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Traffic Impact Assessment Navan Town Scheme – Navan 2030 N51 Park and Ride Facility



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1. Introduction

1.1 Project Overview

This report has been prepared as part of the planning application for the proposed N51 Park & Ride Facility. This proposed development will provide car parking facilities with 181 parking spaces, allowing commuters to leave their vehicles at this location and transfer to bus operators.

The proposed N51 Park & Ride Bus Facility is to be located on and adjacent to the N51 Athboy Road which is a busy two-way single carriageway located c. 0.5km to the west of Navan town centre.

The project will include the construction of a proposed road side bus stop located within the environs of the existing N51 route while the proposed park and ride parking area will be located in a green field neighbouring St. Patrick's Classical School to the northeast of the site. This parking area will be accessed directly onto the N51 using a new vehicular access at the southern end of the proposed site.

1.2 Background & Development Policy

1.2.1 Navan Town Scheme & Regional Public Transport

The existing regional bus routes through Navan were assessed in 2015 by Meath County Council in consultation with Bus Eireann. During that consultation process, changes to the existing bus routes and timetables for Navan were proposed, including the provision of a proposed new regional bus service for the Navan area. The new bus service for Navan, which would operate with a high frequency (service every 20 minutes), is proposed to depart and terminate in Navan town centre.

The wider project being considered included the following objectives:

- Relocate the bus stops from Market Square to Kennedy Road in line with the provision of a central, integrated, sustainable transport system
- Encourage greater use of sustainable modes of transport in Navan including walking, cycling, bus and taxi use and discourage reliance on private cars
- Improve access to sustainable transport modes and provide an integrated network of sustainable transport measures

Following the consideration of the proposed new service for Navan, the following objectives were also considered for the project:

- Ensure that buses are not 'standing' on Kennedy Road between periods of operation
- Provide a terminating location for buses outside of the town centre

As a result of the consultation process, and the ongoing wider investigation into transport needs in Navan, the potential for benefits associated with the provision of a park and ride bus facility were identified. A park and ride bus facility was considered not only to assist in meeting the above objectives, but also to meet the wider objectives of the town's transport needs.

1.2.2 Climate Action Plan

In 2019, the Government published its Climate Action Plan, which sets out an ambitious course of action over the coming years to address the impact that climate disruption is already having on Ireland's environment, society, economic and natural resources. This Plan recognises that Ireland must significantly step up its commitments to tackle climate disruption.

The Plan clearly identifies the nature and scale of the challenge, outlines the current state of play across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and charts a course towards ambitious decarbonisation targets.

The Plan outlines the following strategies in Transport for achieving these ambitious targets:

- Accelerate the take up of EV cars and vans so that we reach 100% of all new cars and vans being EVs by 2030. This will enable achieving our target of 950,000 EVs on the road by 2030. This means

approximately one third of all vehicles sold during the decade will be Battery Electric Vehicle (BEV) or Plug-in Hybrid Electric Vehicle (PHEV)

- Make growth less transport intensive through better planning, remote and home-working and modal shift to public transport
- Increase the renewable biofuel content of motor fuels
- Set targets for the conversion of public transport fleets to zero carbon alternatives

The proposed development will assist in achieving a number of these goals by providing facilities which will encourage modal shift to public transport and providing several car parking spaces with electrical charging capabilities.

1.2.3 LDR4 Local Development Road No. 4

Meath County Council is in the planning phase for a new road scheme in Navan to connect the R147 Kells Road to the L3409 Ratholdren Road through Abbeylands. The delivery of the LDR4 would include a new bridge over the River Blackwater improving access to the north of the town and from the north of the town to the M3 Motorway.

The LDR4 Abbeyland scheme would involve the construction of approximately 1.2km length of new local distributor road between Ratholdren Road and Kells Road to ease congestion in Navan town centre and open access to development lands to the north and northeast of the town.

1.2.4 The Traffic Section of the EIAR for LDR4 determines that the current traffic flow on the N51 is circa 9,500 AADT. This is predicted to rise to 10,200 AADT on opening of the LDR4 Scheme (2022) and to 12,550 AADT at the design year of 2037. Moathill Residential Development

The site on the opposite side of the N51 to the proposed park and facility is currently under development. The development will include the construction of 99 no. residential dwellings and a 130.5m² creche. The proposed access to the development will be located opposite the existing R161 Moatlands Road.

It is proposed that the existing three arm N51 Link Road / R161 Moatlands Road priority-controlled junction be upgraded to a four-arm signalised junction incorporating the new site access arm into the development.

It is noted that this junction is proposed to be upgraded and signalised as part of the construction works currently in progress for the new Moathill residential development (Planning Application No. NA151301).

1.3 Methodology and Report Structure

1.3.1 Traffic Management Guidelines for Transport Assessments

The TII Traffic and Transport Assessment Guidelines outline the thresholds for developments above which a traffic assessment is required or recommended. The table which details the mandatory thresholds for a traffic assessment in that document is provided below:

Traffic Management Guidelines Thresholds for Transport Assessments
Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road
Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive
Residential development in excess of 200 dwellings
Retail and leisure development in excess of 1,000m ²
Office, education and hospital development in excess of 2,500 m ²
Industrial development in excess of 5,000 m ²
Distribution and warehousing in excess of 10,000 m ²

The development does not exceed any of the mandatory thresholds for a traffic assessment outlined in this table as the total trips for the site only accounts for 4.8% of the AADT for the adjacent road.

Although a full traffic assessment is not required based on these thresholds, this report provides an overview of the proposed developments characteristics, site generated trips and a qualitative assessment of the developments traffic impacts on the receiving environment.

1.3.2 Report Structure

This traffic assessment report has been broken into the following sections:

- Section 1 – Introduction
- Section 2 – Existing Receiving Environment
- Section 3 – Proposed Development Characteristics
- Section 4 – Site Generated Traffic Characteristics
- Section 5 – Summary of Traffic Impacts and Conclusions

2. Existing Receiving Environment

2.1 Site Location

The proposed development site is located on an existing greenfield site in Moathill, Navan, Co. Meath. The proposed development is situated to the west of Navan Town Centre. The location of the subject site in relation to the surrounding road network is illustrated in Figure 2.1 below.



Figure 2.1: Site Location Map

2.2 Surrounding Road Network

The development site is located along and fronts onto the N51 Link Road corridor and is serviced by several other key routes in the area.

The N51 has an AADT (Source LDR4 EIAR) of 9,500 vehicles and provides a link between Drogheda, Slane, Athboy and Navan.

The N51 links the north and south of Navan and provides a key link to the M3 Motorway.

The R147 Road to the north of the site provides a link from Navan Town centre to Kells. The R161 to the south of the site provides a link between the N51, Navan Town centre, and Trim.

The speed limit on roads adjacent to the site is 60kph.

2.3 Pedestrian and Cyclist Facilities

Pedestrian and Cycle facilities in the area are good and relatively continuous with facilities provided on both sides of the N51 corridor. The segregated facilities on the southern side of the road extend for the near entire section between the Andy Connolly Roundabout and the Kells Road Roundabout, while the segregated facilities on the northern side of the N51 area provided for a 150m section from the Kells Road Roundabout.

As part of the planning application for the proposed residential development on the northern side of the N51 submitted in 2015, it is proposed to extend these facilities to the railway bridge on the N51. As part of this development, it is also proposed to provide a signalised junction with pedestrian crossing facilities at

the N51/R161 junction. These facilities will provide continuous links for pedestrians and cyclists and will provide a safe location for pedestrians to cross the N51.

2.4 Public Transport

Although it is anticipated that the majority of trips to the site will be by vehicle due to the nature of the development, there are a number of public transport routes servicing the location.

The closest bus stops to the site are located to the north of the site on the R147, located at 350m and 550m from the site, as shown in Figure 2.2 below.

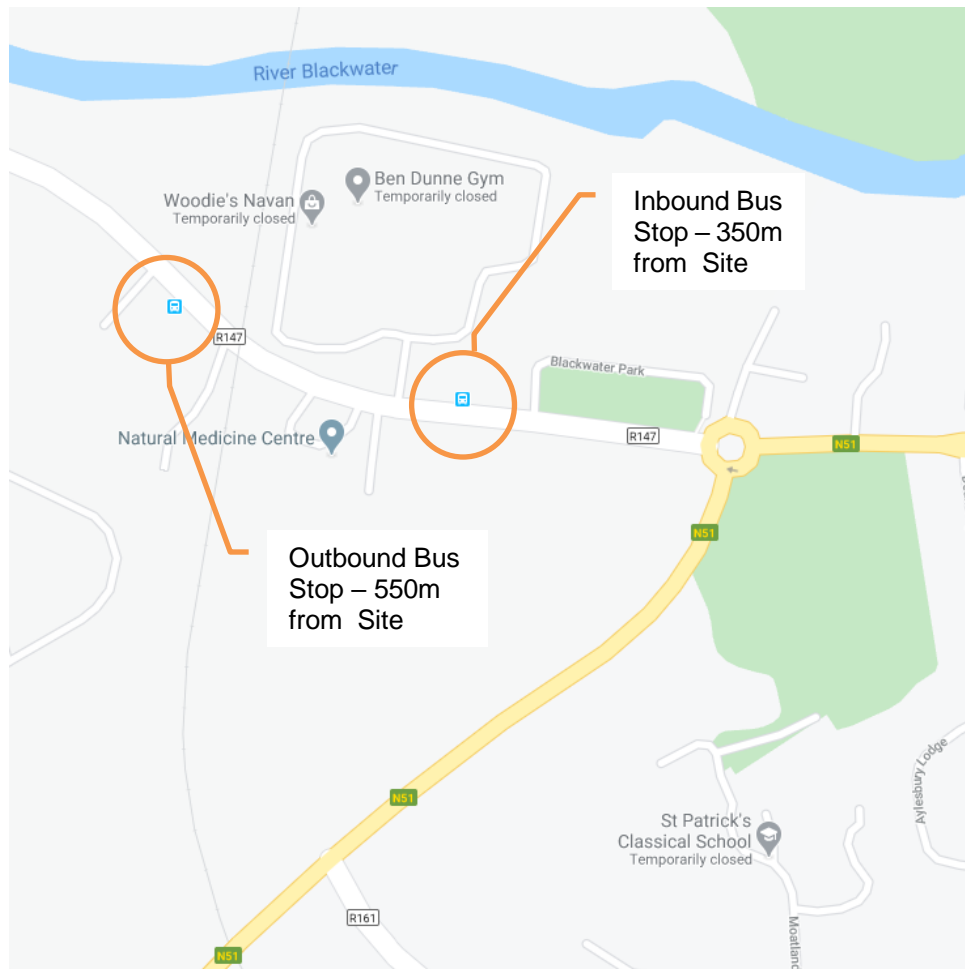


Figure 2.2: Public Transport Stops

The Bus Eireann 109 and 109A services operate at these stops on a daily basis, and a summary of the number of daily services for these routes is provided in **Table 2.1**.

Route No.	Route	Mon-Fri	Sat	Sun
109	Kells – Navan – Dunshaughlin – Dublin	28	25	22
109A	Kells – Navan – Dunshaughlin – Rathoath – Ashbourne – Dublin Airport / City Centre	29	24	24

Table 2.1: Summary of Public Transport Routes at Closest Bus Stops

2.5 Collision Record History

The area within the extents of the proposed development was analysed to gain an understanding of the collision problems. The collision data for the area adjacent to the development was obtained from the Road Safety Authority (RSA) online mapping tool – CollStats, available from the RSA website. Data for the eleven years from 2005 – 2016 is shown on the cluster accident data map below. While the data in this database does not contain all the detail recorded by An Garda Síochána collision report forms (e.g. road surface, weather, lighting conditions), the CollStats data provides a good initial picture of the existing collision problems.

The collision data for the adjacent road network is shown below in Figure 2.3. The data shows that there was one serious collision, and fourteen minor collisions recorded on the roads adjacent to the proposed development. The serious incident reported involved a collision with a bicycle on the N51 at the junction with the R161. The incident occurred on a Monday during the lunchtime period and resulted in one casualty who sustained a serious injury. The majority of other collisions in the adjacent area involved rear end and minor accidents at the Kells Road Roundabout and Andy Connolly Roundabout.

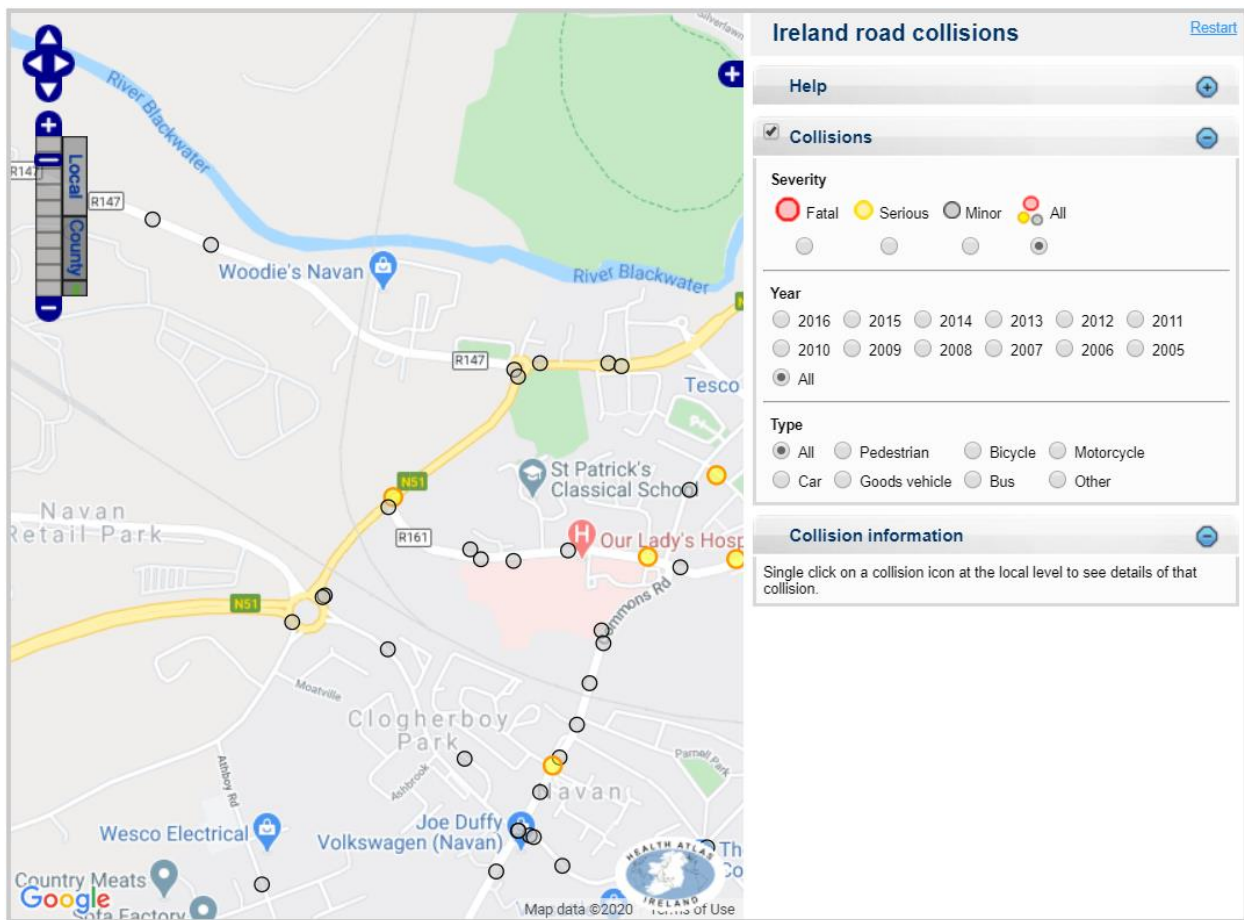


Figure 2.3: RSA Collision Data Record

3. Proposed Development Characteristics

3.1 Proposed Development

The proposed N51 Park & Ride Bus Facility is to be located 50 metres to the north of the existing vehicular entrance to St. Patrick's Classical School and extend to a location c. 10metres north of the proposed junction between the N51 and R161 roads. It is noted that this junction is proposed to be upgraded and signalised as part of the construction works currently in progress for the new Moatlands residential development (Planning Application No. NA151301).

The proposed development will involve the realignment of a 260-metre-long section of the south-eastern kerb line on the N51 national secondary route. The kerb realignment works will facilitate the construction of a new off-line Park & Ride Bus Facility on a site off the N51 including the provision of a new offline bus stop bay with capacity for 4 no. coaches/buses, a realigned segregated footpath and cycleway on the southbound side of the N51, a new vehicular access onto the N51 from the park and ride facility and associated works including footpath and road pavement works in accordance with the Design Manual for Urban Roads and Streets (DMURS) and the National Cycle Manual.

This proposed development will provide car parking facilities with 181 parking spaces, allowing commuters to leave their vehicles at this location and transfer to bus operators.

It will deliver improved vehicular alignment, improved pedestrian infrastructure and improved public lighting to highlight the facility along the N51 route. The completed scheme will provide a safe, coherent and attractive environment for people wishing to avail of a bus facility on the outskirts of Navan town centre.

The main works attributed to this development will include the construction of the new Park & Ride Bus Facility, the construction of new off-line bus stop bays along the N51, the construction of new realigned footpath and cycleway to serve the new bus stops on the N51, The upgrade of the existing public lighting system to incorporate the new bus stops and the new vehicular and pedestrian access points to the N51, the provision of a new emergency vehicular access point to St. Patrick's Classical School, the provision of a new pedestrian access point to St. Patrick's Classical School.

Other associated proposed works and improvements include: Pavement works; Traffic signs & road markings; Earthworks; Drainage; Public utilities; Temporary Traffic Management

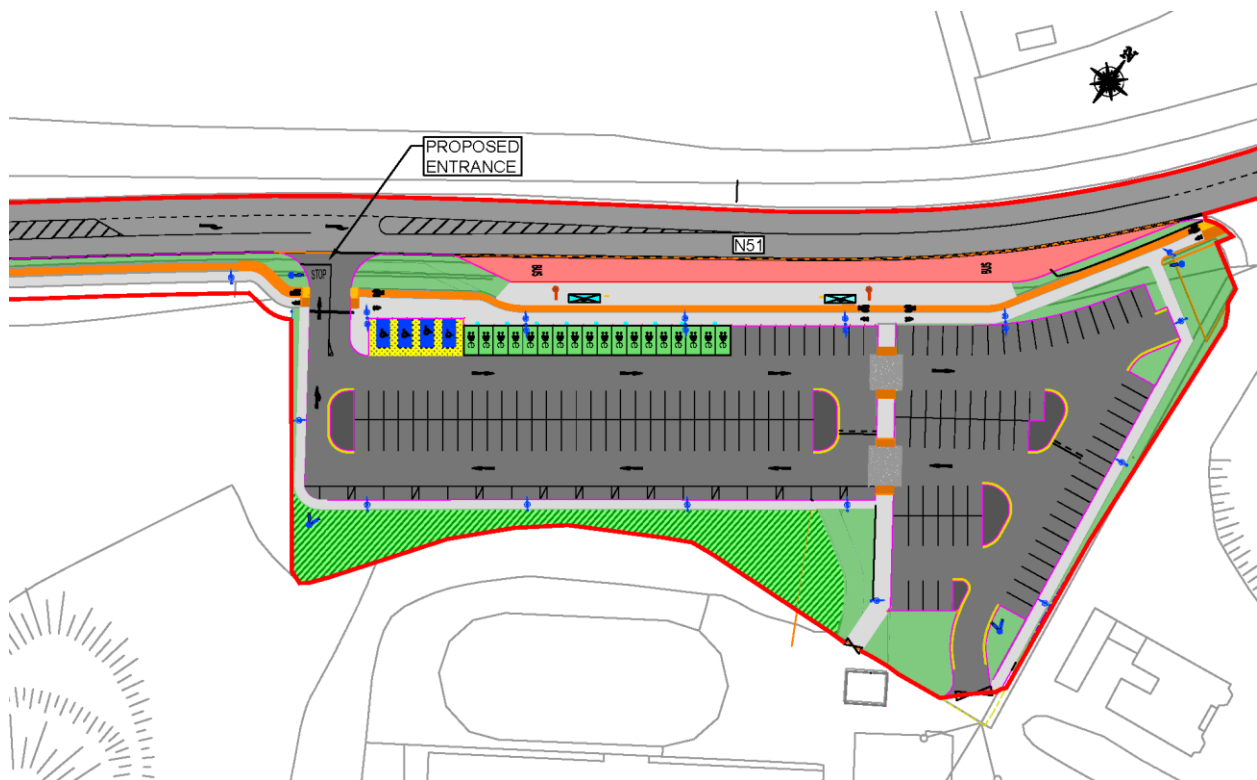


Figure 3.1: Proposed Park & Ride Layout

4. Site-Generated Traffic Characteristics

4.1 Trip Generation Methodology and Assumptions

This section outlines the methodology used to forecast site generated traffic for the development as well as detailing any assumptions that were made including trip rates and trip distribution. Due to the nature of the development, it is anticipated that none of the trips to the site will be pass-by trips.

4.1.1 Trip Rates

A review of trip generation surveys contained within the TRICS database was carried out, and it was found that there were no surveyed sites within the database that accurately represented the trip generation characteristics of the proposed land use.

Trip generation rates were obtained for Park & Ride land use based on the *ITE (Institute of Transportation Engineers) Trip Generation Handbook, 9th Edition*, and are as shown below in Table 5.1:

Table 4.1: Peak Hour ITE Vehicle Trip Rates per Space Provided

Land Use	AM Peak Hour			PM Peak Hour			Daily Trip Rate		
	Trip Rate	% In	% Out	Trip Rate	% In	% Out	Trip Rate	% In	% Out
ITE 090 – Park & Ride	0.71	69%	31%	0.62	28%	72%	2.51	50%	50%

Table 5.1: ITE Trip Rates per space provided: Land Use 090 - Park & Ride

4.1.2 Trip Distribution

The assumed distribution of vehicle trips generated by the proposed development is based on the existing travel patterns in the area as reflected in traffic turning movements at the junctions in the study area. The site generated trips for the AM and PM peaks were distributed to the network on this basis.

4.2 Site Generated Trip Volumes

Traffic volumes projected to be generated by the development during the AM, PM peak hours were calculated based on the above trip rates. The trip generation summary is shown in Table 5.2.

Land Use	Quantity	AM Peak Hour			PM Peak Hour			Daily Trips		
		In	Out	Total	In	Out	Total	In	Out	Total
Park & Ride	181 spaces	89	40	129	31	81	112	227	227	454

Table 5.2: Site Generated Trip Volumes

These site generated traffic volumes for the AM and PM peaks were then distributed to the networks and are shown in Figure 5.1.

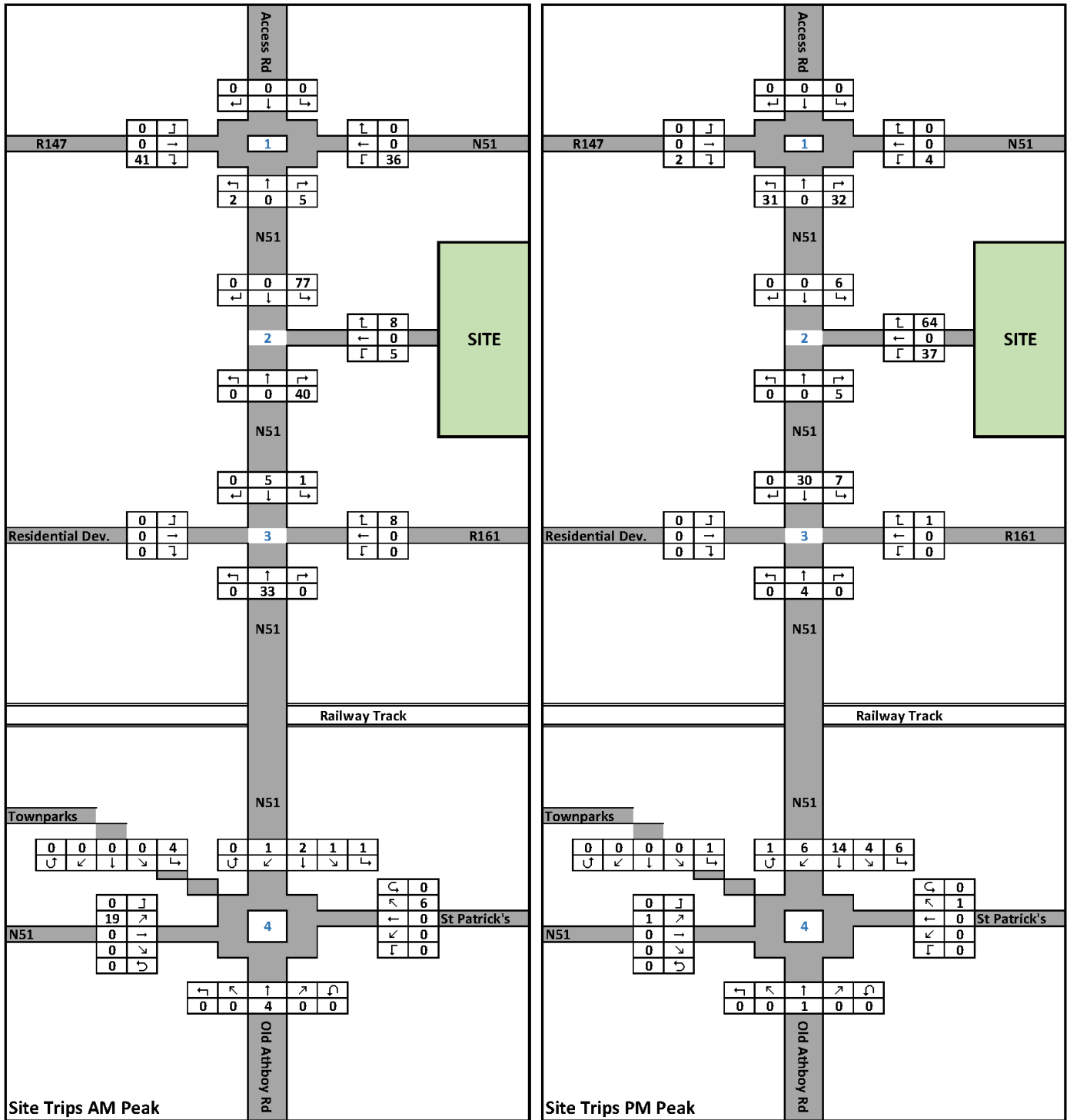


Figure 4.1: AM & PM Peak Site Generated Traffic Volumes

5. Summary of Impacts and Conclusions

5.1 Traffic Impact

5.1.1 Road Safety

The positioning and geometric design of the proposed facility access onto the N51 will ensure more than adequate sightlines for all road users are provided. The car park has been designed to give clear, legible routes for pedestrians, cyclists and motorists to enter and exit the development.

The proposed bus bays provided along the N51 are offline and the geometry provided will allow for safe entry and exit to the bus bays with minimal affects to the traffic on the N51.

5.1.2 Public Transport, Pedestrian & Cyclist Facilities

The proposed development will involve the realignment of a 260-metre-long section of the south-eastern kerb line on the N51 national secondary route. The kerb realignment works will facilitate the construction of a new off-line Park & Ride Bus Facility on a site off the N51 including the provision of a new offline bus stop bay with capacity for 4 no. coaches/buses.

The proposed development will provide a safe, coherent and attractive environment for people wishing to avail of a bus facility on the outskirts of Navan town centre. This development will provide car parking facilities with 181 parking spaces, allowing commuters to leave their vehicles at this location and transfer to bus operators.

As part of the development, it is proposed to realign and upgrade the segregated footpath and cycleway on the southbound side of the N51, providing a high-quality facility for pedestrians and cyclists. The new vehicular access onto the N51 from the park and ride facility has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS) and the National Cycle Manual.

5.1.3 Site Generated Traffic & Impact on Surrounding Environment

The site generated trips for the proposed development were estimated using the *ITE (Institute of Transportation Engineers) Trip Generation Handbook, 9th Edition*. It is anticipated that the proposed development will generate a total of 454 trips daily, with 129 in the AM peak and 112 in the PM Peak.

The development does not exceed any of the mandatory thresholds for a traffic assessment outlined in this table as the total trips for the site only accounts for 4.8% of the AADT for the adjacent road.

Given that the development represents a relatively low proportion of the traffic volumes on the adjacent road network, it is anticipated that the proposed development will have relatively low impact on the traffic operation of the surrounding road network.

5.1.4 Ghost Island / Turning Lane Requirements

The TII design guidance document DN-GEO-03060 “Geometric Design of Junctions” provides guidance on the design of Priority Junctions and recommends traffic volume ranges where the provision of a ghost island and turning lane is appropriate.

Where traffic flows fall within the ranges outlined in Table 5.1, the provision of a ghost island junction is the most appropriate junction type.

Major Road AADT	Minor Road AADT	
< 5,000	> 600	< 5,000
5,000 – 10,000	> 450	< 3,000
> 10,000	> 300	< 1,500

Table 5.1: Flow Ranges – Ghost Island junctions

The N51 has a potential predicted AADT of 12,550 vehicles and total two-way traffic for the proposed development access road is 454 vehicles based on the site generated trip rates.

Given that the traffic volumes on the N51 are predicted to exceed 10,000 AADT and the site access road volumes exceed 300 vehicles, a ghost island junction with a right turning lane into the development is recommended.

It is proposed to provide a ghost island junction with a right turning lane to provide a safe location for right turning traffic to queue without impeding through traffic.

5.1.5 Construction Traffic Impact Mitigation

Transportation of site machinery and materials will take place only during non-peak traffic hours, and not during the hours of 22:00pm – 08:00am, in order to minimise impact on the road network and disturbance to local communities and residents.

An on-site speed restriction of <20km/h will be implemented to prevent unnecessary poaching or dust generation.

Wetting of on-site roadways will be undertaken during periods of dry weather to prevent dust agitation.

Lorries/ trucks will be properly enclosed or covered during transportation of sand, topsoil, and other loose materials to prevent the escape of material.

On-site wheel cleaning and wet suppression methods will be employed to prevent dust/ dirt being transferred onto public roads.

5.2 Environmental Impact

An EIA screening for the proposed development has been completed and has concluded that the overall probability of impacts on the receiving environment arising from the proposed development (during the construction or operational phases) is anticipated to be low.

No significant environmental impacts will occur once mitigation measures outlined in the EIA Report are implemented. These mitigation measures are representative of standard industry environmental management that are implemented to minimise the impact of projects to the environment.

In terms of the specific impact of the development on the environment from a traffic standpoint, it is anticipated that proposed park & ride facility will a neutral to net positive effect of the environment due to an expected modal shift from private car to public transport for commuters travelling between Navan and its environs to Dublin.

The provision of electric vehicle charging spaces will also promote the use of electric vehicles, which will help to reduce CO2 emissions from private vehicles, in line with the Climate Change Action Plan.

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