consulting engineers

NRB

Preliminary
Travel Plan
(Mobility Management Plan)

For

Residential Development
at

Garters Lane, Saggart,
Co. Dublin.

SUBMISSION ISSUE

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1.0 INTRODUCTION

1.1 NRB Consulting Engineers have been commissioned to prepare a Preliminary Travel Plan in support of an application for a Residential Apartment Development at Garter Lane, Saggart, Co Dublin in order to explain the applicants commitment to the promotion of more sustainable and cost effective travel habits among the end occupiers/residents of the scheme.

What is a Travel Plan?

1.2 Originally and elsewhere called Mobility Management Plans (MMPs), they originated in the United States and the Netherlands in the late 1980s. In the US, employers over a certain size (generally over 100 employees) were required to implement 'Trip Reduction Plans' in order to reduce single-occupancy car commuting trips, and to increase car occupancy.

1.3 A MMP or Travel Plan (TP) consists of a package of measures put in place by an organisation to encourage and support more sustainable travel patterns among residents, staff and other visitors. Such a plan usually concentrates on commuting patterns. In essence, a TP is useful not only to reduce the attractiveness of private car use, but also for the ability to promote and support the use of more sustainable transport modes such as walking, cycling, shared transport and mass transit such as buses and trains.

Aims and Objectives of this Travel Plan

1.4 The package generally includes measures to promote and improve the attractiveness of using public transport, cycling, walking, car sharing, flexible working or a combination of these as alternatives to single-occupancy car journeys to work. A TP can consider all travel associated with the residential or work site, including business travel, fleet management, customer access and deliveries. It should be considered as a dynamic process where a package of measures and campaigns are identified, piloted and monitored on an on-going basis. This MMP recognises the fact that, for some people, car use is often essential as part of the home-work commute, as the work commute is often combined with other important trips, for example having to drop children to school or crèche on the way.

1.5 The changes which are being sought as part of any plan may be as simple as car sharing one-day per week, or walking on Wednesdays, or taking the bus on days which do not conflict with other commitments, leisure or work activities.

1.6 It is envisaged that once in place, the Travel Plan will enable the following benefits to be realised for the Residential Development:

- Reduced residential car parking demand and reduced congestion on the local road network due to lower demand for private transport and/or more efficient use of private motor vehicles,

- Improved safety for cyclists and pedestrians,
- Direct financial savings for those taking part in the developed initiatives, through higher than average vehicle occupancy rates,
- A reduction in car parking & car set-down demand, resulting in improved operational efficiency and safety for all,
- Improved social networking between all those participating in the shared initiatives,
- Improved environmental consideration and performance,
- Improved public image for the development, which sets an example to the broader community and may lead to residents making better travel decisions in the future,
- Improved health and well-being for those using active non-car transport modes,
- On-going liaison with the Local Authority and public transport providers to maintain, improve, and support transportation services to and from the site,
- Improved attractiveness of the development to prospective residents,
- Optimal levels of safety for all residents and visitors.

Methodology

1.7 As part of this Travel Plan, reference has been made to the following documents:

- Your Step By Step Guide To Travel Plans (NTA 2012);
- Achieving Effective Workplace Travel Plans (NTA 2011);
- Traffic and Transport Assessment Guidelines (TII);
- Traffic Management Guidelines (DoELG, 2003);
- Mobility Management Plans – DTO Advice Note (DTO, 2002);
- The Route to Sustainable Commuting (DTO 2001);
- Smarter Travel: A Sustainable Transport Future (DOT)

1.8 Consultation with key stakeholders is an essential part of any Travel plan. As discussed below, as part of the operational phase of this development, a Travel Plan Coordinator Role will be appointed from with the Development Management Company. Following on, once occupied, Residents will be asked to complete detailed questionnaires on essential data in relation to their existing travel patterns. This information will be used to inform the ongoing implementation, monitoring and review of the plan for this development.

1.9 This information has been used herein as the basis for the assessment, conclusions and recommendations.

2.0 ACCESS TO THE SITE - BY MODE

2.1 The development consists of the construction of a total of 224 apartments, arranged in a series of 4 blocks together with ancillary elements on an appropriately zoned sites at Garter Lane, Saggart, Co Dublin. A location plan is shown below as Figure 2.1.

Figure 2.1 – Site Location Map

2.2 The proposed Residential Development is of the highest quality with attractive living and leisure spaces incorporated into the overall Masterplan which includes adjacent surrounding permitted residential development, much of which is under construction.

2.3 It is essential for the successful Travel Planning to concentrate on journeys associated with work & school commuting patterns. These are the groups which can most practically be encouraged to use modes of transport other than the car.

2.4 Notwithstanding this, the development is located in the heart of Saggart and is in very close proximity to the range of public & alternative transport services in Saggart, and in particular is **immediately adjacent the LUAS.**

Pedestrian and Cycling Facilities

2.5 The National Transport Authority (NTA) has surveyed the cycle facilities for the Greater Dublin Area (GDA) as part of the GDA Cycle Network Plan. This plan showing the facilities linking the site with the GDA is included herein as ***Appendix A***. An extract is provided below as ***Figure 2.2*** showing the good network of cycle links connecting the site with the GDA Network.

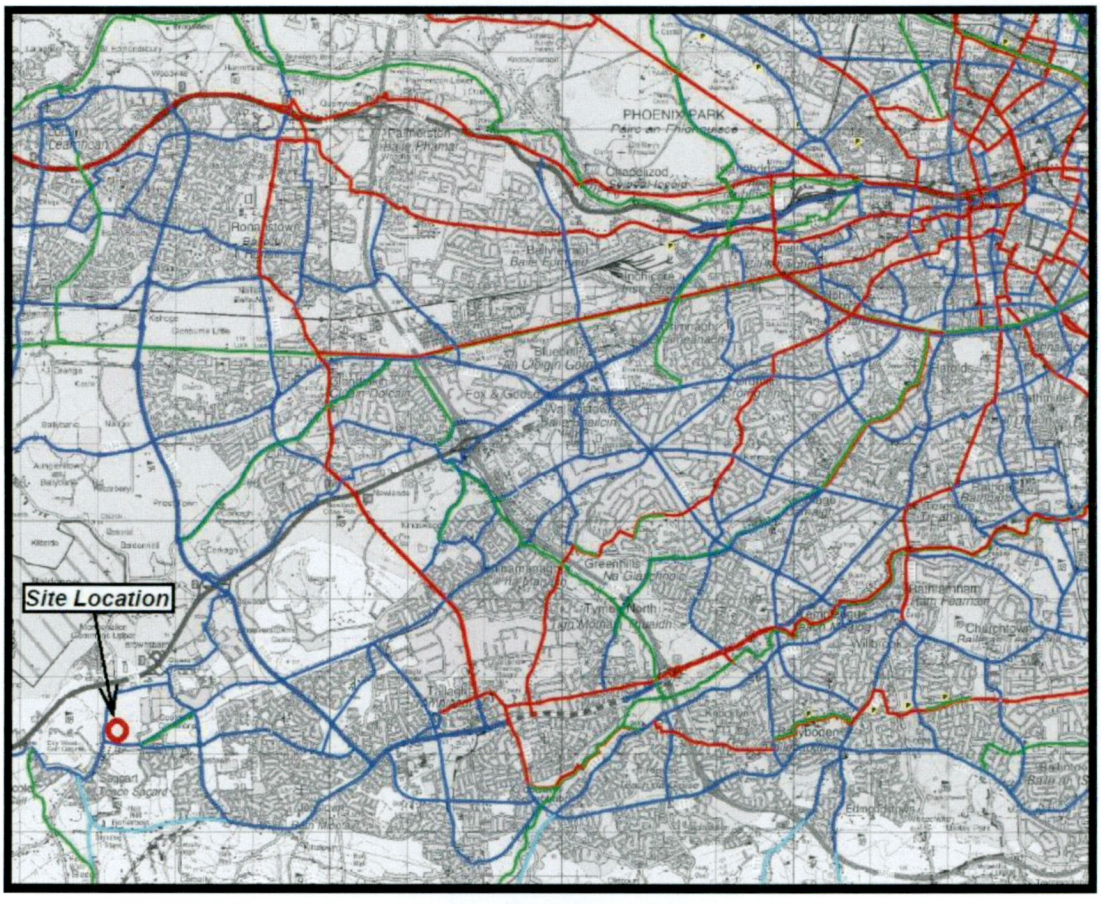


Figure 2.2 – Site and GDA Cycle Network

2.6 The use and viability of the local services will be enhanced through the encouragement of the use of bicycles and through the demand management control of limited car parking provision.

2.7 Dockless Bicycles, known locally as 'Bleeper Bikes' have been operating in South Dublin County Council since 2017. Similar to the popular Dublin Bikes scheme, the Dockless Bikes initiative provides an accessible, short term bike rental scheme across the area which will help to encourage and facilitate a positive shift to cycling as an alternative to the private car.

2.8 The basis for these schemes is that they have access to rental bikes stored on public cycle parking stands and can return them to other approved public locations for a small fee. This has an advantage over the Dublin bike scheme as it does not require dedicated docking stations to be constructed. It also avoids the frustration and queues which can occur when waiting for a bike to become available and being returned to an empty docking station.

2.9 The key to cycle accessibility is convenient safe links, with secure and carefully sited cycle parking. Cycling is ideal for shorter journeys. A significant amount of work has been carried out in the provision of facilities for Cyclists in SDCC (more that 200km of cycle facilities have been provided to date, and work is ongoing).

2.10 The enclosed GDA Cycle Network Plan sets out the proposals for improvements to the existing Cycle Network Plan

2.11 It is clear from ***Figure 2.2*** above that it is proposed that the site will be bounded by primary, secondary and Greenway routes bordering the development site directly, thereby creating a high quality network of cycle routes linking the site locally, with Tallaght and onwards to the City Centre.

2.12 The introduction of Toucan crossing facilities for cyclists at all Traffic Signal Controlled junctions within SDCC, a scheme which is being rolled out, will further enhance cyclist accessibility and permeability.

2.13 The location of the proposed development is ideal in terms of encouraging walking. The proximity to City West Business Campus as an Employment Location, to Tallaght IT and Tallaght University Hospital and other local employment hubs means that walking combined with LUAS will be an attractive alternative option for the vast majority of residents. In addition, being located in the heart of Saggart and a short distance from every day services such as City West Shopping Centre, reduces the need to travel by car and will assist in encouraging walking and cycling.

2.14 The SDCC and national objective is to cultivate a walking and cycling culture, through the implementation of appropriate infrastructure and promotional measures, which positively encourages all members of the community to walk or cycle at all life stages and abilities, as modes of sustainable transport that delivers environmental, health and economic benefits to both the individual and the community.

2.15 To help meet the target set in Ireland's first National Cycle Policy Framework launched in April 2009 (that 10% of all journeys will be by bike by 2020), the following will assist:

- Improve cycling conditions on primary cycle routes locally as per the enclosed details,
- Develop new cycle route/ greenways through parks and open spaces,
- Improve connectivity/permeability from cycle routes to key destinations,
- Provide 30kph zones within residential areas and other suitable locations,
- Provide new secure cycle parking,
- Continue cycle training in schools,
- Ensure that cycling is a key element of all development and
- Monitor trends in cycle numbers using cycle counter data.

2.16 The local infrastructure plans support the 19 specific objectives in the National Cycle Policy Framework. The proposed residential development on the subject site, through good design, will assist in the promotion of cycling as a primary mode of travel.

2.17 For journeys greater than 8km, it is recognised that a modal shift to cycling could be achievable for some, but not all, and options such as public transport and car sharing should be considered. Journeys up to 8km could be undertaken by bicycle and journeys up to 3-4km could be undertaken by walking or cycling.

Cycle Parking

2.18 The residential apartment guidelines recommends a significantly higher cycle parking requirement that that contained in the SDCC Development Plan. The Guidelines recommend 1 cycle parking space per bedroom plus 1 visitor space per 2 residential units, and therefore it is proposed to provide secure basement cycle parking spaces along with secure surface level cycle parking within the development consistent with the Guidelines.

2.19 It is expected that a very significant number of residents will be willing to cycle to work or school, if safe links and secure parking are in place, and that is reflected in the provision of large number of dedicated cycle parking spaces over and above the SDCC Cycle Policy requirements and in line with new national Design Standards for Apartments. Once occupied, advice can be provided on routes by the appointed Travel Plan Coordinator, possibly with the help of a bicycle user group. This can be further facilitated in consultation with SDCC, as the ongoing provision of cycle facilities as set out above is fully implemented.

2.20 It is acknowledged that cyclists need to be confident that their cycles will not be tampered with while they are in storage. With this in mind, it is proposed to install the cycle parking with racks which allow both frame and wheels to be secured. These cycle racks are located in an active, well lit & security monitored place or where they can be seen by a security guard, either directly, or by closed circuit television.

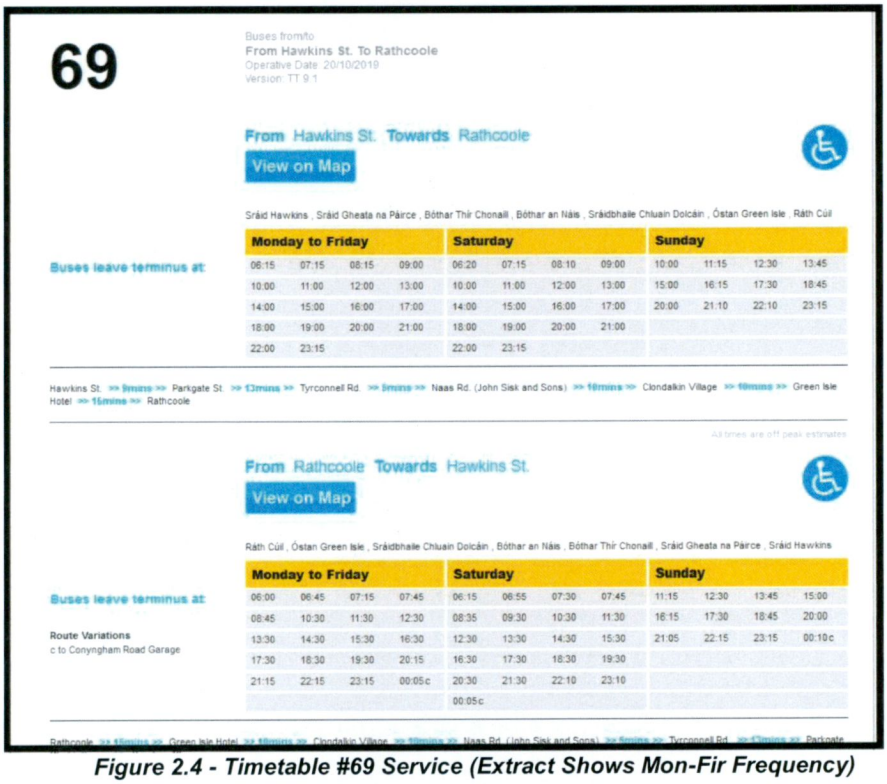
2.21 Within the basement, the arriving and departing cyclists will be required to dismount and walk to the cycle racks with their cycles in a safe manner (something which occurs without any difficulty at similar facilities in cities throughout the world).

Bus Provision

2.22 Currently #77A Dublin Bus Service serves City West, with route #69 linking to City West Hotel. Bus stops are currently in close proximity to the subject site, as illustrated below as **Figure 2.3.**

Figure 2.3 – Site Location and Bus Stops

2.23 The service #69 operates a commuter service between the site and the City Centre, with the current Mon-Fri Timetable reproduced below as ***Figure 2.4***.



69

Buses from/to
From Hawkins St. To Rathcoole
Operative Date: 20/10/2019
Version: TT 9.1

From Hawkins St. Towards Rathcoole
View on Map

Sráid Hawkins , Sráid Gheata na Páirce , Bóthar Thír Chonaill , Bóthar an Náis , Sráidbhaile Chluain Dolcáin , Óstán Green Isle , Ráth Cúil

Buses leave terminus at:

Monday to Friday				Saturday				Sunday			
06:15	07:15	08:15	09:00	06:20	07:15	08:10	09:00	10:00	11:15	12:30	13:45
10:00	11:00	12:00	13:00	10:00	11:00	12:00	13:00	15:00	16:15	17:30	18:45
14:00	15:00	16:00	17:00	14:00	15:00	16:00	17:00	20:00	21:10	22:10	23:15
18:00	19:00	20:00	21:00	18:00	19:00	20:00	21:00				
22:00	23:15			22:00	23:15						

Hawkins St. >> 9mins >> Parkgate St. >> 13mins >> Tyrconnell Rd. >> 9mins >> Naas Rd. (John Sisk and Sons) >> 10mins >> Clondalkin Village >> 10mins >> Green Isle Hotel >> 15mins >> Rathcoole

All times are off peak estimates

From Rathcoole Towards Hawkins St.
View on Map

Ráth Cúil , Óstán Green Isle , Sráidbhaile Chluain Dolcáin , Bóthar an Náis , Bóthar Thír Chonaill , Sráid Gheata na Páirce , Sráid Hawkins

Buses leave terminus at:

Monday to Friday				Saturday				Sunday			
06:00	06:45	07:15	07:45	06:15	06:55	07:30	07:45	11:15	12:30	13:45	15:00
08:45	10:30	11:30	12:30	08:35	09:30	10:30	11:30	16:15	17:30	18:45	20:00
13:30	14:30	15:30	16:30	12:30	13:30	14:30	15:30	21:05	22:15	23:15	00:10c
17:30	18:30	19:30	20:15	16:30	17:30	18:30	19:30				
21:15	22:15	23:15	00:05c	20:30	21:30	22:10	23:10				
				00:05c							

Route Variations
c to Conyngham Road Garage

Rathcoole >> 13mins >> Green Isle Hotel >> 10mins >> Clondalkin Village >> 10mins >> Naas Rd. (John Sisk and Sons) >> 9mins >> Tyrconnell Rd. >> 13mins >> Parkgate

Figure 2.4 - Timetable #69 Service (Extract Shows Mon-Fir Frequency)

2.24 All of the Dublin Bus routes currently in use are operated using new low-floor wheelchair accessible city buses. Detail of routes, timetables and fares are provided on www.dublinbus.ie, on the Dublin Bus App, and on the Transport for Ireland National Journey Planner App.

2.25 An additional Map showing the core Dublin Bus routes and plans is included herein as an Appendix A.

LUAS

2.26 The LUAS Red Line stop of Saggart is immediately beside the site. LUAS has become a highly successful travel mode linking City West and Saggart with local areas and onwards to the city centre. It is a semi-segregated light rail tram service operating at street level but generally gets priority over motorised vehicles at junctions. A map extract from the LUAS website, showing the complete network, is included below as ***Figure 2.5***.

Figure 2.5 - LUAS Services

2.27 The Red Line serving the site provides a regular service between the 3 Arena/Connolly Station and Tallaght/Saggart with intermediate stops at key locations including Busarus, Heuston Station, Red Cow and City West. The normal day to day operating times are 05:30-24:00

2.28 The extended Green Line now provides a good degree of connectivity with the Red Line and their respective stops intersecting at O'Connell Street and Abbey Street. The Green Line provides a service between Brides Glen and Broombridge with intermediate stops at St Stephens Green, Westmoreland, Cabra, Phibsborough and Broadstone DIT.

2.29 LUAS runs on a frequency of service which changes depending upon the time of day to adequately cater for demand. The service frequencies for the Local Services are detailed below as ***Figure 2.6***:

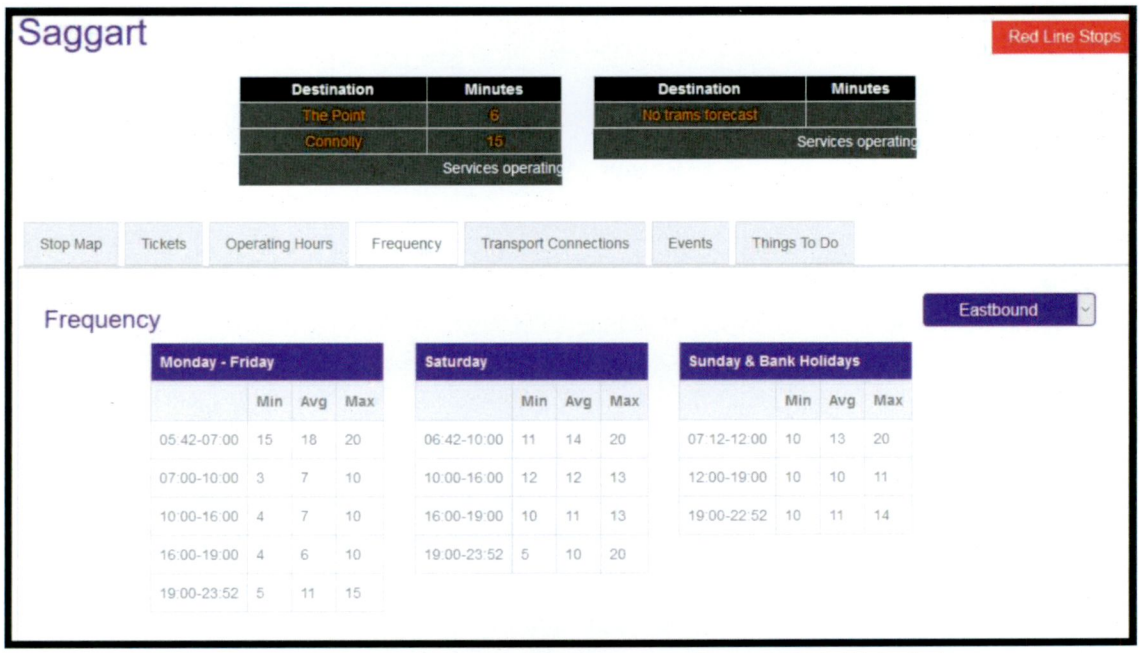


Figure 2.6 - LUAS Service Frequencies (From LUAS Website)

2.30 The LUAS provides excellent connectivity with other rail and DART services including intercity, commuter and DART services operating out of Heuston Station and Connolly Station - both of which are served by the Red Line LUAS.

2.31 ***LUAS has the ability to deliver significant increased capacity through a combination of longer carriages/trains and increased frequency of service***.

2.32 In terms of number of transport alternatives easily available to Residents, it is considered that the proposed development is **very highly sustainable** in terms of public and alternative transport accessibility. The proximity of the development to existing public transport services means that all residents will have viable alternatives to the private car for accessing the site and will not be reliant upon the car as a primary mode of travel.

2.33 Direct and high quality pedestrian linkages are provided between the sites and the existing pedestrian facilities on the surrounding road network. The entrances to the site will be well lit, so that people can feel secure in using the facilities.

2.34 Public transport maps and timetables can be provided in prominent locations on site and the information will be kept up to date by the appointed Travel Plan Coordinator, a role for the Management Company.

2.35 Working Residents are generally now offered the opportunity to purchase public transport commuter tickets under the current 'Employer Pass' and 'TaxSaver' programmes, by individual Employers. Under these schemes the employer applies to Iarnród Éireann / Bus Éireann for tax free public transport tickets for their employees as an incentive for them to use public transport to travel to work.

2.36 With this in mind, the main focus of this Travel Plan will be to promote and support the use of alternative modes to the private car.

Car Parking

2.37 There are a significantly reduced number of private car parking spaces provided within the basement areas, which can include Go Car, Residential Spaces, mobility impaired and visitor parking. This is considered appropriate in light of the location of the proposed development immediately adjacent high quality public transport, the inclusion of on-site services, and in consideration of the provisions of the SDCC Development Plan being "Maximum" standards. Given the low number of spaces provided, with effectively less than one parking space per apartment, the entire scheme will be actively marketed and promoted as a "Reduced Car Dependency" scheme and this will be communicated from the outset as part of sales and marketing. The development will also be managed on an on-going basis to ensure that the reduced car dependency nature of the development is continually promoted and enhanced.

2.38 Details of the justification of the parking provision are set out in the main body of the Transportation Assessment Report. However, it is clear that the lower provision of car parking will in itself act as a demand-management measure, ensuring that the development is occupied in the most sustainable manner, being almost predominantly reliant on non car modes of travel.

2.39 If considered appropriate, as part of a working MMP, additional priority spaces will in future be allocated to car-sharing workers when they travel together. These can be dedicated as some of the most accessible spaces and will be clearly visible as-such to other car park users. It is acknowledged that this may require some level of 'policing' by the Management Company.

Electric Vehicle Charging

2.40 The car parking spaces within the basement area can be designed so that they can easily be upgraded to allow conversion for Electric Vehicles. The entire basement car park of the subject scheme can be ducted to accept cabling to serve a charging point for every car space. Conduits can be run on the walls where charging points can also be mounted. Where residents request a charging point to be installed, the relevant charging point can be pre-wired back to their home electricity meter in the designated meter location. The socket point can have a lockable cover on it so that only that resident may use the power point. This provision around the parking area would allow future charging points to be installed at any of the car parking spaces with minimum works as and when required.

3.0 COLLECTION OF BASELINE INFORMATION

Possible Travel Pattern Questionnaires

3.1 The Redevelopment is a proposed high quality Residential Apartment development in Saggart adjacent the LUAS.

3.2 Once occupied, and when the Travel Plan Coordinator is appointed, the occupiers of the proposed development will be encouraged to continually monitor the Travel Plan initiatives in order to maximise on their success.

3.3 Shortly after occupation of the new development, a detailed travel-questionnaire will be complied and distributed to Residents for completion. The aim of the travel questionnaire will be to establish travel patterns between work and home and school travel demand. The information gathered from this survey will be used to inform the further development of the Travel Plan.

3.4 The Baseline Survey information will also allow the Travel Plan Coordinator for the development to set realistic modal-split targets for the development.

3.5 It is anticipated that, given the sustainable location and good transport links at this development, combined with the limited car parking on site, there will be a high percentage of use accessing via public and alternative transport. The Travel Plan will need to maintain this positive modal split and improve it, where possible. It is informative to note that the "Smarter Travel: A Sustainable Transport Future" (DOT) Objective for 2020 is to achieve a reduced work related commuting by car modal share of 65% to 45%.

3.6 The Travel Plan is not seeking a radical change in terms of a modal shift; it is recognised that the use of the car is often essential for many users. Instead, the Plan seeks small but consistent increments of change in our approach to, and the use of, alternatives to the car.

4.0 THE TRAVEL PLAN

4.1 The successful implementation of a Travel Plan will ensure that, in-so-far-as-possible, the impacts of this traffic are reduced and minimised where practical, while providing a number of environmental and economic advantages detailed below.

4.2 The following sub-sections detail the available initiatives which will serve to better manage travel demand, and therefore the traffic impact of work-related journeys, focused on the movement of residents during peak times.

Walking

Walking - Key Information	
Approx Zone of Influence	3.5km
Percentage of Residents working in area of influence	TBC in each survey when occupied
Percentage of Residents interested in Walking	TBC in each survey when occupied

Table 4.1 – Key Information: Walking

4.4 There are many local, global, and personal benefits to walking to work, a few of which are listed following:

- **W** - Wake Up! - Studies have shown that people who walk to work are more awake and find it easier to concentrate.
- **A** - Always one step ahead - Walking makes people more aware of road safety issues and helps them develop stronger personal safety skills.
- **L** - Less congestion - If you leave the car at home and walk, there are fewer cars on the road which makes it safer for those who walk and cycle.
- **K** - Kinder to the environment - By leaving the car at home you are reducing the amount of CO 2 produced and helping to reduce the effects of climate change and air pollution.
- **I** - Interpersonal skills - Walking to work or school can be a great way to meet other walkers, share the experience, and develop personal skills.
- **N** - New adventures - Walking to work or school is a great way to learn about your local environment and community. It's also a fun way to learn about the weather, landscape, and local ecosystems.
- **G** - Get fit and stay active - Walking to and from work or school helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.

4.5 Most adults will consider walking a maximum of 3.5 km (Approx 30/40 minutes) to work. Residents working within a 3.5 km radius of the site will be encouraged to walk to work as often as their schedule permits. Similarly school trips can be encouraged on foot.

4.6 The following initiatives and incentives can be used to encourage walking to work or school:

- Take part in a 'Pedometer Challenge' which is organised through the Irish Heart Foundation or Smarter Travel Workplaces;
- Organise special events such as a 'Walk to work/school on Wednesdays' where participants are rewarded for their participation;;
- Keep umbrellas in public areas on a deposit system for use when raining;
- Display Smarter Travel Workplaces Accessibility Walking maps on notice boards areas so Residents can plan journeys;
- Organise lunch time or afternoon walks as part of a health and well-being programme;
- Highlight the direct savings gained due to reduced use of private vehicles.

Cycling

Cycling – Key Information	
Approx. zone of influence	10km
Percentage of Residents Surveyed known to Work within the area of influence	TBC in each survey when occupied
Percentage of Residents interested in cycling	TBC in each survey when occupied

Table 4.2 : Key Information - Cycling

4.7 Research suggests that cycling is a viable mode of transport for people who live up to 10 km from work or school.

4.8 Cycling is a great way to travel. It helps foster independence, raises awareness of road safety, and helps the environment.

4.9 Some positive aspects of cycling to work or school are listed following:

- **C** - Cycling is fun! - Cycling is a great form of transport but it's also a great recreational activity. Cycling is a skill that stays with you for life and it's a fantastic way to explore your local community.
- **Y** - You save time & money - cycling to work reduces the need to travel by car thus reducing fuel costs and freeing up road space for more cyclists;
- **C** - Confidence building - travelling to work as an independent cyclist can give

people increased confidence proving beneficial in all aspects of life;

- **L** - Less congestion - If you leave the car at home and cycle to work there are fewer cars on the road which makes it safer for those who cycle and walk to work or school;
- **I** - Interpersonal skills - Cycling to work or to school can be a great way to meet other cyclists and share the experience;
- **N** - New adventures - Cycling to work or school is a great way to learn about your local environment and community. It helps people to understand where they live and how their actions affect their local environment;
- **G** - Get fit and stay active - cycling to and from work or school helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.

4.10 The provision of enhanced and attractive cycle parking facilities at the site will clearly play a critical role in promoting journeys by bicycle.

4.11 The following initiatives and incentives can be used to encourage cycling to work and school:

- New cycle parking installed within the development, secure and well lit;
- It will publicise cycle parking availability by way of signage and on notice boards;
- It will display maps on notice boards areas so people can plan journeys;
- The development can provide free cycle accessories (panniers, lights, visi-vests, helmets) in periodic draws for cyclists,
- The Travel Plan Coordinator can organise cycle training sessions on site on the rules of the road and the specific risks associated with the locality;
- The Travel Plan Coordinator can invite bike suppliers on site for a 'Green Day' or 'Green Week' so that people can try bikes before buying;
- The Travel Plan Coordinator can set up a Bicycle User Group (BUG) to promote cycling;
- The Travel Plan Coordinator can highlight the direct savings gained due to reduced use of private vehicles;
- The Travel Plan Coordinator can encourage residents to take part in National Bike Week, see www.bikeweek.ie.

Public Transport

Public Transport – Key Information	
Approx. zone of influence	All Residents
Percentage of Residents in area of influence	100%
Percentage of Residents using Public Transport	TBC in each survey when occupied

Table 4.3: Key Information: Public Transport

4.12 There are many benefits to taking public transport, some of which include:

- Personal Opportunities – Public transportation provides personal mobility and freedom;
- Saving fuel – Every full standard bus can take more than 50 cars off the road, resulting in fuel savings from reduced congestion;
- Reducing congestion – The more people who travel to work or to school on public transport, especially during peak periods, the less people travelling by private car;
- Saving money – Taking public transport to and from work or school is a lot cheaper than travelling by car and saves the cost of buying, maintaining and running a vehicle;
- Reducing fuel consumption – A full standard bus uses significantly less fuel per passenger than the average car;
- Reducing carbon footprint – Public transport is at least twice as energy efficient as private cars. Buses produce less than half the CO2 emissions per passenger kilometre compared to cars and a full bus produces 377 times less carbon monoxide than a full car;
- Get fit and stay active - Walking to and from work or school to public transport helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.
- Less stress – Using public transport can be less stressful than driving yourself, allowing you to relax, read, or listen to music.

4.13 The following initiatives and incentives can be used to encourage people to take public transport:

- Publicise Employee Tax Saver Commuter tickets, which offer savings to employers in PSRI per ticket sold and significant savings to employees in marginal tax rate and levies on the price of their ticket;
- Encourage public transport use for travel by promoting smart cards, advertising the availability of these tickets to Residents;
- Publicise the availability of Real Time Information. Real Time Information shows when your bus is due to arrive at your bus stop so you can plan your journey

more accurately;

- Provide maps of local bus routes and the nearest bus stops, LUAS Timetables and Frequencies, and the length of time it takes to walk to them;
- Contact local providers about issues such as location of existing and new bus stops, timing of routes, or where you have market information about a potential new route.

Go-Car/Car Sharing

Car Sharing – Key Information	
Approx. zone of influence	All Residents
Percentage of Residents in area of influence	100%
Percentage of Residents Car Sharing	TBC in each survey when occupied

Table 4.4: Key Information - Go-Car/Car Sharing

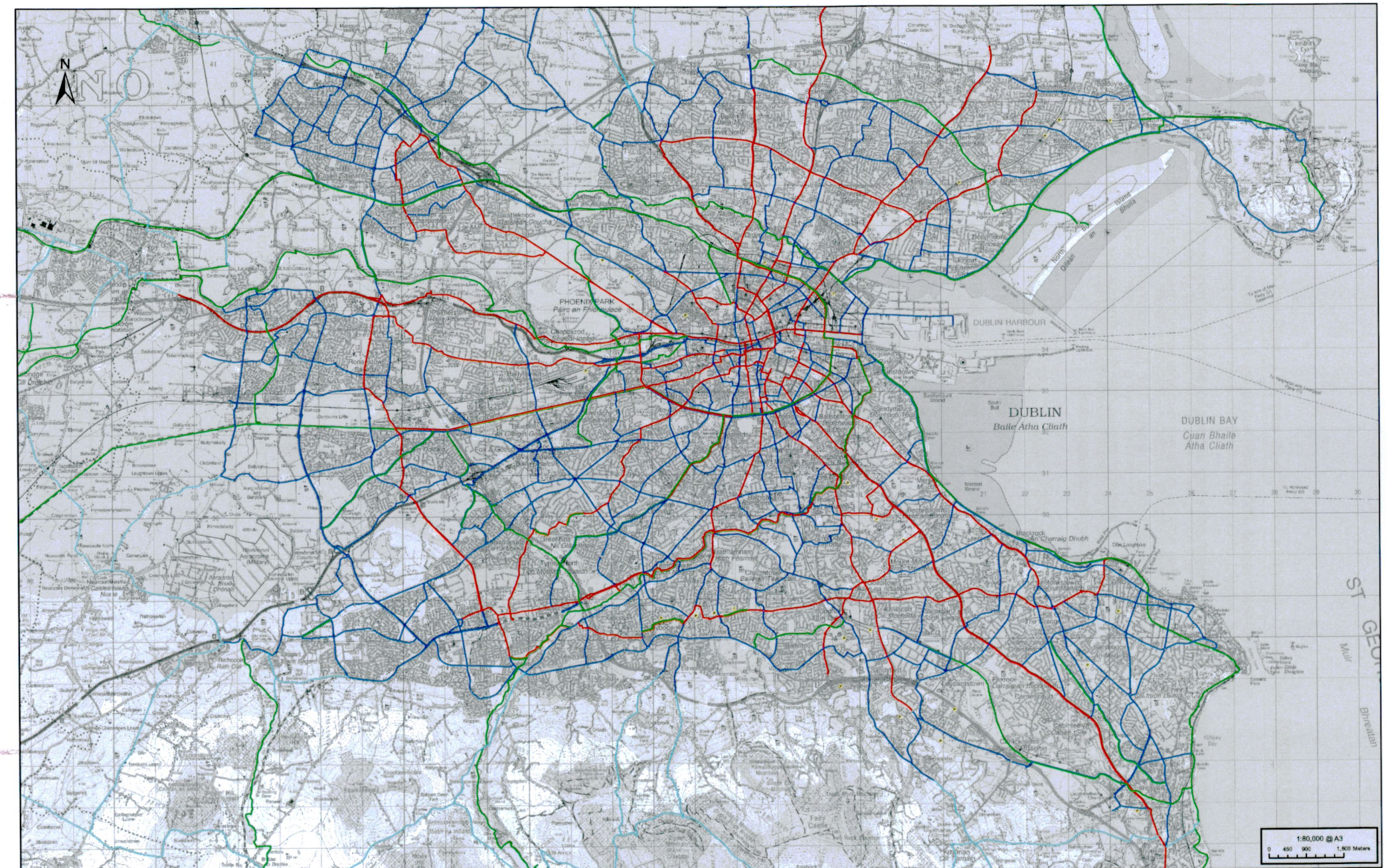
4.14 Every day thousands of commuters drive to work or to school on the same routes to the same destinations, at the same time as their colleagues. By car sharing just once a week, a commuter's fuel costs can be reduced by 20%, and in a similar fashion, the demand for work place parking can be reduced by 20%. If every single-occupancy driver carried another driver, there would be 50% less cars on the road at peak times.

4.15 Although use of the car to get to work or to school is essential for a large proportion of people, car sharing schemes have the potential to deliver a significant reduction in private vehicle trips by promoting higher than average occupancy rates for each vehicle.

4.16 A locally run car sharing scheme relies on a database containing workplace information, working hours, and peoples preferences such as gender/driver/passenger and their preferred route to and from work. The car-sharing database can be a map showing where Residents work, a database of car-sharers' details hosted on an organisations intranet site, or an on map-based matching website.

4.17 Car sharing often happens informally, however some participants often prefer a formal scheme such as a Go Car facility which will normally generate a higher take-up for car sharing, and more efficiency in terms of increased occupancy rates. Car sharing is much easier promoted within a community such as is proposed here.

4.18 Encouraging more Residents to share car journeys to work rather than driving alone as well as encouraging more to set up and take part in car sharing/pooling would prove a very effective means of reducing daily car trips to and from the site.



Project:
CYCLE NETWORK PLAN FOR THE GREATER DUBLIN AREA

Title:
PROPOSED CYCLE NETWORK DUBLIN METROPOLITAN AREA SHEET CN2

Legend:
- Primary
- Secondary
- Greenway
- Inter-Urban

Údarás Náisiúnta Iompair
National Transport Authority

AECOM
Roughan & O'Donovan

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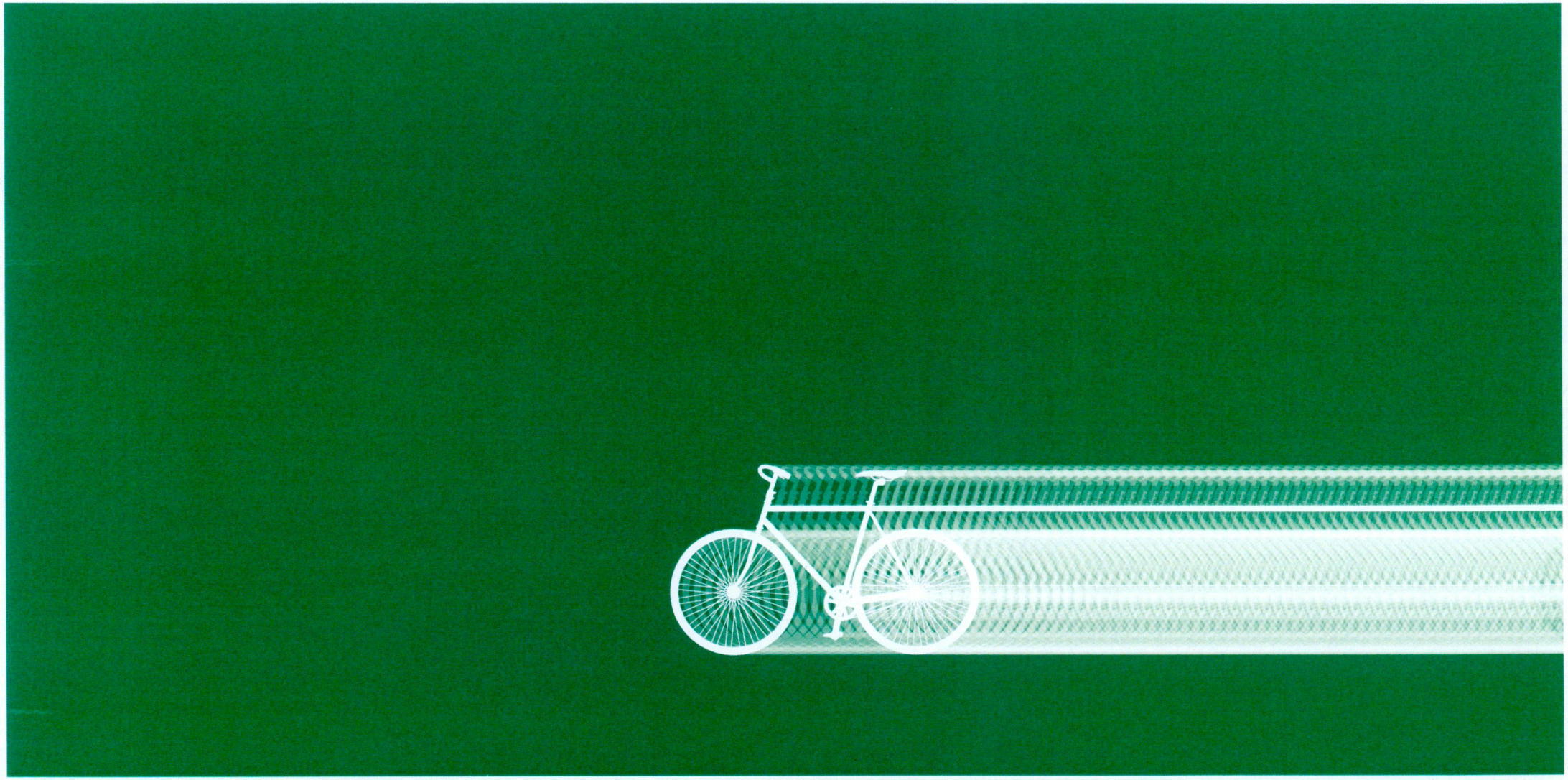
Greater Dublin Area
Cycle Network Plan

Part 4:

Proposed Cycle Network



PART 4

PROPOSED CYCLE NETWORKS MAPS

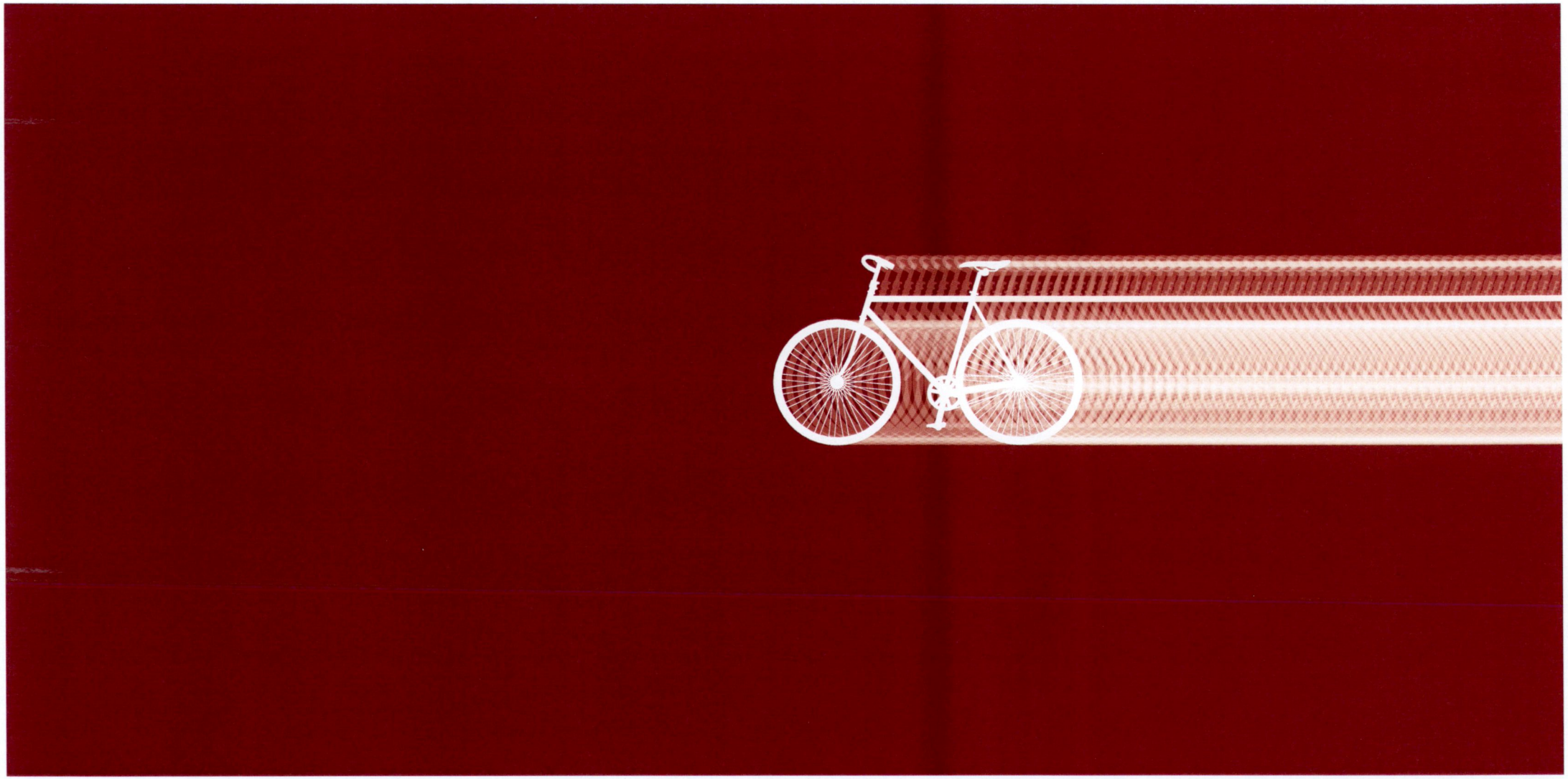
DRAWING NUMBER	TITLE
Part 4a	**Overall GDA Cycle Network Maps**
CN2	Dublin Metropolitan Area Cycle Network
CN3	GDA Regional Cycle Route Network
DGN	Dublin Greenway Network
Part 4b	**Proposed Cycle Network - Dublin Area**
DS	Dublin Network Sheet Plan
N1	Dublin Central Cycle Network
N1a	Dublin City Centre Cycle Network
N1b	Dublin City Centre Primary Routes
N2	Dublin North East Cycle Network
N3	Dublin North Central Cycle Network
N4	Dublin North West Cycle Network
N5	Dublin Mid West Cycle Network
N6	Dublin South West Cycle Network
N7	Dublin South Central Cycle Network
N8	Dublin South East Cycle Network
Part 4c	**Proposed Cycle Networks in Towns**
	Fingal
TN	Town Networks Sheet Plan
N9	Swords /Malahide / Portmarnock
N10	Lusk / Rush / Donabate
N11	Balbriggan / Skerries
	Meath
N13	Kells
N12	Navan
N14	Trim
N15	Dunshaughlin / Ratoath / Ashbourne

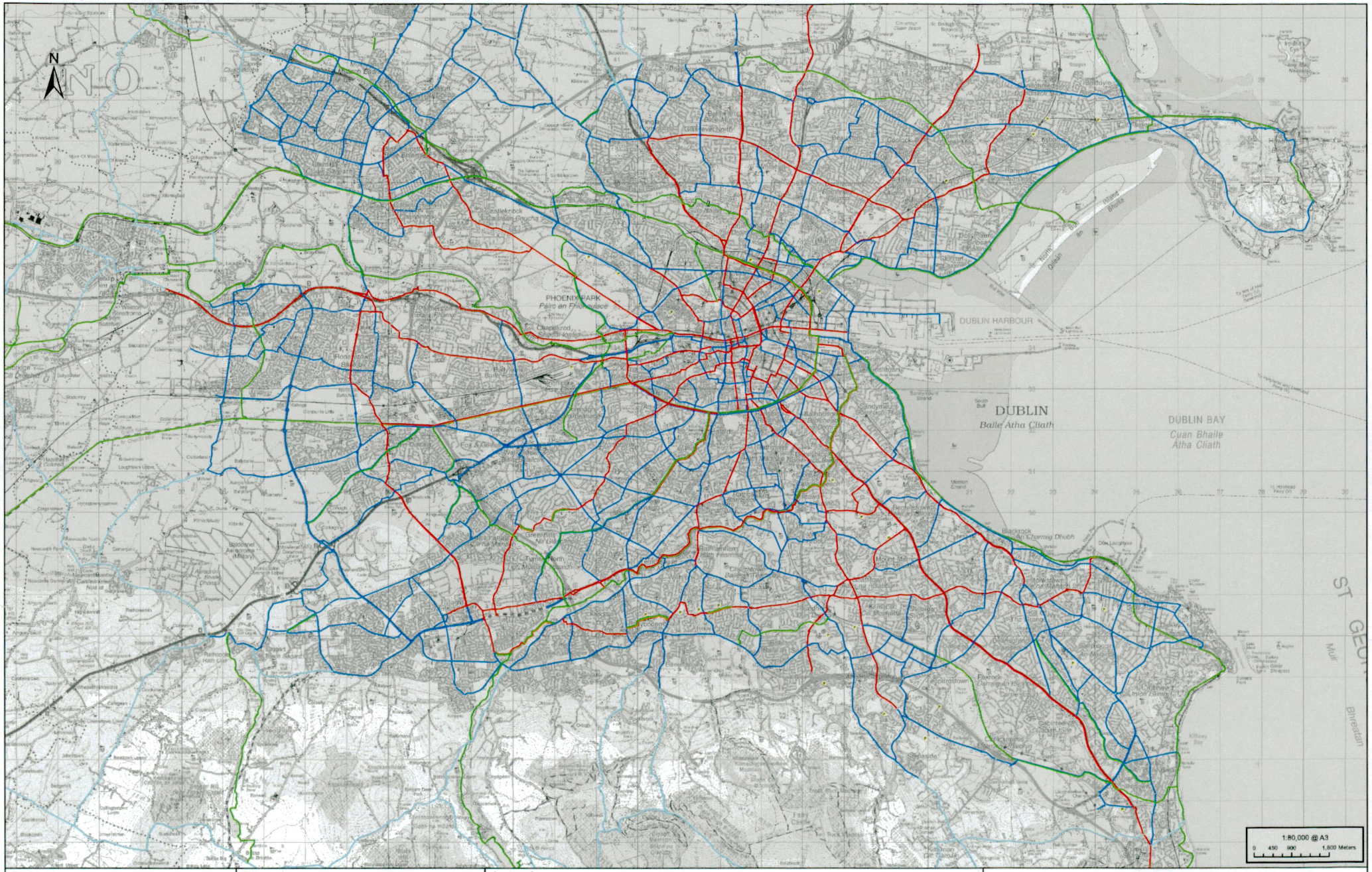
DRAWING NUMBER	TITLE
	Kildare
N16	Maynooth / Celbridge / Leixlip
N17	Clane / Prosperous
N18	Naas / Sallins / Kill
N19	Newbridge & Kildare
	Wicklow
N20	Bray
N21	Greystones / Delgany
N22	Wicklow Town / Rathnew
N23	Arklow
Part 4d	**Rural Cycle Routes**
RS	Rural Cycle Routes Sheet Plan
RN1	Rural Cycle Routes Sheet 1: Fingal
RN2	Rural Cycle Routes Sheet 2: East Meath
RN3	Rural Cycle Routes Sheet 3: Northwest Meath
RN4	Rural Cycle Routes Sheet 4: Central Meath
RN5	Rural Cycle Routes Sheet 5: South Meath / North Kildare
RN6	Rural Cycle Routes Sheet 6: Central Kildare
RN7	Rural Cycle Routes Sheet 7: South Kildare
RN8	Rural Cycle Routes Sheet 8: South Wicklow
RN9	Rural Cycle Routes Sheet 9: Central Wicklow
RN10	Rural Cycle Routes Sheet 9: Dublin Mountains & North Wicklow

Greater Dublin Area
Cycle Network Plan

Part 4a:

Overall GDA Cycle Network Map





Project:

CYCLE NETWORK PLAN FOR THE GREATER DUBLIN AREA

Title:

PROPOSED CYCLE NETWORK DUBLIN METROPOLITAN AREA SHEET CN2

Legend:

- Primary
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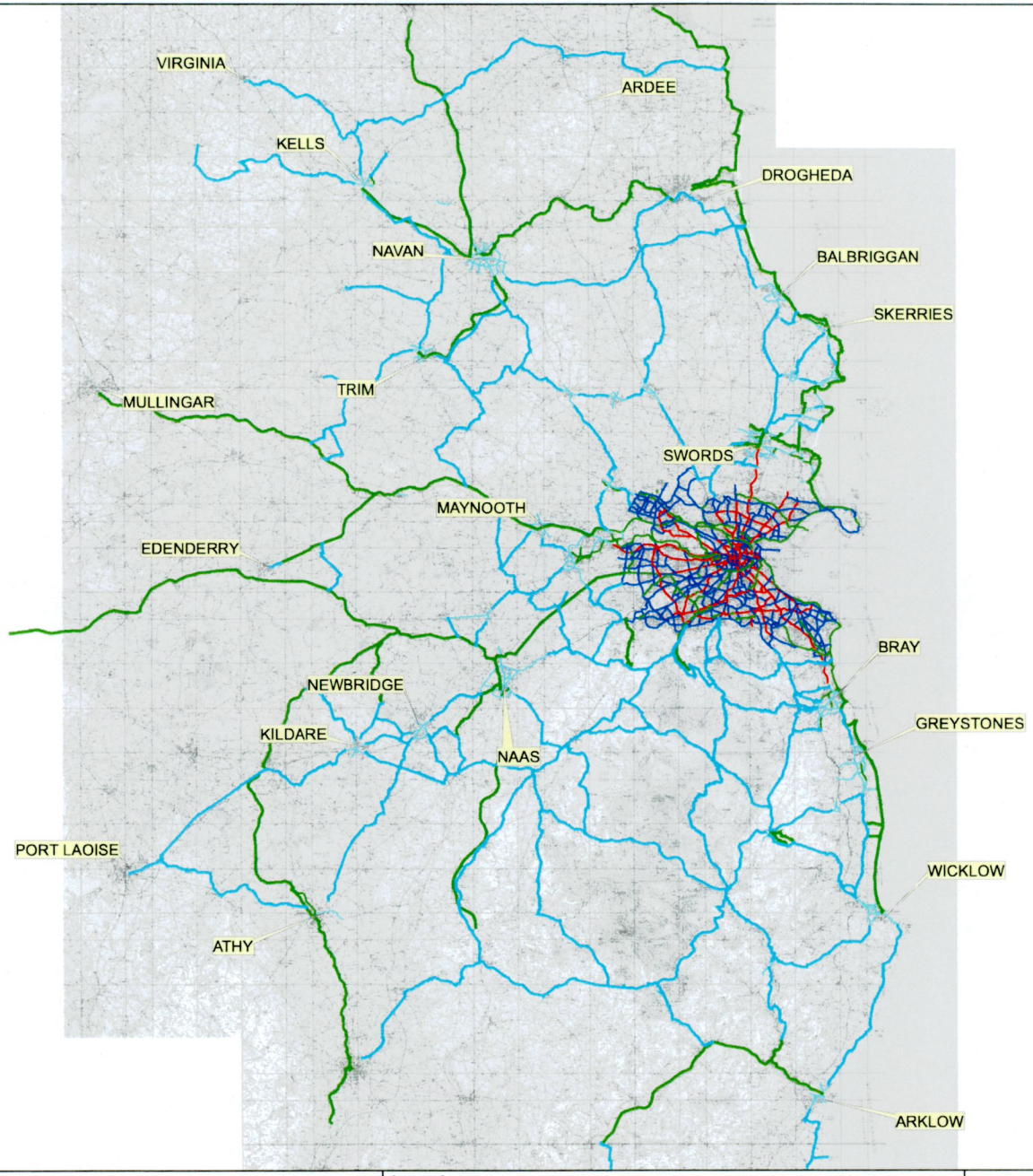

Project:
CYCLE NETWORK PLAN FOR THE GREATER DUBLIN AREA

Title:
PROPOSED CYCLE NETWORK
GDA REGIONAL CYCLE ROUTE NETWORK
SHEET CN3

Legend:
Inter-Urban
Primary
Greenway
Secondary

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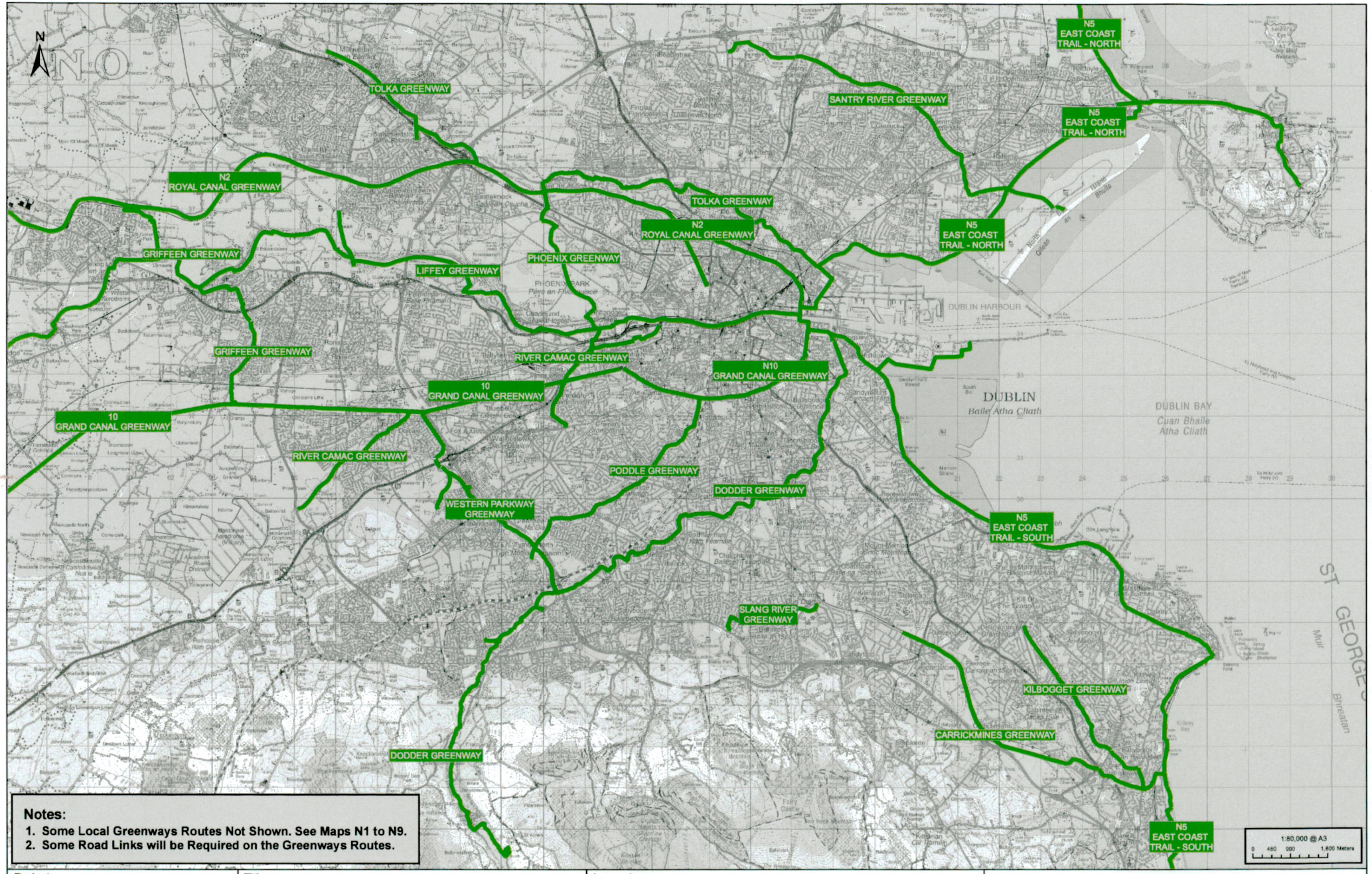

Notes:

1. Some Local Greenways Routes Not Shown. See Maps N1 to N9.
2. Some Road Links will be Required on the Greenways Routes.

Project:	Title:	Legend:
CYCLE NETWORK PLAN FOR THE GREATER DUBLIN AREA	PROPOSED CYCLE NETWORK DUBLIN METROPOLITAN GREENWAY NETWORK SHEET DGN	Greenway

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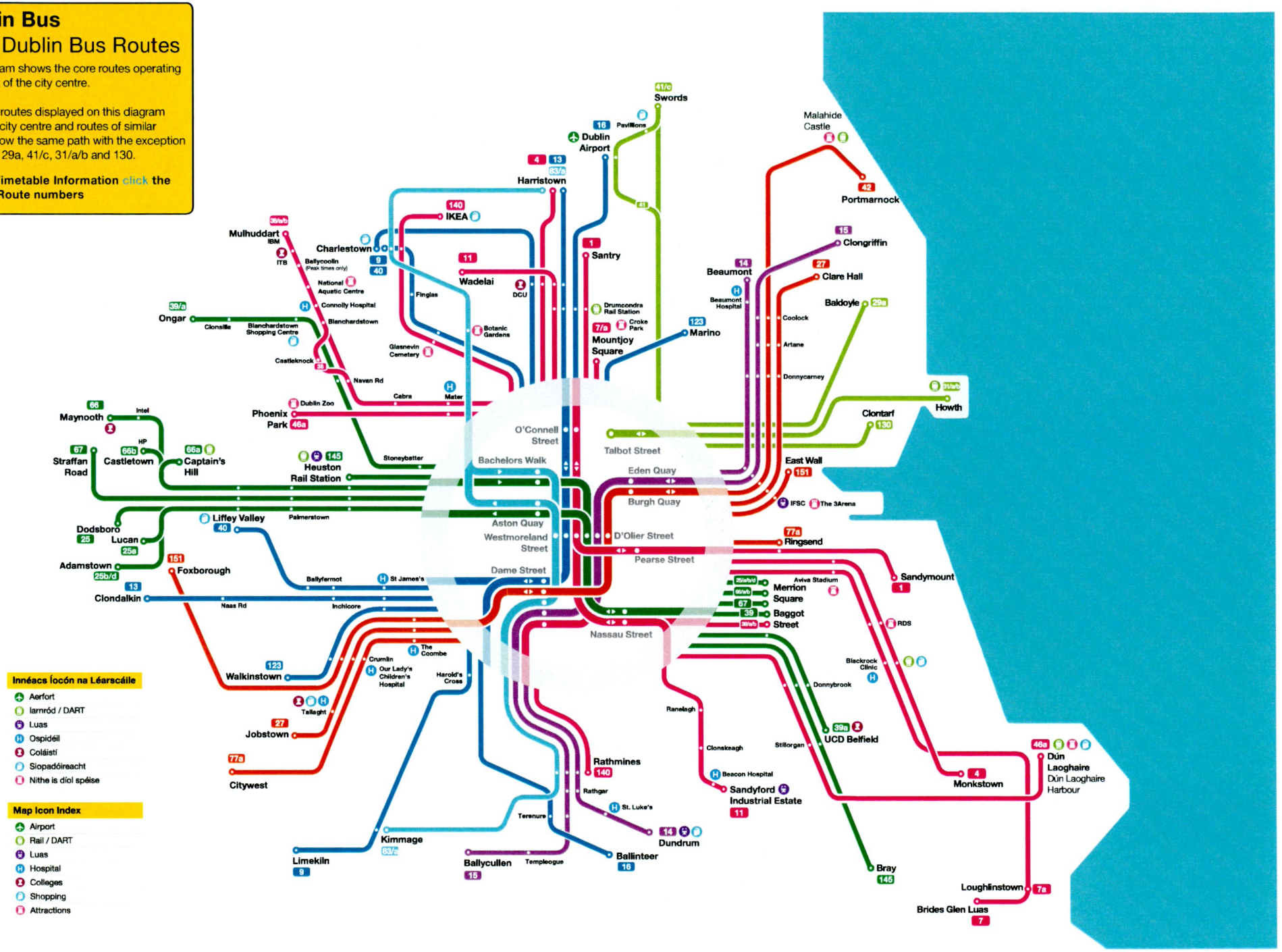
Dublin Bus
Core Dublin Bus Routes

This diagram shows the core routes operating in and out of the city centre.

Most bus routes displayed on this diagram cross the city centre and routes of similar colour follow the same path with the exception of Routes 29a, 41/c, 31/a/b and 130.

For Timetable Information click the Bus Route numbers



Operative Date: March 2018

NRB consulting engineers

APPENDIX H

Original DMURS Statement of Consistency

consulting engineers

NRB

DMURS Design Statement
Technical Note

For

Residential Apartment
Development

At

Garters Lane, Saggart,
Co Dublin.

SUBMISSION ISSUE

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Tel/fax: +353 1 292 1941, E-mail: info@nrb.ie, Web: www.nrb.ie

Registered in Ireland No. 491679

1.0 INTRODUCTION

1.1 It is NRB's opinion that the proposed residential development is consistent with both the principles and guidance outlined within the *Design Manual for Urban Roads and Streets* (DMURS) 2013 as amended in 2019. The scheme proposals are the outcome of an integrated design approach. This approach seeks to implement a sustainable community connected by well-designed links, layout and accesses - which combined deliver attractive, convenient and safe access in addition to promoting modal shift and viable alternatives to car based journeys.

1.2 The following section discusses design features which are incorporated within the proposed mixed use residential scheme with the objective of delivering a design that is consistent with the principles of DMURS.

2.0 DESIGN ATTRIBUTES

2.1 The proposed layout strategy seeks to maximise connectivity between key local destinations through the provision of a high level of permeability and legibility for all journeys, particularly for sustainable forms of travel (cycling and walking). The proposed residential scheme delivers greater mode & route choices along direct, attractive and safe linkages to local amenities and schools/service destinations.

2.2 High Quality Connections between the proposed development and the local roads and public transport services are provided. The internal road layout itself been designed to deliver a hierarchy which provide safe access within / across the proposed new residential community, linking the site and community with the established and proposed local network. Vehicular access to the car parking is separate from the pedestrian accesses to the development.

2.3 As part of the development the movement function is designed to respect the different levels of motorised traffic whilst optimising access to/from alternative transport and catering for higher number of pedestrians and cyclists. In parallel the adopted design philosophy has sought to consider the context / place status of the scheme in terms of level of connectivity provided, quality of the proposed design, level of pedestrian / cyclists activity and vulnerable users requirements whilst identifying appropriate 'transition' solutions particularly at street junctions.

2.4 The layout of the proposed development seeks to maximise permeability and enhances legibility, and the design of appropriately sized blocks actively contributes to a highly permeable and accessible community for both pedestrians and cyclists.

2.5 The proposed layout seeks to successfully create an appropriate balance between the functional requirements of different network users whilst enhancing the 'sense of place'. Design attributes of the proposed layout which contribute to achieving this ***DMURS objective*** include:

a) The main vehicular access to the development is separate from the pedestrian accesses and linkages to/from the development and out-with the open space.

b) The proposed scheme includes provision of linkages with already-permitted local SHD developments thereby enhancing the street network and permeability. The combined plans offer a well-connected and improved but permeable network.

c) Under ***Section 3.4.1 Vehicle Permeability***, DMURS states that 'Permeable layouts provide more frequent junctions which have a traffic-calming effect as drivers slow and show greater levels of caution'.

d) DMURS also goes on to state that 'Designers may be concerned that more permeable street layouts will result in a higher rate of collisions. However, research has shown that there is no significant difference in the collision risk attributable to more permeable street layouts in urban areas and that more frequent and less busy junctions need not lead to higher numbers

e) The proposed design deliberately seeks to specify minimal signage and line markings along the internal layout, with such treatments used sensitively throughout and predominately at key nodes and 'transition' areas.

f) Footpaths no less than 1.8m (generally 2.0m or wider) will be provided throughout the scheme with connections and tie-ins to existing external pedestrian networks.

g) Appropriate clear unobstructed visibility splays, as per DMURS requirements, will at the site access junctions to the external road network.

h) Well designed and frequent pedestrian crossing facilities will be provided along key travel desire lines throughout the scheme in addition to those located at street nodes. All courtesy crossings will be provided with either dropped kerbs and/or raised tables thereby allowing pedestrians to informally assert a degree of priority. The separation of vehicular access to the development from the pedestrian accesses to the buildings and the open space aid in this aspect of the layout.

i) At the more heavily trafficked Garter Lane/Fortunestown Lane Junction, the formal signalised controlled crossing currently provides for the benefit of both pedestrians and cyclists. This will be further improved by condition associated with an adjacent permitted Scheme.

j) All informal pedestrian crossing facilities will be at least 2.0m wide, whilst all controlled pedestrian crossings will be a minimum of 2.4m wide.

k) With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii will be 6m where swept path analysis permits and will be of further reduced radii where feasible in line with DMURS guidance.

l) Internally within the development, where carriageway kerb are required, heights will be typically 75-80mm in accordance with the objectives of DMURS.

m) Within the development, as required cyclists will share the carriageway with other street users as per the National Cycle Manual guidance for such situations and best practice for residential streets of this nature.

n) Any required street signage and road markings will be in accordance with the Department of Transport Traffic Signs Manual, and the location and form will be agreed in advance with South Dublin County Council.