	Number of HGV movements	526	Two movements per delivery
Foundations for Frames	Total Panels	315,504	
	Percentage of Foundations Piled	69%	
	Number of Piled Panels	217,277	
	Number of Panels per Pile (six)	6	
	Total Number of Piles	36,213	
	Weight per Pile (25kg)	25	kg
	Total Weight of Piles	905,321	kg
	Allow 10% wastage	10%	
	Total Piles (kg)	995,853	kg
	Total Piles (tonnes)	996	tonnes
	Tonnes per delivery	20	tonnes
	No of HGV for Piles	50	
	Percentage of Panels on Ballast Foundation	31%	
	Number of Panels on Ballast Foundations	98,227	
	Number of Panels per Ballast (12)	12	
	Total number of Ballasts	8,186	
	Weight per Ballast (3.6t)	3.6	tonnes
	Number per delivery (5No.)	10	
	No of HGV for Ballast Foundations	819	
	Gravel Under Ballast (0.675t per ballast)	0.675	tonnes
	Total Gravel for Ballast	5,526	tonnes
	Tonnes per delivery	20	tonnes
	No of HGV for Gravel	277	
	No of HGV for Foundations	1,146	
	Number of HGV movements	2,292	
LV Cables	Quantity required per solar panel (m)	2	Estimated from Drawings
	Quantity required for project (m)	631,008	
	m of cable per 20 foot container	120,000	https://midsummerwholesale.co.uk/pdfs/datasheet-1x10mm2-solar-cable-shanghai-kuka.pdf
	No of HGV	6	
	Number of HGV movements	12	
Construction Compound x1	Compound area	14700	m^2
	Tonnes gravel per m square	0.375	tonnes
	Tonnes gravel for compound	5512.5	tonnes
	Tonnes per delivery	20	tonnes
	Number of deliveries for gravel	276	
	Office and Welfare Units	2	
	Number of HGV for welfare units	2	
	Number of deliveries	278	
	Number of HGV movements	556	
Electrical Skids (6 Compounds)	Hardstandings required for parcel	29	3no. for each of 18 no. hardstandings.
	Skids required for parcel	87	
	HGV for skids		
	Gravel & Ancillaries for Compound	116	20x15m each. 150mm gravel = 45m3 = 67.5T = 4 HGV's.
	Number of HGV	203	
	Number of HGV movements	406	
MV Cables - 2 Circuit Cable Trench	Quantity require for parcel (m)	9646	m
	Gravel Bedding for Cable Circuit Trench	0.44	tonnes/m
	No of tonnes required	4,244	tonnes
	Tonnes per delivery	20	tonnes
	No of HGV for Gravel Bedding	213	
	Number of cables	10	
	Total Length of Cable	96460	m
	No of Drums @ 500m per cable drum	192.92	
	No of Drums per HGV	10	
	No of HGV for Cable Drums	20	
	Cable Ducting per Trench	10	
	Length of Ducting Required	96460	
	Allow 10% wastage	10%	
	Total Ducting length	106106	m
	Length of single duct (6m per duct)	6	m
	Total Ducts	17685	
	Ducts per HGV	376	
	No of HGV for Ducts	48	
	Total No of HGV for 2 Circuit Cable Trench	281	
	Number of HGV movements	562	

MV Cables - 1 Circuit Cable Trench	Quantity required for parcel (m)	102057	m
	Gravel Bedding for Cable Circuit Trench	0.27	tonnes/m
	No of tonnes required	27,555	tonnes
	Tonnes per delivery	20	tonnes
	No of HGV for Gravel Bedding	1,378	
	number of cables	5	
	Total Length of Cable	510285	m
	No of Drums @ 500m per cable drum	1020.57	
	No of Drums per HGV	10	
	No of HGV for Cable Drums	103	
	Cable Ducting per Trench	5	
	Length of Ducting Required	510285	
	Allow 10% wastage	10%	
	Total Ducting length	561314	m
	Length of single duct (6m per duct)	6	m
	Total Ducts	93553	
	Ducts per HGV	376	
	No of HGV for Ducts	249	
	Total No of HGV for 1 Circuit Cable Trench	1,730	
	Number of HGV movements	3,460	
Ancillary Telecoms Cables	Total Length (m)	2500	Based on Planning Drawings
	Trench Gravel volume (m3 per metre length)	0.180	0.6m x 0.33 x 1.0 (less ducts) = 0.18m3 per metre
	Gravel weight (1.5t per m3)	0.270	
	Total Gravel for Telecoms trench (t)	675	
	Tonnes per delivery	20	
	<i>No of HGV for Gravel Telecoms Trench</i>	<i>34</i>	
	Cable Ducting per Trench	2	2No 110m diameter ducts per trench
	Length of Ducting Required	5000	
	Allow 10% wastage	10%	
	Total Ducting	5500	
	Ducting (6m per duct)	6	
	Total Ducts	917	
	Ducts per HGV (188 Ducts)	188	94 Ducts per pallet and 2 pallets per lorry
	<i>No of HGV for Ducts</i>	<i>5</i>	
	No of HGV	39	
	Number of HGV movements	78	
Gravel for access tracks	Estimate access track length	10031.1	3.5m wide track @ average 200mm gravel
	Tonnes gravel per m of access track	1.05	3.5x0.15=0.7m3 / m @ 1.5T /m3 = 1.05T / m
	No of tonnes required	10532.7	
	Plus 10% for ancillaries	11585.9	
	Tonnes per delivery	20	
	Number of deliveries	580	
	Number of HGV movements	1160	
Perimeter Fence	Meters of perimeter fence	22,525	
	Distance between stakes (m)	4	
	No of stakes	5,632	
	No per delivery	500	
	<i>No of HGV for Stakes</i>	<i>12</i>	
	Length of role of wire (m)	50	https://www.jrbreach.com/?q=node/4
	Roles of wire	2	Roles are 1m high. 2 no. required per m of perimeter fence @ 2m high
	Weight per roll of wire (Kg)	50	https://www.jrbreach.com/?q=node/4
	Rolls per delivery	200	
	<i>No of HGV for Wire</i>	<i>4</i>	
	No of HGV	16	
	Number of HGV movements	32	
Equipment to work on site	Required at any one time		No required at any one time
	Diggers	42	
	Piling machine for foundations	42	Diggers 3 no. assumed
	Dumper	12	Piling machine 2 no. assumed
	Crane/teleporter for skids	12	Crane/teleporter 1no. assumed
	No of HGV	108	
	Number of HGV movements	216	
Other items not included above	Estimated additional deliveries per week	2	
	For duration of project	156	
	Number of HGV movements	312	
Total HGV Deliveries			
	Total No of HGV movements for site deliveries	8,350	
	Average HGV movements per working day	21	
	Peak HGV movements per working day (Refer to TTS)	56	
Staff on site	Max at any one time	49	
	Average at any one time	11	
	Average people per car/van	2	
	Number of car/van movements per day (max)	49	
	Incidental movements per day (max)	62	Trips for lunch, tools, other supplies etc.
	Number of car/van movements per day (avg)	11	
	Incidental movements per day (avg)	14	
Total Number of car/van movements (max)			
	Max car/van movements per working day	111	
	Average car/van movements per working day	25	

Project	Hospital SF, Limerick		Source
Size of Substation	110KV Loop in - Loop Out		From planning application
Duration of Works	78 weeks		From planning application

Deliveries to site		Source		
SubStation Related Trips				
MV Cables - 6 Circuit Cable Trench	Quantity require for project (m)	1776	From Planning Drawings	
	Gravel Bedding for Cable Circuit Trench	1.35	Depth 0.33m, Average Width 3.4m, less ducts = 0.9m3 per/m @1.5t p/m = 1.35t/m	
	No of tonnes required	2,398		
	Tonnes per delivery	20		
	No of HGV for Gravel Bedding	120		
	Dispose Excavate Material (same as imported gravel)	120		
	MV Cable per metre	18	3No. Cables per Circuit x 6 Circuits	
	Total Length of Cable	31968		
	No of Drums @ 500m per cable drum	64		
	No of Drums per HGV	5		
	No of HGV for Cable Drums	13		
	Cable Ducting per Trench (4No 110m diameter ducts per circuit)	24		
	Length of Ducting Required	42624		
	Allow 10% wastage	10%		
	Total Ducting	46886		
	Ducting (6m per duct)	6		
	Total Ducts	7814		
	Ducts per HGV (188 Ducts)	188	94 Ducts per pallet and 2 pallets per lorry	
	No of HGV for Ducts	42		
	4 No Joint Boxes	8	2 HGVs per box	
	Total No of HGV for 6 Circuit Cable Trench	289		
	Number of HGV movements	579		
	Compound Hardstanding	No of HGVs	136	From Similar Scheme - Clondardis 110KV Substation
	Foundations	No of HGVs	50	
	Drainage and Wastewater	No of HGVs	10	From Similar Scheme - Clondardis 110KV Substation
	Excavated Material	No of HGVs	35	
	Substation Building Materials	No of HGVs	150	From Similar Scheme - Clondardis 110KV Substation
	Access Road	No of HGVs	18	
	Structures and boundaries	No of HGVs	20	From Similar Scheme - Clondardis 110KV Substation
	Abnormal Load	No of HGVs	1	
	Electrical Plant and Equipment	No of HGVs	40	From Similar Scheme - Clondardis 110KV Substation
	Overhead Cable Work	No of HGVs	10	From Similar Scheme - Clondardis 110KV Substation
		Total No of HGV for Substation Construction	470	
	Number of HGV movements	941		
Total No of HGV movements for Sub-Station MV Cable		941		
Average per working day (based on 72 weeks x 5 day working week)		2		
Peak per working day (based on deliveries for Access road and Hardstanding)		50		
Staff on site	Max Number at any one time	35	Trips for lunch, tools, other supplies etc.	
	Average no at any time	14		
	Average no of people in each car / van	2		
	No of car/van commuting movements on per day	5		
	Max Incidental car/van journeys per day	30		
	Average Incidental car/van journeys per day	14		
	Max Car/Van Journeys per Day	65		
	Total Car/Van journeys per day	28		
	Max Journeys per Week	325		
	Average Journeys per week	140		
Average Trips per working day (based on 5 day working week)		28		
Max Trips per working day (based on 5 day working week)		65		

Project Hospital SF, Limerick
Element Battery Energy Sotrage System
Duration of Works 52 weeks
From planning application
From planning application

Deliveries to site		Source		
BESS Related Trips				
MV Cables - 6 Circuit Cable Trench	Quantity require for project (m)	1776	From Planning Drawings	
	Gravel Bedding for Cable Circuit Trench	1.35	Depth 0.33m, Average Width 3.4m, less ducts = 0.9m ³ per/m @1.5t p/m = 1.35t/m	
	No of tonnes required	2,398		
	Tonnes per delivery	20		
	No of HGV for Gravel Bedding	120		
	No of HGV for Cable Drums	7		
	Cable Ducting per Trench (4No 110m diameter ducts per circuit)	24		
	Length of Ducting Required	24000		
	Allow 10% wastage	10%		
	Total Ducting	26400		
	Ducting (6m per duct)	6		
	Total Ducts	4400		
	Ducts per HGV (188 Ducts)	188	94 Ducts per pallet and 2 pallets per lorry	
	No of HGV for Ducts	23		
	1 No Joint Boxes	2	2 HGVs per box	
	Total No of HGV for 6 Circuit Cable Trench	106		
	Number of HGV movements	213		
		Bess Hardstanding	10	Based on 425m ² of hardstanding, 300mm gravel, 0.45T/m ² , 191T @ 20T / delivery
		Concrete for Battery Modules	210	234m ² *0.2 depth*36 = 1685m ³ concrete for slabs below battery modules, @8m ³ per delivery
		Access Roads	37	Access road = 700m length, 5m wide on avg, 770 T, 20T per HGV
Excavated Material		45	Based on Excavated material from Hardstanding and Access Roads, 20% unusable	
Drainage and Wastewater		10	Estimated from site layout	
Control Room Buildings		10	Estimated from site layout	
Batteries / Inverters (Artic)		198	Based on (36*4=144) batteries, 1 MV Skid (36) and 2 inverter each (72/4=18)	
Electrical Plant and Equipment		40	Estimated from site layout	
Plant & Machinery			On site from Substation works	
Overhead Cable Work		10	Estimated from site layout	
Total No of HGV for BESS Construction		372		
No of Artics for BESS Construction		198		
Number of HGV movements		744		
No of Artics Movements		396		
Total No of HGV movements for Bess Station Including Artics		1,353		
Average per working day (based on 72 weeks x 5 day working week)		5		
Peak per working day (based on deliveries for Access road and Hardstanding for 4 weeks)		50		
Staff on site	Max Number at any one time	35		
	Average Number at any one time	14		
	Average no of people in each car / van	2		
	Max. No of car/van commuting movements on per day	35		
	Average No of car/van commuting movements on per day	14		
	Incidental car/van journeys per day (Max)	30	Trips for lunch, tools, other supplies etc.	
	Incidental car/van journeys per day (Average)	14		
	Max. Car/Van journeys per day	65		
	Average Car/Van journeys per day	28		
	Max. Journeys per week	325		
	Average Trips per working day (based on 5 day working week)		28	
	Max. Trips per working day (based on 5 day working week)		65	

APPENDIX C

Traffic Flow Diagrams

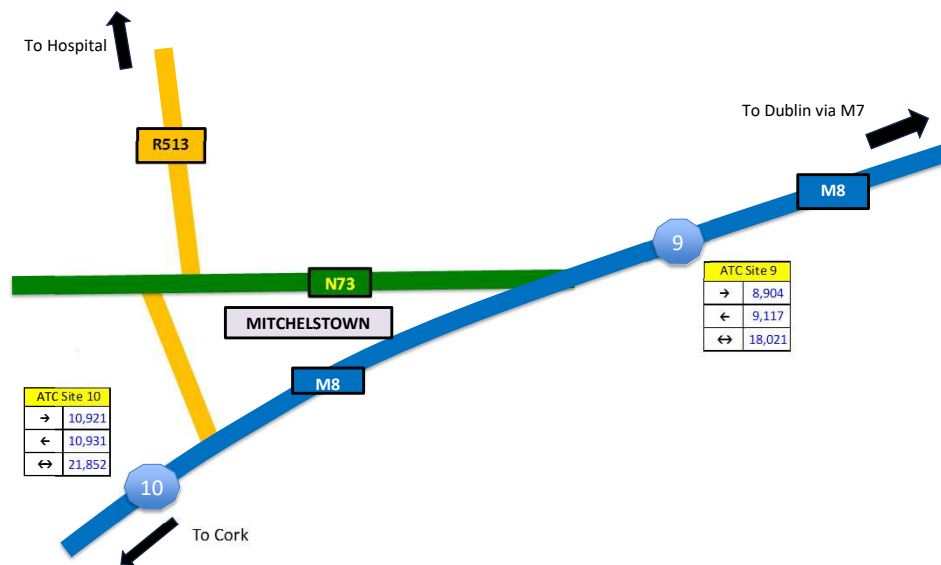
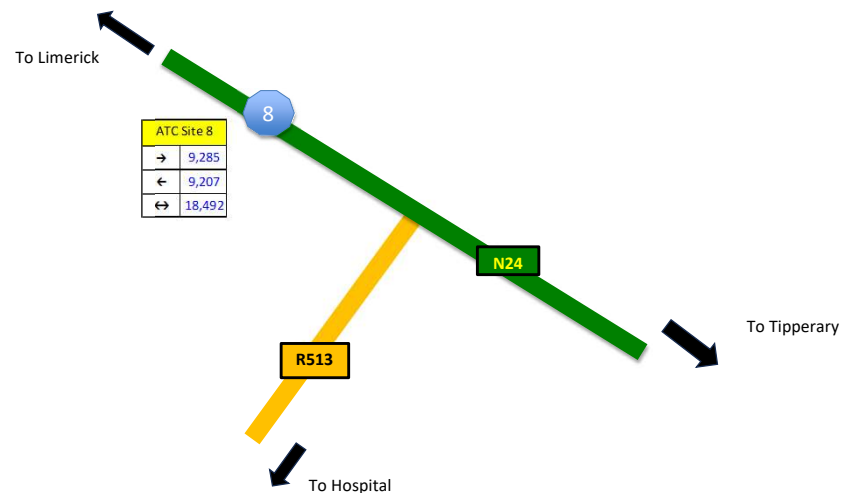
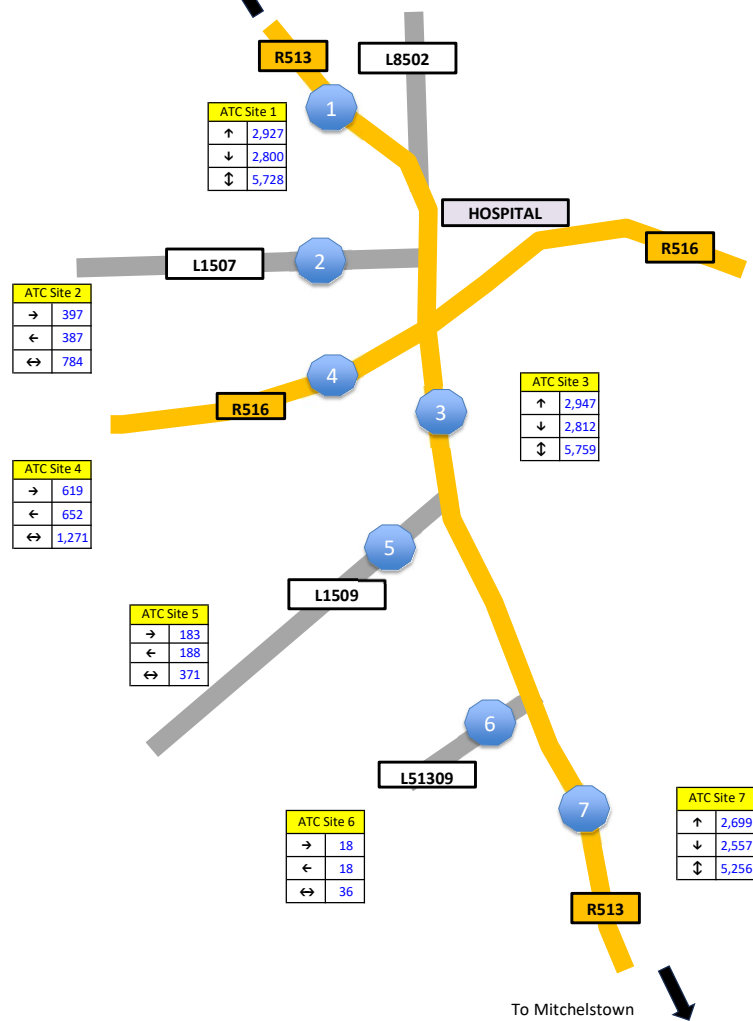
KEY

→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)

To Limerick via N63



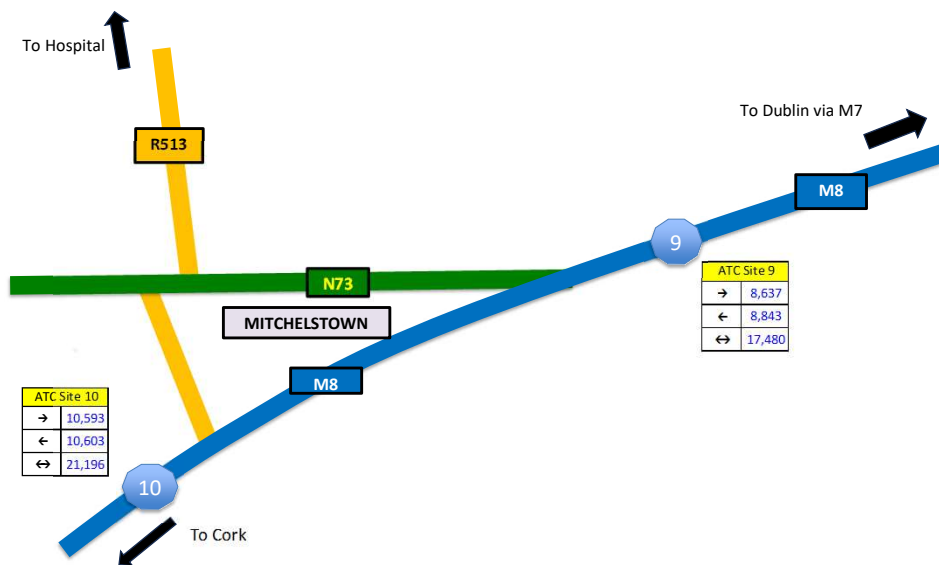
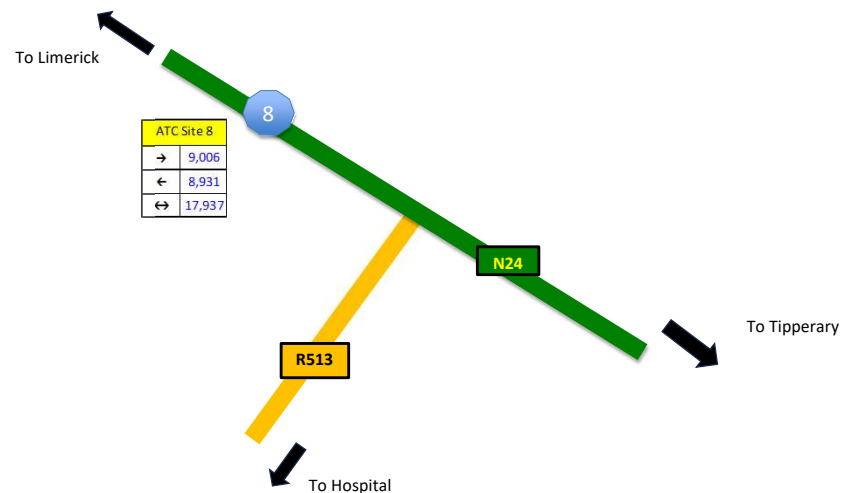
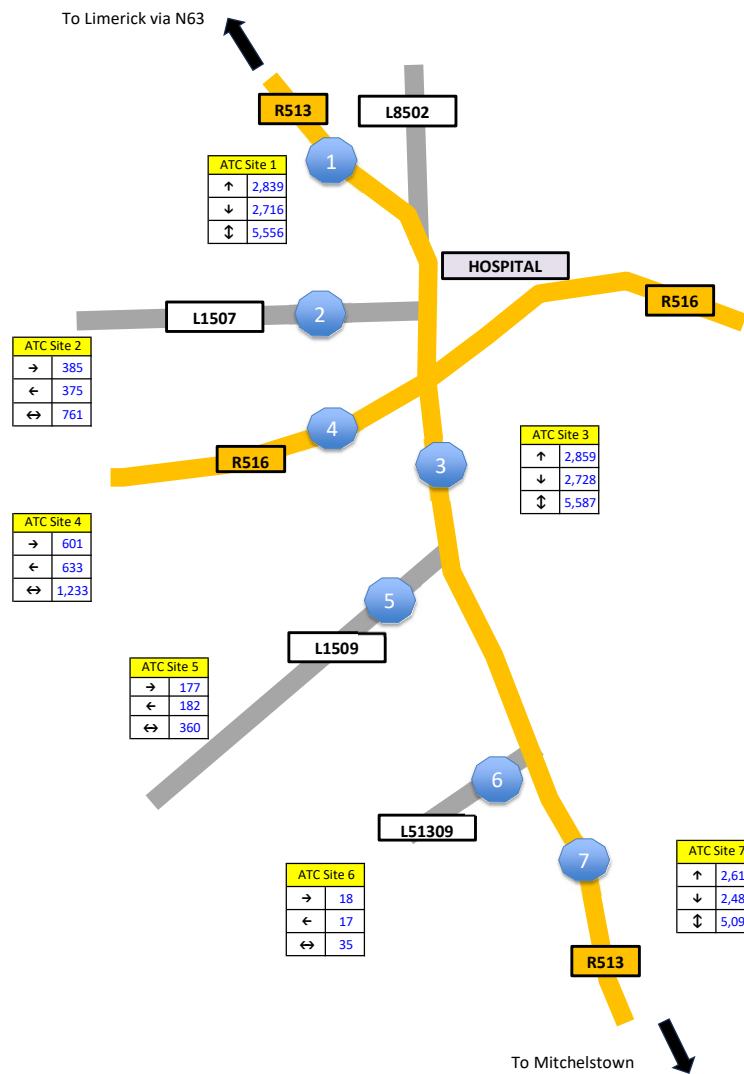
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→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)

WADT to AADT Factor (Co. Limerick, November): 0.97



KEY

→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)

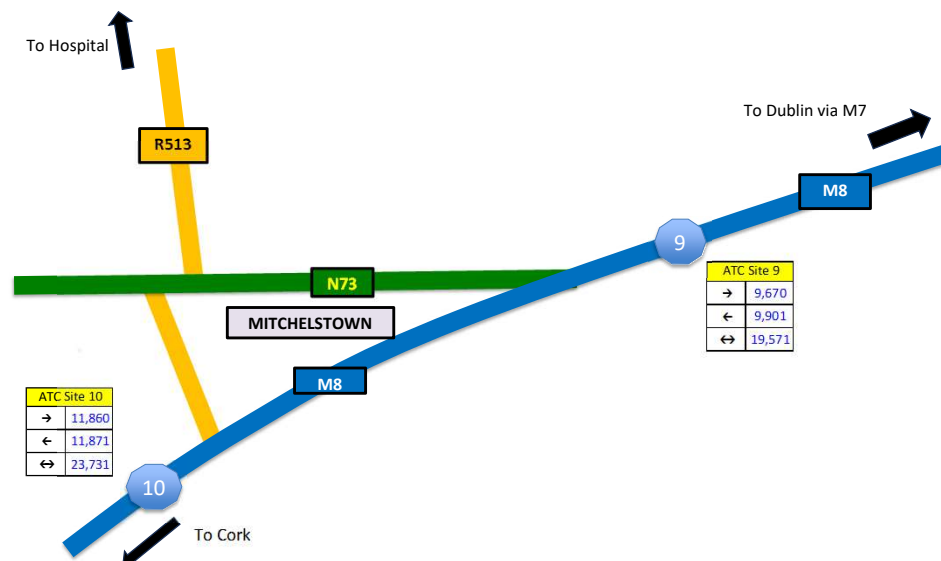
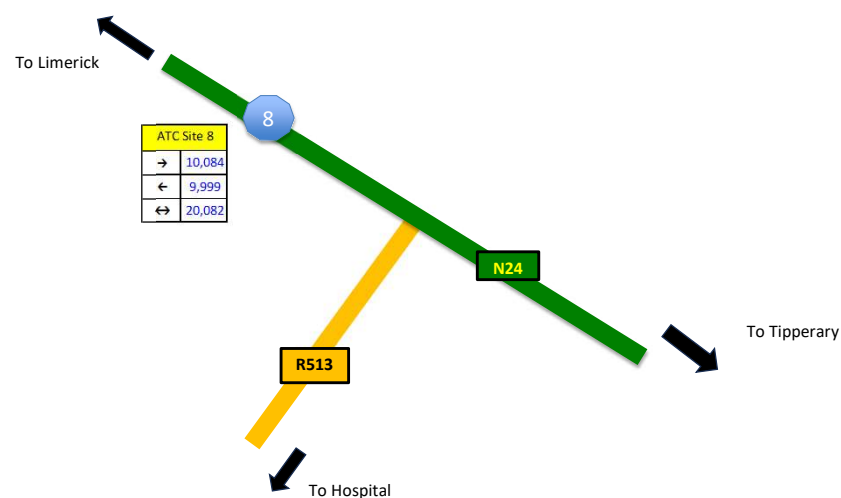
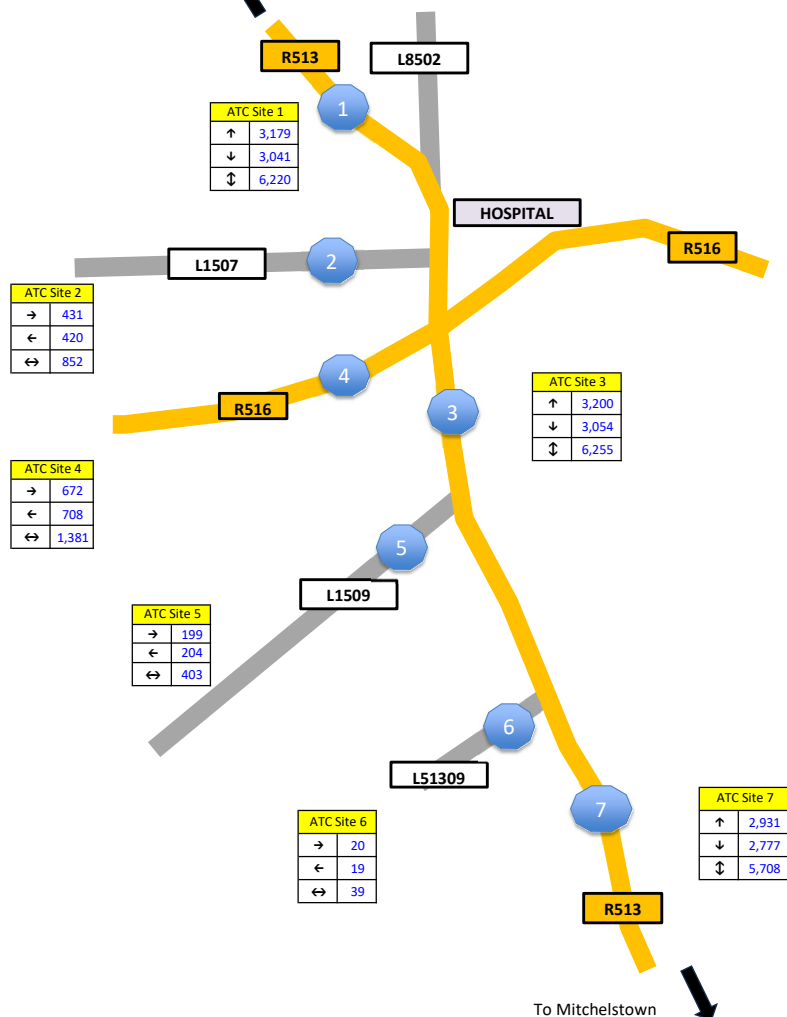
Central Growth From 2025 Base Data

1.0215	Annual 2016 to 2030	Total Years 4
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Calculated Growth

2025 to 2029 1.0860

To Limerick via N63

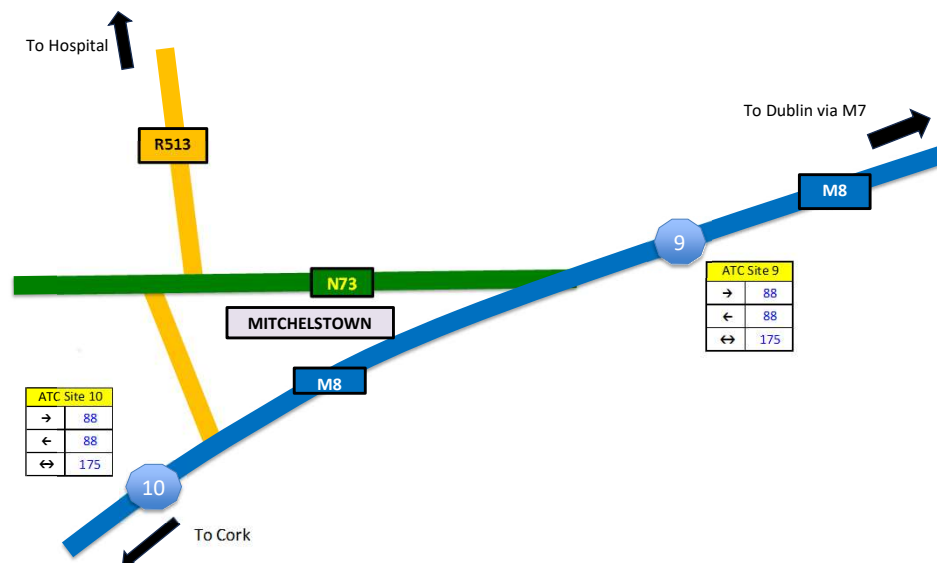
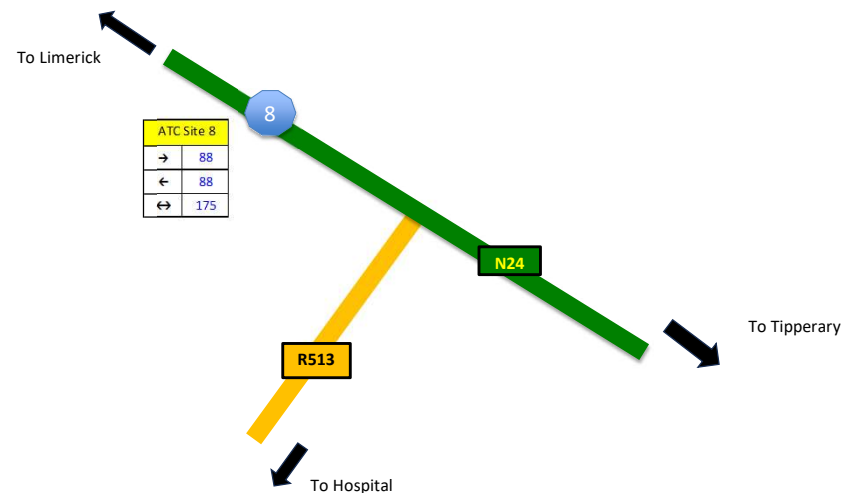
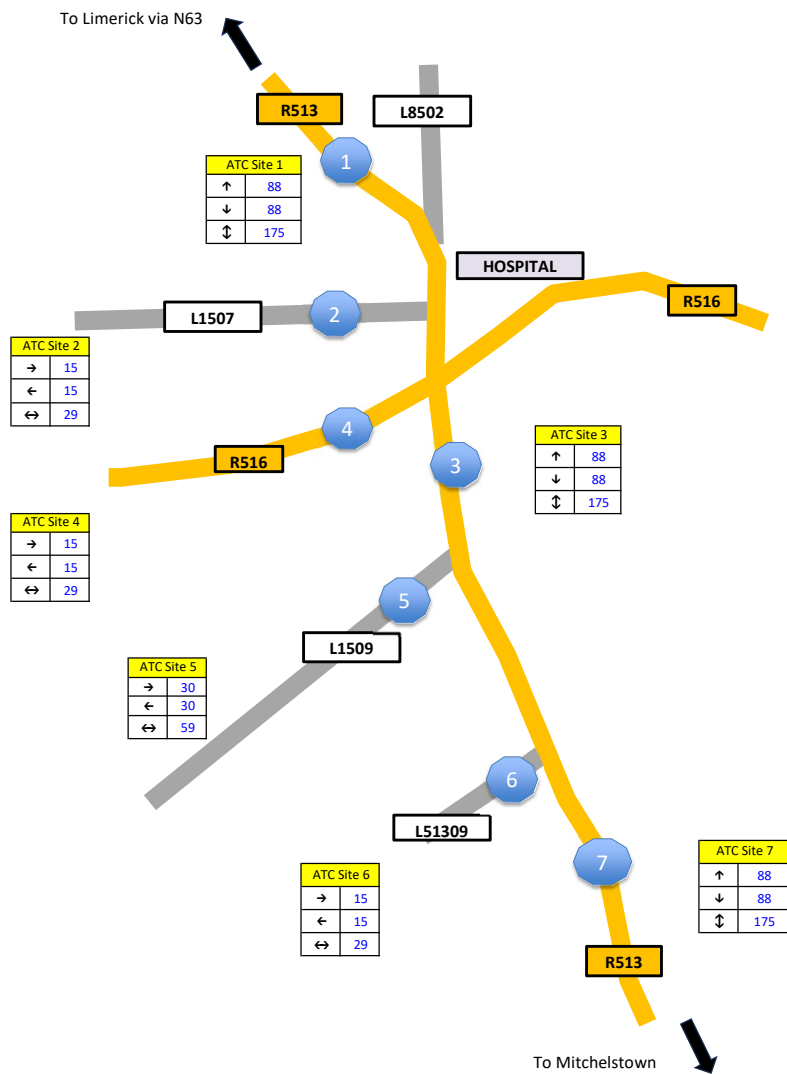


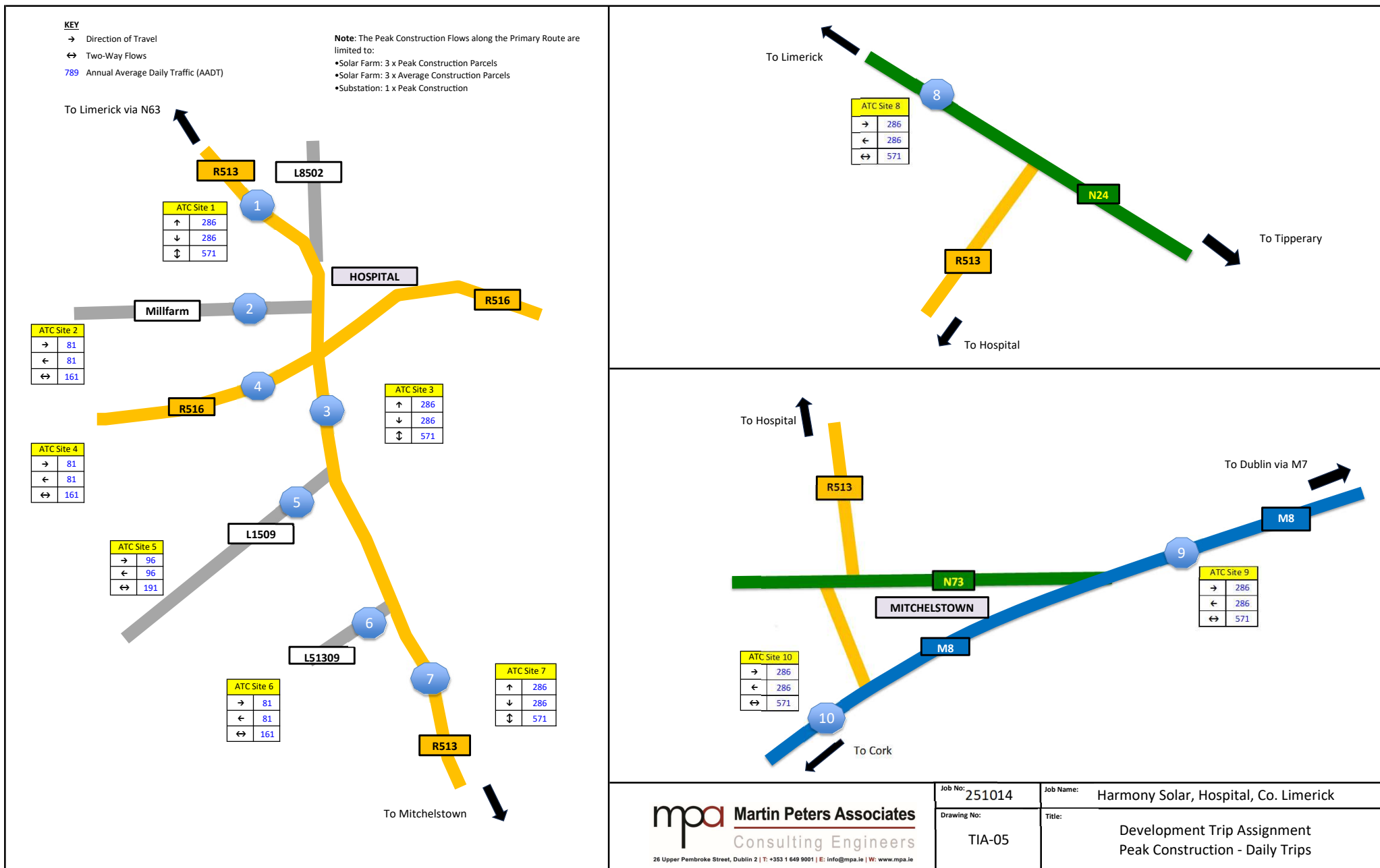
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→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)



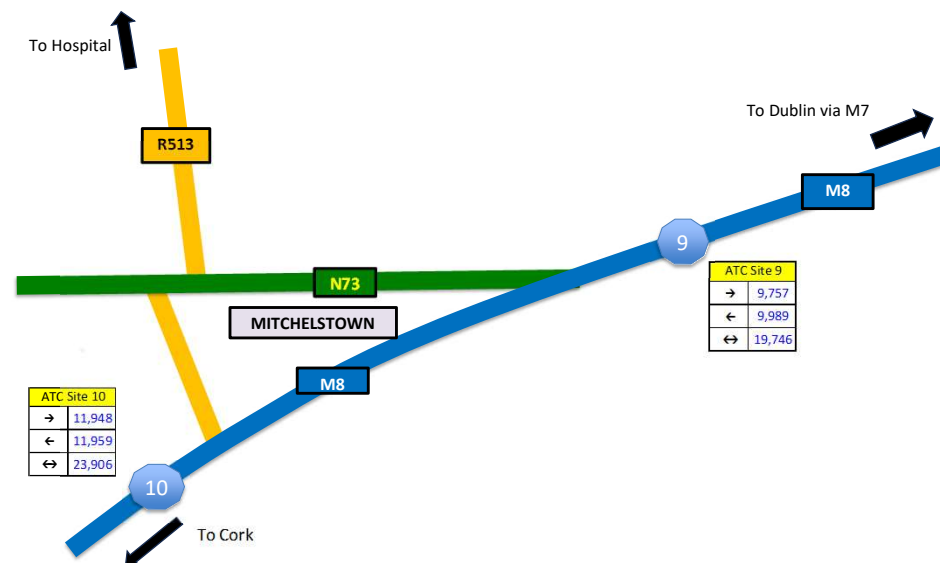
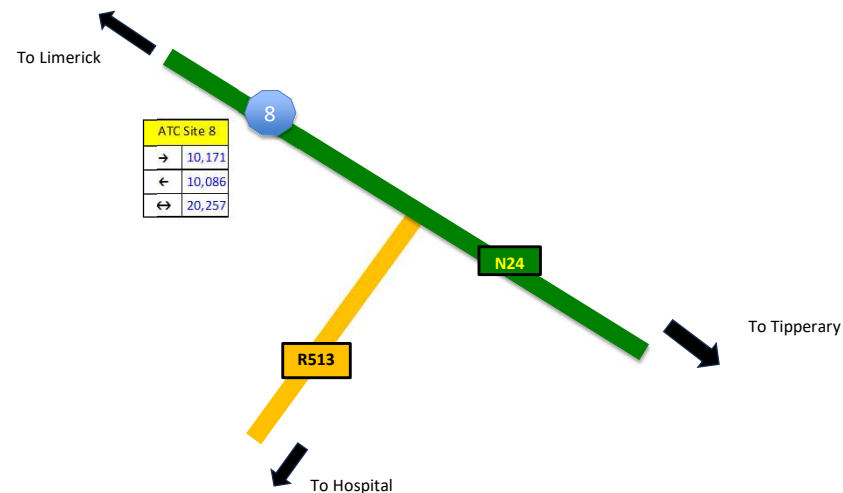
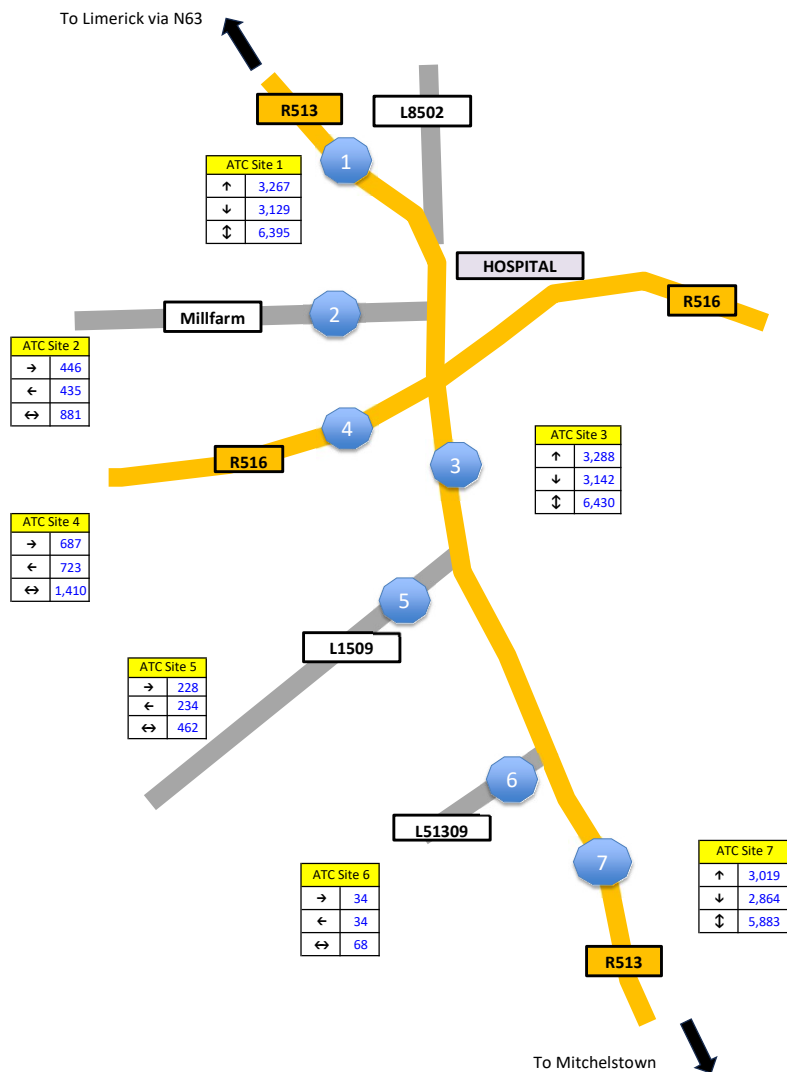


KEY

→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)



KEY

→ Direction of Travel

↔ Two-Way Flows

789 Annual Average Daily Traffic (AADT)

Note: The Peak Construction Flows along the Primary Route are limited to:

- Solar Farm: 3 x Peak Construction Parcels
- Solar Farm: 3 x Average Construction Parcels
- Substation: 1 x Peak Construction

