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Transport Statement

Edge Connex

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Prepared for:

edgeconnex

STRUCTURAL • CIVIL • DUE DILIGENCE • ENGINEERING MASTERPLANNING
FLOOD MANAGEMENT • INFRASTRUCTURE DESIGN
PRE-DEVELOPMENT ENGINEERING • BIM • TRANSPORTATION

CONTACT DETAILS

Name	Position	Email	Telephone	Mobile
Ronan Kearns	Associate Transportation Engineer	ronan.kearns@iepinnacle.com	01-2311045	0876384042

APPROVALS

	Name	Signature	Position	Date
Prepared by	Ronan Kearns		Associate Transport Planner	10/08/22
Reviewed by	James Mayer		Director	10/08/22
Approved by	James Mayer		Director	10/08/22

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1 INTRODUCTION

1.1 Background

The development will consist of the construction of two no. adjoined single storey data centres with associated office and service areas with an overall gross floor area of 15,274sqm that will comprise of the following:

- Construction of 2 no. adjoined single storey data centres with a gross floor area of 12,859sqm that will include a single storey goods receiving area / store and single storey office area (2,415sqm) with PV panels above, located to the east of the data centres as well as associated water tower, sprinkler tank, pump house and other services;
- The data centres will also include plant at roof level; with 24 no. standby diesel generators with associated flues (each 25m high) that will be located within a generator yard to the west of the data centres;
- New internal access road and security gates to serve the proposed development that will provide access to 36 no. new car parking spaces (including 4 no. electric and 2 no. disabled spaces) and sheltered bicycle parking to serve the new data centres;
- New attenuation ponds to the north of the proposed data centres; and
- Green walls are proposed to the south and east that will enclose the water tower and pump house compound.

The development will also include ancillary site works, connections to existing infrastructural services as well as fencing and signage. The development will include minor modifications to the permitted landscaping to the west of the site as granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and Ref. SD21A/0042. The site will remain enclosed by landscaping to all boundaries. The development will be accessed off the R120 via the permitted access granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and SD21A/0042.

The site has an area of 5.1 Ha.

The site is adjacent to the Grange Castle Business Park and is bounded to the north by the Grand Canal; the realigned R120 to the east; agricultural land to the west and south.

The site of the proposed data centre is currently accessed from the Adamstown Road (R120) which has recently been realigned.

The site is currently a greenfield site.

The site location is shown in Figure 1.

In order to complete this report, Pinnacle Consulting Engineering has referred to the following documents:

- Transport Infrastructure Ireland (TII) (Formerly National Roads Authority) Traffic and Transportation Assessment Guidelines.
- Traffic and Transport Assessment Guidelines' (May 2014) National Road Authority.
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003).
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation.
- Design Manual for Urban Road and Streets.
- South Dublin County Development Plan 2022-2028.
- GDA Cycle Network Plan - National Transport Authority;

Figure 1 Site Location (Source: GeoHive)

1.2 Objectives

The main objective of this report is to examine the traffic impact of the proposed development and its access arrangements on the local area road network. The net change in traffic on the network due to additional traffic has been calculated and its impact on the local area road network has been determined.

1.3 Study Methodology

The methodology adopted for this report can be summarised as follows:

Existing Traffic Flow Assessment: - Baseline traffic counts were undertaken in May 2022.

Existing Transport Infrastructure: - Pinnacle Consulting Engineering collected information on public transport, walking and cycling in the area of the proposed development.

Development Proposals: - Description of proposed development, including proposed improvements to the road accesses to the site and a review of parking and servicing provisions, and facilities for pedestrians and cyclists.

Development Trip Generation Figures: - Based on the schedule of accommodation of the proposed development, Pinnacle Consulting Engineering derived trip rate data and developed development traffic flows, which were assigned to the existing network having regard for traffic patterns on the R120 and the surrounding network.

Percentage Impact: - The development traffic impact on key junctions was considered, taking account for traffic growth and committed development traffic.

1.4 Structure of Report

The remainder of this report is divided into the following sections:

- Section 2 considers the location of the site and existing traffic flows.

- Section 3 discusses the proposed development.
- Section 4 considers the traffic generation and potential impacts of the development, and contains an analysis of capacity of key junctions, including proposed mitigation measures
- Section 5 provides a summary and conclusion.

2 EXISTING TRAFFIC CONDITIONS

2.1 Existing Conditions

The application site is located in South County Dublin, approximately 13km west of Dublin City Centre, and around 4km west of Clondalkin Village, immediately south of the Grand Canal.

The site is adjacent to the Grange Castle Business Park and is bounded to the north by planting and the Grand Canal; the R120 to the east; agricultural land to the south and west.

The location of the site is shown on the map extract at Figure 2 below.

The site is 18.26Ha in size.

Figure 2 Site Location (Source: Google Maps)

2.2 Existing Road Network

A summary of the existing road network is provided below:

The realigned R120 bounds the site to the east. The only current access into the site is via the abandoned agricultural complex, and a separate access close to the Grand Canal. The area including the Grange Castle Business Park is accessed from the R136 Grange Castle Road to the east. The R134 bounds the Business Park to the south and has a junction with the R120 to the south of the site.

The Adamstown / Newcastle Road (R120) and Nangor Road (R134) Improvement Scheme involves re-alignment of the existing Adamstown (R120) and Nangor (R134) Regional Roads (sustainably complete), immediately adjacent to Grange Castle Business Park. These works were undertaken by South Dublin County Council. These upgrade works have included a new bridge over the Grand Canal and will include the provision of pedestrian footpaths and cycle paths either side of the R120 on completion.

The M50 is located approximately 5km to the east of the site and forms an orbital motorway ring road around Dublin. The M50 is intersected by the principal radial routes, including the N4 at Junction 7, and the N7 at Junction 9, also known as the Red Cow Interchange. It is concluded that the site is strategically situated to facilitate trips by vehicle, with road infrastructure in place and built to a high standard.

2.3 Existing Traffic Flow

It is proposed that the subject site will be accessed via the R120.

To quantify the volumes of traffic movements at key points on the road network adjacent to the site, a set of classified turning movement traffic counts were commissioned.

Accordingly, classified counts were carried out in May 2022 at the following junction locations:

- Site 1 – Site Access

The surveys were carried out on the date identified above to ensure that flows were representative of normal term time and hence not affected by school holidays or other public holidays or events. As such they provide an appropriate and robust representation of a neutral month during a period of normal school and employment activity. The surveys are designed to provide representative values encompassing AM and PM peak periods during normal traffic conditions and where not affected by Covid 19 lockdowns as the count took place before the first national lockdown.

The results of the traffic surveys are also set out in Appendix A of this report.

The locations of the surveys are each pertinent to the proposal in terms of being at key nodes in the road network that would be affected by traffic assignment and distribution of flows associated with the development site.

The location of the survey points is depicted below at Figure 3.

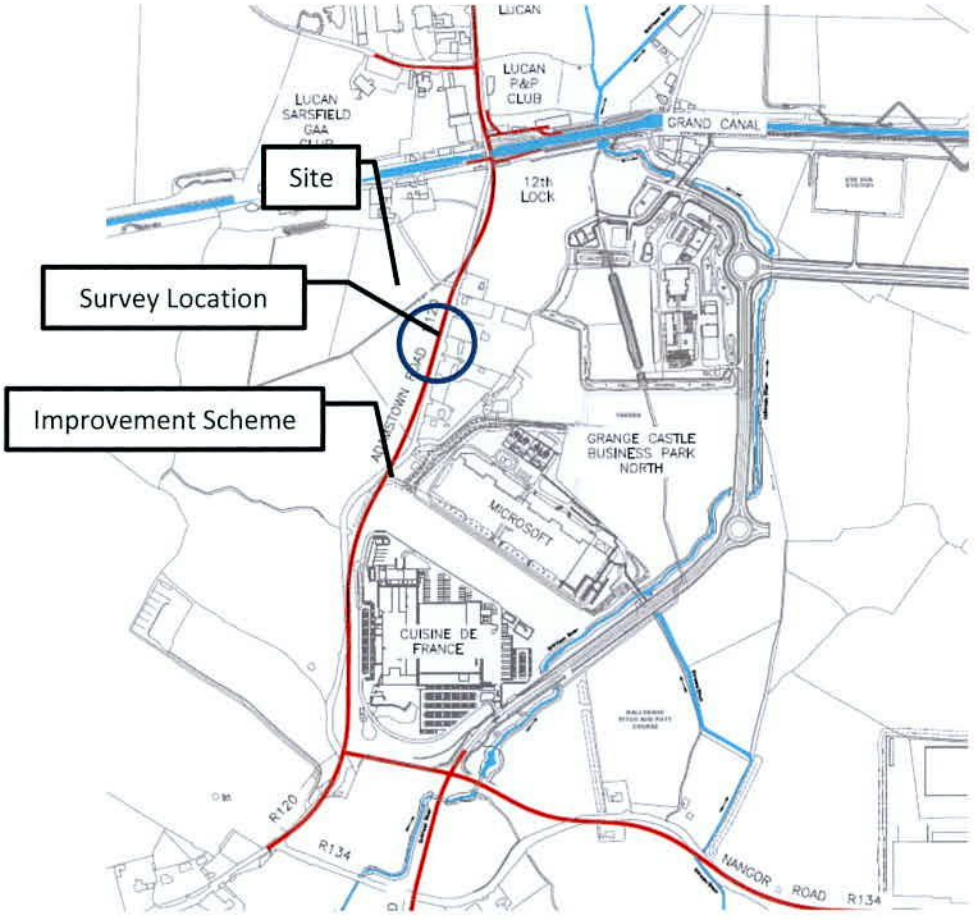


Figure 3 Adamstown Road (R120) and Nangor Road (R134) Improvement Scheme (Source: South Dublin County Council)

The Adamstown Road (R120) and Nangor Road (R134) Improvement Scheme is substantially complete.

The Adamstown Road (R120) and Nangor Road (R134) Improvement was designed to take into account the predicted level of traffic based local zone land use. Including the site in question.

A summary of the survey results is illustrated below.

R120 Survey Results		
	AM	PM
North Bound	346	506
South Bound	535	222
Two-way	881	728

Table 1 R120 Survey Results

2.4 Public Transport

2.4.1 Background

Local public transport infrastructure is illustrated in Figure 4 below.

Figure 4 Local Public Transport Infrastructure

2.4.2 Bus

There are a number of bus stops within 700-800m walking distance of the application site. The nearest stops are on route no. 68 that connects Newcastle with the city centre. These stops are some 700m to the south of the subject site.

The bus stops within the Grange Castle Business Park, such as those serving the no. 13 and 151 buses also have the ability to serve the site and contain stops within 800m of the site. The following table illustrates that there are regular services on all days which route to the existing bus stops on routes 13, 151 and 68.

Table 1 illustrates local bus routes.

No.	Route	Service		Mon-Fri	Sat	Sun
13	Harristown – Dublin City Centre – Clondalkin Village – Grange Castle	Harristown	First	05:30	06:05	08:00
			Last	23:15	23:15	23:30
		Grange Castle	First	06:00	06:00	08:00
			Last	23:30	23:30	23:30
		Frequency		15min	15min	15min
151	Docklands – Dublin City Centre – Clondalkin – Grange Castle Business Park – Lucan	Docklands	First	06:30	07:10	08:30
			Last	23:20	23:20	23:20
		Grange Castle	First	06:00	06:30	07:30
			Last	23:30	23:30	23:30
		Frequency		20min	20min	30min
68	Newcastle / Greenogue Business Park - Cherrywood Villas - Clondalkin Village - Bulfin Rd. - Camden St. - Hawkins St.	Newcastle	First	06:25	06:40	09:15
			Last	23:30	23:30	23:30
		Hawkins St	First	06:25	06:40	10:10
			Last	22:30	23:30	00:00
		Frequency		60min	70 min	115m

Table 2 Local Bus Routes

Dedicated bus lanes are provided in both directions on the R136 Outer Ring Road and the R134 Nangor Road east of the Grange Castle Business Park roundabout. These routes are part of Dublin's Quality Bus Corridor (QBC) network.

2.4.3 Rail

The nearest stations are Adamstown, approximately 2.4km to the north-west of the site and Clondalkin-Fonthill approximately 6km to the east of the site. These stations are served by around 20 suburban commuter trains in each direction during weekdays.

Figure 5 Route to Adamstown Rail Station (Source: Google Earth)

2.5 Walking and Cycling

The realignment of the R120 created cycle paths on either side of the road that will connect into other cycle paths along the realigned R134.

There is a current planning application proposed to the north of the canal to the immediate north of the site by South Dublin County Council to extend the greenway to the west of the lock and bridge. A cycle greenway already runs along the Royal Canal with access on to the R136. In addition, pedestrian and cycleways are available on all internal roads within Grange Castle Business Park, and along the R136.

Existing cycle routes identified by the National Transport Authority (NTA) in the vicinity of the application are indicated in Figure 6 below.

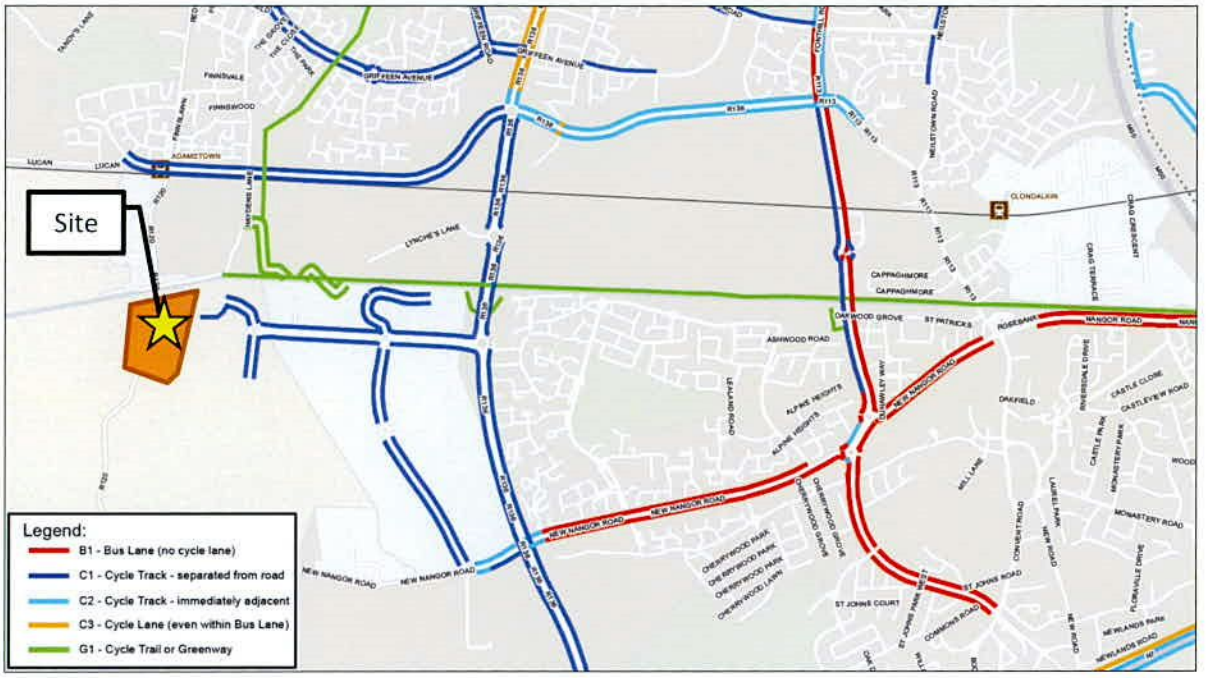


Figure 6 Existing cycle routes (Source: NTA)

The Grand Canal Greenway runs from east to west immediately north of the site. This pedestrian and cycle route provides an 8.5km off-road route from 12th Lock, Newcastle Road to Davitt Road, Inchicore. The route also links north to Adamstown and Lucan, via a walking and cycling bridge over the Grand Canal. The route can be accessed from the R136, approximately 1km from the site.

2.6 Permeability

Permeability for staff and visitors to the proposed development is a key factor in determining the long-term sustainability when considering modal choice.

To encourage a shift away from car dependency, staff and visitors to the development must have viable alternative choices such as walking routes and cycle routes public transport links.

2.6.1 Walking

Figure 7 outlines the walking distance covered by the average person in a 15-minute period. It illustrates the local amenities that are available to the proposed development.

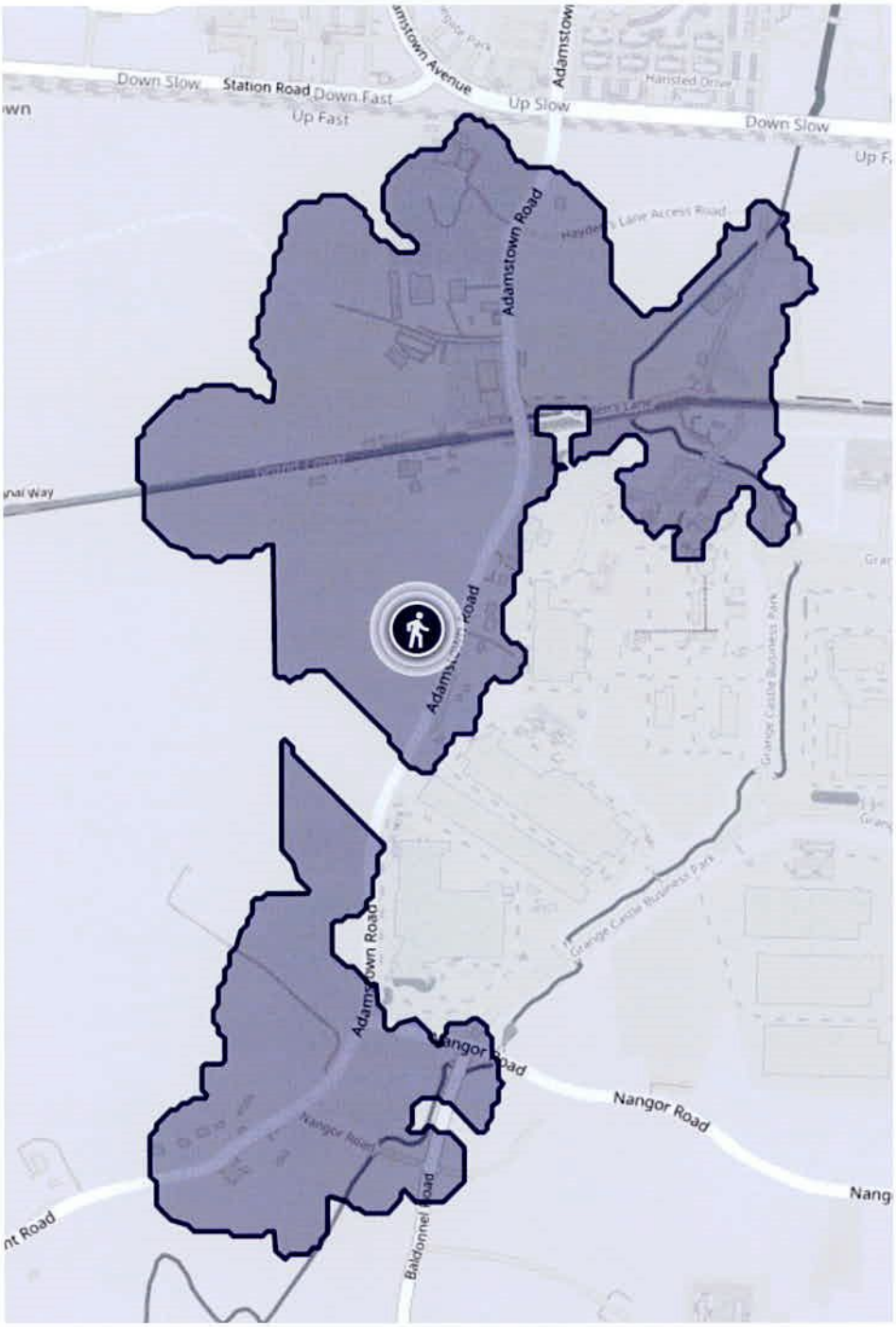


Figure 7 Walking Distance (15 Min Travel Time)

2.6.2 Cycling

Figure 8 outlines the cycling distance covered by the average person in a 30-minute period by bike. It illustrates the local amenities that are available to the proposed development. Local amenities within 30-minutes cycle of the proposed development include:

- Access to rail network
- Access to bus network
- Access to the site from local residential catchments
- Access to areas of employment (Citywest Business Campus, Grange Business Park)
- Allows access to/from surrounding areas including:

- Tallaght
- Clondalkin
- Lucan
- Leixlip
- Celbridge

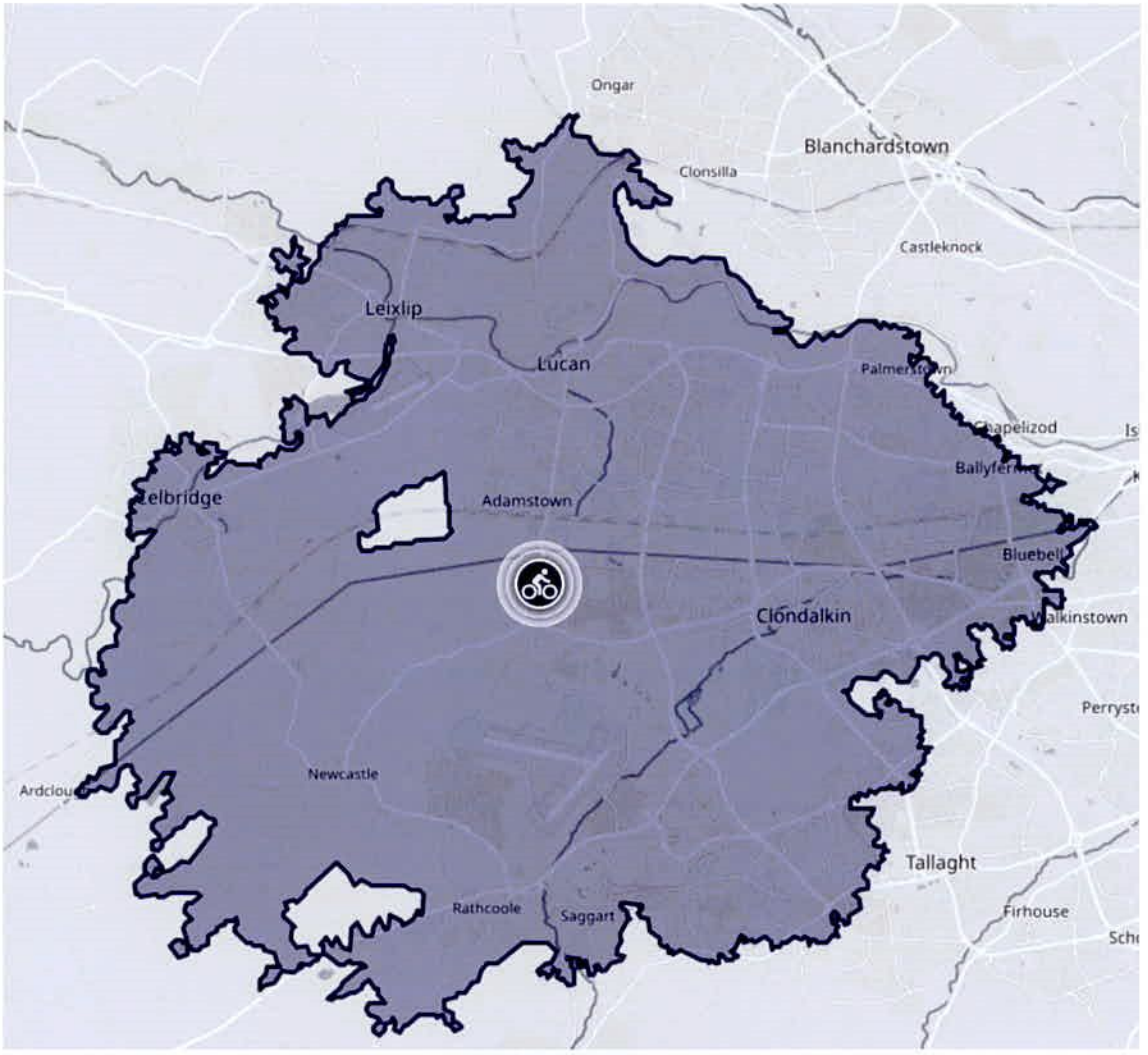


Figure 8 Cycle Distance (90 Min Travel Time)

2.6.3 Public Transport

Figure 9 outlines the distance that maybe covered on a 90minute public transport journey.

A 90-minute public transport journey allows access from locations such as:

- Enfield
- Portarlington
- Swords
- Blanchardstown
- Blessington

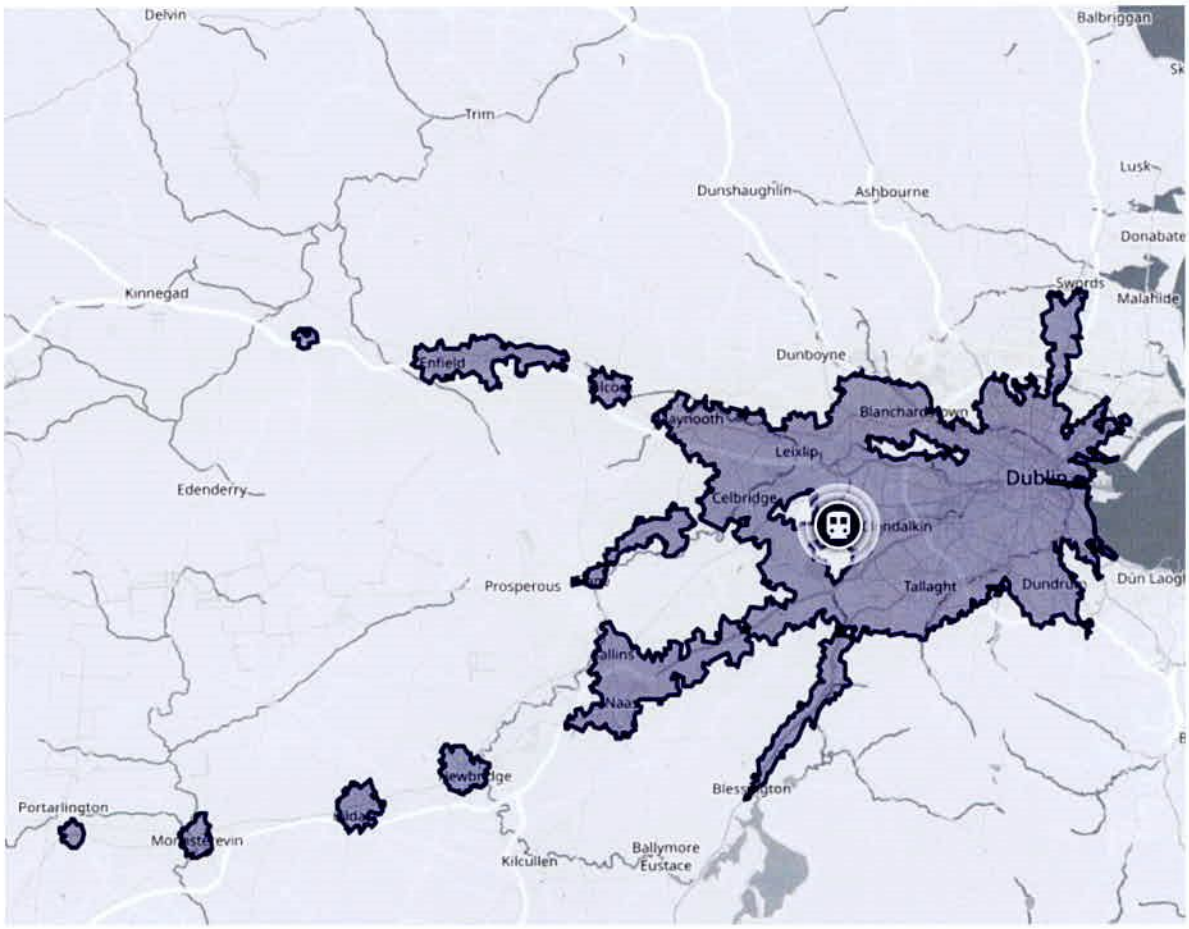


Figure 9 Public Transport (90min Travel Time)

2.7 Road Safety Data

A review of the Road Safety Authority (RSA) traffic collision database has been undertaken for the road network in the vicinity of the proposed site to identify any collision trends. This review will assist to identify and potential safety concerns in relation the existing road network.

Traffic collision data was obtained for the period 2005-2016 which is the most recent data available from the RSA website. These incidents are categorised into class of severity, which includes minor, serious or fatal collisions. The analysis is shown in Figure 10.

No collisions have been reported in the vicinity of the proposed development.

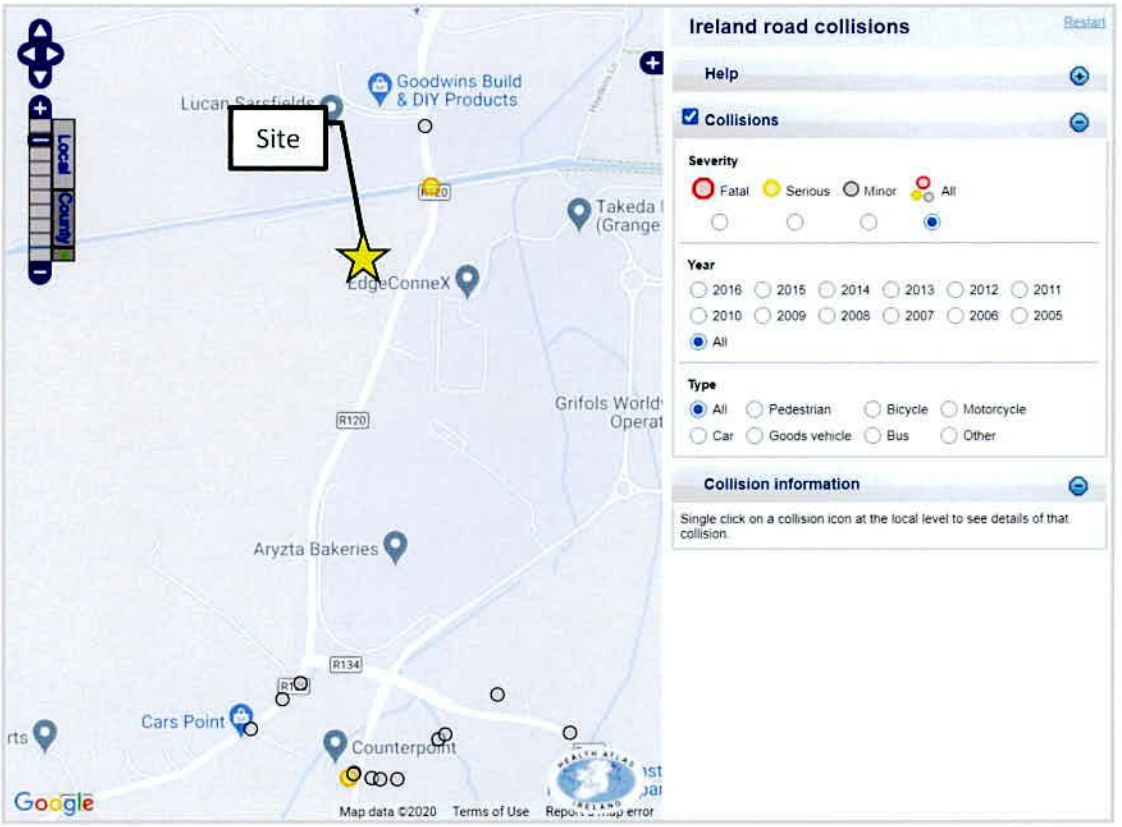


Figure 10 Road Collisions (Source: RSA)

2.8 Planning Search

A planning search was undertaken to identify any developments that have planning permission but are not yet implemented or any schemes that are implemented but are as of yet un-let or empty.

Figure 11 Planning Applications Overview (Source: South Dublin Council)

The cumulative impact of the sister application of this development, as permitted under South Dublin County Council Reg. Ref SD19A/0042 / An Bord Pleanála Reg. Ref. PL06S.305948, will be considered as part of this application.

2.9 Potential/Proposed/Committed Infrastructure Works

There are several potential new infrastructure schemes in the vicinity of the proposed development site. Consideration has been given to the impact that these infrastructure schemes may have on the development. This will ensure that provision is allowed for these schemes to be delivered in the future.

A summary of the potential road infrastructure schemes is outlined below.

2.9.1 Bus Connects

The emerging Bus Connects Dublin plan (Ref: Core Bus Corridors Project Report June 2018) proposes revisions to Dublin's bus system through: -

- building a network of new bus corridors on the busiest bus routes to make bus journeys faster, predictable and reliable.
- completely redesigning the network of bus routes to provide a more efficient network, connecting more places and carrying more passengers.
- developing a state-of-the-art ticketing system using credit and debit cards or mobile phones to link with payment accounts and making payment much more convenient.
- implementing a cashless payment system to vastly speed up passenger boarding times.
- revamping the fare system to provide a simpler fare structure, allowing seamless movement between different transport services without financial penalty.
- implementing a new bus livery providing a modern look and feel to the new bus system.
- rolling out new bus stops with better signage and information and increasing the provision of additional bus shelters; and
- transitioning - starting now - to a new bus fleet using low emission vehicle technologies.

The Dublin Area Bus Network Redesign (which is currently under review following the public consultation stage) aims "to provide a network designed around the needs of Dublin today and tomorrow, rather than based on the past".

Figure 12 below presents the proposed public transport provision in the vicinity of the subject site compared to the existing provision

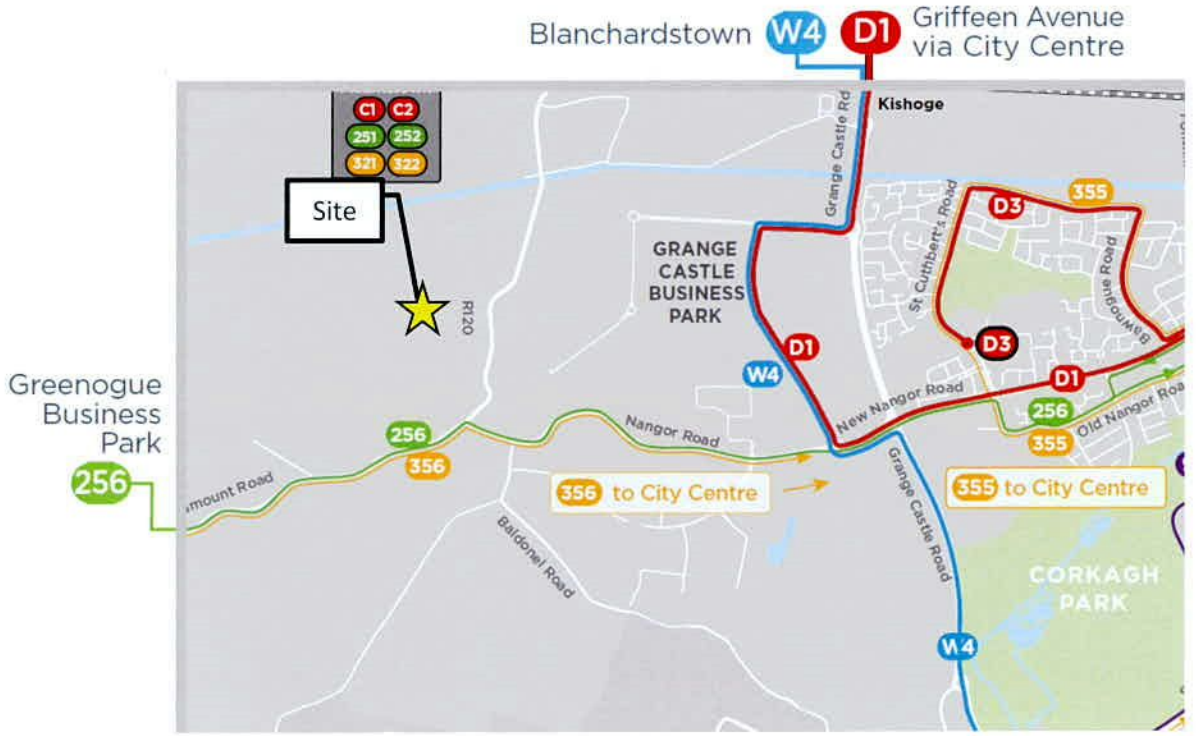


Figure 12 Bus Connects (Source: Map 2 of Bus Connects)

2.9.2 Cycle Network Improvements

Under the National Transport Authority's Cycle Network Plan for the Greater Dublin, the Dublin Southwest Sector extends outward from the twin corridors of Camden Street and Clanbrassil Street in the city centre, through the inner suburbs of Rathmines and Harold's Cross, to serve the areas of Terenure, Kimmage, Walkinstown, Tallaght, Firhouse and Rathfarnham. There is considerable overlap between the West and Southwest sectors, with interconnecting routes between the two. Some radial cycle routes originate in one sector at the city centre but end up in the neighbouring sector.

In accordance with the National Transport Authority's Cycle Network Plan for the Greater Dublin area the following improvements to the local cycle networks are proposed:

- Route 7C: Camac River Greenway branch from the Grand Canal through Clondalkin Village to Corkagh Park and City West.
- Route 8A follows Crumlin Road past the Children's Hospital, Bunting Road to Walkinstown, through Ballymount to cross the M50 at Junction 10 and out to Citywest / Fortunestown via Belgard.
- Route 9C is an alternative to the Harold's Cross route from Route 8C at Clogher Road via Stannaway Road west of Kimmage and then along Wellington Lane to join Route 9A at Spawell to connect to Tallaght. It also provides a continuation from Route 9A west of Tallaght via Fortunestown and Citywest to Saggart.
- Route 9D would provide a traffic-free option branching off Route 9A at Kimmage Crossroads and following the River Poddle Greenway to Tymon Park where a new bridge is required over the M50 in the centre of the park to connect with Castletymon Road and re-join Route 9A. West of Tallaght it provides a loop through Jobstown along the N81 and then northward into Citywest.
- The Dublin Southwest Sector extends outward from the twin corridors of Camden Street and Clanbrassil Street in the city centre, through the inner suburbs of Rathmines and Harold's Cross, to serve the areas of Terenure, Kimmage, Walkinstown, Tallaght, Firhouse and Rathfarnham. There is considerable overlap between the West and Southwest sectors, with interconnecting routes between the two. Some radial cycle routes originate in one sector at the city centre but end up in the neighbouring sector.

- Orbital Route SO6 (Dun Laoghaire to Tallaght via Ballycullen and Old Bawn) is part of the Orbital Routes in the Dublin Southwest Central Sector. There are six orbital routes proposed under the National Transport Authority's Cycle Network Plan for the Greater Dublin area in the Dublin West South-Central Sector providing cross-links between the radial routes and give access to destinations such as Camden Street and Clanbrassil Street in the city centre, through the inner suburbs of Rathmines and Harold's Cross, to serve the areas of Terenure, Kimmage, Walkinstown, Tallaght, Firhouse and Rathfarnham within this sector.

The proposed cycle routes are illustrated in Figure 13 below.

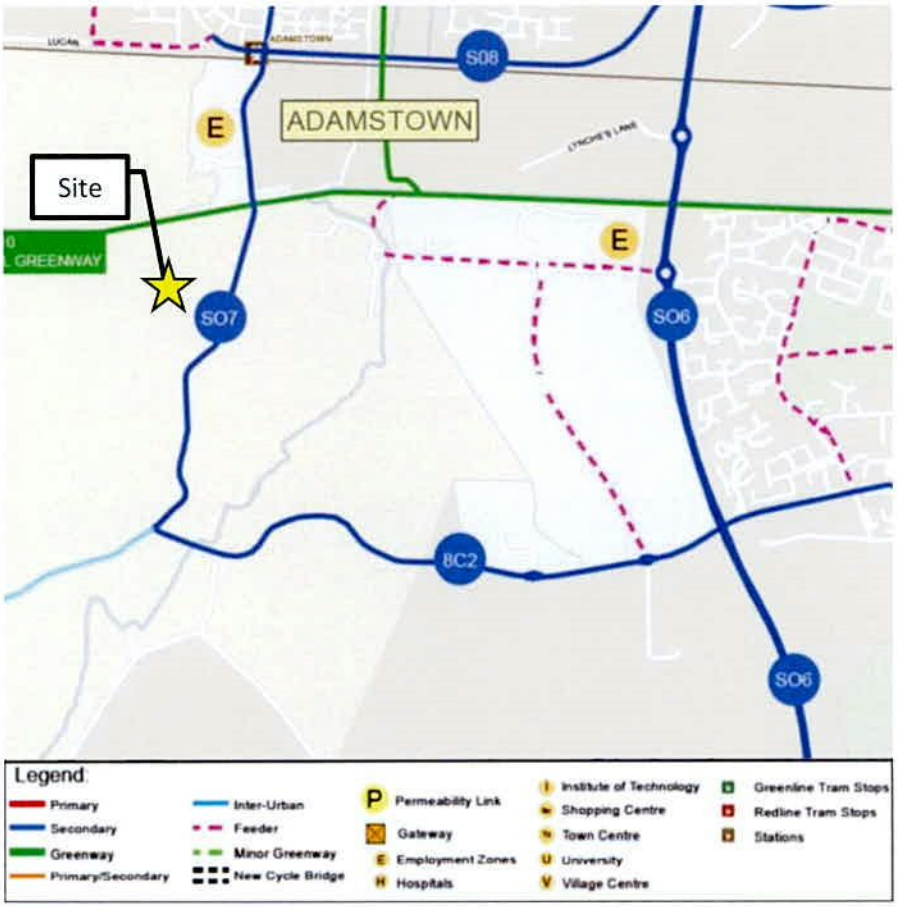


Figure 13- Proposed cycle routes (Source: NTA)

2.10 Summary

In summary, the existing site benefits from good levels of existing public transport and walking/cycling infrastructure which will assist to encourage sustainable modes of travel for staff and visitors to/from the proposed development.

3 THE PROPOSED DEVELOPMENT

3.1 General

The development will consist of the construction of two no. adjoined single storey data centres with associated office and service areas with an overall gross floor area of 15,274sqm that will comprise of the following:

- Construction of 2 no. adjoined single storey data centres with a gross floor area of 12,859sqm that will include a single storey goods receiving area / store and single storey office area (2,415sqm) with PV panels above, located to the east of the data centres as well as associated water tower, sprinkler tank, pump house and other services;
- The data centres will also include plant at roof level; with 24 no. standby diesel generators with associated flues (each 25m high) that will be located within a generator yard to the west of the data centres;
- New internal access road and security gates to serve the proposed development that will provide access to 36 no. new car parking spaces (including 4 no. electric and 2 no. disabled spaces) and sheltered bicycle parking to serve the new data centres;
- New attenuation ponds to the north of the proposed data centres; and
- Green walls are proposed to the south and east that will enclose the water tower and pump house compound.

The development will also include ancillary site works, connections to existing infrastructural services as well as fencing and signage. The development will include minor modifications to the permitted landscaping to the west of the site as granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and Ref. SD21A/0042. The site will remain enclosed by landscaping to all boundaries. The development will be accessed off the R120 via the permitted access granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and SD21A/0042

The site has an area of 5.1 Ha.

3.2 Site Access

The permitted access into the site will be off the western side of the R120 as permitted under South Dublin County Council Reg. Ref SD19A/0042 / An Bord Pleanála Reg. Ref. PL06S.305948.

The permitted access will serve as the main vehicular access into the site both for this and future applications and will result in the closure of the vehicular access to the abandoned farm buildings that sits some 180m to the north.

The permitted access will provide access initially for construction traffic and car parking within the construction compound to the immediate north of the proposed entrance off the R120, and in the longer term to facilitate employees accessing the Phase 1 and Phase 2 parts of the development. Refer to the Outline Construction Traffic Management Plan for the construction related proposals.

This new internal access road will create a loop around all four data halls and generators and will also provide service access to the temporary gas generation plant and ESB sub-station to the north of the data halls.

The permitted access will include security gates that are located some 40m into the site thus ensuring no potential for queuing onto the public road. It is proposed to provide 39 car parking including four disabled car parking spaces on site for all employee and visitor parking requirements under both phases of development.

The location of the permitted access point is shown on Figure 14 below. This level of parking is sufficient for all employee and visitor parking requirements.

Provision for cycle parking will also be made.

Provision will also be made for an HGV turning area in order to allow HGVs to make deliveries to the site in a safe and efficient manner and exit the site in a forward gear.

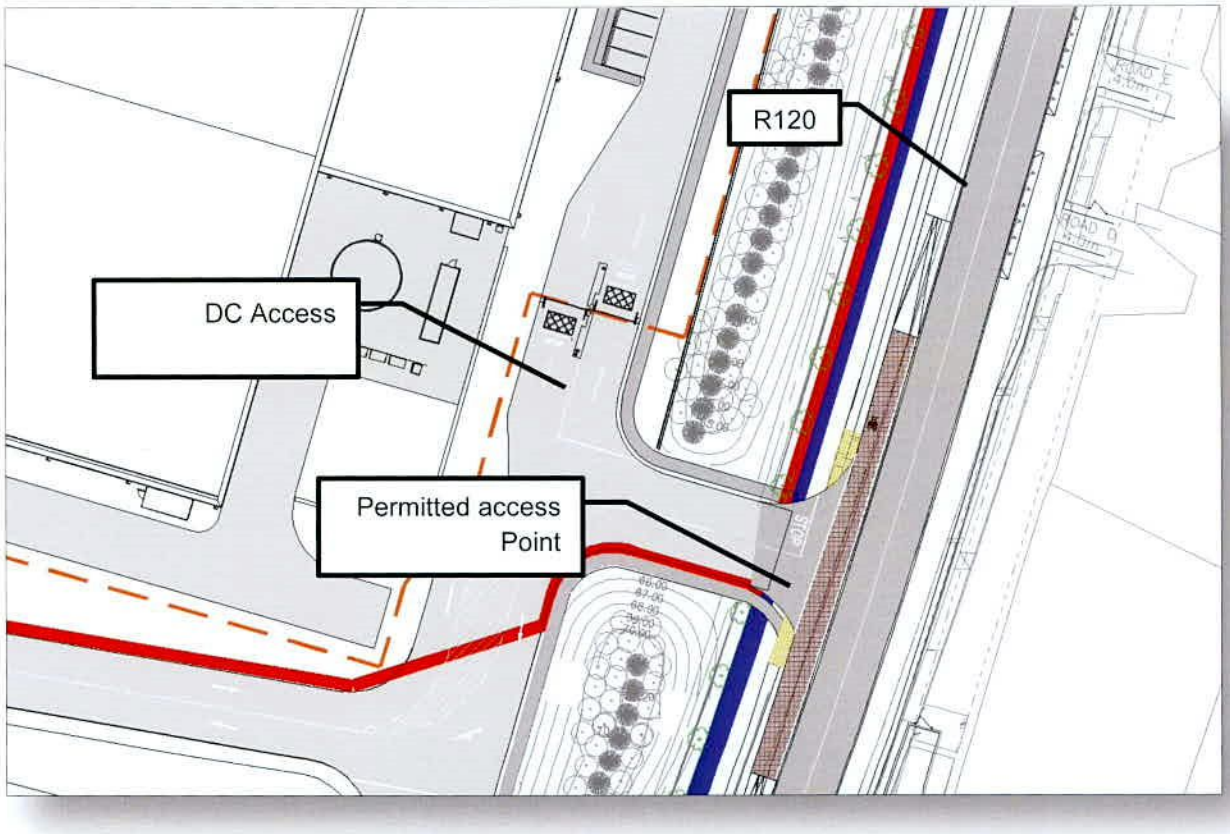


Figure 14 Existing Access Location (Source: Google Earth)

3.3 Servicing

An AutoTrack analysis has been carried on the internal service access to demonstrate its capability to cater for staff, visitor and third-party access, in conjunction with the proposed control system.

The results of this analysis show that the proposed development can accommodate the anticipated service vehicles that will serve the proposed development.

Refer to Pinnacle Consulting Pinnacle Consulting Engineers drawings for the proposed swept path analysis for the service arrangements.

3.4 Car Parking Provision

The data centres will be served by 36 car parking spaces of which 2 no. spaces will be accessible spaces and 4 EV spaces. It is intended that 4 of these spaces will be provided for electrical charging vehicles.

3.5 Cycle Parking Standards

Sheltered bicycle parking will be provided on site.

3.6 Pedestrian and Cycle networks

3.6.1 Introduction

It is a necessary part of the design framework for a development such as this to ensure that there is good permeability for those staff and visitors to the development who choose not to travel by car. The development has been designed to ensure that there is good permeability for pedestrians and cyclists.

Connections between the internal layout and the external pedestrian and cycle networks form part of the overall access strategy for the site. With this development pedestrian movement is suitably catered

for by footpath connections within and adjacent to the development up to the relevant boundaries. These provide good linkage to the surrounding urban areas.

The internal layout demands that all visitors to the site are catered for and so pedestrian routes between dwelling areas and key nodes within the layout are well designed and clearly delineated. This applicant is very experienced in creating safe environments that satisfy resident's requirements and convenience. Accordingly, every effort has been made to ensure that vehicular access will be restricted in areas where there are likely to be the highest concentrations of pedestrian/cycle movements.

The internal site layout will include several crossing facilities that are located along key desire lines, and which coordinate well with the circulation within the car park area to enhance the safety, visibility and convenience of those people on foot. These facilities will include features such as tactile paving and surface treatments that will benefit all users and assist those with impaired mobility.

Given the desire in current planning guidance to improve accessibility for non-car modes of travel, access by cycle is increasingly important. Since the weather and topography inevitably have an influence on cycle use, the key to cycle accessibility is the existence of convenient and safe links associated with secure and carefully sited cycle parking.

3.6.2 Facilities and access for those with impaired mobility

The design has sought to ensure that the environment created within this development will be accessible to staff and visitors with disabilities. Footpaths will be designed in accordance with the latest design criteria to ensure safe access for those that have a mobility impairment.

4 TRAFFIC GENERATION AND DISTRIBUTION

4.1 General

The purpose of this section is to determine the overall number of trips that will be generated by the proposed development. Following quantification of the trip generation, these trips will be distributed onto the adjoining road network to allow a traffic assessment of the local network.

The methodology for assessing the traffic implications of this development involves quantifying the number and nature of trips that would be generated and reviewing these trips in the context of the prevailing conditions, the area of influence and the available infrastructure.

The nature of the development and its relative location to the catchment dictates that the modal choice to and from the site would primarily be via private car but with some elements of public transport use.

Accordingly, the development will attract private car, pedestrian and cycle visitation that will need to be catered for in terms of access routes and internal design. Visitation will also include staff and visitors using public transport connections.

A significant factor in trip attraction and hence resultant impact on the surrounding network is the relationship between trips that already utilise the road network which would choose to visit the development and those trips which would be newly generated onto the road network by the creation of the development in this location.

Research into trips associated with developments of this type has been extensive and in order to try and determine a realistic level of resultant impact the following classifications are adopted.

Primary New trip ~ a single purpose trip (such as development-work-development) that would not exist on the network prior to the opening of the development.

Primary Transfer trip ~ an existing single purpose trip to another destination (such as another similar development) that would transfer to the new development once it becomes operational.

Non-Primary Diverted trip ~ an existing multi-purpose (linked) trip that involves deviating from the normal route in order to visit the new development whilst on the way to another destination.

Non-Primary Pass-By trip ~ an existing multi-purpose (linked) trip that arises from visiting the new development without having to deviate significantly from the existing route being taken.

A Primary trip is one which has the same origin on visiting the site as destination when leaving the site, but only a proportion of these are newly generated (i.e., would not have taken place if the development didn't exist). The remainder of primary trips already exist on the road network as they would be those visiting another similar but existing destination.

A pass-by trip is a form of trip that doesn't result in any additional load to the impact area, since it already exists on the network adjacent to the site.

For the purpose of this assessment, it is assumed that the proposed development will generate primary new trips.

4.2 Trip Rate

In order to understand the expected trip generation of the data centre assumptions have been made on the level of staff associated with the proposed development, based on information provided by EdgeConnex.

Appropriate estimates have been made, where necessary, in order to provide a robust analysis of the impact of traffic associated with the proposed development on the local road network.

The site will employ 100 people working in 3 shifts as follows:

- 08:00-16:00 - 40 Employees
- 16:00-00:00 - 40 Employees
- 00:00 – 08:00 – 20 Employees

The proposed peak hour trip rates are shown in Table 2 below.

Weekday Trip Generation	AM Peak (08:00 – 09:00)		PM Peak (17:00-18:00)	
	Departures	Arrivals	Departures	Arrivals
Staff	20	40	0	0
Total	60		0	

Table 3 Predicted staffing requirements

The proposed development will be powered by a main line gas plant with back up diesel generators. The gas plant will be supplied using a piped service. The diesel generator is back up to the gas plant and will only be used in the event of an emergency.

Neither the gas plant or back up diesel generator will produce day to day trips and have not been included in the trip rate calculations.

4.3 Traffic Generation

Due to the shift pattens of the site, the AM Peak hour will have 40 arrivals and 20 departures resulting in a total of 60 two-way trips.

The shift change occurs at 16:00 which would be outside the traditional PM Peak between 17:00 and 18:00. It is therefore assumed that the development will have no impact on the PM Peak.

Additionally, it is assumed that all staff will travel by car, with an occupancy rate of 1 per vehicle. Again, this is unlikely in reality, but will provide a robust assessment.

A small number of deliveries such as post, couriers, IT equipment and general office supplies will be required during the operational phase of the proposed development. It is assumed that this will occur throughout the day with negligible impact on the respective peaks as these will be diverted and/or pass by trips.

Whilst provision would be made for customer service staff at the proposed data centre, this service will be undertaken via telephone / remote IT support, without the need for regular visitors to the site. It is therefore assumed that no visitors will require access to the site in the AM or PM peak hours.

Table 13.10 below indicates that the overall EdgeConnex development is forecast to generate 60 two-way vehicular trips in the AM peak hour and 0 in the PM peak hour. This is not a significant level of traffic and equates to just over one vehicle movement approximately every minute or so in each of the peak hours.

4.4 Traffic distribution

It is expected that the origins and destinations of traffic to/from the proposed development will be similar to the anticipated distribution of traffic on the R120. The assumed distribution is summarised as follows:

- 50% to and from R120 (North); and
- 50% to and from R120 (South).

In order to understand the expected trip generation of the data centre suitable assumptions have been made on the level of staff associated with the proposed development, based on information provided by EdgeConnex. Appropriate estimates have been made, where necessary, in order to provide a robust analysis of the impact of traffic associated with the proposed development on the local road network.

4.5 Cumulative Impact

The table below outlines the cumulative trip generated to previously granted schemes that will access the R120.

Condition	No. of Two-Way Trips
SD19A/0042	77
SD21A/0042	60
Total	**137**

Table 4 Cumulative Trips

4.6 Transport Infrastructure Ireland (TII) Threshold Assessment

The TII Guilders for Transport Assessments state that the threshold for junction analysis in Transport Assessments is as follows:

- Traffic to and from the development exceeds 10% of the existing two-way adjoining highway
- Traffic to and from the development exceeds 5% of the existing two-way adjoining highway, where traffic congestion exists or will exist within the assessment periods or in other sensitive locations
- Industrial development in excess of 10,000 sq. m

The existing background traffic flows and predicted operational phase vehicular trip generation have been set out in earlier sections of this chapter. Table 4 below indicates the percentage impact of the overall additional traffic at the R136 / Grange Castle Business Park Roundabout Junction, as well as the percentage increase in traffic on the Grange Castle Business Park (GCBP) arm.

It assumed that the trip distribution is based on existing flow patterns i.e., total flow through each of the access.

Condition	No. of Two-Way Trips
Base Flow	881
SD19A/0042/ SD21A/0042	77
Updated Base Flow	958
Current Application (AM Peak Flow)	60
Percentage Impact	6.26%

Table 5 Percentage impact of data centre traffic on the new R120

The impact of traffic associated with the proposed overall development is approximately 6.26% of the estimated hourly flow capacity for the upgraded Adamstown Road (R120). As the traffic dissipates throughout the network this impact will lessen on adjoining roads/junctions.

These criteria are widely considered to be best practice in determining the scope for road capacity impacts.

At a maximum of 77 two-way trips in each of the peak hours for the overall development, the proposed development has a traffic generation less than the first criterion of 10% set out above. Additionally, the proposed development is forecast to have a maximum percentage impact of around 2.1% at junctions in the vicinity of R120 and R136 (currently under construction), which is again less than the criteria set out by TII.

As a result of the above, it is concluded that the proposed development will have a minor impact on junctions in the vicinity of the site. Therefore, it is not considered necessary to undertake any further junction assessment.

5 SUMMARY

5.1 Introduction

The development will consist of the construction of two no. adjoined single storey data centres with associated office and service areas with an overall gross floor area of 15,274sqm that will comprise of the following:

- Construction of 2 no. adjoined single storey data centres with a gross floor area of 12,859sqm that will include a single storey goods receiving area / store and single storey office area (2,415sqm) with PV panels above, located to the east of the data centres as well as associated water tower, sprinkler tank, pump house and other services;
- The data centres will also include plant at roof level; with 24 no. standby diesel generators with associated flues (each 25m high) that will be located within a generator yard to the west of the data centres;
- New internal access road and security gates to serve the proposed development that will provide access to 36 no. new car parking spaces (including 4 no. electric and 2 no. disabled spaces) and sheltered bicycle parking to serve the new data centres;
- New attenuation ponds to the north of the proposed data centres; and
- Green walls are proposed to the south and east that will enclose the water tower and pump house compound.

The development will also include ancillary site works, connections to existing infrastructural services as well as fencing and signage. The development will include minor modifications to the permitted landscaping to the west of the site as granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and Ref. SD21A/0042. The site will remain enclosed by landscaping to all boundaries. The development will be accessed off the R120 via the permitted access granted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948 and SD21A/0042

The site has an area of 5.1 Ha.

5.2 Development Access

The development will be access via the access permitted under permitted under SDCC Planning Ref. SD19A/0042 / ABP Ref. PL06S.305948

The proposed permitted access will serve as the main vehicular access into the site both for this and future applications.

5.3 Parking

It is proposed to provide 36 car parking spaces comprising 30 standard spaces, 4 EV spaces and 2 disabled spaces.

The resulting parking provision is sufficient for all employee and visitor parking requirements.

Sheltered cycle parking will be provided on site.

5.4 Servicing

An AutoTrack analysis has been carried out at the proposed site access junction and the car parking layout to demonstrate its capacity to cater for the anticipated vehicle usage.

5.5 Trip Generation

For the scale and type of development proposed, it is expected that the development will generate 60 new trips in the AM peak hour, and 0 new trips in the PM peak hour.

5.6 Operational Assessment

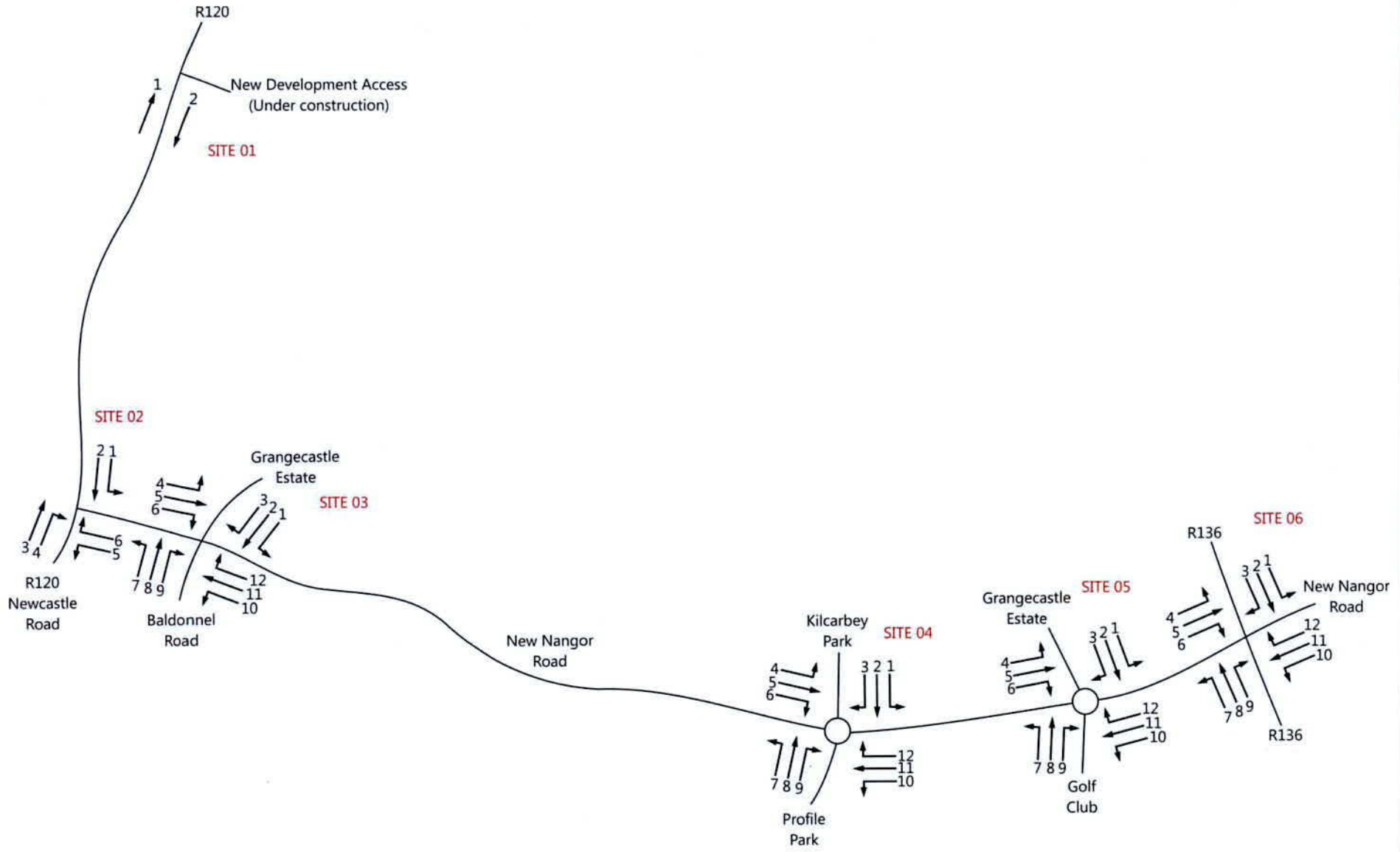
The results of the TII threshold analysis undertaken demonstrates that traffic from the proposed development can be accommodated on the surrounding road network and is within reasonable limits having regard to the location of the proposed development.

5.7 Conclusion

The Transport Assessment demonstrates conclusively that traffic generated as a result of the proposed development can be accommodated within the surrounding road network and will not have an adverse impact on the surrounding road network.

APPENDIX A – TRAFFIC SURVEY

Site/Movement Numbering



Job number: TRA/22/131	Job Date: 12th May 2022	Drawing No: TRA/22/131-02	traffinomics.ie
Client: Pinnacle Consulting Engineers	Job Day: Thursday	Author: SPW	

TRAFFINOMICS LIMITED

GRANGE CASTLE TRAFFIC COUNTS **MAY 2022**
MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/131**

SITE: 01 DATE: 12th May 2022

LOCATION: R120 Newcastle Road DAY: Thursday

	MOVEMENT 1							MOVEMENT 2						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	35	6	4	6	0	51	61	87	23	2	5	1	118	127
07:15	37	10	7	12	1	67	87	97	26	4	5	2	134	145
07:30	38	13	5	11	3	70	90	113	13	4	11	1	142	159
07:45	40	10	4	6	0	60	70	132	19	7	5	0	163	173
H/TOT	150	39	20	35	4	248	308	429	81	17	26	4	557	603
08:00	64	5	5	10	1	85	102	120	21	7	7	0	155	168
08:15	65	12	5	9	0	91	105	133	16	3	8	0	160	172
08:30	49	10	6	9	1	75	91	128	21	3	3	2	157	164
08:45	25	8	0	5	2	40	49	125	16	0	5	4	150	161
H/TOT	203	35	16	33	4	291	346	506	74	13	23	6	622	664
09:00	44	10	4	8	0	66	78	90	18	6	4	2	120	130
09:15	48	10	3	4	0	65	72	71	20	3	11	2	107	125
09:30	49	11	4	9	0	73	87	72	18	7	8	0	105	119
09:45	39	12	5	9	0	65	79	71	12	9	4	1	97	108
H/TOT	180	43	16	30	0	269	316	304	68	25	27	5	429	482
P/TOT	533	117	52	98	8	808	969	1239	223	55	76	15	1608	1749

	MOVEMENT 1							MOVEMENT 2						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
16:00	83	17	3	3	0	106	111	35	13	7	8	0	63	77
16:15	95	17	0	4	1	117	123	67	20	1	13	1	102	120
16:30	117	23	2	6	1	149	159	62	14	3	9	1	89	103
16:45	113	17	3	3	0	136	141	58	9	2	11	0	80	95
H/TOT	408	74	8	16	2	508	535	222	56	13	41	2	334	396
17:00	133	20	1	1	0	155	157	55	15	4	4	1	79	87
17:15	105	18	1	2	0	126	129	58	16	2	5	0	81	89
17:30	97	23	1	0	1	122	124	54	11	6	4	0	75	83
17:45	82	17	1	4	0	104	110	50	13	3	2	1	69	74
H/TOT	417	78	4	7	1	507	519	217	55	15	15	2	304	333
18:00	101	14	2	3	1	121	127	59	7	3	3	0	72	77
18:15	90	11	3	3	0	107	112	64	10	1	3	1	79	84
18:30	74	10	0	1	0	85	86	49	11	2	3	0	65	70
18:45	60	12	1	3	0	76	80	60	6	0	3	0	69	73
H/TOT	325	47	6	10	1	389	406	232	34	6	12	1	285	305
P/TOT	1150	199	18	33	4	1404	1460	671	145	34	68	5	923	1033

PCU's Through Junction
187
232
249
243
911
269
277
255
209
1010
209
197
206
187
798
2719

PCU's Through Junction
188
244
262
237
931
244
218
207
184
852
204
197
156
153
711
2493

PINNACLE
CONSULTING ENGINEERS

NORWICH
Pinnacle House
3 Meridian Way
Norwich
NR7 0TA

01603 327 170

norwich@ukpinnacle.com

WELWYN GARDEN CITY
Alchemy
Bessemer Road
Welwyn Garden City
AL7 1HE

01707 527 630

welwyn@ukpinnacle.com

LONDON
The Harley Building
77-79
New Cavendish Street
London W1W 6XB

01707 527 630

london@ukpinnacle.com

DUBLIN
Grosvenor Court
67 Patrick Street
Dun Laoghaire
County Dublin

+353 1231 1041

dublin@iepinnacle.com

FRANKFURT
Große Gallusstraße 16-18
Frankfurt am Main 60311
Deutschland

+49 (0) 176 1736 8887

frankfurt@depinnacle.com

www.pinnacleconsultingengineers.com