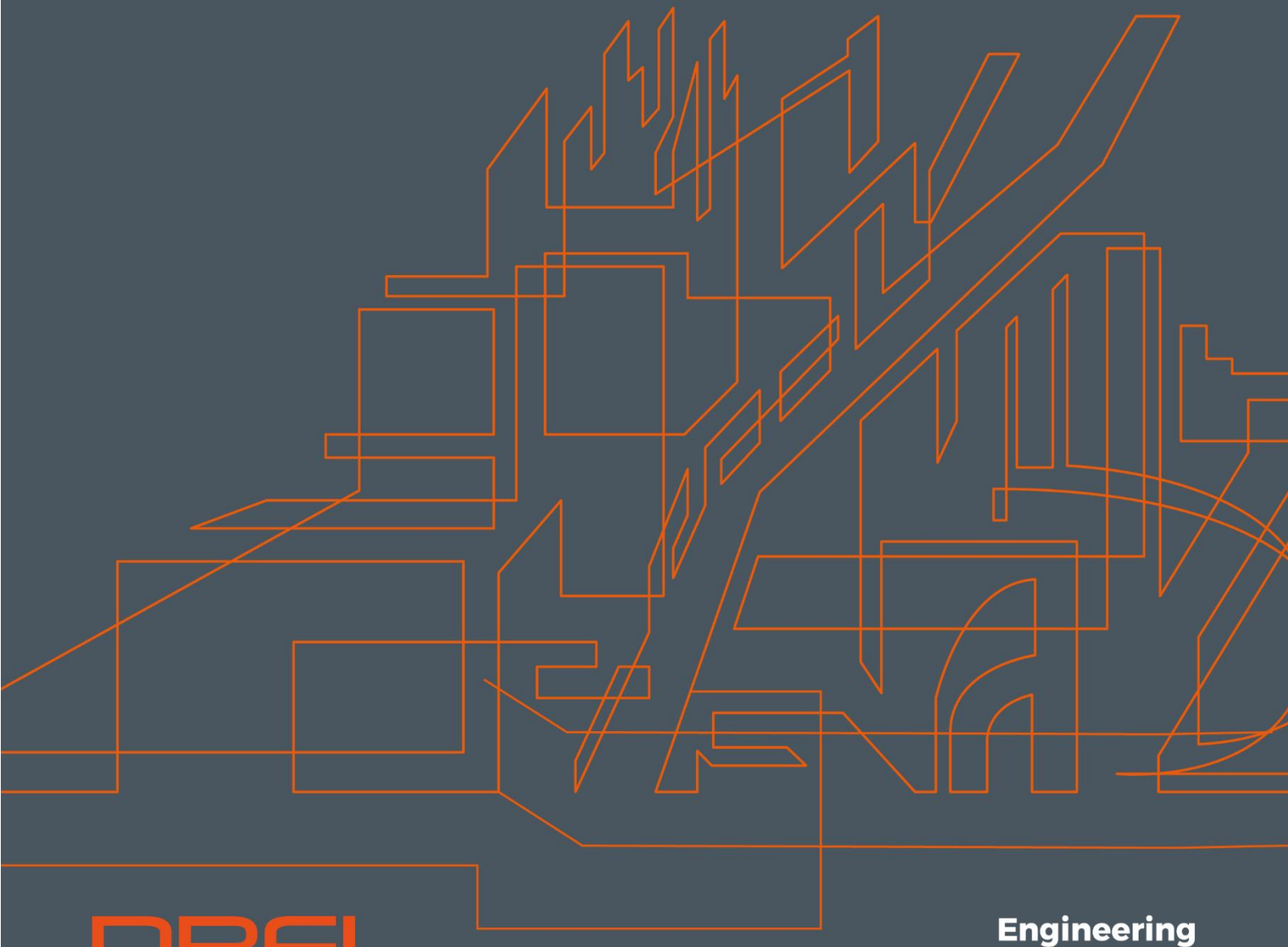
APPENDIX 13.2 – TRAFFIC & TRANSPORTATION ASSESSMENT

Kishoge Part 10 Application

Site 3, 4, 5 - Traffic & Transport Assessment

KSG-DBFL-XX-XX-RP-C-0006

May 2025



DBFL CONSULTING ENGINEERS

Engineering Sustainable Futures

Project Title:	**Kishoge Part 10 Application**		
Document Title:	**Site 3, 4, 5 - Traffic & Transport Assessment**		
File Ref:	**KSG-DBFL-XX-XX-RP-C-0006**		
Status:	**P3 - Planning**	Rev:	**2**
	S - Issued		

Status	Rev.	Date	Description	Prepared	Reviewed	Approved
P1	0	24/02/25	Draft Planning Issue	Lidi Pan	Daniel Garvey	Danny Pio Murphy
P3	1	24/03/25	Issued for Planning	Lidi Pan	Daniel Garvey	Danny Pio Murphy
P3	2	14/05/25	Issued for Planning	Lidi Pan	Daniel Garvey	Danny Pio Murphy

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1 Introduction

1.1 Background

DBFL Consulting Engineers (DBFL) have been commissioned to prepare a Traffic and Transport Assessment (TTA) for proposed developments on lands at Kishoge, Co. Dublin. The developments will consist of the construction of Kishoge Site 3, Site 4 and Site 5.

Kishoge Site 3 comprises 580no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom and 3-bedroom typologies; 2-storey childcare facility; All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be from Adamstown Avenue and the Northern Link Street, proposed under concurrent application Reg. Ref. SDZ24A/0033W.

Kishoge Site 4 comprises 436no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom, 3-bedroom and 4-bedroom typologies; a childcare facility on the ground floor of Block F; retail unit; community building; employment uses and All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be via the Southern Link Road permitted under SDZ20A/0021.

Kishoge Site 5 comprises 236 no. residential units including 55 no. social housing units, 113 no. affordable purchase units and 68 no. cost rental units. The scheme provides for a mix of 1, 2 and 3-bedroom units in a range of dwelling typologies, as follows:

a) 35 no. houses

b) 110 no. duplex units

c) 33 no. triplex units, and

d) 58 no. apartments

The proposal also includes all associated and ancillary site development and infrastructural works including a total of 219 no. car parking spaces at undercroft and surface level, bicycle parking, hard and soft landscaping and boundary treatment works, public, communal and private open space,

public lighting, waste storage areas and foul and water services. Vehicular access to the site will be from Thomas Omer Way and the Northern Link Street (NLS) proposed under concurrent application Reg. Ref. SDZ24A/0033W.

1.2 Scope

The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of any transport impact generated as a result of the proposed developments. The scope of the assessment covers transport and related sustainability issues including means of vehicular access, pedestrian, cyclist and local public transport connections. The principal objective of the report is to quantify any level of impact across the local road network and subsequently ascertain both the existing and future operational performance of the local road network.

1.3 Methodology

Our approach to the study accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include;

- '*Traffic and Transport Assessment Guidelines*' (May 2014) National Road Authority (Now TII);
- *'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 (1994);
- *'Design Manual for Urban Roads and Streets'* (DMURS) – 2019;
- *South Dublin County Development Plan 2022-2028.*

Our methodology incorporated a number of key inter-related stages, including;

- **Background Review:** A background review of previous planning permissions on the subject sites and committed developments in the wider surrounding area was undertaken.
- **Site Audit:** A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of

accessibility to the sites in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.

- **Development Framework:** A review of Development Frameworks and supporting transport focused studies was undertaken.
- **Traffic Counts:** Historic traffic flows were obtained via the planning application for the Clonburris Northern Link Street. These traffic flows were retrieved from the South West Dublin Local Area Model which supported the Clonburris SDZ assessment. This report was analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed developments.
- **Trip Generation:** A trip generation exercise has been carried out to establish the potential level of future vehicle trips using the proposed developments.
- **Trip Distribution:** Based upon both the existing traffic characteristics and the network layout in addition to the spatial / land use configuration and density of the urban structure across the catchments area of the developments, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.
- **Network Impact:** The specific level of influence generated by the proposed developments upon the local road network was ascertained.
- **Network Analysis:** Detailed computer simulations were used to assess the operational performance of key junctions in the post development 2028, 2033 and 2043 development scenarios in accordance with the NRA/TII document 'Traffic and Transport Assessment Guidelines' (2014).

1.4 Report Structure

As introduced above, this TTA seeks to clarify the potential level of influence generated by the proposed developments upon the local road network and subsequently ascertain the existing and future operational performance of the local transport system. The structure of the report responds to the various stages of this exercise including the key tasks summarised below.

Chapter 2 of this report describes the existing conditions at the proposed developments location and surrounding area, whilst **Chapter 3** provides a summary of the relevant transport policies that influence the design and appraisal of the subject proposal.

A description of the proposed development schemes is described in **Chapter 4** whilst **Chapter 5** outlines the trip generation exercise carried out and the adopted methodology for applying growth factors to establish design year network traffic flows and the predicted scale of impact upon the local road network.

The operational performance of key junctions is assessed for the 2028 Opening Year and the 2033 (Opening Year +5 years) and the 2043 (Opening Year +15 years) Horizon Years are summarised within **Chapter 6**. Analysis of the impact on key local junctions for a range of different development / traffic scenarios are investigated and reported within **Chapter 7**.

Chapter 8 outlines a number of mitigation measures including how the construction phase of the project will be managed.

The main conclusions and recommendations derived from the analysis are summarised in **Chapter 9**.

2 Receiving Environment

2.1 Land Use

The subject sites are greenfield sites located within the Clonburris Strategic Development Zone lands. The Clonburris SDZ lands have an approximate land area of 280 hectares and are predominately agricultural in nature or greenfield sites. In recent years, Lucan East Educate Together National School and two secondary school; Griffeen Community College and Kishoge Community College, have been constructed on the lands. The lands also contain a number of private residences, together with traveller accommodation which has been provided by South Dublin County Council. There are two train stations operational within the SDZ: the Clondalkin-Fonthill station and the Kishoge station.

The subject lands are located within the Clonburris SDZ and the land use zoning objective is described within the South Dublin County Development Plan (2022-2028) as "To provide for strategic development in accordance with approved planning schemes". As part of the Clonburris SDZ planning scheme, the lands are zoned for mixed use, predominantly residential, development as shown in **Figure 2-1** below.

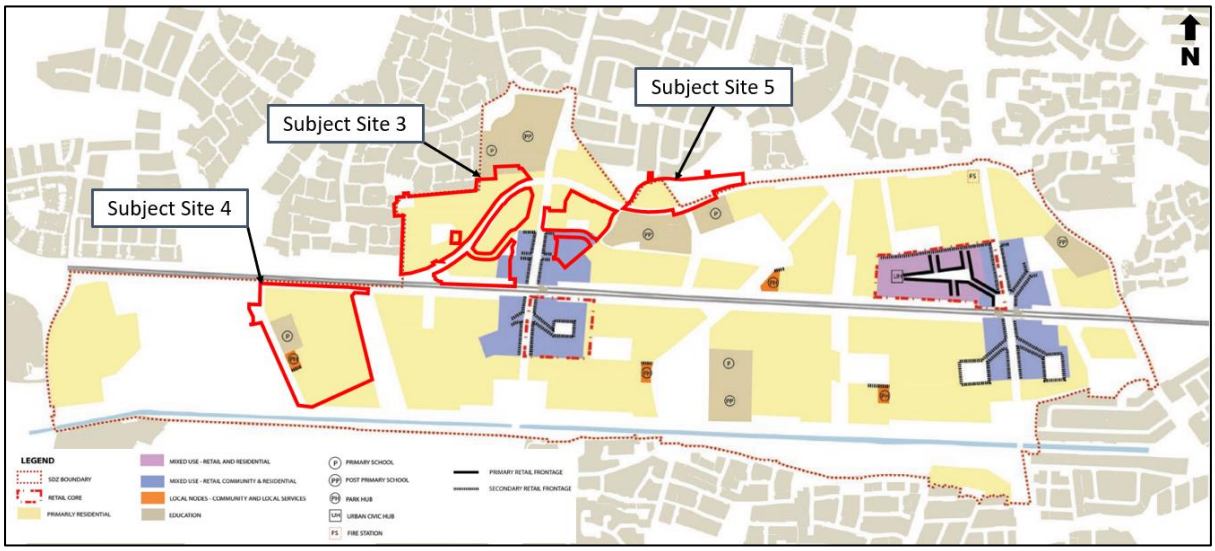


Figure 2-1 Subject Sites Current Zoning Objectives (Source: Clonburris SDZ Planning Scheme, Land Use Area Map)

2.2 Location

The proposed development sites are in the administrative area of South Dublin County Council (SDCC) and are part of the Clonburris Strategic Development Zone (SDZ). The subject sites for this development are situated in the north westerly and westerly area of the Clonburris SDZ land.

Site 3 is situated west of the R136 Grange Castle Road (also referred to as the Outer Ring Road) and north of the Kildare Rail Link.

Site 4 is situated south of the Kildare/Cork Railway line and west of the R136 Grange Castle Road (also referred to as the Outer Ring Road).

Site 5 is situated north of the Kildare/ Cork Railway Line, East of the R136 Grange Castle Road and is bisected by the Thomas Omer Way Road.

The SDZ is located to the west of Dublin City Centre and the M50. It is conveniently positioned between Lucan to the north-west, Clondalkin to the south-east and Liffey Valley to the north-east. The general location of the subject scheme in relation to the surrounding region and road network is illustrated in **Figure 2-2**.

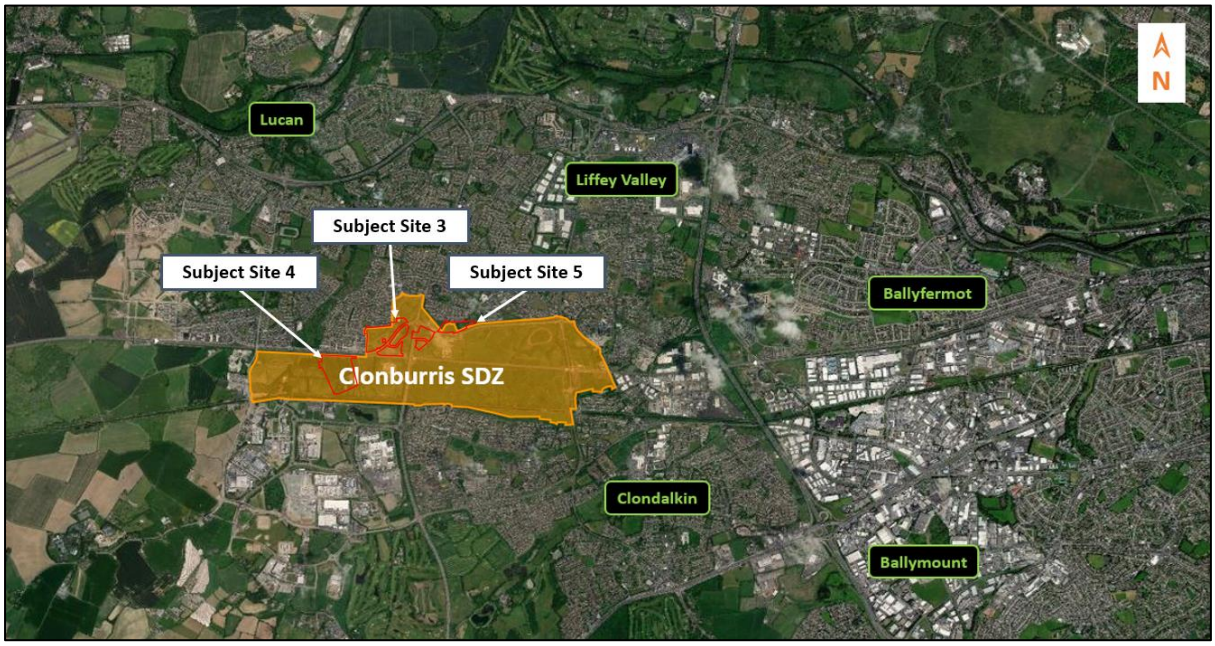


Figure 2-2 Site Location (Source: ArcGIS Maps)

2.3 Local Amenities

The proposed development sites are well placed in terms of proximity to local amenities. Local primary schools include Lucan East Educate Together National School, Griffeen Valley Educate

Together National School, Lucan Community National School, Divine Mercy National School, St. Peter and the Apostle Junior National School, Nano Nagle Junior National School, Talbot Senior National School and St. Ronan's National School.

Some of the secondary schools found close to the subject sites include Kishoge Community College, Griffeen Community College, Collinstown Park Community College, Coláiste Chilliain and Deansrath Community College.

The sites are also conveniently located close to a number of retail centres including The Mill Shopping Centre, Bawnogue Shopping Centre, Nielstown Shopping Centre, Clondalkin Village Centre and Ballyowen Castle Shopping Centre. A number of employment centres can also be found nearby including Clondalkin Industrial Estate, ACE Enterprise Park, Oakfield Industrial Estate, Elmfield Industrial Estate, Grange Castle Business Park and Fonthill Industrial Estate.

A number of leisure facilities will be easily accessible from the subject sites including Clondalkin Leisure Centre, Clondalkin Skatepark, Griffeen Valley Park, Grange Castle Golf Club and Lucan Sarsfields GAA Club. Healthcare facilities in close proximity to the subject sites include Cherry Orchard Hospital, Ballyowen Medical Centre, Clondalkin Medical Centre and Deansrath Health Centre.

The location of these amenities in relation to the subject sites is shown in **Figure 2-3** below.

Figure 2-3 Local Amenities

2.4 Existing Transportation Infrastructure

2.4.1 Road Network

Clonburris is located to the west of Dublin City Centre and is well connected to the National Road Network, served by several key strategic routes. The Clonburris SDZ boundary is broadly bounded by the Arterial corridors of Adamstown Avenue and Thomas Omer Way to the north, Ninth Lock Road to the east, the Arterial corridor of Newcastle Road to the west, the Grand Canal to the south, as illustrated in **Figure 2-4**. The key north-south arterial corridors through Clonburris include:

- R113 Fonthill Road North which crosses through the eastern portion of Clonburris;
- R136 Grange Castle Road which crosses through the centre of the SDZ lands; and
- R120 Newcastle Road which passes along the western boundary of the SDZ.

The R113 can be found to the east of the SDZ. This single carriageway road is subject to a speed limit of 60 km/h as it passes through the SDZ, with stretches of bus lane for southbound travel found along the western edge of the carriageway. Bus lanes for travel in both directions can be found north of the SDZ. The R113 connects to the N4 and Liffey Valley to the north and to Clondalkin and Tallaght to the south. The road also facilitates access to the Clondalkin Fonthill train station.

The R136 can be found running through the middle of the SDZ, also running in a north-south direction. This road has two lanes of traffic travelling in each direction with bus lanes also found on both sides. A speed limit of 80km/h is in place along the section of the R136 that passes through the SDZ. Travelling north along the R136 leads to junction 3 of the N4. Travelling south along the R136 leads to junction 2 on the N7, Citywest and Tallaght.

The R120 can be found to the west of the SDZ, running in a north-south direction. The single carriageway road is subject to a speed limit of 60 km/h in the vicinity of the SDZ. Travelling north along the R120 provides a connection to Lucan Village and junction 4 on the N4. The N4 national road connects the M50 motorway to the M4 motorway. Travelling south along the R120 provides a connection to Newcastle, junction 4 on the N7 and Rathcoole. The N7 national road connects the M50 motorway to the M7 motorway.

The key east-west corridors through the area include Adamstown Avenue and Thomas Omer Way to the immediate north, where these roads provide a connection between Fonthill Road North and

Grange Castle Road. Coldcut Road, also to the north of the site provides an east-west connection from Fonthill Road North to Palmerston and Ballyfermot.

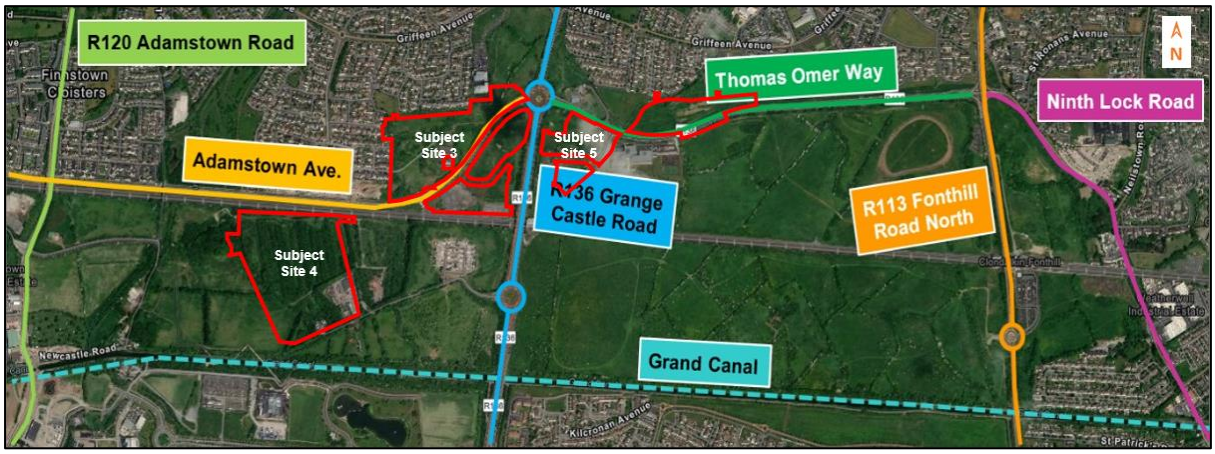


Figure 2-4 Existing Road Corridors in Clonburris SDZ lands (Source: Google Maps)

2.4.2 Existing Cycling Facilities

At present, the Clonburris SDZ lands are largely a greenfield site and as such there is limited cycle network within the lands. However, the Grand Canal Greenway, which links Adamstown to the City Centre, passes through the area along the Grand Canal as shown in **Figure 2-5**.

The SDZ lands are dissected by the Fonthill and Grange Castle Roads on a north south axis both of which include segregated cycle facilities offering links to Lucan Village, Liffey Valley and the N4, which also features segregated cycle facilities and a cycle link to the City Centre. To the South, there are cycle links to the Grange Castle Business Park and further south, Clondalkin Village and Tallaght.

Thomas Omer Way is orientated along the northern boundary of the Clonburris SDZ lands and has segregated cycle tracks on both sides of the road. The R120 Adamstown Road is orientated along the west of the Clonburris SDZ lands and features shared pedestrian and cyclist facilities on both sides.

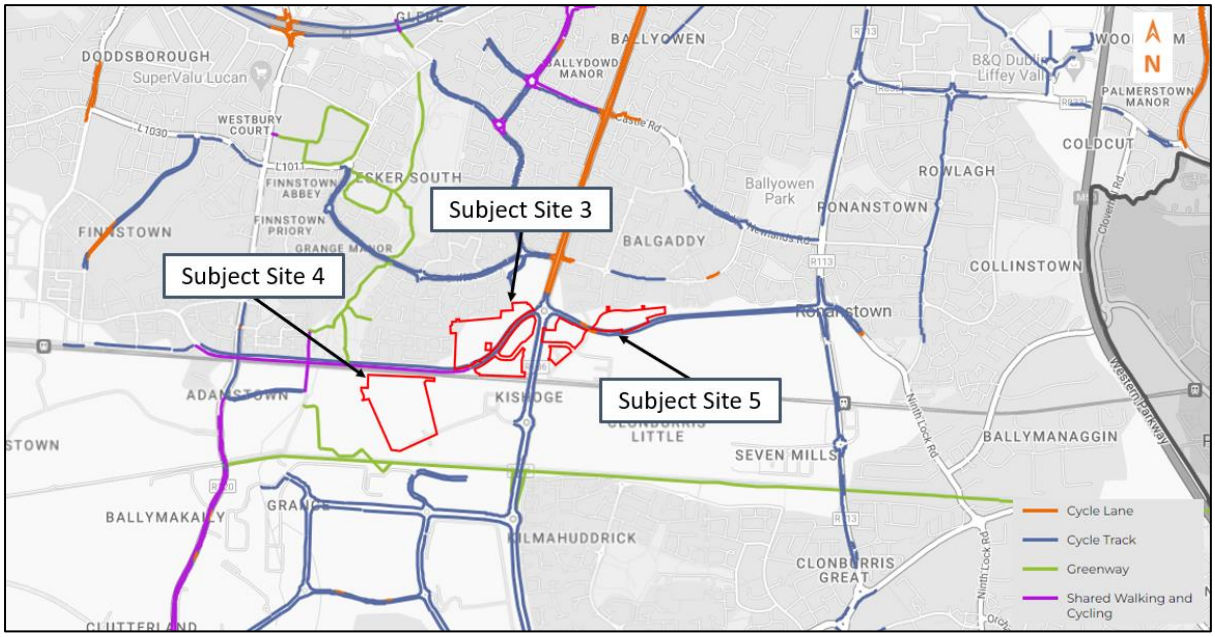


Figure 2-5 Existing Facilities South Dublin Active Travel (Source: SDCC Active Travel GIS Maps)

2.4.3 Existing Pedestrian Facilities

The Ninth Lock Road located along the eastern boundary and Thomas Omer Way on the northern boundary of the Clonburris SDZ lands includes footpaths on either side along most of its length. The path surfaces are generally of a high-quality, whilst sections of the path on Ninth Lock Rd are narrow in places and the path is immediately adjacent the carriageway, as shown in **Figure 2-6**.

Figure 2-6 Fonthill Road (R113) Northbound

The Fonthill Road features footpaths on either side, segregated from the carriageway by way of a grass margin (**Figure 2-7**). The paths are generally in good condition and are of a consistent width throughout. Fonthill Road offers walking connections to the Fonthill Retail Park and Liffey Valley Shopping Centre to the north, and Clondalkin village and the Nangor Road to the south.

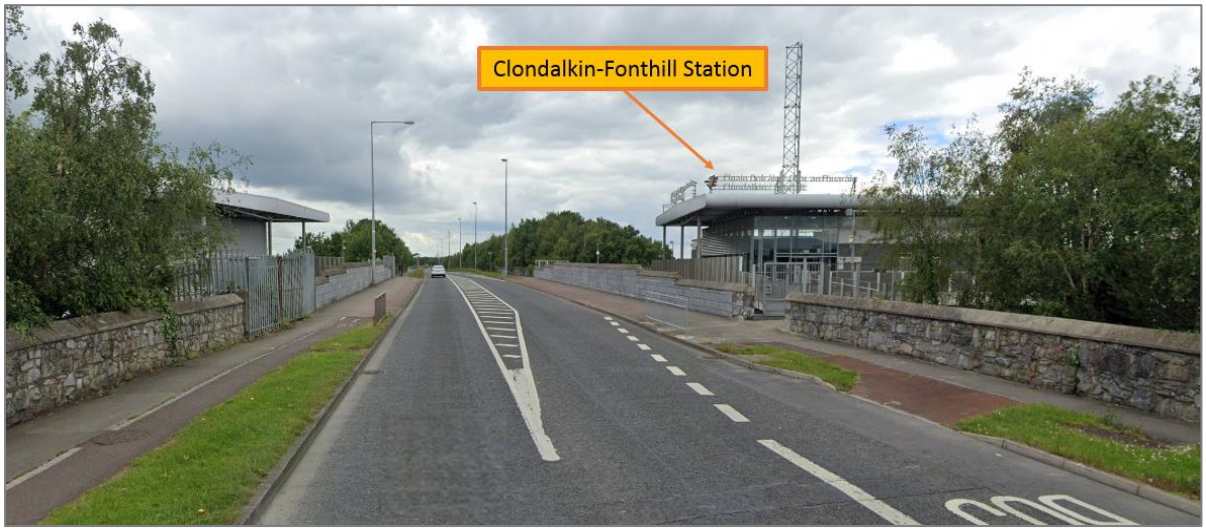


Figure 2-7 Fonthill Road (R113) Northbound

The Grange Castle Road also features footpaths on either side segregated from the carriageway by way of a grass margin (**Figure 2-8**). The paths are generally in good condition and are of a consistent width throughout. The Grange Castle Road offers walking links to Lucan Village in the north, Adamstown to the west via its intersection with Adamstown Avenue, and to the south walking links to Grange Castle Business Park and Corkagh Park.

Figure 2-8 Grange Castle Road Northbound (R136)

The Grand Canal Greenway, which follows an east west axis, offers a leisure walk link towards Dublin City Centre and Adamstown to the west. A new canal bridge has just been completed by SDCC. It features a shared space on the southern side and a pedestrian space on the southern side (**Figure 2-9**).

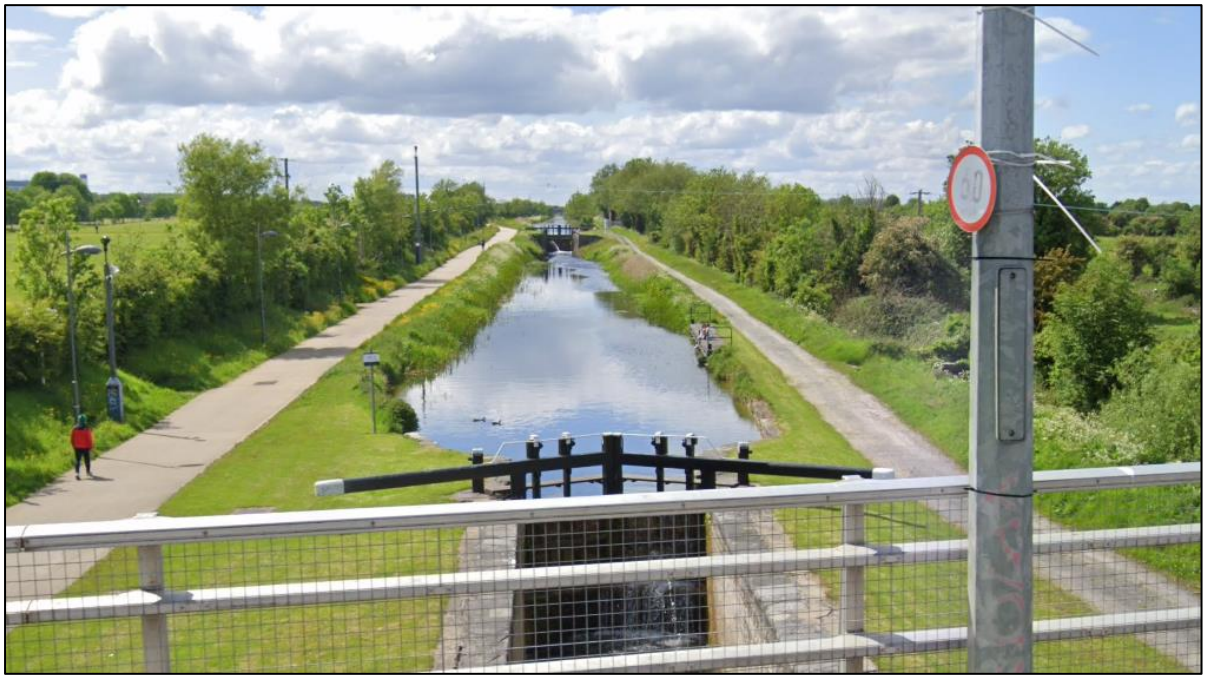


Figure 2-9 Grand Canal Greenway from Fonthill Road

2.4.4 Existing Public Transport – Bus

There are a number of roads in the immediate area that have bus priority in the form of Quality Bus Corridors (QBCs). These include the following and are shown in **Figure 2-10:**

- Grange Castle Road features QBCs in both directions (Bus no. 151, W4),
- Lock View Road and Bawnogue Road (Bus no. 13 and 51d),
- Balgaddy Road (Bus no. C1, C2 and L53)
- Ninth Lock Road (Bus no. G2), and
- Fonthill Road features a southbound QBC (Bus no. 51d, G2 and L54).

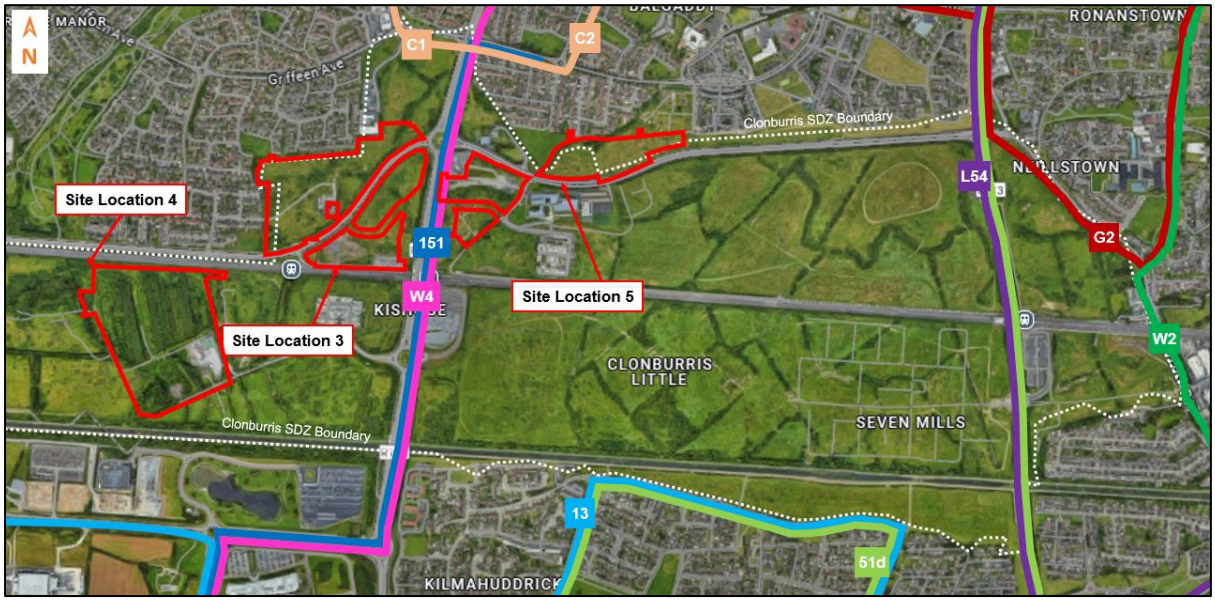


Figure 2-10 Existing Bus Route Network around the Subject Site

Table 2-1 below shows the frequency of services for these bus routes while **Figure 2-11** highlights the locations of the bus stops closest to the subject sites.

Route No.	Description	No. of Services per Day		
		Mon - Fri	Sat	Sun
13	Harristown – Grange Castle	85	68	59
	Grange Castle – Harristown	87	68	63
G2	Liffey Valley Shopping Centre – Spencer Dock	82	67	49
	Spencer Dock – Liffey Valley Shopping Centre	81	67	49
51d	Aston Quay / Waterloo Road – Clondalkin	1	-	-
	Clondalkin – Aston Quay / Waterloo Road	1	-	-
L54	River Forest – Red Cow Luas	35	32	29
	Red Cow Luas – River Forest	36	32	39
151	Docklands – Foxborough	48	46	31
	Foxborough - Docklands	51	48	34
W4	The Square – Blanchardstown SC	46	33	30
	Blanchardstown SC – The Square	46	33	30
C1	Adamstown to Sandymount	59	41	39
	Sandymount to Adamstown	59	41	39
C2	Adamstown to Sandymount	59	41	39
	Sandymount to Adamstown	58	41	39
L53	Adamstown Station to Liffey Valley SC	35	32	29
	Liffey Valley SC to Adamstown Station	35	32	29

Table 2-1 No. of Services per Day on Existing Bus Routes (Source: Transport for Ireland)

Figure 2-11 Location of Local Bus Interchanges in Relation to the Subject Sites

2.4.5 Existing Public Transport – Rail

The proposed development is situated on the Kildare railway line. The recently opened Kishoge Railway Station is located to the south of the subject sites boundary. Along Fonthill Road North, approximately 1,500m east of the subject site lies the Clondalkin-Fonthill station (**Figure 2-12)**. This station is served by commuter services to Heuston Station as well as Drumcondra, Dublin Connolly, Tara Street, Dublin Pearse and Grand Canal Dock, via the Phoenix Park Tunnel. Intercity trains do not serve this station.

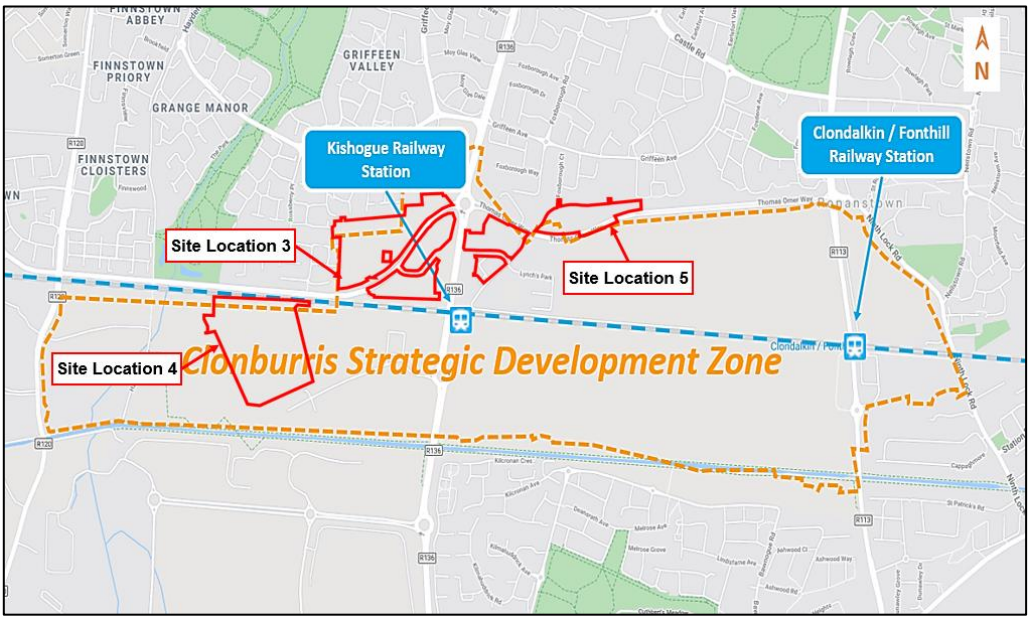


Figure 2-12 Existing Rail Network around Clonburris SDZ

Eastbound services calling at Kishogue offer good connections to Heuston station, which is the busiest station on the intercity train network offering strong connections to the regional cities and towns. **Table 2-2** below outlines the stations that are served by outbound trains from Kishoge station and the number of services these stations are served by outbound trains daily:

Direction	No. of Services per Day		
	Mon - Fri	Sat	Sun
To Newbridge	5	-	1
To Portlaoise	17	15	-
To Hazelhatch & Celbridge	17	-	-
To Carlow	1	-	-
To Kildare	1	2	4
To Grand Canal Dock	17	-	-
To Dublin Heuston	22	18	5
Total No. of Outbound Services	**80**	**35**	**10**

Table 2-2 No. of Outbound Services per Day from Kishogue Train Station

2.5 Emerging Transport Proposals

2.5.1 Roads Proposals

The road infrastructure upgrades outlined within the Clonburris SDZ Planning Scheme (May 2019) and the South Dublin County Council Development Plan (2022 – 2028) that are proposed within/close to the Clonburris SDZ scheme include the following and are shown in **Figure 2-13**:

- Clonburris/Kishogue Street Network: Various streets proposed within the Clonburris SDZ lands (which includes the Clonburris 'Southern Link' Street (currently under construction), as well as the Clonburris 'Northern Link' Street which was granted planning permission by South Dublin County Council in February 2025),
- Celbridge Link Road: A new road between the Adamstown SDZ lands and Celbridge Road (R403),
- Newcastle Road (R120): Junction upgrades at SuperValu roundabout and Hillcrest Road,
- Griffeen Avenue: Improvements at junctions with Griffeen Road, Outer Ring Road and the link between them,
- New Nangor Road Extension: New road between R120 and Brownstown,
- Junction upgrade at Fonthill Road/N4,

- Cloverhill Road/Ninth Lock Road Upgrade and Link Road: Upgrade of Cloverhill Road from the M50 and upgrade of Ninth Lock Road from Fonthill Road to a new link road adjacent to the Dublin-Kildare railway Line,
- Western Dublin Orbital Route: New Road from the N7 to the N4 Leixlip Interchange with an extension to the N81.

The aforementioned upgrades at Ninth Lock Road and Griffeen Avenue will be in line with the Clonburris SDZ Scheme. These existing roads will be designated as 'Link Streets' under this scheme and shall be upgraded as traffic calmed streets. The scheme also proposes a number of key junction improvements through and along the proposed 'Arterial Streets' within the subject lands to improve connectivity. These improvements are proposed on Fonthill Road and Grange Castle Road. Furthermore, the proposed Western Dublin Orbital Route would provide additional connections towards Rathcoole, Saggart and Tallaght.

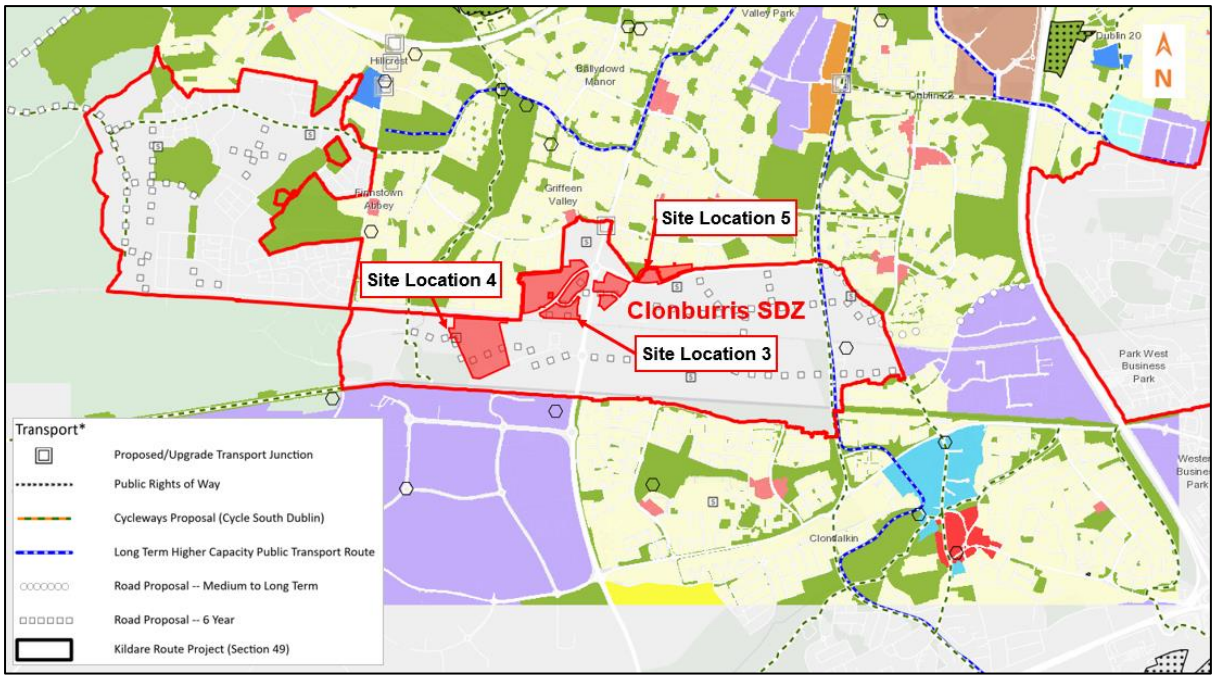


Figure 2-13 Proposed Road Infrastructure around the Clonburris SDZ

Clonburris Southern Link Street

The Clonburris Southern Link Street Scheme was granted planning permission by South Dublin County Council in August 2021 (under Planning Reg. Ref. SDZ20A/0021) and is under construction. The proposed scheme forms part of the Clonburris SDZ Planning Scheme (2019) as road infrastructure to support the development of SDZ lands in conjunction with the Clonburris

Northern Link Street. The Clonburris Southern Link Street will allow the southern lands of the SDZ to be opened up for development and allow access for the road network for future residents. The Link Street will transverse through the subject development.

The Clonburris Infrastructure Development consists of the Clonburris Southern Link Street (CSLS) (**Figure 2-14**) and associated trunk infrastructure to serve the Clonburris Strategic Development Zone lands to the south of the Kildare/Cork Railway Line. The new CSLS will connect from the R120 Newcastle Road to the Ninth Lock Road with proposed intersections with the R136 Grange Castle Road and the R113 Font Hill Road. The proposed street will provide access for vehicular traffic, pedestrians, cyclists, and public transport to the Clonburris SDZ lands to the South of the Kildare/Cork Railway Line and provide linkages to the surrounding arterial road network.

The CSLS will consist of 4.0km of new road generally in the form of a 7m wide single carriageway with 1.75m wide off-road cycle tracks, 2m wide footpaths and public lighting. The CSLS includes the provision of 288 no. on-street car parking spaces (including 26 no. disabled parking spaces) as well as a number of pedestrian crossings and bus stop locations. It will include 8 no. new junctions and alterations to 4 no. existing junctions, in addition it will provide a number of vehicular access spurs to facilitate future development of adjoining lands.

As mentioned, the CSLS will run in an east-west direction through the subject site and provide the site with access to the surrounding road network in the form of the R113 Fonthill Road North and Ninth Lock Road to the east and the R136 Grange Castle Road and R120 Adamstown Road to the west. From the CSLS planning application, a construction period of 24 months is expected in the best-case scenario where no obstacles arise and funding is available for the entirety of the project, but it would be operational by the design year 2028.

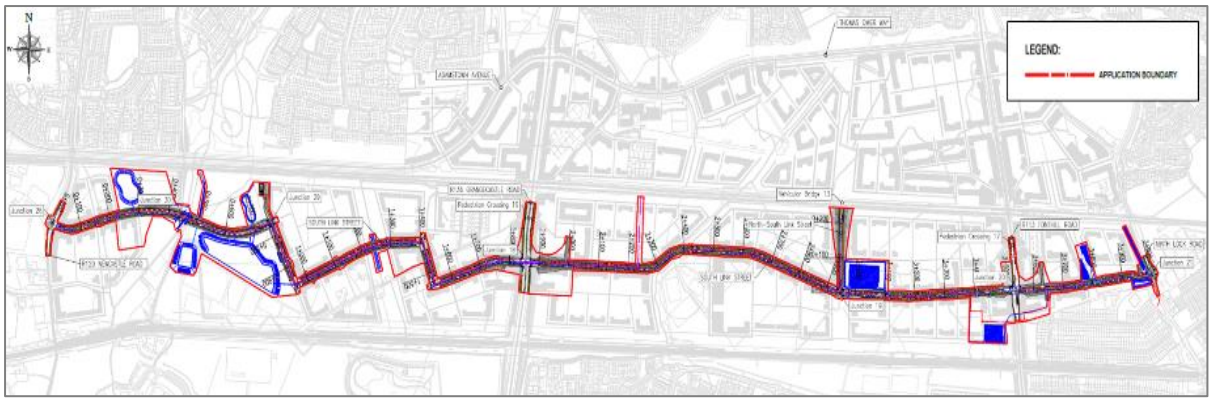


Figure 2-14 Proposed Clonburris Southern Link Street Scheme and Surrounding Existing Road Network

Clonburris Northern Link Street (CNLS)

Stage 2 of the Clonburris Infrastructure Development consists of the Clonburris Northern Link Street (CNLS) and associated trunk infrastructure to serve the Clonburris Strategic Development Zone lands to the North of the Kildare/Cork Railway Line. It was granted planning permission by South Dublin County Council in February 2025 (under Planning Reg. Ref. SDZ24A/0033W). Stage 2 will include the following infrastructure:

- Approx. 2.3km of a new Link Street (CNLS) and 800m of side streets, with:
    - Ancillary cycle facilities
    - Pedestrian crossings
    - Traffic signals
    - Footpaths
    - Bus stops.
    - 79 no. car parking spaces
    - Public lighting and
    - Miscellaneous ancillary works;
- Provision / upgrade of 12 signalised junctions (5 new and 7 upgraded) along with minor priority-controlled junctions is proposed along the street alignment to provide access to existing and future developments within the Clonburris SDZ;
- Approx. 2km of upgrades on existing streets;
- Provision of 2 main public parks centrally (c. 2.78 ha) and in the eastern part of the subject lands (c. 0.77 ha);
- Drainage infrastructure works to include surface water attenuation areas, SUDs and landscaped areas including attenuation ponds and the provision of underground attenuation. Provision of surface water drainage and waste supply trunk infrastructure within the proposed road corridors. Wastewater infrastructure including a foul pumping station and foul pipe network within proposed road corridors;
- Provision of trunk watermain infrastructure within the CNLS as well as connections to the permitted watermain infrastructure as part of SDZ20A/0021; and

- Ancillary site development and landscape works associated with the development.

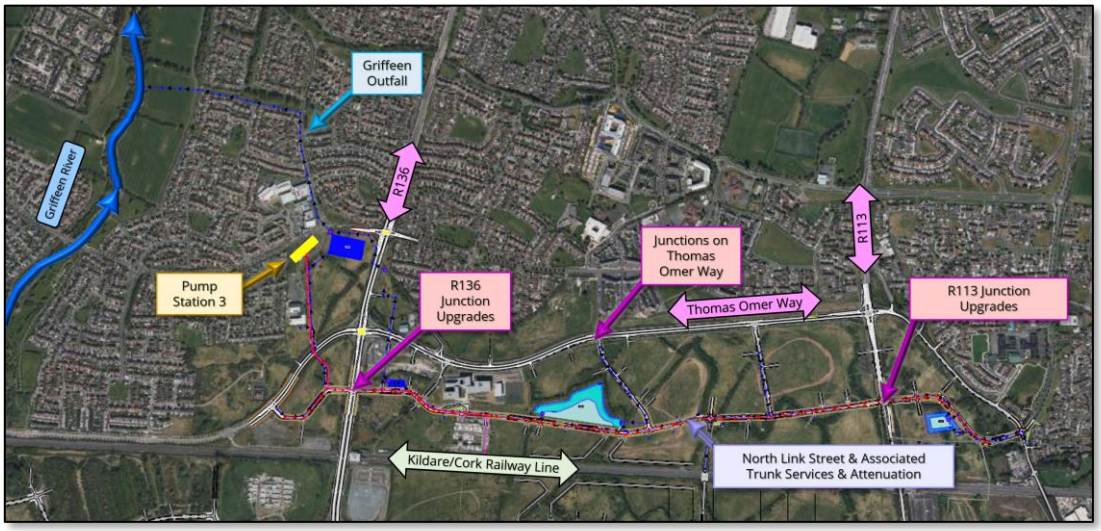


Figure 2-15 Proposed Clonburris Northern Link Street

2.5.2 Pedestrian and Cycle Network Proposals

Clonburris SDZ Planning Scheme

The design approach for pedestrian and cyclist infrastructure will apply uniform design widths along the streets that are under consideration and will consider the existing greenway network and pedestrian priority routes to interact with the proposed 'Arterial' and 'Link' corridors under the Clonburris SDZ planning scheme.

Local pedestrian priority streets/routes shall also be provided in designated areas in and around the vicinity of the proposed Kishoge and Clonburris Urban Centres. These local routes within the SDZ lands will create an opportunity to link with the Grand Canal Green Route which runs through and along the entire southern boundary of the SDZ lands and links with Dublin City Centre in the form of a dedicated pedestrian and cycle route (**Figure 2-16**). Local Streets that provide through routes for strategic pedestrian and cycle routes should be filtered to prioritise pedestrian and cyclist through access where junctions intersect with the link or arterial streets only.

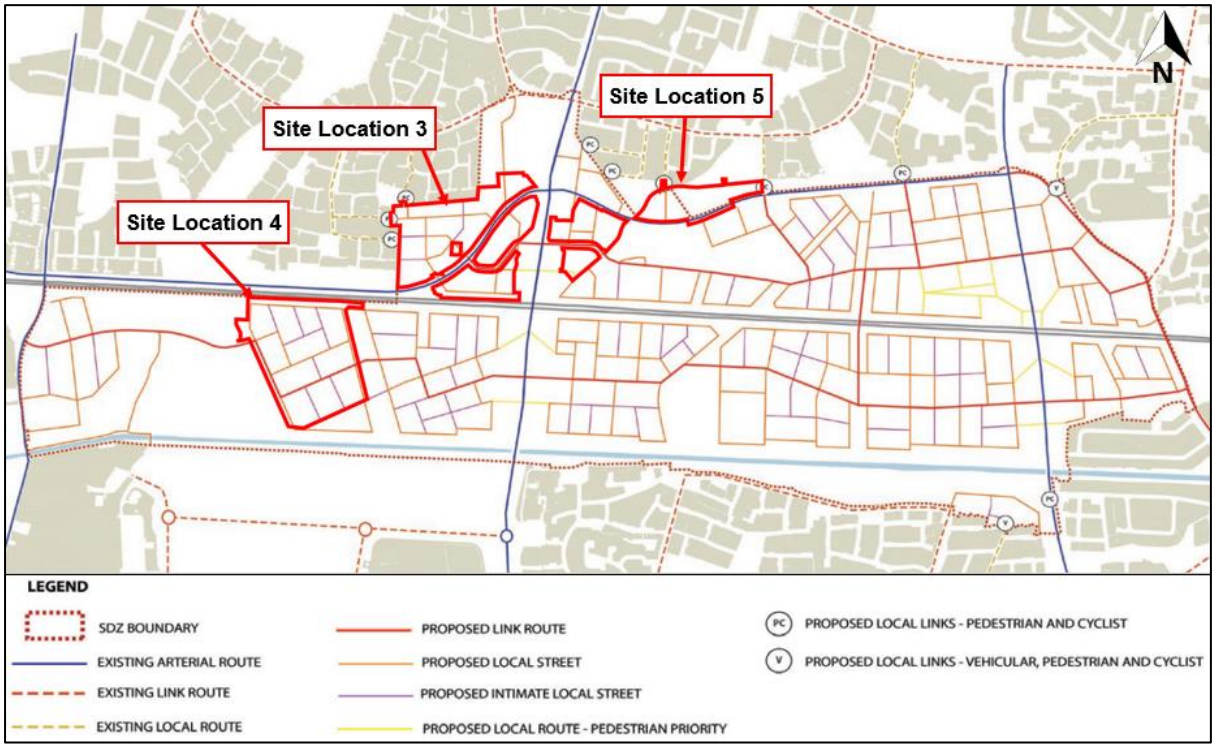


Figure 2-16 Clonburris SDZ Street Hierarchy (Clonburris SDZ Planning Scheme May 2019)

Five dedicated pedestrian crossings on Arterial Streets have been incorporated in the designs of the road infrastructure proposals. These are located as follows:

- Three along the R136 Grange Castle Road;
- Two north and south of Kishoge train station where pedestrian priority route converges on either side of the arterial road corridor;
- One on the bridge over the railway line, adjacent to the train station to cater for pedestrian desire crossing movements to/from either side of the road; and
- Two along the R113 Fonthill Road North, north and south of Clondalkin and Fonthill train station where pedestrian priority route converges on either side of the arterial road corridor.

A number of bridges are required to enable north-south movement across the Grand Canal and Kildare Railway for different modes. A total of five new bridges are proposed in addition to the upgrade of an existing pedestrian and cycle bridge to a 'green bridge' at Hayden's Lane. Within the SDZ lands, the Railway Line splits the lands including Griffeen Valley Park and the lands to the south.

In order to mitigate the disintegration of the green infrastructure, in particular the Griffeen Valley Park and the Griffeen River, a green bridge shall be provided over the railway line. The Clonburris scheme aims to retrofit or replace the existing pedestrian bridge over the railway line to provide a green bridge connecting the Griffeen Valley Park and the proposed extension of the park to the south to enhance pedestrian and cyclist accessibility.

GDA Cycle Network Plan

In January 2023, the Greater Dublin Area (GDA) Cycle Network Plan, consisting of the Urban Network, Inter-Urban Network and Green Route Network for each of the seven Local Authority areas comprising the GDA was adopted as part of the GDA Transport Strategy 2022-2042. The majority of the proposed 2013 cycle network remains unchanged in the updated proposals. The primary changes to the network found in the updated plan are the provision of a number of greenway routes through the Clonburris SDZ lands as well as a change in the hierarchy from secondary route to primary route for the facilities to be provided on the R136 Grange Castle Road, north of the roundabout junction with Thomas Omer Way. The proposed cycle facilities presented in the Greater Dublin Area Cycle Network Plan 2023 are shown below in **Figure 2-17**.

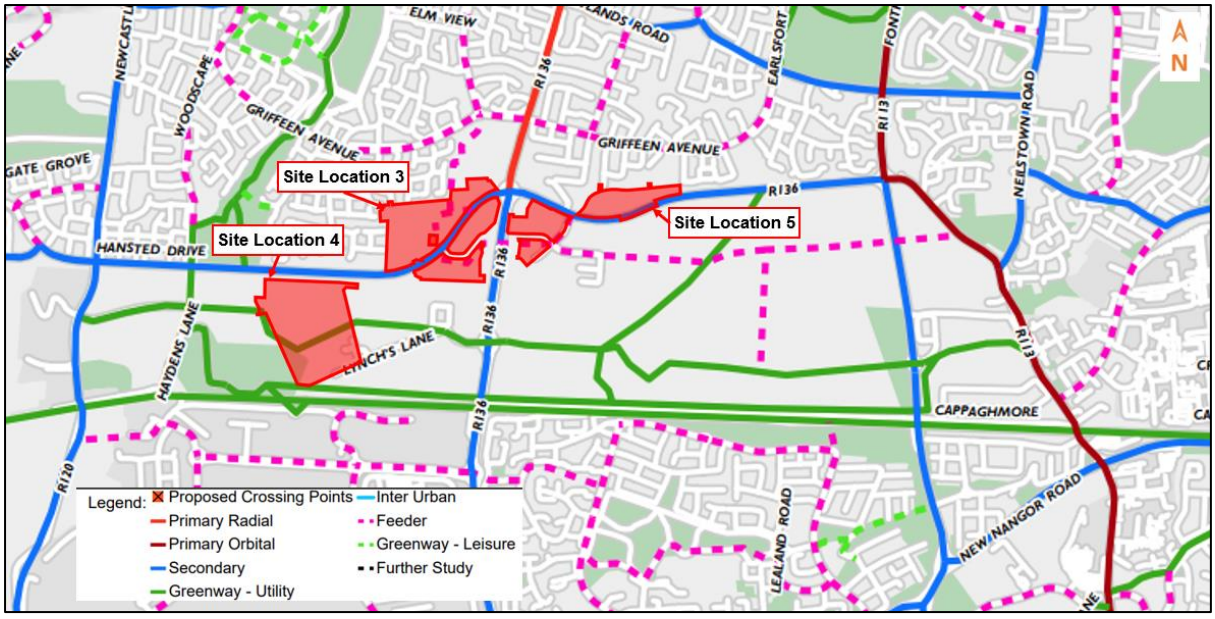


Figure 2-17 Proposed Cycle Routes (Extract: GDA Cycle Network Plan 2023)

Proposed Cycling Networks

South Dublin County Council has prepared a Cycle Network Plan as part of the Cycle South Dublin Programme. Cycle routes detailed in the plan are at different stages of development; while some have been completed, others await construction or are at a design or consultation stage. A summary of the proposed routes in the vicinity of the Clonburris SDZ is presented in **Table 2-3** below.

Route No.	Description			Current Status
1	Lucan Canal Loop	4.4 km	Now	Advanced Design Stage
2	Grand Canal Extension	5.4 km	Now	Final Design Stage
15(A)	Clondalkin Boot Road to Coldcut Road	2.6 km	Soon	Existing Cycle Lanes Reviewed
16	Ninth Lock Road	1.2 km	Soon	Preliminary Route Selection Stage
26(A)	Griffeen Valley Park to Celbridge Link Road	1.5 km	Soon	Under Construction

Table 2-3 Proposed Cycle Facilities in the Vicinity of the Clonburris SDZ (Source: SDCC Active Travels GIS Map)

The location of these proposed cycle routes in the vicinity of the Clonburris SDZ are shown in **Figure 2-18** below.

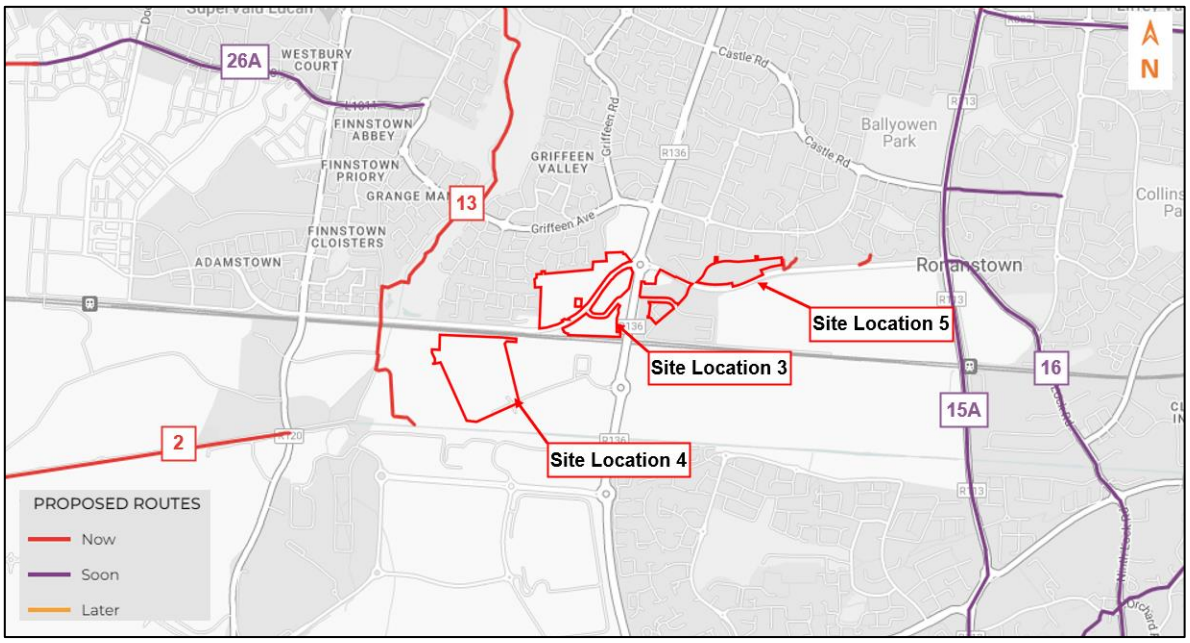


Figure 2-18 Proposed Cycle Routes (Extract: SDCC Active Travel GIS Map)

Likewise, the Clonburris SDZ Strategy also contains a comprehensive proposed walking and cycling network to be developed within the Clonburris SDZ Area as shown in **Figure 2-19** below.

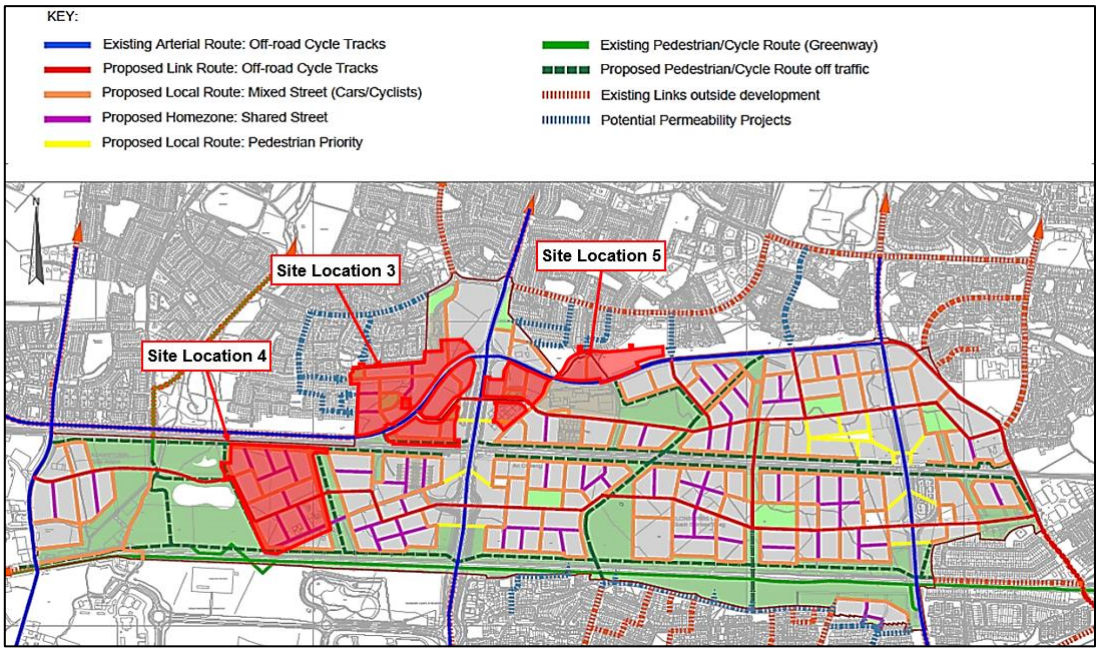


Figure 2-19 Proposed Walking and Cycling Network (Source: Source: Clonburris SDZ Transport Assessment and Transport Strategy – September 2017)

2.5.3 Public Transport Proposals

High Frequency Orbital Bus

The Clonburris SDZ Strategy outlines two orbital bus services operating from Tallaght to Blanchardstown, serving the Clonburris SDZ. These Orbital routes would tie into the BusConnects Plans and the GDA Greater Dublin Area Transport Strategy 2022-2042. It must be noted that these services have not been finalised and may be subject to change based on further design and planning undertaken by the NTA and SDCC. The two services include:

- Core Orbital Service operating North – South on the Fonthill Road North (R113) with an indicative headway of 5 minutes; and
- Secondary Orbital Service serving Liffey Valley to Tallaght via Lucan and Grange Castle Road (R136) with an indicative headway of 15 minutes.

As mentioned, these proposals are part of the 2035 GDA Transport Strategy 2022-2042 and it is envisaged that the provision of these high-quality orbital bus services would serve the demand by

the residents and employees of Clonburris, provide an interchange with the rail stations at both Kishoge and Clondalkin-Fonthill and provide a high frequency service linking Clonburris to Tallaght, Blanchardstown, Liffey Valley and Fonthill Retail Park. **Figure 2-20** illustrates the proposed orbital routing through the SDZ lands with indicative stopping and interchange locations highlighted.

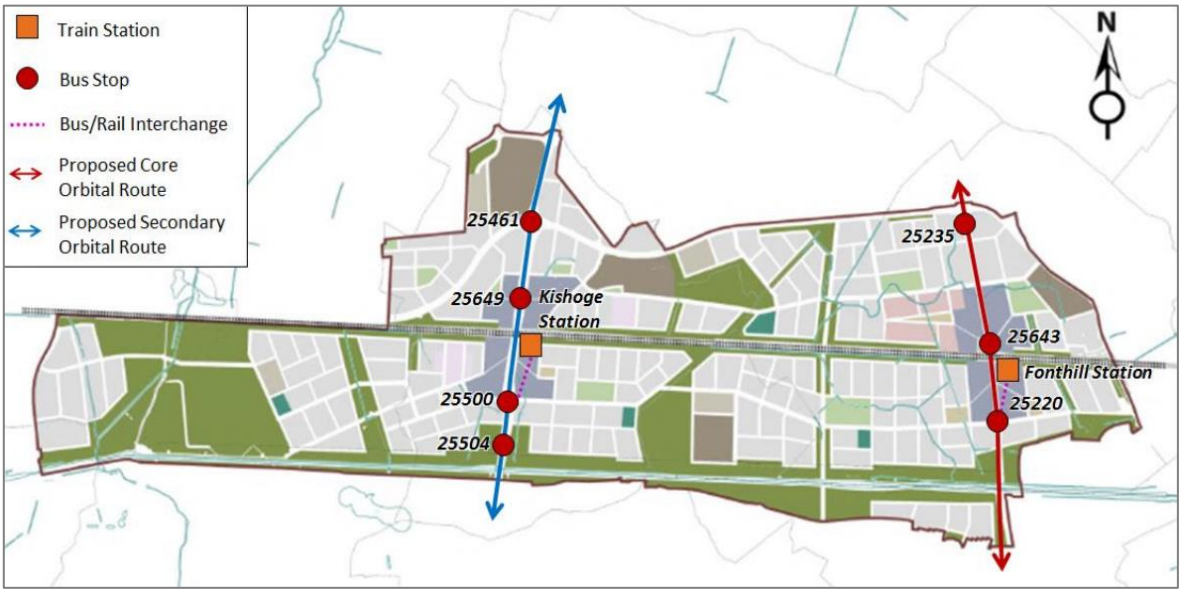


Figure 2-20 Orbital Bus Stop Location within Clonburris SDZ (Source: Clonburris SDZ Transport Assessment and Transport Strategy – September 2017)

Local Bus

Local bus routes are planned to travel along the proposed Clonburris Southern Link Street in both directions. However, there would be an overall low to medium frequency. The Strategy also outlines local bus proposals that could support sustainable travel from Clonburris to key trip attractors with Lucan and Liffey Valley. These services include the following:

- Local Bus 1: Lucan – Park West Service; and
- Local Bus 2: Grange Castle to Liffey Valley Service via Clonburris.

Local Bus 1 would link Lucan, Adamstown, Clonburris and Park West Business Park (**Figure 2-21**) whilst Local Bus 2 would provide a connection between Clonburris and the employment areas at Grange Castle Business Park and Liffey Valley (**Figure 2-22**). Both of these services will serve the aforementioned bus stops and these local services could potentially provide a sustainable alternative instead of car journeys within the local area. They would also provide interchange with

core and orbital bus services and support the Public Transport measure detailed in the GDA Strategy.

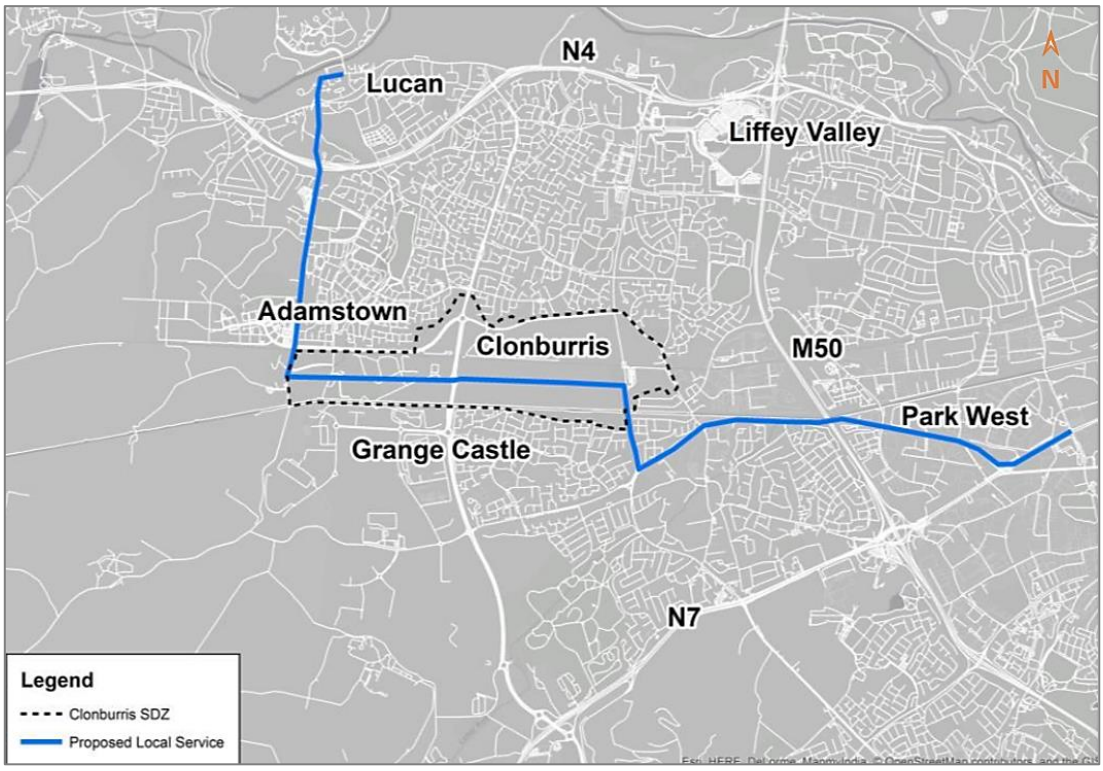


Figure 2-21 Proposed Lucan – Park West Bus Route (Source: Clonburris Transport Assessment and Strategy)

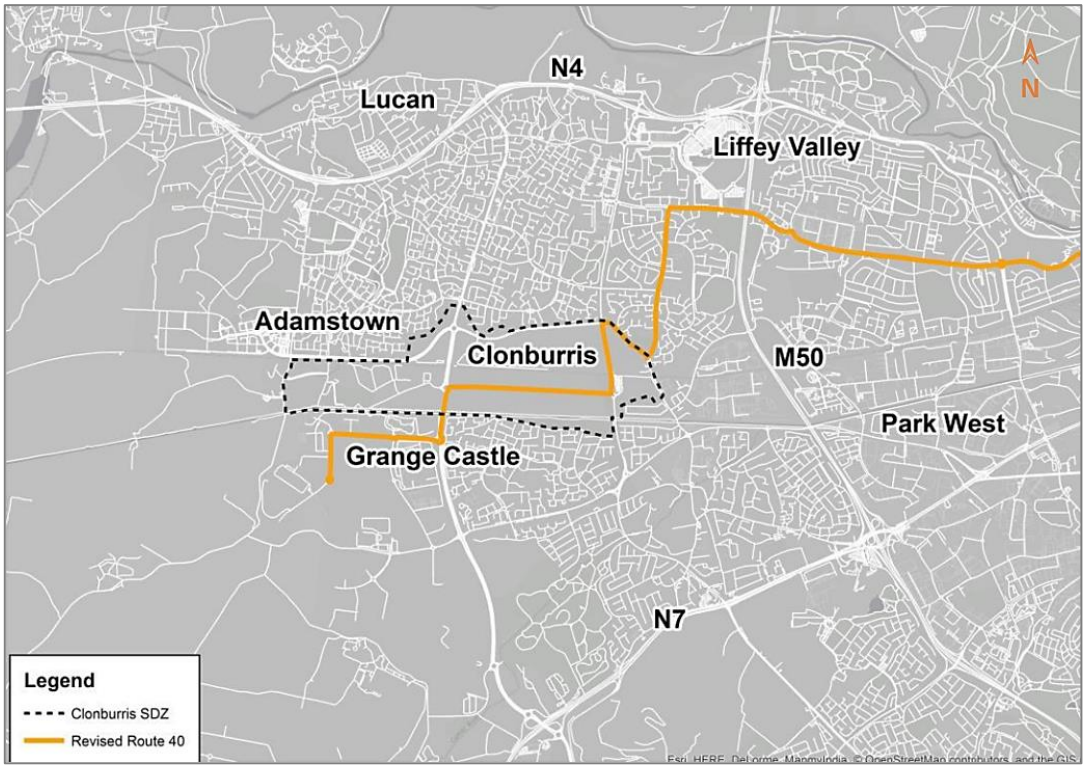


Figure 2-22 Proposed Grange Castle to Liffey Valley Service via Clonburris (Source: Clonburris Transport Assessment and Strategy)

Figure 2-23 illustrates the proposed routing of the new service through the Southern East-West Link Road within the Clonburris SDZ.

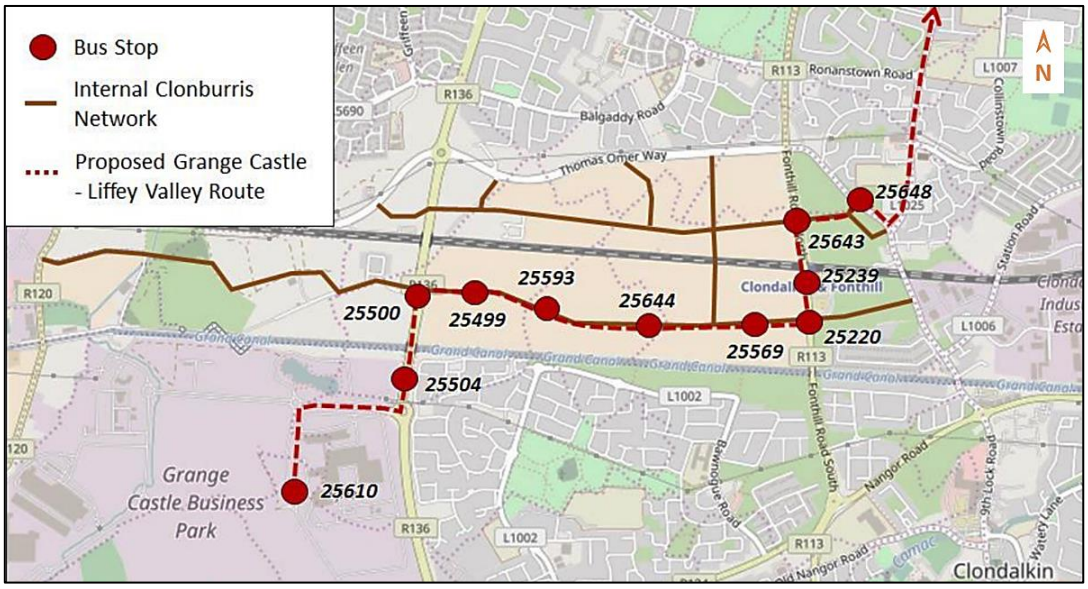


Figure 2-23 Proposed Stops on the Southern Link Street of Clonburris SDZ (Source: Clonburris Transport Assessment and Strategy)

BusConnects

The latest BusConnects network redesign and core bus corridors have been considered as part of this brief. The current proposals affect the current existing road corridors in the Clonburris SDZ lands. However, the BusConnects network is intended to evolve with the future road network in the Greater Dublin Area. As such, future revisions of the BusConnects could include the proposed road infrastructure in the Clonburris SDZ lands.

As **Figure 2-24** shows, the Clonburris SDZ will benefit from the proposed orbital W4 which will travel through the Clonburris site on Grange Castle Rd. BusConnects aims to operate this route every 30 minutes on weekdays and weekends (every 15 minutes during peak hours on weekdays). An additional orbital route, the W2, will operate on Ninth Lock Rd at a frequency of every 15 minutes. These routes serve the following destinations:

- Orbital Route W4: Blanchardstown Shopping Centre to Tallaght via Liffey Valley,
- Orbital Route W2: Liffey Valley to Tallaght via Clondalkin.

The development will benefit from convenient access to the C Spine which will operate north of the scheme on Griffeen Avenue. The C Spine that is located within the vicinity of the scheme will be made up of two branches, namely the C1 and C2. Both of these routes will have a frequency of 8 to 15 minutes during peak hours on weekdays and 30 minutes at weekends and weekday off-peak hours once all of the infrastructural works associated with BusConnects are completed. Both routes will begin at Adamstown and terminate in Sandymount. Furthermore, branches D1 and G2 (both routes operate every 15 minutes on weekdays/every 20 minutes on weekends) are proposed on Grange Castle Road and Ninth Lock Road respectively while branch D3 will travel on St. Cuthbert's Road. These routes will serve the following destinations:

- Route C1 and C2: Adamstown to Sandymount via Dublin City Centre, Ballyowen and Griffeen Valley.
- Route D1: Foxborough to City Centre via Grange Castle Business Park and the New Nangor Road.
- Route G2: Liffey Valley Shopping Centre to Spencer Dock via Dublin City Centre.
- Route D3: Clongriffin to Clondalkin via Bawnogue and Dublin City Centre.

Based on the existing BusConnects plans, local route L54, routes C1, C2 and the G2, orbital routes W2 and W4 are already operational. **Table 2-4** summarises the future frequency at which all routes will operate.

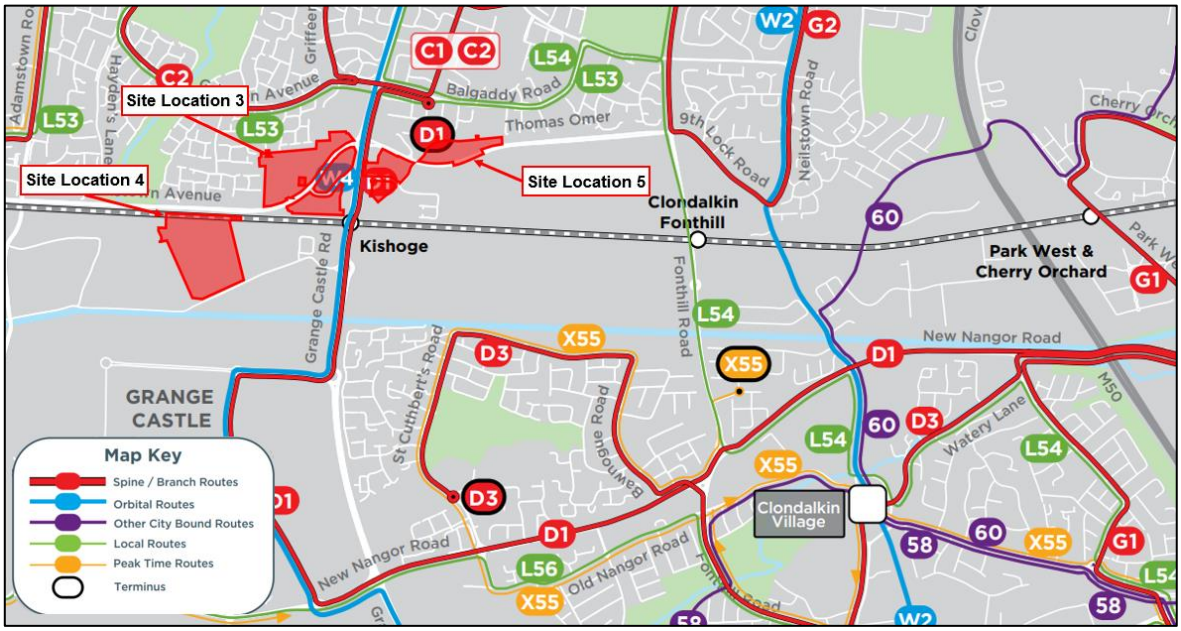


Figure 2-24 Proposed BusConnects Network (Source: BusConnects)

Route No.	Description	Frequency (minutes)		
		Mon - Fri	Sat	Sun
D1	Clongriffin – City Centre – Grange Castle	15	15-20	20-30
D3	Clongriffin – City Centre – Clondalkin	15	15-20	20-30
G2	Liffey Valley SC – City Centre – Spencer Dock	12-15	15-20	20-30
W2	Liffey Valley – Clondalkin – Tallaght	15	15-20	20-30
W4	Blanch. SC – Liffey Valley – Grange Castle Rd – Tallaght	15	30-60	30-60
L54	River Forest – Lucan – Clondalkin – Red Cow	30	30-60	30-60
X55	Clondalkin – City Centre - Ringsend	5 services per day	-	-

Table 2-4 Future BusConnects Frequencies (minutes) by Route (Source: BusConnects)

2.5.4 Public Transport Proposals – Light Rail

The SDZ lands can be potentially served by the Lucan Luas which is currently planned under the NTA's Transport Strategy for the Greater Dublin Area 2016 – 2035 and the Transport Strategy for the Greater Dublin Area 2022-2042. Under both strategies, the future Lucan Line would serve Lucan, Liffey Valley and Ballyowen (**Figure 2-25**). Although the proposals are in their infancy stage, the Luas Line would finish in Lucan close to the Clonburris SDZ but it is envisaged that there will be available interchange opportunities via BusConnects Routes or Active Travel mobility for the residents and employees in Clonburris.

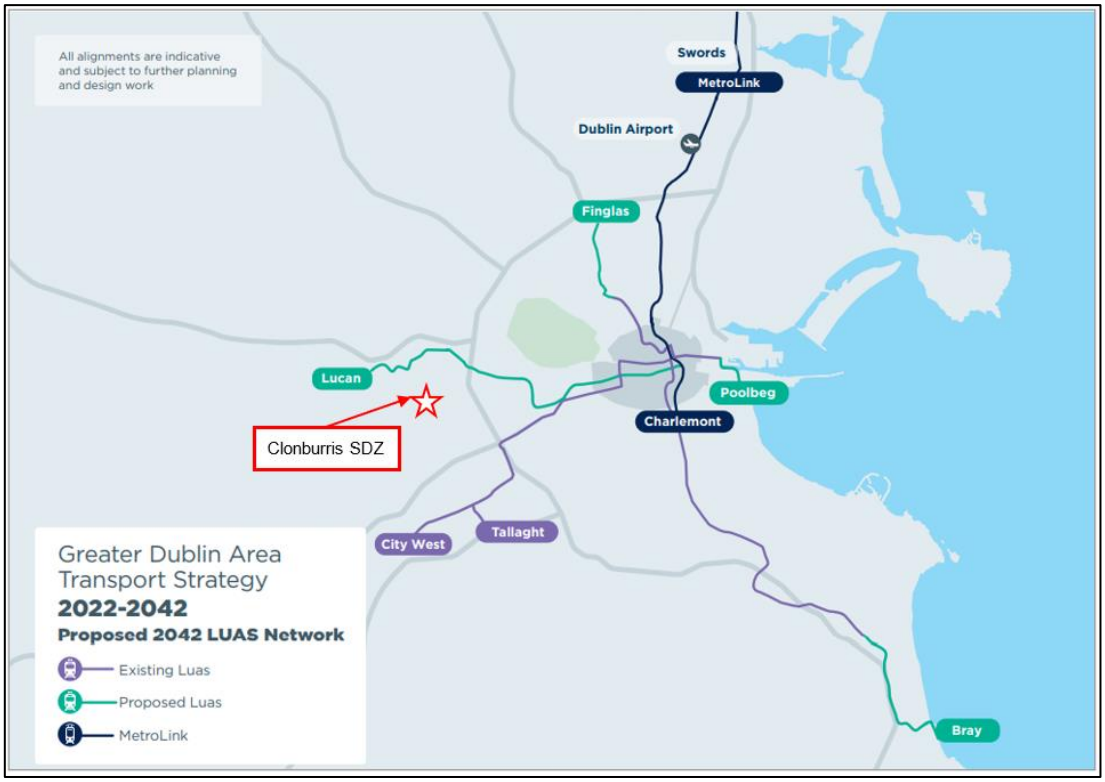


Figure 2-25 Schematic of Greater Dublin Area Proposed Luas Network (Source: GDA Transport Strategy 2022-2042)

2.5.5 Public Transport Proposals – Heavy Rail

The GDA Transport Strategy 2022-2042 outlines numerous public transport proposals to serve predicted growth in travel demand to 2035 and promote the use of sustainable modes of travel. In terms of heavy rail, the SDZ lands benefit from access to existing high-quality public transport services that operate along the Kildare/Cork Railway Line (**Figure 2-26**) which includes a four-track system between Park West and Hazelhatch railway stations. Specific heavy rail measures which are likely to impact on the Clonburris development include:

- The DART+ Programme: As shown in **Figure 2-26** below, this project will increase services between Dublin City Centre and Hazelhatch & Celbridge from 12 trains per direction per hour to 23 trains per direction per hour. It will also see an increase in capacity from 5,000 passengers per direction per hour to 20,000 passengers per direction per hour. New stations along the line will include Heuston West and Glasnevin. The expansion incorporates both the Kishoge and Clondalkin-Fonthill Railway Stations (**Figure 2-27**).

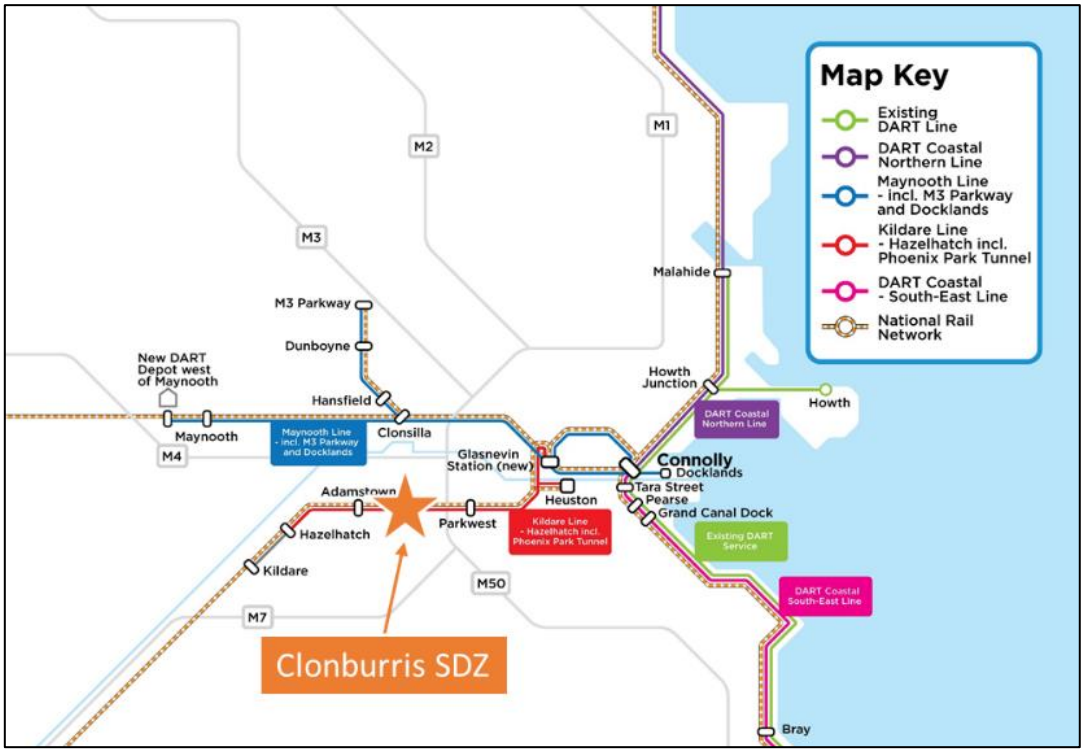


Figure 2-26 Proposed DART+ Network (Source: Irish Rail)

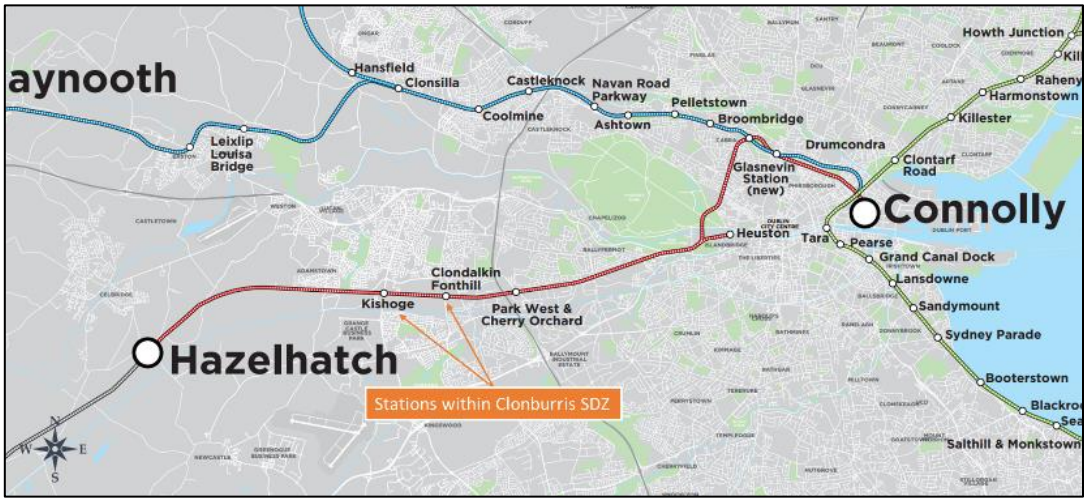


Figure 2-27 DART+ South West Proposals (Source: Irish Rail)

The implementation of the above transport infrastructure schemes by the local authority will be subject to the availability of funding. As no specific completion dates for any of these schemes have been published, for the purpose of this assessment we have assumed that none will be constructed by the subject residential development scheme's adopted design years.

2.6 Road Safety Record

With the objective of ascertaining the road safety record of the immediate routes leading to/from the subject site, the collision statistics as detailed on the Road Safety Authority's (RSA) website (www.rsa.ie) have been examined. The RSA website includes basic information relating to reported collisions over the most recent twelve-year period, from 2005 to 2016 inclusive. **Figure 2-28** below shows the location and severity of all road traffic accidents recorded in the Clonburris area in the period 2005 – 2016. As can be seen from the map, there were no collisions in the immediate vicinity of the subject site.

The review of the RSA data reveals that there was one fatal accident near Clonburris, which occurred in the Grange Castle Business Park. A cluster of minor accidents was recorded to the south of the site on the New Nangor Road, Fonthill Road South and Lucan Newlands Road. Less dense clusters of minor accidents have also been recorded on the Balgaddy Road and Fonthill Road North. In summary the review confirms that no significant incident trends or significant safety concerns are evident across the local road network.

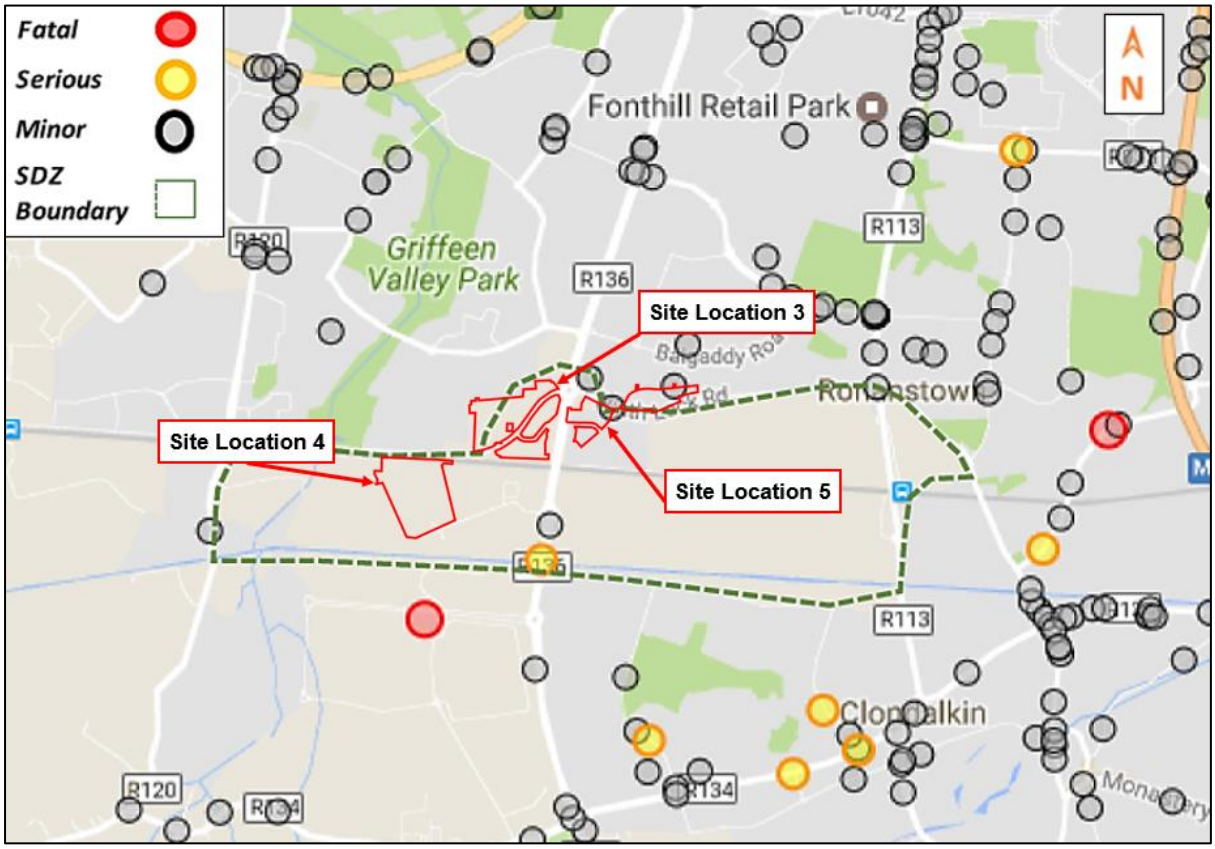


Figure 2-28 RSA Collision Records

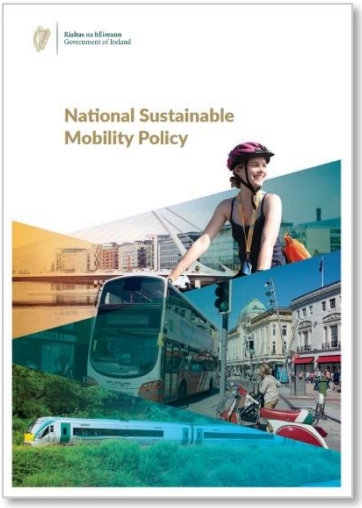
3 Policy Framework and Development Management Standards

3.1 Introduction

In the context of transportation, the subject Clonburris development proposals policy framework is influenced by the following key documents. A common theme through each of these key documents is the emphasis placed upon the importance of travel demand management, with many identifying the need to promote sustainable travel patterns.

- National Sustainable Mobility Policy (2022)
- Greater Dublin Area Transport Strategy (2022 – 2042)
- South Dublin County Development Plan (2022 – 2028)
- Clonburris SDZ Planning Scheme (2019)

3.2 National Sustainable Mobility Policy 2022



The National Sustainable Mobility Policy was published in April 2022 by the Department of Transport and replaces Smarter Travel 2009. The overall aim of the Policy is *to "set out a strategic framework for 2030 for active travel and public transport to support Ireland's overall requirement to achieve a 51% reduction in carbon emissions by the end of this decade".*

The Policy is a direct response to the fact that continued growth in demand for road transport is not sustainable due to the resulting adverse impacts of increasing congestion levels, localised air pollution, contribution to global warming and the additional negative impacts to health through promoting increasingly sedentary lifestyles.

The following 3 key policy areas and 10 goals form the basis of the National Sustainable Mobility Policy:

Safe and Green Mobility

1. Improve mobility safety
2. Decarbonise public transport
3. Expand availability of sustainable mobility in metropolitan areas
4. Expand availability of sustainable mobility in regional and rural areas

5. Encourage people to choose sustainable mobility over the private car

People Focuses Mobility

6. Take a whole journey approach to mobility, promoting inclusive access for all
7. Design infrastructure according to Universal Design Principles and the Hierarchy of Road Users model
8. Promote sustainable mobility through research and citizen engagement

Better Integrated Mobility

9. Better integrate land use and transport planning at all levels
10. Promote smart and integrated mobility through innovative technologies and development of appropriate regulation

The policy is accompanied by an Action Plan with a total of 91 actions organised by goal to be completed by 2025. Each action has been assigned to a specific government department or body with the hope of creating accountability for their implementation. The success of the policy will be measured using an annual National Household Travel Survey administered by the National Transport Authority.

3.3 Greater Dublin Area Transport Strategy 2022-2042

The Greater Dublin Area Transport Strategy 2022-2042 has arisen from a review of the original 2016 Strategy. The updated document *"sets out the framework for investment in transport infrastructure and services over the next two years".*

The overall aim of the Transport Strategy is "*To provide a sustainable, accessible and effective transport system for the Greater Dublin Area which meets the region's climate change requirements, serves the needs of urban and rural communities, and supports the regional economy*". Four primary objectives have been identified as part of the Greater Dublin Area Transport Strategy 2022-2042. These are:

- An Enhanced Natural and Built Environment – To create a better environment and meet our environmental obligations by transitioning to a clean, low emission transport system, increasing walking, cycling and public transport use, and reducing car dependency.

- Connected Communities and a Better Quality of Life – To enhance the health and quality of life of our society by improving connectivity between people and places, delivering safe and integrated transport options, and increasing opportunities for walking and cycling.
- A Strong Sustainable Economy – To support sustainable economic activity and growth by improving the opportunity for people to travel for work or business where and when they need to and facilitating the efficient movement of goods.
- An Inclusive Transport System – To deliver a high quality, equitable and accessible transport system, which caters for the needs of all members of society.

3.4 South Dublin County Development Plan 2022-2028

The South Dublin County Council Development Plan 2022-2028 sets out the strategic policies and objectives that will guide development in the county over the coming years.

The following sustainable movement objectives as outlined in the plan are of particular relevance to the proposed residential development:

SM1 Objective 1: *"To achieve and monitor a transition to more sustainable travel modes including walking, cycling and public transport over the lifetime of the County Development Plan, in line with the County mode share targets of 15% Walk; 10% Cycle; 20% Bus; 5% Rail; and 50% Private (Car / Van / HGV / Motorcycle)".*

SM1 Objective 4: *"To ensure that future development is planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes (walking and cycling) and public transport use and creating a safe and attractive street environment for pedestrians and cyclists".*

SM1 Objective 5: *"To ensure that future development is planned and designed in a manner that maximises the efficiency and protects the strategic capacity of the metropolitan area transport network, both existing and planned, and to protect and maintain regional accessibility".*

SM2 Objective 3: *"To ensure that connectivity for pedestrians and cyclists is maximised and walking and cycling distances are reduced by promoting compact growth and permeability in the design and layout of new development areas".*

SM2 Objective 5: *"To ensure that all streets and street networks are designed in accordance with the principles, approaches and standards contained in the Design Manual for Urban Roads and Streets (2013; updated 2019) so that the movement of pedestrians and cyclists is prioritised within a safe and comfortable environment for a wide range of ages, abilities and journey types".*

SM3 Objective 3: *"To ensure that future development is planned in such a manner as to facilitate a significant shift to public transport use through pursuing compact growth policies, consolidating development around existing and planned public transport routes and interchanges, and maximising access to existing and planned public transport services throughout the network".*

SM3 Objective 21: *"To support the opening of the Kishogue rail station to align with the delivery of homes within the Clonburris SDZ area, in accordance with the SDZ Planning Scheme phasing".*

SM4 Objective 10: *"To support sustainable measures including car-pooling and car clubs which promote access to cars rather than car ownership and which facilitate higher utilisation of vehicles rather than higher numbers of vehicles".*

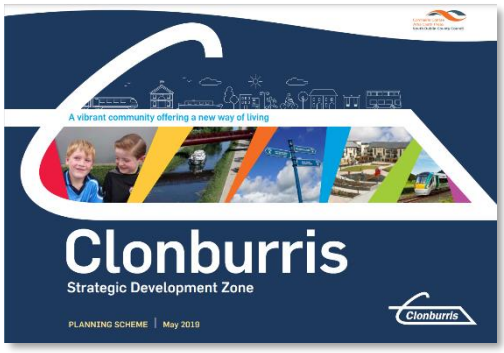
SM6 Objective 3: *"To minimise the impact of new development on the county's road and street network through prioritising active travel and public transport and implementing appropriate traffic and transport management measures".*

SM7 Objective 1: *"To implement maximum car parking standards for a range of land-use types, where provision is based on the level of public transport accessibility".*

SM6 Objective 8: *"To require all major traffic generating development to submit a Mobility Management Plan/Workforce Plan and/or Traffic and Transport Assessment".*

CS7 Objective 4: *"To promote and facilitate development at the Strategic Development Zones at Adamstown and Clonburris, in accordance with their planning scheme and associated phasing requirements, whilst adapting to and facilitating emerging transport service level pattern needs."*

3.5 Clonburris SDZ Planning Scheme 2019



The Clonburris Strategic Development Zone (SDZ) Planning Scheme was published by South Dublin County Council in May 2019. The overarching principle for movement and transport within the scheme is *"to develop the SDZ lands in a manner that maximises existing and proposed public transport opportunities, including high quality rail and bus services, and support these opportunities with an integrated network of streets and routes with a clear hierarchy that promotes walking and cycling".*

The Planning Scheme also outlines 5 key principles for movement and transport at Clonburris. These are:

- To link the Development Areas of Clonburris with each other and with surrounding communities through a permeable and clear hierarchy of integrated streets and dedicated pedestrian and cycle routes;
- To integrate appropriate pieces of infrastructure that overcome challenges to movement across the SDZ lands;
- To develop a transport framework that maximises route choice and access to residential, education, retail, service, community and leisure uses by means of walking, cycling and public transport while balancing the needs of the car; and
- To upgrade existing sections of strategic roads within the SDZ lands to integrated urban streets;
- To seek the delivery of public transport infrastructure and services that will serve the trip demands of the SDZ Planning Scheme.

3.6 Development Management Standards

3.6.1 Car Parking Standards

Site 3

The subject development site is located within SDCC Zone 2 Parking and therefore the quantum of car parking provision should be minimised. The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 3-1** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex	1-bed	140	0.75 Space	105
	2-bed	151	1 Space	151
	3+-bed	144	1.25 Spaces	180
Houses	3+-bed	145	1.5 Spaces	218
Total Residential				**654**
Crèche		553 m2 (6 classrooms)	0.5 per classroom	3
Total non-residential				**3**
Total Car Parking Per Requirement				**657**

Table 3-1 Car Parking Standards (Site 3)

In addition, as per the SDCC Parking Standards, 20% of the total parking spaces shall be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required. Although Chapter 12 of the Development Plan does not explicitly raise the requirement for the provision of accessible car parking at private developments, it is suggested that in reference to national guidance, at least 5% of car parking spaces are designated for accessible parking. In this case, this rate applies for car park provision for apartments/duplexes and any on street parking provided for the houses. Houses that have curtilage driveways are capable of catering for accessible parking.

Site 4

The Clonburris SDZ Planning Scheme outlines that Zone 2 parking standards as set out within the South Dublin County Council Development Plan 2022-2028 should be applied to all development lands with an accessibility level of 1, 2 or 3.

The subject development site has been prescribed an accessibility level of 1.

The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 3-2** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex	1-bed	65	0.75 Space	49
	2-bed	177	1 Space	177
	3+-bed	53	1.25 Spaces	67
Houses	3+-bed	141	1.5 Spaces	212
Total Residential				**505**
Crèche		20 classrooms	0.5 per classroom	10
Retail		150 m2	1 per 252	6
Employment		200 m2	1 per 75 m2	3
Community		683 m2	1 per 50 m2	14
Total non-residential				**33**
Total Car Parking Per Requirement				**538**

Table 3-2 Car Parking Standards (Site 4)

Site 5

The subject development site is located within SDCC Zone 2 Parking and therefore the quantum of car parking provision should be minimised. The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 3-3** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex / Triplex	1-bed	37	0.75 Space	28
	2-bed	107	1 Space	107
	3+-bed	57	1.25 Spaces	72
Houses	3+-bed	35	1.5 Spaces	53
Total Car Parking Per Requirement				**259**

Table 3-3 Car Parking Standards (Site 5)

In addition, as per the SDCC Parking Standards, 20% of the total parking spaces shall be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required. Although Chapter 12 of the Development Plan does not explicitly raise the requirement for the provision of accessible car parking at private developments, it is suggested that in reference to national guidance, at least 5% of car parking spaces are designated for accessible parking. In this case, this rate applies for car park provision for apartments/duplexes and any on street parking provided

for the houses. Houses that have curtilage driveways are capable of catering for accessible parking.

3.6.2 Cycle Parking Standards

Site 3

Reference has been made to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 1105 no. cycle parking spaces comprising a minimum of 877 no. long stay and 228 no. short stay spaces.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	140	140	1 per Bed	1 per 2 Units	140	70
	2-bed	151	302			302	76
	3+-bed	144	432			432	72
Houses	3+-bed	145	435	-	-	-	-
Crèche		553 m2 (6 classrooms)	-	1 per 5 staff	1 per 10 children	3	10
Sub-Total Cycle Parking Per Requirement						**877**	**228**
Total Cycle Parking Per Requirement						**1105**	

Table 3-4 Cycle Parking Standards and Requirements (Site 3)

Site 4

Reference has been made to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 755 no. cycle parking spaces comprising a minimum of 588 no. long stay and 167 no. short stay spaces.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	65	65	1 per Bed	1 per 2 Units	65	33
	2-bed	177	354			354	89
	3+-bed	53	159			159	27
Houses	3+-bed	141	423	-	-	-	-
Crèche		20 staff & 90 children	-	1 per 5 staff	1 per 10 children	4	9
Retail		6 staff (150 m2)	-	1 per 5 staff	1 per 150 m2	1	1
Employment		200 m2	-	1 per 200 m2	1 per 200 m2	1	1
Community		20 staff (683 m2)	-	1 per 5 staff	1 per 100 m2	4	7
Sub-Total Cycle Parking Per Requirement						**588**	**167**
Total Cycle Parking Per Requirement						**755**	

Table 3-5 Cycle Parking Standards and Requirements (Site 4)

Site 5

Reference has been made to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 577 no. cycle parking spaces comprising a minimum of 422 no. long stay and 155 no. short stay spaces.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	37	37	1 per Bed	1 per 2 Units	37	19
	2-bed	107	214			214	107
	3+-bed	57	171			171	29
Houses	3+-bed	35	105	-	-	-	-
Sub-Total Cycle Parking Per Requirement						**422**	**155**
Total Cycle Parking Per Requirement						**577**	

Table 3-6 Cycle Parking Standards and Requirements (Site 5)

4 Characteristics of proposals

4.1 Overview

The proposed development comprises of 3 sites described below.

Site 3

The proposed development comprises 580no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom and 3-bedroom typologies; 2-storey childcare facility; All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be from Adamstown Avenue and the Northern Link Street, proposed under concurrent application Reg. Ref. SDZ24A/0033W.

A summary of the proposed development schedule is detailed in **Table 4-1** and the proposed site layout is illustrated in **Figure 4-1**.

Land Use / Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds
Apartments/Duplexes	1-bed	140	140
	2-bed	151	302
	3+-bed	144	432
Houses	3+-bed	145	435
Crèche	-	553 m2	-

Table 4-1 Proposed Development Schedule (Site 3)

Figure 4-1 Proposed Layout (Site 3)

Site 4

The proposed development comprises 436no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom, 3-bedroom and 4-bedroom typologies; a childcare facility on the ground floor of Block F; retail unit; community building; employment uses and All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be via the Southern Link Road permitted under SDZ20A/0021

A summary of the proposed development schedule is detailed in **Table 4-2** the proposed site layout is illustrated in **Figure 4-2**.

Land Use / Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds
Apartments/Duplexes	1-bed	65	65
	2-bed	177	354
	3+-bed	53	159
Houses	3+-bed	141	423
Crèche	-	544 m2	-
Retail	-	150 m2	-
Employment	-	200 m2	-
Community	-	683 m2	-

Table 4-2 Proposed Development Schedule (Site 4)

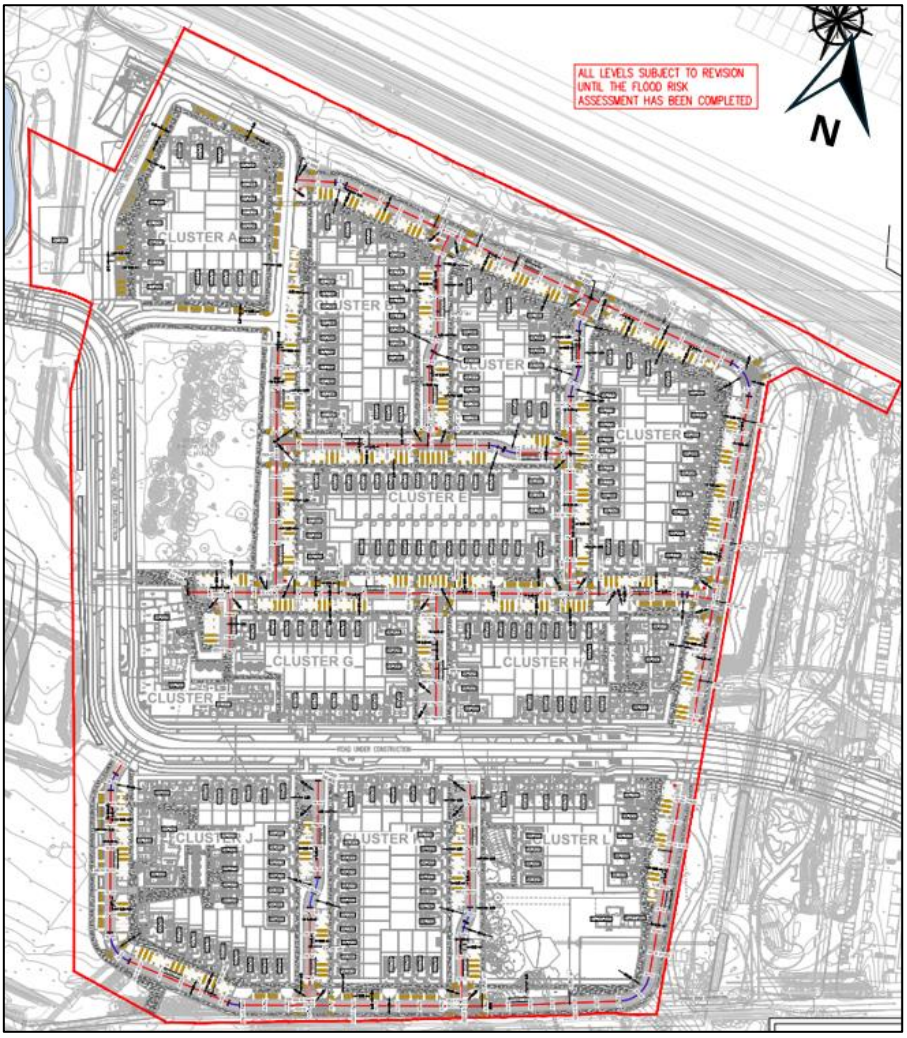


Figure 4-2 Proposed Layout (Site 4)

Site 5

The proposed development comprises 236 no. residential units of mixed house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom and 3-bedroom typologies. All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services.

A summary of the proposed development schedule is detailed in **Table 4-3** and the proposed site layout is illustrated in **Figure 4-3**.

Land Use / Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds
Apartments/Duplexes	1-bed	37	37
	2-bed	107	214
	3+-bed	57	171
Houses	3+-bed	35	105

Table 4-3 Proposed Development Schedule (Site 5)

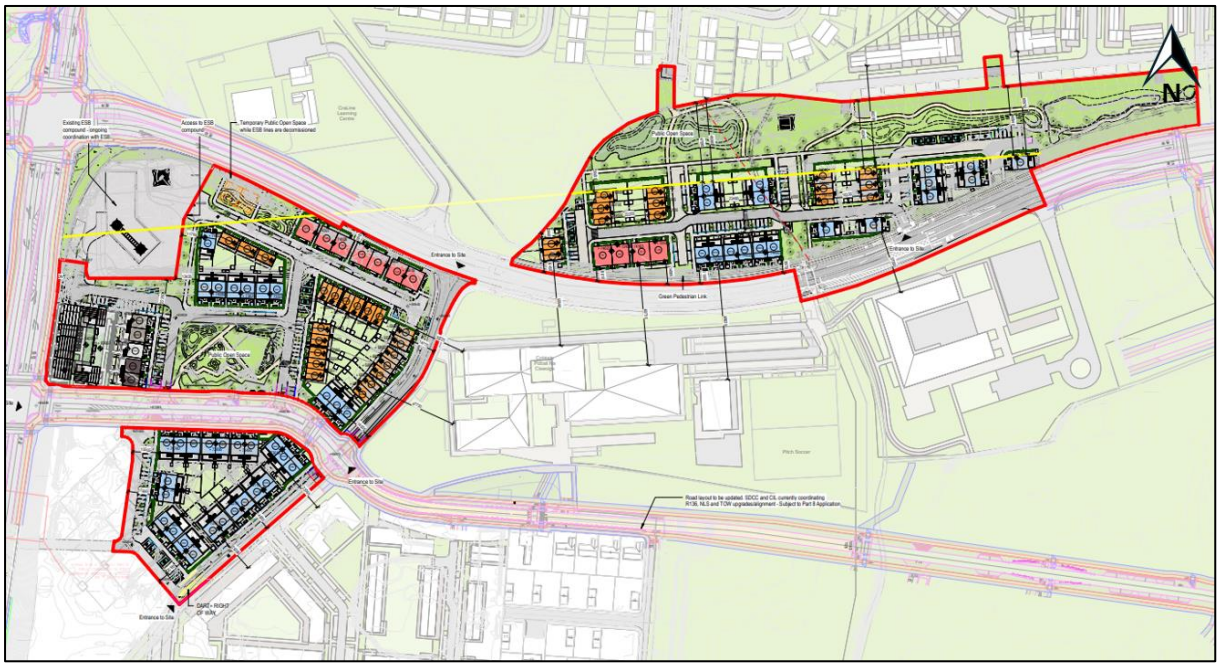


Figure 4-3 Proposed Layout (Site 5)

4.2 Site Access Arrangements

4.2.1 Vehicle Access

Site 3

The subject site will benefit from 4 no. vehicle accesses. One will be along the western site boundary via Tullyhall Rise. Another will be located along Adamstown Avenue and the remaining two are proposed along the Northern Link Street proposed under concurrent application Reg. Ref. SDZ24A/0033W. The vehicle accesses are in the form of priority junctions as well as an extension of Tullyhall Rise and are shown in **Figure 4-4** below.

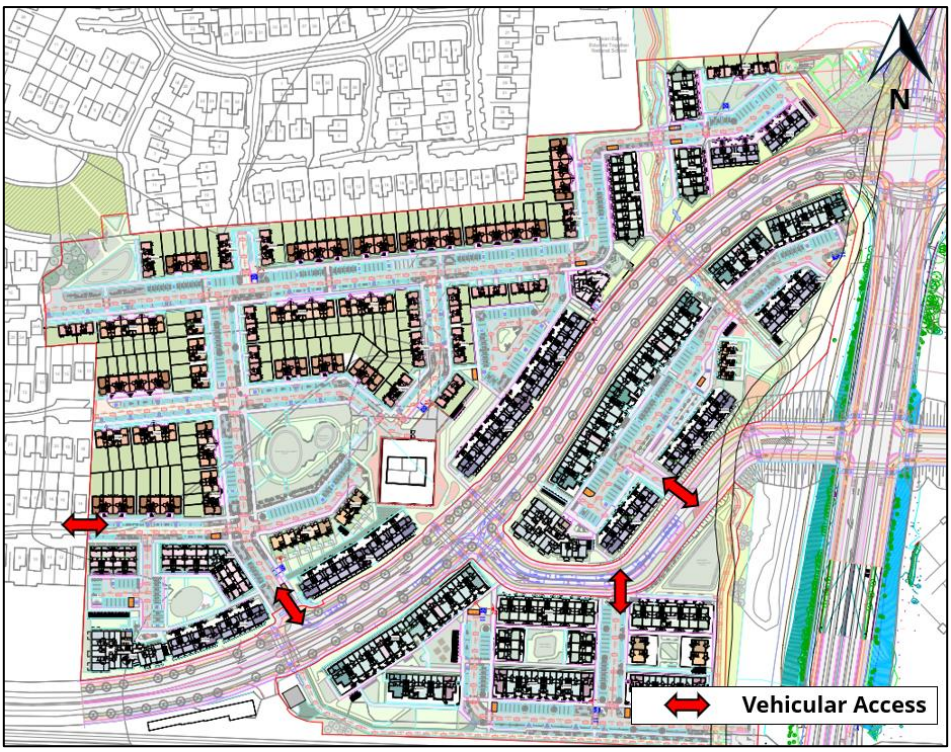


Figure 4-4 Proposed Vehicular Accesses (Site 3)

Site 4

The subject site will benefit from 4 no. vehicle accesses, two of which are via the Southern Link Road permitted under SDZ20A/0021, as well as one situated at the northeast corner of the subject site and another at the southeast corner. The vehicle accesses are illustrated in **Figure 4-5**.

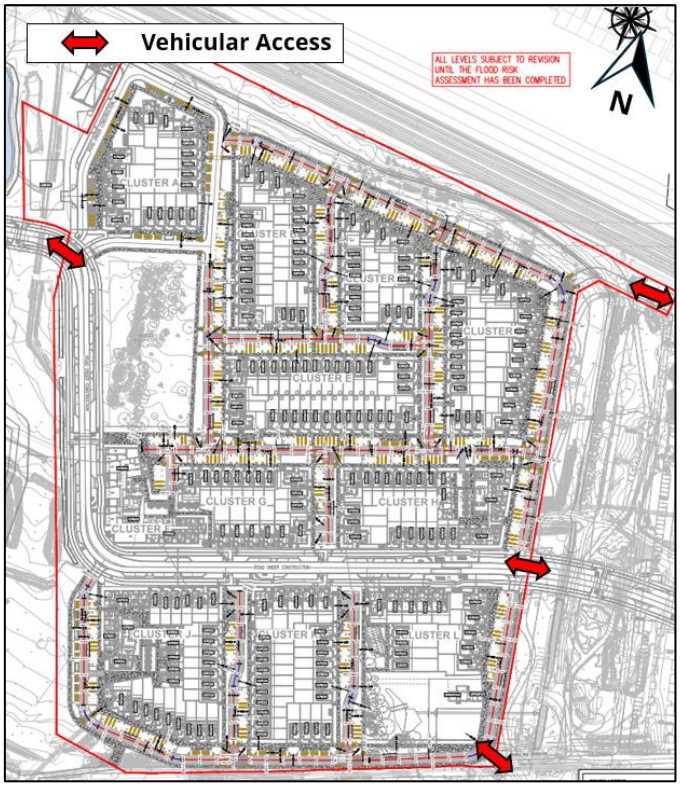


Figure 4-5 Proposed Vehicular Accesses (Site 4)

Site 5

The Subject Site will benefit from 10 no. vehicle accesses via the R136 to the west, Thomas Omer Way which travels through the subject site, Lynch's Park to the southeast and an existing ESB compound to the northwest. The vehicle accesses are illustrated in **Figure 4-6**.

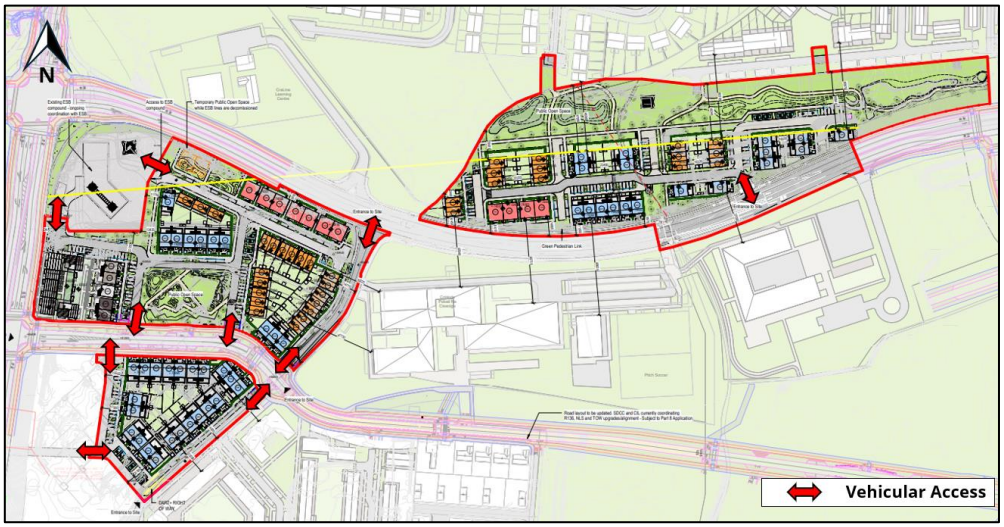


Figure 4-6 Proposed Vehicular Accesses (Site 5)

4.2.2 Pedestrian and Cycle Access

Site 3

The subject site will benefit from a number of pedestrian / cyclist accesses located along Adamstown Avenue, the Northern Link Street, as well as accesses to adjacent lands such as the residential park to the northwest and lands to the northeast. A greenway is proposed along the east of the proposed development site. The pedestrian / cyclist accesses are illustrated in **Figure 4-7** below.

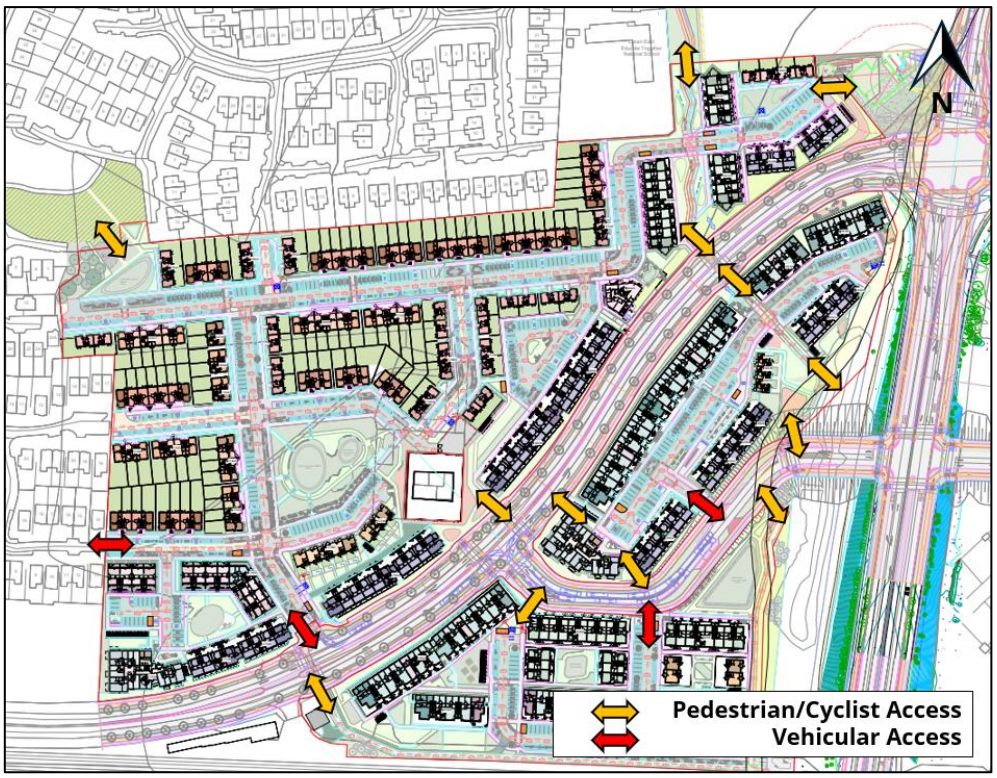


Figure 4-7 Pedestrian / Cyclist Proposed Accesses (Site 3)

Site 4

The subject site will benefit from a pedestrian / cyclist access in the southwest corner of the proposed development. The proposed development has been designed with pedestrians and cyclists taking precedence over other modes of transport. Pedestrian and cyclist connectivity is provided throughout the development with filtered permeability connections provided to the permitted Southern Link Road (reg. ref. SDZ20A/0021) at strategic locations. The proposed development has been designed to reduce traffic speeds. In this regard, where there is a straight section of road, raised table junctions/flush kerbs have been provided along the internal local

streets. Furthermore, on street parking and frequent pedestrian crossing facilities are present to encourage drivers to be more aware of their surroundings and reduce driving speed.

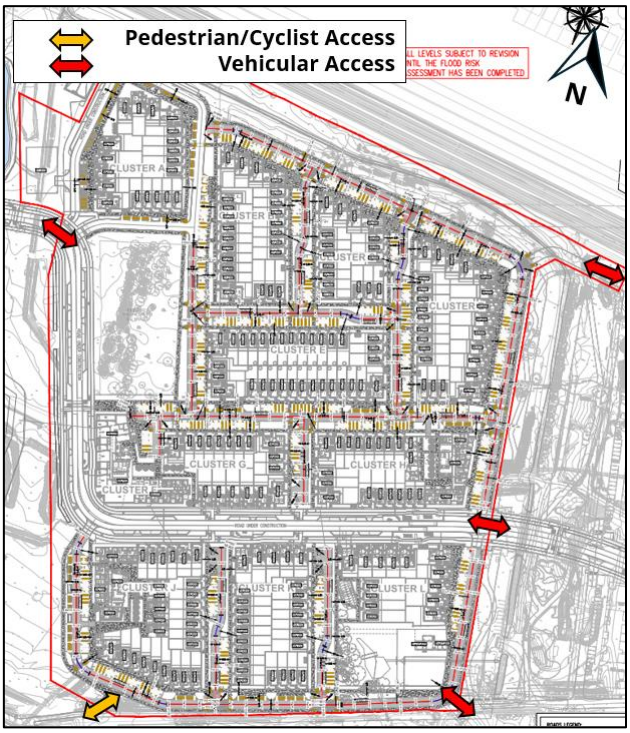


Figure 4-8 Pedestrian / Cyclist Proposed Accesses (Site 4)

Site 5

The subject site will benefit from 6 no. pedestrian and cyclist accesses via Thomas Omer Way as well as to the residential neighbourhoods to the north of the subject site. Pedestrian and cyclists can also access the proposed development via the vehicle accesses. The pedestrian / cyclist accesses are illustrated in **Figure 4-9** below.

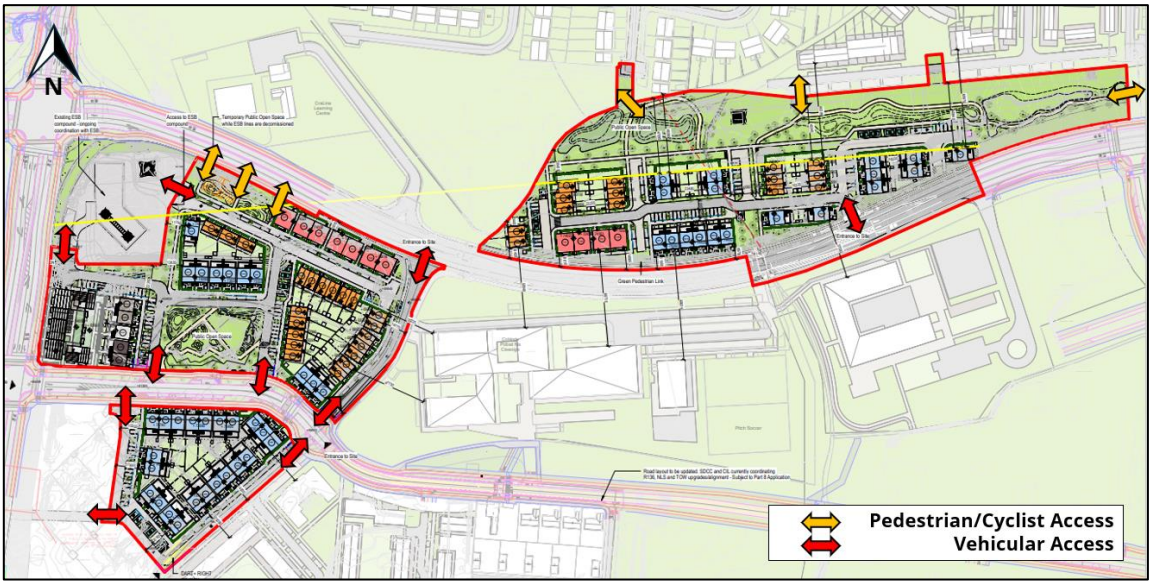


Figure 4-9 Pedestrian / Cyclist Proposed Accesses (Site 5)

4.3 Parking Provision

4.3.1 Car Parking

Site 3

The subject development site is located within SDCC Zone 2 Parking and therefore the quantum of car parking provision should be minimised. The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 4-4** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex	1-bed	140	0.75 Space	105
	2-bed	151	1 Space	151
	3+-bed	144	1.25 Spaces	180
Houses	3+-bed	145	1.5 Spaces	218
Total Residential				**654**
Crèche		553 m2 (6 classrooms)	0.5 per classroom	3
Total non-residential				**3**
Total Car Parking Per Requirement				**657**

Table 4-4 Car Parking Standards (Site 3)

In addition, as per the SDCC Parking Standards, 20% of the total parking spaces shall be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required. Although

Chapter 12 of the Development Plan does not explicitly raise the requirement for the provision of accessible car parking at private developments, it is suggested that in reference to national guidance, at least 5% of car parking spaces are designated for accessible parking. In this case, this rate applies for car park provision for apartments/duplexes and any on street parking provided for the houses. Houses that have curtilage driveways are capable of catering for accessible parking.

It is proposed that the 435 no. apartments / duplexes / triplexes and 145 no. houses will be provided with 453 no. car parking spaces (0.78/ unit).

In addition, it is proposed to provide 3 no. car parking spaces for the creche. In total there is proposed to be 456 no. surface spaces, including 23 no. accessible spaces.

It is an objective for this development to reduce the need for commuters to travel by car and instead to avail of more sustainable modes of travel in line with current and future travel requirements as set out in recent policy documents within Ireland. It is noted that the concept for car parking reduction in apartments is relatively new in Ireland and, therefore, proposals to implement a more sustainable approach for car parking may take time.

The proposed parking strategy for the Site 3 mixed-use development has sought to respond to the site's excellent accessibility levels. Accordingly, a reduction in residential car parking below SDCC standards forms part of the adopted strategy.

The car parking provision for the proposed development (456 no. car parking spaces) is shown in **Figure 4-10** below.

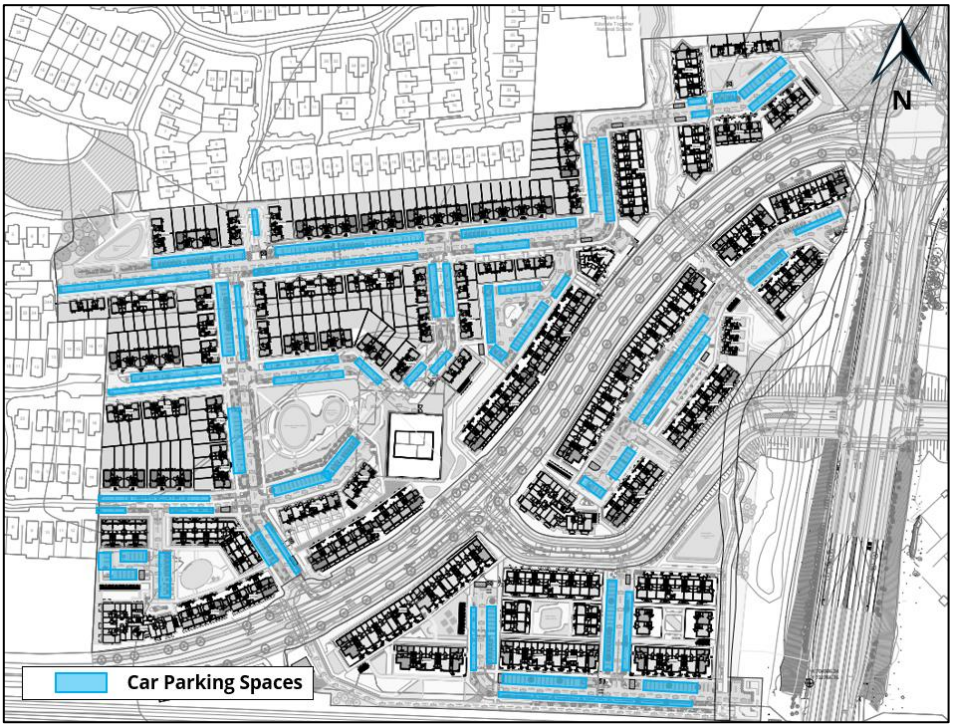


Figure 4-10 Car Parking Spaces (Site 3)

Site 4

The Clonburris SDZ Planning Scheme outlines that Zone 2 parking standards as set out within the South Dublin County Council Development Plan 2022-2028 should be applied to all development lands with an accessibility level of 1, 2 or 3.

The subject development site has been prescribed an accessibility level of 1.

The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 4-5** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex	1-bed	65	0.75 Space	49
	2-bed	177	1 Space	177
	3+-bed	53	1.25 Spaces	67
Houses	3+-bed	141	1.5 Spaces	212
Total Residential				**505**
Crèche		20 classrooms	0.5 per classroom	10
Retail		150 m2	1 per 252	6
Employment		200 m2	1 per 75 m2	3
Community		683 m2	1 per 50 m2	14
Total non-residential				**33**
Total Car Parking Per Requirement				**538**

Table 4-5 Car Parking Standards (Site 4)

It is proposed that the 295 no. apartments / duplexes and the 141 no. houses will be provided with 384 no. car parking spaces (0.88/ unit).

In addition, it is proposed to provide 8 no. car parking spaces for the creche, 5 no. spaces for retail, 2 no. spaces for employment and 9 no. spaces for community. In total there is proposed to be 408 no. surface spaces, including 20 no. accessible spaces.

In addition to the above quantum of residential and non-residential car parking spaces, the Southern Link Road which bisects the proposed development includes for 48no. car parking spaces including 3no. disabled accessible spaces which shall be publicly accessible for use by visitors to the proposed development.

The car parking provision for the proposed development (408 no. car parking spaces) is shown in **Figure 4-11** below.

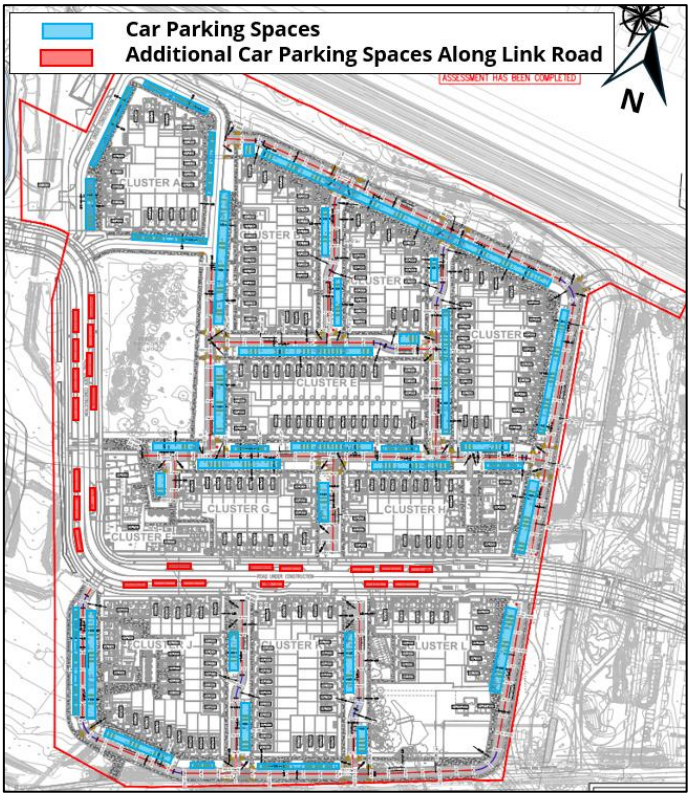


Figure 4-11 Car Parking Spaces (Site 4)

Site 5

The subject development site is located within SDCC Zone 2 Parking and therefore the quantum of car parking provision should be minimised. The car parking standards as set out in the South Dublin County Council Development Plan 2022 – 2028 are illustrated in **Table 4-6** below.

Unit Type		No. of Units / GFA (m2)	SDCC (Zone 2: Standard)	SDCC Req.
Apartments/ Duplex / Triplex	1-bed	37	0.75 Space	28
	2-bed	107	1 Space	107
	3+-bed	57	1.25 Spaces	72
Houses	3+-bed	35	1.5 Spaces	53
Total Car Parking Per Requirement				**259**

Table 4-6 Car Parking Standards (Site 5)

In addition, as per the SDCC Parking Standards, 20% of the total parking spaces shall be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required. Although Chapter 12 of the Development Plan does not explicitly raise the requirement for the provision of

accessible car parking at private developments, it is suggested that in reference to national guidance, at least 5% of car parking spaces are designated for accessible parking. In this case, this rate applies for car park provision for apartments/duplexes and any on street parking provided for the houses. Houses that have curtilage driveways are capable of catering for accessible parking.

It is proposed that the 201 no. apartments / duplexes / triplexes and 35 no. houses will be provided with 219 no. car parking spaces (0.93/ unit).

The car parking provision for the proposed development (219 no. car parking spaces) is shown in **Figure 4-12** below.

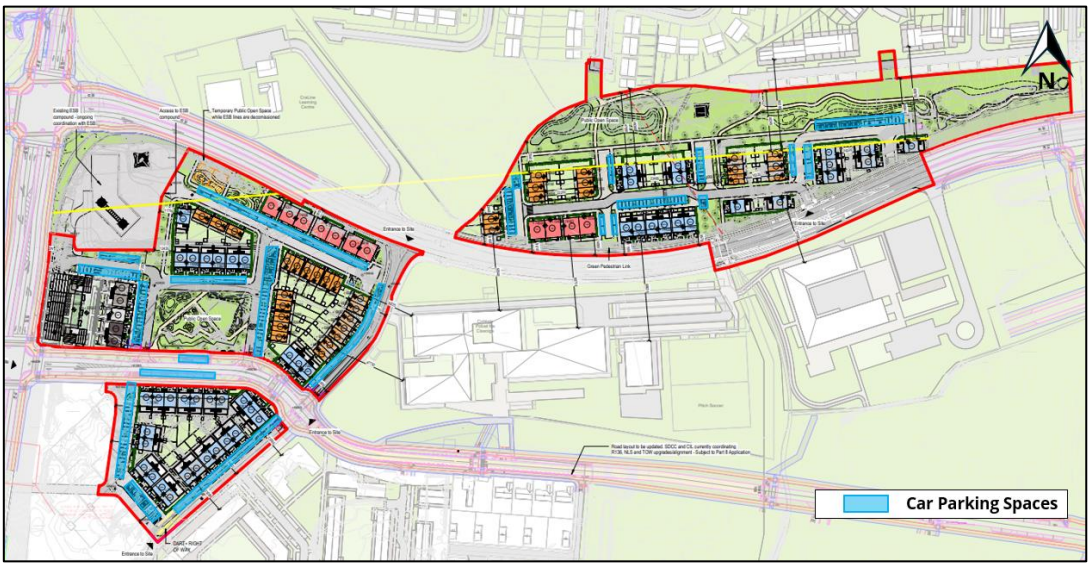


Figure 4-12 Car Parking Spaces (Site 5)

Residential Development Car Parking Allocation

Site 3

A total of 453 no. car parking spaces (0.82/ unit) has been provided for the 435 no. apartments / duplexes / triplexes and 145 no. houses.

Site 4

It is proposed that the 295 no. apartments / duplexes and the 141 no. houses will be provided with 384 no. car parking spaces (0.88/ unit).

Site 5

A total of 219 no. car parking spaces (0.93/ unit) has been provided for the 201 no. apartments / duplexes / triplexes and 35 no. houses.

Creche Car Parking Allocation

Site 3

There are 3 no. car parking spaces provided at surface level for visitors of the creche component of the mixed-use development.

Site 4

There are 8 no. car parking spaces provided at surface level for visitors of the creche component of the mixed-use development, as illustrated below in **Figure 4-13**.

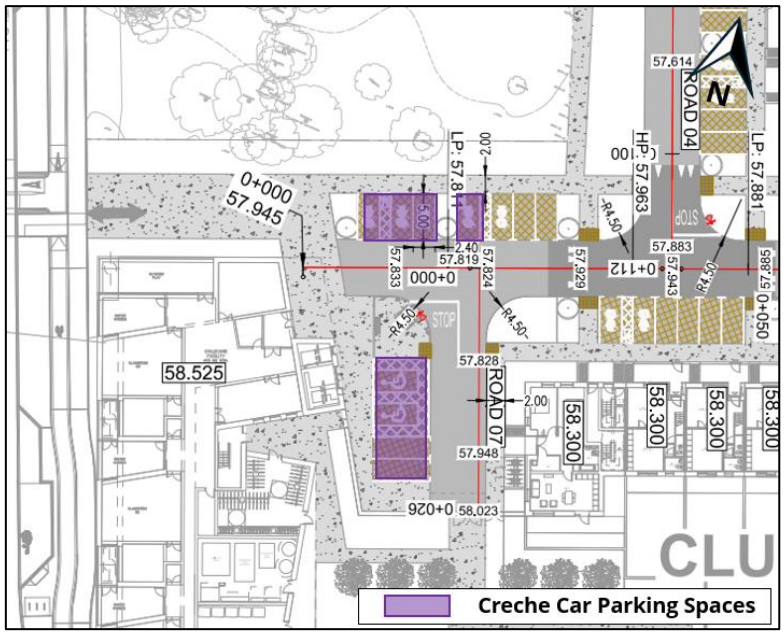


Figure 4-13 Car Parking Allocation for Creche (Site 4)

Mobility Impaired Parking

Site 3

A total of 23 no. mobility impaired car parking spaces will be allocated between the development's mixed-uses, as detailed below and shown in **Figure 4-14**.

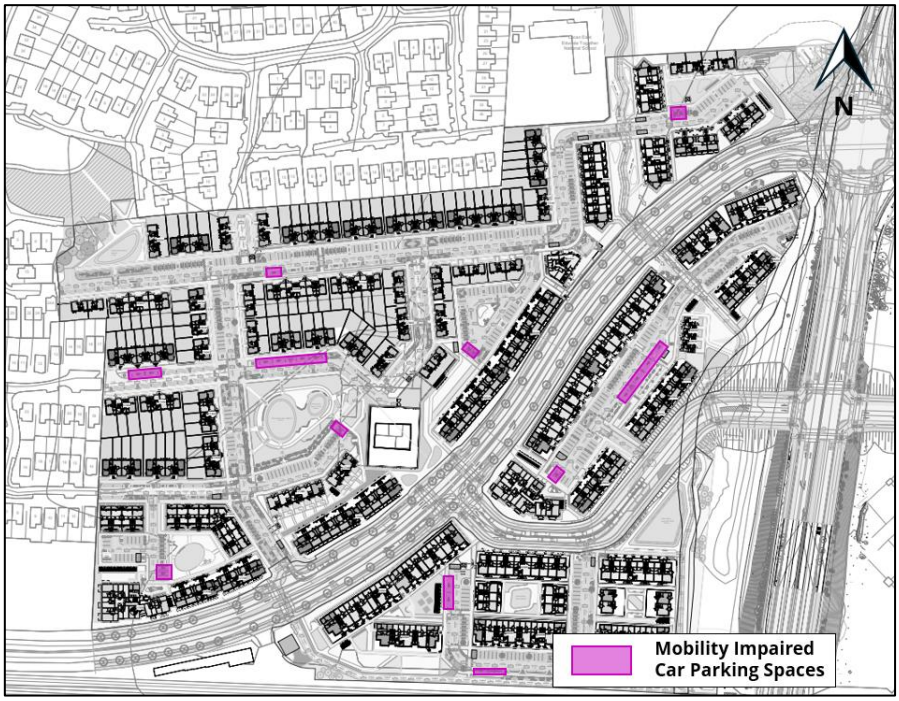


Figure 4-14 Site 3 Mobility Impaired Car Parking Spaces

Site 4

A total of 20 no. mobility impaired car parking spaces will be allocated between the development's mixed-uses, as detailed below and shown in **Figure 4-15** and **Figure 4-16**.

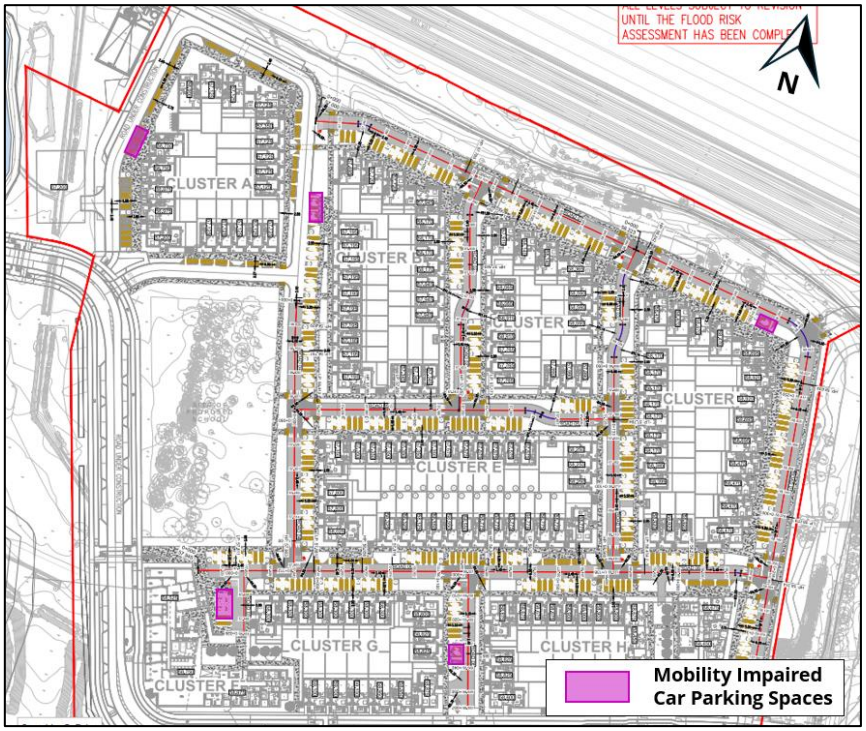


Figure 4-15 Site 4 Mobility Impaired Car Parking Spaces (North of Link Road)

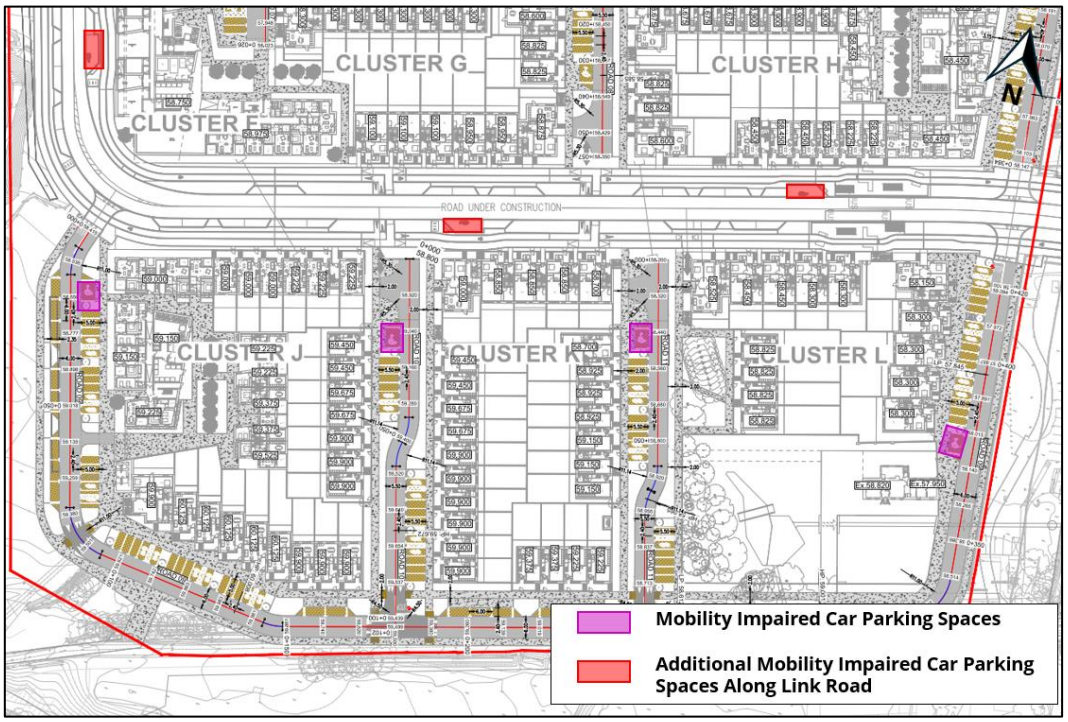


Figure 4-16 Site 4 Mobility Impaired Car Parking Spaces (South of Link Road)

Site 5

A total of 12 no. mobility impaired car parking spaces will be allocated between the development's mixed-uses, as detailed below and shown in **Figure 4-17**.

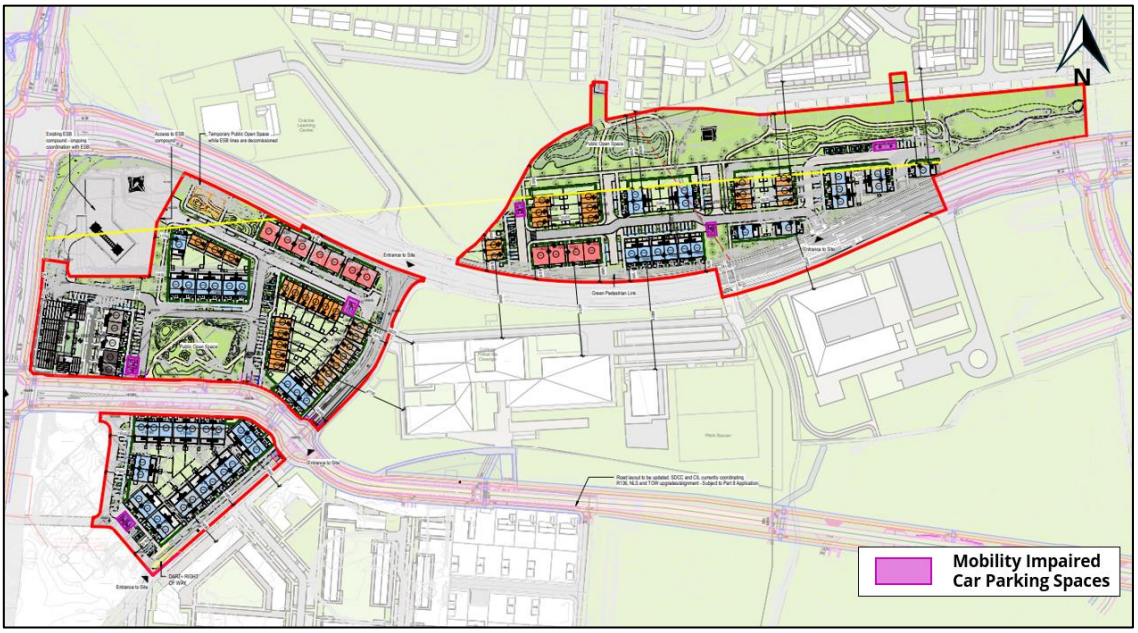


Figure 4-17 Mobility Impaired Car Parking Spaces (Site 5)

Electric Vehicle Parking

Site 3

As per the SDCC Parking Standards, 20% of the total parking spaces will be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required.

A total of 122 no. car parking spaces within the proposed development shall be equipped with functional EV charging points and shall be reserved for the use of battery-powered electric vehicles.

Site 4

As per the SDCC Parking Standards, 20% of the total parking spaces will be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required.

A total of 134 no. car parking spaces within the proposed development shall be equipped with functional EV charging points and shall be reserved for the use of battery-powered electric vehicles.

Site 5

As per the SDCC Parking Standards, 20% of the total parking spaces will be allocated as electric vehicle charging stations while the remainder of the parking spaces should be constructed to be capable of accommodating future charging points, as required.

A total of 18 no. car parking spaces within the proposed development shall be equipped with functional EV charging points and shall be reserved for the use of battery-powered electric vehicles.

Car Parking Management Regime

Site 3

The availability of parking spaces is a key determinant of mode choice and car usage. With the objective of minimizing travel by car and encouraging the use of sustainable modes instead, it is proposed to limit the car parking provision and promote a 'car lite' scheme. This is considered an appropriate approach considering the site's excellent accessibility characteristics (e.g. walking, cycling, bus, coach, LUAS and rail opportunities) to places of work, education and essential services. This 'car lite' approach will help to reduce car dependency in Dublin, reduce traffic congestion and pollution levels, improve the quality of the environment and help tackle climate change in addition to encouraging sustainable travel.

It is therefore considered that the proposed provision of 456 no. car parking spaces for the subject mixed-use development is appropriate to meet the predicted demand. Furthermore, to support the low car ethos of the proposed development, several initiatives for sustainable travel will be implemented.

Site 4

The availability of parking spaces is a key determinant of mode choice and car usage. With the objective of minimizing travel by car and encouraging the use of sustainable modes instead, it is proposed to limit the car parking provision and promote a 'car lite' scheme. This is considered an appropriate approach considering the site's excellent accessibility characteristics (e.g. walking, cycling, bus, coach, LUAS and rail opportunities) to places of work, education and essential

services. This 'car lite' approach will help to reduce car dependency in Dublin, reduce traffic congestion and pollution levels, improve the quality of the environment and help tackle climate change in addition to encouraging sustainable travel.

It is therefore considered that the proposed provision of 408 no. car parking spaces for the subject mixed-use development, is appropriate to meet the predicted demand. Furthermore, to support the low car ethos of the proposed development, several initiatives for sustainable travel will be implemented.

Site 5

The availability of parking spaces is a key determinant of mode choice and car usage. With the objective of minimizing travel by car and encouraging the use of sustainable modes instead, it is proposed to limit the car parking provision and promote a 'car lite' scheme. This is considered an appropriate approach considering the site's excellent accessibility characteristics (e.g. walking, cycling, bus, coach, LUAS and rail opportunities) to places of work, education and essential services. This 'car lite' approach will help to reduce car dependency in Dublin, reduce traffic congestion and pollution levels, improve the quality of the environment and help tackle climate change in addition to encouraging sustainable travel.

It is therefore considered that the proposed provision of 219 no. car parking spaces for the subject mixed-use development is appropriate to meet the predicted demand. Furthermore, to support the low car ethos of the proposed development, several initiatives for sustainable travel will be implemented.

4.3.2 Cycle Parking

Site 3

Reference has been made the to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 1105 no. cycle parking spaces comprising a minimum of 877 no. long stay and 228 no. short stay spaces.

The development proposes to accommodate a total of at least 1116 no. cycle spaces. This provision incudes 882 no. long stay and 234 no. short stay visitor parking spaces. This quantum complies with the SDCC standards (1105 spaces). In accordance with SDCC the long-term bicycle parking should be located in a secure area that is not visible to the general public. We confirm that the bicycle parking provision provides for a wide range of bicycles for all users in accordance with

the NTA's Cycle Design Manual, 2023. In addition to the above, EV bicycle parking and bike share standards are proposed.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	140	140	1 per Bed	1 per 2 Units	140	70
	2-bed	151	302			302	76
	3+-bed	144	432			432	72
Houses	3+-bed	145	435	-	-	-	-
Crèche		553 m2 (6 classrooms)	-	1 per 5 staff	1 per 10 children	3	10
Sub-Total Cycle Parking Per Requirement						**877**	**228**
Total Cycle Parking Per Requirement						**1105**	

Table 4-7 Cycle Parking Standards and Requirements (Site 3)

Figure 4-18 Site 3 Cycle Parking

Site 4

Reference has been made to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 755 no. cycle parking spaces comprising a minimum of 588 no. long stay and 167 no. short stay spaces.

The development proposes to accommodate a total of at least 793 no. cycle spaces. This provision incudes 591 no. long stay and 202 no. short stay visitor parking spaces. This quantum complies with the SDCC standards (754 spaces). In accordance with SDCC the long-term bicycle parking should be located in a secure area that is not visible to the general public. We confirm that the bicycle parking provision provides for a wide range of bicycles for all users in accordance with the NTA's Cycle Design Manual, 2023. In addition to the above, EV bicycle parking and bike share standards are proposed.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	65	65	1 per Bed	1 per 2 Units	65	33
	2-bed	177	354			354	89
	3+-bed	53	159			159	27
Houses	3+-bed	141	423	-	-	-	-
Crèche		20 staff & 90 children	-	1 per 5 staff	1 per 10 children	4	9
Retail		6 staff (150 m2)	-	1 per 5 staff	1 per 150 m2	1	1
Employment		200 m2	-	1 per 200 m2	1 per 200 m2	1	1
Community		20 staff (683 m2)	-	1 per 5 staff	1 per 100 m2	4	7
Sub-Total Cycle Parking Per Requirement						**588**	**167**
Total Cycle Parking Per Requirement						**755**	

Table 4-8 Cycle Parking Standards and Requirements (Site 4)

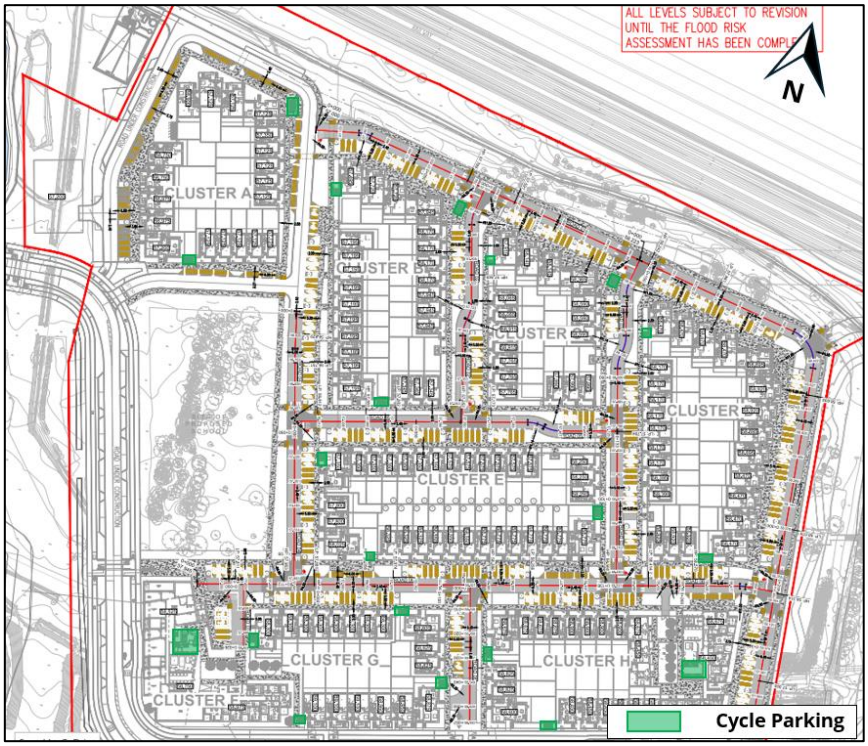


Figure 4-19 Site 4 Cycle Parking (North of Link Road)

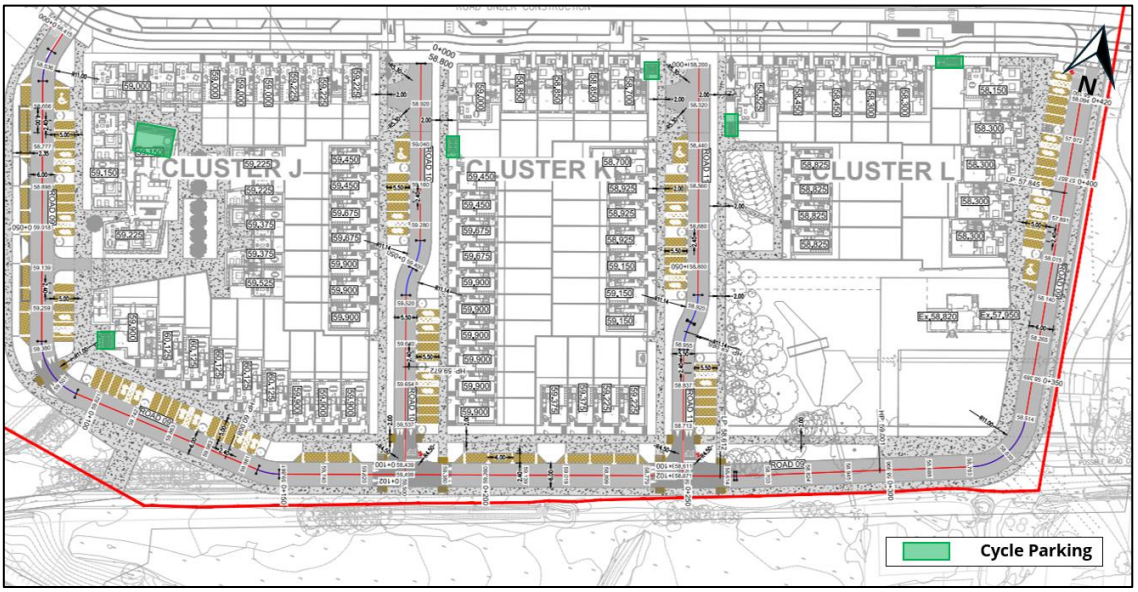


Figure 4-20 Site 4 Cycle Parking (South of Link Road)

Site 5

Reference has been made to SDCC Development Plan. Under the SDCC's standards, the scheme is required to provide at least 577 no. cycle parking spaces comprising a minimum of 422 no. long stay and 155 no. short stay spaces.

The development proposes to accommodate a total of at least 628 no. cycle spaces. This provision incudes 527 no. long stay and 101 no. short stay visitor parking spaces. This quantum complies with the SDCC standards. In accordance with SDCC the long-term bicycle parking should be located in a secure area that is not visible to the general public. We confirm that the bicycle parking provision provides for a wide range of bicycles for all users in accordance with the NTA's Cycle Design Manual, 2023. In addition to the above, EV bicycle parking and bike share standards are proposed.

Unit Type		No. of Units / GFA (m2) / No. of Staff	No. of Beds	SDCC Standard		SDCC Req.	
				Long-Stay	Short-Stay	Long-Stay	Short-Stay
Apartments/ Duplex	1-bed	37	37	1 per Bed	1 per 2 Units	37	19
	2-bed	107	214			214	107
	3+-bed	57	171			171	29
Houses	3+-bed	35	105	-	-	-	-
Sub-Total Cycle Parking Per Requirement						**422**	**155**
Total Cycle Parking Per Requirement						**577**	

Table 4-9 Cycle Parking Standards and Requirements (Site 5)

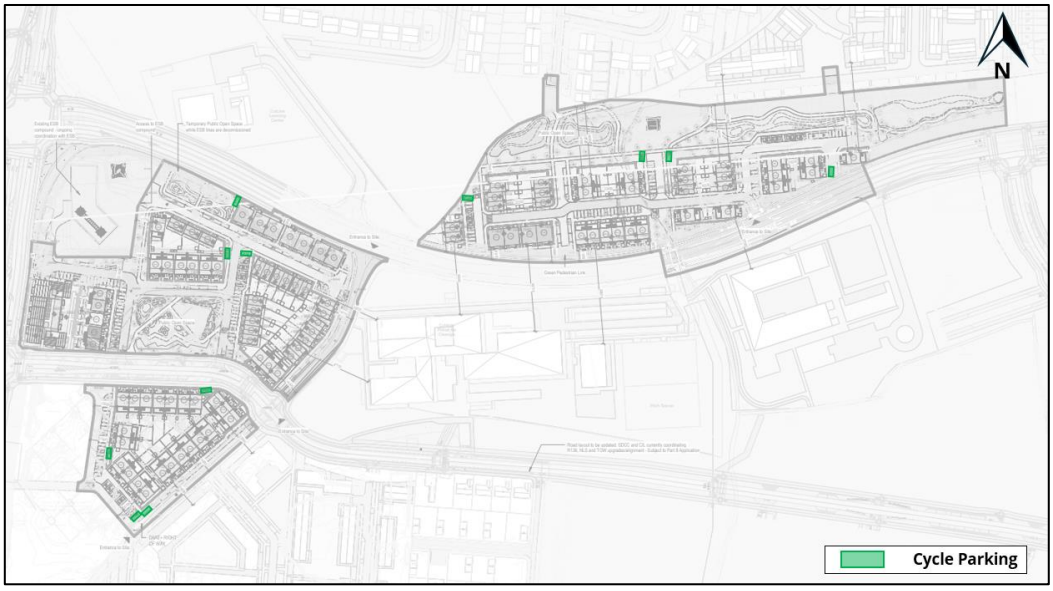


Figure 4-21 Site 5 Cycle Parking

5 Trip Generation and Distribution

5.1 Introduction

The following paragraphs present the process by which the potential vehicle trips, associated with the proposed development have been generated and subsequently assigned across the local road network. In order to assess the operation of the proposed road network and its future capacity, an Excel based traffic model of the existing network and proposed links was created.

5.2 Traffic Surveys

Traffic flows for the Excel based network analysis were obtained via the planning application for the Clonburris Northern Link Street. These traffic flows were retrieved from the South West Dublin Local Area Model, which supported the Clonburris SDZ assessment.

In order to analyse and assess the impact of the proposed link road scheme on the surrounding road network, a traffic generation and distribution model was created (Excel based) of the following key junctions, as show in **Figure 5-1** below.

- **Junction 1** – Adamstown Avenue / Station Road;
- **Junction 2** – Adamstown Avenue / CNLS;
- **Junction 3** – Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road;
- **Junction 4** – R136 Grange Castle Road / CNLS;
- **Junction 5** – R136 Grange Castle Road / CSLS; and
- **Junction 6** – Thomas Omer Way / R113 Fonthill Road.

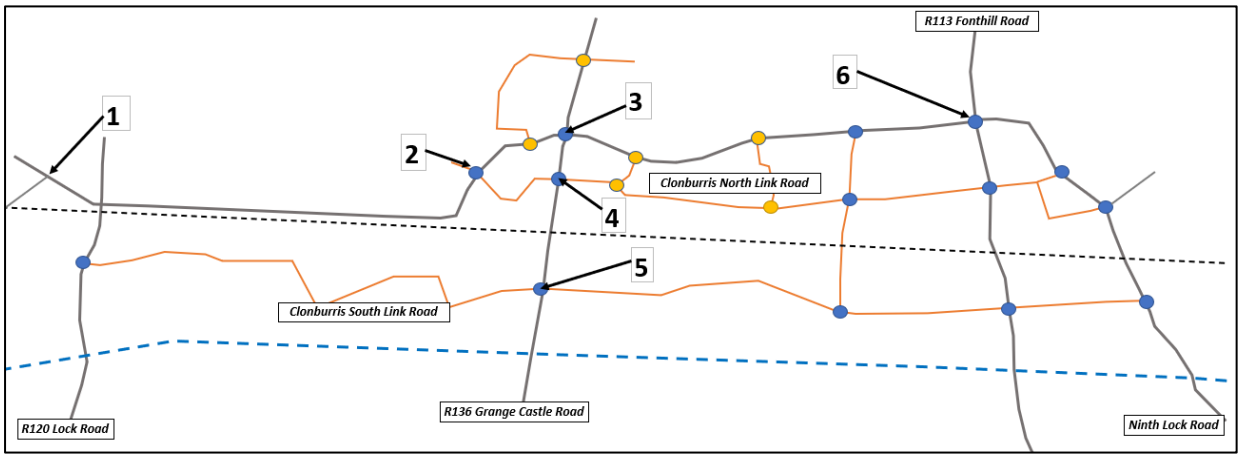


Figure 5-1 Junctions included within the Network Analysis

5.3 Trip Generation

A review of trip generation factors contained within the TRICS database was carried out. TRICS data is primarily UK based, although a number of Irish sites have recently been included and the number of Irish sites continues to expand. Nevertheless, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

Data supplied for inclusion in TRICS undergoes a procedure of validation testing, and there is no evidence from this procedure suggesting that data from Ireland bears any significant fundamental differences to that from the other countries included. Consequently, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

Table 5-1 below includes the predicted vehicle trip rates of the potential unrestrained traffic flows in and out of the proposed development during the morning and evening peak hour periods using data from TRICS.

Land Use		AM Peak Hour			PM Peak Hour		
		Arr	Dep	Two-Way	Arr	Dep	Two-Way
Apartments / Duplexes	Per unit	0.082	0.213	0.295	0.153	0.095	0.248
Houses	Per unit	0.192	0.452	0.644	0.404	0.337	0.741
Community Centre	Per 1000sqm	8.333	2.083	10.416	4.167	0.000	4.167
Creche	Per 100sqm	3.942	2.426	6.368	2.805	4.246	7.051
Retail	Per 100sqm	1.584	1.146	2.730	2.269	2.553	4.822
Office	Per 100sqm	0.718	0.057	0.775	0.057	0.445	0.502

Table 5-1 Proposed Development Trip Rates (TRICS)

Based on the above trip rates, potential peak hour traffic generation is calculated based on the development description outlined in **Section 4.1**.

Table 5-2 summarises the revised predicted peak hour AM and PM vehicle trips generated by the proposed development.

Land Use	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Two-Way	Arr	Dep	Two-Way
Apartments / Duplexes	60	156	217	112	70	182
Houses	54	126	180	113	94	207
Community Centre	0	0	1	0	0	0
Creche	41	25	66	29	44	73
Retail	2	2	4	3	4	7
Office	1	0	2	0	1	1
Total	**1459**	**310**	**468**	**258**	**212**	**470**

Table 5-2 Proposed Development Trip Rates

5.4 Trip Redistribution

A redistribution of traffic on the local network was carried out on the assumption that when the link road schemes are completed by the opening year of 2028, this will have an impact on the surrounding road network as a new link is provided between Adamstown Avenue, the R136 Grange Castle Road, the R113 Fonthill Road and Ninth Lock Road. Hence providing an alternative route for a proportion of motorists and bypassing the R134 and Thomas Omer Way corridors.

The following assumptions were made for the redistribution of the 2023 base year traffic to the surrounding network and the proposed CNLS:

- Movement 1 – 10% of traffic travelling along the R120 Lock Road South would turn right onto the Clonburris Southern/Northern Link Streets; similarly, 10% of traffic travelling along the R120 Lock Road North would turn left onto the Clonburris Southern/Northern Link Streets;
- Movement 2 – Of the traffic travelling on the R136 Grange Castle Road North 20% would turn right onto the Clonburris Southern/Northern Link Streets West and 20% would turn left onto the Clonburris Southern/Northern Link Streets East;
- Movement 3 – Of the traffic travelling on the R136 Grange Castle Road South 50% would turn left onto the Clonburris Southern/Northern Link Streets East and 20% would turn right onto the Clonburris Southern/Northern Link Streets West;
- Movement 4 – Of the traffic travelling on the R113 Fonthill Road North 3% would turn right onto the Clonburris Southern/Northern Link Streets West and 3% would turn left onto the Clonburris Southern/Northern Link Streets East;
- Movement 5 – Of the traffic travelling on the R113 Fonthill Road South 10% would turn left onto the Clonburris Southern/Northern Link Streets East and 40% would turn right onto the Clonburris Southern/Northern Link Streets West;
- Movement 6 – 20% of traffic travelling along the Ninth Lock Road South would turn left onto the Clonburris Southern/Northern Link Streets.

The redistribution of the vehicular traffic movements on the local road network as proposed by DBFL is presented in **Figure 5-2** Trip Redistribution.

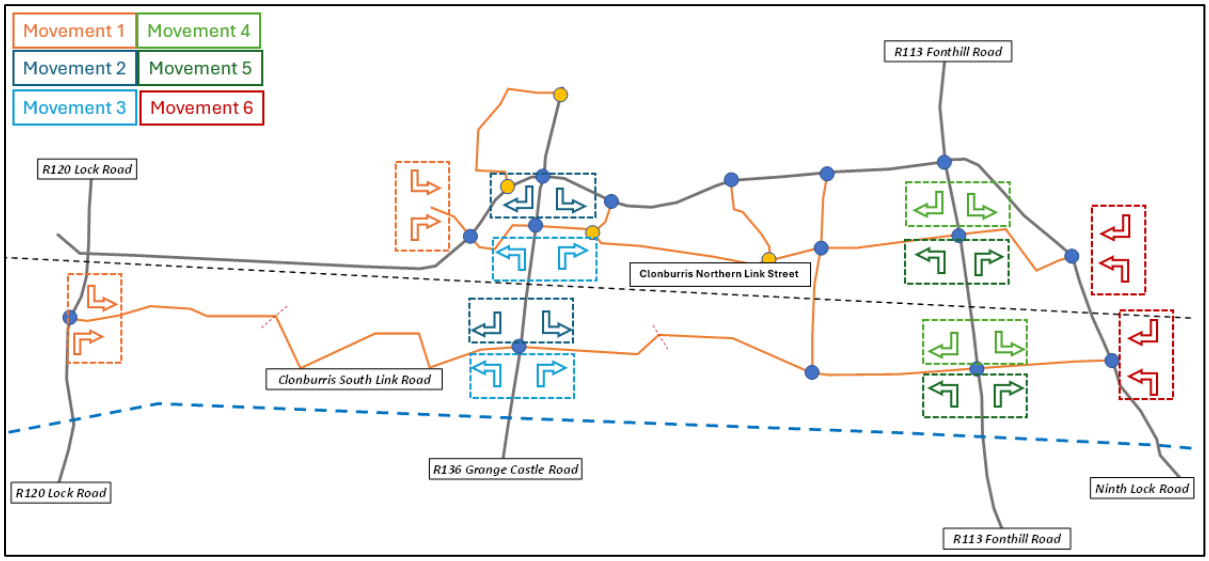


Figure 5-2 Trip Redistribution

5.5 Committed Development

Other developments currently under construction and other potential committed development in the vicinity of the site are likely to have similar impacts during the construction phase in relation to Traffic and Transport. Any other future development in the vicinity of the site would have to undergo Traffic and Transport assessments to assess the potential cumulative impacts to the transport network. A desktop study was conducted of planning applications in the vicinity of the subject development in the South Dublin County Council planning database archive to assess any cumulative impacts from granted or committed applications in addition to the subject scheme. Planning applications found that would have a cumulative impact traffic or on the subject scheme were as follows:

- The road and drainage infrastructure works permission under the Clonburris Strategic Development Zone Planning Scheme (Application no. SDZ20A/0021)
- Green Pedestrian and Cycle Route along Grand Canal from 12th Lock to Inchicore (Application no. SDZ078/0012)
- Development of 569 no. dwellings, a creche, innovation hub and open space within the SDZ lands (Application no. SDZ21A/0022)
- Development of 169 no. dwellings within the SDZ lands (Application no. SDZ22A/0017)
- Development of 283 no. dwellings, a creche and 2 no. retail units within the SDZ lands (Application no. SDZ22A/0010)

- Development of 16 no. classroom primary school at Thomas Omer Way (Application no. SDZ22A/0011)
- Development of a Logistics facility comprising a warehouse and adjoining unit within the SDZ lands (Application no. SDZ23A/0016)
- Development of 1,000 no. pupil post-primary school at Kishoge Cross (Application no. SDZ21A/0013)
- Development of 263 no. dwellings at Kishoge South West (Application no. SD228/0003)
- Development of manufacturing buildings at Grange Castle Business Park (Application no. SD23A/0123)
- Clonburris Southern Link Street (as permitted by Reg. Ref. SDZ20A/0021)
- Clonburris Northern Link Street (as permitted by Reg. Ref. SDZ24A/0033W)

Other projects in the wider Clonburris SDZ comprise:

- Application no. SDZ21A/0006 – Wastewater pumping station within the SDZ lands
- Application no. SD228/0001 – 118 no. dwellings at Bawnogue Road/Ashwood Drive
- Application no. SD198/0002 – 74 no. dwellings at Griffeen Avenue
- Application no. SDZ23A/0018 – 565 no. dwellings at Development Areas CSW-S1 & CSW-S2, Clonburris SDZ
- Application no. SDZ23A/0043 – 495 no. dwellings, retail, creche and café at Development Area 6 Kishoge Urban Centre, sub sector KUC-S4 (including an area of Development Area, 9 Kishoge South East, sub sector KSE-S1), Clonburris SDZ

5.6 Traffic Growth

Local Area Model Traffic figures needed to be “growthed up” by applying zone-based growth rates per TII’s PAG guidelines from the AM and PM base years which are based on TII’s National Transport Model zone-based rates.

Applying the TII Zone growth factors (medium growth) for the adopted Opening Year of 2028 and Future Horizon Year of 2043 (+15 years), the following growth rates have been adopted to establish corresponding 2028 and 2043 baseline network flows:

- 2023 to 2028 – 1.0837 (or 8.37%); and
- 2023 to 2043 – 1.1792 (or 17.92%).

5.7 Trip Distribution and Assignment

For the adopted Opening Year of 2028 and Future Years of 2033 (+5 years) and 2043 (+15 years), the distribution of proposed development traffic as proposed by DBFL is presented in the EIAR Appendix.

6 Network Impact

6.1 Assessment Scope

Two different traffic scenarios have been assessed, namely (a) the 'Base' (Do-Nothing) traffic characteristics and (b) the 'Post Development' traffic flows (Do-Something).

The 'Do-Nothing' traffic scenario takes into account the potential level of traffic that could be generated by the 'committed development' in addition to the existing flows travelling across the network subjected to growth rates.

The proposed development traffic flows are then added to the network's 'Do-Nothing' (Base with growth rates applied + Committed Development) traffic flows to establish the new post development 'Do-Something' traffic flows.

Do Nothing

- A1– 2023 Base Traffic Flows;
- A2– 2028 Base Traffic Flows (Growth from 2027); and
- A3– 2043 Base Traffic Flows (Growth from 2042).

Do Something

- B1– 2028 Do Nothing + Proposed Development; and
- B2– 2043 Do Nothing + Proposed Development.

6.2 Assessment Period

The network's AM and PM peak hour flows have been identified as occurring between 08:00 to 09:00 and 17:00 to 18:00 respectively.

The following figures (EIAR Appendix) present the vehicle flows across the local road network for each of the adopted scenarios:

- Figure 1 – 2018 Do Nothing (A1)
- Figure 2 – 2028 Do Nothing (A2)
- Figure 3 – 2043 Do Nothing (A3)
- Figure 6 – 2028 Do Something (B1)

- Figure 7 – 2043 Do Something (B2)

6.3 Network Impact

The Institution of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the network's operational performance. These same thresholds are reproduced in the NRA/TII document entitled 'Traffic and Transport Assessment Guidelines' (2014).

For the key local junctions, it can be seen in **Table 6-1**, that the proposed development upon full completion would have a material effect on the following junctions in the adopted Do-Something scenario.

Junction 3 – Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road

Junction 4 – R136 Grange Castle Road / CNLS

Junction 5 – R136 Grange Castle Road / CSLS

Junction ID	Location	2028		2043	
		AM Peak	PM Peak	AM Peak	PM Peak
1	Adamstown Avenue / Station Road	4.63%	4.35%	2.71%	3.11%
2	Adamstown Avenue / CNLS	4.51%	4.14%	2.68%	3.07%
3	Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road	9.75%	7.54%	7.37%	6.20%
4	R136 Grange Castle Road / CNLS	13.50%	17.03%	8.62%	9.27%
5	R136 Grange Castle Road / CSLS	9.35%	10.51%	5.70%	5.58%
6	Thomas Omer Way / R113 Fonthill Road	0.94%	0.98%	0.85%	0.80%

Table 6-1 Increase in Vehicle Trips

For this proposed development's analysis, Junctions 3, 4 and 5 have been analysed.

7 Network Analysis

7.1 Introduction

The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package TRANSYT for one signal-controlled junction.

When considering signalised junctions, a Degree of Saturation (DoS) of greater than 90% (0.90) would indicate a junction to be approaching capacity, as operation above this DoS value is poor and deteriorates quickly.

For the TRANSYT analysis a one-hour AM and PM period has been simulated, from 08:00 to 09:00 and 17:00 to 18:00 respectively. For the TRANSYT analyses traffic flows were entered using an Origin-Destination table for the peak hours.

In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the junctions was analysed for the scheme's following opening and design years:

- 2028 – Opening Year;
- 2043 – Future Design Year (Opening Year + 15 years)

The following key junctions have been analysed:

- Junction 3 – Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road;
- Junction 4 – R136 Grange Castle Road / CNLS;
- Junction 5 – R136 Grange Castle Road / CSLS;

7.1.1 Junction 3 – Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road

Junction 3, as illustrated in **Figure 5-1**, has been analysed in the TRANSYT software for the Do Nothing and Do Something scenarios:

Do Nothing Scenarios

The "Do Nothing" scenarios adopt the signalised layout illustrated in (**Figure 7-1**), modelled using TRANSYT. The results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in the tables below. In the "Do Nothing" scenarios the four arms were labelled as follows within the TRANSYT model:

- Arm A: R136 Grange Castle Road North
- Arm B: Thomas Omer Way
- Arm C: R136 Grange Castle Road South
- Arm D: Adamstown Ave

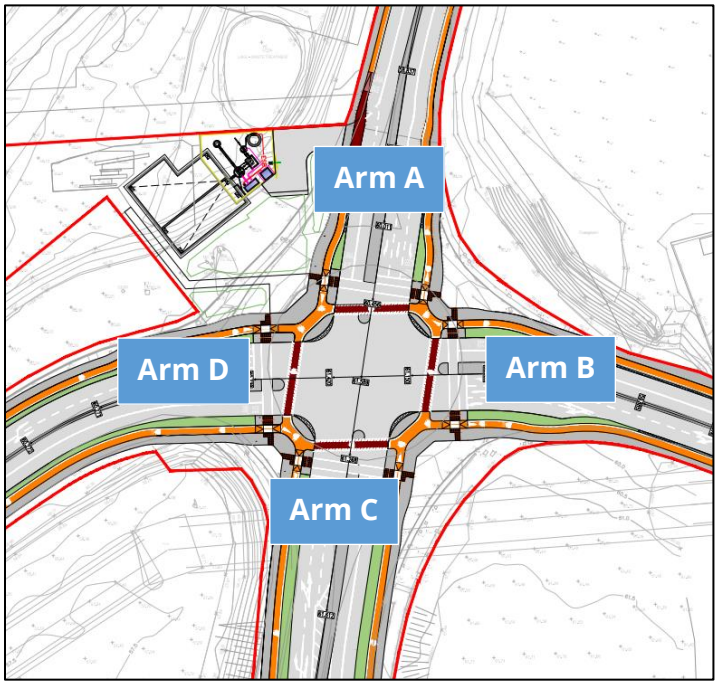


Figure 7-1 Junction 3

2028 Do Nothing Scenario

The TRANSYT results (**Table 7-1**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2028 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 91% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 22.35 pcus (Passenger Car Units). PCU is a unit of measurement which is used to evaluate the impact of different vehicles classes on the road network. The different vehicle classes must be converted to a standard vehicle type, such as PCU.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	53	23.89	10.58
			2	R136 Grange Castle Road North (to C)	90	59.10	22.35
			3	R136 Grange Castle Road North (to D)	32	49.30	2.69
		B	1	Thomas Omer Way (to C)	0	0.00	0.00
			2	Thomas Omer Way (to D)	91	128.82	7.89
			3	Thomas Omer Way (to A)	35	56.68	2.02
		C	1	R136 Grange Castle Road South (to D)	12	17.26	1.74
			2	R136 Grange Castle Road South (to A)	80	47.33	17.71
			3	R136 Grange Castle Road South (to B)	81	74.92	8.73
		D	1	Adamstown Avenue (to A)	6	24.71	0.39
			2	Adamstown Avenue (to B)	85	78.99	10.58
			3	Adamstown Avenue (to C)	79	89.57	5.53
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	31	27.78	4.83
			2	R136 Grange Castle Road North (to C)	88	60.29	19.59
			3	R136 Grange Castle Road North (to D)	52	68.77	2.47
		B	1	Thomas Omer Way (to C)	13	18.19	1.06
			2	Thomas Omer Way (to D)	186	866.00	127.06
			3	Thomas Omer Way (to A)	130	466.81	50.88
		C	1	R136 Grange Castle Road South (to D)	26	27.01	3.97
			2	R136 Grange Castle Road South (to A)	109	218.57	52.57
			3	R136 Grange Castle Road South (to B)	70	84.85	3.72
		D	1	Adamstown Avenue (to A)	28	19.87	2.48
			2	Adamstown Avenue (to B)	82	63.58	12.93
			3	Adamstown Avenue (to C)	51	54.76	4.20

Table 7-1 2028 Do Nothing Analysis for Junction 3

The TRANSYT results (**Table 7-1**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2028 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 186% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 127.06 pcus.

2043 Do Nothing Scenario

The TRANSYT results (**Table 7-2**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2043 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 178% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 110.87 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	13	16.35	2.02
			2	R136 Grange Castle Road North (to C)	105	149.71	54.84
			3	R136 Grange Castle Road North (to D)	66	73.47	4.05
		B	1	Thomas Omer Way (to C)	52	34.12	3.48
			2	Thomas Omer Way (to D)	178	826.47	73.57
			3	Thomas Omer Way (to A)	80	102.26	4.68
		C	1	R136 Grange Castle Road South (to D)	20	17.25	3.25
			2	R136 Grange Castle Road South (to A)	178	826.47	73.57
			3	R136 Grange Castle Road South (to B)	80	102.26	4.68
		D	1	Adamstown Avenue (to A)	23	27.95	1.39
			2	Adamstown Avenue (to B)	161	719.18	110.87
			3	Adamstown Avenue (to C)	23	57.68	0.91
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	6	21.12	0.85
			2	R136 Grange Castle Road North (to C)	137	526.16	140.94
			3	R136 Grange Castle Road North (to D)	28	54.67	1.60
		B	1	Thomas Omer Way (to C)	35	23.56	2.92
			2	Thomas Omer Way (to D)	116	322.49	34.72
			3	Thomas Omer Way (to A)	54	63.79	3.32
		C	1	R136 Grange Castle Road South (to D)	9	21.53	1.36
			2	R136 Grange Castle Road South (to A)	180	825.42	275.25
			3	R136 Grange Castle Road South (to B)	102	199.09	13.32
		D	1	Adamstown Avenue (to A)	103	148.62	24.12
			2	Adamstown Avenue (to B)	129	450.62	80.75
			3	Adamstown Avenue (to C)	28	54.67	1.60

Table 7-2 2043 Do Nothing Analysis for Junction 3

The TRANSYT results (**Table 7-2**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2043 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 180% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 275.25 pcus.

2028 Do Something Scenario

The TRANSYT results (**Table 7-3**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2028 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 101% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 22.90 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	52	23.15	10.51
			2	R136 Grange Castle Road North (to C)	90	58.28	22.90
			3	R136 Grange Castle Road North (to D)	49	53.69	4.39
		B	1	Thomas Omer Way (to C)	2	25.03	0.10
			2	Thomas Omer Way (to D)	101	196.49	11.76
			3	Thomas Omer Way (to A)	44	61.18	2.42
		C	1	R136 Grange Castle Road South (to D)	11	16.71	1.71
			2	R136 Grange Castle Road South (to A)	85	50.87	20.09
			3	R136 Grange Castle Road South (to B)	82	77.18	9.03
		D	1	Adamstown Avenue (to A)	37	29.69	2.47
			2	Adamstown Avenue (to B)	90	92.26	12.29
			3	Adamstown Avenue (to C)	87	114.28	6.43
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	32	27.97	5.06
			2	R136 Grange Castle Road North (to C)	92	70.26	22.28
			3	R136 Grange Castle Road North (to D)	111	302.73	14.48
		B	1	Thomas Omer Way (to C)	13	18.24	1.09
			2	Thomas Omer Way (to D)	192	894.33	135.03
			3	Thomas Omer Way (to A)	131	481.06	52.81
		C	1	R136 Grange Castle Road South (to D)	26	27.01	3.97

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			2	R136 Grange Castle Road South (to A)	114	278.94	65.81
			3	R136 Grange Castle Road South (to B)	75	93.10	4.22
		D	1	Adamstown Avenue (to A)	40	21.61	3.82
			2	Adamstown Avenue (to B)	85	68.26	13.98
			3	Adamstown Avenue (to C)	51	54.76	4.20

Table 7-3 2028 Do Something Analysis for Junction 3

The TRANSYT results (**Table 7-3)** indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2028 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 192% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 135.03 pcus.

2043 Do Something Scenario

The TRANSYT results (**Table 7-4**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2043 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 187% being recorded on the eastern arm of the Thomas Omer Way (stream 2), with a corresponding maximum queue of 118.81 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	13	16.39	2.07
			2	R136 Grange Castle Road North (to C)	109	202.87	67.92
			3	R136 Grange Castle Road North (to D)	86	104.63	7.27
		B	1	Thomas Omer Way (to C)	53	34.57	3.59
			2	Thomas Omer Way (to D)	187	870.65	80.97
			3	Thomas Omer Way (to A)	87	123.04	5.72
		C	1	R136 Grange Castle Road South (to D)	20	17.25	3.25
			2	R136 Grange Castle Road South (to A)	101	107.92	42.85
			3	R136 Grange Castle Road South (to B)	140	573.07	43.16
		D	1	Adamstown Avenue (to A)	55	35.09	3.76
			2	Adamstown Avenue (to B)	166	750.82	118.81
			3	Adamstown Avenue (to C)	23	57.68	0.91

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	7	21.82	1.02
			2	R136 Grange Castle Road North (to C)	145	596.09	161.71
			3	R136 Grange Castle Road North (to D)	71	76.50	4.96
		B	1	Thomas Omer Way (to C)	34	22.91	2.93
			2	Thomas Omer Way (to D)	116	315.33	35.90
			3	Thomas Omer Way (to A)	57	65.29	3.53
		C	1	R136 Grange Castle Road South (to D)	10	22.15	1.38
			2	R136 Grange Castle Road South (to A)	190	875.37	297.68
			3	R136 Grange Castle Road South (to B)	106	236.00	15.66
		D	1	Adamstown Avenue (to A)	114	273.99	44.84
			2	Adamstown Avenue (to B)	127	427.42	78.89
			3	Adamstown Avenue (to C)	7	50.81	0.37

Table 7-4 Do Something Analysis for Junction 3

The TRANSYT results (**Table 7-4**) indicate that the Thomas Omer Way / Adamstown Avenue / R136 Grange Castle Road Junction will not operate within capacity for the 2043 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 190% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 297.68 pcus.

TRANSYT assessment for Junction 3 shows an oversaturated performance during the morning and evening peak hours in the DN and DS scenarios. However, the impact of the development is an increase of 10% in capacity in the evening, and 9% in capacity in the morning. This means that the network is over capacity regardless of the Proposed Development. This result is expected and consistent with the Traffic & Transport Assessments of the Southern Link Street – Clonburris SDZ and Clonburris Stage 2 Infrastructure, prepared by DBFL Consulting Engineers. These documents showed an oversaturated network for Opening Year and Future Horizon Year, similar to results obtained above. It is important to note that the analysis has assumed the pedestrian stage will be called during every cycle. As such the TRANSYT analysis represents a worst-case scenario, with the junctions likely performing better than the TRANSYT results indicate. Additionally, the area will be served with high frequency bus & rail services, high quality cycle infrastructure and new road developments.

7.1.2 Junction 4 – R136 Grange Castle Road / CNLS

Junction 4, as illustrated in **Figure 5-1**, has been analysed in the TRANSYT software for the Do Nothing and Do Something scenarios:

Do Nothing Scenarios

The "Do Nothing" scenarios adopt the signalised layout illustrated in (**Figure 7-2**), modelled using TRANSYT. The results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in the tables below. In the "Do Nothing" scenarios the four arms were labelled as follows within the TRANSYT model:

- Arm A: R136 Grange Castle Road North
- Arm B: Clonburris North Link Road East
- Arm C: R136 Grange Castle Road South
- Arm D: Clonburris North Link Road West

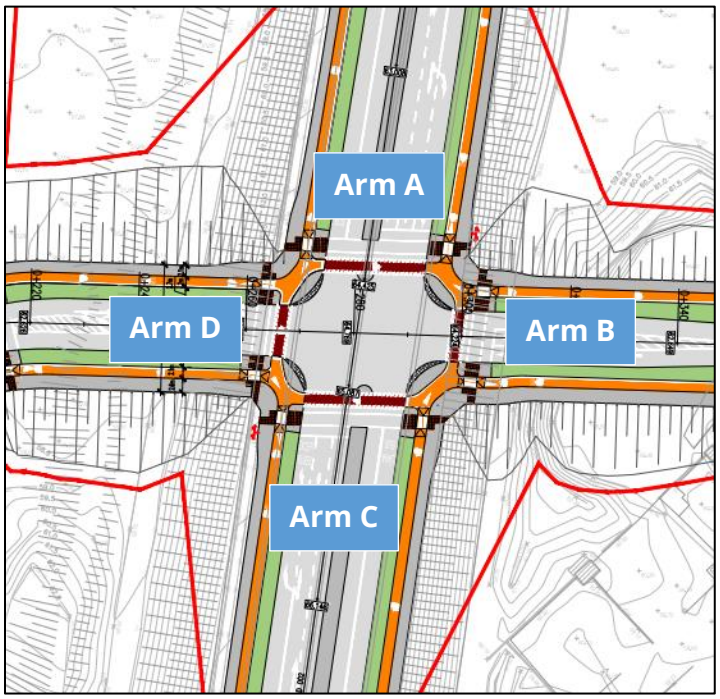


Figure 7-2 Junction 4

2028 Do Nothing Scenario

The TRANSYT results (**Table 7-5**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 106% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding maximum queue of 51.43 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	9	26.48	1.20
			2	R136 Grange Castle Road North (to C)	94	66.81	27.16
			3	R136 Grange Castle Road North (to D)	1	52.84	0.00
		B	1	Clonburris North Link Road East (to C & D)	94	113.42	13.07
			2	Clonburris North Link Road East (to A)	33	57.27	1.74
		C	1	R136 Grange Castle Road South (to A & D)	2	25.75	0.26
			2	R136 Grange Castle Road South (to A)	106	167.45	51.43
			3	R136 Grange Castle Road South (to B)	60	74.13	2.94
		D	1	Clonburris North Link Road West (to A & B)	100	148.99	17.24
			2	Clonburris North Link Road West (to C)	70	78.46	4.42
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	13	19.57	1.89
			2	R136 Grange Castle Road North (to C)	74	32.76	19.91
			3	R136 Grange Castle Road North (to D)	0	0.00	0.00
		B	1	Clonburris North Link Road East (to C & D)	67	82.37	3.25
			2	Clonburris North Link Road East (to A)	74	91.69	4.10
		C	1	R136 Grange Castle Road South (to A & D)	1	18.45	0.15
			2	R136 Grange Castle Road South (to A)	89	44.18	27.98
			3	R136 Grange Castle Road South (to B)	25	57.81	1.08
		D	1	Clonburris North Link Road West (to A & B)	5	53.41	0.19
			2	Clonburris North Link Road West (to C)	13	54.86	0.54

Table 7-5 2028 Do Nothing Analysis for Junction 4

The TRANSYT results (**Table 7-5**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 89% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding maximum queue of 27.98 pcus.

2043 Do Nothing Scenario

The TRANSYT results (**Table 7-6**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 186% being recorded on the northern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 284.71 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	7	30.29	0.83
			2	R136 Grange Castle Road North (to C)	186	854.44	284.71
			3	R136 Grange Castle Road North (to D)	4	51.31	0.18
		B	1	Clonburris North Link Road East (to C & D)	49	51.02	4.55
			2	Clonburris North Link Road East (to A)	24	52.71	1.44
		C	1	R136 Grange Castle Road South (to A & D)	30	34.03	3.75
			2	R136 Grange Castle Road South (to A)	145	589.42	159.23
			3	R136 Grange Castle Road South (to B)	173	801.82	65.93
		D	1	Clonburris North Link Road West (to A & B)	182	840.13	137.09
			2	Clonburris North Link Road West (to C)	173	795.33	77.05
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	1	24.40	0.08
			2	R136 Grange Castle Road North (to C)	157	677.53	239.03
			3	R136 Grange Castle Road North (to D)	1	50.07	0.00
		B	1	Clonburris North Link Road East (to C & D)	93	118.63	10.62

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			2	Clonburris North Link Road East (to A)	101	207.29	9.74
		C	1	R136 Grange Castle Road South (to A & D)	4	24.55	0.47
			2	R136 Grange Castle Road South (to A)	146	598.71	200.23
			3	R136 Grange Castle Road South (to B)	161	725.30	61.44
		D	1	Clonburris North Link Road West (to A & B)	160	715.67	78.25
			2	Clonburris North Link Road West (to C)	59	73.88	2.86

Table 7-6 2043 Do Nothing Analysis for Junction 4

The TRANSYT results (**Table 7-6**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 161% being recorded on the southern arm of the R136 Grange Castle Road (stream 3), with a corresponding queue of 239.03 pcus.

2028 Do Something Scenario

The TRANSYT results (**Table 7-7**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 117% being recorded on the western arm of the Clonburris North Link Road (stream 1), with a corresponding maximum queue of 74.28 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	10	28.68	1.37
			2	R136 Grange Castle Road North (to C)	101	119.74	37.08
			3	R136 Grange Castle Road North (to D)	1	52.84	0.00
		B	1	Clonburris North Link Road East (to C & D)	104	186.23	20.01
			2	Clonburris North Link Road East (to A)	32	53.44	2.12
		C	1	R136 Grange Castle Road South (to A & D)	15	29.34	1.81
			2	R136 Grange Castle Road South (to A)	115	280.64	74.28

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			3	R136 Grange Castle Road South (to B)	64	77.50	3.20
		D	1	Clonburris North Link Road West (to A & B)	117	336.40	36.59
			2	Clonburris North Link Road West (to C)	113	303.66	23.79
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	14	19.75	2.13
			2	R136 Grange Castle Road North (to C)	75	33.12	20.16
			3	R136 Grange Castle Road North (to D)	20	56.59	0.84
		B	1	Clonburris North Link Road East (to C & D)	84	117.19	5.14
			2	Clonburris North Link Road East (to A)	81	104.42	4.83
		C	1	R136 Grange Castle Road South (to A & D)	16	20.00	2.17
			2	R136 Grange Castle Road South (to A)	89	45.15	28.61
			3	R136 Grange Castle Road South (to B)	34	60.45	1.48
		D	1	Clonburris North Link Road West (to A & B)	33	60.46	1.34
			2	Clonburris North Link Road West (to C)	79	101.45	4.65

Table 7-7 2028 Do Something Analysis for Junction 4

The TRANSYT results (**Table 7-7)** indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 89% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding maximum queue of 28.61 pcus.

2043 Do Something Scenario

The TRANSYT results **(Table 7-8**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 197% being recorded on the western arm of the Clonburris North Link Road (stream 1), with a corresponding queue of 302.13 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	8	31.90	1.01
			2	R136 Grange Castle Road North (to C)	197	909.71	302.13
			3	R136 Grange Castle Road North (to D)	15	54.23	0.70
		B	1	Clonburris North Link Road East (to C & D)	57	53.98	5.57
			2	Clonburris North Link Road East (to A)	25	49.96	1.87
		C	1	R136 Grange Castle Road South (to A & D)	47	39.01	5.92
			2	R136 Grange Castle Road South (to A)	154	660.67	176.54
			3	R136 Grange Castle Road South (to B)	197	919.42	76.40
		D	1	Clonburris North Link Road West (to A & B)	197	914.61	160.65
			2	Clonburris North Link Road West (to C)	189	881.84	116.40
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	2	25.10	0.32
			2	R136 Grange Castle Road North (to C)	161	709.68	250.46
			3	R136 Grange Castle Road North (to D)	16	52.21	0.87
		B	1	Clonburris North Link Road East (to C & D)	96	134.43	12.89
			2	Clonburris North Link Road East (to A)	106	254.87	11.96
		C	1	R136 Grange Castle Road South (to A & D)	22	27.75	2.91
			2	R136 Grange Castle Road South (to A)	151	633.54	211.63
			3	R136 Grange Castle Road South (to B)	167	763.87	66.87
		D	1	Clonburris North Link Road West (to A & B)	164	740.76	88.15
			2	Clonburris North Link Road West (to C)	125	444.38	22.13

Table 7-8 Do Something Analysis for Junction 4

The TRANSYT results (**Table 7-8**) indicate that the Clonburris North Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 167% being recorded on the southern arm of the R136 Grange Castle Road (stream 3), with a corresponding queue of 250.46 pcus.

TRANSYT assessment for Junctions 4 shows an oversaturated performance during the morning and evening peak hours in the DN and DS scenarios. However, the impact of the development is an increase of 6% in capacity in the evening, and 11% in capacity in the morning. This means that the network is over capacity regardless of the Proposed Development.

This result is expected and consistent with the Traffic & Transport Assessments of the Southern Link Street – Clonburris SDZ and Clonburris Stage 2 Infrastructure, prepared by DBFL Consulting Engineers. These documents showed an oversaturated network for Opening Year and Future Horizon Year, similar to results obtained above. It is important to note that the analysis has assumed the pedestrian stage will be called during every cycle. As such the TRANSYT analysis represents a worst-case scenario, with the junctions likely performing better than the TRANSYT results indicate. Additionally, the area will be served with high frequency bus & rail services, high quality cycle infrastructure and new road developments.

7.1.3 Junction 5 – R136 Grange Castle Road / CSLS

Junction 5, as illustrated in **Figure 5-1**, has been analysed in the TRANSYT software for the Do Nothing and Do Something scenarios:

Do Nothing Scenarios

The "Do Nothing" scenarios adopt the signalised layout illustrated in (**Figure 7-3**), modelled using TRANSYT. The results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in the tables below. In the "Do Nothing" scenarios the four arms were labelled as follows within the TRANSYT model:

- Arm A: R136 Grange Castle Road North
- Arm B: Clonburris South Link Road East
- Arm C: R136 Grange Castle Road South
- Arm D: Clonburris South Link Road West

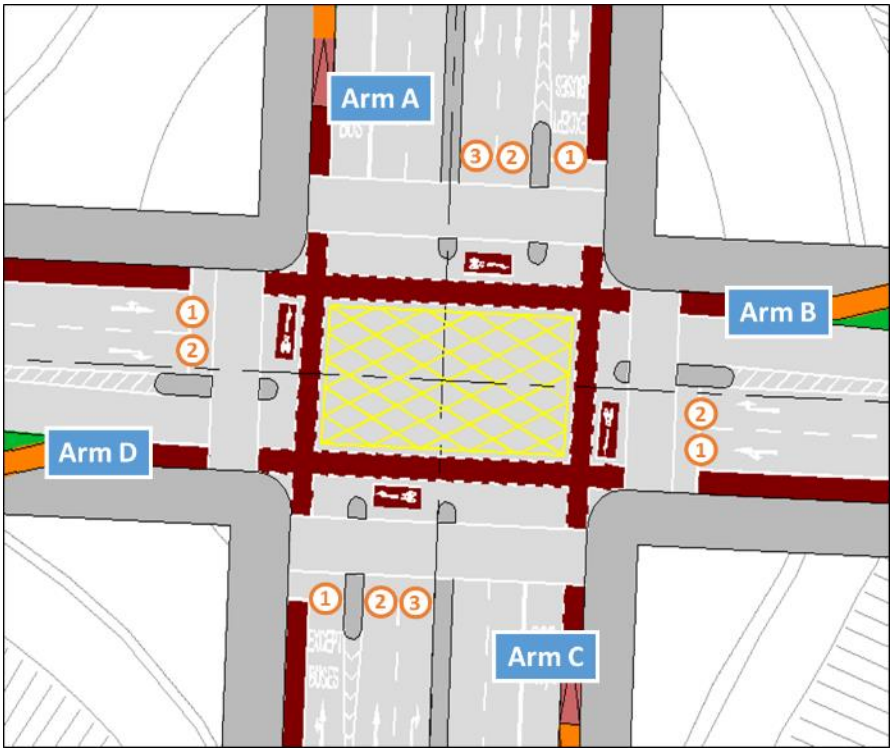


Figure 7-3 Junction 5

2028 Do Nothing Scenario

The TRANSYT results (**Table 7-9**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 165% being recorded on the western arm of the Clonburris South Link Road (stream 1), with a corresponding maximum queue of 172.76 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	4	28.59	0.58
			2	R136 Grange Castle Road North (to C)	154	659.23	172.76
			3	R136 Grange Castle Road North (to D)	17	55.91	0.64
		B	1	Clonburris South Link Road East (to C & D)	128	464.44	33.05
			2	Clonburris South Link Road East (to A)	60	76.04	2.75
		C	1	R136 Grange Castle Road South (to A & D)	4	29.20	0.51

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			2	R136 Grange Castle Road South (to A)	119	334.78	73.32
			3	R136 Grange Castle Road South (to B)	38	57.98	2.08
		D	1	Clonburris South Link Road West (to A & B)	165	747.49	70.20
			2	Clonburris South Link Road West (to C)	43	65.13	1.82
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	11	28.01	1.46
			2	R136 Grange Castle Road North (to C)	106	173.60	43.84
			3	R136 Grange Castle Road North (to D)	43	65.13	1.82
		B	1	Clonburris South Link Road East (to C & D)	123	409.75	30.86
			2	Clonburris South Link Road East (to A)	58	74.62	2.65
		C	1	R136 Grange Castle Road South (to A & D)	11	28.03	1.49
			2	R136 Grange Castle Road South (to A)	122	364.27	87.03
			3	R136 Grange Castle Road South (to B)	48	67.75	2.07
		D	1	Clonburris South Link Road West (to A & B)	57	63.05	3.93
			2	Clonburris South Link Road West (to C)	45	65.96	1.91

Table 7-9 2028 Do Nothing Analysis for Junction 5

The TRANSYT results (**Table 7-9**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 123% being recorded on the eastern arm of the Clonburris South Link Road (stream 1), with a corresponding maximum queue of 87.03 pcus.

2043 Do Nothing Scenario

The TRANSYT results (**Table 7-10**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Nothing" AM peak hour with a maximum Degree of Saturation (DoS) value of 252% being recorded on the northern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 475.16 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DN	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	11	28.11	1.58
			2	R136 Grange Castle Road North (to C)	252	1101.45	475.16
			3	R136 Grange Castle Road North (to D)	22	57.23	0.85
		B	1	Clonburris South Link Road East (to C & D)	249	1100.27	151.78
			2	Clonburris South Link Road East (to A)	65	80.97	3.11
		C	1	R136 Grange Castle Road South (to A & D)	4	27.11	0.47
			2	R136 Grange Castle Road South (to A)	187	860.66	281.40
			3	R136 Grange Castle Road South (to B)	68	83.92	3.29
		D	1	Clonburris South Link Road West (to A & B)	128	461.04	35.56
			2	Clonburris South Link Road West (to C)	163	746.11	42.72
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	4	28.48	0.48
			2	R136 Grange Castle Road North (to C)	246	1084.72	434.18
			3	R136 Grange Castle Road North (to D)	13	54.87	0.48
		B	1	Clonburris South Link Road East (to C & D)	244	1086.07	169.78
			2	Clonburris South Link Road East (to A)	50	68.72	2.16
		C	1	R136 Grange Castle Road South (to A & D)	3	27.78	0.45
			2	R136 Grange Castle Road South (to A)	222	1006.92	375.25
			3	R136 Grange Castle Road South (to B)	73	92.38	3.77
		D	1	Clonburris South Link Road West (to A & B)	93	123.77	10.30
			2	Clonburris South Link Road West (to C)	200	935.32	64.45

Table 7-10 2043 Do Nothing Analysis for Junction 5

The TRANSYT results (**Table 7-10**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Nothing" PM peak hour with a maximum Degree of Saturation (DoS) value of 246% being recorded on the northern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 434.18 pcus.

2028 Do Something Scenario

The TRANSYT results (**Table 7-11**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 176% being recorded on the northern arm of the R136 Grange Castle Road (stream 2), with a corresponding maximum queue of 237.49 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2028 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	7	28.88	0.88
			2	R136 Grange Castle Road North (to C)	176	805.67	237.49
			3	R136 Grange Castle Road North (to D)	18	56.35	0.71
		B	1	Clonburris South Link Road East (to C & D)	128	464.44	33.05
			2	Clonburris South Link Road East (to A)	60	76.04	2.75
		C	1	R136 Grange Castle Road South (to A & D)	4	29.20	0.51
			2	R136 Grange Castle Road South (to A)	132	474.21	108.37
			3	R136 Grange Castle Road South (to B)	38	57.98	2.08
		D	1	Clonburris South Link Road West (to A & B)	165	747.49	70.20
			2	Clonburris South Link Road West (to C)	43	65.13	1.82
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	11	27.40	1.56
			2	R136 Grange Castle Road North (to C)	118	325.42	79.39
			3	R136 Grange Castle Road North (to D)	44	65.54	1.86
		B	1	Clonburris South Link Road East (to C & D)	133	511.34	37.34
			2	Clonburris South Link Road East (to A)	58	74.62	2.65
		C	1	R136 Grange Castle Road South (to A & D)	11	27.33	1.47
			2	R136 Grange Castle Road South (to A)	138	531.66	139.11
			3	R136 Grange Castle Road South (to B)	48	67.75	2.07
		D	1	Clonburris South Link Road West (to A & B)	62	67.78	4.07

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			2	Clonburris South Link Road West (to C)	45	65.96	1.91

Table 7-11 2028 Do Something Analysis for Junction 5

The TRANSYT results (**Table 7-11)** indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2028 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 138% being recorded on the southern arm of the R136 Grange Castle Road (stream 2), with a corresponding maximum queue of 139.11 pcus.

2043 Do Something Scenario

The TRANSYT results **(Table 7-12**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 273% being recorded on the northern arm of the R136 Grange Castle Road (stream 2), with a corresponding queue of 540.12 pcus.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
2043 DS	AM Peak	A	1	R136 Grange Castle Road North (to B & C)	14	28.41	1.88
			2	R136 Grange Castle Road North (to C)	273	1156.73	540.12
			3	R136 Grange Castle Road North (to D)	23	57.68	0.91
		B	1	Clonburris South Link Road East (to C & D)	249	1100.27	151.78
			2	Clonburris South Link Road East (to A)	65	80.97	3.11
		C	1	R136 Grange Castle Road South (to A & D)	4	27.11	0.47
			2	R136 Grange Castle Road South (to A)	199	917.09	317.34
			3	R136 Grange Castle Road South (to B)	68	83.92	3.29
		D	1	Clonburris South Link Road West (to A & B)	128	461.04	35.56
			2	Clonburris South Link Road West (to C)	163	746.11	42.72
	PM Peak	A	1	R136 Grange Castle Road North (to B & C)	4	27.90	0.57
			2	R136 Grange Castle Road North (to C)	255	1110.89	473.16

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Delay (s)	Mean Max Queue (pcu)
			3	R136 Grange Castle Road North (to D)	13	55.04	0.51
		B	1	Clonburris South Link Road East (to C & D)	261	1133.76	176.75
			2	Clonburris South Link Road East (to A)	50	68.72	2.16
		C	1	R136 Grange Castle Road South (to A & D)	3	27.10	0.45
			2	R136 Grange Castle Road South (to A)	236	1054.12	427.20
			3	R136 Grange Castle Road South (to B)	73	92.38	3.77
		D	1	Clonburris South Link Road West (to A & B)	101	177.88	13.23
			2	Clonburris South Link Road West (to C)	200	935.32	64.45

Table 7-12 Do Something Analysis for Junction 5

The TRANSYT results (**Table 7-12**) indicate that the Clonburris South Link Road / R136 Grange Castle Road will not operate within capacity for the 2043 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 261% being recorded on the eastern arm of the Clonburris South Link Road (stream 1), with a corresponding queue of 473.16 pcus.

TRANSYT assessment for Junctions 5 shows an oversaturated performance during the morning and evening peak hours in the DN and DS scenarios. However, the impact of the development is an increase of 15% in capacity in the evening, and 21% in capacity in the morning. This means that the network is over capacity regardless of the Proposed Development.

This result is expected and consistent with the Traffic & Transport Assessments of the Southern Link Street – Clonburris SDZ and Clonburris Stage 2 Infrastructure, prepared by DBFL Consulting Engineers. These documents showed an oversaturated network for Opening Year and Future Horizon Year, similar to results obtained above. It is important to note that the analysis has assumed the pedestrian stage will be called during every cycle. As such the TRANSYT analysis represents a worst-case scenario, with the junctions likely performing better than the TRANSYT results indicate. Additionally, the area will be served with high frequency bus & rail services, high quality cycle infrastructure and new road developments.

8 Initiatives to Promote Sustainable Travel

8.1 Overview

A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development on the subject zoned lands could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The strategy includes specific measures for both the construction and operational stages of the proposed development.

8.2 Construction Stage

The Construction Management Plan (which is a standalone report and included in the planning documentation) in addition to the application's accompanying Construction and Waste Management Plan will incorporate a range of integrated control/ mitigation measures and associated management initiatives with the objective of mitigating the impact of the proposed development's on-site construction activities.

The Contractor's CMP will be prepared prior to the commencement of construction work on site. This plan will be prepared in consultation with SDCC and submitted for approval in order to agree on monitoring measures (in advance of works commencing) some of which are outlined below:

RT_1: All works on site will be undertaken during hours of the day in accordance with SDCC requirements.

RT_2: During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads.

RT_3: The surrounding road network will be signed to define the access and egress routes for the development including dedicated 'haul' routes to/from the development site.

RT_4: The traffic generated by the construction phase of the development will be strictly controlled in order to minimise the impact of this traffic on the surrounding road network and local properties. All HGV trips could potentially be restricted from traveling to / from the development during the local road network's peak hours

RT_5: All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel.

RT_6: All employees and visitors' vehicle parking demands will be accommodated by a permeable hardstand carparking area within the construction compound. The exact location of the construction compound is to be confirmed in advance of commencement of the works. On-street parking of construction vehicles and construction personnel vehicles will be discouraged.

RT_7: A programme of street cleaning across the local street and identified 'haul routes' will be implemented.

RT_8: A construction Mobility Management Plan will be developed by the appointed contractor to encourage all construction personnel to utilise the vast range of sustainable travel options available when travelling to/from the subject proposed development site.

The Contractor's CMP will contain the relevant construction mitigation measures set out in this chapter and EIAR and any relevant conditions of a decision to grant permission.

Construction of the proposed scheme will cause temporary short-term traffic impacts on the local road network. Enforcement of a Construction Management Plan will ensure that construction traffic impacts are minimized through the control of site access / egress routes and site access locations and any necessary temporary lane closure requirements.

8.3 Operational Stage

A management regime will be implemented by the development's management company to control access to the on-site car parking spaces thereby actively managing the availability of on-site car parking for residents of the development.

Infrastructure measures identified to reduce reliance of private vehicles include the provision of ample secure cycle parking on site and ensuring a design which promotes permeability for pedestrians and cyclists to, through and from the development. The high level of high-frequency public transport facilities (Dublin Bus, Irish Rail) will also act as a powerful mobility management measure, as residents can rely on public transport over the private vehicle.

With the objective of mitigating the potential impact of the proposed development as predicted in **Section 16.11** of the EIAR report during its operational stage, and with the objective of promoting sustainable travel for all residents, workers, and visitors to the development, the following initiatives have been identified and consequently form an integral part of the subject development proposals.

RT_9: Strategic Employment Centres

The location of the subject development adjoining the R136 Grange Castle Road corridor provides the unique ability for many of Dublin's strategic employment zones to achieve many of their sustainability obligations particularity in regard to staff accessibility, health and sustainable modes of travel. Beyond the obvious ease of access to Dublin City Centre and Dublin Docklands provided by both rail and bus services, the proximity of the proposed development to a number of strategic employment areas has the potential to address existing staff access and recruitment issues at the following locations. Accordingly, a specific focus of the development's mobility strategy will be encouraging the uptake of sustainable travel options for the development's residents' 'commuter' trips to / from the local employment centres:

- Clondalkin Industrial Estate / Fonthill Retail Park – both located within convenient walking and cycling distance of the subject site; and
- Park West / Liffey Valley / Western Industrial Estate / JFK Industrial Estate / Cherry Orchard Industrial Estate / Grange Castle Business Park / Cookstown Industrial Estate / Tallaght / Ballymount Industrial Estate / Greenogue Business Park– All located within cycling distance and with direct public transport connections to / from the subject site.

RT_10: Management – Mobility Management (MMP)

A Mobility Management (MMP) is to be rolled out with the aim of guiding the delivery and management of a range of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development site. The MMP will be developed in partnership with SDCC to specifically consider the opportunities of shaping all journeys and promoting sustainable transport habits at the proposed residential scheme. The Mobility Management Plan is included in the EIAR Appendix.

RT_11: Management – Car Park Management Strategy

The availability of parking spaces is a key determinant of mode choice and car usage. With the objective of minimizing travel by car and encouraging the use of sustainable modes instead, it is proposed to limit the car parking provision and promote a 'car lite' scheme. This is considered an appropriate approach considering the site's excellent accessibility characteristics (e.g. walking, cycling, bus, coach and rail opportunities) to places of work, education and essential services. This 'car lite' approach will help to reduce car dependency in Dublin, reduce traffic congestion and

pollution levels, improve the quality of the environment and help tackle climate change in addition to encouraging sustainable travel.

RT_12: Bicycle Parking Facilities

In addition to facilitating and encouraging bicycle use, increasing the number of cycle parking provision on-site is considered best practice in situations such as when reducing car parking spaces.

RT_13: Infrastructure (by others)

Planning infrastructure investment that will further enhance the sites sustainable accessibility credentials include:

- The latest BusConnects network redesign includes a number of routes that will benefit the subject site and provide access to locations including, Dublin City Centre, Clongriffin, Liffey Valley Shopping Centre, Clondalkin, Blanchardstown Shopping Centre and Tallaght. The routes in close proximity to the subject site include orbital routes W2 and W4 as well as branch routes C1, D1, D3 and G2.
- The Clonburris SDZ Transport Assessment and Transport Strategy – September 2017 proposes a number of bus services that will serve the Clonburris SDZ including, two orbital bus services operating from Tallaght to Blanchardstown and two local bus routes, Lucan – Park West and Grange Castle – Liffey Valley.
- The Clonburris SDZ Transport Assessment and Transport Strategy – September 2017 proposes the existing Grand Canal and Griffeen Valley Greenways will be complemented by a series of interconnecting and dedicated cycle routes linking the residential areas to key attractions, both internal and external to Clonburris.
- The proposed GDA cycling network plan will also encourage a greater uptake in walking and cycling amongst residents, staff and visitors.
- The DART Expansion Programme will see the DART system expanded, providing fast, high-frequency electrified services to Drogheda on the Northern Line, Hazelhatch on the Kildare Line, Maynooth and M3 Parkway on the Maynooth Line and to Greystones on the South-Eastern Line. The subject site is ideally located to access these DART services via the existing Clondalkin-Fonthill Station and the new Kishoge Station.

- The SDZ lands can be potentially served by the Lucan Luas that is currently planned under the NTA's Transport Strategy for the Greater Dublin Area 2016 – 2035. Under this strategy, the future Lucan Line would serve Lucan, Liffey Valley and Ballyowen, however, the Luas Line could extend towards the Clonburris SDZ lands and would in turn expand the Luas transport users including the residents and employees in Clonburris.

RT_14: Car Sharing

Car sharing is also known as lift-sharing, car-pooling or ridesharing. Car sharing offers people a cost effective and a more sustainable way of travelling by car when other forms of transport are not viable. Car sharing schemes encourage individuals to share private vehicles for particular journeys. Car sharing can be both formal and informal. Informal car sharing operates between individuals and neighbours and formal car sharing is defined by a more elaborate approach to trip matching, often focussed on the commuting journey. Car sharing has the aim of reducing the number of car trips made and participants have the opportunity to meet other members in the community. A National Car Sharing database is now available at www.carsharing.ie. It is an all-island service for the public and is free of charge to use. Car sharing has a number of benefits including reduces transport costs, reduces the number of cars on the road which results in less pollution, less congestion and fewer parking issues and reduces the need for a private car. The proposed development website would have a section dedicated to the car share scheme and residents would have an option to register. To encourage take up of the car sharing, the MMP Coordinator would host events to introduce prospective car sharers to each other and would help 'break the ice' as it is always more likely that people will share, particularly for the journey 'home', with somebody that they have met rather than a complete stranger.

RT_15: Car Clubs

Car Clubs are membership-based schemes providing shared cars for hire. A Car Club can play an important role in reducing costs, congestion and environmental impact. Members have flexible access to the hire of a vehicle. Vehicles are parked in reserved parking spaces close to homes, town centres or workplaces and can be used and paid for on an hourly rate, daily or weekly basis. Individuals can join a car club; alternatively, an organisation may have a corporate package with one of the car club providers. Car sharing clubs in Dublin have experienced significant growth in recent years. The facility allows members access to a shared car in the local area for an hourly fee. This facility could be an attractive option for those who choose to start walking or cycling to work

but may require access to a car at short notice. Residents can obtain further information at www.gocar.ie and also www.yuko.ie.

RT_16: Walking

The development has been designed to ensure that there are a number of access points / gateways to facilitate permeable walking through the site. The feasibility of measures that promote walking will be influenced by factors such as the safety and ease of walking to and from the site and the age profile of commuters. Generally speaking, a distance of up to 3km is considered reasonable for walking. This distance is only indicative but can help to define target groups. The health benefits of walking are a key element in promoting Mobility Management Plans. Walking improves cardiovascular fitness and burns calories. Walking will also increase your muscle tone, boost metabolism, ease stress, raise energy levels and improve sleep, which combined can also help with weight loss. Regular walking can also reduce the risk of coronary heart disease, diabetes, strokes, high blood pressure, cancer, osteoporosis and arthritis. Walking will mainly be self-promoting, and initiatives should focus on making people aware of the routes available to them. A map showing the walking routes should be prepared and placed at key locations within the development. These could be stand-alone signs or maps on notice boards. This information would also be available on the community website. It is important to ensure that pedestrians are safe and are satisfied with the facilities available and their maintenance. It should be noted that:

- Walking is truly the most-sustainable form of transportation.
- All trips, regardless of mode, both begin and end on foot.
- Walking needs to have a greater level of priority in most cities, like walk-signal times, safer well-lit / marked crosswalks and pedestrian zones.
- Walking is an easy mode of travel for distances under 2km. Most people are prepared to walk between 800m to 1km to a train station or bus stop.

RT_17: Cycling

The proposed development is well located for cycling journeys and this mode of travel should be encouraged with the provision of a wide range of routes within the development and new links to existing and future major routes in the local area. A distance of up to 10km is considered reasonable for cycling. This distance is only indicative but can help to define target groups. The

on-site cycle facilities will be linked to the existing off-site cycle routes. Also, improved cycle infrastructure is proposed under the Greater Dublin Area Cycle Network Plan routes which runs in close proximity to this site. As with many measures relating to cycling, the aim is a mixture of support, through incentives and facilities, and encouragement, through information and marketing.

RT_18: Public Transport (Bus)

The proposed development will be well served by Dublin Bus services, with bus routes available along New Nangor Road, Grange Castle Road, Adamstown Avenue, Ninth Lock Road and Fonthill Road as well as BusConnects proposals for new routes which are proposed to pass close to the subject site along Grange Castle Road, Ninth Lock Road, St. Cuthbert's Road and New Nangor Road. At Present, the bus stops are located in close proximity with the closest bus stops are located along New Nangor Road, Grange Castle Road, Adamstown Avenue, Ninth Lock Road and Fonthill Road which offers the subject site a variety of frequent services operating daily. The subject site is located close to the proposed Bus Connects C1, D1, D3, G2, W2 and W4 routes which will provide enhanced levels of accessibility and mobility.

RT_19: Public Transport (Rail)

The proposed development is situated on the Kildare railway line and has two railway stations in close proximity, the Clondalkin-Fonthill Station and the Kishoge Railway Station. Clondalkin-Fonthill Station is served by commuter services to Heuston Station and following the recent upgrading of the Phoenix Park Tunnel, services calling at Clondalkin-Fonthill Station now offer connections to Drumcondra, Connolly, Tara Street, Pearse and Grand Canal Dock. The DART Expansion Programme will see the DART system expanded, providing electrified services to locations such as Drogheda, Hazelhatch, Maynooth and Greystones. The proposed development can be potentially served by the Lucan Luas, which could extend towards the Clonburris SDZ lands and would in turn expand the Luas transport users including the residents and employees in Clonburris.

9 Summary and Conclusions

9.1 Overview

DBFL Consulting Engineers (DBFL) has been commissioned to compile a Traffic and Transport Assessment (TTA) in regard to proposed developments on lands at Kishoge, Co. Dublin. The developments will consist of the construction of Kishoge Site 3, Site 4 and Site 5.

Kishoge Site 3 comprises 580no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom and 3-bedroom typologies; 2-storey childcare facility; All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be from Adamstown Avenue and the Northern Link Street, proposed under concurrent application Reg. Ref. SDZ24A/0033W.

Kishoge Site 4 comprises 436no. residential units in a mix of house, apartment, duplex and triplex units comprising 1-bedroom, 2-bedroom, 3-bedroom and 4-bedroom typologies; a childcare facility on the ground floor of Block F; retail unit; community building; employment uses and All associated and ancillary site development and infrastructural works including surface level car parking, bicycle parking, hard and soft landscaping and boundary treatment works, including public, communal and private open space, public lighting, bin stores and foul and water services. Vehicular access to the site will be via the Southern Link Road permitted under SDZ20A/0021.

Kishoge Site 5 comprises 236 no. residential units including 55 no. social housing units, 113 no. affordable purchase units and 68 no. cost rental units. The scheme provides for a mix of 1, 2 and 3-bedroom units in a range of dwelling typologies, as follows:

a) 35 no. houses

b) 110 no. duplex units

c) 33 no. triplex units, and

d) 58 no. apartments

The proposal also includes all associated and ancillary site development and infrastructural works including a total of 219 no. car parking spaces at undercroft and surface level, bicycle parking, hard and soft landscaping and boundary treatment works, public, communal and private open space,

public lighting, waste storage areas and foul and water services. Vehicular access to the site will be from Thomas Omer Way and the Northern Link Street (NLS) proposed under concurrent application Reg. Ref. SDZ24A/0033W.

The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed developments. Our methodology incorporated a number of key inter-related stages, including;

- Site Audit,
- Planning File Review,
- Policy Review,
- Commissioning and Analysis of Traffic Surveys,
- Trip Generation, Distribution and Assignment, and Network Impact,
- Network Analysis.

As per best practice guidance this TTA has carried out a range of network assessments investigating different traffic conditions for an Opening Year of 2028, the Interim Year of 2033 and the Future Horizon Year of 2043.

9.2 Summary

The findings of the analysis summarised within this Traffic and Transport Assessment are as follows:

- Good quality cycle / pedestrian infrastructure is available in the vicinity of the subject sites.
- The sites benefit from very good public transport accessibility levels with both bus and rail services operating close to the sites.
- The subject proposals comply fully with the development plan's cycle parking requirements.
- An appropriate quantum of car parking spaces has been provided for the proposed developments.
- Historic traffic counts were obtained via the planning application for the Clonburris Stage 2 Infrastructure; the historic baseline data was retrieved from the South West Dublin Local

Area Model which supported the Clonburris SDZ assessment. This report was analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed developments.

- It is established that, for Junctions 1, 2 and 6 for all design years, the Do-Something scenario is estimated to have a sub-threshold impact.
- TRANSYT analysis for Junctions 3, 4 and 5 shows an oversaturated performance during the morning and evening peak hours in the Do-Nothing and Do-Something scenarios. This result is expected and consistent with the Traffic & Transport Assessments of the Southern Link Street – Clonburris SDZ and Clonburris Stage 2 Infrastructure, prepared by DBFL Consulting Engineers. These documents showed an oversaturated network for Opening Year and Future Horizon Year, similar to results obtained above. It is important to note that the analysis has assumed the pedestrian stage will be called during every cycle. As such the TRANSYT analysis represents a worst-case scenario, with the junctions likely performing better than the TRANSYT results indicate. Additionally, the area will be served with high frequency bus & rail services, high quality cycle infrastructure and new road developments.

9.3 Conclusion

It has been demonstrated that the subject proposals will not result in a material deterioration of local road conditions above that which is already forecast.

In conclusion, we believe that the opportunity is available, in terms of transport and traffic, for the planning authority to consider favourably the proposed development on the subject sites. Accordingly, it is concluded that the proposals represent a sustainable and practical approach to redevelopment on the subject lands and there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed developments.

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