BARRETT **MAHONY**
CIVIL & STRUCTURAL
CONSULTING ENGINEERS

Residential Travel Plan

Project:
Residential Development at the Former Gowan House Site, Naas Road, Dublin 12

DOCUMENT CONTROL

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

Barrett Mahony Consulting Engineers (BMCE) have been commissioned by Malclose Ltd to prepare a Residential Travel Plan Report (RTP) for a planning application for a large-scale residential development principally comprising student accommodation at their 0.962 Ha site at Gowan House, Carriglea Business Park, Naas Road, Dublin 12, D12 RCC4. This report has been prepared as part of the planning application package for the development.

Works to upgrade of the access road to the west of the site on an area measuring c. 0.081 Ha are also proposed comprising new surfacing to the carriageway, the provision of inbound and outbound bicycle lanes from the development entrance to the Naas Road, the provision of a controlled pedestrian crossing on the access road at the Naas Road junction, and the provision of a further uncontrolled pedestrian and bicycle crossing linking the subject site with the approved Concorde SHD development (ABP Ref: TA29S.312218) to the west.

On the Naas Road, works are proposed on an area measuring c. 0.086 Ha comprising the realignment and widening of the existing pedestrian footpath along the westbound carriageway of the Naas Road and the provision of linkages from the realigned footpath to the development site, and the provision of new controlled pedestrian crossings across the eastbound and westbound carriages of the Naas Road and the provision of a new uncontrolled crossing of the Luas tracks.

The development site area and roadworks areas will provide a total application site area of c. 1.13 Ha.

The proposed development will principally consist of: the demolition of the existing two-storey office/warehouse building and outbuilding (5,172 sq m); and the construction of a development in two blocks (Block 1 (eastern block) is part 2 No. storeys to part 15 No. storeys over lower ground floor and basement levels with roof plant over and Block 2 (western block) is part 9 No. storeys to part 11 No. storeys over basement with roof plant over) principally comprising 941 No. Student Accommodation bedspaces (871 No. standards rooms, 47 No. accessible studio rooms and 23 No. studios) with associated facilities, which will be utilised for short-term lets during student holiday periods. The 871 No. standard rooms are provided in 123 No. clusters ranging in size from 3 No. bedspaces to 8 No. bedspaces, and all clusters are served by a communal living/kitchen/dining room.

The development also provides: ancillary internal and external communal student amenity spaces and support facilities; cultural and community floor space (1,422 sq m internal and 131 sq m external) principally comprising a digital hub and co-working space with ancillary cafe; a retail unit (250 sq m); public open space; the daylighting of the culverted River Camac through the site; an elevated walkway above the River Camac at ground floor level; a pedestrian bridge link at first floor level between Blocks 1 and 2; vehicular access at the south-western corner; the provision of 7 No. car-parking spaces, 2 No. motorcycle parking spaces and 2 No. set down areas; bicycle stores at ground and lower ground floor levels; visitor cycle parking spaces; bin stores; substations; hard and soft landscaping; green and blue roofs; new telecommunications infrastructure at roof level of Block 1 including antennas and microwave link dishes, 18 No. antennas and 6 No. transmission dishes, together with all associated equipment; boundary treatments; plant; lift overruns; and all associated works above and below ground.

The gross floor area of the development is c. 33,140 sq m comprising c. 30,386 sq m above lower ground and basement level.

Figure 1.1: Site Location Bluebell, Dublin 12.

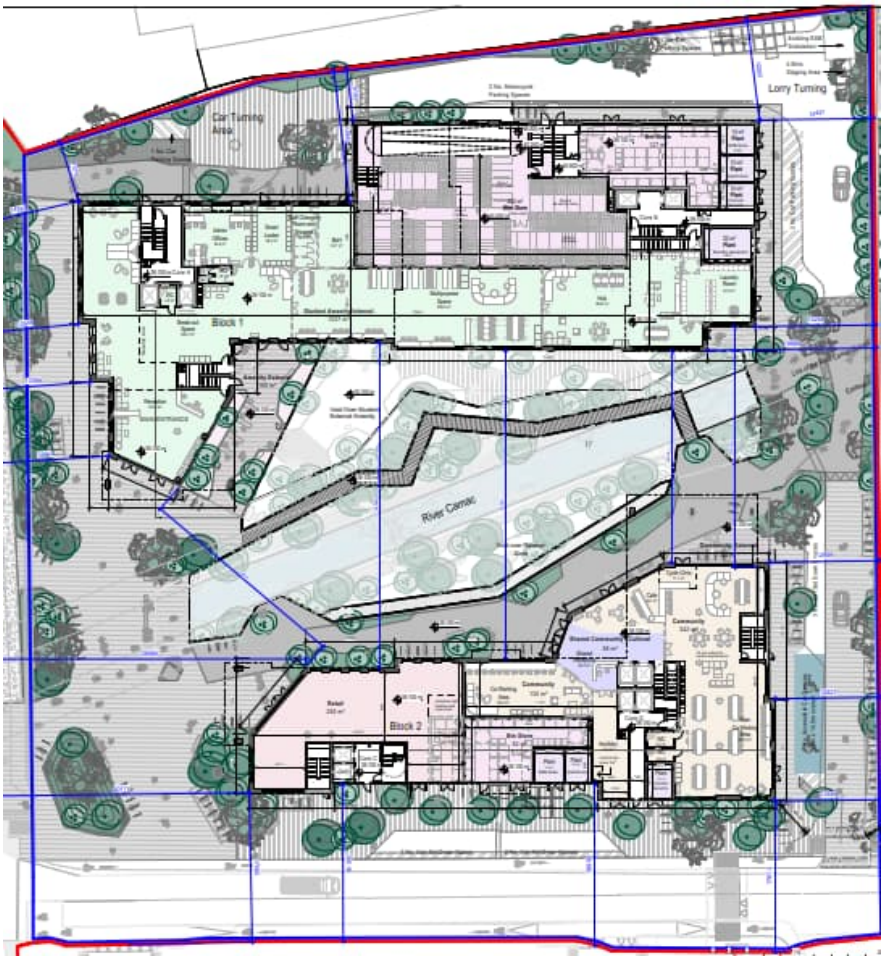

Figure 1-2: Site Layout Plan.

1.2 PURPOSE OF THE REPORT

- Identify both physical elements and strategies to be incorporated within the proposed new development which will facilitate and create incentives for both residents of and visitors to the development, to use the available modes of public transport, along with walking and cycling in preference over private car use.
- Given the proposed reduced parking provision, demonstrate the sustainability in transportation terms of residents utilising non-car based forms of travel by demonstrating the high level of service that is provided by the transport infrastructure in place at the site with regards to, walking, cycling, public bus services, LUAS, national rail, and other Services
- Provide a residential travel plan framework to help ensure projected modal splits for the development are maintained/improved, with the appointment of a travel plan coordinator to oversee the process.

2. CAR PARKING & BICYCLE PROVISION AT THE PROPOSED DEVELOPMENT:

This section of the report details the car and cycle parking requirements under the current DCC Development Plan ('the DP') 2022-2028.

2.1 CAR PARKING PROVISION

Figure 2.1 below shows extracts from the DP 'Development Standards' and from Appendix 5. Designated student parking will not be provided in the development. However, students requiring the use of an accessible space will be able to discuss their requirements with the management company. Limited staff parking and visitor parking will be provided in accordance with Table 2 in Appendix 5. The site is located in Zone 2 of the DCC Area in accordance with Map J in Volume 3.

15.13.1.4 Car Parking / Bicycle Parking

Designated car parking will not be supported in student accommodation schemes in the city. However, car parking for persons with disabilities should be provided. See Appendix 5 for further details.

Provision can be made to provide for a car sharing service for the use of residents. All student accommodation developments should however, be accompanied by a mobility management plan – refer to transport appendix 5.

A minimum of one cycle parking space per resident should be provided within the development as well as additional visitor parking at surface level at a rate of 1 per 10 no. residents – refer to Appendix 5 for further details.

Table 2: Maximum Car Parking Standards for Various Land Uses

Category	Land-Use	Zone 1	Zone 2	Zone 3
Accommodation	Hotel[1]	None	1 per 3 rooms	1 per room
	Nursing Home Retirement Home	1 per 3 residents	1 per 2 residents	1 per 2 residents
	Elderly Persons Housing Sheltered Housing	1 per 4 dwellings	1 per 2 dwellings	1 per 2 dwellings
	Student Accommodation	None[2]	1 per 20 bed spaces	1 per 10 bed spaces
	Houses Apartments/ Duplexes	0.5 per dwelling	1 per dwelling	1 per dwelling
Civic, Community and Religious	Bank Community Centre Library Public Institution	1 per 350 sq. m. GFA	1 per 275 sq. m. GFA	1 per 75 sq. m. GFA
	Place of Worship	1 per 100 seats	1 per 25 seats	1 per 10 seats
	Funeral Home	4 off street parking spaces	4 off street parking spaces	4 off street parking spaces

Figure 2.1 Extract from the DCC Development Plan Chapter 15 & from Section 4 of Appendix 5.

Table 2-1: Maximum Car Parking Provision allowed under the DCC Development Plan 2022-2028

Use	No. of Units/Area	DCC DP 2022-228 Maximum	Maximum Allowable Car Parking Provision	Proposed Car Parking Provision
Student Residential Bedrooms	941 beds	1 per 20 beds	47	3
Commercial Retail	250 sqm	1.0 per 100 sqm	3	2
Cultural/Community Uses	1422 sqm	1.0 per 275 sqm	5	2
Total			55	7

* Car parking includes 2 no. Universally Accessible car spaces.

Car parking provision:

- The car parking provision is below the maximum values as determined from Table 2 of Appendix 5 of the Development Plan (ref. Figure 2.1). The reduced level of car parking provision is consistent with the mobility targets for the greater Dublin area as detailed within the NTA Greater Dublin Area (GDA) Transport Strategy and also with the City Edge Project Framework documents. This approach is consistent with minimising the traffic impact of the proposal and with maximising patronage of the extensive public transport and soft mode options available as follows:.
    a. LUAS Redline 'Bluebell' Stop 150 metres from the Development.
    b. Dublin Bus: There are a number of Dublin routes which pass by the site or close to it.

  Public transport is considered in detail in Section 5 of this report.
- EV spaces; In accordance with the DP Appendix 5 Section 5, 50% of car spaces shall be equipped with car charging stations and the remaining 50% will be provided with ducting to allow for the future provision of EV charging.
- The management of arrivals & departures are considered in Section 2.4 of this report.

2.2 BICYCLE PARKING PROVISION

Figure 2.2 below shows an extract from the DP Appendix 5 setting out the minimum required number of bicycle spaces for various types of development. The provision of spaces is shown in Table 2.2. The number of spaces exceeds the minimum requirement. Electric bicycle charging facilities and cargo bicycle parking spaces will also be provided.

Table 1: Bicycle Parking Standards for Various Land Uses

Category	Land-Use	Zone	Long Term	Short Stay/Visitor
Accommodation	Hotel[1]	All Zones	1 per 5 staff	To be determined by the planning authority on case by case basis
	Nursing Home Elderly Persons Accommodation/ Sheltered Housing[2]	All Zones	1 per 5 staff 1 per 5 residents	1 per 10 residents
	Residential Apartment[3]	All Zones	1 per bedroom	1 per two apartments
	Residential Dwelling	All Zones	1 per unit	1 per 5 dwellings
	Student Accommodation	All Zones	1 per bedroom	1 per 5 bedrooms

Figure 2.2 Extract from the DCC Development Plan Table 1, Section 3, Appendix 5.

Table 2.2: Minimum Bicycle Parking Provision allowed under the DCC Development Plan 2022-2028

Use	No. of Units/Area	DCC DP 2022-228 Minimum per unit	Minimum Allowable Bike Parking Provision	Proposed Bike Parking Provision
Student Residential Bedrooms	941 beds	1	941	941
Student residential visitors	941	0.2	189	189
Commercial Retail	250	1 per 5 staff + 1 per 100 sqm GFA	1+3=4	8
Cultural/Community Uses	1422	1 per 5 staff + 1 per 100 sqm GFA	2+15=17	21
Total			1151	1159

Cycle Parking Provision:

- 1159 no. bicycle parking spaces provided. This exceeds the requirement of the DP.
- Bicycle parking spaces for the students are accommodated principally internally at ground and lower ground levels with stackers. 218 no. spaces are provided for visitors, for the retail space and for the cultural/community spaces. These are accommodated externally at ground level with Sheffield stands.
- Cargo bikes and electric bike charging will also be accommodated.

2.3 MOTORCYCLE PARKING PROVISION

2 no. spaces provided in the scheme, greater than 5% of the total no. of car parking spaces as required in the Development Plan Appendix 5, Section 6.0.

2.4 ARRIVAL AND DEPARTURE MANAGEMENT

At the start and end of colleges terms, a significant proportion of students will arrive/depart by car driven by parents/friends. Public transport will also be used and a smaller number will use taxis. These will be the busiest car traffic days of the year in the development. To ensure that queuing on site is minimised, two separate layby drop-off points are available, one within the development and the other located on the access road 'No Name Lane' along the south boundary. Car turning is facilitated within the development. Students will be required to book suitable slots for their arrival and drop-off with the management company, to ensure an even distribution of traffic movements during these periods.

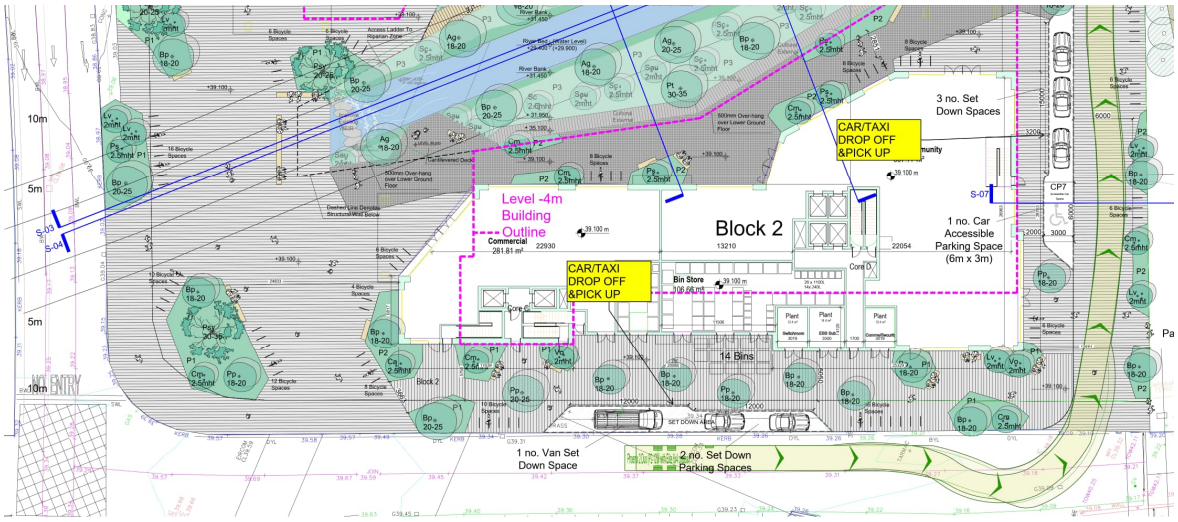

Figure 2.3 Lay-bys for car drop & pick-ups.

2.5 SUMMER LETTING

During the summer and other holiday periods, it is the intention that the development will operate in the same manner for any short term lets. It is proposed that summer letting will be to students that require accommodation during the holiday periods e.g. language students coming over for the summer months. The development will not operate as a normal hotel during these periods, and as such it is considered that the staff, servicing and car parking requirements will be the same as outlined for the normal operations.

3. GUIDANCE AND POLICY DOCUMENTS ON RESIDENTIAL TRAVEL PLANS

The relevant documents at an international, national and local level are detailed within this section.

National / International / Local Policy on sustainable travel / travel plans

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

This document plans for 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.

It 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 to 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; to improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks; to minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions; to reduce overall travel demand and commuting distances travelled by the private car and to Improve security of energy supply by reducing dependency on imported fossil fuels.

Its implementation will help meet Ireland's international obligations towards tackling climate change, enhancing 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, and 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.

It details a requirement that developments above a certain scale have viable travel plans in place, 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, and the necessity for the integration of cycling and public transport with the proposal.

NTA Transport Strategy for the Greater Dublin Area 2016-2035

The Greater Dublin Area (GDA) Transport Strategy has, as its central objective, the promotion of efficient, effective and sustainable movement of people and goods, thereby helping to reduce modal share of car-based commuting to a maximum of 45%. To achieve these principles, future developments must have transport as a key consideration in land use planning – integration of land use and transport 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 the strategic road network, ensure a significant reduction in share of trips taken by car, especially those trips which are shorter or commuter trips, and provide alternate transport modes in order to reduce the strain on the M50 as current increase in traffic is unsustainable.

This report will demonstrate the proximity of site to improved public transport provisions such as the proposed BusConnects Core Bus Corridor, which will improve overall levels of public transport provision within the GDA, improving public transport options for residents. This is set out in Section 6.0 of this report.

DCC Development Plan, 2022-2028

The Dublin City Council Development Plan provides an integrated framework for the development of the Dublin City area 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.

The Plan details a Core Strategy which includes housing, settlement, employment, retail and public transport strategies. The strategy translates into a number of broad strands which form the basis for the policies and objectives outlined in the plan, including the creation of sustainable neighbourhoods and communities and the development of policies and objectives to achieve this

Extract from the Development Plan Chapter 8 showing the current and target mode shares for trips into the city.

Table 8-1: Current and Target Mode Share

Current Mode Share (2019) *	Target Mode Share 2028
Walking 11%	Walking 13%
Cycling 6%	Cycling/Micro Mobility 13%
Public Transport (bus, rail, Luas) 54%	Public Transport (bus, rail, Luas) 57%**
Private Vehicles (car, taxi, goods, motorcycles) 29%	Private Vehicles (car, taxi, goods, motorcycles) 17%

*Current mode share figures are based on the NTA/DCC Canal Cordon Counts (November 2019) and present a picture of the modes of travel used by people travelling across the Canal Cordon into the City in a typical AM peak period.

**The modest increase in public transport mode share anticipates the construction of major public transport infrastructure that is proposed to occur over the lifetime of the plan. The impact of public transport infrastructure projects on mode share is more likely to come into fruition during the lifespan of the following plan.

Fig 3.1: Extract from Section 8.5 of the DCC DP 2022-2028.

Relevant policies include:

- The promotion of modal shift from private car use towards increased use of more sustainable and active forms of transport such as cycling, walking and public transport;
- The improvement of the environment in the area for walking and cycling through the implementation of improvements to thoroughfares and junctions and also through the development of new and safe route;
- The improvement of the pedestrian environment;
- The promotion of 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;
- The promotion of best practice mobility management and travel planning to balance car use to capacity and provide necessary mobility via sustainable transport modes; Policy SMT 7 states the following: *To require the preparation and submission of travel plans for new and existing developments as part of the planning application process including residential, school, workplace etc.*
- The provision of 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; and
- The encouragement of new ways of addressing the parking needs of residents (such as car clubs) to reduce the requirement for car parking.

The National Transport Authority (NTA) document 'Achieving Effective Workplace Travel Plans Guidance for Local Authorities' (2012), should also be utilised as it contains valuable information on the recommended contents, targets and indicators of a Travel Plan.

Making Residential Travel Plans Work: Guidelines for New Development - UK Department of Transport, 2005

This document details the policy context of an RTP, exploring the benefits they can offer and sets the context in terms of related policy issues, outlines travel plan design and content, including

objectives and guiding principles, and the measures that can be secured as part of a residential travel plan. It details the process of requiring a residential travel plan, covering the key stages in the residential travel planning process, the management, monitoring and enforcement of the RTP, highlighting key issues to be taken into account to ensure that the travel plan is effective and continues to be effective. It also details a strategic framework which reviews the planning and transport framework underpinning an effective residential travel plan;

The guidance within this UK document is used extensively within this RTP. It states that travel planning had, to date, largely focussed on the development of destination travel plans, which are generally designed to reduce car use to a specific destination - such as a workplace, school or a visitor attraction. Within such a plan, the office employer, the school or the attraction itself, in partnership with others such as the planning authority and public transport operators, destination travel plans focus mainly on a particular journey purpose, e.g. the journey to work, school, etc.

The document states that, in contrast, a residential travel plan is concerned with journeys made from a single origin to multiple and changing destinations. This crucial difference raises a number of issues and explains the need for specific good practice advice, though many aspects of good practice in developing destination travel plans are likely to apply to residential travel plans.

It states that key differences between the origin-based residential travel plans and destination office / school travel plans are:

- The pattern of journeys originating at home is more varied, with residents having multiple destinations and different needs and travel choices over time. This is a crucial difference compared with destination-based plans which normally only deal with a single journey purpose e.g. access to work.;
- An ongoing management organisation and structure for the travel plan needs to be put in place, as there is often no single company or institution to provide continuity and a common point of interest for residents

This guidance document looks at residential travel plans in the context of new developments, where the travel plan will normally be drawn up before the residents are in occupation. It is envisaged that the measures included in a residential travel plan will include demand management and smart travel tools, as well as improvements in services and facilities. As with destination travel plans, it would generally combine the 'soft' measures of promotion and awareness raising with 'hard' measures and improvements to design, infrastructure and services, both on-site and off-site. In addition, because of the many purposes of journeys from home, the residential travel plan may need to incorporate a wider range of measures to encourage more sustainable travel choices. It will need to be "fit for purpose" given the substantial variety of scale, location and type of residential development.

A residential travel plan should also include targets, monitoring and management arrangements to ensure that the objectives of the travel plan are achieved and that it remains sustainable over the longer term. It should be secured through the planning system as part of the assessment of the planning application. As with other travel plans, residential travel plans should be a key requirement on a par with highways improvements or instead of them. For any residential development likely to generate significant levels of traffic. They should not, of course, be a reason for approving an unacceptable development in the wrong location but, where practical, providing a means of solving accessibility issues.

Travel planning for residential development is stated to have the potential to help achieve more sustainable communities by improving their accessibility. New residential development is normally

characterised by high car trip generation. However, better choices about the location and density of new residential schemes, combined with the increased use of residential travel plans, should deliver a real impact on travel patterns and aid progress towards sustainable transport and land use objectives.

If the travel plan is designed into the residential development from the beginning and supported by a long term commitment and mechanisms for implementation, potential local benefits include:

- Reducing the need for car use with benefits in terms of reduced traffic, congestion, air pollution and accidents;
- Improving accessibility and travel choice for reaching local facilities;
- Improving public transport provision for people in nearby developments because of the increased economies of scale;
- Increasing scope for child-friendly residential layouts with fewer roads, vehicle movements and parking areas; Complementing nearby travel plans, and possibly even assisting them in achieving more ambitious initiatives;
- Improving access by the wider community to the residential development by sustainable modes of transport;
- Representing good practice and providing an educational tool to help change perceptions about the convenience and benefits of not using the car where alternatives exist;
- Achieving more attractive environments that contribute to regeneration and renewal initiatives;
- Increasing marketability of the development as more households seek to change their travel behaviour.

The document thus clearly illustrates the benefits of a well thought out Residential Travel Plan to achieving more environmentally sustainable communities.

4. THE TRAVEL PLAN PYRAMID

The UK document 'Making Residential Travel Plans Work' details the travel plan pyramid that helps demonstrate how successful plans are built on the firm foundations of a good location and site design. A Plan should also combine hard measures – such as new bus stops and cycle ways, and soft measures – such as discounts on season tickets and help with individual journey planning. All measures should be integrated into the design, marketing and occupation of the site. In addition, parking restraint is often crucial to the success of the plan in reducing car use.

Figure 4.1 The travel pyramid extracted from 'Making Residential Travel Plans Work'

The travel pyramid, contains the following five key concepts that are central to a good RTP:

- Location - Residents need to be within easy reach of shops and services – so that walking or cycling becomes the natural choice
- Built Environment – Low-density developments are hard work to get round by bike and foot. Encouraging compact development that is walking and cycling friendly, with low parking allowances, is crucial in encouraging sustainable travel choices.
- Travel Plan Coordinator - Successful travel plans need people. The Coordinator plays a crucial role in developing the plan and working with residents and management to ensure the plan meets their needs for access and evolves over time
- Services and facilities - Good public transport and a car club can help reduce the need for on-site parking. Other measures, such as broadband internet access and home deliveries can reduce the need to travel off site.
- Promotional strategy - Welcome packs, public transport discounts and cycling incentives can all help introduce the travel plan to residents and build enthusiasm.

In terms of location and built environment, it can seen that the subject site has significant advantages, with easy access of bus/LUAS facilities and with the layout of the proposed development making cycling and walking safer and more efficient.

This report will demonstrate the central role that will be undertaken by the Travel Plan Coordinator in setting targets, updating the Travel Plan, monitoring use of car club spaces and maximising the circulation of promotional material among residents.

5. THE CONTENTS OF THE RESIDENTIAL TRAVEL PLAN

Section 6 of this report will summarise the existing & proposed public transport and cycling facilities in the vicinity of the subject site.

Section 7 takes the existing commuter travel patterns for the area and proposes year-of-opening modal splits for the proposed development. It also contains proposed future improvements public transport, cycling and walking facilities nearby which will assist in the attainment of the stated targets.

Section 8 details the objectives of the Travel Plan Strategy and lists a suite of measures which is planned to be implemented to facilitate the achievement of these objectives.

Section 9 details the central role of the Travel Plan Coordinator in the attainment of the objectives as set out within Section 8.

Section 10 contains some concluding comments on the residential travel plan.

6. ROAD NETWORK, AND BUS TRANSPORT AND CYCLING FACILITIES

6.1 PROPOSED NEW PEDESTRIAN CROSSING OF THE NAAS ROAD AND LUAS TRACKS

As part of the development, it is proposed to construct a new pedestrian crossing of the Naas Road and Luas Tracks. This will involve new signal-controlled crossings of the inbound and outbound carriageways of the Naas Road, and an uncontrolled crossing of the Luas tracks, all with the appropriate facilities for vulnerable road users.

The new crossing will facilitate residents of the proposed development who will be looking to utilise public transport from the north side of the Naas Road. It will also provide better pedestrian linkages for residents to travelling north from the development.

The proposed layout of the new crossing has been reviewed with Dublin City Council, who also provided feed-back from Transport Infrastructure Ireland. All comments from both DCC and TII were incorporated into the design as shown on BMCE drawing GWH-BMD-ZZ-XX-DR-C-1012 which is included with the planning application. The layout of the crossing is shown in Figure 6.0 below.

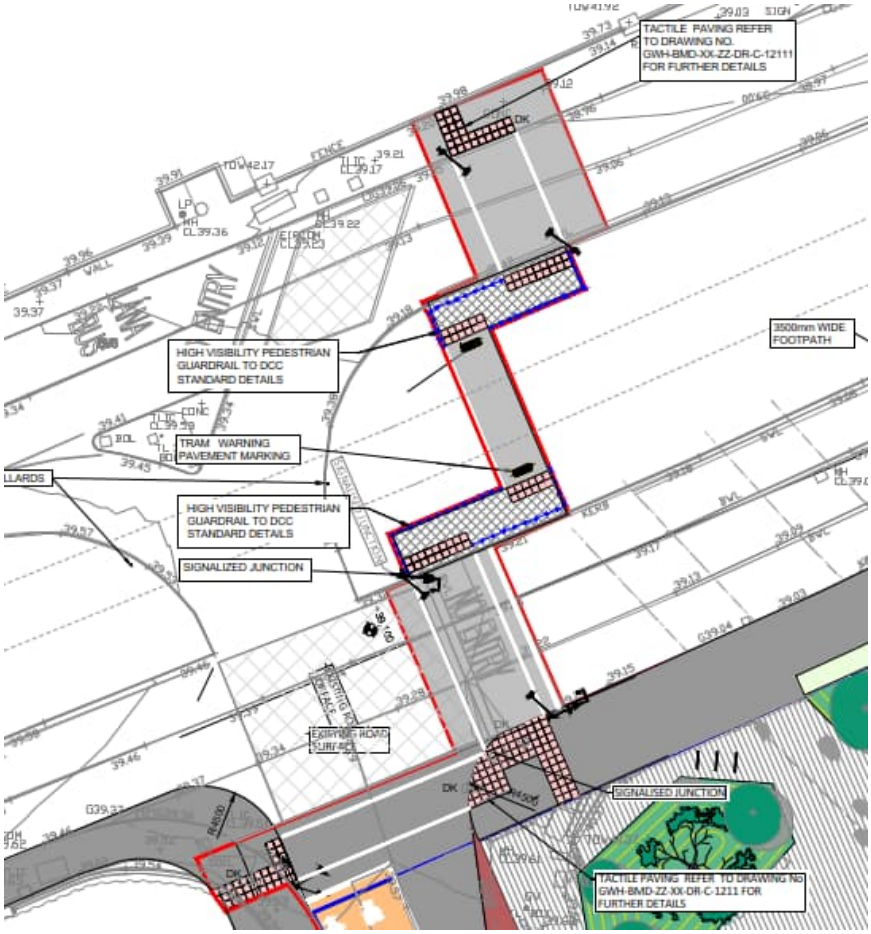

Figure 6.0 Extract from BMCE drawing GWH-BMD-ZZ-XX-DR-C-1012 showing proposed new crossing of the Naas Road & Luas Tracks

6.2 EXISTING BUS INFRASTRUCTURE & CAPACITY

This section of the report should be read in conjunction with the separate Public Transport Capacity study that has been prepared as part of the planning application package for the subject site.

Buses have significant potential to increase public transport capacity and decrease the number of private vehicles on the road. The focus of the Travel Plan is to improve connectivity to existing public transport services and promote the usage of sustainable transport services.

The Dublin Bus services in the area provides direct linkage to the city and other areas. The frequency of these buses along the Naas Road in front of the site can be seen in Table 6.0-1, with an approximate 7-minute average wait time between buses at peak hours.

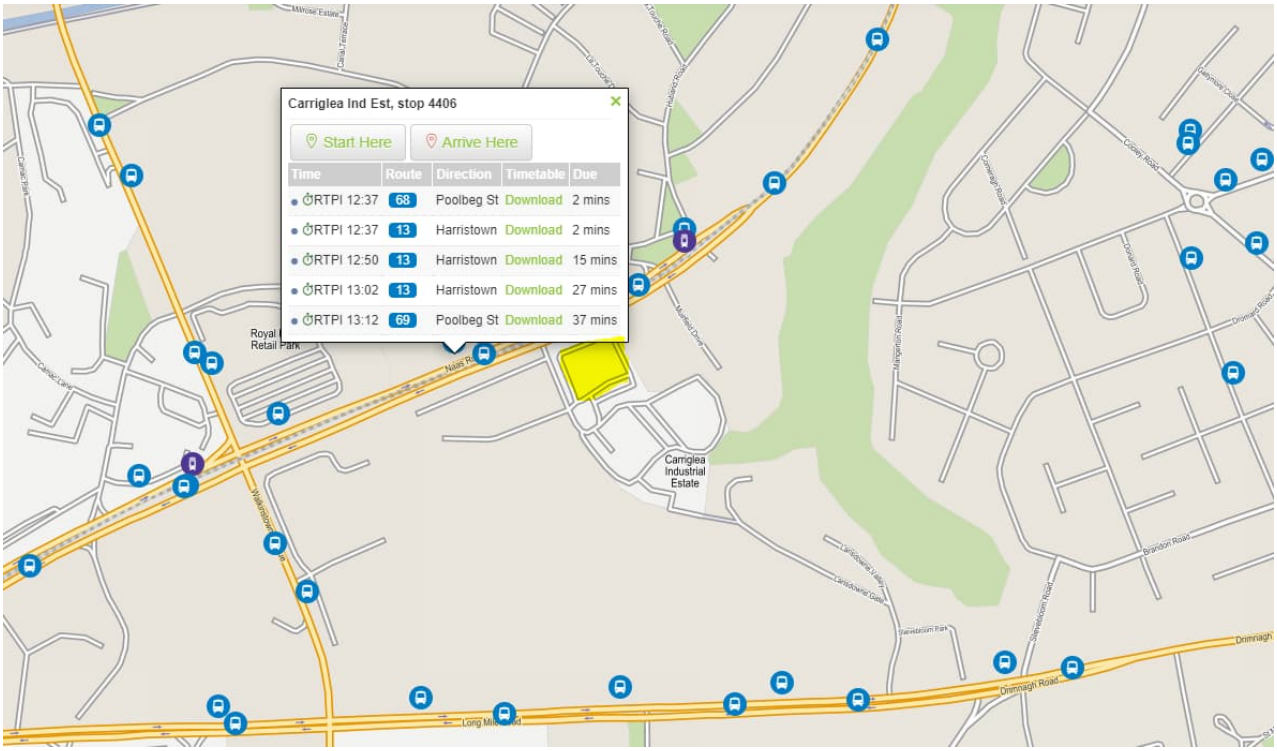

Figure 6.1 Extract from the TFI website showing bus stops along the Naas Road. The site is shown in yellow.

Table 6.0-1 – Bus Route Frequency

Route	Origin	Destination	*Frequency (per hour)
13 **	Harristown	Grange Castle	4.5
68/a	Hawkins St	Newcastle, Co.Dublin	2
69	Hawkins St	Rathcoole	2

*peak hour **via the city centre

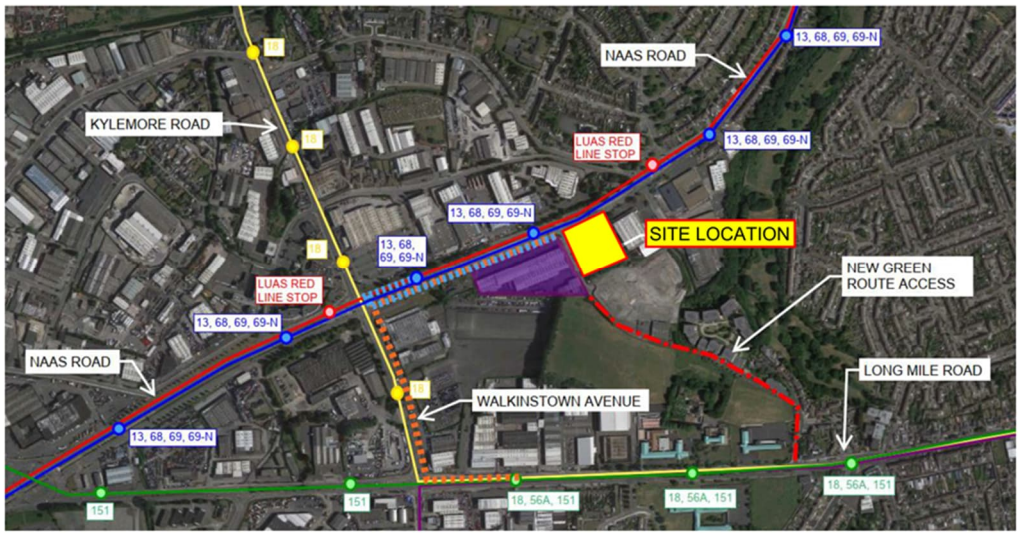

Figure 6.2: Current public transport availability in the site vicinity.

6.3 BUS CONNECTS

Future bus plans involve the "Dublin Area Bus Network Redesign" which is an attempt to overhaul the current bus system in the Dublin region by developing new bus corridors, new bus routes, increasing services and new buses. Figure 6.3 shows that the site is located close to the Naas Road/Kylemore Road junction through which will pass the high frequency D-spine route, routes D1 & D3 into the city centre and the S4 orbital route around the city. Buses will be every 15 minutes each along D1 &D3 and every 10 minutes along the S4 Liffey Valley/UCD orbital route.

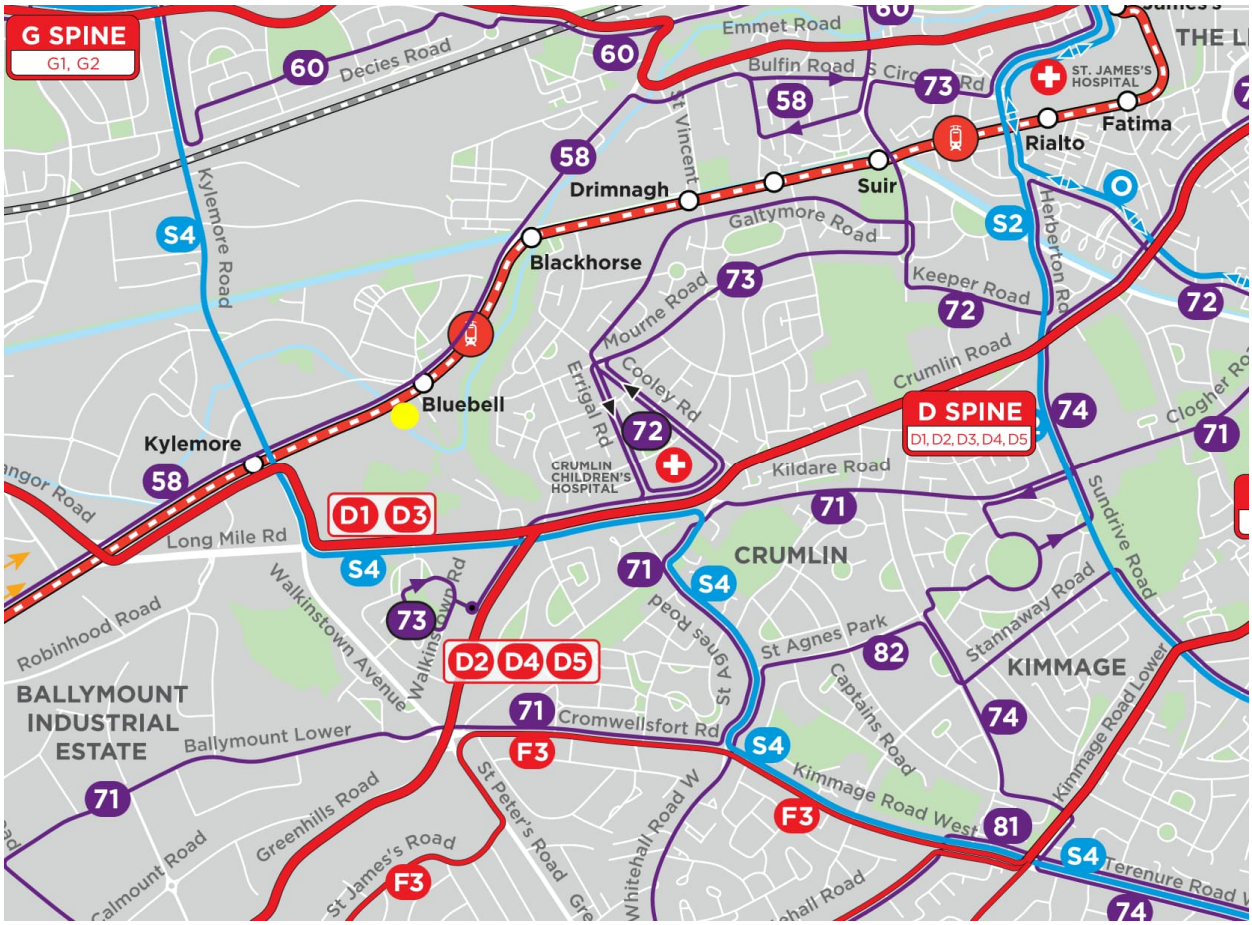

Figure 6.3: Bus Connects Plan Extract Blue Area Area. LUAS line also shown. Site indicated by yellow disk.

D-SPINE	Malahide Rd - City Centre - Crumlin	8	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	8
D1	Clongriffin - City Centre - Grange Castle	30	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	30
D2	Clare Hall - City Centre - Citywest	30	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	30
D3	Clongriffin - City Centre - Clondalkin	30	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	30
D4	Swords Road - City Centre - Killinarden	60	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	60
D5	Edenmore - City Centre - Tallaght	60	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	60

Figure 6.4 Bus Connects timetable extract. D-Spine bus frequency on weekdays along routes D1 &D3.

6.4 LUAS SERVICES & CAPACITY

The LUAS redline runs along the Naas Road in front of the site, to its terminus at the Square, Tallaght. The nearest stop 'Bluebell' is located 150 metres approximately east of the site along the Naas Road. The Luas runs into the city centre and onwards from there as far as the Point Deport. It connects in the city with the Green Line which runs out to Cherrywood beyond Cabinteely. The Luas provides a high frequency connection from the site to the city centre and other parts of the Irish Rail network & other bus routes. At peak hours the LUAS runs every 8 minutes each way. As noted in the Public Transport Capacity Assessment (PTCA) report which accompanies the planning application, the existing Luas service has a very high level of spare capacity in the morning peak period. Refer to the PTCA report for further details.

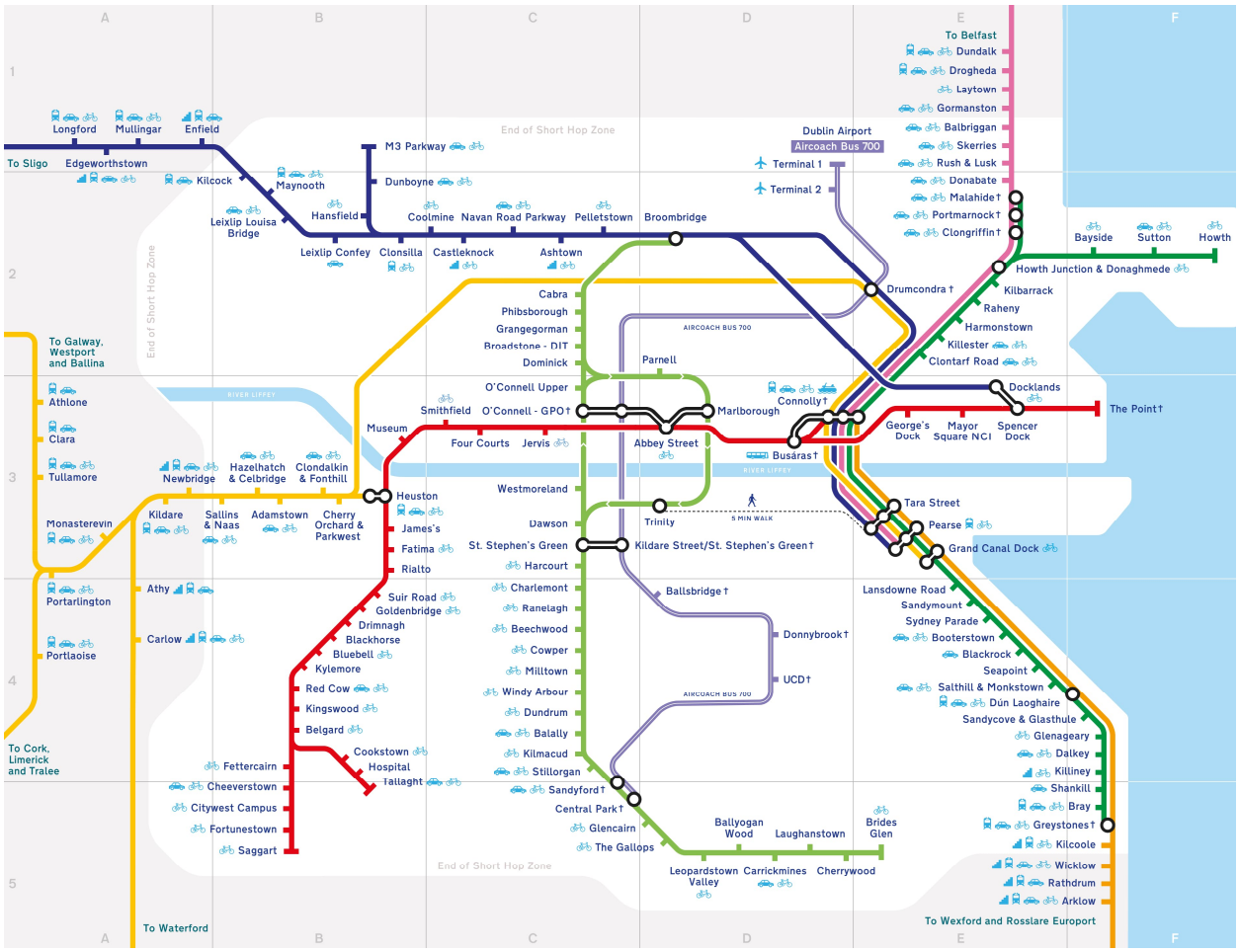

Figure 6.4: Dublin Rail Network. Bluebell Luas stop located on the Tallaght/Saggart LUAS line shown in red.

6.5 CYCLING PROVISION

Figure 6.5 details the existing cycle network within the vicinity of the subject site. At present, the cycle network is well developed in the vicinity of the subject as can be seen in Figure 6.4 below. This is an extract from the NTA Greater Dublin Area Cycle Network Plan 2013. At this time there was still a lack of high quality safe cycleways separated from the road. Some localized improvements have been made in the intervening period.

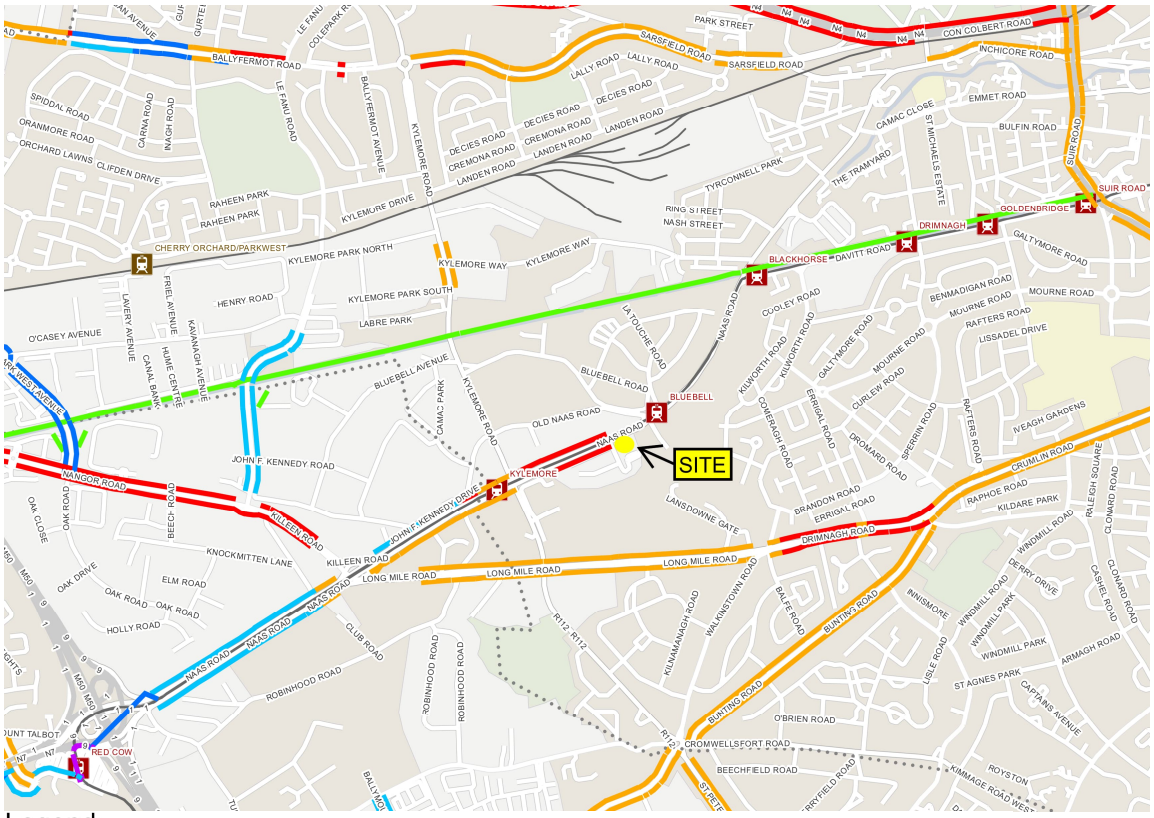

Figure 6.5: Existing cycle facilities in the vicinity of the subject site. Site highlighted in yellow. Abstracted from NTA Greater Dublin Area Cycle Network maps.

Figure 6.6 shows the future proposed cycle network in the vicinity of the subject site. As can be seen there is an increased density of safe cycle routes proposed in the area.

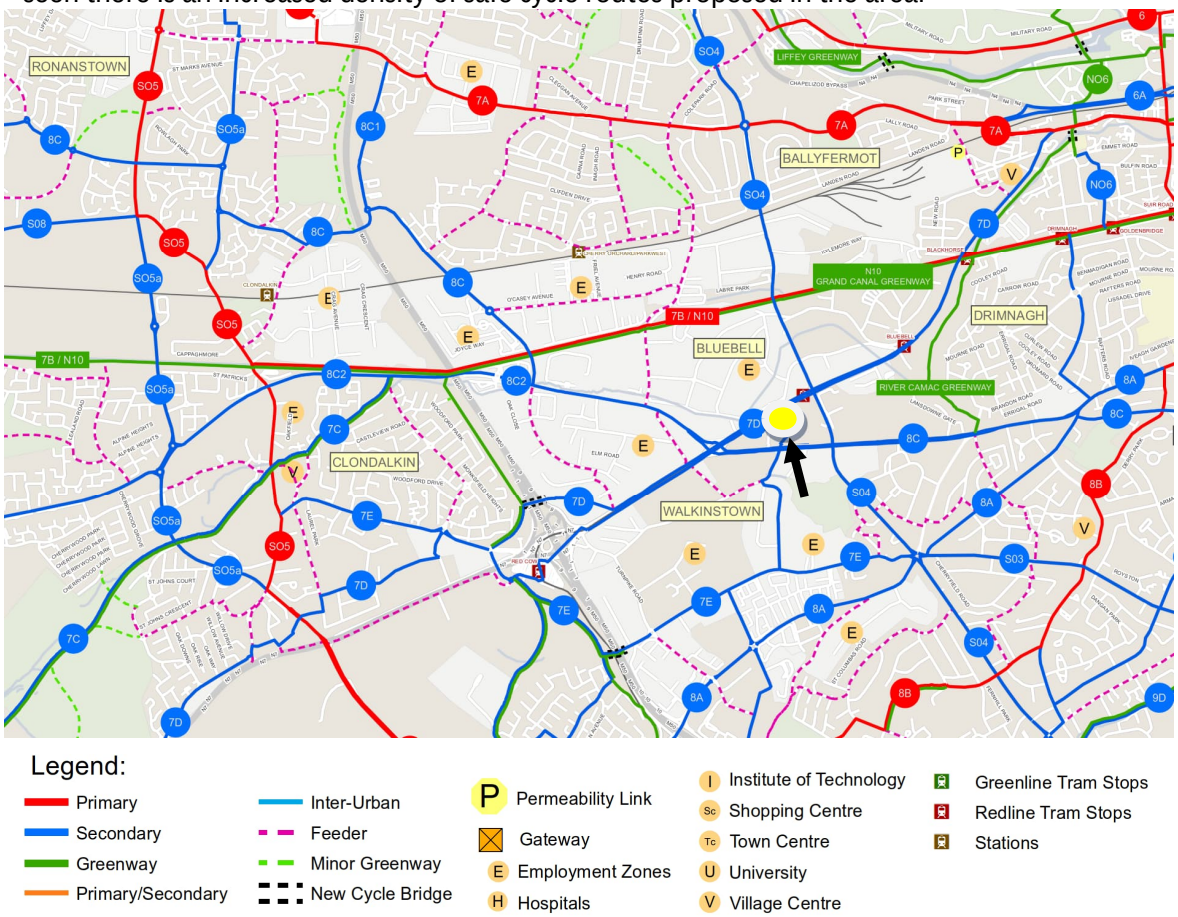

Figure 6.6: New cycle facilities proposed in the vicinity of the subject site under the NTA Greater Dublin Area Cycle Network Plan. Site highlighted in yellow.

The NTA Greater Dublin Area Cycle Network Plan defines a target quality of service on the proposed cycle network. Refer to Figure 6.7 extract below. The Quality of Service criteria are set out in the National Cycle Manual Section 1.4. 'A' is the highest grade and 'D' the lowest. Quality is measured by a number of factors covering comfort, safety and delays. The secondary routes in the vicinity of the site, as shown in Fig 6.6. are targeted to be grade 'B'.

Target Quality of Service

Targets for the appropriate Quality of Service were selected on the basis outlined in the following Table. There are two facets to the QoS that require to be considered separately. These are:

- In terms of conflicts, level of comfort, junction time delays and pavement quality, a minimum Quality of Service Level B should be provided on all cycle routes, regardless of the volume of demand; and
- The width factor depends on the peak volume of cyclist demand. Above 500 cyclists per hour it is desirable to provide Width Level A+/A, with 2+1 conditions for social cycling and passing. Where the peak volume is less than 500 cyclists per hour, Level A/B will provide sufficient capacity with room for overtaking by faster cyclists.

Basis for Target Quality of Service

ROUTE TYPE	PRIMARY / NATIONAL	PRIMARY	SECONDARY
Cycle Volume Existing (3 hour peak period)	n/a	200 -1000	100-500
Target QoS - Width Factor	A+ Two abreast + overtaking Width = 2.5m	A+/A Two abreast + overtaking Width = 2.5m	A/B Single file + overtaking Width = 1.75m
Target QoS - Other Factors	A	B	B

Figure 6.7: Target Quality of Service on the proposed cycle network taken from the NTA Greater Dublin Plan Cycle Network Plan written report accompanying the maps.

7. PREDICTED POST-DEVELOPMENT TRAVEL PATTERNS

7.1 INTRODUCTION

This section will use output from the TRICS Database to derive initial modal splits and then tailor these initial values based on the location of the subject site relative to the major third level institutions within its general catchment.

7.2 MODAL SPLITS BASED ON TRICS DATABASE ESTIMATES

The TRICS Database plays a central role in the process of trip and modal split estimation within both the UK and Ireland. It utilizes traffic survey information from 121 separate land use categories of land use in the database system, and allows its users to establish potential levels of trip generation and modal choices for a wide range of development and location scenarios.

The TRICS evidence base contains over 7,150 transport surveys. The individual site records within the database contain comprehensive, detailed information on a site's local environment and surroundings; the composition and functions of a site; its on-site and off-site parking facilities; and hourly, directional transport count results covering a wide range of transport modes. Annual data collection programmes ensure that new transport surveys are added to the database every three months.

Because of the TRICS system development and its frequent updating, TRICS has become the industry standard both within the UK and Ireland for assessing trip generation for major development projects.

Using the student accommodation sites within the database, as detailed within Appendix 1, Figure 7.1 details the baseline modal splits derived:

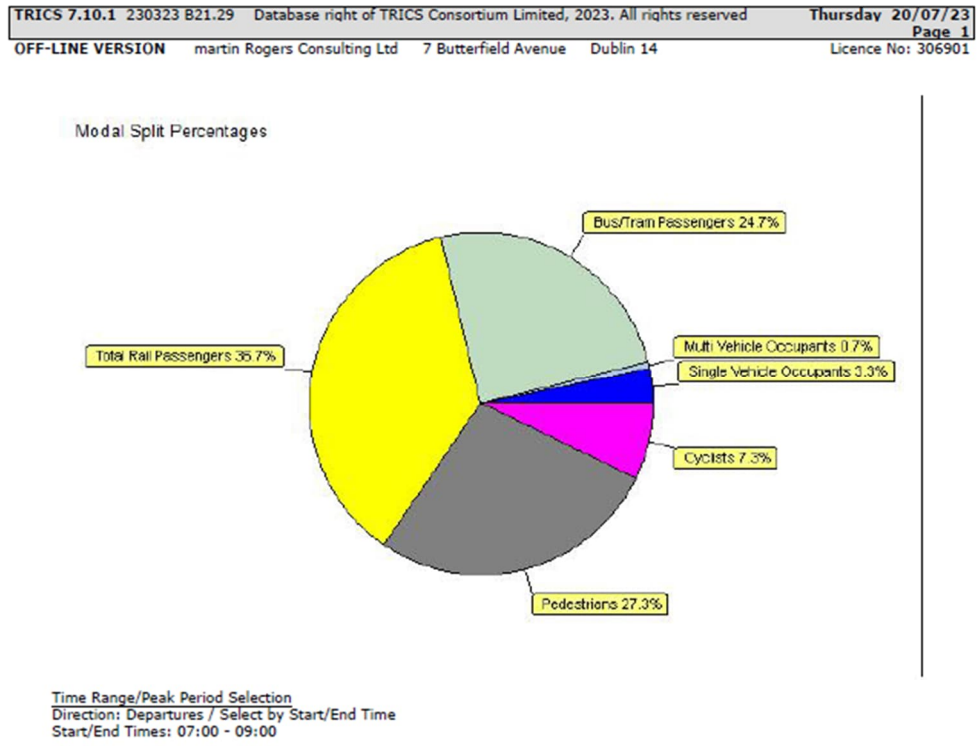

Figure 7-1: Modal splits for departures at student accommodation sites, morning peak 7AM to 9AM

Table 7.1 below summarises the modal splits illustrated within Figure 7.1:

Table 7-1 – Projected Modal Splits for the Gowan Site based on TRICS Database information:

Transport Mode	*Usage (%)
Car-Based	5
Public transport	60
Walking and cycling	35

Given that no car parking spaces are permanently available to students (with the potential exception of students requiring use of the accessible spaces), the modal split for students will be solely walking / cycling and public transport. The limited spaces are intended for use by management and uses relating to ancillary on-site activities

Figure 7.2 details the modal splits for the Small Area containing the Trinity Hall Student Accommodation (in Dartry) modal splits from the 2016 Census:

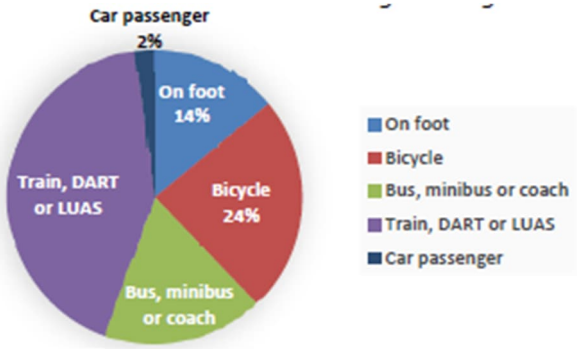

Figure 7-2: Trinity Hall Modal Splits

The facility is 4km from Trinity College, with the result that only 14% of students walk. Combined walking and cycling is 38% and public transport is 60% - very close to the estimates for the Gowan Motors site (70:30).

In the case of the Gowan Motors site, the distance westwards to TUD Tallaght and eastwards to Trinity / TUD Grangegorman is approximately 6 km, involving a walk of approximately 75 minutes (see Figure 7-3).

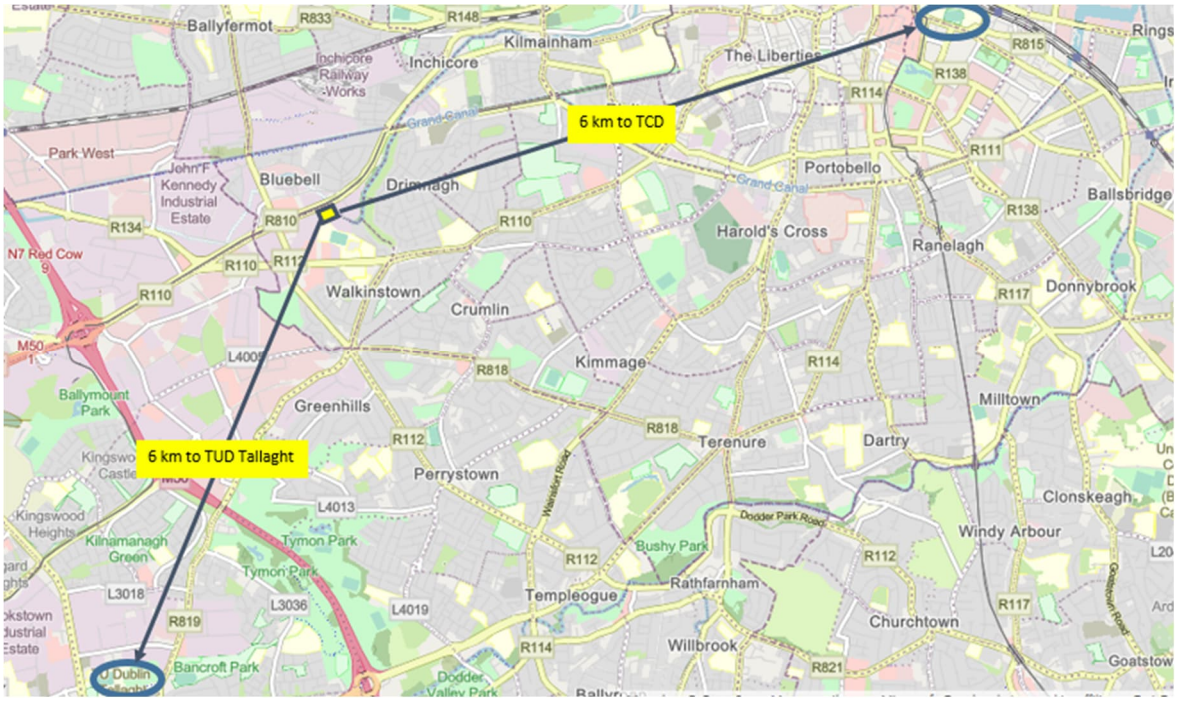

Figure 7-3: Distances from site to TCD and TUD Tallaght campuses

Walking is a viable option providing the journey is in the region of 3 km. Given the 6km distance applying to the subject site, public transport and cycling are seen as the most probable and appropriate modes of transport for students at the proposed development.

Table 7.2 details the final projected opening day student modal splits for the proposed development, with only public transport and cycling as viable modes, and a 70:30 split in favour of public transport (the 30% figure is achievable given the significant on-site cycle parking proposed):

Table 7-2 – Final projected Modal Splits for students at the Gowan Site:

Transport Mode	*Usage (%)
Public transport	70
Walking and cycling	30

7.3 DISTRIBUTION OF THE AM STUDENT MOVEMENTS

There are in the region of fifty-thousand university places in the city centre, approximately 10 times the number of students on the TUD Tallaght campus.

Therefore, it is a reasonable assumption that for the 70% of the student population at the proposed development that will use public transport, 15% will travel westwards to Tallaght, and 85% eastwards towards the city centre. As there are no direct bus routes to Tallaght in close proximity to the site, it is assumed that students travelling in this direction will typically use the Luas rather than other means of transport.

The following is the anticipated break-down of travel movements on a typical day:

Table 7-3 – Projected trip generation on public transport:

Destination (Mode)	7-8 am	8-9am	9-10am	After 10am	Total
Tallaght (Luas)	13	40	22	13	88
City Centre (Luas)	101	141	101	62	405
City Centre (Bus)	25	35	25	15	100
Total	139	216	148	90	593

1. The table above assumes that 90% of students will travel to college on a particular day.
2. Of the 90% that travel, 70% of these will utilise public transport.
3. Of the students using public transport, it is considered that 15% will travel west towards Tallaght, while the other 85% will travel towards the city centre.

The travel route plans in Appendix 2 of the report illustrate the anticipated destinations and travel times for the majority of students that will reside in the proposed development.

The impact of the projected trips are analysed in the Public Transport Capacity study report which is included with this planning application.

In terms of return trips to the development, these would be distributed across a greater time period from early afternoon to evening time, so would results in lesser impacts on public transport.

8. OBJECTIVES OF TRAVEL PLAN STRATEGY

8.1 INTRODUCTION

A Travel Plan Framework is a tool that brings together site management issues relating to transport in a coordinated manner. This document puts in place the objectives of the mobility management strategy for the subject site and the specific measures designed to achieve these objectives.

As the proposal includes a only a very small car parking provision, this strategy aims to provide sustainable transport choices for residents and visitors at the site, thus continuing to eliminate private car use for the trip to and from college and workplaces. Specific measures for achieving effective modal shift away from the private car will be detailed.

The aim of this strategy is thus to introduce measures which will maximise the chances that the modal split targets for year of opening are met and maintained thereafter.

The objectives of the Travel Plan Strategy for the proposed development, in order to meet the stated targets for the subject site, are as follows:

- To manage the availability of the private car for residents (non-work purposes) (Objective No. 1);
- To encourage residents to use public transport by providing information on the services available as well financial incentives to use public transport. New public transport schemes coming on stream will further aid the achievement of this objective (Objective No. 2);
- To encourage residents to cycle to college/work, if appropriate, by providing safe parking and general information on the health benefits of cycling (Objective No. 3);
- To encourage to walk to college/work if appropriate, by providing all necessary information on this mode of travel (Objective No. 4).

A number of the proposals listed to achieve and maintain the modal splits detailed within Table 7.1 above are easy and inexpensive to implement. Other measures require initial co-operation and co-ordination both within the development and outside of it.

The general morale of residents will be, to an extent, dependent on their general state of health and fitness, particularly where, for some, long periods are spent behind a desk working with computers when they get to their college or workplace. The profile of their journey to work can be a significantly beneficial factor in regard to increased fitness and wellbeing.

8.2 OBJECTIVE NO. 1 – MANAGE PRIVATE CAR AVAILABILITY FOR RESIDENTS (WORK AND NON-WORK PURPOSES)

This objective is achieved by the very limited car parking provision on site.

It is proposed that the Travel Plan Co-ordinator will provide information on the availability of car club vehicles for residents of the development.

8.3 OBJECTIVE NO. 2 – ENCOURAGING GREATER USE OF PUBLIC TRANSPORT FOR THE JOURNEY TO WORK / COLLEGE

8.3.1 General

Public transport will be a favoured transport option for a predicted 70% of residents at the proposed development on its day of opening.

The proposed Bus Connects, in the longer term, will further improve public transport services in the vicinity the subject site. The LUAS stop beside the site offers frequent transport into the city centre and to other public transport connections.

8.3.2 Public Transport Information

It is vital that timetable information is available to residents in order to encourage maximum usage of the public transport system. Dublin Bus and LUAS timetables should be posted on the notice board within the apartment complex and / or the web site to be set up by on-site management.

8.4 OBJECTIVE NO. 3 – ENCOURAGE MORE RESIDENTS TO CYCLE TO WORK / COLLEGE

Cycling will be a favoured transport option for a predicted 30% of residents at the proposed development on its day of opening.

The provision of 1159 no. cycle parking spaces on site will help maintain and strengthen this modal split. The proposed GDA cycle network improvements detailed within Section 6 of this report will help maintain the projected modal split for cycling at the subject site.

8.5 OBJECTIVE NO. 4 – ENCOURAGE MORE RESIDENTS TO WALK TO WORK / COLLEGE

As discussed previously, walking would not be considered a viable option for students travelling from the development to college. However, walking will be a favoured transport option for students accessing nearby retail or other facilities.

9. ROLE OF THE TRAVEL PLAN COORDINATOR FOR THE PROPOSED RESIDENTIAL DEVELOPMENT

9.1 APPOINTMENT OF THE TRAVEL PLAN COORDINATOR

It will be the intention of on-site management at the proposed development' that a Travel Plan Coordinator be appointed to administer, implement, monitor and review travel plan management issues within the residential component of the proposed development. The coordinator will also liaise with the local authority, public transport companies and facility managers on issues relevant to the maximisation by students of public transport and other non-car based options.

9.2 DUTIES OF THE TRAVEL PLAN COORDINATOR

The application is founded on minimal use of the private car by all residents and the maximization of travel by soft modes and public transport.

The co-ordinator will have a vital role in encouraging and enabling residents at the subject site to adopt the measures listed within the document to achieve the objectives listed above within section 8. The duties of the co-ordinator are detailed below under the following headings:

- Promoting the environmental and health benefits of their travel choices
- Promoting bike use
- Promoting rail and bus based travel
- Monitoring the modal splits for residents' journey to college

9.2.1 Promoting the environmental and health benefits of the travel choices of residents

It will be the duty of the coordinator to make residents aware of the environmental and health consequences of their travel choices. Various media should be employed in order to communicate this message. These could include a newsletter and a mobility website, and providing information on issues such as available public transport services, where to buy a bike, and the health benefits of cycling / walking.

9.2.2 Promoting bike use

The coordinator can promote the use of this mode of travel using other measures such as the setting-up of a cycle users group so that experienced cyclists within the development can help encourage newcomers to the mode of travel. The coordinator can also help by keeping tool kits/spare parts on site for cyclists to avail of. The web site and newsletter could also be an aid to encouraging the mode of travel by encouraging the potential time savings involved. In addition, the coordinator can keep in contact with the local authority to monitor the progress in implementation of the proposed cycle track network in the locality.

It would also be possible for management at the proposed residential development to agree a group bicycle insurance scheme for residents at preferential rates in order to maximise its use as a mode of travel to work.

In addition, management might subsidise the cycling mode by purchasing an initial stock of bicycles to loan to residents at preferential rates. Such a scheme would not be expensive and would have the added benefit of raising awareness of it as a mode of travel and generally encouraging cycle use.

9.2.3 Promoting walking to work & college

As with cycling, the coordinator should promote the health and fitness benefits of walking and its general viability as a method of getting to work and college, fully or in-part with public transport options. The coordinator can also liaise with the local authority on work being done near the subject site to make the local road network more pedestrian friendly.

9.2.4 Promoting rail and bus travel

The coordinator will promote a public transport culture among residents. The coordinator can use the newsletter and website to provide information on public transport, in particular timetable information, fares, bus and / DART stop location and route planning, together with information on annual and monthly public transport tickets, carrying potential tax benefits for commuters. Information on the proposed Bus Connects system roll-out in the site vicinity should also be included in the newsletter.

9.2.5 Monitoring the modal splits for the residents' journey to work

In order to maximise the effectiveness of the Travel Plan, the coordinator should be responsible for the ongoing monitoring of the modal splits within the plan, including the carrying out on a regular basis of travel surveys of all on-site residents.

10. CONCLUDING COMMENTS

This Residential Travel Plan is required to ensure the sustainability of the targeted modal splits at the subject site, with a high public transport usage, consistent with the DCC Development Plan 2022-2028 guidelines. The car parking provision is in line with the maximum provisions detailed in the Development Plan.

This report has demonstrated that the proposed modal splits for the student residential development is entirely sustainable based on the location of the development and the availability of excellent public transport nearby.

The Residential Travel Plan within this report aims to achieve a sustainable travel culture for residents at the residential development by outlining a travel strategy, by listing measures to achieve its objectives and by committing to appoint a travel plan coordinator to oversee and monitor progress towards the target modal splits predicted for the site on its day of opening. Bicycle and walking options will be promoted along with the use of the excellent public transport options available at or close to the development.

BARRETT MAHONY
CIVIL & STRUCTURAL
CONSULTING ENGINEERS

APPENDIX I

TRICS Output

OFF-LINE VERSION martin Rogers Consulting Ltd 7 Butterfield Avenue Dublin 14 Licence No: 306901

Calculation Reference: AUDIT-306901-230720-0723

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : G - STUDENT ACCOMMODATION
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	CN	CAMDEN	1 days
	HK	HACKNEY	1 days
	HM	HAMMERSMITH AND FULHAM	1 days
	KI	KINGSTON	2 days
03	**SOUTH WEST**		
	BA	BATH & NORTH EAST SOMERSET	1 days
09	**NORTH**		
	DH	DURHAM	1 days

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

Primary 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 residents
Actual Range: 103 to 571 (units:)
Range Selected by User: 15 to 1100 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/15 to 25/06/21

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	1 days
Wednesday	2 days
Thursday	2 days
Friday	1 days

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

Selected survey types:

Manual count	7 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 undertaking using machines.

Selected Locations:

Edge of Town Centre	4
Suburban Area (PPS6 Out of Centre)	3

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	4
Built-Up Zone	2
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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	7 days - Selected
Servicing vehicles Excluded	1 days - Selected

Secondary Filtering selection:

Use Class:

C3	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Population within 1 mile:

15,001 to 20,000	1 days
25,001 to 50,000	4 days
50,001 to 100,000	1 days
100,001 or More	1 days

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

Population within 5 miles:

100,001 to 125,000	2 days
250,001 to 500,000	2 days
500,001 or More	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	2 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	1 days
No	6 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	2 days
2 Poor	1 days
4 Good	2 days
6a Excellent	2 days

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

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LIST OF SITES relevant to selection parameters

1	**BA-03-G-01**	**STUDENT FLATS**		**BATH & NORTH EAST SOMERSET**
	LOWER BRISTOL ROAD			
	BATH			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of residents:		291	
	Survey date: THURSDAY		*04/10/18*	*Survey Type: MANUAL*
2	**CN-03-G-01**	**STUDENT FLATS**		**CAMDEN**
	SAINT PANCRAS WAY			
	KING'S CROSS			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of residents:		571	
	Survey date: TUESDAY		*14/11/17*	*Survey Type: MANUAL*
3	**DH-03-G-01**	**STUDENT FLATS**		**DURHAM**
	ASHWOOD			
	DURHAM			
	GILESGATE			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of residents:		168	
	Survey date: THURSDAY		*18/10/18*	*Survey Type: MANUAL*
4	**HK-03-G-01**	**STUDENT FLATS**		**HACKNEY**
	GREEN LANES			
	STOKE NEWINGTON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of residents:		103	
	Survey date: MONDAY		*09/03/20*	*Survey Type: MANUAL*
5	**HM-03-G-02**	**STUDENT FLATS**		**HAMMERSMITH AND FULHAM**
	PADDENSWICK ROAD			
	HAMMERSMITH			
	Edge of Town Centre			
	Residential Zone			
	Total Number of residents:		217	
	Survey date: FRIDAY		*25/06/21*	*Survey Type: MANUAL*
6	**KI-03-G-01**	**STUDENT FLATS**		**KINGSTON**
	PENRHYN ROAD			
	KINGSTON UPON THAMES			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of residents:		200	
	Survey date: WEDNESDAY		*12/06/19*	*Survey Type: MANUAL*
7	**KI-03-G-02**	**STUDENT FLATS**		**KINGSTON**
	CAMBRIDGE ROAD			
	KINGSTON UPON THAMES			
	NORBITON			
	Edge of Town Centre			
	Residential Zone			
	Total Number of residents:		300	
	Survey date: WEDNESDAY		*26/06/19*	*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.

TRIP RATE for Land Use 03 - RESIDENTIAL/G - STUDENT ACCOMMODATION
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 RESIDE
Estimated TRIP rate value per 952 RESIDE shown in shaded columns
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 13.04

	ARRIVALS				DEPARTURES				TOTALS			
Time Range	No. Days	Ave. RESIDE	Trip Rate	Estimated Trip Rate	No. Days	Ave. RESIDE	Trip Rate	Estimated Trip Rate	No. Days	Ave. RESIDE	Trip Rate	Estimated 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	6	258	0.003	3.071	6	258	0.004	3.685	6	258	0.007	6.756
08:00 - 09:00	6	258	0.003	2.457	6	258	0.003	2.457	6	258	0.006	4.914
09:00 - 10:00	6	258	0.006	5.528	6	258	0.005	4.914	6	258	0.011	10.442
10:00 - 11:00	6	258	0.009	8.599	6	258	0.009	8.599	6	258	0.018	17.198
11:00 - 12:00	**6**	**258**	**0.012**	**11.670**	**6**	**258**	**0.015**	**14.126**	**6**	**258**	**0.027**	**25.796**
12:00 - 13:00	6	258	0.003	2.457	6	258	0.003	2.457	6	258	0.006	4.914
13:00 - 14:00	6	258	0.008	7.370	6	258	0.005	4.914	6	258	0.013	12.284
14:00 - 15:00	6	258	0.006	5.528	6	258	0.007	6.756	6	258	0.013	12.284
15:00 - 16:00	6	258	0.006	5.528	6	258	0.007	6.756	6	258	0.013	12.284
16:00 - 17:00	6	258	0.005	4.914	6	258	0.005	4.299	6	258	0.010	9.213
17:00 - 18:00	6	258	0.001	1.228	6	258	0.003	2.457	6	258	0.004	3.685
18:00 - 19:00	6	258	0.003	3.071	6	258	0.004	3.685	6	258	0.007	6.756
19:00 - 20:00	6	258	0.005	4.299	6	258	0.004	3.685	6	258	0.009	7.984
20:00 - 21:00	6	258	0.006	6.142	6	258	0.006	6.142	6	258	0.012	12.284
21:00 - 22:00	1	168	0.012	11.333	1	168	0.012	11.333	1	168	0.024	22.666
22:00 - 23:00												
23:00 - 24:00												
Total Rates:			0.088	83.195			0.092	86.265			0.180	169.460

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.*

Parameter summary

Trip rate parameter range selected:	103 - 571 (units:)
Survey date date range:	01/01/15 - 25/06/21
Number of weekdays (Monday-Friday):	7
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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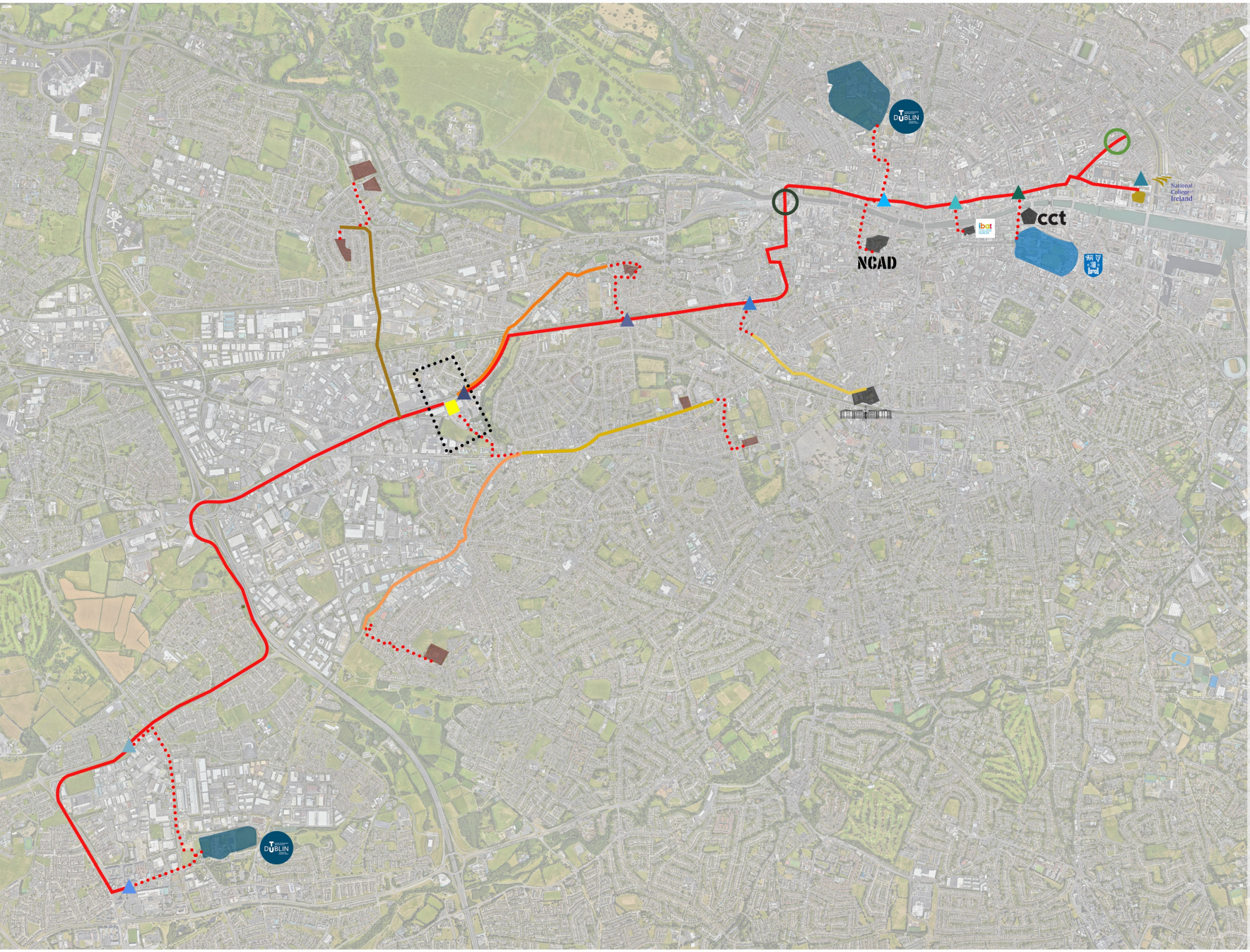
APPENDIX

II

Travel Patterns – Routes & Times

GOWAN MOTORS SITE, NAAS ROAD, DUBLIN - TRAVEL PATTERNS & TIME



LEGEND

SITE LOCATION

TU DUBLIN, TALLAGHT CAMPUS
TOTAL TRAVEL TIME: 35MIN

TU DUBLIN, GRANGEGORMAN CAMPUS
TOTAL TRAVEL TIME: 32 MIN

NATIONAL COLLEGE OF IRELAND
TOTAL TRAVEL TIME: 31MIN

TRINITY COLLEGE DUBLIN
TOTAL TRAVEL TIME: 33MIN

GRIFFITH COLLEGE DUBLIN
TOTAL TRAVEL TIME: 30MIN

NATIONAL COLLEGE OF ART & DESIGN
TOTAL TRAVEL TIME: 30MIN

IBAT COLLEGE DUBLIN
TOTAL TRAVEL TIME: 28MIN

CCT COLLEGE DUBLIN
TOTAL TRAVEL TIME: 30MIN

GREENHILLS COMMUNITY COLLEGE
SECONDARY & FURTHER EDUCATION
TOTAL TRAVEL TIME: 33MIN

BALLYFERMOT COLLEGE OF FURTHER EDUCATION
TOTAL TRAVEL TIME: 22 MIN

CDETB BALLYFERMOT TRAINING CENTRE
TOTAL TRAVEL TIME: 26 MIN

INCHICORE COLLEGE OF FURTHER EDUCATION
TOTAL TRAVEL TIME: 12 MIN

CRUMLIN COLLEGE OF FURTHER EDUCATION
TOTAL TRAVEL TIME: 22 MIN

PEARSE COLLEGE OF FURTHER EDUCATION
TOTAL TRAVEL TIME: 31 MIN

LUAS STATIONS
- TALLAGHT THE SQUARE
- BELGARD
- BLUEBELL
- KYLEMORE
- RIALTO
- SMITHFIELD
- JERVIS
- ABBEY STREET
- BLUEBELL

TRANSPORTATION
- DUBLIN BUS - 56 A / 151
- DUBLIN BUS - 13
- DUBLIN BUS - 27
- DUBLIN BUS - 18
- DUBLIN BUS - 68 / 122
- LUAS RED LINE
- WALKING

CONNOLY STATION - ROUTES TO BELFAST, SLIGO, ROSSLARE, DUNDALK, LONGFORD
TRAVEL TIME: 32MIN

HEUSTON TRAIN STATION - ROUTES TO GALWAY, WESTPORT,CORK, LIMERICK, WATERFORD
TRAVEL TIME: 18 MIN

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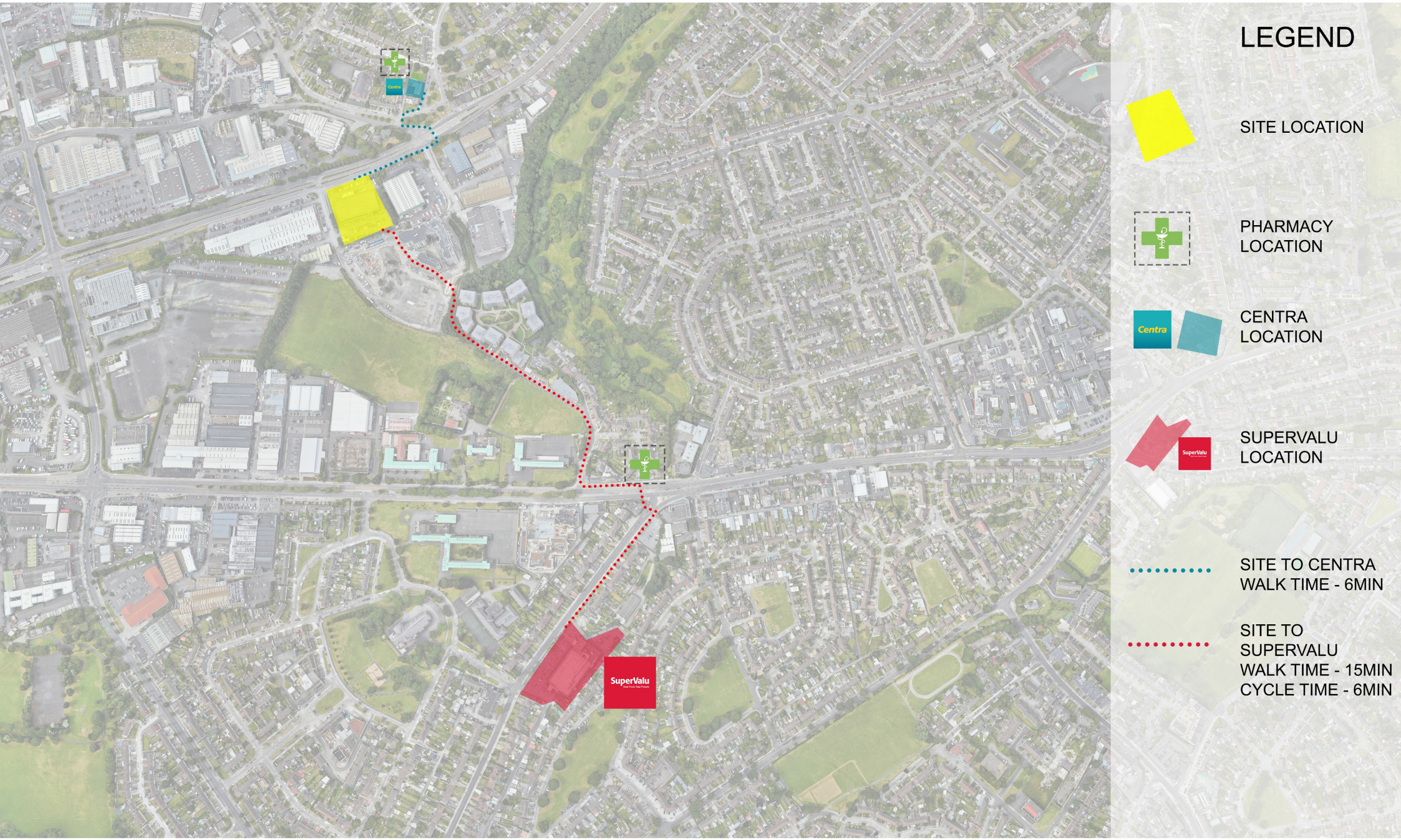
GOWAN MOTORS SITE, NAAS ROAD, DUBLIN - LOCAL SERVICES



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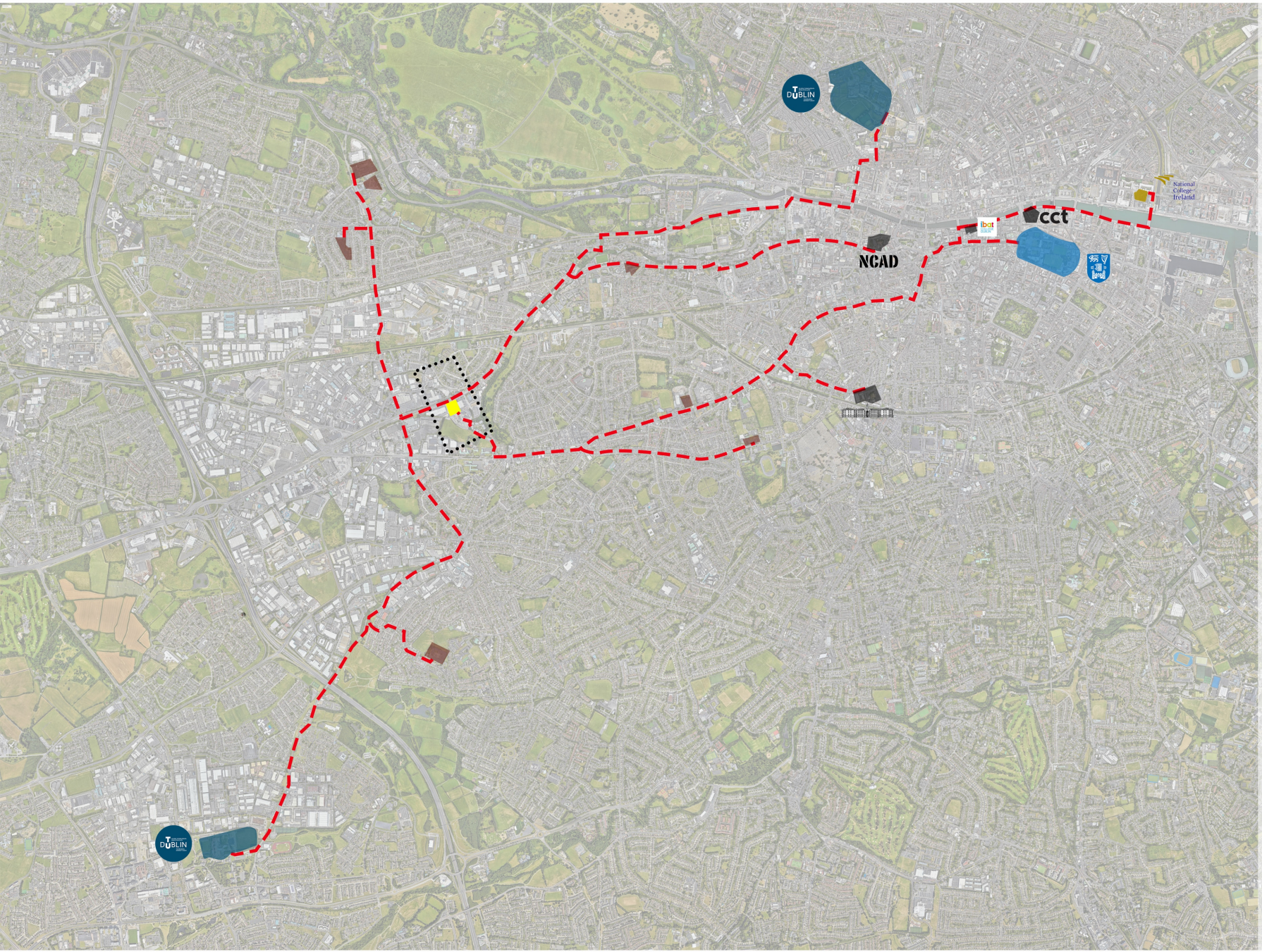
GOWAN MOTORS SITE, NAAS ROAD, DUBLIN - CYCLING ROUTES



LEGEND

SITE LOCATION

TU DUBLIN, TALLAGHT CAMPUS
TRAVEL TIME: 22 MIN
DISTANCE: 6 KM

TU DUBLIN, GRANGEGORMAN CAMPUS
TRAVEL TIME: 20 MIN
DISTANCE: 5.6 KM

NATIONAL COLLEGE OF IRELAND
TRAVEL TIME: 28 MIN
DISTANCE: 7.7 KM

TRINITY COLLEGE DUBLIN
TRAVEL TIME: 21 MIN
DISTANCE: 6.2 KM

GRIFFITH COLLEGE DUBLIN
TRAVEL TIME: 19 MIN
DISTANCE: 5.4 KM

NATIONAL COLLEGE OF ART & DESIGN
TRAVEL TIME: 16 MIN
DISTANCE: 4.8 KM

IBAT COLLEGE DUBLIN
TRAVEL TIME: 23 MIN
DISTANCE: 7.3 KM

CCT COLLEGE DUBLIN
TRAVEL TIME: 24 MIN
DISTANCE: 7.6 KM

GREENHILLS COMMUNITY COLLEGE SECONDARY & FURTHER EDUCATION
TRAVEL TIME: 14 MIN
DISTANCE: 3.8 KM

BALLYFERMOT COLLEGE OF FURTHER EDUCATION
TRAVEL TIME: 10 MIN
DISTANCE: 2.9 KM

CDETB BALLYFERMOT TRAINING CENTRE
TRAVEL TIME: 11 MIN
DISTANCE: 3.1 KM

INCHICORE COLLEGE OF FURTHER EDUCATION
TRAVEL TIME: 10 MIN
DISTANCE: 2.9 KM

CRUMLIN COLLEGE OF FURTHER EDUCATION
TRAVEL TIME: 11 MIN
DISTANCE: 3.6 KM

PEARSE COLLEGE OF FURTHER EDUCATION
TRAVEL TIME: 15 MIN
DISTANCE: 4.7 KM

CYCLING ROUTES

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