

Reference Number 30060314

HOLY CROSS COLLEGE TRANSPORT ASSESSMENT



SYSTRA

HOLY CROSS COLLEGE LANDS DEVELOPMENT

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1. INTRODUCTION

1.1 Overview

- 1.1.1 The Holy Cross College lands in Drumcondra represents a significant, but underutilised, body of undeveloped land in North Dublin City. The site sits on lands currently zoned for institutional use and amenity value/green network (banks of the River Tolka). The objective of the development is to ambitiously regenerate the area creating a modern, high-density, mixed-use residential development that respects the heritage and history of the site and surrounding neighbourhoods.
- 1.1.2 In keeping with this objective, CWTC Multi Family ICAV acting on behalf of its sub-fund DBTR DR DR1 Fund have prepared a masterplan that seeks to transform the site into an attractive multifamily development that retains the historical architecture and heritage. The goal is to create an appropriate historic and waterside setting with a mix of residential and recreational uses. A minimum of 20% of the site is to be retained as accessible public open space and the layout will seek improve connectivity through and across the site to create a community gain.
- 1.1.3 SYSTRA LTD (SYSTRA) has been appointed by CWTC Multi Family ICAV acting on behalf of its sub-fund DBTR DR DR1 Fund to undertake a Transport Assessment (TA) in support of a planning application for their site, the subject of this application, and associated development proposals. These broadly consist of:
- 1,614 residential mixed tenure units (10% Social & 10% Affordable) of which:
 - 33% will be Studio Apartments;
 - 37% will be 1 Bedroom Apartments;
 - 26% will be 2 Bedroom Apartments; *and*
 - 3% will be 3 Bedroom Apartments;
 - 3,463m² of tenant amenities;
 - 627m² crèche; *and*
 - 602m² of retail and cafe space.
- 1.1.4 The central aim of the TA Report is to provide a comprehensive review of the potential transport impacts of the development for each mode (walk, cycle, public transport and car) and identify necessary mitigation measures to support the sustainable implementation of the development.

1.2 Background to the Holy Cross College lands

- 1.2.1 The existing Holy Cross College, more commonly known as Clonliffe College, was a Catholic diocesan seminary which operated between 1854 and 1999. Since its closure as a seminary, it has been used as a busy pastoral centre and as the administrative headquarters of the Catholic Archdiocese of Dublin. It has also hosted various other Dublin Diocesan bodies and was often used for retreats, conferences, meetings and courses. In 2019 its doors finally closed for the last time ahead of its sale and redevelopment. As can be seen from Figure 1, the site comprises of a number of sports pitches, existing large institutional buildings, associated with its current use (some of which are protected structures), and a large number of mature trees.



Figure 1. Development Site

1.3 Description of Development

- 1.3.1 The development will consist of the construction of a Build To Rent residential development set out in 12 no. blocks, ranging in height from 3 to 18, to accommodate 1614 no. apartments (comprising 540 studios, 602 no. 1 bed units, 419 no. 2 bed units and 53 no. 3 bed units) including a retail unit, a café unit, a crèche, and residential tenant amenity spaces. The development will include a single level basement under Blocks B2, B3 & C1, a single level basement under Block D2 and a podium level and single level basement under Block A1 to accommodate car parking spaces, bicycle parking, storage, services and plant areas. To facilitate the proposed development the scheme will involve the demolition of a number of existing structures on the site.

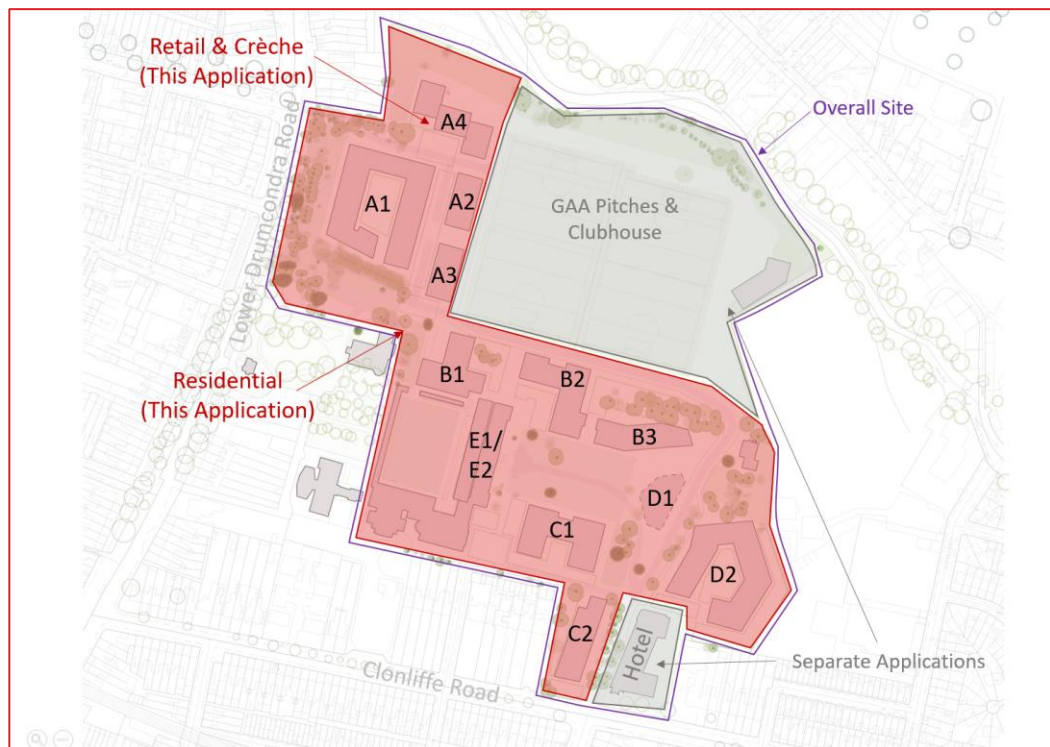


Figure 2. Proposed Development: Block Layout & Site Functions

- 1.3.2 As shown in Figure 2, the proposed development sits as part of a wider Site Masterplan for the entire Holy Cross College lands which includes a permitted hotel development future proposed GAA pitches and clubhouse.
- 1.3.3 The site contains a number of Protected Structures including The Seminary Building, Holy Cross Chapel, South Link Building, The Assembly Hall and The Ambulatory. The application proposes the renovation and extension of the Seminary Building to accommodate residential units and the renovation of the existing Holy Cross Chapel and Assembly Hall buildings for use as residential tenant amenity. The wider Holy Cross College lands also includes Protected Structures including The Red House and the Archbishop's House (no works are proposed to these Structures).
- 1.3.4 The residential buildings are arranged around a number of proposed public open spaces and routes throughout the site with extensive landscaping and tree planting proposed. Communal amenity spaces will be located adjacent to residential buildings and at roof level throughout the scheme. To facilitate the proposed development the scheme will involve the removal of some existing trees on the site.
- 1.3.5 The site is proposed to be accessed by vehicles, cyclists and pedestrians from a widened entrance on Clonliffe Road, at the junction with Jones's Road and through the opening up of an unused access point on Drumcondra Road Lower at the junction with Hollybank Road. An additional cyclist and pedestrian access is proposed through an existing access point on Holy Cross Avenue. Access from the Clonliffe Road entrance will also facilitate vehicular access to future proposed GAA pitches and clubhouse to the north of the site and to a permitted hotel on Clonliffe Road.
- 1.3.6 The proposed application includes all site landscaping works, green roofs, boundary treatments, PV panels at roof level, ESB Substations, lighting, servicing and utilities, signage, and associated and ancillary works, including site development works above and below ground.

1.4 Purpose of the Transport Assessment

- 1.4.1 The purpose of this Transport Assessment is to:
- Provide a comprehensive and systematic review that sets out the transport issues relating to the proposed development;
 - Consider the impact of the development on all transport modes;
 - Set out proposals to minimise the impact of the development on the transport network; *and*
 - Identify what mitigation measures will be taken to minimise the anticipated transport impacts of the development and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport;

1.5 Scope of the Assessment

- 1.5.1 This study and this assessment have been carried out on the following basis:
- Given the location of the development, the key junctions identified are as follows:
 - Site Access Junction at Clonliffe Rd / Jones Rd;
 - Site Access Junction at Lower Drumcondra Rd / Hollybank Rd; and

- Junction of Drumcondra Road and Clonliffe Road.
- Trip generation will be estimated from the TRICS¹ database.
- Growth in background traffic will be based on regional forecasts for the Dublin Metropolitan Area sourced from Transport Infrastructure Ireland²
- Forecast year assessments will be undertaken for the year of opening, year of opening + 5 years, and year of opening + 15 years (including any committed developments).
- Where necessary, further mitigation measures will be identified to reduce the transport impacts of the development.

1.6 Pre-Application Consultation SHDPAC 033/20

1.6.1 As part of the pre-application process, DCC Transportation Planning Division prepared a report on the pre-application submission identifying a number of transport items to be addressed in the final submission. The following summarises the items raised in the DCC report and how these have been addressed within the final planning application.

1. **Drumcondra Road Access and BusConnects:** Route No. 2 Swords to City Centre Core Bus Corridor Preferred Route Connects proposes upgrades to Drumcondra Road Lower at the proposed secondary access. In the drawings provided in the Transport Assessment (TA), the preferred route from March 2020 has been illustrated. The 3rd round of consultation commenced in November 2020 and with the final application, the impact of the proposed junction on the Core Bus Corridor route should be indicated. Transportation Planning Division can facilitate consultation with the NTA to ascertain the necessary requirements in relation to same.

The Transport Assessment Drawings have been updated to reflect the preferred design option as presented in the 3rd round of BusConnects Core Bus Corridor public consultation documents, November 2020³.

DCC consulted with the NTA BusConnects team and concluded that no further amendments were required to the Lower Drumcondra Road site entrance as shown on the Pre-Application drawings.

It should be noted that Drumcondra Access alignment has been updated to reflect the recommendations from the Stage 1 Road Safety Audit and to show the site access with and without Bus Connects in place, as shown in drawing SYS – CL -02 in Appendix A.

Full elevational drawings should also be provided on the upgraded entrance.

Refer to SHD Stage 3 Landscape Design Statement, Section 05 Drumcondra Gardens for full elevation illustrative view on the upgraded entrance.

¹ Trip Rate Information Computer System - a database of trip rates for developments used in the UK and Ireland to quantify the trip generation of new developments for transport planning purposes.

² Transport Infrastructure Ireland, *Project Appraisal Guidelines: Unit 5.3 Traffic Forecasting* (2011)

³ <https://busconnects.ie/media/2177/02-swords-to-city-centre-preferred-route-121120-fa-web.pdf>

2. **Site Parking:** A detailed site layout plan should be submitted which highlights the location of all the surface level parking spaces and identifies the different allocation for same. In particular, with regard the non-residential elements of the development, which are located in the north western, corner of the site but appear to have limited set down/delivery and drop off points in close proximity. The location and function of these spaces have been illustrated differently across the traffic consultant's drawings and the architectural drawings, with only extract images provided within the TA. Clarity around same is required to be provided in one consistent drawing.

The Transport Assessment Drawings nos.SYS-CL-03.1 & 03.2 have been updated to highlight the location and type of surface level parking, in addition a full site plan with the type of surface level parking is shown in Figure 40 and enclosed in Appendix B- Parking Strategy Note.

3. **Mobility Management:** A Mobility Management Plan has been submitted and the contents noted. It is considered that the car parking strategy as outlined in the Transport Assessment should be submitted within the overall MMP as it supports the long-term mobility strategy for the overall development. This should be updated and submitted with the final application, including a strategy around parking provision for the non-residential elements of the development. The MMP should give consideration to the expansion of car share spaces over time as demand increases.

The MMP has been updated to include the car parking strategy as outlined in the Transport Assessment, including a strategy addressing parking provision for the non-residential elements of the development and consideration to the expansion of car share spaces over time as demand increases.

4. **Waste Servicing:** The applicant is requested to clarify details in relation to how the proposed development will be accessed and served by waste management operators. It is unclear if refuse vehicles will have access through the entire site i.e. access at Clonliffe Road and travel through to exit at the Drumcondra Road or vice versa. Figure 29 of the Transport Assessment (TA) indicates full access for refuse/service vehicles through the entire site but the drawings in Appendix A of the TA do not indicate full through access. Furthermore, the bin store area serving the retail unit is located on the northern elevation, away from the access road and does not appear to have ease of access for collection points. Clarity around same is required.

Figure 33 (Figure 29 has been renumbered) and Drawing SYS – CL – 05.1 & 05.2 have been updated to reflect the designated waste collection points and routes for waste collection vehicles.

5. **Cycle Parking:** Details should be provided, and revised drawings submitted with the final application clearly identifying the scale and quantum of bicycle parking proposed to be provided within each bicycle store, ensuring adequate separation distance between the racks/stands.

Refer to Architectural Drawings for details of the scale, quantum and distance between racks/stands.

Bike Parking Allocation	Provision	Drawing
A1 Basement	290	CLN-OMP-A1-ZZ-DR-A-1000
A1 Podium	210	CLN-OMP-A1-ZZ-DR-A-1000
A2 Store	212	CLN-OMP-A2-ZZ-DR-A-1000
A4 Shed Store	32	Landscaping drawings
B1 Store	199	CLN-HJL-SW-B1-DR-A-1030
Central Basement: bike room B2 & B3	282	CLN-HJL-SW-B1-DR-A-1021
Central Basement: bike room C1 & C2	300	CLN-HJL-SW-B1-DR-A-1021
C2 Shed Store	72	L1-501-5
Central Basement: bike room D1	204	CLN-HJL-SW-B1-DR-A-1021
D2 Basement	324	CLN-HJL-SW-B1-DR-A-1022
E1/E2 bike store	130	CLN-MCM-E4-AA-DR-A-P-140
Total	2,255	

The location and quantum of the visitor cycle parking in each area should also be clearly delineated on revised drawings.

[Details of the visitor cycle parking can be found in Figures 27 – 30 in this report.](#)

The applicant is requested to reconsider the design approach to the bicycle parking provision. Within each store, consideration should be given to the provision of bicycle cages with smaller quantum of spaces within each. This provides added security for users and can be effectively labelled/located for ease of use. Details around the management of the bicycle stores should also be provided i.e. if a resident will have the ability to utilise any store or if they will be assigned a specific area.

[In the basements, each bike store has a secure access separated from the main car parking area. Only residents with cycle requirements will have access to the bike stores. Bicycle cages with smaller quantum of spaces within each will be considered during the detailed design stage.](#)

[Each resident will be assigned a specific area to utilise the bike parking. Table 6 in Section 5.4 of this report, outlines the bike store allocation by block. Where blocks have access to a basement, long term secure cycle parking spaces will be located at this level. Cyclists will not use car ramps, instead they will access the basement via a separate lift or stairwell. The staircase will have double wheeling ramps either side in accordance with guidance from the Dublin Cycling Campaign. Where blocks do not have access to a basement, long stay cycle parking will be provided in separate, easily accessible bike rooms or sheds. All bike rooms will be secure as per DCC guidelines.](#)

- 6. Taking in Charge:** The applicant should clarify whether any of the proposed development is intended to be taken in charge. A drawing indicating which areas are intended to be taken in charge should be submitted. It should be noted that parking cannot be allocated to any use on roads/areas that are to be taken in charge.

[Taken in Charge drawing has been produced and included in the Architectural Drawings. All internal car parking and roads will be lands retained by the applicant.](#)

1.7 Stage 1 Road Safety Audit

- 1.7.1 In February 2021, Barry Transportation undertook a Stage 1 Road Safety Audit to assess the proposed public road access junctions presented on the Pre-Application planning documents. Including Clonliffe Road / Jones Road upgraded traffic signals junction, Drumcondra Road Lower new left in / left out priority junction and the proposed enhanced pedestrian crossing at Clonliffe Road / Holycross Avenue. The Road Safety Audit report and the designers' response is part of the accompanying documents for the planning application.
- 1.7.2 All the recommendations outlined by the RSA have been accepted and included within the revised junctions arrangement drawings.

1.8 Report Structure

- 1.8.1 Following this first introductory section, the report will be set out in the following structure:
- **Section 2:** A review of all relevant transport policy, existing plans and strategy documents
 - **Section 3:** A review of the existing baseline transport provision
 - **Section 4:** Details of the proposed development and future access plans
 - **Section 5:** The trip generation associated with the retail complex expansion
 - **Section 6:** Model development and approach
 - **Section 7:** Traffic modelling results
 - **Section 8:** All proposed accessibility, integration, & mitigation measures
 - **Section 9:** Conclusions and recommendations

2. CURRENT TRANSPORT POLICY, PLANS AND STRATEGY REVIEW

- 2.1.1 For ease of understanding, the relevant policy and plans relevant to the development have been organised into categories, these start at a national level and work down to local, and ultimately the development specific level.

2.2 National Level

Ireland 2040 Our Plan: National Planning Framework

- 2.2.1 The Project Ireland 2040 – National Planning Framework (NPF) recognises that improvements in connectivity are achievable and are necessary to boost both competitiveness and quality of life. The Ireland 2040 Vision includes the following key elements which have direct relevance to Mobility Management.
- More sustainable choices and options for people, businesses and communities that can positively influence sustainable patterns of living and working.
 - The highest possible quality of life for our people and communities, underpinned by high quality, well managed built and natural environments.
 - Significant improvement in local and international connectivity that underpins the competitiveness and quality of life of our people, businesses, communities and regions.
- 2.2.2 The NPF has been developed to deliver the following National Strategic Outcomes (as part of the Smart Growth Urban Initiative to achieve sustainable growth) which are pertinent to this report. These are to:
- Improve accessibility to and between centres of mass and scale and provide better integration with their surrounding areas.
 - Ensure transition to more sustainable modes of travel (walking, cycling, public transport) and energy consumption (efficiency, renewables) within an urban context.
- 2.2.3 The NPF seeks to enable people to live closer to where they work, moving away from the current unsustainable trends of increased commuting. It supports more energy efficient development through the location of housing and employment along public transport corridors, where people can choose to use less energy intensive public transport, rather than being dependent on the car.
- 2.2.4 The Eastern and Midland Regional Assembly (EMRA), through its “Regional Spatial and Economic Strategy”, also supports travel planning. Specifically, through Regional Policy Objective (RPO) 8.7 which promotes the use of mobility management and travel plans to bring about behaviour change and more sustainable transport use.
- 2.2.5 Regarding the proposed development at the Clonliffe, the following aims and objectives from the NPF are applicable:
- **National Policy Objective 10b:** Regional and Local Authorities to identify and quantify locations for strategic employment development, where suitable, in urban and rural areas generally.
 - **National Policy Objective 11:** In urban areas, planning and related standards, including building height and car parking will be based on performance criteria enabling alternative solutions that seek to achieve well-designed high quality and safe outcomes in order to achieve targeted growth and that protect the environment.

- **National Policy Objective 28:** Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by integrating physical activity facilities for all ages, particularly prioritising walking and cycling accessibility to both existing and proposed future development, in all settlements.
- **National Policy Objective 35:** Increase residential density in settlements, through a range of measures including reductions in vacancy, re-use of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.
- **National Policy Objective 61:** To improve air quality and help prevent people being exposed to unacceptable levels of pollution in our urban and rural areas through integrated land use and spatial planning that supports public transport, walking and cycling as more favourable modes of transport to the private car.

**Sustainable Urban Housing: Design Standards for New Apartments (DSFNA)
Guidelines for Planning Authorities**

- 2.2.6 The ‘Sustainable Urban Housing: Design Standards for New Apartments (DSFNA) – Guidelines for Planning Authorities’ was published by the Department of Housing, Planning and Local Government in March 2018, and updated in 2020. The document provides direction for local authorities taking account of the current and future need for housing in line with the National Planning Framework (NPF) and Project Ireland 2040. The document outlines a number of Specific Planning Policy Requirements (SPPRs) which planning authorities and An Bórd Pleanála are required to apply in carrying out their functions.
- 2.2.7 Based on the NPF projections there is a need to build 550,000 new households nationally by 2040 to accommodate a 1 million person increase in population. The objective is for these new households to be located in as sustainable a location as possible within our towns and cities to address increasing pollution and commuting times and enable the state to feasibly provide and justify supporting infrastructure.
- 2.2.8 For large scale, higher density residential developments located within an accessible urban location the guidelines state that “the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances.” This policy is particularly applicable in highly accessible areas at a confluence of public transport systems such rail and bus stations located in close proximity.
- 2.2.9 The criteria for these locations is to be within a 15-minute walk of the city centre, 10-minute walk to rail or tram or 5-minute walk to high frequency (10min peak hour frequency) bus services. The Holy Cross College Lands delivers on the latter two and is just a 20-minute walk from the city centre.
- 2.2.10 In suburban/urban locations served by public transport or close to town centres or employment areas and particularly for high density housing schemes, the guidance states that planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard.
- 2.2.11 With respect to mobility management, the guidance goes on to state:
- “As well as showing that a site is sufficiently well located in relation to employment, amenities and services, it is important that access to a car sharing club or other non-car based modes of transport are available and/or can be provided to meet the needs of residents, whether as part of the proposed development, or otherwise”.

Smarter Travel, A Sustainable Transport Future (STASTF) – A New Transport Policy for Ireland, 2009-2020

- 2.2.12 As recognised in Smarter Travel, A Sustainable Transport Future – A New Transport Policy for Ireland 2009 – 2020 there is a need to provide an integrated transport network that enables the efficient, effective and sustainable movement of people and goods, in order to contribute to economic, social and cultural progress.
- 2.2.13 This policy recognises that without intervention, congestion will get worse, transport emissions will continue to grow, economic competitiveness will suffer, and quality of life will decline. The key goals are as follows:
- Improve quality of life and accessibility to transport for all and for people with reduced mobility and those who may experience isolation due to lack of transport.
 - Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks.
 - Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions.
 - Reduce overall travel demand and commuting distances travelled by the private car.
 - Improve security of energy supply by reducing dependency on imported fossil fuels.
- 2.2.14 The implementation of STASTF will also assist in meeting Ireland's international obligations towards tackling climate change. The following actions are relevant to the proposed residential development at the Holy Cross College Lands site:
- **Action 1** – We will continue to enhance existing legislative provisions to deliver deeper integration of travel and spatial planning and to support the full integration and alignment of transport plans with the development plan process and local area planning (see also Action 42).
 - **Action 2** – We will ensure better integration of land use planning and transport policies in the relevant planning guidelines as part of their ongoing review and we will avail of policy directives to give effect to specific measures needed to meet the vision for sustainable travel. The following will also be included in future planning guidelines: a requirement that developments above a certain scale have viable travel plans in place. The following will also be included in future planning guidelines:
 - A general requirement that significant housing development in all cities and towns must have good public transport connections and safe routes for walking and cycling to access such connections and local amenities.
 - Integration of cycling and public transport.
 - A requirement that developments above a certain scale have viable travel plans in place

Get Ireland Walking

- 2.2.15 *Get Ireland Walking* is an Initiative by Sport Ireland and supported by Healthy Ireland which is delivered by Mountaineering Ireland. The core aim of the initiative is to unify and enable the efforts of all agencies interested in promoting walking. It is a nationwide initiative to deliver programmes in conjunction with All Sports Partnerships. The programme hopes to create a vibrant culture of walking throughout Ireland.

- 2.2.16 In relation to the Holy Cross College Development, the environmental aspect of the project is crucial. This section of the project highlights how connecting people to suitable walking environments and supporting improved pedestrian infrastructure and recreational walking routes helps to increase the numbers of people walking. Going forward it highlights how places need to be conducive to walking and that walking needs to be integrated into policies and plans at all scales. It highlights how, in order to increase the numbers of people walking, infrastructure needs to be safe, attractive to walk in and it must cater for all users including those in strollers, wheelchairs and the elderly.

Design Manual for Urban Roads & Streets

- 2.2.17 The primary objective of the Design Manual for Urban Roads & Streets (DMURS), published by the Department of Transport, is to set out an integrated design approach for streets in urban areas which balances the needs of all users and is influenced by the surrounding context of the street. The manual aims to promote a sustainable approach to design which promotes real alternatives to the car. To achieve this the needs of sustainable modes must be considered before that of the private car. This is outlined in the user hierarchy on page 28 of the manual and shown in Figure 3.



Figure 3. DMURS User Hierarchy

- 2.2.18 There are a number of street types set out in the manual based on the function served by the street. Based on these types, outlined in Table 3.1 of the manual, the streets in the proposed development are Local Streets intended to serve communities and provide access to link/arterial streets. The total width of local streets should be 5-5.5m (i.e. 2.5-2.75m laneways). Footpath widths vary based on the expected level of pedestrian activity. For moderate levels of pedestrian activity widths of 2.5m are recommended.
- 2.2.19 The manual also sets out requirements and recommendations for all other aspects of the street design. The main points relevant to the subject development are outlined in Table 1 overleaf.

Table 1. DMURS – Local Street Design Standards and Recommendations

Street Element	Details
Lane Width	5-5.5m for local streets
Footpaths	2.5m for moderate pedestrian activity, 1.8m legal minimum
Verges	No verges required on local streets, but street furniture should not encroach on footpath
Corner Radii	1-3m on local streets to create compact junctions and reduced crossing times for pedestrians
Junction Design	Uncontrolled junctions between local streets (internal network) Priority junctions between local and link/arterial streets (external network)
Kerbs	0.5-0.75m along local streets, no kerbs where shared surface junctions or streets are proposed but tactile paving or drainage channels should be used to assist visually impaired users in navigating the road.
Crossings	Local streets do not require the provision of controlled crossings, provision of dropped kerbs will suffice.
Shared Space	Shared space streets and junctions are highly desirable where movement priorities are low and there is a high place value in promoting more liveable streets such as on local streets. Shared streets should not exceed 4.8m in width and the kerbs should be flush with the carriageway.
Cycle Facilities	On lightly trafficked/low-speed roads designers are directed to create shared streets where cyclists and motorists share the carriageway, further details available from the National Cycle Manual discussed in Section 2.6.

2.3 Regional Level

Dublin City Development Plan 2016-2022

- 2.3.1 The Dublin City Development Plan provides a coherent, integrated framework to ensure the city develops in an inclusive and sustainable manner which is resilient on social, economic and environmental fronts in the short and longer term. The plan emphasises the need for Dublin to become a low-carbon city and the role of compact, self-sustaining communities and neighbourhoods, urban form and movement has to play in achieving this goal.
- 2.3.2 The plan details a Core Strategy which includes housing, settlement, employment, retail and public transport strategies. The strategy translates into 3 broad strands which form the basis for the policies and objectives outlined in the plan, these are:
- Compact, Quality, Green, Connected City;
 - A Prosperous, Enterprising, Creative City; and
 - Creating Sustainable Neighbourhoods and Communities.
- 2.3.3 The policies and objectives of the plan are categorised into 12 broad areas. 0 below provides a summary of the policies most relevant to this assessment.

Table 2. Extracts from most relevant Dublin City Development Plan 2016-2022 Policies

No.	Details
SC19	"To promote the development of a network of active, attractive and safe streets and public spaces....which encourage walking as the preferred means of movement between buildings and activities in the city. In the case of pedestrian movement within major developments, the creation of a public street is preferable to an enclosed arcade or other passageway."
SC20	"To promote the development of high quality streets and public spaces which are accessible and inclusive, and which deliver vibrant, attractive, accessible and safe spaces and meet the needs of the city's diverse communities. "
QH10	"To support the creation of a permeable, connected and well-linked city and discourage gated residential developments as they exclude and divide established communities."
MT2	"Whilst having regard to the necessity for private car usage... to continue to promote modal shift from private car use towards increased use of more sustainable forms of transport such as cycling, walking and public transport..."
MT7	"To improve the city's environment for walking and cycling through the implementation of improvements to thoroughfares and junctions and also through the development of new and safe route.."
MT10	"To provide 30kph speed limits and traffic calmed areas at appropriate locations throughout the city subject to stakeholder consultation."
MT11	"To continue to promote improved permeability for both cyclists and pedestrians in existing urban areas..."
MT12	"To improve the pedestrian environment and promote the development of a network of pedestrian routes which link residential areas with recreational, educational and employment destinations to create a pedestrian environment that is safe and accessible to all."
MT13	"To promote best practice mobility management and travel planning to balance car use to capacity and provide necessary mobility via sustainable transport modes."
MT17	"To provide sustainable levels of car parking and storage in residential schemes in accordance with development plan car parking standards so as to promote city centre living and reduce the requirement for car parking."
MT18	"To encourage new ways of addressing the parking needs of residents (such as car clubs) to reduce the requirement for car parking."
MTO25	"To support the growth of Electric Vehicles and e-bikes, with support facilities as an alternative to the use of fossil-fuel-burning vehicles, through a roll-out of additional electric charging points in collaboration with relevant agencies at appropriate locations."

2.3.4 Section 16.38 & 16.39 of the Development plan set out the car and cycle parking standards respectively. The plan states that car parking standards are maximum in nature and may be reduced where other modes of transport provide sufficient mobility for residents. Alternative solutions will also be considered such as residential car clubs where there are site constraints. The maximum parking standards applicable to the Holy Cross College Lands site are outlined below in Table 3. Additional visitor parking is decided on a case by case visit. The cycle parking provided must in a secure and accessible location.

Table 3. Dublin City Development Plan 2016-2022 – Residential Parking Standards

Parking Type	Requirement
Car Parking	1 per dwelling (maximum standard)
Motorcycle Parking	4% of total spaces (additional to car spaces)

Parking Type	Requirement
Disability Parking	5% of all car spaces
Taxi Parking	High density development should include details of how taxis can be accommodated
Cycle Parking	1 per dwelling (minimum standard)

Greater Dublin Area Transport Strategy 2016-2023

- 2.3.5 This strategy provides the framework for the planning and delivery of infrastructure and services in the Greater Dublin Area up to 2035. The framework aims to *“To contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods”*. The transport measures encompass the strategy’s principles of effective, efficient and sustainable transport whilst helping to reduce modal share of car based commuting to a maximum of 45%.
- 2.3.6 To achieve these principles, future developments must:
- Have transport as a key consideration in land use planning – integration of land use and transport as to reduce the need to travel, reduce the distance travelled, reduce the time taken to travel, promote walking and cycling especially within development plans
 - Protect the capacity of strategic road network
 - Ensure a significant reduction in share of trips taken by car, especially those trips which are shorter or commuter trips
 - Take into account all day travel demand from all groups
 - Provide alternate transport modes in order to reduce strain on M50 as current increase in traffic is unsustainable.
- 2.3.7 The strategy also highlights how it is necessary for the expansion of attractive public transport alternatives to car travel, to reduce congestion and emissions and enable the transport sector to cater for the demands associated with longer term population and employment growth in a sustainable manner.
- 2.3.8 The strategy divides Dublin up into 6 different corridors, with the Holy Cross College Lands falling within Corridor A. The various corridors are shown in Figure 4 below.
- 2.3.9 The future transport schemes noted in the report which will be of relevance and importance to the site are:
- The DART Expansion Programme (DART+) will bring fast, high-frequency, electrified services on the Kildare and Maynooth lines serving Drumcondra Station
 - As part of the Core Radial Bus Network or *Bus Connects* Plan, Quality Bus Corridor A will run from Swords to Dublin City Centre via Drumcondra.
 - A new Metro (Metrolink) from the south city centre to Swords and serving Dublin Airport providing a high frequency, high capacity service will have stops close to the site.



Figure 4. Greater Dublin Corridors Outlined in The GDA Transport Strategy

3. BASELINE TRANSPORT REVIEW

3.1 Overview

3.1.1 A review of the existing transport network was undertaken to inform the Transport Assessment. The review focused on all modes of transport:

- Active Modes – e.g. cycling and walking;
- Existing Public Transport Modes – e.g. bus, rail and light rail;
- Existing road network;
- Overview of the existing transport demand in the surrounding area.

3.2 The Site and Surrounding Land Use

3.2.1 The Masterplan lands are situated immediately east of Drumcondra Road and bounded by Clonliffe Road to the South and the Tolka River to the North. The site is less than two kilometres from Dublin City Centre and there are several public transport options nearby that enable sustainable travel across the Greater Dublin Area.

3.2.2 The land use of the surrounding area is predominantly residential with some commercial areas located along Drumcondra Road Lower. Croke Park, the national Gaelic games stadium and headquarters of the Gaelic Athletic Association (GAA), is located just to the south.

3.2.3 As indicated in Figure 5, the development is very well served by public bus and it is located in close proximity to the Swords Quality Bus Corridor which runs directly to the City Centre along the N1. Drumcondra Rail Station is just a short walk from the site.

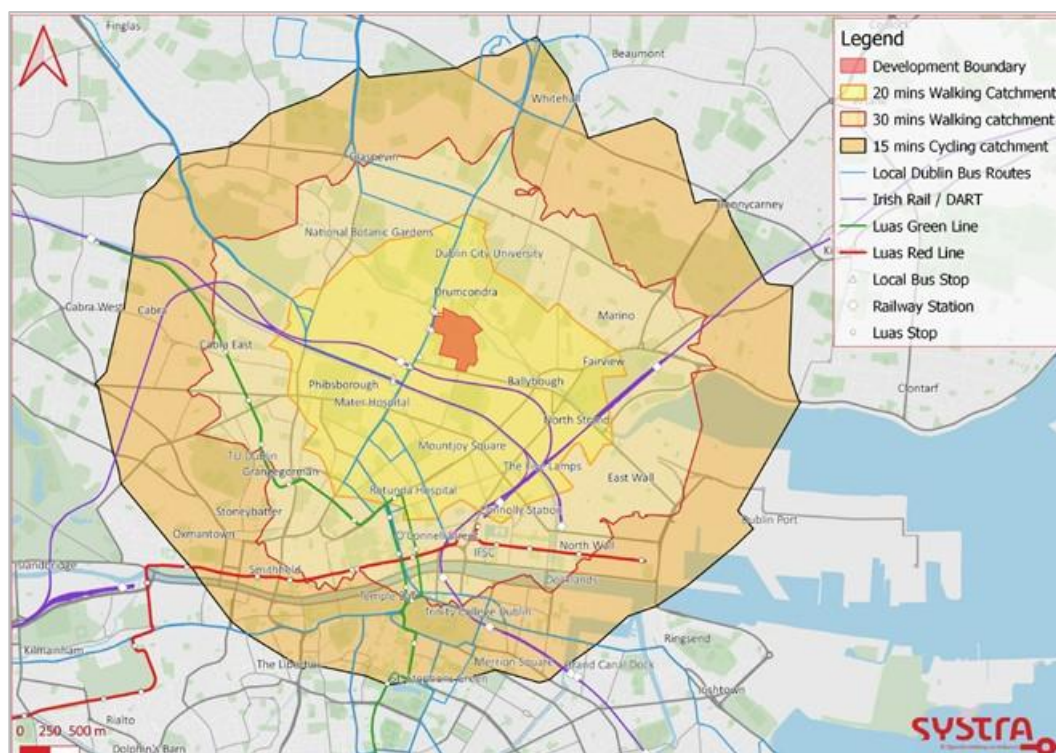


Figure 5. Site Location

3.3 Walking Provision

- 3.3.1 The main pedestrian routes to and from the site are of very good quality with wide footpaths and street lighting. Clonliffe Road has footpaths on both sides of the road of approximately 3.5m wide on the northern side and 2m on the southern side. There is a signalised pedestrian crossing at the junction with Jones's Road comprising dropped kerbs and tactile paving immediate east of one of the access points into the site. These characteristics are shown in Figure 7.
- 3.3.2 There is also a narrow pedestrian refuge island at Holycross Avenue just south of the development along Clonliffe Road with dropped kerbs, but there are no formal road markings or signage, as shown in Figure 8. Visibility can be poor due to parked cars. This may need to be improved to facilitate better pedestrian safety as Holycross Avenue will be one of the primary pedestrian and cycle entrances to the site.
- 3.3.3 At the 3-arm signalised junction between Clonliffe Road and Drumcondra Road, there are signalised pedestrian crossings with dropped kerbs and tactile paving at the Clonliffe Road and Drumcondra Road North arms (the latter comprises a staggered crossing with guard rails), as shown in Figure 9.
- 3.3.4 Drumcondra Road Lower has footpaths on both sides of the road varying from approximately 2m – 3m wide. Between St Alphonsus' Road Lower and Hollybank Road, the footpath is segregated from the carriageway by railings and a 2m planted verge, as shown in Figure 10. The footpath runs alongside an off-road cycle track, delineated by white lining.
- 3.3.5 Figure 6 indicates viewpoints at which Figure 7 – Figure 10 are demonstrating the characteristics of the pedestrian environment.



Figure 6. Pedestrian Environment – Overview



Figure 7. Pedestrian Environment – Viewpoint 1



Figure 8. Pedestrian Environment – Viewpoint 2



Figure 9. Pedestrian Environment – Viewpoint 3



Figure 10. Pedestrian Environment – Viewpoint 4

- 3.3.6 The site is within a convenient walking distance of the city centre and a number of other large employment centres as well as leisure and retail facilities. The Mater and Rotunda Hospitals are within 20-minute walk of the site, as is Phibsborough to the west and O'Connell Street to the south. Figure 11 outlines the 20 and 30-minute walking catchment and 15-minute cycle catchment of the site.

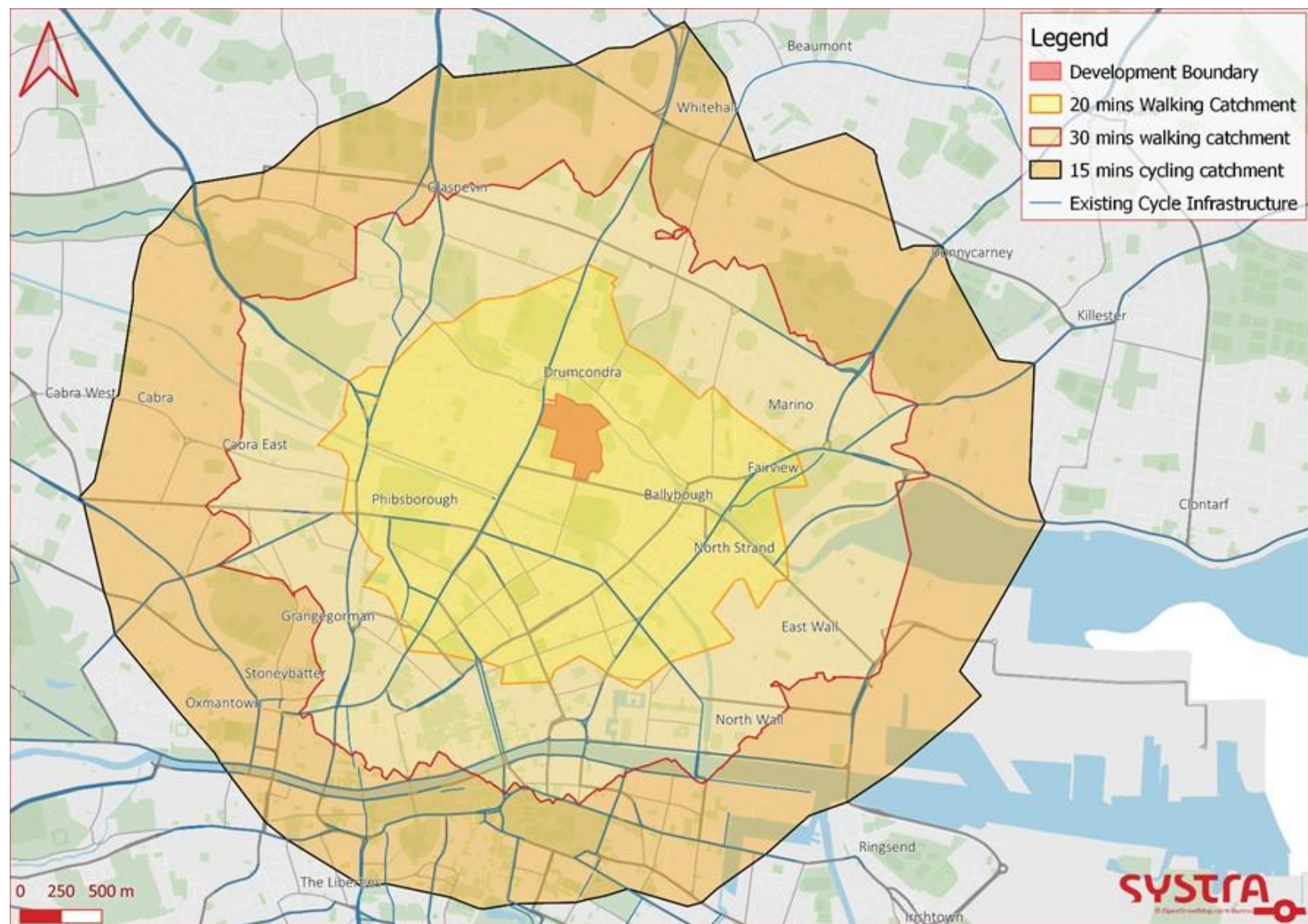


Figure 11. Walking & Cycling Catchment

- 3.3.7 There are many local creches, schools, convenience shops and supermarkets, sports and youth clubs and parks, community gardens and a range of other local amenities within easy walking distance of the site. The local amenities within a 20-minute walking catchment are shown in Figure 12.

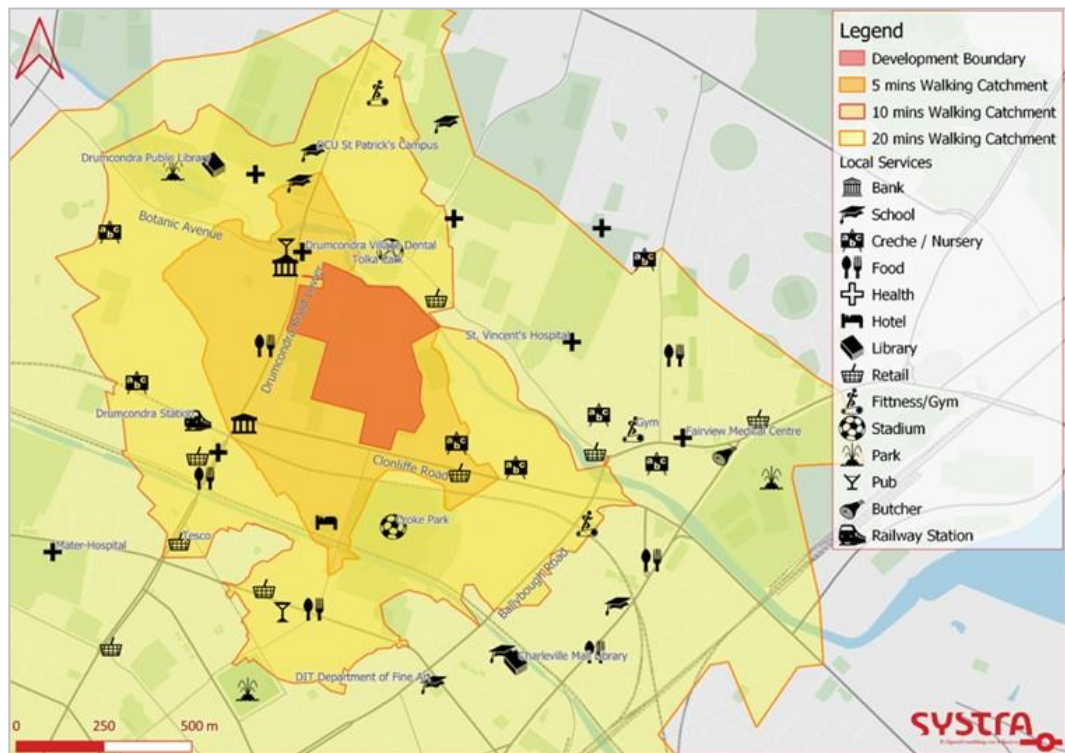
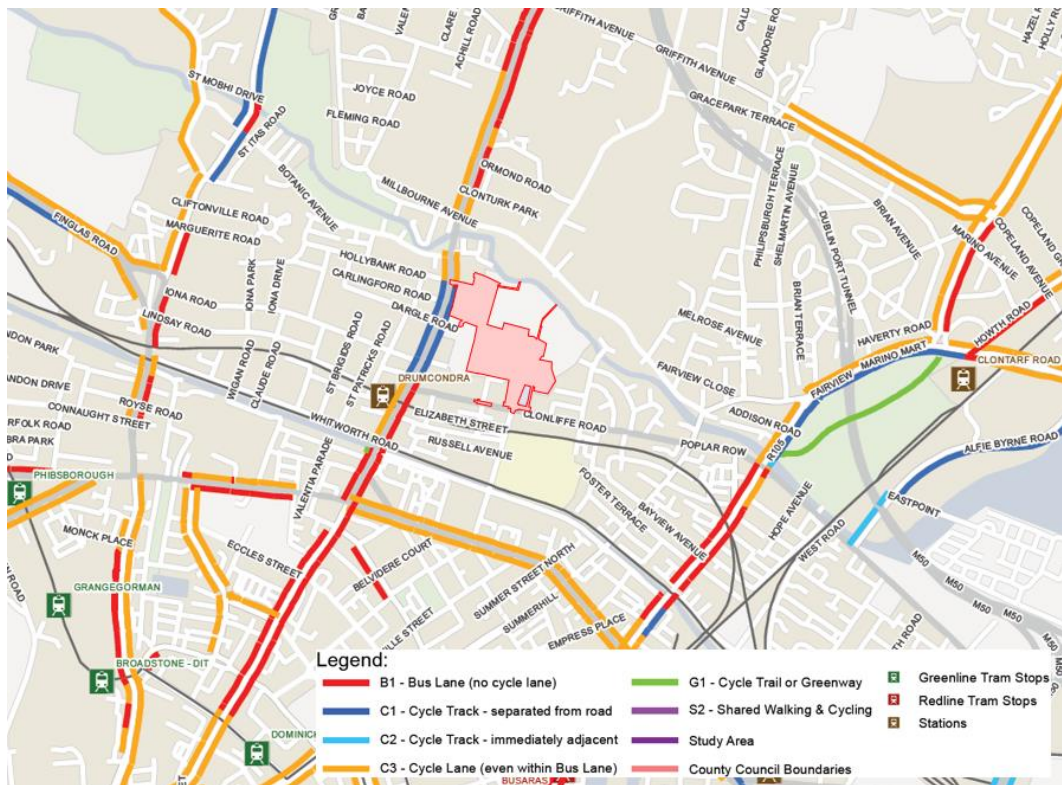


Figure 12. Local Catchment & Amenities

3.4 Cycling Provision

- 3.4.1 As Figure 11 above demonstrates, the site is situated within a convenient 15 minute cycling distance of a large area of Central and North Dublin and several employment hubs, including the city centre and docklands.
- 3.4.2 Two-way off-road cycle tracks run between Hollybank Road and St Alphonsus' Avenue alongside the western periphery of the site. However, cycle lane infrastructure elsewhere in the surrounding area is currently limited, and there are currently no cycle lanes along Clonliffe Road or Jones's Road. The current level of cycling provision is demonstrated in Figure 13.



(Source: National Transport Authority)

Figure 13. Existing Cycle Lane Provision

3.4.3 There are various ‘Sheffield’-style cycle stands at points on the footpaths surrounding the site. These include:

- Along Clonliffe Road immediately west of the Jones’s Road junction (five stands, as demonstrated by Figure 14);
- On the western side of Drumcondra Road at the junction with Clonliffe Road (five stands); *and*
- At three points at the junction between Drumcondra Road and Hollybank Road (approximately nine stands in total).



Figure 14. Cycle Stands on Clonliffe Road

Bicycle Sharing Infrastructure

- 3.4.4 There are three main bike sharing schemes within Dublin; Dublin Bikes, Bleeperbike, and MOBY Move. Dublin Bikes is a public bike rental scheme powered by several stations around Dublin City primarily between the Grand and Royal Canals. Bleeperbike and MOBY Move are station-less bike sharing schemes where users park the bike at designated Sheffield stands through the city with the scheme extending well beyond the canals into the north and south of the city. MOBY Move offer high spec fully electric bikes with pedal assist – where a motor activates when the pedals are in motion.
- 3.4.5 There are limited Dublin Bike Stands within walking distance of the site with the nearest a 10 minute walk away. BleeperBike, however, have two designated bike parking racks directly outside the site access points on Clonliffe Road and Drumcondra Road Lower, as shown in Figure 15. There are also two designated MOBY bike share spaces nearby, the closest is a five minute walk located outside Drumcondra Railway Station with space for up to 20 bicycles.

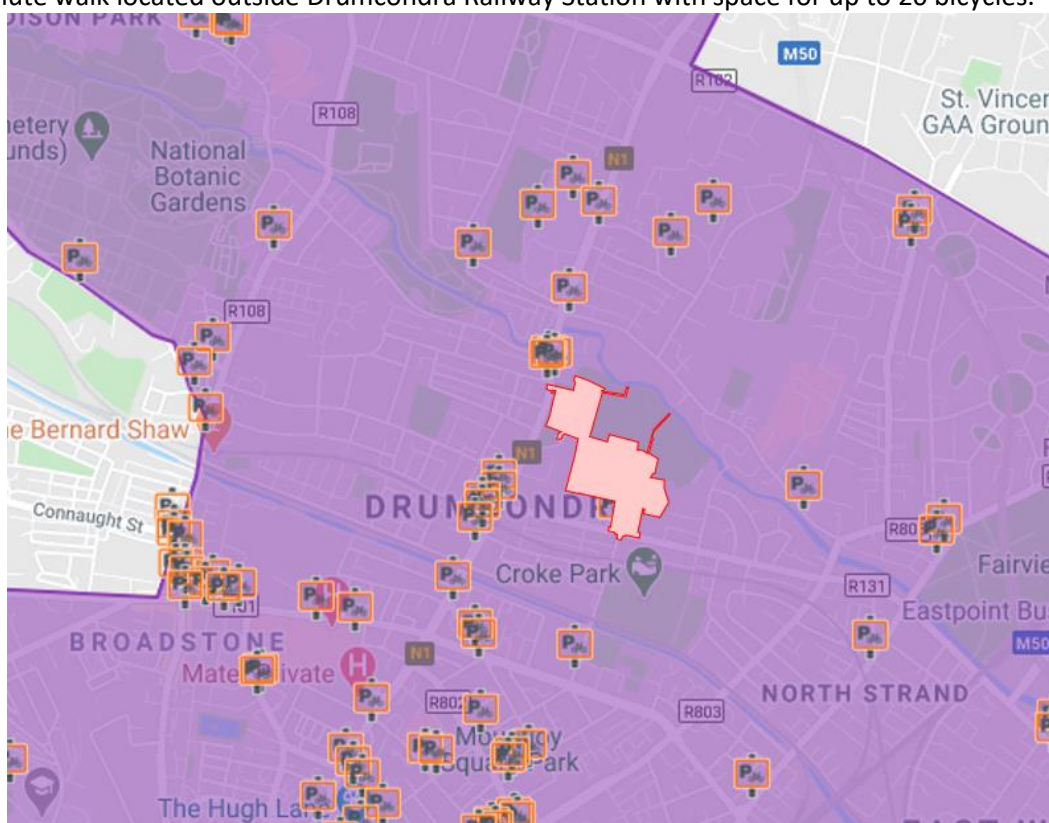


Figure 15. BleeperBike Service Zone and Designated Bicycle Stands Near the Site

3.5 Public Transport Provision

- 3.5.1 The site is extremely well connected by public transport with a wide array of both bus and rail services located nearby. The site sits on one of the core bus corridors into Dublin with a high frequency of services running from North Fingal, Swords, Dublin Airport, and Ballymun into the city.
- 3.5.2 The development site is located adjacent to the Swords Quality Bus Corridor linking the development with Dublin City Centre to the south, and Dublin Airport / Swords to the north. The corridor is served by the number 41 which runs 24 hours a day. There are 10 other bus services that run along Lower Drumcondra Road directly linking the site to many different

locations across the wider Dublin Area. It means that, even in off peak periods, there is typically no more than a five minute wait for a bus to the City Centre. These bus numbers and their routes are shown in Table 4 below.

Table 4. Bus Routes Serving the Development Site

Operator	Bus Number	Typical Frequency	Route Description
Dublin Bus	1	15 mins	Shanard (Whitehall) - Sandymount
	11	20 mins	Wadelai Park (Glasnevin) - City Centre
	13	15 mins	Harristown to Grange Castle (Pfizer)
	16	12 mins	Dublin Airport - Dundrum
	33 & 33e	45 mins	City Centre - Balbriggan/Skerries
	41 & 41d	20 mins	City Centre - Swords
	41b	4 a day	City Centre - Killossery via Swords
	41c	20 mins	City Centre - Swords
	44	30 mins	Powerscourt - DCU

- 3.5.3 Drumcondra railway station is approximately five minutes away by foot and is served by services running between the City Centre and Maynooth, Hazelhatch, Longford, and Sligo. At peak times there is typically no more than a 10 minute wait for a train to the City Centre. The location of the bus stops and railway station serving the site are shown in Figure 16 below.

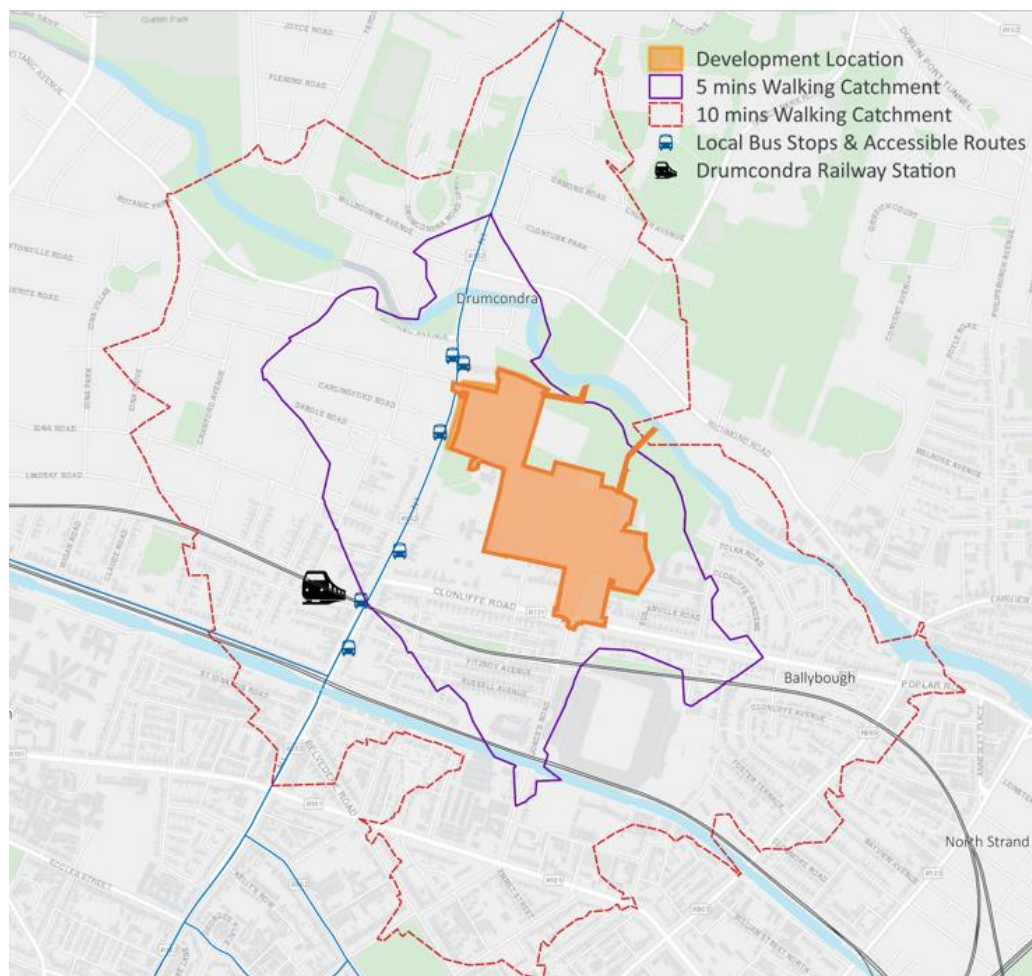


Figure 16. Bus Stops and Railway Stations Serving the Holy Cross College Lands

3.5.4 There are no formal public transport accessibility measures for Dublin, however, a document published by the European Commission, “Measuring Access to Public Transport in European Cities”⁴, provides a methodology for rating the public transport accessibility of areas based on the following five categories and criteria:

- **No access:** people cannot easily walk to a public transport stop, in other words it takes more than 5 minutes to reach a bus or tram stop and more than 10 minutes to reach a metro or train station.
- **Low access:** people can easily walk to a public transport stop with less than four departures an hour.
- **Medium access:** people can easily walk to a public transport stop with between 4 and ten departures an hour.
- **High access:** people can easily walk to a bus or tram stop with more than 10 departures an hour OR people can easily walk to a metro or train station with more than 10 departures an hour (but not both).
- **Very high access:** people can easily walk to a bus or tram stop with more than 10 departures an hour and a metro or train station with more than 10 departures an hour.

3.5.5 The bus stops must be within a walk time of five minutes (417m) for bus & tram and 10 minutes (833m) for metro and train. Based on proximity of the site to bus and Luas services and the frequencies outlined in Table 4, the site would be considered as having **high access** to public transport. With the planned delivery of DART+ it is likely that this classification will be improved to **very high access** in future.

3.6 Existing Road Network

3.6.1 The site is located to the east of the N1 Drumcondra Road Lower and north of the R131 Clonliffe Road. The former main entrance to Holycross College is located opposite Jones’s Road on Clonliffe Road and there are gated accesses into the site from Drumcondra Road and Holycross Avenue, both of which are currently unused.

3.6.2 The N1 is a national primary route connecting Dublin to Belfast along the east coast. From the site, the N1 routes south-west into the city centre and comprises two lanes travelling in each direction. The nearside lane operates as a bus lane from Monday to Sunday between 07:00 – 10:00 and 12:00 – 19:00.

3.6.3 The R131 runs in a south-east direction between the junction with Drumcondra Road and the junction with R118 at Merrion Road via Clonliffe Road, Poplar Row, East Wall Road, East Link Toll Bridge, Toll Bridge Road, Sean Moore Road, Beach Road and Strand Road. Clonliffe Road is residential in nature and is a single carriageway road with unrestricted on-street parking present that does not obstruct the flow of traffic.

3.7 Road Safety

3.7.1 The Road Safety Authority’s (RSA’s) online collision map was reviewed to assess any local accidents and safety trends which may impact the proposed development. The collision map includes all fatal, serious and minor accidents officially recorded between 2005 and 2016. The data for subsequent years is not yet available on the RSA’s website. The recorded accidents near the subject site are shown in Figure 17.

⁴ https://ec.europa.eu/regional_policy/sources/docgener/work/2015_01_publ_transp.pdf



Figure 17. RSA Collision Map – Serious & Fatal Accidents

- 3.7.2 As Figure 17 demonstrates, the majority of accidents across an 11 year period have been minor and no fatal accidents have occurred. No serious accidents have occurred along Clonliffe Road outside the site.
- 3.7.3 The serious accidents that have occurred along Drumcondra Road Lower between Clonliffe Road and Hollybank Road are spread out and all occurred overnight (between 23:00 and 07:00) and involved a pedestrian. There are no identifiable accident ‘blackspots’ in the vicinity of the site.

3.8 Committed Transport Proposals in Area

- 3.8.1 As part of the *Greater Dublin Area Transport Strategy 2016-2036*, there are planned improvements to both the road, public transport, walking and cycling networks within the vicinity of the proposed development site. This includes the upgrade the bus corridor adjacent to the site as part of Bus Connects, the development of the Dublin cycle network, the expansion of DART services to serve Drumcondra Station, and the introduction of a new Metro line which will be accessible from the development.

Bus Connects

- 3.8.2 The NTA’s Bus Connects programme will overhaul the current bus system in the Dublin region to create a better public transport network that is more efficient and reliable. There are a variety of measures included in the plan, such as the introduction of a state-of-the-art cashless ticketing system, new bus stops and shelters, and various bus based Park and Ride sites, all of which should improve patronage. Core to the plan is a network of “next generation” bus corridors along the busiest bus routes to make bus journeys faster,

predictable and reliable. The programme has proposed a series of continuous high-quality bus lanes spanning the city. Crucially, the N1 (Drumcondra Road Lower) to the west of the development is designated as the A Spine Route. In addition, the plan also identifies the need for a series of interchange facilities to facilitate direct connections between the high capacity services on the corridors with additional orbital and local services. The plan will therefore improve connectivity across the Dublin Area for residents of the Clonliffe site in addition to delivering faster and more reliable bus journeys.

3.8.3 As the Clonliffe is located along the A spine, routes A1-A4 travelling southbound will run direct to the city centre, but for services travelling northbound, these will split into separate routes. The new routes serving the Holy Cross College Lands site will be as follows:

- Spine route A1 from Beaumont to Ballycullen: All-day service, every 10 – 15 minutes
- Spine Route A2 from Dublin Airport to Dundrum: All-day service, every 10 – 15 minutes
- Spine Route A3 from Shanowen Road to Tallaght: All-day service, every 10 – 15 minutes
- Spine Route A4 from Swords to Nutgrove: All-day service, every 10 - 15 minutes
- Local route 82 from Glen Ellan Road to Ballymun: All-day service, every 10 – 15 minutes
- Local route 94 from Ballymun to Parnell Square: All-day service, every 10 – 15 minutes

3.8.4 A local map of these services is provided in Figure 18.

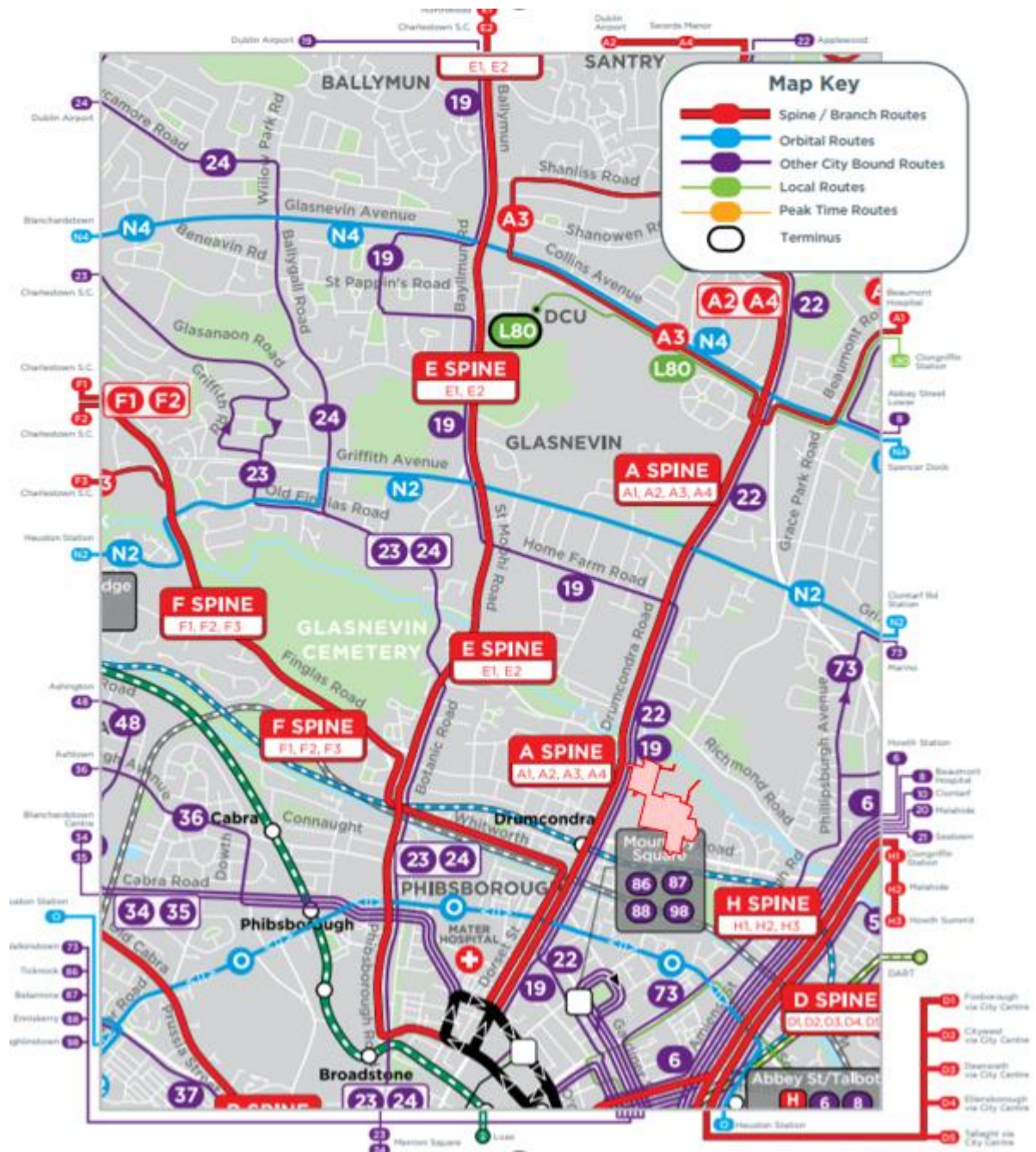


Figure 18. Bus Connects Network Layout in Drumcondra

3.8.5 The initial Bus Connects design was first proposed in 2018, but there were revisions made following consultation in 2019. The detail presented here is correct as of late 2020.

3.9 Other Transport Proposals in Area

DART Expansion / DART+ Programme 2018-2027 – Iarnród Éireann

3.9.1 DART (Dublin Area Rapid Transit) is an electrified commuter rail railway line serving the Dublin coastline. It has operated since 1984, initially only between Bray and Howth, but now between Malahide and Greystones since 2000. It has been one of Ireland's greatest public transport success stories with up to 75,000 journeys being made every day.

- 3.9.2 Based on this success story, a new expansion programme is planned for all other existing Dublin commuter rail lines that will bring them up to the same modern electrified standard. This will deliver a more sustainable, reliable, and faster rail service with increased train frequencies and customer carrying capacity on the following lines:
- Northern Commuter – as far as Drogheda station
 - Western Commuter – as far as Maynooth / M3 Parkway stations
 - Southwestern Commuter – as far as Hazelhatch (Celbridge)
- 3.9.3 Key to the development proposals, the local station at Drumcondra is included in the plans as it is situated on the Western and Southwestern commuter lines respectively.
- 3.9.4 To facilitate these improvements a range of measures will be carried out including the removal of some level crossings, additional track, overbridge alterations, improved signalling, new rolling stock, and new depots with maintenance capabilities.
- 3.9.5 The DART+ programme has a phased delivery schedule designed to meet the projected future passenger demands as is projected to be as follows:

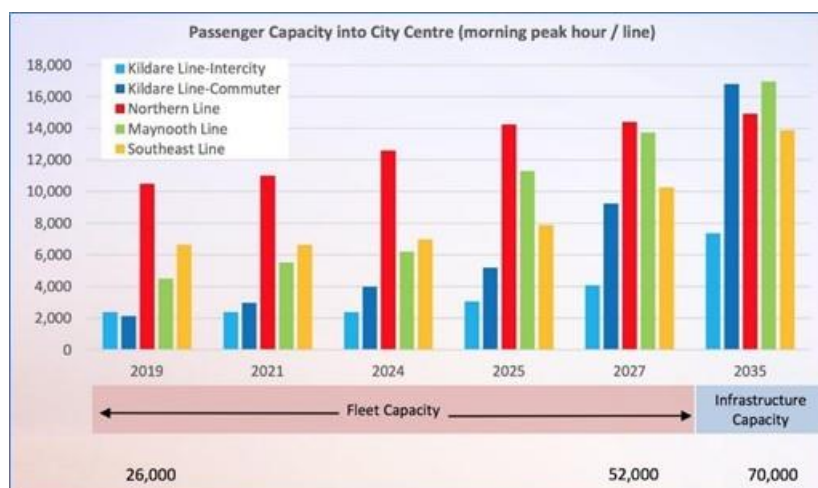


Figure 19. Dublin Commuter Rail Corridor - Capacity Forecast (Source: Irish Rail)

Metrolink

- 3.9.6 As outlined in the Greater Dublin Area Transport Strategy, Metrolink is new 19km high-frequency automated metro line that is planned to run between Swords Estuary and Charlemont Station via Dublin Airport and the City Centre. There will be a total of 15 new stations, the nearest of which will be just a 20 minute walk from the development site at Glasnevin Junction. There will be 30 trains per hour in each direction meaning the line will cater for 20,000 passengers per direction per hour. Passenger services are scheduled to begin in 2027.

Greater Dublin Area Cycle Network Plan (2013)

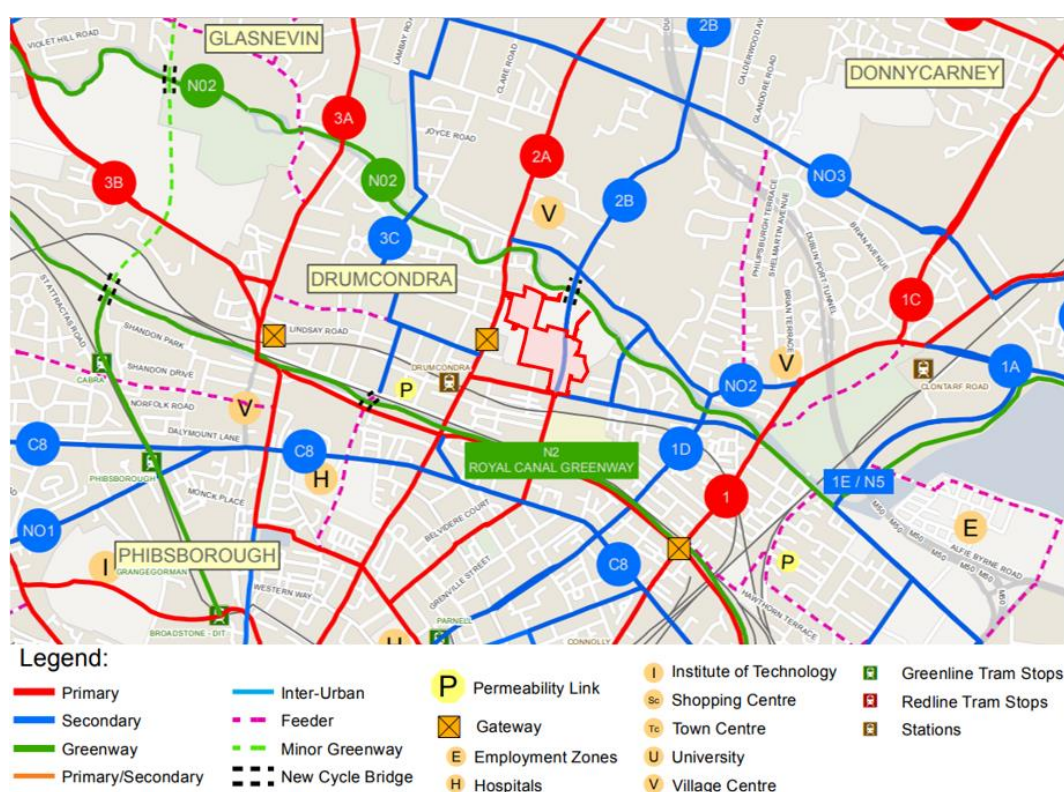
- 3.9.7 The Greater Dublin Area Cycle Network Plan sets out a 10-year strategy to expand the urban cycle network from 500km to 2,480km. The overarching ambition of the scheme is, by 2021, to increase the numbers who commute by bike to be the same amount as those who commute by bus.

3.9.8 The network will consist of a series of primary, secondary and feeder routes as well as greenways routes. These routes will comprise of a mix of cycle tracks and lanes, cycleways and infrastructure-free cycle routes in low traffic environments. To compliment the investment in the cycle network, the cycle network plans also provide for:

- Sufficient on and off street public cycle parking at key urban destinations such as bus/rail stations, schools and large workplaces.
- The expansion of the bike share scheme in Dublin City and the introduction of similar schemes across the Greater Dublin Area.
- The implementation of a comprehensive cycle route signage programme in conjunction with the development of the cycle network.

3.9.9 Key to the development proposals, a secondary cycle route (2b) is proposed to link through the site from Grace Park Road to the North across the river Tolka, and through the site connecting to the Primary route along Jones' Road. This is shown in the Figure 20. A north-south pedestrian and cycle link will form part of the masterplan site to fulfil this part of the cycle network. The final link across the Tolka will be provided at a later date as this relies on the redevelopment of lands north of the river.

3.9.10 As shown in Figure 20, the Clonliffe site will be very well served by both primary and secondary cycle routes and is located between the proposed Royal Canal and Tolka Valley greenway routes.



(Source: National Transport Authority)

Figure 20. GDA Future Cycle Network Plan

4. BASELINE TRAVEL CHARACTERISTICS

4.1 Purpose of the Baseline

- 4.1.1 This section provides information on the travel behaviour of the existing population of the locality and similar development types. This is necessary to predict the likely travel patterns of future residents at the development site and identify existing constraints which may impact upon the sustainability of future development.
- 4.1.2 The subject site is located within a city suburban area with predominantly residential land uses though there are other land uses nearby within walking distances such as schools, retail, employment and leisure. The proposed development is Built-to-Rent (BTR) accommodation comprising of predominantly apartments.

4.2 Mode Choice

- 4.2.1 Using the Small Area Population Statistics (SAPS) from the 2016 Census data, the commuting mode shares for DCC were analysed by Small Area. Three areas were chosen for comparison and analysis:
- All small areas covered by DCC;
 - City centre small areas (north of the Grand Canal and south of the River Tolka); and
 - Small areas along the N1 corridor around the development with 75% apartments.
- 4.2.2 The small areas along the N1 corridor is shown in Figure 21 and is likely to be the most representative of the development site which is within walking distance of the city centre and has easy access to public transport.

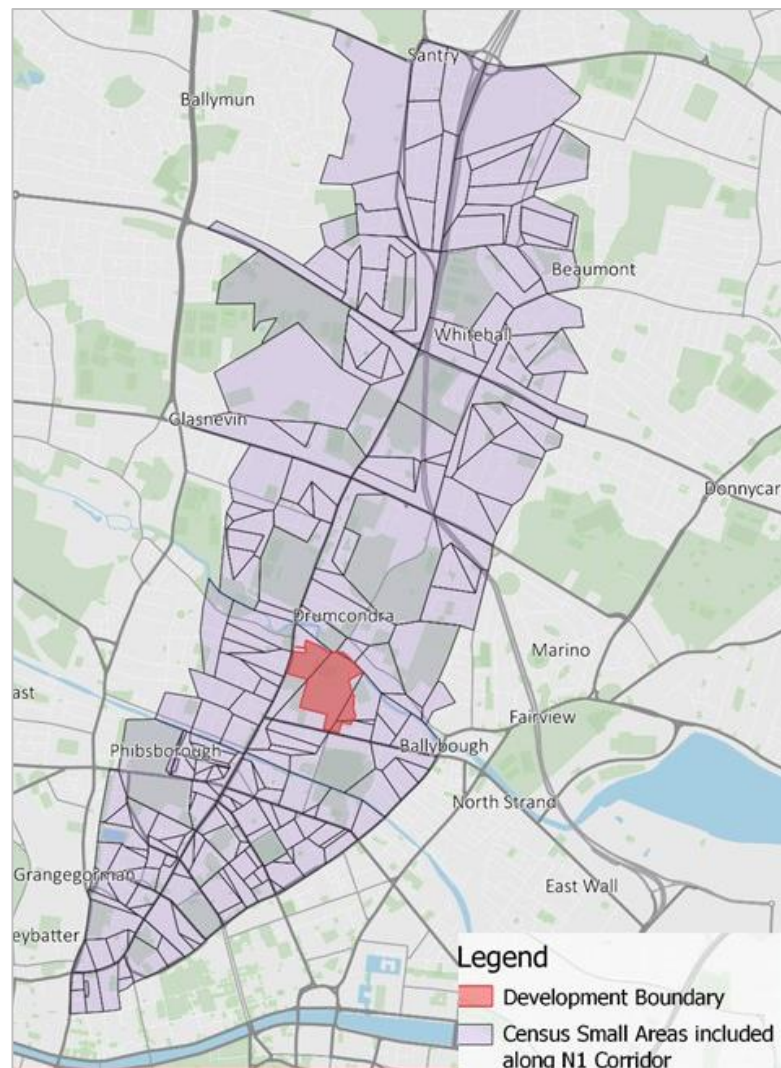


Figure 21. SAPS – N1 Corridor

4.2.3 The mode share results for each of the three areas described in paragraph 4.1.1 is demonstrated in Figure 22.



Figure 22. DCC & Local Commuting Mode Shares

- 4.2.4 As illustrated above, the commuting car mode share in the immediate vicinity of the site is significantly lower than the average for DCC (20.1% lower). The public transport share is only marginally higher than the DCC average, however, the active mode shares (i.e. walking and cycling) are significantly higher for both the immediate local area and the North of Grand Canal area, reflecting the proximity to major employment centres and the city centre.
- 4.2.5 Combined walking and cycling trips in both the North of Grand Canal and N1 Corridor small areas account for just over half of all commuting trips made from the local area.

4.3 Car Ownership

- 4.3.1 Using the SAPS, an estimate of the proportion of houses with no car along with the average mode share for work and education commuting trips was extracted for each area and the results are demonstrated in Figure 23.

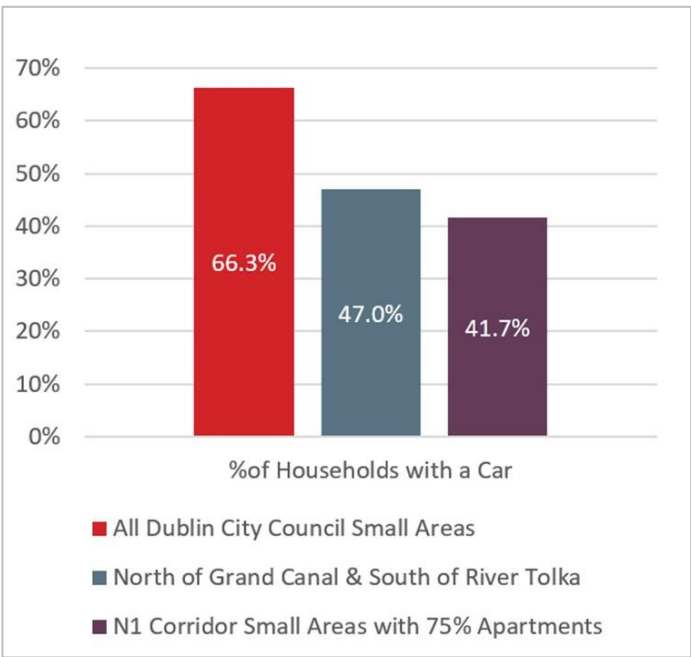


Figure 23. Car Ownership Levels

- 4.3.2 The Results of the SAPS analysis from the 2016 census showed that, while 66.3% of households in DCC Small Areas own a car, just 47% of households own a car in the city centre. For small areas made up of 75% apartments along the N1 corridor such as the proposed development site, the car ownership level was just 41.7%, 24.6% lower than the DCC average.
- 4.3.3 In terms of mode choice, for the city centre and areas with apartments along the N1 corridor, it was found that private car trips comprised less than 20% of the mode share, with approximately 25% of trips made by public transport, around 10% by cycle, and the remainder by foot (45%). While the cycling mode share may be considered low, this may be due to limited cycling parking in existing apartment blocks and city centre dwellings.

4.4 Target Mode Share

- 4.4.1 Based on the local movement trends and the fact that the development site is situated just 2.5km north of the city centre – just a 10 minute cycle from O’Connell Street – it is estimated that approximately 80% of the trips made to/from the development will be undertaken by sustainable modes.

4.4.2 Informed by these statistics, the target mode share for the proposed development is the following:

- 20% car;
- 15% cycle;
- 40% walking; and
- 25% public transport.

4.4.3 This target mode share seeks to capitalise on the site's accessible location and maximise opportunities for sustainable travel.

5. PROPOSED DEVELOPMENT & ACCESS ARRANGEMENTS

5.1 Proposed Development

5.1.1 Development Description:

- The development will consist of the construction of a Build To Rent residential development set out in 12 no. blocks, ranging in height from 2 to 18 storeys, to accommodate 1614 no. apartments including a retail unit, a café unit, a crèche, and residential tenant amenity spaces. The development will include a single level basement under Blocks B2, B3 & C1, a single level basement under Block D2 and a podium level and single level basement under Block A1 to accommodate car parking spaces, bicycle parking, storage, services and plant areas. To facilitate the proposed development the scheme will involve the demolition of a number of existing structures on the site.
- The proposed development sits as part of a wider Site Masterplan for the entire Holy Cross College lands which includes a permitted hotel development and future proposed GAA pitches and clubhouse.
- The site contains a number of Protected Structures including The Seminary Building, Holy Cross Chapel, South Link Building, The Assembly Hall and The Ambulatory. The application proposes the renovation and extension of the Seminary Building to accommodate residential units and the renovation of the existing Holy Cross Chapel and Assembly Hall buildings for use as residential tenant amenity. The wider Holy Cross College lands also includes Protected Structures including The Red House and the Archbishop's House (no works are proposed to these Structures).
- The residential buildings are arranged around a number of proposed public open spaces and routes throughout the site with extensive landscaping and tree planting proposed. Communal amenity spaces will be located adjacent to residential buildings and at roof level throughout the scheme. To facilitate the proposed development the scheme will involve the removal of some existing trees on the site.
- The site is proposed to be accessed by vehicles, cyclists and pedestrians from a widened entrance on Clonliffe Road, at the junction with Jones's Road and through the opening up of an unused access point on Drumcondra Road Lower at the junction with Hollybank Rd. An additional cyclist and pedestrian access is proposed through an existing access point on Holy Cross Avenue. Access from the Clonliffe Road entrance will also facilitate vehicular access to future proposed GAA pitches and clubhouse to the north of the site and to a permitted hotel on Clonliffe Road.
- The proposed application includes all site landscaping works, green roofs, boundary treatments, PV panels at roof level, ESB Substations, lighting, servicing and utilities, signage, and associated and ancillary works, including site development works above and below ground.

5.1.2 In addition, the following land uses are proposed within the overall Masterplan site and are subject to separate planning applications:

- Approximately 1500m² recreational use sport pitches with a clubhouse (subject to future planning application); *and*

- A 200 bedroom hotel (permitted under DCC Reg. Ref.: 2935/20, ABP Reg. Ref.: PL29N.30819)

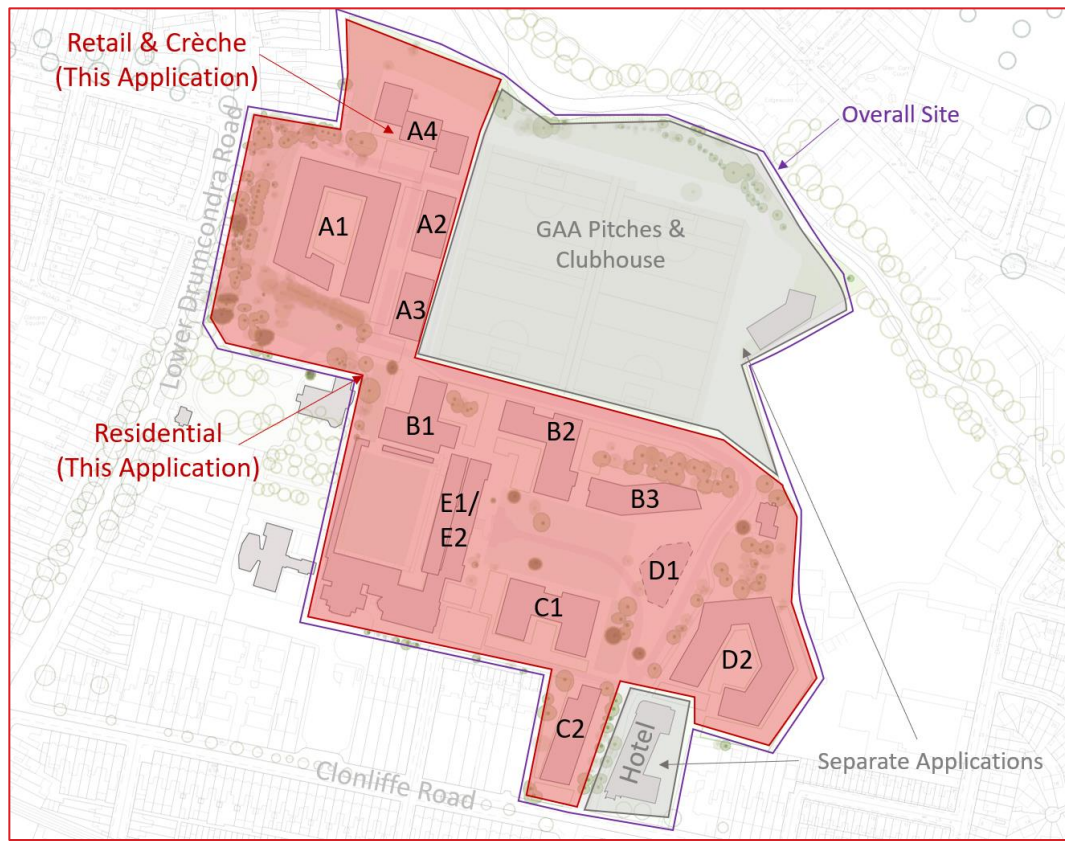


Figure 24. Proposed Development: Block Layout & Site Functions

- 5.1.3 The ample public transport options and excellent walking and cycling accessibility mean travelling by private car will be far from essential for most day-to-day users of the site and this is reflected in the overall car parking provision and strategy.
- 5.1.4 An overview of proposed access to the expansion for each user class is outlined below:
- **Pedestrians:** Provision of improved pedestrian permeability which, in turn, will increase the proportion of sustainable trips from and through the site;
 - **Cyclists:** Provision of shared spaces, paths and roads will enable cyclists to move freely through the site. There is potential for a cycle friendly north-south route which will form part of the Dublin Cycle Network Plan.
 - **Public Transport:** The new access point to the northwest of the site will link directly to the Drumcondra Road Lower bus stops located between Hollybank Road and Botanic Avenue.
 - **Private Cars and Taxis:** These vehicles will primarily access the site via an upgraded junction directly from Clonliffe Road (at the current college entrance gate). A new secondary left-in/left-out access will also be created from Drumcondra Road.
 - **Service Vehicles:** Access for service vehicles will be from Clonliffe Road and Drumcondra Road Lower.
 - **Emergency Vehicles:** These vehicles will access the site from either vehicular access from Clonliffe Road or Drumcondra Road Lower, depending on the situational requirements.

5.2 Design Aim & Objectives

- 5.2.1 The aim of the internal road layout and access strategy is the creation of a connected, walkable and cyclable network which facilitates and encourages the sustainable and safe movement of people whilst maintaining a strong sense of place. The design considers the ease of movement for all modes, including cars, but a balanced approach has been taken which is in line with the principles set out in the Design Manual for Urban Roads and Streets (DMURS).
- 5.2.2 Based on the above aim and the principles set out in DMURS several design objectives have been developed as follows;
- Provide a connected network with strong permeability for pedestrians and cyclists for the benefit of future and existing residents alike;
 - Promote multi-functional streets with a strong sense of place;
 - Facilitate high levels of walking and cycling through prioritisation, shared space and the provision of quality infrastructure;
 - Reduce vehicle speeds to a minimum throughout the development;
 - Limit the impact on the surrounding area;
 - Ensure the safety of all users across all modes;
 - Futureproof the layout for the delivery of the full masterplan.

5.3 Design Criteria & Considerations

- 5.3.1 To achieve the objectives outlined and inform the design several key design criteria and considerations were identified and implemented. These are based on the design guidance set out in DMURS and the National Cycle Manual (NCM) and are as follows;
- Streets have been designed as local, access-only streets with widths of 5.5m, 4.8m where shared space is implemented, and with no central medians;
 - A buffer/setback of 1.5m has been maintained around ground floor residential units to allow for balcony, private space etc.;
 - All footpaths are 2.5m minimum with higher demand streets designed as 3m+ and 2-1.8m maintained at any pinch points;
 - In line with NCM guidance, which emphasises traffic reduction and calming before segregation or cycle lanes⁵, streets are designed such that speeds and volumes are sufficiently low to facilitate shared carriageway between vehicles and cyclists;
 - Lower kerb heights of 50-75mm will be applied throughout to reinforce lower design speeds and sense of shared space. No kerbs or tactile kerbing will be used where shared surfaces are proposed⁶;

5.4 Pedestrian & Cycle Access and Circulation

- 5.4.1 As part of this application, pedestrian and cyclists access points into the site from the local network will be provided from the following points:
- Clonliffe Road at Holycross Avenue (southern edge of site);
 - Clonliffe Road at the existing access into Holy Cross College at the junction with Jones's Road (southern edge of site); *and*
 - Drumcondra Road at the junction with Hollybank Road (western edge of the site);

⁵ Section 1.7.3. https://www.nationaltransport.ie/wp-content/uploads/2013/10/national_cycle_manual_1107281.pdf

⁶ Tactile kerbing will be used to provide navigation for visually-impaired users as per DMURS guidance.

- 5.4.2 The access strategy for pedestrians and cyclists is shown in Figure 25 and has been designed to deliver a high level of permeability for active travel modes, comprising the following three types of routes:
- **Primary:** the entire internal road network will be traffic calmed with a 30kph maximum speed limit so that it will not be an attractive 'rat-run' or quicker alternative to the main roads;
 - **Secondary:** the design of secondary routes will be more integrated and have a high pedestrian/cycle priority with shared surfaces/home-zones used where possible. They are also designed to tie into the pedestrian/cyclist only access points to the site. Vehicular traffic along these routes will be minimal; *and*
 - **Shared Space:** a design concept which gives equal priority or equal rights of road space to cars, pedestrians and cyclists. The aim is to reduce the dominance of cars and car speeds through the design of the road space, whilst increase pedestrian and cyclist priority.
- 5.4.3 The routes through the site will be delivered as shared streets and mature tree-lined paths, interwoven with footpaths and green links, to ensure a pleasant and safe environment for walking and cycling. It will not be possible for car traffic to cut through the development from Drumcondra Road to Clonliffe Road to ensure streets are as calm as possible.
- 5.4.4 As outlined in Figure 25, the overall masterplan access strategy includes a potential cycling friendly north to south green corridor linking Holycross Avenue to Richmond Road in line with the GDA Cycle Network Plan. This access point is not subject to this application and will be developed further by Dublin City Council as part of the development lands north of the River Tolka.

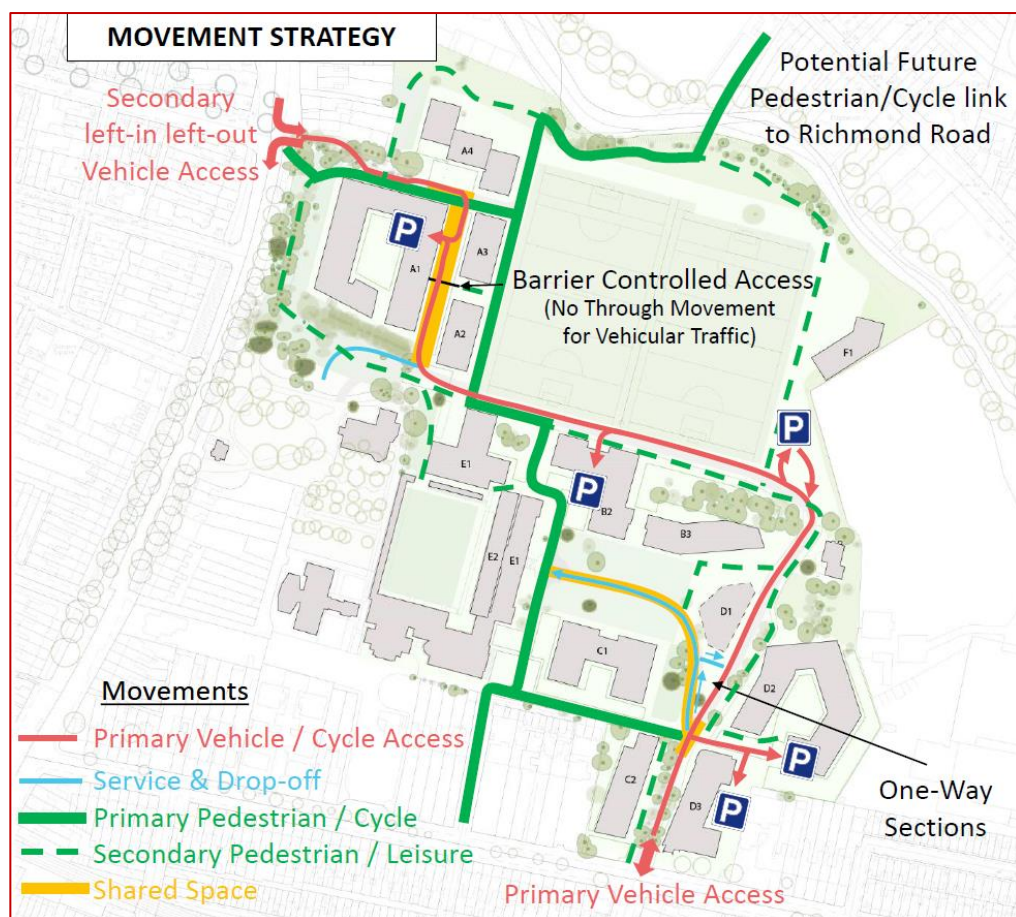


Figure 25. Pedestrian & Cyclists Access Strategy (Masterplan Scheme)

Cycle Parking

- 5.4.5 The site is within DCC Parking Zone 2 and the standards stipulate that the development should provide a minimum of one cycle parking space per residential unit. The Design Standards for New Apartments Guidelines (DSFNA) suggest a higher level of cycle parking should be provided for residential uses than 1 per unit, and instead advocate the provision of one space per bedroom. However, it has been agreed with DCC that cycle parking for the apartments will be provided at 1.3 cycle spaces per unit. This is above the recommended level as per DCC's guidelines on account of the low car parking numbers and to accentuate the sustainable vision for the site.
- 5.4.6 The DCC parking standards per land use, the DSFNA standards and the level of provision proposed is indicated by Table 5.

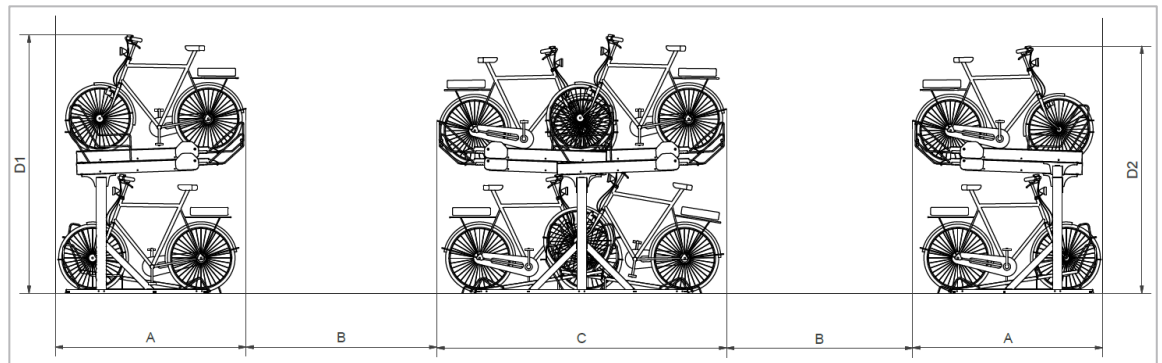
Table 5. DCC and DSFNA Cycle Parking Standard & Provision			
Land Use	DCC Standards	DSFNA Standards	DCC agreed ratio
Residential	Minimum 1 per unit (1,614)	1 per bedroom (2,139)	1.3 per unit (2,098)
Total Provision			2,255 Long Stay Secure

- 5.4.7 As Table 5 demonstrates, the proposed development will provide above the DCC requirement for cycle parking, the DSFNA requirements and the agreed minimum ratio of 1.3 per unit (2,098). This over provision will be allocated for non-residential elements of the development, for instance staff working on the creche, retail, concierge, café and other potential uses.

- 5.4.8 Staff working on the retail and creche in Block A4 will have access to long stay secure parking on the Bike Shed at the rear of Block A4. Staff working on D1 café and Concierge will have allocated long stay secure parking in the Central Basement.
- 5.4.9 The long stay cycle parking will be two tier stacked parking, an example of which is shown in Figure 26. The ceiling heights and aisle widths of the bike room have all been designed to accommodate the dimensions illustrated. For buildings where a basement is present, cycle parking will be located underneath residential blocks and cycle lifts will be installed to aid access. Where no basement is present, cycle parking will be provided in secure rooms or covered sheds close to the building entrance. Table 6 shows the allocation of bike parking for each blocks for residential uses, and other uses. For details of bike stores refer to Architectural Drawings.

Table 6. Bike Parking Allocation

Blocks	Bike Parking Allocation
BLOCK A1	A1 Basement and A1 Podium
BLOCK A2	A2 Store
BLOCK A3	A2 Store
BLOCK A4	A1 Podium and A4 Shed Store
BLOCK B1	B1 Store
BLOCK B2	Central Basement: bike room B2 & B3 combined
BLOCK B3	Central Basement: bike room B2 & B3 combined
BLOCK C1	Central Basement: bike room C1 & C2 combined
BLOCK C2	Central Basement: bike room C1 & C2 combined and C2 Shed Store
BLOCK D1	Central Basement: bike room D1
BLOCK D2	D2 Basement
BLOCKS E1 / E2	E1/E2 bike store
Creche and Retail	E1/E2 bike store
Café and Concierge	Shed Store



Product	A	B	C	D1	D2
Velo-Up E-Bike	1945	2100-1900	2990	2705	2585
Velo-Up Flex	2100	2100-1900	n.v.t.	2700	2580
Velo-Up Fixed	2100	2100-1900	n.v.t.	2700	2580
Velo-Up Low	1995	2100-1900	3090	2655	2535
Velo-Up Regular	1880	2100-1900	2910	2700	2580
Velo-Up Budget	1890	2100-1900	2898	2700	2580

Figure 26. Two-Tier Cycle Parking with dimensions

5.4.10 In addition to the long stay spaces, a further 252 short stay spaces will be provided around site for visitors to the development. These will be provided in the form of Sheffield Stands. Figures 27 to 30 show the proposed location and quantum of the visitor bike parking.

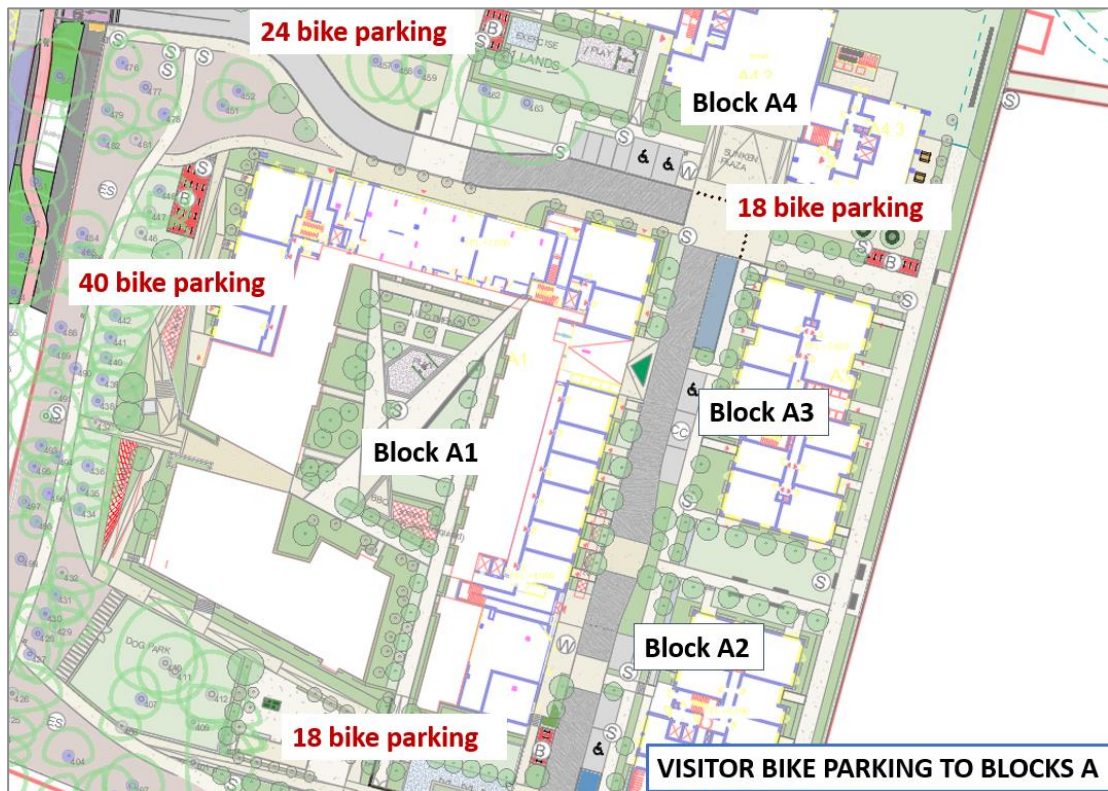


Figure 27. Visitor bike parking to serve blocks A

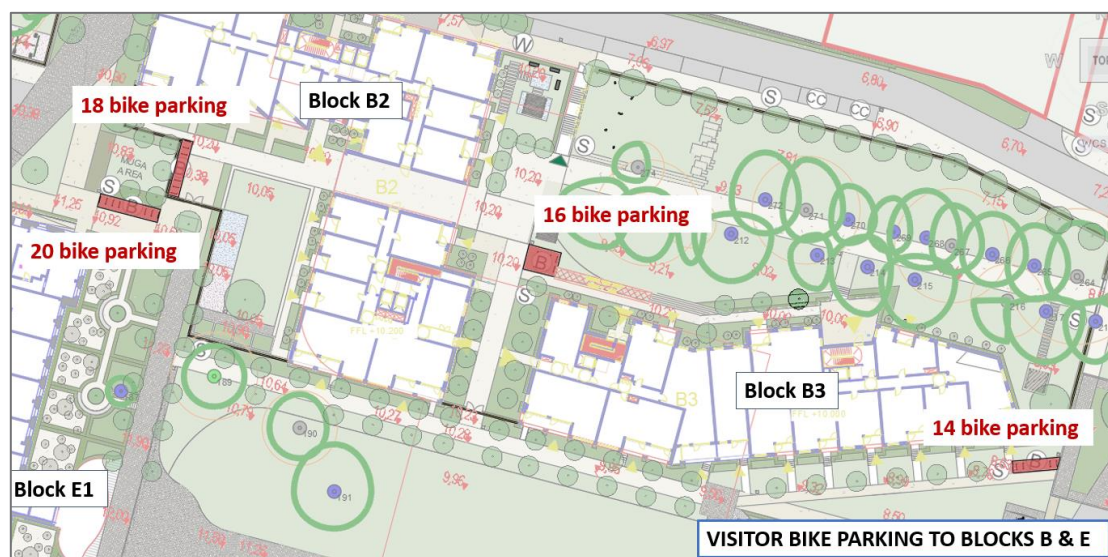


Figure 28. Visitor bike parking to serve blocks B and E1

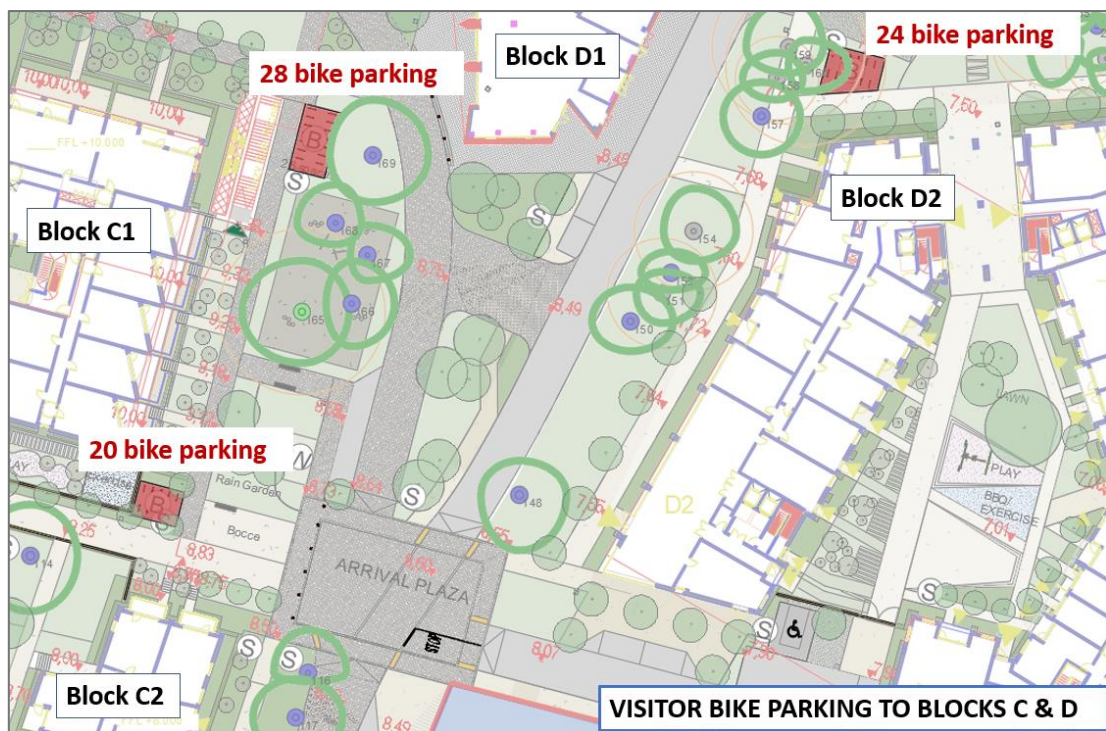


Figure 29. Visitor bike parking to serve blocks C & D

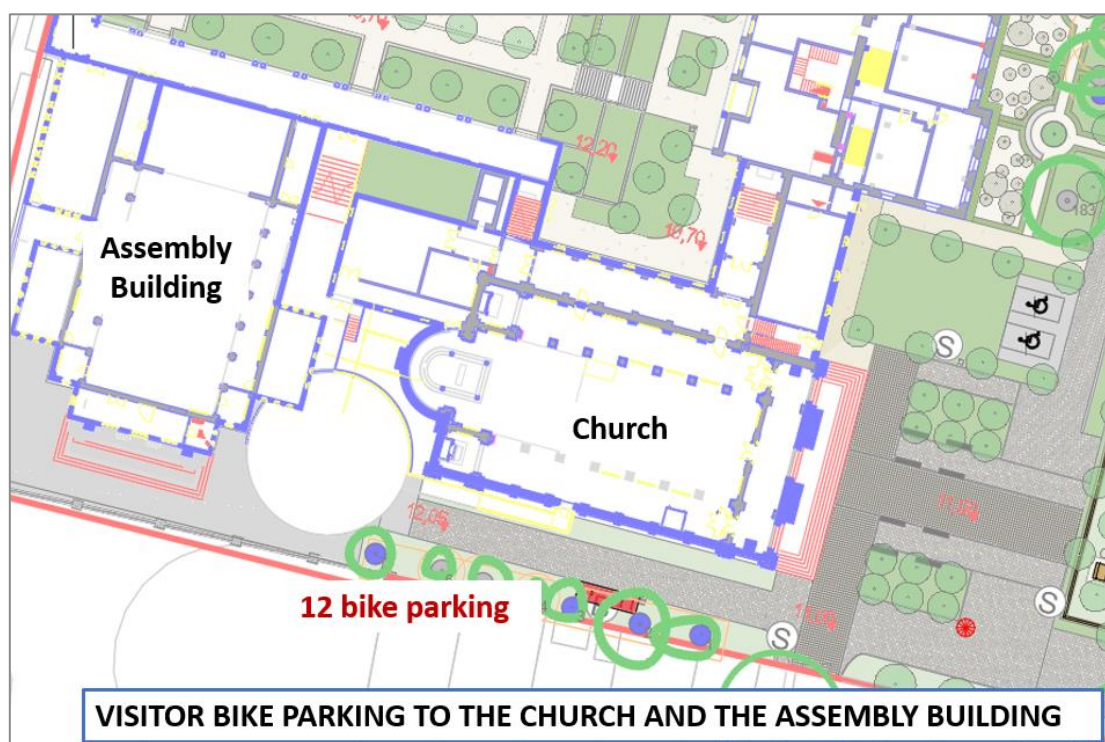


Figure 30. Visitor bike parking to serve the Church and the Assembly Building

5.5 Vehicular Access & Circulation

5.5.1 Vehicular access to the proposed development from the local road network will be provided from the following two points:

- **Primary access:** from Clonliffe Road via an upgraded 4-arm signalised crossroads junction between Clonliffe Road, Jones's Road and the Proposed Development. It is anticipated that the majority of vehicles to the development will utilise this access; *and*
- **Secondary access:** from Drumcondra Road Lower via a new left-in/left-out arrangement creating a 4-arm priority crossroads junction between Drumcondra Road, Hollybank Road and the proposed development. Only a small proportion of vehicles will utilise this access to reach the residential element of the development (*this will be discussed further in Section 6*).

5.5.2 The secondary access from Drumcondra Road will be for car park/delivery/creche/retail and servicing/emergency access only site only. The primary access from Clonliffe Road will provide access into all vehicular-designated areas of the site.

5.5.3 Circulation through the site has been designed so that it will not be possible for car traffic to cut through the development between Drumcondra Road and Clonliffe Road to avoid creating a "rat run". A barrier system will be installed within a 'home-zone' between blocks A1 and A2. This will serve the dual purpose of calming traffic and controlling through movements. The proposed location of the barrier is shown in Figure 31.

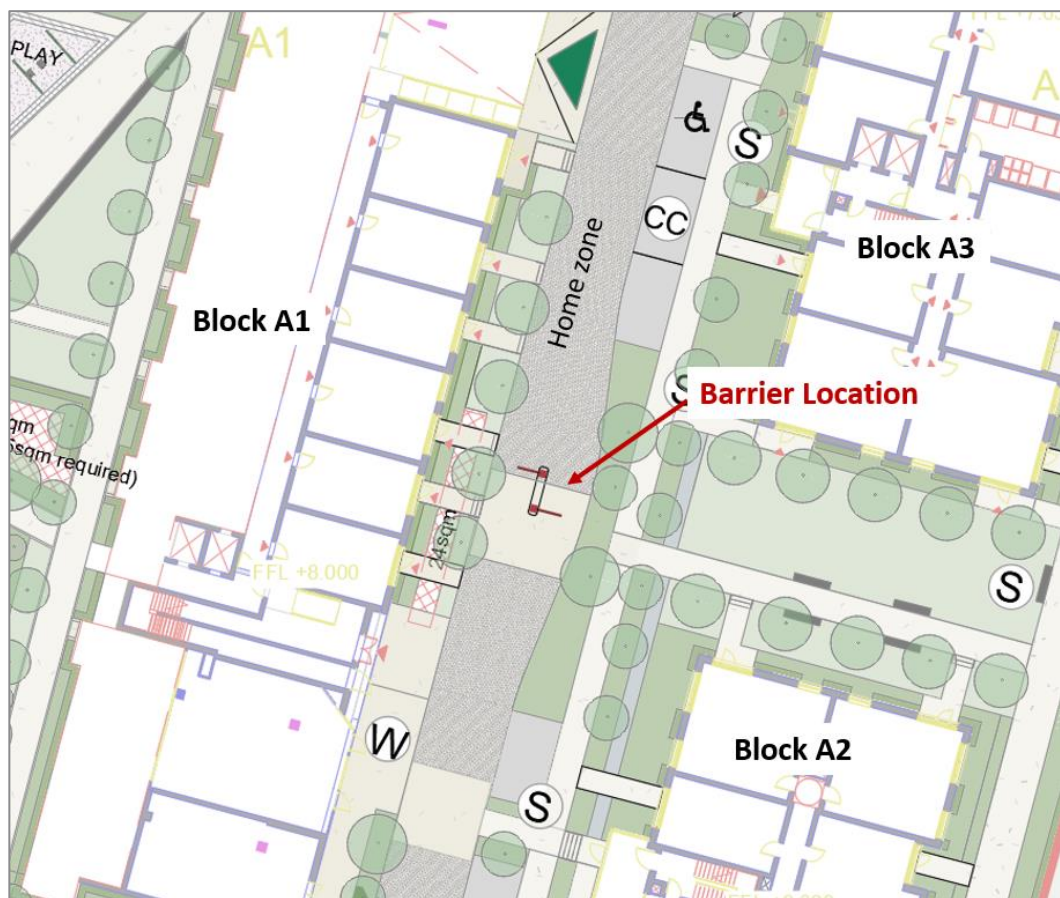


Figure 31. Barrier Location

- 5.5.4 The aforementioned vehicular access points and circulation routes are demonstrated in Figure 32.

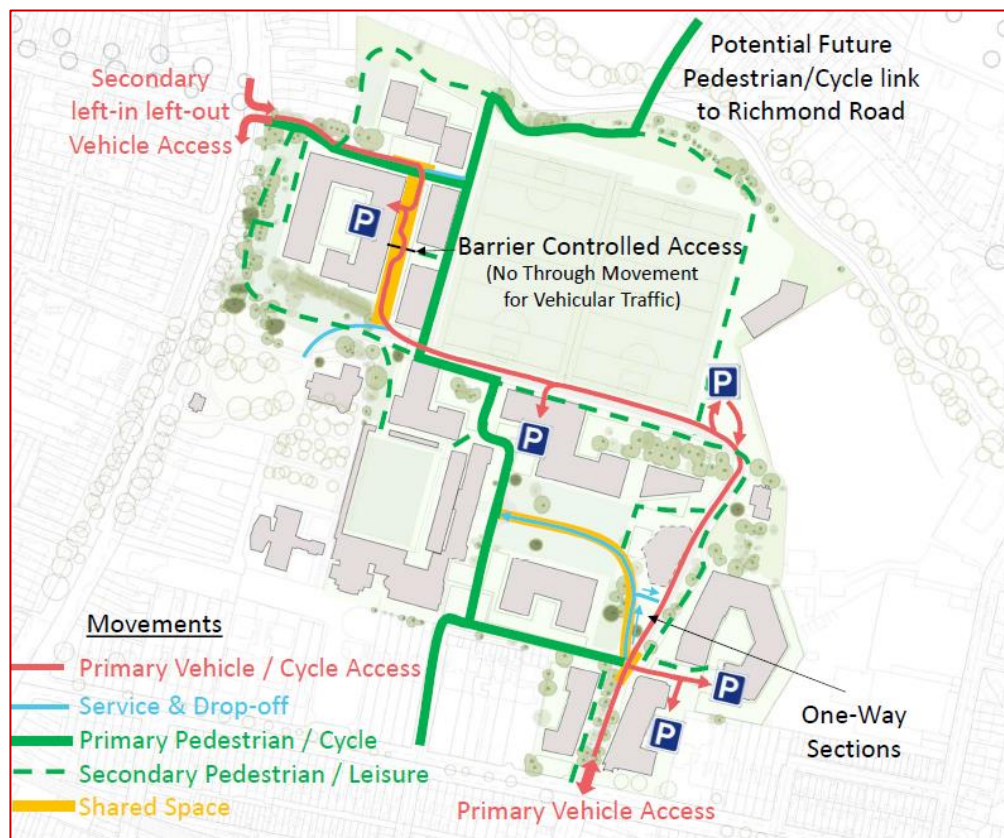


Figure 32. Vehicular Access Strategy (Masterplan Scheme)

- 5.5.5 It should be noted that the access requirements for the hotel and GAA pitches/clubhouse are accommodated as part of the overall Masterplan development but the plans are subject to individual planning applications. The hotel has been permitted under DCC Reg. Ref.: 2935/20, ABP Reg. Ref.: PL29N.30819.

5.6 Servicing & Emergency Vehicle Access

- 5.6.1 The internal road network has also been designed to accommodate circulation of refuse/service vehicles and emergency vehicles. The bin storage area will be provided internally with the bins brought out to appropriate set down areas by the management company for collection. The proposed access strategy for refuse vehicles is outlined in Figure 33.

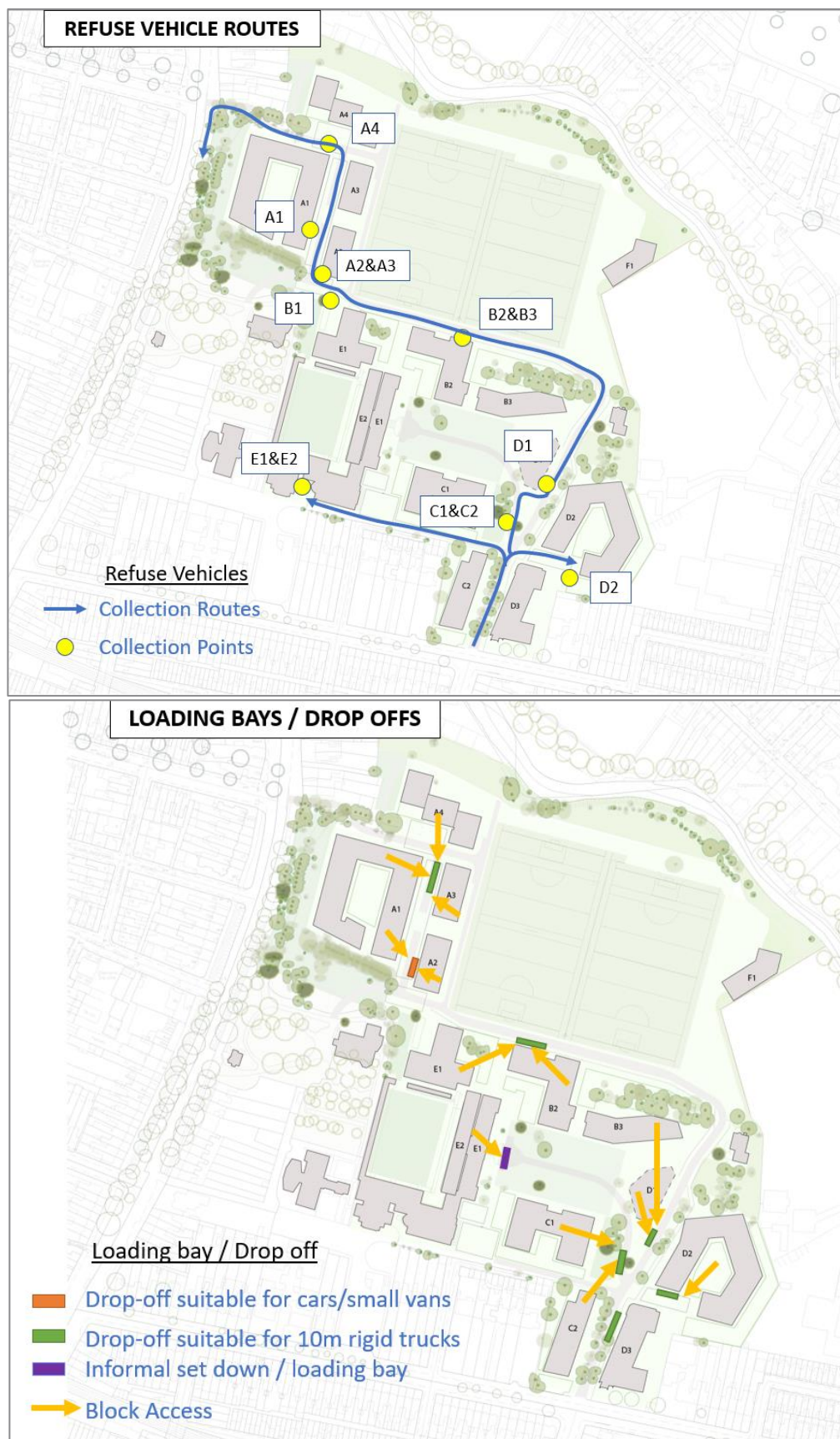


Figure 33. Access Strategy for Refuse/Service Vehicles

- 5.6.2 As demonstrated in Figure 33, refuse and service vehicles will enter via the primary access on Clonliffe Road and route northwards through the site to exit via the secondary access onto Drumcondra Road. There will be collection points for each residential block and the hotel.
- 5.6.3 Along the service vehicle route will be drop-off bays of a suitable size for small service trucks for short-stay deliveries to the hotel and residential blocks, as shown in Figure 33.
- 5.6.4 Fire trucks and other emergency vehicles will enter the site from the Clonliffe Road or Drumcondra Road access depending on the source of the issue and will have access to areas which are blocked to all other vehicles to enable them to get closer to buildings and entrances. The fire tender and emergency vehicle access strategy is outlined in Drawings SYS-CL-04.1 & SYS-CL-04.2.

5.7 Access & Network Improvements

- 5.7.1 A number of infrastructural measures are proposed to improve access for all modes to the site and limit the impact of any additional demand on the immediate network. As discussed, two new vehicular access junctions (from Clonliffe Road and Drumcondra Road respectively) will be provided as well as three designated pedestrian and cyclists access points.
- 5.7.2 To facilitate these access points, the following upgrades to the network will be made (as shown in Figure 34 below):
- Upgraded 4-arm signalised junction on Clonliffe Road at the primary development access;
 - New left-in/left-out priority junction with Drumcondra Road; *and*
 - Enhanced pedestrian crossing point on Clonliffe Road at Holycross Avenue (which will provide an upgraded pedestrian access into the development).



Figure 34. Overview of External Network Improvements

Upgraded Access Junction from Clonliffe Road

- 5.7.3 The current signalised junction between Clonliffe Road and Jones's Road will be upgraded to accommodate the development access arm into a 4-arm signalised junction. The existing kerb lines will be maintained, however, pedestrian crossings will be provided on all arms of the junction (currently no crossing is provided on the Clonliffe Road West arm). The key features of the junction improvement can be seen in Figure 35 below.

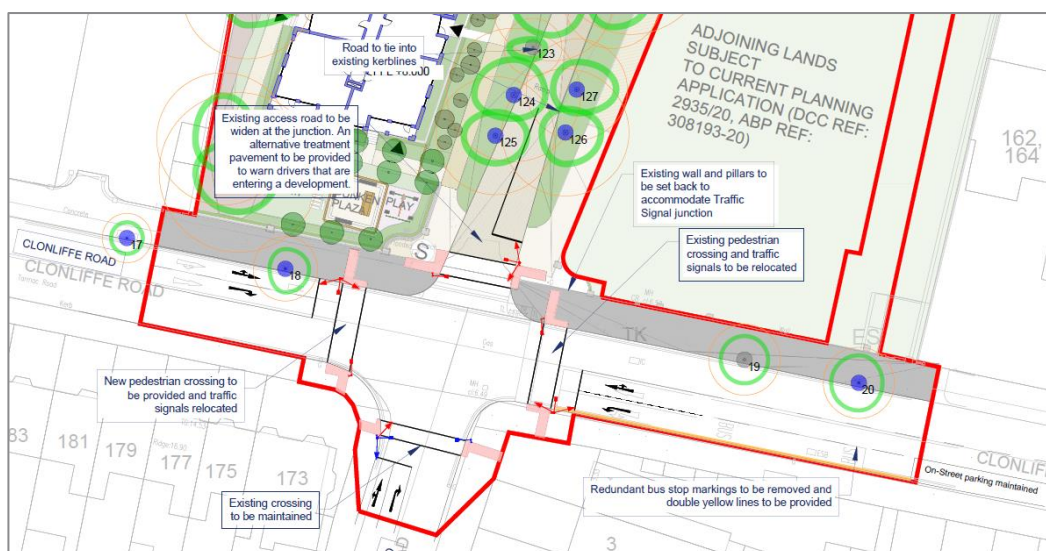


Figure 35. Clonliffe Road / Primary Development Access / Jones's Road Upgraded Junction

New Access Junction from Drumcondra Road

- 5.7.4 Currently there is a gated dropped kerb access from Drumcondra Road but it is unused and there are no road markings. The proposed development will create a new access junction here comprising a left-in left-out arrangement only from Lower Drumcondra Road. This will ensure a minimal amount of disruption to the operation of this current 3-arm priority junction with Hollybank Road. 'Turn Left' signage will be erected at the site exit and 'No Right Turn' signage on Drumcondra Road Lower northbound.
- 5.7.5 In the future, the access will incorporate the Bus Connects proposed improvements by providing a break in the mandatory cycle lane to create a small section of advisory lane which will allow vehicles to turn across the cycle lane. The stop line for the site exit will be set back behind the cycle lane. A deflection island is provided to force vehicles to turn left out of the development. The design includes a raised ramp at the access to provide pedestrian prioritisation and reduce speed at the entry / exit, as recommended by the Road Safety Audit. The key features of this junction can be seen in Figure 36.
- 5.7.6 This application presents the interim design of the proposed access which ties in with the existing road layout prior BusConnects delivery. Similar to the final design, it is proposed to provide a raised ramp, a deflection island, road markings and road signs. The cycle lane however will tie with the bus lane shared facility after the junction, to avoid exiting cars blocking the cycle access. Details of the proposed arrangement can be found on drawing SYS-CL-02 in Appendix A and figure 37 overleaf.

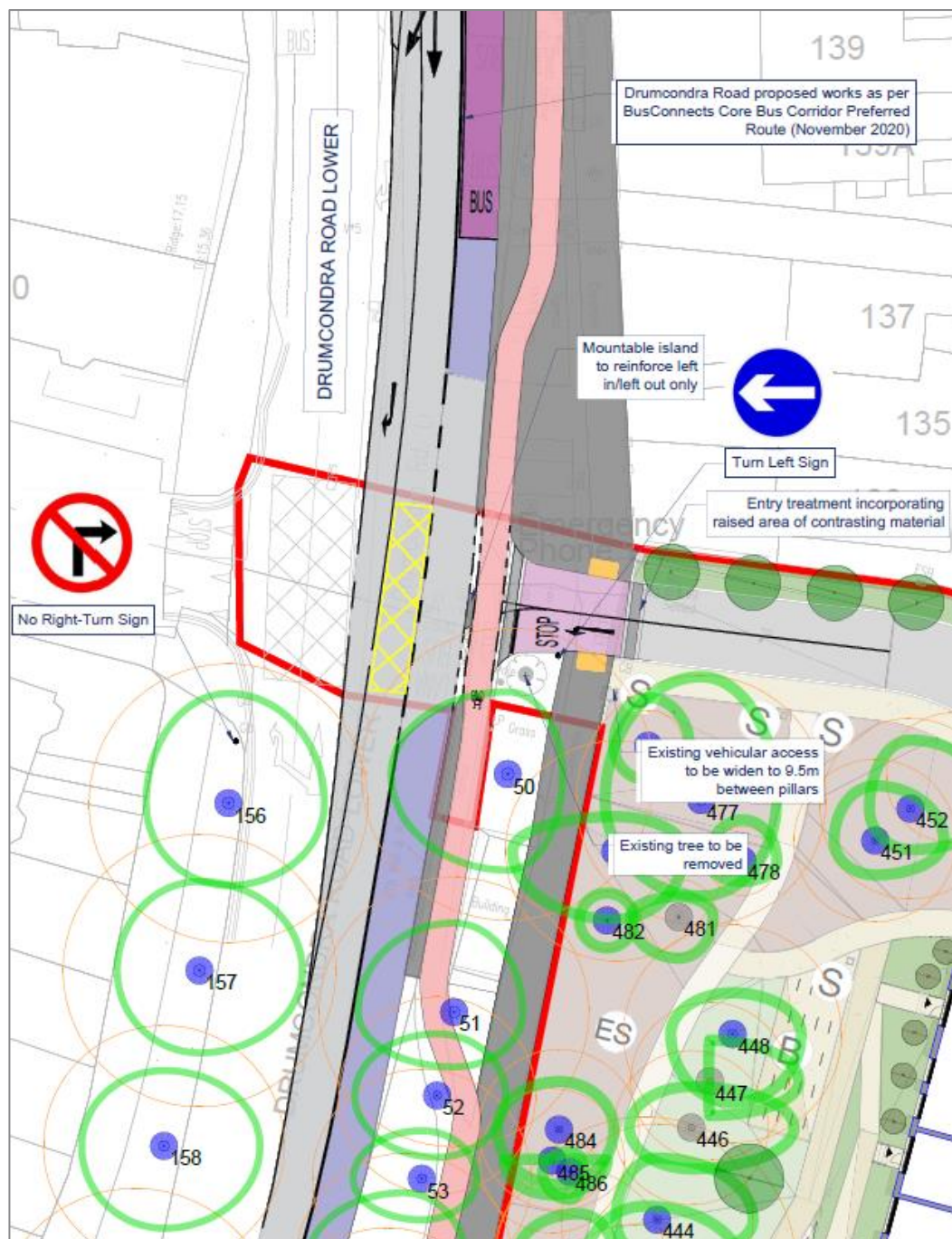


Figure 36. Future Drumcondra Road / Secondary Development Access New Junction under BusConnects

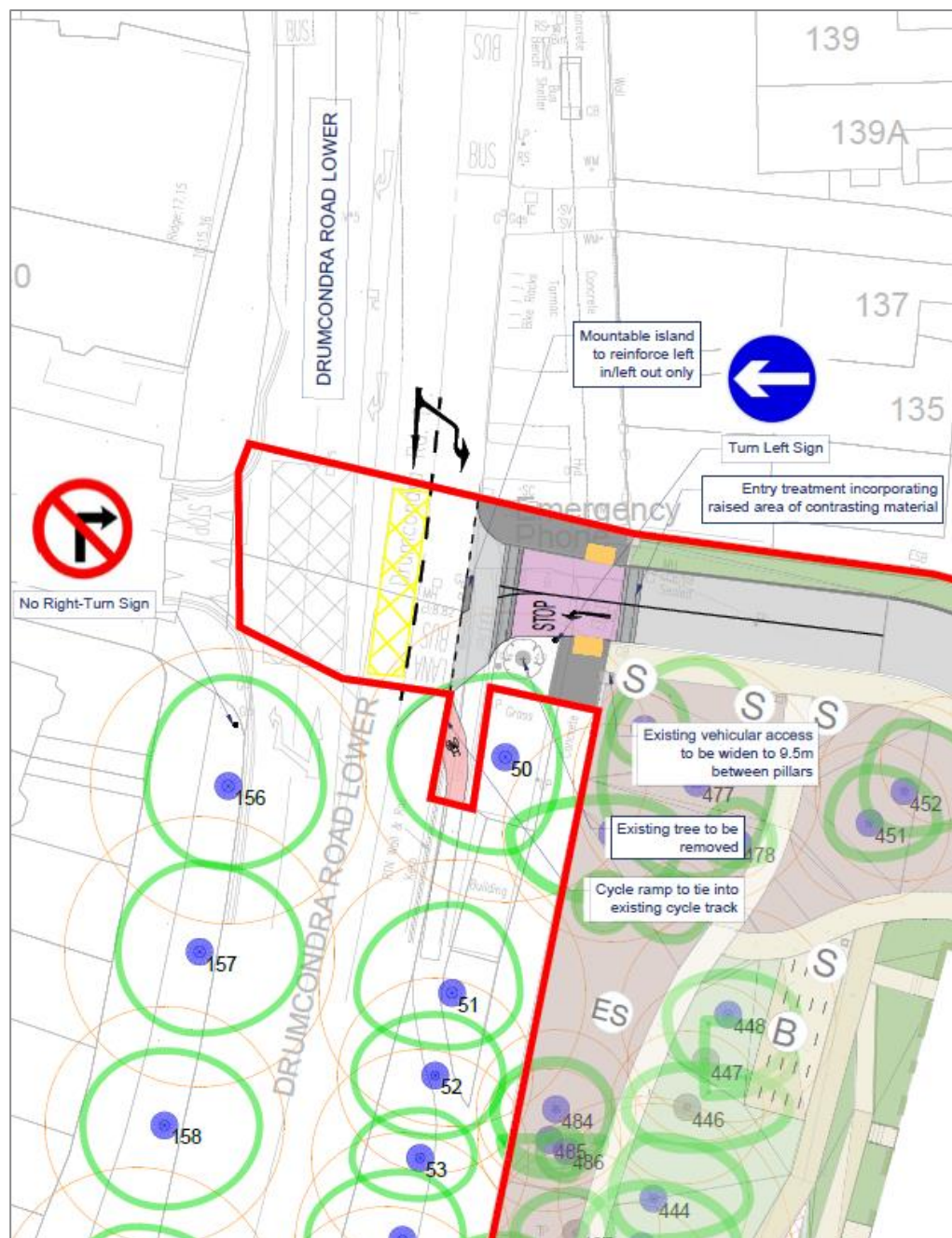


Figure 37. Proposed Drumcondra Road / Secondary Development Access New Junction

Enhanced Pedestrian Crossing on Clonliffe Road

- 5.7.7 The current crossing at this location on Clonliffe Road (adjacent to Holycross Avenue) comprises a dropped kerb and narrow pedestrian refuge island in the centre of the two traffic lanes. The proposed development will upgrade this crossing to provide tactile paving with the dropped kerbs.
- 5.7.8 Visibility is currently poor due to parked cars, therefore, the footpath will be built-out on the southern side to improve visibility and pedestrian safety. The pedestrian refuge island will be removed as the build-out will make the length of the crossing narrower for pedestrians and to make the road more conducive to cyclists. This will also facilitate left-turning vehicles from Mabel Street.

5.7.9 The key features of this enhanced crossing can be seen in Figure 38.

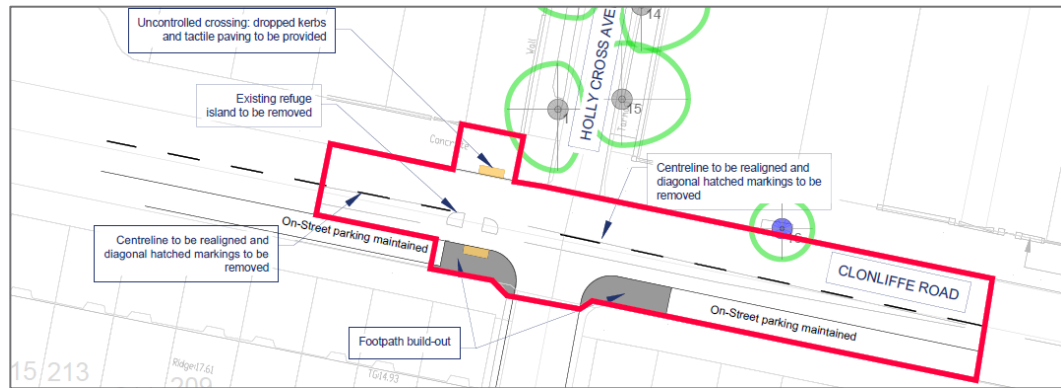


Figure 38. Enhanced Pedestrian Crossing on Clonliffe Road

5.8 Car Parking

5.8.1 Dublin City is divided into three parking zones in the Council Development Plan 2016-2022 and proposed development site is located within the area designated as Parking Zone 2, as shown in Figure 39.

5.8.2 The plan advises that car parking provision in Zones 1 and 2 should be restricted on account of these locations being close to good public transport. This is in line with 2018 government guidance that states car parking provision should be minimised, substantially reduced or wholly eliminated in accessible urban areas. The maximum parking quantities for Zone 2 are demonstrated in Table 7.

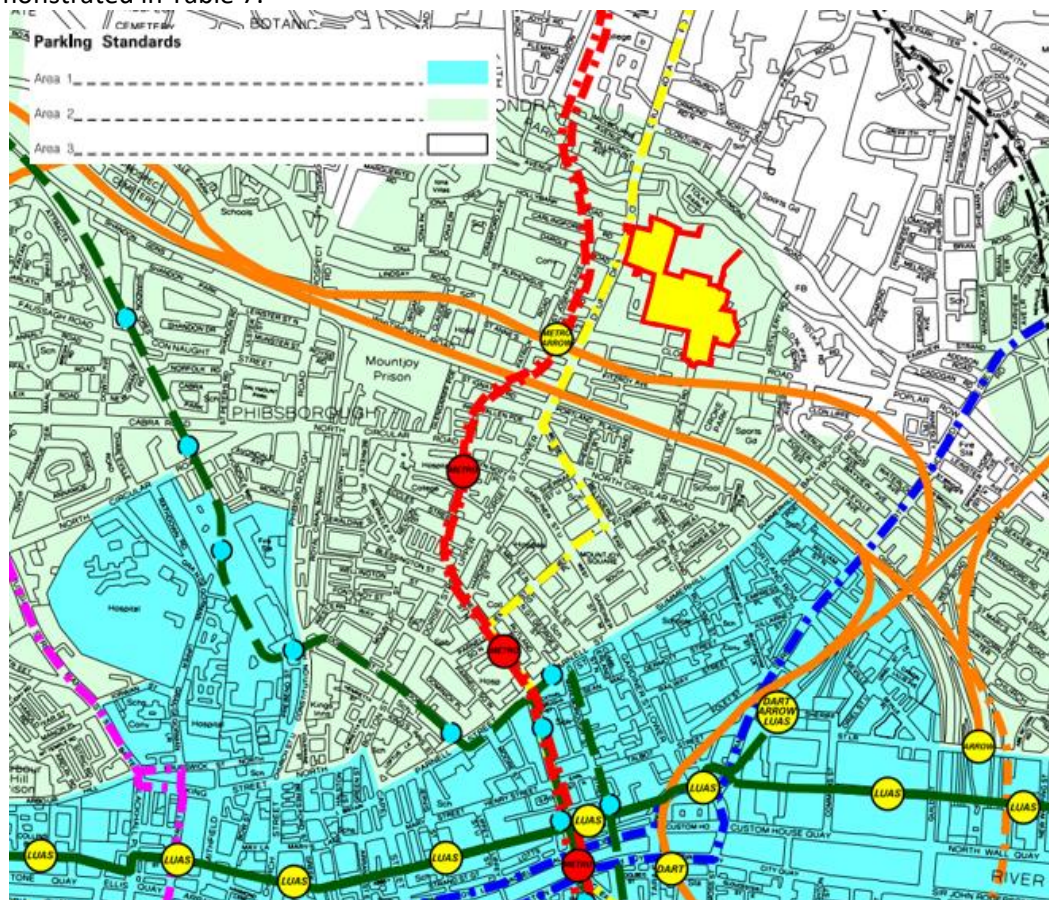


Figure 39. DCC Parking Zones

Table 7. DDC Maximum Parking Standards for Zone 2

Type	Residential	Comments
Car Parking	Maximum 1 per residential unit	Each space permanently assigned to & sold with each apartment & not sublet/ leased to non-residential owners/ occupiers
Electric Vehicles	Unspecified but in line with national policy/targets	-
Disabled	5% of total car park spaces	-
Car Club	No Set Guidance	Where sites are constrained... alternative solutions will be considered e.g. car clubs

- 5.8.3 Considering recent national policy, the predicted mode share of the development, the low car ownership levels locally, the location of the site adjacent to alternative modes (quality bus corridor, rail, cycle infrastructure), and the proposed on-site mobility services; it is considered appropriate to provide a car parking ratio of 0.3 car spaces per unit to serve the proposed development. Alongside this, a residential cycle parking ratio of 1.3 cycle spaces per unit is proposed, this is well above the minimum of 1 cycle space per unit set out in the parking standards to account for the lower number of car parking spaces.

Table 8. DCC Car Parking Standard & Provision

Land Use	Standard	Requirement	Provision
Residential	Max 1 per unit	Max 1,614	0.3 car parking spaces per unit
Total			484 Residential Car Parking Spaces

- 5.8.4 As Table 8 indicates, the proposed development will provide 484 residential car parking spaces which is below the DDC maximum for car parking, with an approximate ratio of 0.3 per unit.
- 5.8.5 477no. of residential car parking spaces will be located at podium or basement level to improve the visual appeal of the site and prevent a car dominated landscape. In addition, 7 spaces will be provided at surface level for mobility impaired residents who don't have direct access to basements. That makes a total of 484 residential car parking spaces.
- 5.8.6 At surface level 31no. of spaces will be provided. Of these:
- 7no. of these spaces will be for use by mobility impaired residents (as outlined above). This will ensure there is a suitable designated parking space with direct access to blocks without direct access to a basement.
 - 4no. of these spaces will be for use by mobility impaired visitors to the site;
 - 16 of these spaces will be used as pay and display; *and*
 - 4 of these spaces will be designated exclusively for car club use.
 - 7 loading bays will be provided along the site to serve the blocks and provide a set-down/pick-up facility;
- 5.8.7 This will bring the total number of car spaces to 484 for the residential portion of the masterplan, the basis of this application. A total of 5% of spaces will be reserved for those with mobility impairments. Electric charging points will also be installed for 10% of standard residential spaces with the remainder future proofed for 100% installation.

5.8.8 A summary of the basement car parking for this application is provided in Table 9.

Table 9. Development Car Parking Provision

CAR PARKING	Total Spaces	Standard Resi Spaces	Mobility Parking	EV Car Parking	Car Club Parking
Central Basement	158	128	8	16	6
D2 Basement	86	70	4	9	3
A1 Podium	89	72	4	9	4
A1 Basement	144	116	7	14	7
Total for this application	477	386	23	48	20

5.8.9 A summary of the overall surface car parking is provided in Table 910.

Table 10. Development Car Parking Provision

CAR PARKING	Total Spaces	Mobility Parking Residents / Visitors	EV Car Parking	Car Club Parking	Standard spaces	Loading
Surface	31	11	3	4	13	7

5.8.10 Figure 40 shows the location and type of surface car parking and bike parking.



Figure 40. Surface Car Parking, Bike Parking location and Loading Bays

6. CAR PARKING STRATEGY

6.1 Overview

6.1.1 SYSTRA has prepared a separate parking strategy note to outline an overall parking management plan that facilitates the various uses outlined in the Masterplan site while complementing the wider access strategy and sustainable vision of the site (see Appendix A). The main objectives of the parking strategy are to:

- Provide a sufficient quantum of parking to meet the mobility requirements of future residents and visitors to the site, whilst encouraging travel by sustainable modes;
- Ensure there is enough parking close to building entrances to meet the needs of those with any mobility impairments;
- Ensure all parking is appropriately managed and controlled in order to:
 - Protect the historic character of the site;
 - Maintain a safe uncluttered streetscape;
 - Ensure the everyday functioning of the site;
 - Maintain emergency access to all parts of the development; *and*
- Ensure the demand for parking from all users of the site is accommodated within the development boundary and does not overspill into neighbouring communities,

6.1.2 Residential car parking spaces will be located at basement level and will be let separately to the apartment units and will only be available to residents as part of a leasing programme. Residential parking will be supported by mobility management policies which will limit the need for residents to lease parking spaces. Leasing the spaces will ensure they are used as efficiently as possible allowing disability, EV, and car sharing spaces to be allocated appropriately where needed.

6.1.3 In addition, to encourage the use of sustainable modes, a Mobility Management Plan (MMP) will be undertaken for the development

6.2 Parking Analysis

6.2.1 SYSTRA has undertaken an analysis of surrounding streets which operate on a residential permit basis using data supplied by Parking Policy and Enforcement division of Dublin City Council. The analysis looked at the number of on-street spaces versus the number of parking permits recorded on each street to calculate the used capacity. The results are demonstrated in Table 11.

Table 11. Parking Survey Results

Road / Street	On-Street Parking Spaces	Parking Permits	Used Capacity
Hollybank Road	160	100	63%
Carlingford Road	115	85	74%
Dargle Road	101	60	59%
Glenarm Avenue	34	21	62%
St Joseph's Avenue	24	18	75%
St Alphonsus' Road	109	56	51%
St Anne's Road	16	30	188%
Grattan Parade	29	17	59%
Drumcondra Road Lower (R132)	21	7	33%
St. George's Avenue	34	16	47%
Fitzroy Avenue	114	65	57%
St Patrick's Terrace	12	2	17%
May Street	26	19	73%
Whitworth Place / Plás Whitworth	17	4	24%
Susanville Road	34	49	144%
Total	846	549	65%

Note: Red text donates the street is over capacity; green donates the street has residual capacity

6.2.2 The results demonstrates that just two of the streets surveyed were operating over capacity with regard to parking (St Anne's Road and Susanville Road), however, the remaining 13 streets had less than 75% used capacity, with as little as 17% of capacity used on St Patrick's Street.

6.2.3 In summary, the results show that there is relatively low pressure on parking in the local area with an average used capacity of 65% across the local area, therefore, there is an average residual capacity of 35% overall. This result reinforces the findings that car ownership and car use in the local area is relatively low and that the proposed level of parking provision for the development is appropriate for this location.

6.3 Benefits of Proposed Parking Strategy

Sustainable Trip Making & Congestion

6.3.1 As the population of Dublin grows, the road network will come under increasing pressure. This will be exacerbated if existing levels of car ownership and usage persist. This will cause increased congestion, reduced public transport reliability, increased journey times and impact on the overall quality of life for city residents.

6.3.2 The proposed parking strategy and mobility management policies will encourage travel by sustainable means. The expected commuting car mode share would be approximately 20% based on observed census data as outlined in Section 4, Figure 22. This is significantly below the current DCC average of 36.4% and is reflected in the 0.3 car parking ratio for the residential portion of the site.

Physical Activity

- 6.3.3 According to World Health Organisation recommendations, adults need 30 minutes of moderate activity 5 times a week. However, according to the Irish Sport Monitor, which collects data on physical activity of the Irish Population, just 31.3% of adults, 12% of adolescents and 19% of children meet this requirement on a weekly basis.
- 6.3.4 The National Physical Activity Plan for Ireland (NPAP) is a cross sectoral evidence-based plan aimed at addressing these low levels of activity reported amongst the Irish population. The plan highlights the contribution of walking and cycling in everyday activity levels and importance of the built environment in encouraging these modes of transport. In London, a third of Londoners achieve the recommended 150 minutes of physical activity each week just through the walking and cycling they do for travel purposes⁷.
- 6.3.5 Car owners are traditionally much more likely to be inactive with decreased levels of walking and cycling observed in households with one car or more. Based on census information for the area, it is estimated that approximately 55% of journey from the development will be made by walking and cycling.

Environmental Impact

- 6.3.6 In 2017, just under 20% of greenhouse gas emissions nationally originated from the transport sector. This is estimated to increase to 25% within Dublin City. Though electric vehicles will contribute to a reduction in emissions in the future, it is unlikely that Ireland will meet its 2030 EU emissions targets without significant changes in travel behaviour. The most effective way to reduce transport emissions is through the reduction of car ownership and usage. Limiting the growth of car usage in the city will have impacts on emission growth, air quality and noise impacts. As discussed, given the location and mobility management policies at the site, the proposed development will have a significantly lower car mode share than current averages within the city.

Road Safety and Use of Space

- 6.3.7 The prevalence of vehicles is a significant barrier to walking and cycling within many urban streets and neighbourhoods. It reduces the appeal of streets as public places and reduces availability of space for more sustainable modes.
- 6.3.8 For cyclists, congestion and perception of safety in urban areas is a deterrent. In a cycle study undertaken by Transport for London, the primary reason for not cycling was fear of road injury⁸. Reduced parking provisions in cities can help reduce the dominance of cars over other modes and allow public space to be repurposed for the promotion of walking and cycling.
- 6.3.9 In the proposed development, a low level of parking will result in low levels of car traffic. This allows for the introduction of shared space, wider footpaths and narrower road widths, promoting the needs of pedestrians and cyclist above the car. Lower parking provision is key to achieving this and supports the creation of mixed public places that are designed for people rather than vehicles. In studies undertaken of developments with lower car parking levels, it

⁷ <http://content.tfl.gov.uk/mts-challenges-and-opportunities-report.pdf>

⁸ <http://content.tfl.gov.uk/attitudes-to-cycling-2014-report.pdf>

was found that children played outdoors on the neighbourhood streets at a younger age than those in nearby developments with higher levels of parking provision⁹.

Car Ownership Costs

- 6.3.10 With rising costs of insurance, tax and car costs; car clubs and car sharing are becoming a more viable alternative for people living in cities who only need a car for occasional trips. Table 12 compares the cost of Car Ownership and Go Car Club Membership for four hours or 100km per week. The costs exclude parking costs, though parking within Dublin City would be free with Go Car membership.

Table 12. Go Car Membership versus Car Ownership Annual Cost

Cost	Go Car Membership	Car Ownership (Band A-G) *
Depreciation of Car	No monthly fee or joining fee	€1,451-8,098
Tax	Included	€120-1200
Insurance	€100 DEW	€998-1945
Petrol (assume 100km per week/25km per trip)	Included	€477-822
NCT	Included	€21
Maintenance/Tyres/Servicing	Included	€195-380
Hourly/Daily Rate	€8-12 per hour/€60-€85 per day 50 free kms €0.5 per km thereafter	NA
Total Annual Cost (assume 4 hours usage per week/ cost of car over 5 years) *	€1,764-2,596	€3,257-12,466

**Based on AA 2018 Cost of Motoring, parking and misc. costs have been excluded.¹⁰*

- 6.3.11 The above table indicates that the annual cost of car travel for Go Car users is approximately 3-4 times less than private car users with similar travel characteristics.

⁹<http://eprints.uwe.ac.uk/23566/12/Melia%20-%20Carfree%20Development%20Chapter%20with%20images.pdf>

¹⁰ <https://www.theaa.ie/aa/motoring-advice/cost-of-motoring.aspx>

7. TRIP GENERATION & DISTRIBUTION

7.1 Overview

- 7.1.1 In line with best practice, the TRICS¹¹ database has been utilised to obtain people trip rates for the proposed development, comprising the residential units, crèche and retail space. Additionally, this assessment considers the trip generation potential of the wider masterplan site. This means that the trip generation of the GAA pitches/clubhouse, and the 200 bedroom hotel have also been included even though they are not the subject of this application. Testing all trips associated with the wider masterplan allows for a more robust assessment of the impact of the development.
- 7.1.2 This exercise has been undertaken separately for each land use given that they have different units of measurement and patterns of people trips. The following TRICS categories have been selected for each element of the proposed development:

Table 13. TRICS Category Selections per Land Use

Land Use	TRICS Main Category	TRICS Sub-Category	Trip Rate Unit
Apartments	03-Residential	C-Flats Privately Owned	Per 1 dwelling
Creche	04-Education	D-Nursery	Per 100m ²
Retail	01-Retail, Shopping Centre, Local Shops	C-Local Shops	Per 100m ²
<i>Hotel*</i>	<i>06-Hotel, Food & Drink</i>	<i>A-Hotel</i>	<i>Per 1 bedroom</i>
<i>Clubhouse*</i>	<i>N/A†</i>	<i>N/A†</i>	<i>N/A*</i>

** Not part of this application †First principles approach*

- 7.1.3 To calculate the trip generation, the trip rates obtained from TRICS have then been multiplied up to the relevant number of units to reflect the size of the proposed development. This has been undertaken for a typical weekday.
- 7.1.4 For the GAA Clubhouse, a first principles approach to the trip generation has been used as TRICS does not hold data for this type of land use, therefore, this site-specific approach is more accurate. The first principles approach has been calculated based on information provided by the GAA for the typical use of the pitches.

7.2 People Trip Generation

- 7.2.1 The proposed development's total person trip generation has been calculated between the hours of 07:00 to 21:00 for each land use (except for the creche which will close at 19:00), the results are presented in Table 14.

¹¹ TRICS (Trip Rate Information Computer System) is a database of trip rates for developments used in the United Kingdom and Ireland for transport planning purposes, specifically to quantify the trip generation of new developments

Table 14. Total Weekday Daily People Trip Generation

Time Period	Apartments		Creche		Retail		Hotel*		Clubhouse*		Total Arrivals	Total Departures	Total Two-Way
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart			
07:00-08:00	117	553	7	1	23	19	9	34	0	0	156	607	763
08:00-09:00	185	868	17	7	38	38	14	21	5	0	259	934	1193
09:00-10:00	206	370	4	2	41	34	26	34	31	0	308	440	749
10:00-11:00	208	284	1	1	42	39	28	26	12	0	291	350	641
11:00-12:00	221	257	3	5	44	45	21	21	2	0	291	328	619
12:00-13:00	305	314	8	8	57	54	17	21	0	0	387	397	784
13:00-14:00	282	277	4	5	52	53	21	16	0	5	359	356	715
14:00-15:00	236	256	2	2	49	51	22	20	0	10	309	339	648
15:00-16:00	416	269	5	4	55	56	18	20	0	35	494	384	878
16:00-17:00	454	304	5	9	47	45	21	21	0	0	527	379	906
17:00-18:00	650	299	8	13	43	48	20	22	0	0	721	382	1103
18:00-19:00	680	314	0	6	45	46	23	19	24	0	772	385	1157
19:00-20:00	502	238	-	-	53	56	26	19	0	0	581	313	894
20:00-21:00	299	175	-	-	45	48	24	18	0	20	368	261	629
							* Not part of this application						

- 7.2.2 Table 14 demonstrates that the peak AM hourly period for people trips occurs between 08:00 and 09:00 during which a total of 259 arrivals and 934 departures are predicted by all modes (1,193 two-way people trips). The majority of these trips are generated by the apartments which is to be expected given that the largest proportion of the site allocated to residential land use and these people trips are likely to be associated with commuting to the workplace.
- 7.2.3 The peak PM hourly period for people trips to/from the development occurs between 18:00 and 19:00 during which a total of 772 arrivals and 385 departures are predicted by all modes (1,157 two-way people trips). Again, the majority of these trips are generated by the apartments and this is likely to be associated with commuting home from the workplace. The trips to and from the creche follow a similar pattern in terms of peak periods as the apartments which will coincide with the opening and closing times of the facility.
- 7.2.4 While not the subject of this application, for reference, the level of arrivals and departures generated by hotel land use remain fairly consistent across the course of the day. The clubhouse trip generation follows the typical times for use of the pitch. It is understood that the peak time for use of the pitches will be at weekends from 09:00 – 16:00 and on weekdays from 19:00 – 21:00. It is noted that at weekends there will be approximately 25 car and 4 coach movements per hour from 08:30 – 16:00.

7.3 Vehicle Trips

- 7.3.1 Assuming a 20% car mode share applied to the people trips in Table 14 (which is the mode share target for the proposed development, as detailed in Section 4), the weekday daily vehicle trip generation potential of the proposed development (all land uses) is outlined in Table 15 below. This is also based on the intention that 75% of the trips associated with the creche will be internal from the residential elements of the proposed development or accessed on foot/bicycle from nearby areas.

Table 15. Total Weekday Daily Vehicle Trip Generation

Time Period	Arrivals	Departures	Two-way
07:00-08:00	39	130	170
08:00-09:00	73	183	256
09:00-10:00	101	102	203
10:00-11:00	81	80	161
11:00-12:00	70	76	146
12:00-13:00	86	90	176
13:00-14:00	80	81	161
14:00-15:00	70	82	153
15:00-16:00	103	113	216
16:00-17:00	110	88	199
17:00-18:00	146	93	239
18:00-19:00	170	86	256
19:00-20:00	119	68	187
20:00-21:00	80	74	155

7.3.2 Table 15 demonstrates that the proposed development is expected to generate in the region on 73 arrivals and 183 departures (256 two-way trips) by car in the AM peak hour period between 08:00 – 09:00. In the PM peak hour period between 18:00 – 19:00, in the region of 170 arrivals and 86 departures (256 two-way trips) can be expected by car.

7.3.3 The impact of this level of vehicle trip generation on the two access junctions and three other local junctions has been assessed in the traffic modelling assessment in Section 8.

7.4 Vehicle Trip Distribution

7.4.1 As discussed in Section 5, primary access will be from Clonliffe Road and the majority of vehicles to the development will utilise this access. Secondary access will be from Drumcondra Road Lower and only a small proportion of vehicles will utilise this access to reach the residential element of the development. Specifically, 73% of vehicle trips have been allocated to the Clonliffe Road access and the remaining 27% allocated to the Drumcondra Road Lower access. This was calculated using local flows to calculate the likely direction of travel and assigning the movements to the most appropriate access point – taking cognisance of the limitations of a left-in left-out arrangement at Drumcondra Road Lower.

Clonliffe Road Access

7.4.2 The vehicle trip distribution of development trips arriving and departing via the Clonliffe Road Access has been calculated based on the proportion of existing movements at the junction (based on survey data undertaken in February 2020, i.e. pre Covid-19 affecting local travel behaviour). The predicted distribution during the AM and PM peak periods is demonstrated by Figure 41 and Figure 42 respectively. This distribution has informed the traffic modelling assessment, of which further details are provided in Section 8.

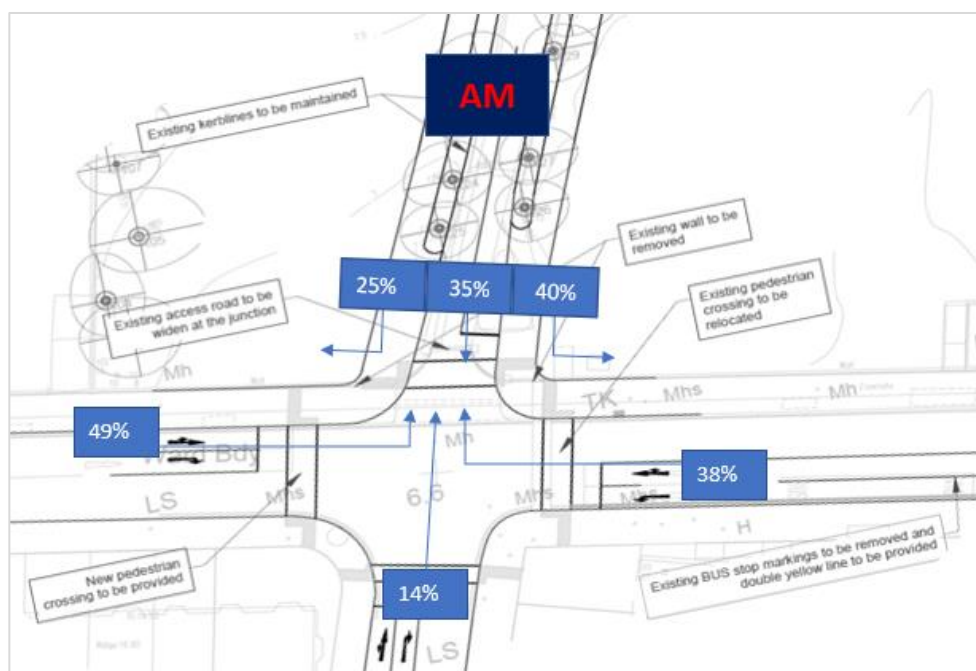


Figure 41. AM Vehicle Trip Distribution

7.4.3 In the AM peak period it is assumed that approximately 40% of vehicle departing the development will turn left, 35% of vehicle go straight ahead, while 25% of vehicles turn right.

- 7.4.4 In the same period, it is assumed that 49% of vehicles arriving at the development will approach from the west along Clonliffe Road, 38% from the east along Clonliffe Road and 14% from the south along Jones's Road (any variances are due to rounding).

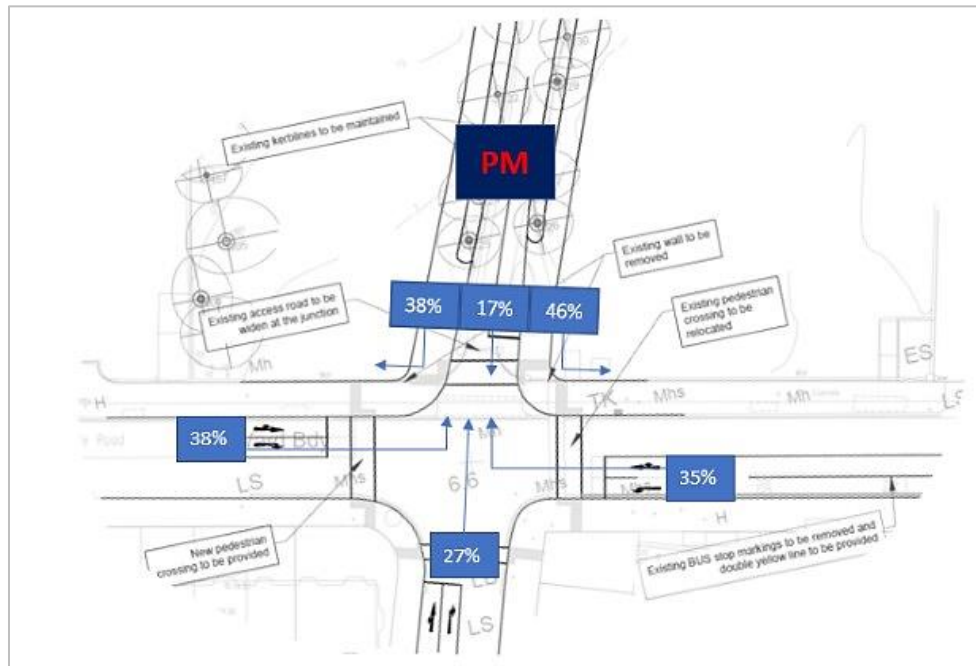


Figure 42. PM Vehicle Trip Distribution

- 7.4.5 In the PM peak period it is assumed that approximately 46% of vehicle departing the development will turn left, 17% will route straight ahead and 38% will turn right.
- 7.4.6 In the same period, it is assumed that 38% of vehicles arriving at the development will approach from the west along Clonliffe Road, 35% from the east along Clonliffe Road and 27% from the south along Jones's Road (any variances are due to rounding).

Drumcondra Road Access

- 7.4.7 Given that the Drumcondra Road access will be a left-in / left-out arrangement, this dictates the vehicle trip distribution at this junction. As mentioned, only a small proportion of vehicles will utilise this access to reach the residential element of the development (estimated 27%). The vehicles using this access will enter the site from Drumcondra Road Lower North and will leave the site to Drumcondra Road Lower South.

8. TRAFFIC MODELLING ASSESSMENT

8.1 Overview

- 8.1.1 As part of the baseline assessment, traffic surveys were undertaken in the local area in February 2020, prior to the Covid-19 pandemic. These included junction turning counts and queue lengths surveys at a number of key junctions locally. The surveys were undertaken for 12 hours (07:00 – 19:00) on a neutral weekday (Tuesday) to capture the peak periods throughout the day.
- 8.1.2 The site's total person trip generation has been calculated using TRICS for all hours from 07:00 to 21:00 (where applicable) and takes account of more than just the trips associated with this application. It also takes account of trips from the wider masterplan site that are not the subject of this application. As detailed in Section 7, the trip generation includes trips associated with the total planned number of apartments (approximately 1,650), a creche, the 200 bedroom hotel and GAA pitches/clubhouse. These trips were apportioned based on the target mode share (20%), number of car parking spaces (0.3 car spaces per unit), and a normal car loading factor (1.15). The peak periods for development trips are identified as 08:00 – 09:00 in the AM and 18:00 – 19:00 in the PM. The peak periods for the surrounding road network was identified from the survey data as being between the hours of 08:00 – 09:00 in the AM and 17:00 – 18:00 in the PM.
- 8.1.3 It should be noted that additional traffic volumes will be low when compared against the peak hour traffic on surrounding roads. Despite the low volume of additional traffic, the development may still impact of the levels of queuing and delay at busier junction arms. The full impact of the development has been assessed in detail using LingSig and PICADY traffic assessments which will provide detailed analysis of change in traffic flows, queue lengths and overall delays.
- 8.1.4 The assessment has been undertaken for the AM and PM peak periods on the surrounding network only (i.e. between the hours of 08:00 – 09:00 and 17:00 – 18:00), given that this is when the road network is at its busiest and it is when the proposed development will have the most significant impact. Three junctions were modelled, the locations of which are shown in Figure 43.

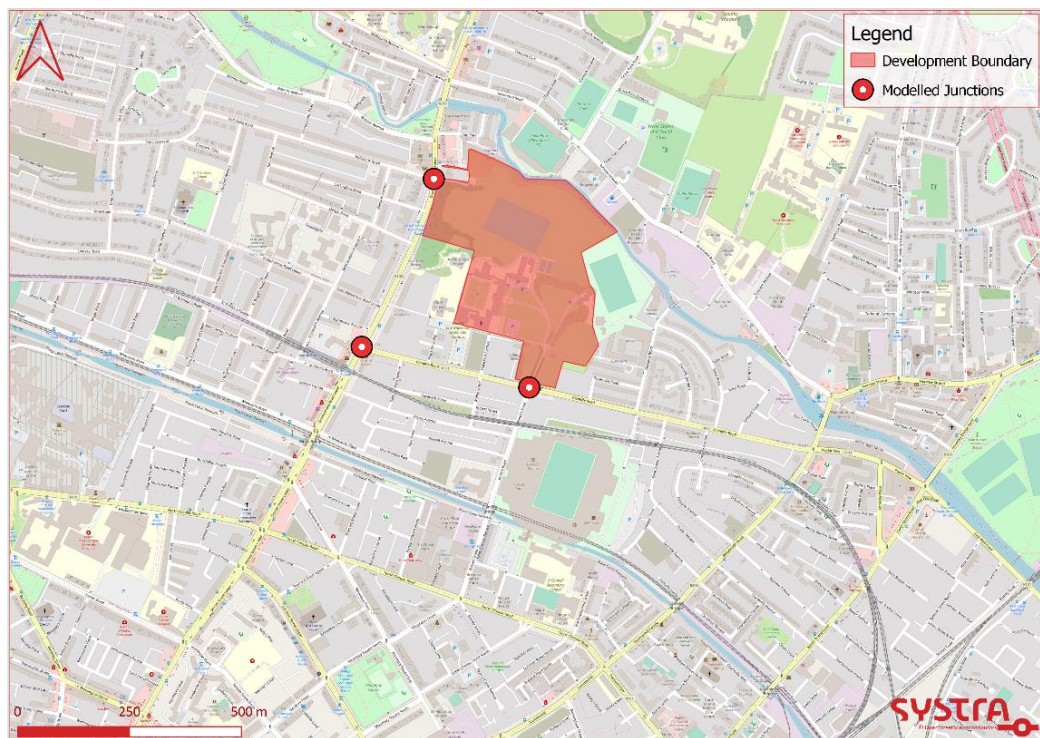


Figure 43. Surveyed Junctions

8.2 Traffic Modelling Approach

Assessment Scenarios & Traffic Forecasting

8.2.1 The assessment incorporates analysis of the network traffic flows in the AM and PM peak periods for the base year, opening year and forecast scenarios. The following modelling scenarios have been assessed:

- Opening Year: 2025 (With/Without Development);
- Opening Year + 15 Year Forecast: 2040 (With/Without Development)

8.2.2 Transport Infrastructure Ireland's (formerly the NRA) document "Project Appraisal Guidelines: Units 5.5 Link-Based Traffic Growth Forecasting" was used to establish the growth factor to be applied to the projected future base scenarios for the existing road links.

8.2.3 The NRA document stipulates that for the North Dublin City area, the low growth factor to be applied to scale up the 2020 data is 1.08 to represent the 2025 future baseline during the opening year, and 1.18 to represent the 2030 future baselined during the opening year +5 years.

8.2.4 It should be noted all junction models take account of the proposed Bus Connects improvements to the road network, where applicable.

LinSig Analysis (Traffic Signals) Reporting

8.2.5 The LinSig transport planning junction modelling tool has been used to undertake the traffic impact analysis at the following two signalised junctions:

- Drumcondra Road / Clonliffe Road 3-arm junction; and
- Clonliffe Road / Development Access (Primary) / Jones's Road 4-arm junction.

- 8.2.6 The LinSig analysis presents the Degree of Saturation (DoS) and Mean Max Queue (MMQ) for each lane while the overall Practical Reserve Capacity (PRC) and junction delay will also be included. A DoS of less than 90% indicates that the lane will operate within 'practical' capacity while a positive PRC indicates that the junction as a whole will operate within capacity. A DoS of 100% or more indicates that the lane is operating above theoretical capacity.
- 8.2.7 The MMQ is a combination of vehicles in:
- The vehicle queue at the end of the red period;
 - Vehicles joining the back of the queue at the start of the green period; and
 - Random / oversaturated queueing.
- 8.2.8 The unit of measurement used is passenger car units (PCUs¹²). A summary of the survey results and subsequent junction assessments follow in the next sections of this chapter.

VISSIM Reporting

- 8.2.9 The Drumcondra Road / Development Access (Secondary) / Hollybank Road 4-arm junction has been modelled in the microsimulation software, VISSIM version 10.00-06.
- 8.2.10 VISSIM is a stochastic model and the results differ slightly depending on the random seed assigned to each simulation run. Therefore, in order to obtain statistically significant results, the model was simulated 10 times with different random seeds for both peak periods. This enabled an average value to be taken resulting in a more reliable and robust comparison to be made with the observed data.
- 8.2.11 Base VISSIM models have been developed for the AM (08:00 – 09:00) and PM (17:45 – 18:45) weekday peak periods to obtain a realistic representation of traffic operations to enable assessment of the impact of the proposed options.
- 8.2.12 Results have been extracted for the maximum average queue lengths for each movements in meters, and for the average delay in seconds.

8.3 Summary of Modelling Results

Clonliffe Road / Primary Development Access / Jones's Road 4-arm Signalised Junction

- 8.3.1 The assessment of the primary development access junction has been undertaken using LinSig and the analysis results for the operation of the junction during the AM and PM peak periods in each scenario are shown in Table 16.

¹² A car = 1 PCU, Buses and Coaches = 2 PCUs, Heavy Goods Vehicle (HGV/OGV2) = 2.3 PCUs

Table 16. LinSig Results – Primary Development Access Junction

Movement	AM		PM	
	DoS	MMQ	Dos	MMQ
2020 Base				
Jones' Rd Left Right Ahead	48.2 : 48.2%	3.0	48.2 : 48.2%	3.6
Clonliffe Rd (East) Ahead Left Right	70.2 : 70.2%	9.1	71.6 : 71.6%	8.5
Clonliffe Rd (West) Ahead Right Left	65.2 : 65.2%	9.8	59.0 : 59.0%	7.8
Access Rd Right Left Ahead	-	-	-	-
Overall PRC	28.2%		25.6%	
Projected 2025 Base				
Jones' Rd Left Right Ahead	54.6 : 54.6%	3.4	47.5 : 47.5%	3.8
Clonliffe Rd (East) Ahead Left Right	44.7 : 44.7%	4.0	45.4 : 45.4%	5.2
Clonliffe Rd (West) Ahead Right Left	54.2 : 54.2%	7.5	48.3 : 48.3%	7.0
Access Rd Right Left Ahead	-	-	-	-
Overall PRC	64.7%		86.2%	
2025 Base + Development				
Jones' Rd Left Right Ahead	60.0 : 60.0%	3.4	55.6 : 55.6%	4.1
Clonliffe Rd (East) Ahead Left Right	59.2 : 59.2%	6.5	57.4 : 57.4%	7.1
Clonliffe Rd (West) Ahead Right Left	60.2 : 60.2%	9.2	48.4 : 48.4%	7.3
Access Rd Right Left Ahead	51.5%	3.2	23.0%	1.3
Overall PRC	49.4%		56.9%	
Projected 2040 Base				
Jones' Rd Left Right Ahead	61.5 : 61.5%	3.9	53.4 : 53.4%	4.4
Clonliffe Rd (East) Ahead Left Right	50.5 : 50.5%	4.7	51.1 : 51.1%	6.0
Clonliffe Rd (West) Ahead Right Left	61.0 : 61.0%	9.5	54.4 : 54.4%	8.3
Overall PRC	46.3%		65.4%	
2040 Base + Development				
Jones' Rd Left Right Ahead	70.3 : 70.3%	4.2	64.4 : 64.4%	4.9
Clonliffe Rd (East) Ahead Left Right	70.4 : 70.4%	8.2	65.5 : 65.5%	8.4
Clonliffe Rd (West) Ahead Right Left	66.3 : 66.3%	11.2	52.8 : 52.8%	8.4
Access Rd Right Left Ahead	61.5%	3.6	27.0%	1.3
Overall PRC	27.8%		37.4%	

8.3.2 The results of the LinSig modelling assessment demonstrate that the junction operates within practical capacity in all scenarios. In the 2020 AM and PM base scenarios (without

development traffic), the PRC of the junction as a whole is 28.2% and 25.6% respectively, which leaves sufficient capacity to accommodate development trips. The overall delay is 10.7 PCU/hr in the AM and 9.9 PCU/hr in the PM, which is a minimal amount of delay.

- 8.3.3 When development traffic is added in the projected 2025 opening year scenario, the PRC of the junction as a whole is 49.4% and 56.9% in the AM and PM peak periods respectively. The overall delay increases slightly from the 2020 base scenario to 16.4 PCU/hr in the AM and 11.6 PCU/hr in the PM, which is an increase of 5.7 and 1.7 PCU/hr respectively.
- 8.3.4 The results demonstrate that the development access arm of the junction will operate comfortably within its practical capacity in all future year scenarios, with a maximum degree of saturation in the 2040 AM Base with development scenario of 66.6%. In this scenario, the overall PRC of the junction is 27.8%, therefore, the junction as a whole operates within capacity.

Drumcondra Road / Clonliffe Road 3-arm Signalised Junction

- 8.3.5 The assessment of the Drumcondra Road / Clonliffe Road junction has been undertaken using LinSig and the analysis results for the operation of the junction during the AM and PM peak periods in each scenario are shown in Table 17.

Table 17. LinSig Results – Drumcondra Road / Clonliffe Road Junction

Movement	AM		PM	
	DoS	MMQ	Dos	MMQ
2020 Base				
Drumcondra Road (South) Ahead	74.6%	20.7	57.7%	12.7
Drumcondra Road (South) Right Ahead	63.1%	8.3	57.8 : 57.6%	10.3
Clonliffe Rd (West) Left Right	73.4% : 73.4%	6.4	61.8 : 61.8%	6.2
Drumcondra Road (North) Left Ahead	73.2% : 73.2%	16.4	61.1 : 61.1%	11.6
Drumcondra Road (North) Ahead	65.4%	17.7	52.6%	12.1
Overall PRC	20.7%		45.7%	
Projected 2025 Base				
Drumcondra Road (South) Ahead	54.9%	13.9	43.3%	9.8
Drumcondra Road (South) Right Ahead	88.1 : 88.1%	27.7	63.2 : 63.2%	13.5
Clonliffe Rd (West) Left Right	89.1 : 89.1%	10.1	72.4 : 72.4%	9.1
Drumcondra Road (North) Left Ahead	87.7 : 87.7%	11.4	71.9 : 71.9%	14.2
Drumcondra Road (North) Ahead	33.4%	6.5	48.6%	10.7
Overall PRC	1.0%		24.3%	
2025 Base + Development				
Drumcondra Road (South) Ahead	35.3%	7.1	50.4%	10.9
Drumcondra Road (South) Right Ahead	93.1%	14.1	75.2%	15.9
Clonliffe Rd (West) Left Right	93.3 : 93.3%	14.9	75.4 : 75.4%	10.0
Drumcondra Road (North) Left Ahead	93.1 : 93.1%	32.5	74.8 : 74.8%	17.1
Drumcondra Road (North) Ahead	57.6%	14.6	49.7%	11.4
Overall PRC	-3.7%		19.3%	

8.3.6 The results demonstrate that all arms of the junction currently operate within practical capacity during the 2020 Base AM and PM scenarios. The highest DoS is found on the Drumcondra Road South arm for the ahead movement in the AM at 74.6% and an associated MMQ of 20.7 PCUs. The overall PRC of the junction is 20.7% in the AM and 45.7% in the PM. The total traffic delay is 24.6 and 20.6 PCU/hr in the AM and PM peak periods respectively. Therefore, the junction operates within practical capacity.

8.3.7 The results indicate that the junction continues to operate within its practical capacity in the projected 2025 opening year scenario without development traffic. When development traffic is added, the Drumcondra Road North arm (ahead and left-turn movements), the Clonliffe Road arm, the Drumcondra Road North arm and the Drumcondra Road South arm for the right-turn and ahead movements show a DoS of above 93%, exceeding the practical

capacity of these arms/lane by 3%. However, this remains within the theoretical capacity of the junction, and the increase in MMQ reported is minimal. Between the projected 2025 base and 2025 base with development scenarios, the MMQ on the worst affected arm (Clonliffe Road) only increases by 4.8 PCUs, which is a relatively small amount. It is therefore not considered that infrastructural improvements are necessary to address this small change in the operation of the junction.

- 8.3.8 Modelling results in the 2040 base and 2040 base with development scenarios are not available for this junction. This is due to the impact that BusConnects will have on this junction as part of the A Spine Route (Core Bus Corridor 2) which runs between Swords to City Centre. The scheme proposals involve the reallocation of carriageway space to accommodate dedicated bus lanes and cycle lanes along Drumcondra Road, which reduces the number of lanes for general traffic. This will result in the junction operating over capacity in the 2040 Base and 2040 Base plus development scenarios. However, it should be noted that the BusConnects scheme aims to see a significant modal shift from car-based modes to public transport use and cycling. It is considered that this modal shift will mitigate against the impacts of the Bus Connects scheme on the operation of the junction such that no further infrastructural improvements at this junction will be required to support the proposed Project.

Drumcondra Road / Secondary Development Access / Hollybank Road 4-arm Priority Junction

- 8.3.9 The assessment of the secondary development access junction has been undertaken using VISSIM and the analysis results for the operation of the junction during the AM and PM peak periods in each scenario are shown in Table 18 overleaf.

Table 18. VISSIM Results – Secondary Development Access Junction

Movement From	Movement To	AM		PM	
		Max Q	Delay	Max Q	Delay
2025 Base					
Drumcondra Road South	Hollybank Rd	2	3.0	22	3.0
	Drumcondra Rd N	1	0.0	14	0.0
Hollybank Road	Drumcondra Rd N	72	18.0	27	10.0
	Drumcondra Rd S	71	22.0	25	13.0
Drumcondra Road North	Development	37	1.0	44	1.0
	Hollybank Rd	37	0.0	44	0.0
	Drumcondra Rd S	13	4.0	11	3.0
Development	Drumcondra Rd S	0	0.0	0	0.0
2025 Base + Development					
Drumcondra Road South	Hollybank Rd	3	3.0	22	3.0
	Drumcondra Rd N	2	0.0	14	0.0
Hollybank Road	Drumcondra Rd N	72	19.0	26	10.0
	Drumcondra Rd S	71	23.0	25	14.0
Drumcondra Road North	Development	37	2.0	48	2.0
	Hollybank Rd	37	1.0	48	1.0
	Drumcondra Rd S	23	3.0	21	3.0
Development	Drumcondra Rd S	13	9.0	11	9.0
2040 Base					
Drumcondra Road South	Hollybank Rd	17	3.0	9	3.0
	Drumcondra Rd N	11	1.0	5	1.0
Hollybank Road	Drumcondra Rd N	86	30.0	28	11.0
	Drumcondra Rd S	85	38.0	27	18.0
Drumcondra Road North	Development	13	1.0	4	1.0
	Hollybank Rd	13	0.0	4	0.0
	Drumcondra Rd S	12	4.0	15	3.0
Development	Drumcondra Rd S	0	0.0	0	0.0
2040 Base + Development					
Drumcondra Road South	Hollybank Rd	16	3.0	9	3.0
	Drumcondra Rd N	11	1.0	5	1.0
Hollybank Road	Drumcondra Rd N	87	31.0	28	10.0
	Drumcondra Rd S	86	37.0	26	17.0
Drumcondra Road North	Development	9	1.0	3	1.0
	Hollybank Rd	9	0.0	3	0.0
	Drumcondra Rd S	14	4.0	12	3.0
Development	Drumcondra Rd S	13	9.0	11	9.0

- 8.3.10 Table 18 indicates that in the 2025 base scenario, the longest queues are experienced on the Hollybank Road arm in the with a 72m long queue and associated delay is 22 seconds in the AM. The results demonstrate that with development traffic, the queue length remains the same in the 2025 base plus development scenario and the delay is only marginally increased (by one second). In the PM scenario, delay does not exceed 14 in the 2025 base plus development scenario which is a negligible increase from the base scenario.
- 8.3.11 Similarly, in the 2040 base and 2040 base plus development scenarios, the difference is negligible; queue lengths are only increased by 1-2m and delay by one second with the addition of development traffic. It is therefore considered that no further improvements measures are required at this junction to support the proposed development.

9. SUPPORTING MEASURES

9.1 Overview

- 9.1.1 Though the impact of the development, individually and cumulatively, is relatively low given its scale and the population accommodated, mitigation measures have been identified as part of the Mobility Management Plan (MMP) to limit any adverse impacts. The aim of these measures is to further reduce the proportion of car trips, from an already low base, and promote sustainable travel by future residents of the development. These mobility measures will also support and enable those residents who may be living 'car-free' providing them with a range of sustainable mobility options and negating the need to own a car.

9.2 Alternatives & On-Site Mobility Measures

- 9.2.1 As demonstrated in Chapter 3, the site is easily accessible by public transport, walking and cycling. In many instances, these modes will be faster than travelling by car, particularly towards the city centre. To encourage the use of these modes and reduce the need for car ownership, an MMP has been developed which sits alongside this TA. The overall aim of the MMP for the proposed developments is to minimise the proportion of single occupancy vehicle trips and address the forecast transport impacts of the end-users of the site. The objectives can be summarised as follows:

- Consider the needs of residents in relation to accessing facilities for employment, education, health, leisure, recreation and shopping purposes, including identifying local amenities available that reduce the need to travel longer distances;
- Reduce the vehicular traffic generated by the development to a lower level of car trips than that predicted within the TA – including developing measures to reduce the need to travel; *and*
- Develop good urban design by ensuring permeability of the development to neighbouring areas and provision of cycle facilities including storage and cycle hire.

- 9.2.2 To achieve the above, a range of “hard” and “soft” tools have been developed with the objective of influencing travel choices. These can be summarised into the following broad areas as follows;

- Mobility Manager
- Reducing the need to travel
- Welcome Travel Pack
- Marketing and Travel Information
- Personalised Travel Planning
- Walking
- Cycling
- Public Transport
- Managing Car Use

- 9.2.3 Further details on each of the above are provided in the following sections.

9.3 Mobility Manager

- 9.3.1 A Mobility Manager will be appointed, and their role is to manage the implementation of the Residential MMP. The role involves being the main point of contact for travel information, promotion and improvements. This may also be organised in the form of a resident's group

once the development is fully occupied and operational. The remit of the Mobility Manager includes the following:

- To develop and oversee the implementation of the initiatives outlined in the MMP Action Plan;
- To monitor the progress of the plan, including carrying out annual Residential and Staff Travel Surveys;
- To actively market and promote the social, economic and environmental benefits of sustainable travel to residents; *and*
- To provide sustainable travel information, support and advice to residents including: available bus service timetables, walking and cycling maps, car-sharing, the site's car club and cycle hire services, and local cycling and walking schemes and events.

9.3.2 As the development is BTR, there is a 15-year covenant which includes a management company. This guarantee will enhance the ease and effectiveness of the implementation of the MMP and appointment of the Mobility Manager.

9.4 Reducing the need to travel

9.4.1 The provision of on-site services reduce the need of residents to utilise a vehicle to travel. This will be crucial to embedding a sustainable travel culture within the site from the outset. The following services are planned to be located on site:

- Gym
- Entertainment Areas
- Business area / co-working spaces
- Parcel delivery / collection services
- Crèche / Childcare Facility

9.4.2 Welcome Travel Pack

9.4.3 A 'Welcome travel pack' will be provided to all new residents with the intention that each resident is made fully aware of the travel choices available to them. This will also give the best possible opportunity to the new residents to consider more sustainable modes of travel at a key moment of life change (i.e. moving home) – where new travel habits are more easily encouraged.

9.4.4 The Welcome pack will include a variety of sustainable travel information and incentives about the development and the wider local area. It can include measures such as:

- Information on the site's available sustainable travel services (including cycle parking, cycle hire and the Car Club) and on-site facilities (e.g. parcel collection).
- Incentives to trial sustainable travel, such as:
 - Public transport 'taster tickets' via a Leap 'pay as you go' card for each resident.
 - Discounts at a local bike shop to subsidise a bike purchase; first month's free membership of the site's cycle hire scheme; free branded cycling accessories (e.g. high vis reflectors, seat covers, water bottles); free or subsidised cycle skills training or cycle maintenance training.
 - Subsidised initial usage of the site's Car Club (e.g. 3 free hours a month usage for the first three months).

This can be offered to residents on a 'pick-and-mix' basis up to a certain value (e.g. €100), with residents selecting the incentive package that best meet their own individual travel needs.

- Information on services and amenities provided locally (both on-site and nearby), particularly those within walking and cycling distance.
- Maps showing the pedestrian and cycle routes in proximity to the site, including site cycle parking and cycle hire locations; advised routes (with journey times) into the city centre and to public transport interchanges.
- Information about local public transport services and tickets, including a plan showing the location of bus stops and railway stations, and bus/rail routes to Luas stops.
- Information on the health benefits of walking and cycling.
- Details of online car-sharing services (e.g. Liftshare and Taxi) along with the benefits of car sharing, such as reduced congestion, better air quality, reduction in traffic noise and cost savings to the individuals taking part.
- Provide information on the financial and environmental costs associated with driving and support regarding tips for green driving techniques.

9.5 Marketing and Travel Information

9.5.1 Marketing and raising awareness will involve directly engaging with individuals and raising awareness of travel options as well the benefits of sustainable and active travel.

9.5.2 The Mobility Manager can market and promote the MMP to residents, staff and visitors of the site in the following ways:

- Production and distribution of the Welcome Travel Pack to residents, as described above;
- Producing dedicated printed Travel Options Leaflets (in addition to the Welcome Packs) and online information which can be personalised to suit the individual needs of the site;
- Once travel surveys have been undertaken, additional leaflets can be provided which are tailored to encourage travel by a specific mode of transport;
- Organising events and activities (e.g. Dr Bike sessions, Pedometer challenges, led walks, cycle training) to coincide with Bike Week, European Mobility Week and any other national / local sustainable travel or community events;
- Displaying regular updates on MMP targets and activities in communal areas of the residential development; *and*
- Promotion of sustainable travel options to residents and visitors, focusing marketing initiatives on areas where there is willingness to change and promoting positive messages e.g. getting fit and active, reducing congestion and CO2 emissions.

9.5.3 If a resident's or staff intranet or App is being developed as part of post-occupation implementation, this is an ideal communication channel to promote sustainable travel information, events and initiatives to residents. It can also incorporate a real-time user-friendly booking platform for the site's travel facilities including the Car Club and Cycle Hire.

9.5.4 Continued incentivisation of sustainable travel using gamification may also be considered as part of the future development of the MMP – for example through the use of app platforms such as BetterPoints (<https://www.betterpoints.ltd/app/>), where residents are rewarded for sustainable travel. Typically, initiatives like this are organised on a city-wide or local-area basis – therefore if implemented on a wider scale, the development could benefit from participation in such challenges/competitions.

9.6 Personalised Travel Planning

- 9.6.1 Personal Travel Planning (PTP) is a well-established and proven method that encourages people to make more sustainable travel choices. Typically using motivational interviewing techniques, it seeks to overcome the habitual use of the car, enabling more journeys to be made on foot, bike, public transport or in shared cars. This is achieved through the provision of tailored information, incentives and motivation directly to individuals to help them voluntarily make more informed travel choices.
- 9.6.2 PTP tools and techniques that can be used as part of the MMP to encourage people to travel sustainably include:
- One-to-one conversations, either at the doorstep or by telephone, between individuals and trained field officers to encourage and motivate a change in behaviour;
 - The provision of information and support on how to travel sustainably (for example, maps or guides about the local bus network, walking and cycling routes, adult and child cycle training and bike maintenance classes).
- 9.6.3 PTP techniques have been reported to reduce car driver trips by 11% and the distance travelled by car by 12%. A successful PTP can deliver:
- Reduced congestion and reduce car use;
 - Individual health improvements through increased walking and cycling;
 - Greater use of public transport;
 - Better air quality and reduction in traffic noise;
 - More use of local services by residents;
 - Support sustainable economic growth by reducing peak hour congestion;
 - Encourage more active lifestyles to address health and well-being issues; *and*
 - Promote environmentally responsible travel choices and carbon reduction by helping reduce individual carbon footprints.
- 9.6.4 PTP forms an important Smarter Choices tool to enable residents to consider sustainable travel and if appropriate upon completion of the Post-Occupation baseline travel survey, could be implemented as part of the MMP.

9.7 Walking

- 9.7.1 Depending on the outcome of the Post-Occupation Baseline Residents and Staff Travel Survey, the following measures could be implemented to promote walking to residents:
- Participation in a residents' and staff 'Pedometer Challenge'.
 - Organise events such weekend led walks.
 - Display local walking maps in communal areas (and online if applicable).
 - Highlight the direct savings and health and wellbeing benefits of walking.

9.8 Cycling

- 9.8.1 As detailed earlier, high quality pedestrian and cyclist routes will be provided as part of the design of the development, in addition to secure and accessible cycle parking. To maximise the potential for cycling by residents, the following facilities will also be provided (and promoted to residents):

- On-site cycle hire provision (e.g. through Bleeper Bikes on-street or potentially Brompton folding bike hire solutions) for use by residents
- On-site cycle maintenance and repair facilities (e.g. fixed bike pumps located adjacent to cycle parking; bike repair kits available through the concierge service)

9.8.2 Depending on the outcome of the Post-Occupation Baseline Residents Travel Survey, the following measures can also be implemented to promote cycling to residents:

- Provide and publicise cycle parking for residents and visitors.
- Display local cycling maps in communal areas (and online if applicable).
- Host a Bike Week (www.bikeweek.ie) event for residents, inviting local bike suppliers for residents to try bikes before buying and run bike maintenance / Dr Bike sessions.
- Set up a residents Bicycle User Group (BUG) to promote cycling and encourage Bike Buddy scheme and led cycle rides through this forum.
- Highlight the direct savings and health and wellbeing benefits of cycling.

9.9 Public Transport

9.9.1 Depending on the outcome of the Post-Occupation Baseline Residents Travel Survey, the following measures can be implemented to promote public transport to residents:

- Provide timetables and maps of local bus routes and the nearest bus stops, (including walk times) in communal areas.
- Promotion of the National Public Transport Journey Planner (www.journeyplanner.transportforireland.ie) for travel by bus and rail.
- Promotion of the availability of Real Time Information on the Dublin Bus app and website (www.dublinbus.ie) which provides live information on bus departure times for main bus routes that serve the site).
- If required, liaise with the NTA and local bus operators about any feedback gained from residents such as location of bus stops, timing of routes, or where you have market information about a potential new route.

9.10 Managing Car Use

9.10.1 As detailed earlier, limited private car parking will be provided as part of the design of the development. To maximise the potential for shared vehicle use by residents, a car-club facility will be provided suitable for short duration car trips. Go Car have committed to providing up to 20 on site cars exclusively for the use of residents of the development. These will be located in the basement parking area for convenient access and to prevent a car dominated landscape. Go Car have also stated they will provide up to five other cars to be located on-street around the site for use by residents and the public. Up to 50% of all these shared cars will be electric vehicles.

9.10.2 Depending on the outcome of the Post-Occupation Baseline Residents Travel Survey, the following measures can also be implemented to help manage residents' car use:

- Promotion of car-sharing services (e.g. Liftshare) in communal areas and online.
- Discounts or promotion of longer-term car-rental services (e.g. through Hertz) for tenants requiring car use for longer periods of time.
- Organise a car-share matching event for residents. This can match residents willing to offer / find a lift for specific journeys.
- Marketing of the financial and carbon benefits of car-sharing incorporated in communication messages to residents.

- Promote green driving techniques and tips.

10. SUMMARY AND CONCLUSION

10.1 Summary

- 10.1.1 SYSTRA were appointed by CWTC Multi Family ICAV acting on behalf of its sub-fund DBTR DR1 Fund to undertake a Transport Assessment and Mobility Management Plan to support the planning application for the proposed Holy Cross College Lands residential development.
- 10.1.2 The purpose of the Transport Assessment is to quantify the receiving transport environment and provide a strategic multi-modal review of the new development in terms of its impact on the wider local and strategic transport network, along with mitigation measures that have been integrated into the site layout and design.
- 10.1.3 An extensive review of the national, regional and local policy has been undertaken along with a review of the existing and proposed transport network in the vicinity of the site. These have been reviewed in terms of potential impact on the development and its integration with the proposed measures.
- 10.1.4 The TA has also detailed the proposed access strategy and arrangement to the site, improvements to the existing network required to facilitate this access strategy and proposed mobility measures that will be undertaken to support reduced car traffic from the site.

10.2 Conclusion

- 10.2.1 The principal conclusion and findings from the TTA are as follows:
- The site is ideally situated with excellent accessibility by all modes to local amenities and employment and leisure centres across the city. The site is served by a number of high frequency bus services along Drumcondra Road. In addition, the site is within easy walking distance of Drumcondra Railway Station.
 - There are also planned improvements to the service frequency and public transport priority along Lower Drumcondra Road as part of the Bus Connects network redesign and core bus corridors project. The cycle facilities along these routes will also be improved as part of this plan in conjunction with the Greater Dublin Area Cycle Network Plan.
 - Existing trends for the local area and areas with similar developments show the potential for a high number of walking, cycling and public transport trips from the site, with the car mode share likely to be approximately 20% in the peak hours.
 - It is proposed to provide a total of 0.3 car parking spaces per unit for the residential component of the site. Based on the site accessibility, the relevant guidelines and international best practice this is considered the optimal number of spaces for the site that will ensure the sustainability of the site but facilitate a level of car storage. Up to 25 Go-Cars will be provided on site to provide 'car-free' residents the option to travel by car for leisure trips.
 - Secure cycle parking will be provided at a rate of 1.3 spaces per residential unit, above the standards set out in the DCC development plan. Cycle parking will be provided in secure lockable areas. Approximately 250 additional spaces will be provided around the site in the form of Sheffield stands for visitors to the masterplan site.

- The internal road network has been designed to maximise priority and permeability for pedestrians and cyclists limiting vehicular priority and speeds through the use of narrow carriageways, surface treatments and shared surfaces. Refuse & emergency vehicles will be able to access the site internal based on the swept path analysis undertaken.
- Based on the modelling and analysis undertake the proposed development will generate a maximum of 73 vehicular arrivals and 183 departures in the AM peak hour and a further 146 vehicular arrivals and 93 arrivals in the external network PM peak. This traffic will primarily travel in and out from the Clonliffe Road access.
- The impact of this additional traffic on the surrounding network has been assessed for the opening and forecast years of 2025 and 2040. As shown in Chapter 8, the traffic has minimal impact on the wider network.
- Though the expected car mode share for the site is expected to be very low as a result of the site's location and proximity to faster and more sustainable modes a number of supporting measures have been identified to further decrease the number of car trips and thus lessen the impact on the wider network. These include car sharing, increased cycle parking, subsidised travel/sustainable travel incentives, personalised travel planning and appointment of an on-site mobility manager.
- In addition, there are a number of measures proposed on the external network to help improve access to the site including upgraded junctions at the Clonliffe Road / Primary Development Access / Jones's Road signalised junction, the Drumcondra Road / Secondary Development Access / Hollybank Road priority junction, and improved pedestrian crossing facilities across Clonliffe Road.

10.2.2 In conclusion, the TA has demonstrated that the impact on the surrounding network as a result of the development at the Clonliffe Masterplan site will be limited. This is a result to the highly accessible nature of the city by walking, cycling and public transport and the sustainable parking strategy proposed. The proposed roads layout and access arrangements have been designed to comply with the standards and principles set out in DMURS, the NCM and the DCC Development Plan and reflect the balance of modes accessing the site.

10.2.3 Accordingly, it is concluded that the proposals will not result in a material deterioration of existing road conditions and as a result there are no significant traffic or transportation related reasons that should prevent the granting of planning permission for the proposed development.

APPENDICES

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

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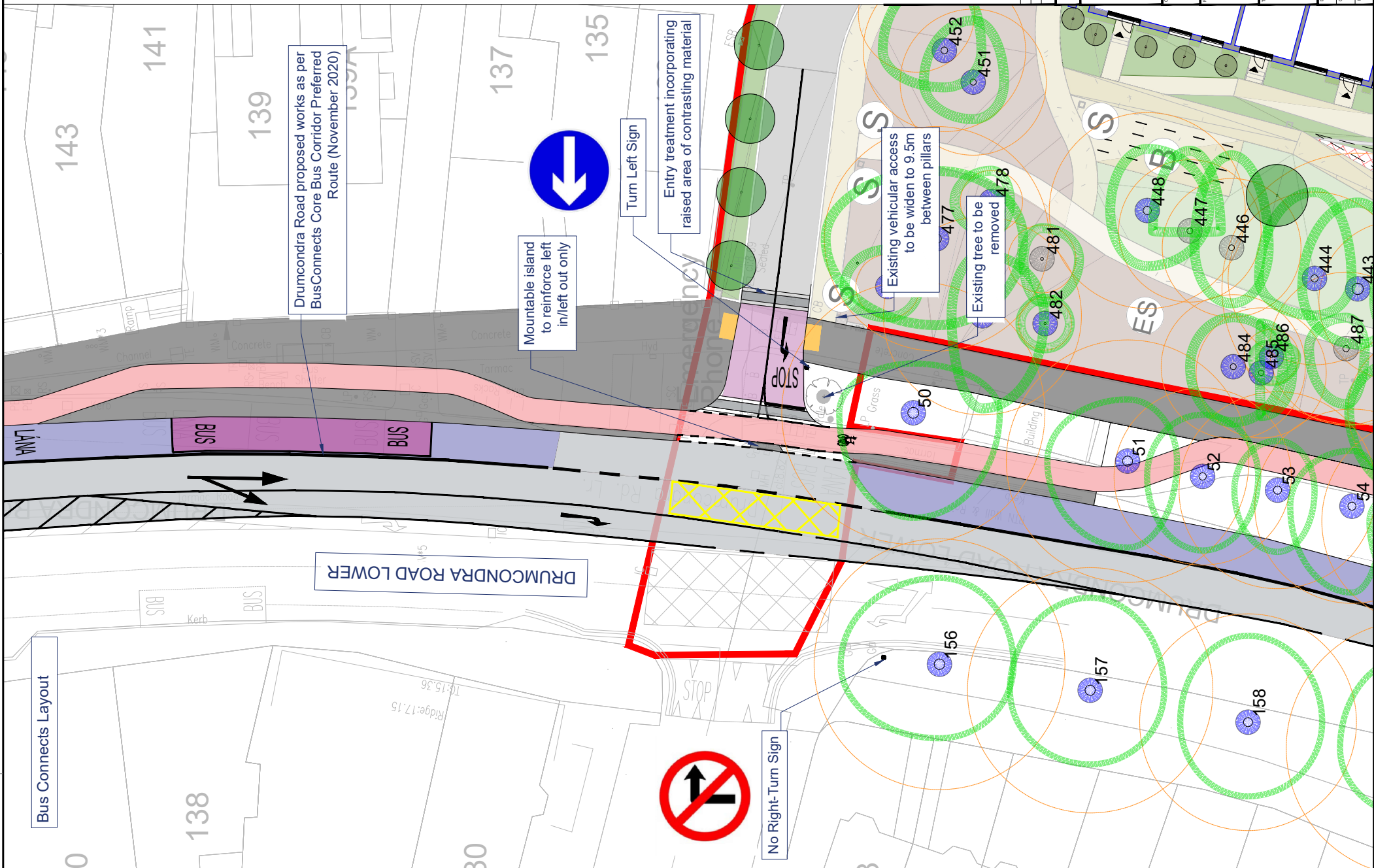
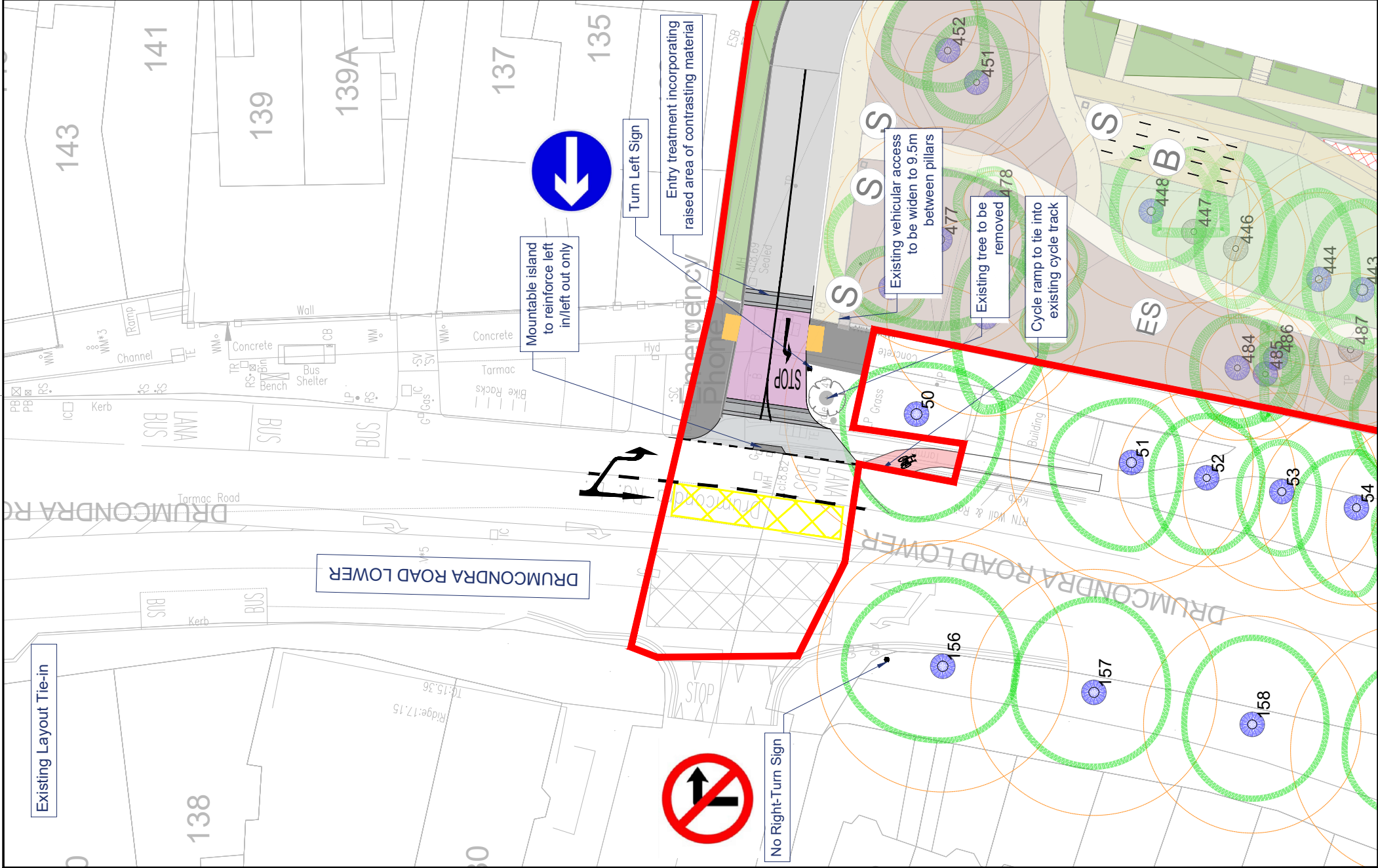
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Appendix A - Drawings



Notes:

- Do not scale from drawing
- All dimensions in metres unless otherwise stated

Legend:

Site boundary Subject of Application

Fodpath

Carriageway

Cycle Track

Bus Lane

Grass Area

Bus Stop Location

Raised Ramp

Tactile Paving

Existing Trees to be retained

Existing Tree to be removed

Revision Table:

Rev	Date	By	Rev	Date	By
C	10/05/2021	Based for planning	AMP	CH	AA
B	11/03/2021	Updated to RPA Recommendations	RPA	AMP	AA
A	06/12/2020	PAC	AMP	CH	AA

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on behalf of its sub-fund DBTR DR1 Fund

Project: Holy Cross College SHD

DRUMCONDRA ROAD ACCESS

Drawn: AMP

Checked: CH

Approved: AA

Original date: May 2021

Scale: 1:200





Planning: SYS-CL-02

Rev: C



1. Do not scale from drawing
2. All dimensions in metres unless otherwise stated

legend:

- Site boundary Subject of Application
 On-street car park
 Bike parking
 Loading Bay / Set-down / Pick-up
 Disabled parking
 Car Club parking

	30-07-2021	Issue for planning	AMP	CH	AA
	08-11-2020	PAC	AMP	CH	AA
1.	Ende	Revision details	Dinner	Canceled	Approved

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Holy Cross College SHD

ON-STREET CAR PARKING, LOADING BAYS
AND BIKE PARKING
Sheet 1 of 2

Drawn	AMP	Checked	CH	Approved	AA
Original drawing size	A1	Date	July 2021	Scale	1:500
Working Status	PLANNING	Drawing Number		SYS-CL-03.1	
				Rev	B



1. Do not scale from drawing
2. All dimensions in metres unless otherwise stated

Legend:

- | Site boundary | Subject of Application |
|---------------|----------------------------------|
| | On-street car park |
| | Bike parking |
| | Loading Bay / Set-down / Pick-up |
| | Disabled parking |
| | Car Club parking |

Issue for planning	CH	AA
06/11/2020	CH	AA
07/07/2021	CH	AA

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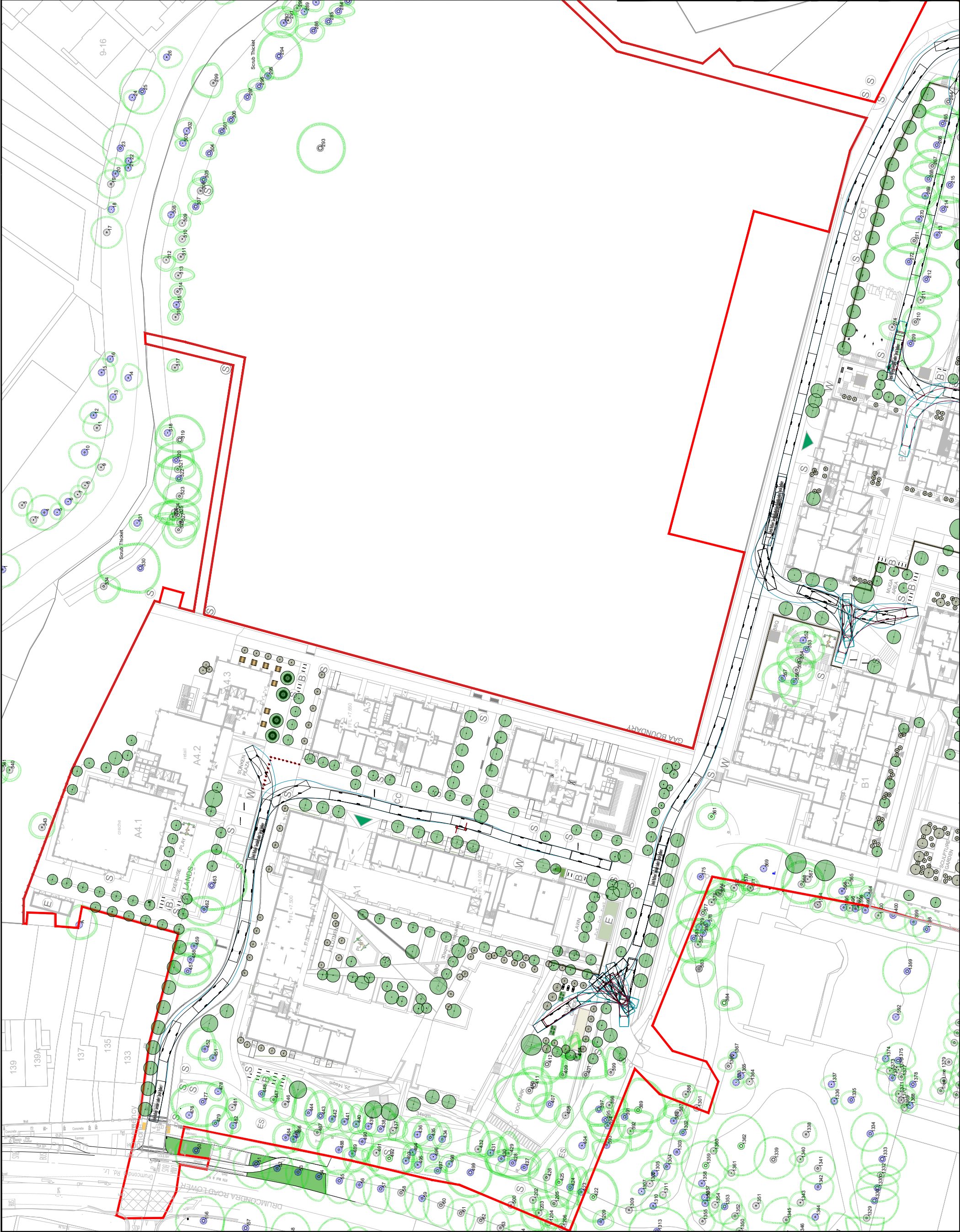
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Holy Cross College SHD

N-STREET CAR PARKING, LOADING BAYS
AND BIKE PARKING
Sheet 2 of 2

Drawn	AMP	Checked	CH	Approved	AA
Original date	A1	Date	July 2021	Scale	1:500
Working Status	PLANNING	Drawing Number	SYS-CL-03.2		
		Rev	B		

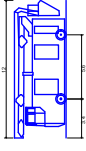


Notes:

1. Do not scale from drawing
2. All dimensions in metres unless otherwise stated

Legend:
— Site boundary Subject of Application

Aerial Platform/ Turntable Ladder/ Special Appliance



Overall Length
12.00m
Overall Width
2.00m
Overall Height
12.00m
Turntable Rotation
360°
Turntable Speed
15.75m/s
Turntable Turning Radius
15.75m

Rev	Date	By	Check	Issue	Revised	Issue	Revised
1	10/07/2021	WAC	WAC	Issue for planning			
2	10/07/2021	WAC	WAC	Issue for planning			
3	10/07/2021	WAC	WAC	Issue for planning			

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21-23 City Quay, Dublin 2
D02 FP21
Tel: +353 1 566 2028

Client: CWTC Multi Family ICAV acting on behalf of its sub-fund DBTR DR1 Fund

Project: Holy Cross College SHD

Title: Swept Path Analysis Fire Tender Sheet 1 of 2

Drawn: AMP
Checked: CH
Approved: AA

Original drawing: A1
Date: July 2021
Scale: 1:500

Drawing: PLANNING
Drawing: SYSC-04.1
Rev: B



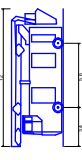
Notes:

1. Do not scale from drawing
2. All dimensions in metres unless otherwise stated

Legend:

— Site boundary Subject of Application

Aerial Platform' Turntable Ladder Special Appliance



Overall Length: 12.000m
Overall Width: 2.500m
Platform Height: 2.500m
Ladder Length: 12.000m
Ladder Width: 0.500m
Ladder Angle: 60° to 90°
Ladder Extension: 12.000m

Rev	Date	By	Check	Appr	Disc
B	06/07/2021	WAC			
A	06/10/2021	PAC			



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on behalf of its sub-fund DBTR DR1 Fund

Holy Cross College SHD

Sweep Path Analysis
Fire Tender
Sheet 2 of 2

Rev	Date	By	Check	Appr	Disc
AMP					
A1	July 2021				
PLANNING					
SYSC-04.2					



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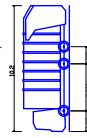
egend:

Site boundary Subject of Application

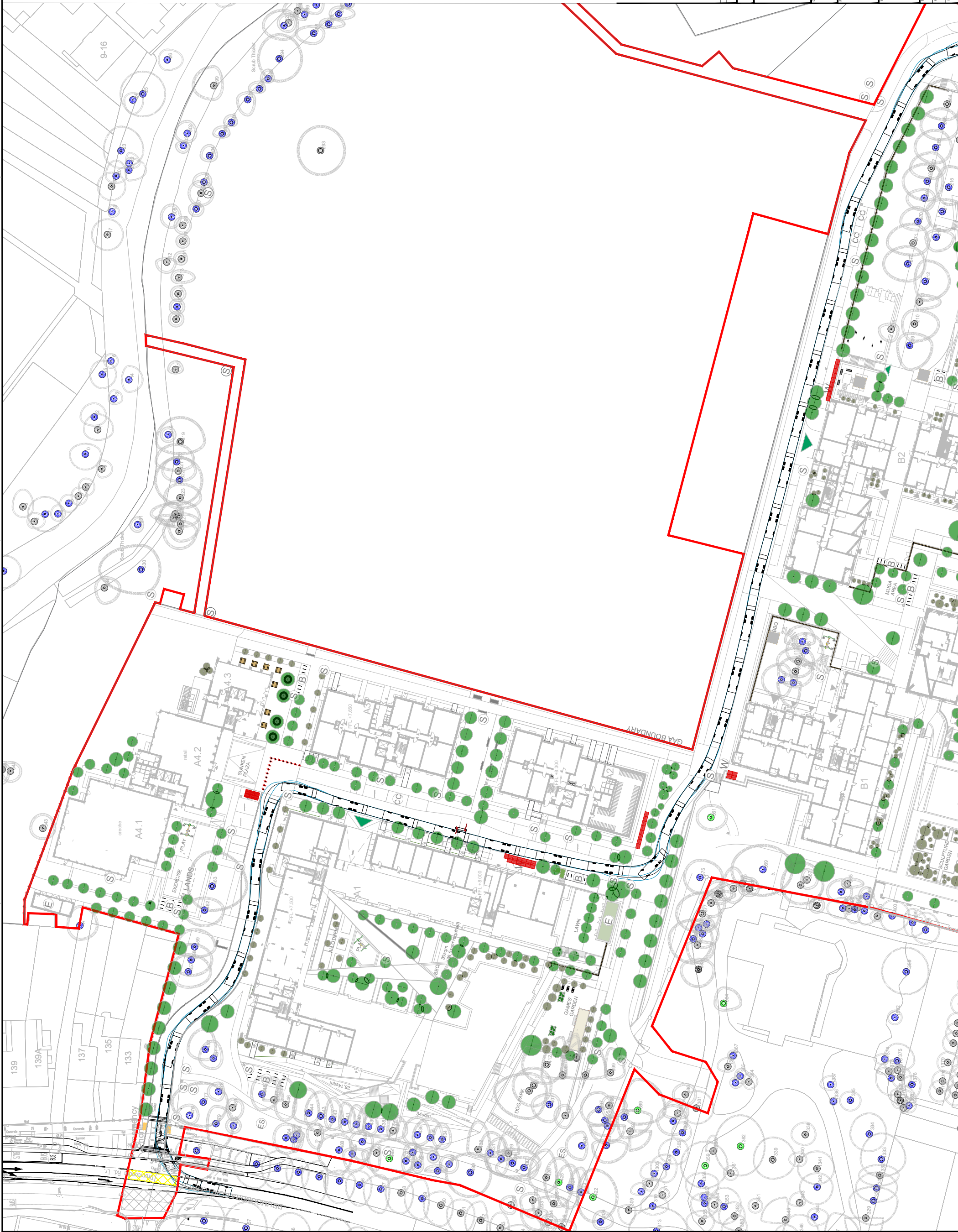
Waste collection point

© 2004

Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)



Overall Length	10,200mm
Overall Width	2,530mm
Overall Body Height	3,751mm
Min Body Ground Clearance	0,304m
Track Width	2,500mm
Lock to lock time	4.0s
Kerb to Kerb Turning Radius	7.800m



B	for 07/2021	Issues for planning	CH	AA
A	06-11-2020	PAC	AMP	AA
Flow.	Date	Revision details	Dense	Crashed

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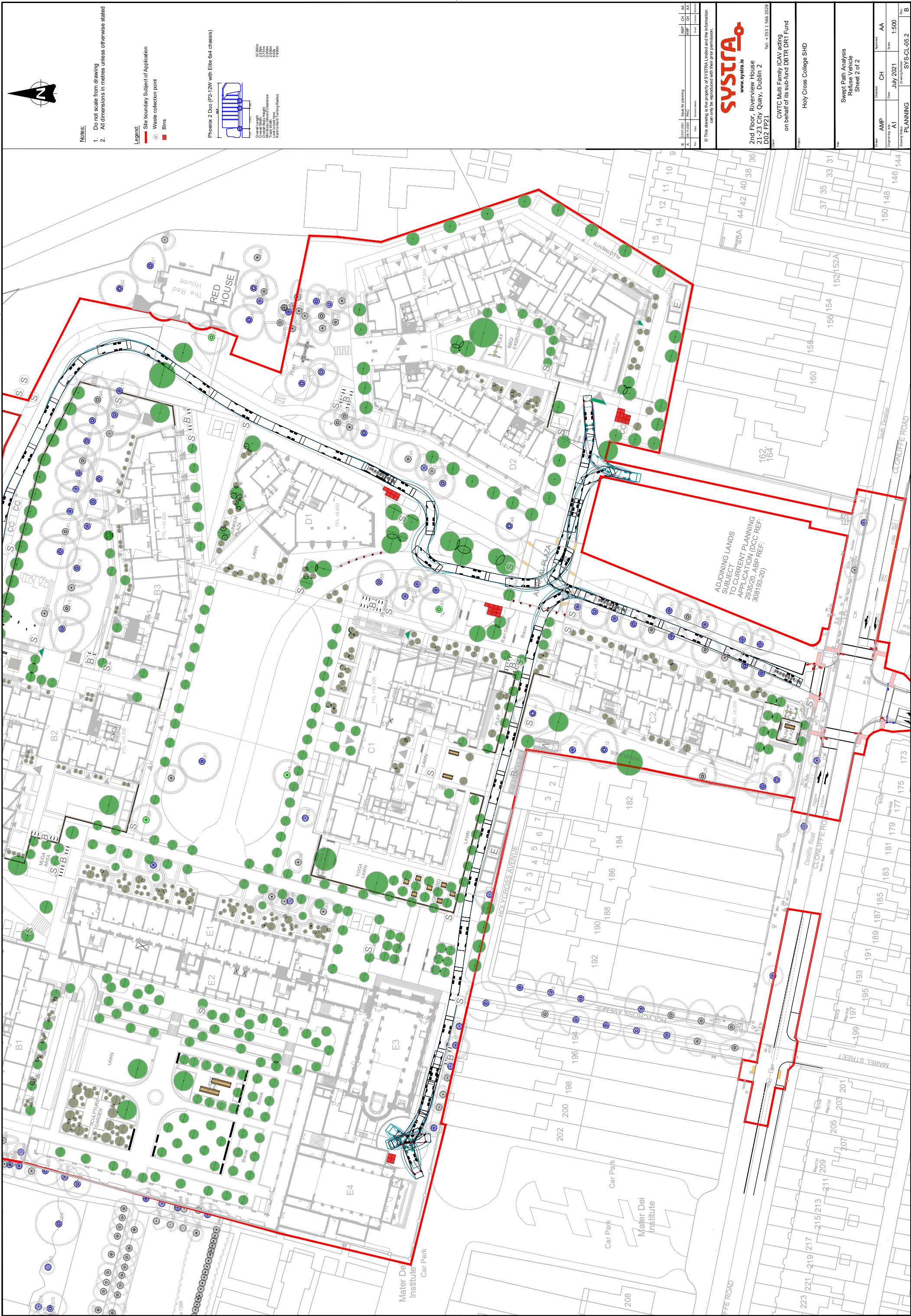
Tel: +353 1 566 2028

CWTC Multi Family ICAV acting
on behalf of its sub-fund DBTR DR1 Fund

Holy Cross College SHD

Swept Path Analysis
Refuse Vehicle
Sheet 1 of 2

Drawn	AMP	Checked	CH	Approved	AA
Original drawing size	A1	Date	July 2021	Scale	1:500
Drawing Status	PLANNING	Drawing Number	SYS-CL-05.1		
		Rev.	B		



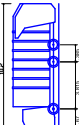
Notes:

1. Do not scale from drawing
2. All dimensions in metres unless otherwise stated

Legend:

- Site boundary Subject of Application
- Waste collection point
- Bins

Phoenix 2 Duo (P2-12W) with Elite 6x4 chassis



Overall Length: 10,200mm
Overall Width: 2,500mm
Overall Height: 2,500mm
Turning Radius: 7,500mm
Knee to Knees Turning Radius: 7,500mm

Rev	Date	By	Check	Drawn	Scale	Notes
1	10/10/2021	AM	CH	AA		
2	10/10/2021	AM	CH	AA		

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Holy Cross College SHD

Swept Path Analysis
Refuse Vehicle
Sheet 2 of 2

Drawn	AMP	Checked	CH	Approved	AA
Originaling date	A1	Date	July 2021	Scale	1:500
Drawing name	PLANNING	Drawn by	SYSTR	Drawn by	B

Appendix B - Parking Strategy Note

This car parking strategy note has been prepared by SYSTRA for the The Holy Cross College lands. The purpose of this note is to outline an overall parking management strategy that facilitates all the various uses outlined in the masterplan site. As different sections of the site are under different ownership, it is imperative that there is a single overall parking management strategy for the masterplan site that is designed for all land uses and adhered to by all stakeholders. Complementing the wider access strategy and sustainable vision of the site, the main objectives of the parking strategy are to:

- Provide a sufficient quantum of parking to meet the mobility requirements of future residents and visitors to the site, whilst encouraging travel by sustainable modes
- Ensure there is enough parking close to building entrances to meet the needs of those with any mobility impairments
- Ensure all parking is appropriately managed and controlled in order to:
 - Protect the historic character of the site;
 - Maintain a safe uncluttered streetscape;
 - Ensure the everyday functioning of the site; *and*
 - Maintain emergency access to all parts of the development.
- Ensure the demand for parking from all users of the site is accommodated within the development boundary and does not overspill into neighbouring communities

The site will provide 1614 apartment units, convenience retail, a creche, two GAA pitches with associated clubhouse, and a 200 bed hotel with bar/restaurant, conference/function facilities and a gym. The site is located within walking and cycling distance to the city centre and close to several high frequency bus routes operating along Drumcondra Road Lower, Drumcondra Railway Station is also just a five minute walk. The ample public transport options and excellent walking and cycling accessibility mean travelling by private car will be far from essential for most day-to-day users of the site and this is reflected in the overall car parking provision and strategy.

Residential Car Parking:

- Residential car parking spaces will be located at basement level and will be let separately to the apartment units and will only be available to residents as part of a leasing programme
- Where a residential block does not have direct access to a basement, the associated car parking spaces for those with a mobility impairment will be located at grade and within easy reach of the entrance. This is in line with best practice universal access design
- Residential parking will be supported by mobility management policies which will limit the need for residents to lease parking spaces
- Residents with children and young families will be prioritised for parking spaces upon opening and any waiting list for parking thereafter
- Leasing the spaces will ensure they are used as efficiently as possible allowing disability, EV, and car sharing spaces to be allocated appropriately where needed
- Leasing (as opposed to owning) will enable the site's parking provision to be adaptable and facilitate future repurposing should there be wholesale changes to transport technology or services
- The leasing and allocation of parking within the development will be controlled by the management company

GAA Clubhouse

- Car parking for the GAA clubhouse will be provided at surface level in the south-eastern corner of the proposed pitches with a total 50 Car Spaces to be provided
- The need for parking will be supported by mobility management policies and regular users will be encouraged to walk and cycle to the space from day one of opening
- Users and parents and guardians of juvenile players will be informed about the limited quantum of car parking spaces and will be encouraged to car share or use alternative means such as active modes or public transport

Hotel

- Car parking for the hotel will be provided in the south-eastern corner of the site with capacity for 38 surface car parking spaces.
- The hotel will have a Mobility Management Plan that will emphasise sustainable alternatives to the private car for those travelling to the hotel. This will highlight the potential savings and health benefits of these alternative choices.
- The limited number of car spaces will mean most rooms will not have access to a parking space and those that want to travel by car will need to pre-book a space

On-Street Parking Management:

- 16 on-street parking spaces will be provided in the development for visitors to the overall masterplan site, these will be paid parking to control for potential overspill from the residential apartments and hotel.
- There will be a further 7 spaces reserved for deliveries, loading or set-down/pick-up
- These on-street spaces have been located so as to balance the needs of visitors while retaining an attractive, uncluttered streetscape
- A visitor permit scheme will be implemented, and residents will be provided a limited number of one-day permits annually
- No residents will be entitled to on-street parking permits and the spaces provided at street level will be for visitors only
- The cost of the paid parking in line with the medium zone tariffs and controls as set out by DCC (currently €1.60 per hour) and this will be Pay and Display
- Pay and display is considered appropriate as it is easy to use and is the most cost effective to enforce

Cycle Parking:

- Cycle parking will be provided at 1.3 spaces per unit which is above the recommended level set out in DCC's guidelines. This has been done to account for the lower car parking numbers and to accentuate the sustainable vision for the site
- Where blocks have access to a basement, long term secure cycle parking spaces will be located this level. Cyclists will not use car ramps, instead they will access the basement via a separate lift or stairwell. The staircase will have double wheeling ramps either side in accordance with guidance from the Dublin Cycling Campaign.
- Where blocks do not have access to a basement, where possible, long stay cycle parking will be provided in separate, easily accessible bike rooms. All bike rooms will be secure as per DCC guidelines.

- Long term bike parking will be two tier stacked parking
- There will be a further 255 cycle spaces for visitors to the site in the form of Sheffield Stands

Car Parking Enforcement:

- Car parking will be enforced by the facilities management company. It will be their responsibility to patrol the site to ensure all vehicles are parked appropriately and in accordance with the overall parking strategy.
- If vehicles breach regulations by parking in an anti-social or obstructive manner, depending on the severity of the offense, they will be warned in the first instance. For serious breaches or any reoffending vehicles, they will be issued with a parking charge notice and clamped until the payment is made. The value of the fine will be determined by the management company to ensure compliance with the rules



Key:

Visitor Car Parking (16no.)

Loading Bay (7no.)

Disabled Bay (11no.)

Car Club (4no.)

Bike Parking



Appendix C - TRICS Trip Rates

Calculation Reference: AUDIT-700705-190822-0850

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : C - FLATS PRIVATELY OWNED

MULTI-MODAL VEHICLESSelected regions and areas:

01	GREATER LONDON	
	BM BROMLEY	1 days
	HM HAMMERSMITH AND FULHAM	2 days
	HO HOUNSLOW	3 days
	IS ISLINGTON	3 days
	KI KINGSTON	1 days
	KN KENSINGTON AND CHELSEA	1 days
	NH NEWHAM	1 days
	SK SOUTHWARK	2 days
	WH WANDSWORTH	1 days
02	SOUTH EAST	
	BD BEDFORDSHIRE	3 days
	EX ESSEX	2 days
	HC HAMPSHIRE	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	2 days
09	NORTH	
	CB CUMBRIA	1 days
10	WALES	
	CO CONWY	1 days
	DB DENBIGHSHIRE	1 days
11	SCOTLAND	
	SA SOUTH Ayrshire	1 days
	SR STIRLING	2 days
14	LEINSTER	
	LU LOUTH	3 days
15	GREATER DUBLIN	
	DL DUBLIN	2 days
16	ULSTER (REPUBLIC OF IRELAND)	
	MG MONAGHAN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 6 to 203 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 06/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	6 days
Tuesday	11 days
Wednesday	6 days
Thursday	8 days
Friday	6 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	37 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Town Centre	7
Edge of Town Centre	25
Neighbourhood Centre (PPS6 Local Centre)	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	2
Residential Zone	17
Built-Up Zone	14
High Street	1
No Sub Category	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

C3 37 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	3 days
10,001 to 15,000	5 days
15,001 to 20,000	3 days
25,001 to 50,000	16 days
50,001 to 100,000	4 days
100,001 or More	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Secondary Filtering selection (Cont.):

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	3 days
50,001 to 75,000	7 days
75,001 to 100,000	3 days
125,001 to 250,000	4 days
250,001 to 500,000	3 days
500,001 or More	16 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	5 days
0.6 to 1.0	15 days
1.1 to 1.5	17 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	7 days
No	30 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	22 days
2 Poor	2 days
3 Moderate	3 days
5 Very Good	3 days
6a Excellent	3 days
6b (High) Excellent	4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	BD-03-C-01	BLOCKS OF FLATS		BEDFORDSHIRE
	WING ROAD			
	LEIGHTON BUZZARD			
	LINSLADE			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	175		
	Survey date: TUESDAY	15/05/18		Survey Type: MANUAL
2	BD-03-C-02	BLOCKS OF FLATS		BEDFORDSHIRE
	STANBRIDGE ROAD			
	LEIGHTON BUZZARD			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	62		
	Survey date: TUESDAY	15/05/18		Survey Type: MANUAL
3	BD-03-C-03	BLOCKS OF FLATS		BEDFORDSHIRE
	COURT DRIVE			
	DUNSTABLE			
	Edge of Town Centre			
	No Sub Category			
	Total Number of dwellings:	146		
	Survey date: TUESDAY	15/05/18		Survey Type: MANUAL
4	BM-03-C-01	BLOCKS OF FLATS		BROMLEY
	RINGER'S ROAD			
	BROMLEY			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	160		
	Survey date: MONDAY	12/11/18		Survey Type: MANUAL
5	CB-03-C-01	BLOCK OF FLATS		CUMBRIA
	KING STREET			
	CARLISLE			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	40		
	Survey date: THURSDAY	12/06/14		Survey Type: MANUAL
6	CO-03-C-01	BLOCKS OF FLATS		CONWY
	MOSTYN BROADWAY			
	LLANDUDNO			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	37		
	Survey date: MONDAY	26/03/18		Survey Type: MANUAL
7	DB-03-C-01	FLATS IN HOUSES		DENBIGHSHIRE
	RHYL ROAD			
	RHUDDLAN			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Number of dwellings:	16		
	Survey date: FRIDAY	07/10/11		Survey Type: MANUAL
8	DL-03-C-11	BLOCK OF FLATS		DUBLIN
	WYCKHAM WAY			
	DUBLIN			
	DUNDRUM			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Number of dwellings:	96		
	Survey date: TUESDAY	10/09/13		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9	DL-03-C-13	BLOCK OF FLATS		DUBLIN
	SANDYFORD ROAD			
	DUBLIN			
	Neighbourhood Centre (PPS6 Local Centre)			
	Built-Up Zone			
	Total Number of dwellings:	52		
	Survey date: TUESDAY	10/09/13		Survey Type: MANUAL
10	EX-03-C-01	FLATS		ESSEX
	WESTCLIFF PARADE			
	SOUTHEND-ON-SEA			
	WESTCLIFF			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	6		
	Survey date: TUESDAY	22/10/13		Survey Type: MANUAL
11	EX-03-C-02	BLOCK OF FLATS		ESSEX
	WESTCLIFF PARADE			
	SOUTHEND-ON-SEA			
	WESTCLIFF			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	94		
	Survey date: TUESDAY	22/10/13		Survey Type: MANUAL
12	GM-03-C-02	BLOCK OF FLATS		GREATER MANCHESTER
	WHITWORTH STREET W.			
	MANCHESTER			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	154		
	Survey date: THURSDAY	13/10/11		Survey Type: MANUAL
13	GM-03-C-03	BLOCK OF FLATS		GREATER MANCHESTER
	FAIRFIELD STREET			
	MANCHESTER			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	20		
	Survey date: FRIDAY	14/10/11		Survey Type: MANUAL
14	HC-03-C-01	BLOCKS OF FLATS		HAMPSHIRE
	CROSS STREET			
	PORTSMOUTH			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	90		
	Survey date: TUESDAY	05/06/18		Survey Type: MANUAL
15	HM-03-C-01	BLOCK OF FLATS		HAMMERSMITH AND FULHAM
	VANSTON PLACE			
	FULHAM			
	Town Centre			
	High Street			
	Total Number of dwellings:	42		
	Survey date: WEDNESDAY	16/07/14		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

16	HM-03-C-02	BLOCKS OF FLATS		HAMMERSMITH AND FULHAM
	GLENTHORNE ROAD			
	HAMMERSMITH			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	194		
	Survey date: TUESDAY	30/04/19		Survey Type: MANUAL
17	HO-03-C-02	BLOCK OF FLATS		HOUNSLOW
	HIGH STREET			
	BRENTFORD			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	86		
	Survey date: WEDNESDAY	03/09/14		Survey Type: MANUAL
18	HO-03-C-03	BLOCKS OF FLATS		HOUNSLOW
	COMMERCE ROAD			
	BRENTFORD			
	Edge of Town Centre			
	Development Zone			
	Total Number of dwellings:	150		
	Survey date: FRIDAY	18/11/16		Survey Type: MANUAL
19	HO-03-C-04	BLOCKS OF FLATS		HOUNSLOW
	LONDON ROAD			
	ISLEWORTH			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Number of dwellings:	203		
	Survey date: TUESDAY	03/07/18		Survey Type: MANUAL
20	IS-03-C-05	BLOCK OF FLATS		ISLINGTON
	LEVER STREET			
	FINSBURY			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of dwellings:	15		
	Survey date: WEDNESDAY	29/06/16		Survey Type: MANUAL
21	IS-03-C-06	BLOCK OF FLATS		ISLINGTON
	CALEDONIAN ROAD			
	HOLLOWAY			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	14		
	Survey date: MONDAY	27/06/16		Survey Type: MANUAL
22	IS-03-C-07	BLOCK OF FLATS		ISLINGTON
	CITY ROAD			
	ISLINGTON			
	Edge of Town Centre			
	Development Zone			
	Total Number of dwellings:	185		
	Survey date: THURSDAY	06/06/19		Survey Type: MANUAL
23	KI-03-C-03	BLOCK OF FLATS		KINGSTON
	PORTSMOUTH ROAD			
	SURBITON			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	20		
	Survey date: MONDAY	11/07/16		Survey Type: MANUAL
24	KN-03-C-03	BLOCK OF FLATS		KENSINGTON AND CHELSEA
	ALLEN STREET			
	KENSINGTON			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	72		
	Survey date: FRIDAY	11/05/12		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

25	LU-03-C-01 DONORE ROAD DROGHEDA	BLOCKS OF FLATS		LOUTH
	Edge of Town Centre Residential Zone Total Number of dwellings:		52	
	Survey date: THURSDAY		12/09/13	Survey Type: MANUAL
26	LU-03-C-02 NICHOLAS STREET DUNDALK	BLOCK OF FLATS		LOUTH
	Edge of Town Centre Residential Zone Total Number of dwellings:		33	
	Survey date: MONDAY		16/09/13	Survey Type: MANUAL
27	LU-03-C-03 NICHOLAS STREET DUNDALK	BLOCK OF FLATS		LOUTH
	Edge of Town Centre Residential Zone Total Number of dwellings:		20	
	Survey date: MONDAY		16/09/13	Survey Type: MANUAL
28	MG-03-C-01 MALL ROAD MONAGHAN	BLOCK OF FLATS		MONAGHAN
	Edge of Town Centre No Sub Category Total Number of dwellings:		28	
	Survey date: FRIDAY		06/09/13	Survey Type: MANUAL
29	NF-03-C-01 PAGE STAIR LANE KING'S LYNN	BLOCKS OF FLATS		NORFOLK
	Edge of Town Centre Built-Up Zone Total Number of dwellings:		51	
	Survey date: THURSDAY		11/12/14	Survey Type: MANUAL
30	NH-03-C-01 ARTHINGWORTH STREET STRATFORD	BLOCK OF FLATS		NEWHAM
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of dwellings:		12	
	Survey date: THURSDAY		14/11/13	Survey Type: MANUAL
31	SA-03-C-01 RACECOURSE ROAD AYR	BLOCK OF FLATS		SOUTH AYRSHIRE
	Edge of Town Centre Residential Zone Total Number of dwellings:		51	
	Survey date: TUESDAY		16/09/14	Survey Type: MANUAL
32	SF-03-C-01 STATION HILL BURY ST EDMUNDS	BLOCKS OF FLATS		SUFFOLK
	Edge of Town Centre Built-Up Zone Total Number of dwellings:		85	
	Survey date: THURSDAY		18/12/14	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

33	SK-03-C-01 PARK STREET SOUTHWARK	BLOCK OF FLATS		SOUTHWARK
	Edge of Town Centre Built-Up Zone			
	Total Number of dwellings:	53		
	Survey date: FRIDAY	19/09/14		Survey Type: MANUAL
34	SK-03-C-02 LAMB WALK BERMONDSEY	BLOCK OF FLATS		SOUTHWARK
	Edge of Town Centre Built-Up Zone			
	Total Number of dwellings:	29		
	Survey date: THURSDAY	23/04/15		Survey Type: MANUAL
35	SR-03-C-01 FORTHSDIE WAY STIRLING	FLATS		STIRLING
	Edge of Town Centre No Sub Category			
	Total Number of dwellings:	80		
	Survey date: WEDNESDAY	18/06/14		Survey Type: MANUAL
36	SR-03-C-02 ROSEBERRY TERRACE STIRLING	FLATS		STIRLING
	Edge of Town Centre Residential Zone			
	Total Number of dwellings:	48		
	Survey date: WEDNESDAY	18/06/14		Survey Type: MANUAL
37	WH-03-C-01 AMIES STREET CLAPHAM JUNCTION	BLOCKS OF FLATS		WANDSWORTH
	Edge of Town Centre Residential Zone			
	Total Number of dwellings:	30		
	Survey date: WEDNESDAY	09/05/12		Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

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Parameter summary

Trip rate parameter range selected:	6 - 203 (units:)
Survey date date range:	01/01/11 - 06/06/19
Number of weekdays (Monday-Friday):	37
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

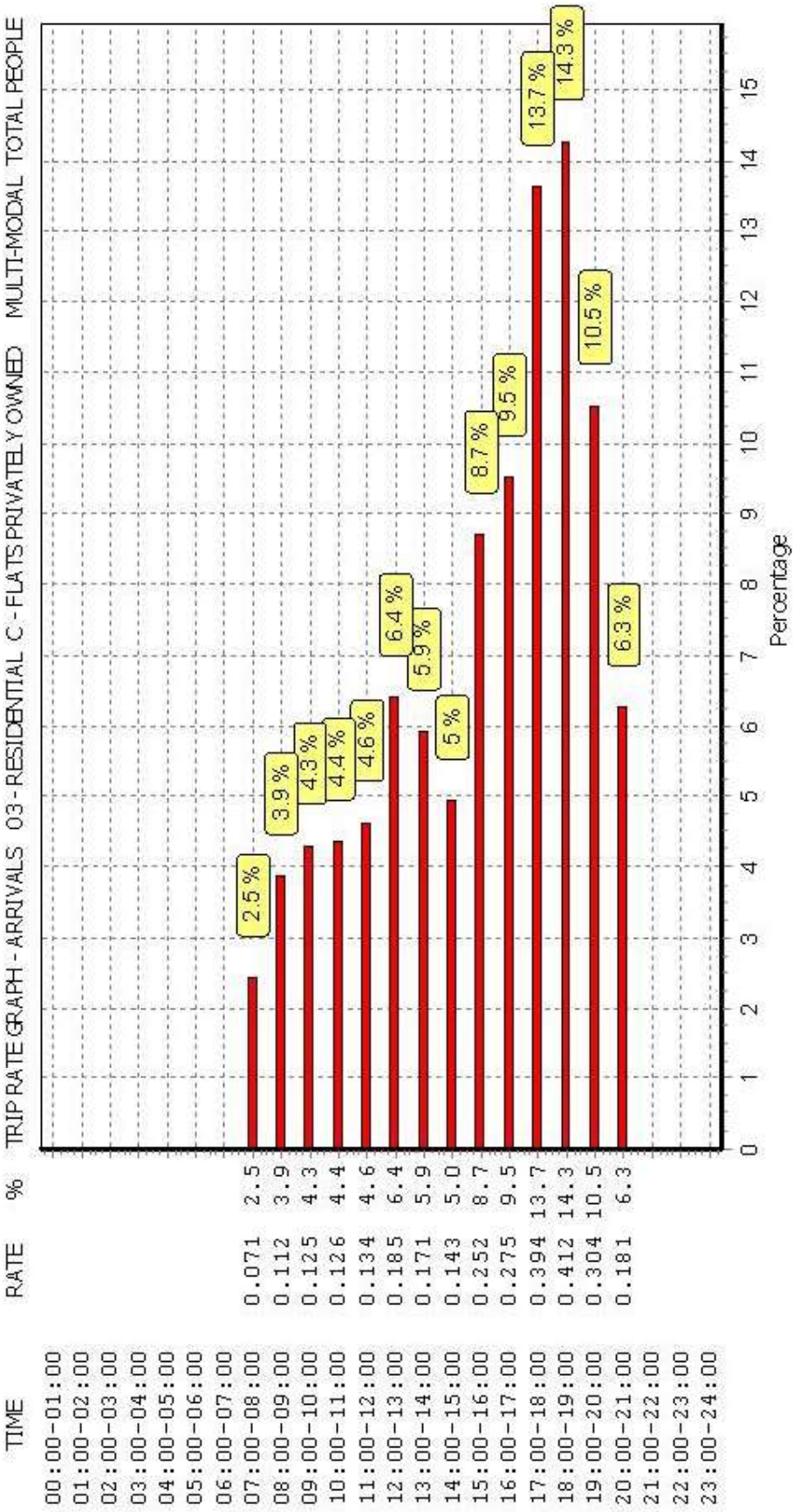
TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

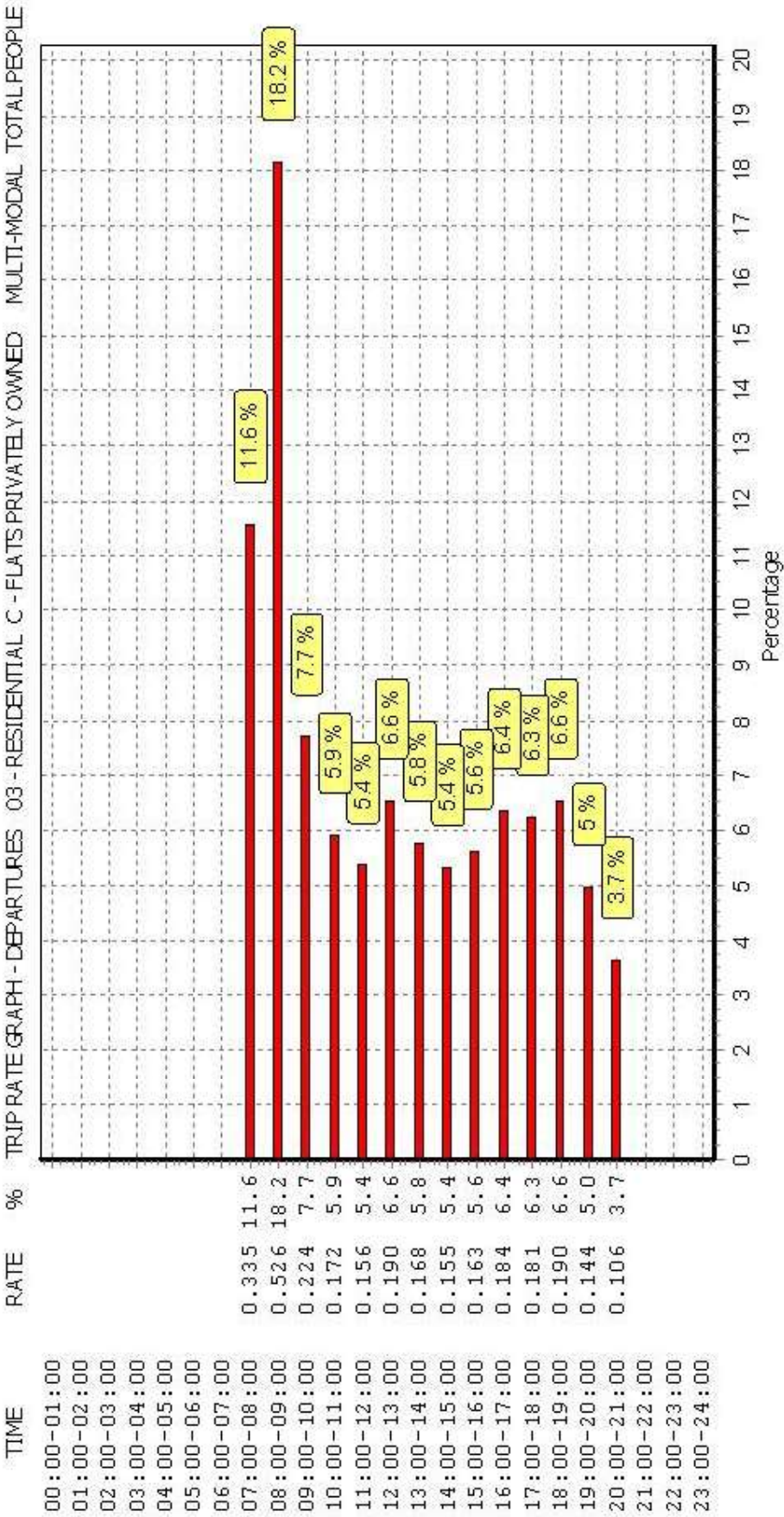
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	37	73	0.071	37	73	0.335	37	73	0.406
08:00 - 09:00	37	73	0.112	37	73	0.526	37	73	0.638
09:00 - 10:00	37	73	0.125	37	73	0.224	37	73	0.349
10:00 - 11:00	37	73	0.126	37	73	0.172	37	73	0.298
11:00 - 12:00	37	73	0.134	37	73	0.156	37	73	0.290
12:00 - 13:00	37	73	0.185	37	73	0.190	37	73	0.375
13:00 - 14:00	37	73	0.171	37	73	0.168	37	73	0.339
14:00 - 15:00	37	73	0.143	37	73	0.155	37	73	0.298
15:00 - 16:00	37	73	0.252	37	73	0.163	37	73	0.415
16:00 - 17:00	37	73	0.275	37	73	0.184	37	73	0.459
17:00 - 18:00	37	73	0.394	37	73	0.181	37	73	0.575
18:00 - 19:00	37	73	0.412	37	73	0.190	37	73	0.602
19:00 - 20:00	9	108	0.304	9	108	0.144	9	108	0.448
20:00 - 21:00	9	108	0.181	9	108	0.106	9	108	0.287
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.885			2.894			5.779

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

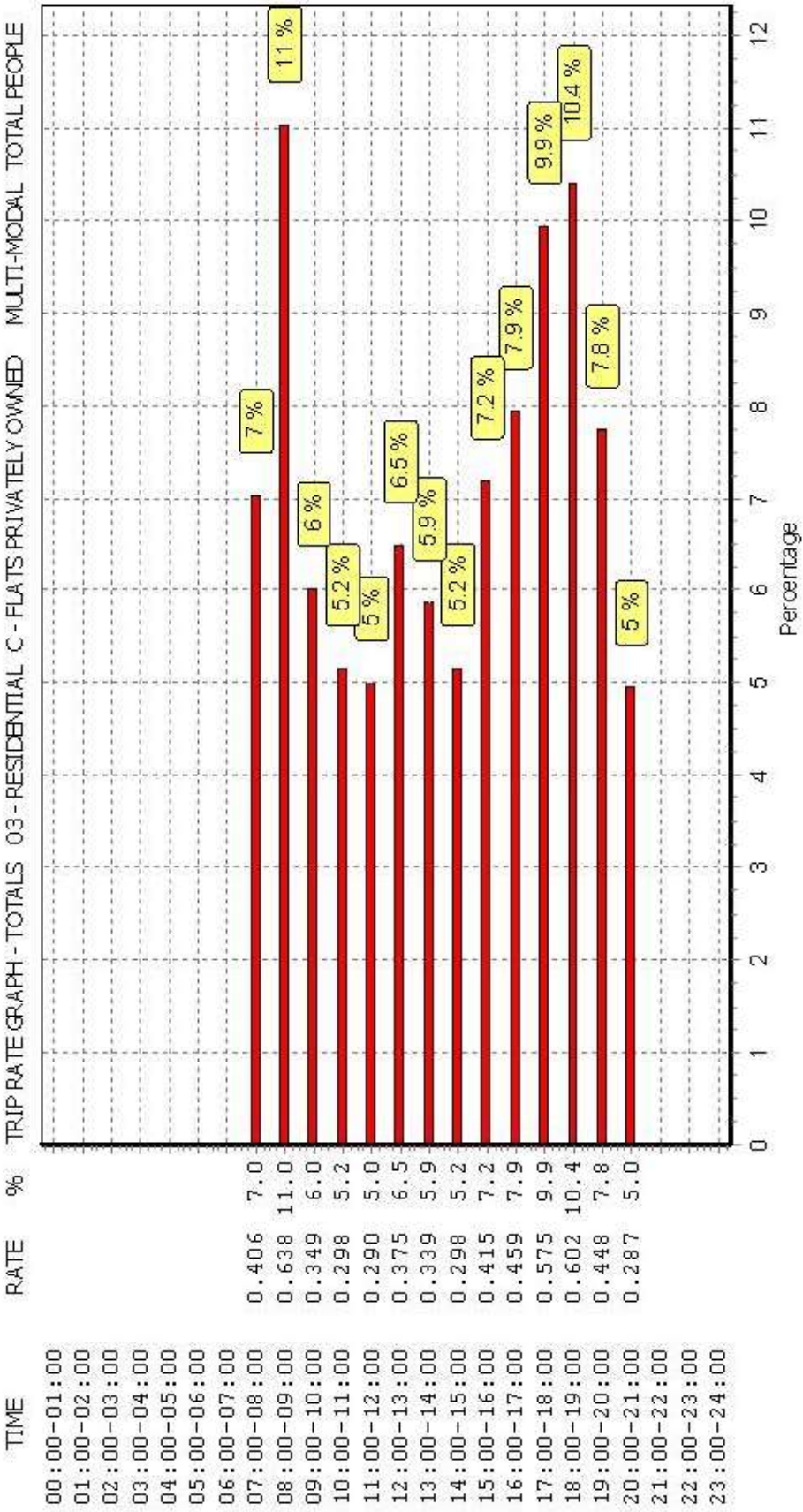
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION

Category : D - NURSERY

MULTI-MODAL VEHICLESSelected regions and areas:

04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	1 days
09	NORTH	
	TW TYNE & WEAR	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 400 to 750 (units: sqm)
 Range Selected by User: 176 to 2350 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 21/05/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	3 days
Wednesday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	4

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	5
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

D1	6 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

15,001 to 20,000	3 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

75,001 to 100,000	2 days
125,001 to 250,000	2 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	2 days
1.1 to 1.5	2 days
2.1 to 2.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	6 days
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This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	6 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-04-D-02	NURSERY		CAMBRIDGESHIRE
	EASTFIELD ROAD			
	PETERBOROUGH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:	400 sqm		
	Survey date: TUESDAY	18/10/16		Survey Type: MANUAL
2	CH-04-D-01	NURSERY		CHESHIRE
	CHESTER ROAD			
	MACCLESFIELD			
	Edge of Town Centre			
	No Sub Category			
	Total Gross floor area:	500 sqm		
	Survey date: MONDAY	24/11/14		Survey Type: MANUAL
3	LN-04-D-01	NURSERY		LINCOLNSHIRE
	NEWARK ROAD			
	LINCOLN			
	SWALLOW BECK			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:	600 sqm		
	Survey date: TUESDAY	31/10/17		Survey Type: MANUAL
4	SF-04-D-03	NURSERY		SUFFOLK
	CAMP ROAD			
	LOWESTOFT			
	Edge of Town Centre			
	Residential Zone			
	Total Gross floor area:	750 sqm		
	Survey date: WEDNESDAY	10/12/14		Survey Type: MANUAL
5	TW-04-D-02	NURSERY		TYNE & WEAR
	ETTRICK GROVE			
	SUNDERLAND			
	HIGH BARNES			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:	500 sqm		
	Survey date: WEDNESDAY	28/11/12		Survey Type: MANUAL
6	TW-04-D-03	NURSERY		TYNE & WEAR
	JUBILEE ROAD			
	NEWCASTLE UPON TYNE			
	GOSFORTH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:	725 sqm		
	Survey date: TUESDAY	21/05/19		Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

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Parameter summary

Trip rate parameter range selected:	400 - 750 (units: sqm)
Survey date date range:	01/01/11 - 21/05/19
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY

MULTI-MODAL TOTAL PEOPLE**Calculation factor: 100 sqm****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	400	0.000	1	400	0.000	1	400	0.000
07:00 - 08:00	6	579	2.302	6	579	0.489	6	579	2.791
08:00 - 09:00	6	579	5.813	6	579	2.331	6	579	8.144
09:00 - 10:00	6	579	1.496	6	579	0.806	6	579	2.302
10:00 - 11:00	6	579	0.489	6	579	0.374	6	579	0.863
11:00 - 12:00	6	579	1.151	6	579	1.640	6	579	2.791
12:00 - 13:00	6	579	2.676	6	579	2.791	6	579	5.467
13:00 - 14:00	6	579	1.209	6	579	1.612	6	579	2.821
14:00 - 15:00	6	579	0.518	6	579	0.633	6	579	1.151
15:00 - 16:00	6	579	1.669	6	579	1.468	6	579	3.137
16:00 - 17:00	6	579	1.813	6	579	3.079	6	579	4.892
17:00 - 18:00	6	579	2.590	6	579	4.489	6	579	7.079
18:00 - 19:00	6	579	0.115	6	579	2.043	6	579	2.158
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00	1	400	0.000	1	400	0.000	1	400	0.000
21:00 - 22:00	1	400	0.000	1	400	0.000	1	400	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		21.841			21.755			43.596	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.