



**PROPOSED PART 8 RESIDENTIAL DEVELOPMENT
LAMBS CROSS, DUBLIN 18**

TRAFFIC MOBILITY MANAGEMENT PLAN

**DUN LAOGHAIRE – RATHDOWN COUNTY COUNCIL
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Project No: 23006

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Title: Proposed Part 8 Residential Development Lambs Cross, Dublin 18
Traffic Mobility Management Plan

Job Number: 23006

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1 INTRODUCTION

1.1 Introduction

This report is prepared on behalf of the National Development Finance Agency (NDFA) in consultation with Dún Laoghaire-Rathdown County Council to accompany a Part 8 Proposal for the construction of a residential development on a site located in the townland of Balally, at Lamb's Cross, Dublin 18 situated at the junction of Sandyford Road and Hillcrest Road.

The purpose of this document is to define a Traffic Mobility Management Plan (TMMP) for the proposed development.

The TMMP provides an assessment of existing traffic and mobility issues relating to accessing the site. It outlines the process of development of the TMMP Strategy and finally it examines the scope available for sustainable modes of transport to and from the site.

This TMMP has been prepared to guide the delivery and management of a package of integrated initiatives which seek to encourage and embed sustainable travel choices by residents from the outset of the development's occupation.

A successfully implemented TMMP can provide reductions in car usage, particularly influencing levels of single-occupancy car travel, with increased trips made by car-sharing, public transport, walking and cycling, and can improve road safety and personal security for pedestrians and cyclists.

Mobility Management is about improving the development site's access from the outset – by designing for and enabling and promoting sustainable travel options (e.g., walking, car-sharing, cycling and public transport) to residents – and by reducing the need to travel by car from the development to access essential services and amenities. TMMPs can also improve the health and wellbeing of residents through the benefits of active travel and reduce the transport-related carbon impact of the development. A TMMP specifically focuses on journeys made from a single origin (home) to multiple destinations.

1.2 Site Overview

The proposed site is located at Sandyford, a suburb of Dublin located in Dun Laoghaire – Rathdown, Co. Dublin. The site is located approximately 9km to the south of Dublin City Centre and 1.50km to the southwest of Sandyford Business Park. The location is displayed in Figure 1-1 and Figure 1-2.

The primary routes serving Lambs Cross are:

- The M50 motorway, which begins at Dublin Port, running northward through the Dublin Port Tunnel and along a portion of the Airport Motorway. It then turns west at its junction with the M1, circling the northern, western, and southern suburbs of Dublin, before merging with the M11 at Shankill in Southeast Dublin.

The Sandyford interchange is located approximately 700m to the north of the development site.

- The R113 Regional Road (Hillcrest Road) along the south-eastern boundary of the site (it forms a semi-orbital route around the south of the city start at the in Blackrock and ends at a junction with the N4 at Palmerstown).
- The R117 regional road running along the western boundary of the site (starting in Harcourt Road passing through Grand Canal and goes through the suburbs of Ranealgh, Dundrum, Sandyford before merging with the N11 at Enniskerry).



Figure 1-1 - Site Location showing the indicative Site Boundary and Adjacent Developments

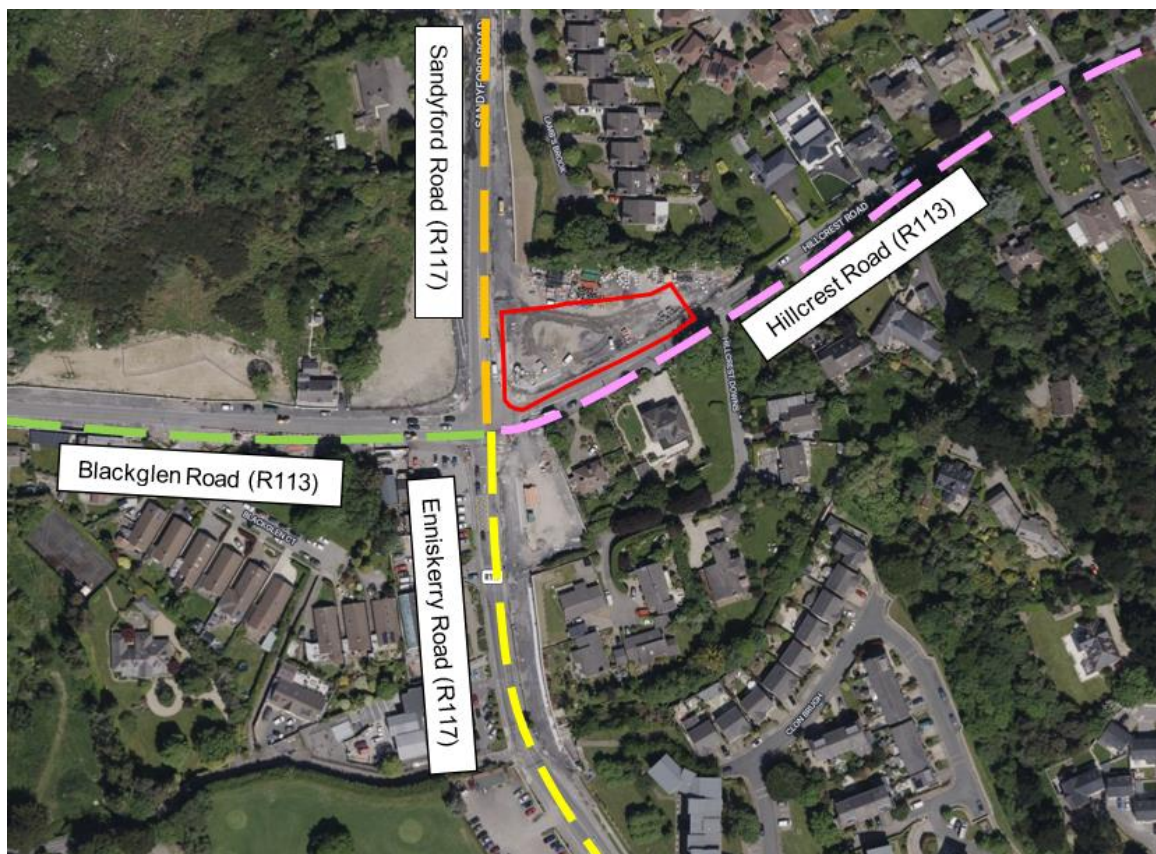


Figure 1-2 – Site Location

1.3 Proposed Development

The proposed development of 37no. apartment dwelling units at a site c. 0.35 ha on a site located at Lambs Cross, Dublin 18 situated at the junction of Sandyford Road and Hillcrest Road, which will consist of the following:

- i. 37 no. apartment units in a 3 - 5 storey building over undercroft area, including 29 no. one bed units; and 8 no. two bed units;
- ii. 1 no. community facility at ground floor of 171sqm;
- iii. Energy Centre at first floor level and external plant area set back at third floor level;
- iv. Undercroft area at lower ground level comprising (a) 2 no. ESB substations (b) car, bicycle and motorcycle parking; (c) bin storage; (d) bulk storage area; and (e) supporting mechanical, electrical and water infrastructure.
- v. Landscaping works including provision of (a) communal open space; and (b) public realm area fronting onto Sandyford Road and Hillcrest Road
- vi. All associated site development works including (a) vehicular access off Hillcrest Road; (b) public lighting; (c) varied site boundary treatment comprising walls and fencing; and (e) temporary construction signage.

The site plan and lower-level layout is illustrated in Figure 1-3Figure 1-3.



Figure 1-3 – Proposed site layout (site plan and lower level)

1.4 Report Structure

This report sets out the background, context, and objectives of the plan, and describes a package of measures to promote and provide for the use of sustainable modes as an alternative to single occupancy car use to the development. A strategy for implementation, target setting and monitoring is also discussed. The report is set out in the following structure:

- Chapter 1: introduction.
- Chapter 2: Mobility Management Context.
- Chapter 3: Planning Policy Context.
- Chapter 4: Baseline Review of Existing Transport Network.
- Chapter 5: Traffic Impact.
- Chapter 6: Pre-Occupation Baseline Mode Share.
- Chapter 7: Aims and Objectives of the TMMP.
- Chapter 8: Mobility Management Measures.
- Chapter 9: Monitoring and Review.

2 MOBILITY MANAGEMENT CONTEXT

2.1 What is Mobility Management

Mobility Management is a concept to promote sustainable transport and manage the demand for car use by changing travellers' attitudes and behaviours. Mobility Management is about improving a site's access, by designing for and enabling and promoting sustainable travel options (e.g., walking, cycling and public transport) to residents. The use of Mobility Management is well established in Ireland through the Development Control process and policy documents set out in Chapter 3. The process involves key stakeholders such as the Local Authority, public transport operators, the developer, and future residents.

2.2 The Benefits of Mobility Management

Implementing a TMMP has the following local benefits:

- Promoting alternative uses to the car can result in less congestion and therefore improves safety on local roads by promoting alternatives to the car.
- Reduced highway capacity problems can enable more sustainable travel choices.
- The local environment will be improved from reduced congestion, carbon emissions, pollution, and noise.
- A range of travel options makes the development site attractive to potential residents.
- Increases opportunities for active healthy travel, such as walking and cycling.
- Reduces demand for parking spaces, enabling land to be put to more cost-effective or commercially beneficial use and freeing space for active travel initiatives.
- Improved travel choice, quality, and affordable access to services for all users.

2.3 Mobility Management Plan Objectives

The overarching objectives of the TMMP are to reduce levels of private car use by encouraging people to walk, cycle, use public transport and car share. It can also reduce the number of lengths trips undertaken/ required.

The specific objectives of an TMMP can vary depending upon the organisation, site characteristics and specific land uses which vary with each site. Nevertheless, in the context of a residential TMMP, objectives can include:

Residents

- Address residents need for sustainable access to a full range of facilities for work, education, health, leisure, recreation, and shopping.
- Promote healthy lifestyles and sustainable, vibrant local communities by improving the environment and the routes available for cycling and walking.

The Local Community

- Make local streets less dangerous, less noisy and less polluted while enhancing the viability of public transport.
- Reduce the traffic generated by the development for journeys both within the development and on the external road network.

- Promote equal opportunities by offering wider travel choices.
- Improve personal and wider community health.
- Reduce air and noise pollution.

2.4 Making Residential Mobility Management Plans Work

A successful TMMP will address all aspects of a development that create a need for travel by site residents. The TMMP 'pyramid' below demonstrates how successful plans are built on the firm foundations of location and site design. A TMMP should combine hard measures (e.g., cycle parking, routes to bus stops) and soft measures. All measures should be integrated into the design, marketing, and occupation of the site – with parking restraint often crucial to the success of the TMMP in reducing car use.

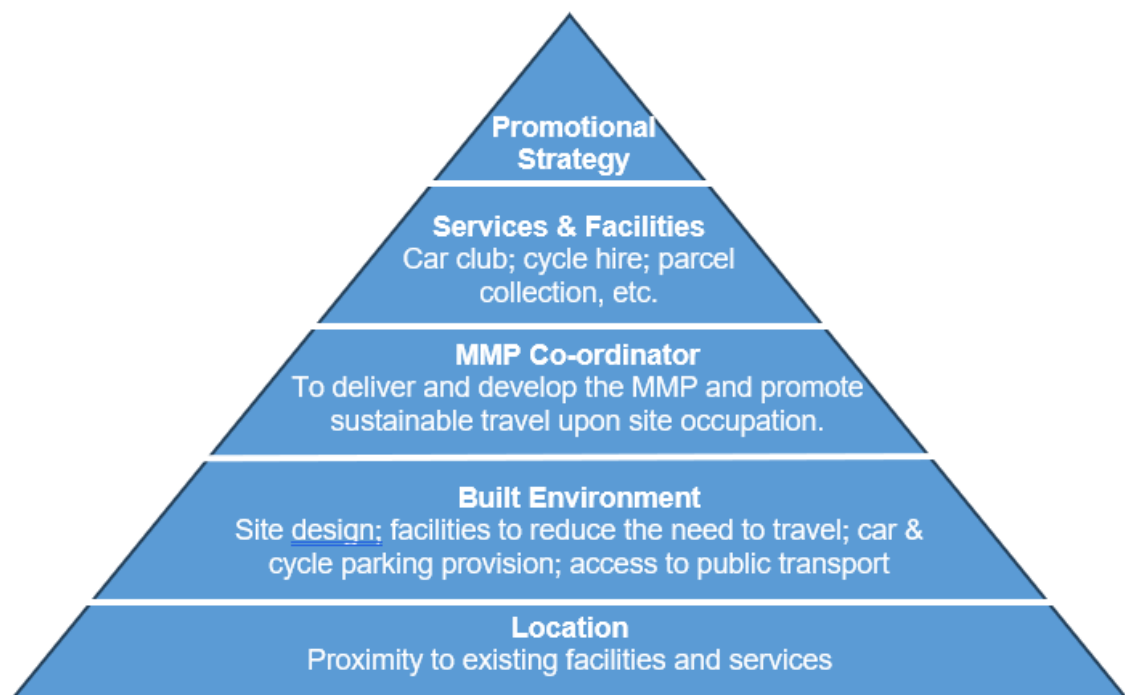


Figure 2-1 – The Travel Plan Pyramid

TMMPs are evolutionary documents that should be regularly updated. In this way, TMMP targets and Action Plans can be reviewed and tailored to take account of ongoing changes in travel patterns. It is therefore intended that this TMMP is the starting point of a live process and will be updated when required by circumstances.

3 PLANNING POLICY CONTEXT

3.1 Planning Policy Overview

This section provides an overview of the national, regional, and local transport and other policy drivers and strategies that underpin the requirements and benefits of implementing a TMMP for the proposed residential development.

3.2 National Policy Context

This section provides an overview of the main national policy drivers and strategies that underpin the requirements and benefits of implementing a TMMP for a residential development at the Lambs Cross site.

3.2.1 Ireland 2040 Our Plan – National Planning Framework

The Project Ireland 2040 - National Planning Framework (NPF) recognises that improvements in connectivity are achievable and are necessary to boost competitiveness and quality of life. The Ireland 2040 vision include the following key elements which direct relevance to mobility management.

- i. More sustainable choices and options for people, businesses and communities that can positively influence sustainable patterns of living and working.
- ii. The highest possible quality of life for our people and communities, underpinned by high quality, well managed built and natural environments.
- iii. Significant improvement in local and international connectivity that underpins that competitiveness and quality of life of our people, businesses, communities, and regions.

The NPF has been developed to deliver the following National Strategic Outcomes which are pertinent to this report. These are to:

- i. Improve accessibility to and between centres of mass and scale and provide better integration with their surrounding areas.
- ii. Ensure transition to more sustainable modes of travel (walking, cycling, public transport) and energy consumption (efficiency, renewables) within an urban context.

The NPD seeks to enable people to live closer to where they work, moving away from unsustainable trends of reduced community. It supports more energy efficient development through the location of housing and employment along public transport corridors, where people can choose to use less energy intensive public transport, rather than being dependent on the car.

3.3 Regional and Local Policy Context

This section provides an overview of the main regional and local policy drivers and strategies that underpin the context, requirements, and benefits of a TMMP for the proposed residential development.

3.3.1 *Greater Dublin Area Transport Strategy, 2022 – 2042*

This strategy aims to contribute to the economic, social, and cultural progresses of the Greater Dublin Area (GDA) by providing for the efficient, effective, and sustainable movement of people and goods – helping to reduce modal share of car-based communities to a maximum of 45%. To achieve these principles, future developments must:

- i. 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.
- ii. Protect the capacity of the strategic road network.
- iii. Ensure a significant reduction in share of trips taken by car, especially those trips which are shorter or commuter trips.
- iv. Consider all day travel demand from all groups.
- v. Provide alternate transport modes to reduce the strain on the M50 as current increase in traffic is unsustainable.

BusConnects is part of the overall GDA Transport Strategy and aims to overhaul the current bus systems in the Dublin Region through several measures, as outlined below. The measures will improve public transport access and reliability for future residents of the proposed development. The BusConnects programme includes:

- Building a network of “next generation” core bus corridors (CBC) on the busiest bus routes to make bus journeys faster, predictable, and reliable.
- Introducing Bus Rapid Transit, a higher quality of bus systems, on three of the busiest corridors.
- Completely redesigning the network of bus routes to provide a more efficient network, connecting more places, and carrying more passengers.
- Developing a state-of-the-art ticketing system using credit and debits cards or mobile phones to link with payment accounts and making payment much more convenient.
- Implementing a cashless payment system to vastly speed up passenger boarding times.
- Revamping the fare system to provide a simpler fare structure, allowing seamless movement between the different transport services without financial penalty.
- Implementing a new bus livery providing a modern look and feel to the new bus systems.
- Transitioning to a new bus fleet using low-emission vehicle technologies.

3.3.2 *Greater Dublin Area Cycle Network Plan, 2013*

The Greater Dublin Area (GDA) Cycle Network Plan sets out a 10-year strategy plan to expand the urban cycle network from 500km to 2,480km. The overarching ambition of the scheme is to increase the number of commuters who commute by bike to the same amount of those commute by bus. The network will consist of a series of primary, secondary, feeder and greenway routes. These routes will comprise of a mix of cycle tracks and lanes, cycleways, and infrastructure-free cycle routes in low traffic environment.

3.3.3 Dun Laoghaire – Rathdown County Development Plan 2022 – 2028

This document sets out an overall vision for the county that includes strategies for planning and sustainable development over the period of 2022 – 2028. Chapter 5: Transport and Mobility of the Development Plan, the council sets out its overall policy as “Avoid – Shift – Improve” as indicated in Figure 3-1.

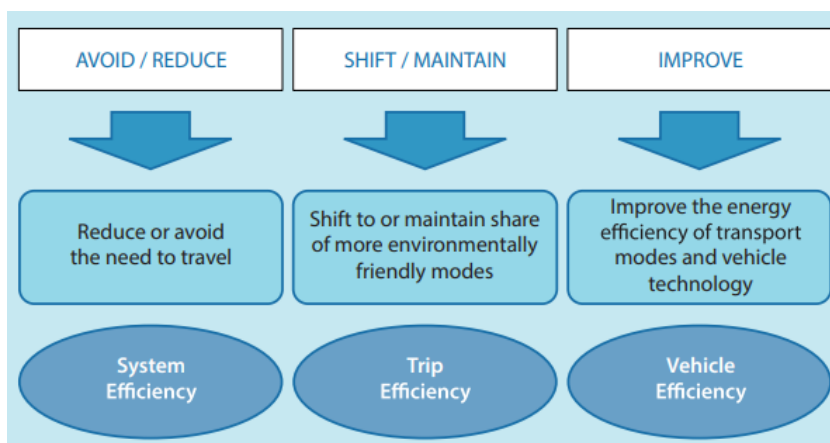


Figure 3-1 – Avoid – Shift – Improve (Dun Laoghaire – Rathdown CDP 2022 – 2028)

Table 3-1 provides a summary of the policies and objectives most relevant to this TMMP.

Table 3-1 - Extracts from Dun Laoghaire – Rathdown CDP 2022 – 2028 Policies

Policy	Details
T5	Public Transport Improvements To expand attractive public transport alternatives to car transport by optimising existing or proposed transport corridors, interchanges, developing new park and rides, taxi ranks and cycling network facilities at appropriate locations.
T6	Quality Bus Network/ Bus Connects To co-operates with the NTA to facilitate the implementation of the bus network measures as set out in NTA'S Greater Dublin Area Transport Strategy, 2022 – 2042 and the BusConnects Programme, and to extend the bus network to other areas where appropriate.
T8	Green Line Capacity Enhancement Project To promote, facilitate and co-operate with other agencies in supporting The Luas Green Line Capacity Enhancement Project to cater for the demand for Luas Trips in the County.
T11	Walking and Cycling To secure the development of high quality, fully connected and inclusive walking and cycling network across the county and the integration of walking, cycling and physical activity with placemaking including public realm permeability improvements.
T12	Footways and Pedestrians Routes To maintain and expand the footway and pedestrian route network to provide for accessible, safe pedestrian routes within the County.
T16	Travel Demand Management To implement Travel Demand Management measures aims at reducing the demand for travel and increasing the efficiency of the transport network.
T26	Traffic and Transport Assessments and Road Safety Audits To require Traffic and Transport Assessments and/or Road Safety Audits for major developments – in accordance with the TII's 'Traffic and Transport Assessment Guidelines' (2014) - to assess the traffic impacts on the surrounding road network and provide measures to mitigate any adverse impacts - all in accordance with best practice guidelines.
T31	Accessibility To support suitable access for people with disabilities, including improvements to transport, streets, and public spaces.

4 BASELINE REVIEW OF EXISTING TRANSPORT NETWORK

4.1 Overview

The following chapter discusses the existing transport network surrounding the site. A detailed commentary is provided on the existing walking, cycling and public transport facilities near the site.

4.2 Existing Traffic Conditions

The development is located at a junction known as 'Lamb's Cross'. Lamb's Cross is a four-arm junction comprising of the R117 Sandyford Road/ R113 Hillcrest Road / R117 Enniskerry Road / R113 Blackglen Road. The junction is illustrated in Table 4-1.



Figure 4-1 – Existing Road Network

At the start of 2024, the Lamb's Cross and Blackglen Road junction underwent major construction works to improve the traffic flow, public transport, cycling and walking infrastructure, the works were part of the Blackglen Road Improvement Scheme (BRIS). BRIS included the whole length of Blackglen Road, sections of Sandyford, Enniskerry and Hillcrest Roads at Lamb's Cross and Harold's Grange Road junction. The main works included:

- Widening of junction,
- Addition of traffic lanes,
- Widening of Blackglen Road,
- Removal of overhead cables,
- Addition of cycle lanes, and
- Provision for footpaths.

The Lamb's Cross Junction is a four-armed junction with clear cycle lanes. The junction is displayed in Figure 4-2.

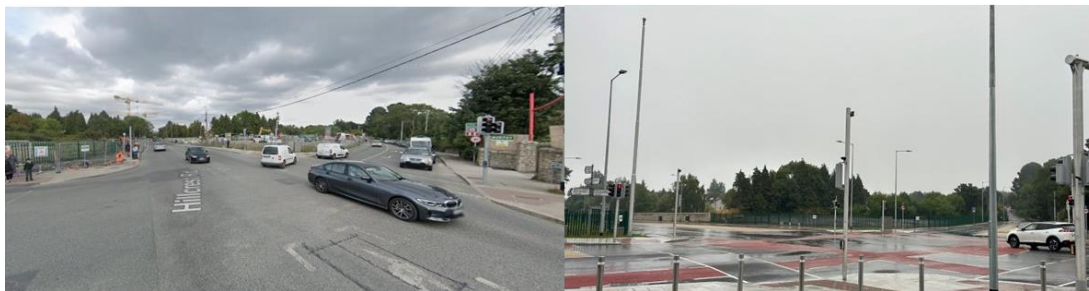


Figure 4-2 – Lamb's Cross Junction Layout (Before on the left and After on the right)

Sandyford Road is a tertiary road which has one lane in either direction or a maximum speed limit of 50km/h. The road begins in Dundrum and terminates at Lamb's Cross where it is continued by the Enniskerry Road. The road is a wide road, with footpaths on either side of the road for the entire length (3 km in length). The entrance of Sandyford Road to the Lamb's Cross junction has undergone an upgrade, this is highlighted in Figure 4-3.

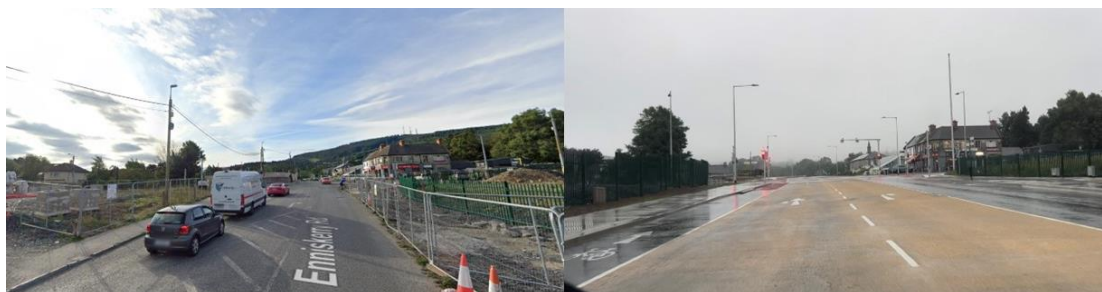


Figure 4-3 – Sandyford Road Layout (Before on the left and After on the right)

Enniskerry Road is a secondary road with a maximum speed limit of 50km/h and one lane in either direction. The road is generally a wide road and is roughly 6.2km in length. Enniskerry road carries on from the Sandyford Road at Lamb's Cross Junction and terminates at the Dublin-Wicklow boarder in Kilternan where it is continued by the Scalp Road. Since the works as part of the BRIS, the road is wider and provides footpaths and segregated cycle lanes on both sides of the road. The upgrade to Enniskerry Road as it enters Lamb's Cross Junction is displayed in Figure 4-4.



Figure 4-4 – Enniskerry Road Layout (Before on the left and After on the right)

Hillcrest Road is a tertiary road of roughly 700 metres in length, which has one lane in either direction or a maximum speed limit of 50km/h. The road begins at Lamb's Cross junction and terminates in Leopardstown at the Kilgobbin Rd/Leopardstown Rd/ Kilgobbin Rd/ Hillcrest Rd junction. The majority of Hillcrest Road is a narrow road of roughly 4.2m in width and a footpath on one side of the road. There are plans to widen Hillcrest Road in the future. As Hillcrest Road approaches the entry to Lamb's Cross, the road has

undergone an expansion. The expansion of Hillcrest Road as it enters Lamb's Cross junction is illustrated in Figure 4-5.



Figure 4-5 – Hillcrest Road Layout (Before on the left and After on the right)

Blackglen Road is a tertiary road which has one lane in either direction and a maximum speed limit of 50km/h. The road begins at Lamb's Cross junction and where it is continued by Harold's Grange Road as it passes over the M50. The road is approximately 1.5km long and since the upgrades due to BRIS, the road is wider and provides footpaths and segregated cycle lanes on both sides of the road. The update to Blackglen Road as it enters Lamb's Cross Junction is displayed in Figure 4-6.



Figure 4-6 – Blackglen Road Layout (Before on the left and After on the right)

4.3 Existing Pedestrian/ Cyclist Environment

4.3.1 Existing

In the vicinity of the development there is currently a good existing pedestrian network. Majority of the pedestrian network includes footpaths on either side of the road and street lighting, the sections which were upgraded as part of the BRIS can be considered excellent pedestrian facilities. At Lamb's Cross there are multiple amenities, including a shop, butcher, hairdresser and vets. Figure 4-7 displays the 10, 15, 20 and 30-minute walking catchments from the site.

Saint Mary's National School, Sandyford Pitch and Putt, Sandyford Community Centre, Rosemount school and neighbouring housing developments can all be reached within a 10-minute walk from the development.

Giraffe Childcare and Belarmine Plaza are all reachable from the site within a 15-minute walk. Sandyford Village, Fernhill Park, Stepside Educate Together School, Explorium National Sport and Science Centre and neighbouring housing developments can all be reached within a 20-minute walk from the development.

Balally shopping centre, Ballawley Park, Balally Parish, Ballawley Lodge Montessori School, Leopardstown Retail Park, Glencairn Luas Stop, Stepside Village, Stepside Post Office, Burrow Golf Course, as well as neighbouring housing developments and a multitude of bus stops are accessible within a 30-minute walk.

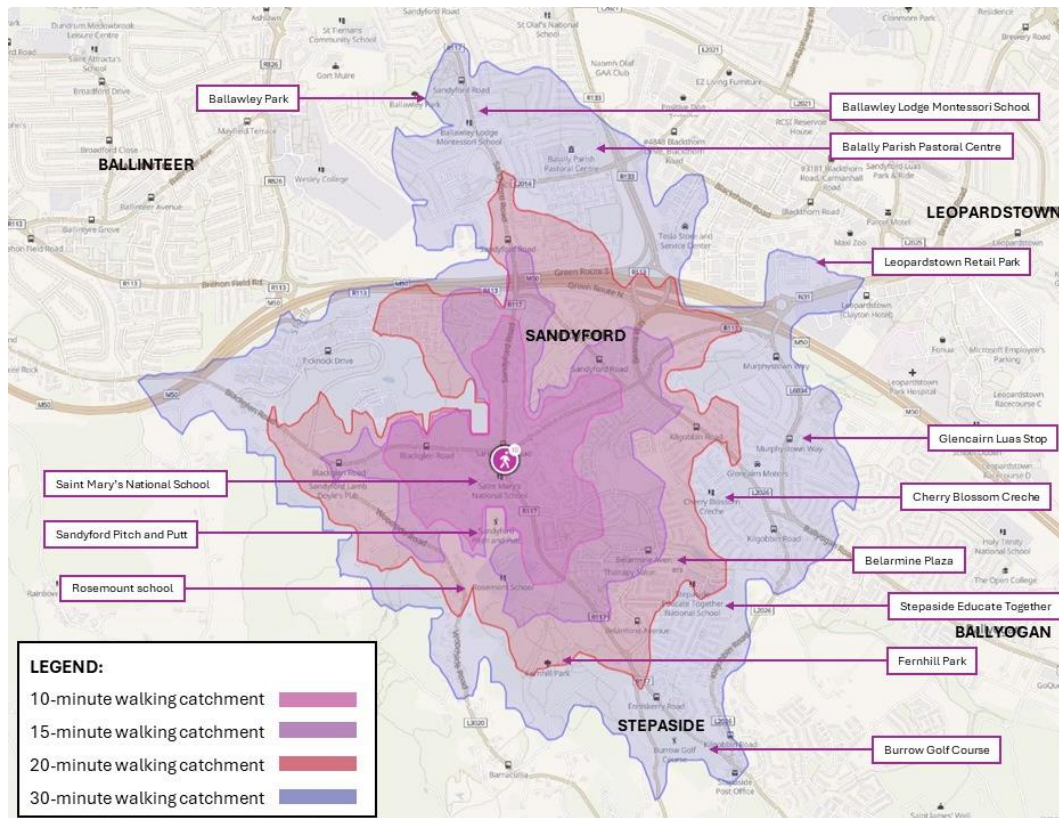


Figure 4-7 – 10, 15, 20 and 30-minute Walking Catchment from the Development

Further to BRIS, the cycling infrastructure in and around the development can be considered excellent. As displayed in Figure 4-9, there are dedicated cycle lanes throughout the areas surrounding the site excluding Hillcrest Road. This makes social, work, leisure and other commitments easier to access via active travel modes.

As detailed in Figure 4-8, the development is highly accessible by bike within a 10, 15, 20 and 30-minute catchment.

- Areas including Sandyford, Dundrum, Stepside, Leopardstown and Ballyogan can be access within a 10-minute cycle;
- Areas including Ballinteer, Churchtown, Stillorgan, Windy Arbour, Foxrock, Carrickmines and Kilternan can be reached within 15-minutes of cycling;
- Within 20-minutes of cycling areas including Milto3n, Monkstown, Cornelscourt, Deansgrange and Darty can be reached; and
- Within 30-minutes of cycling areas including Ringsend, Donnybrook, Rathgar, Kimmage, Rathfarnham, Blackrock, Dun Laoghaire, Cabinteely, Cherrywood and Glencullen can be accessed.

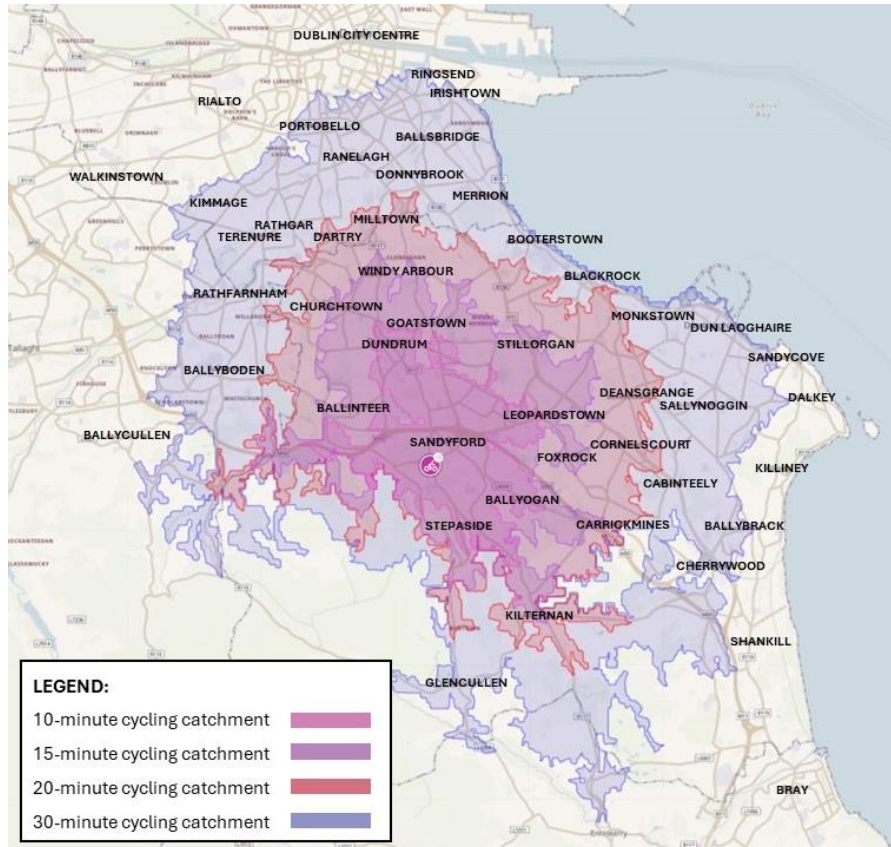


Figure 4-8 – 10, 15, 20 and 30-minute Cycling Catchment from the Development

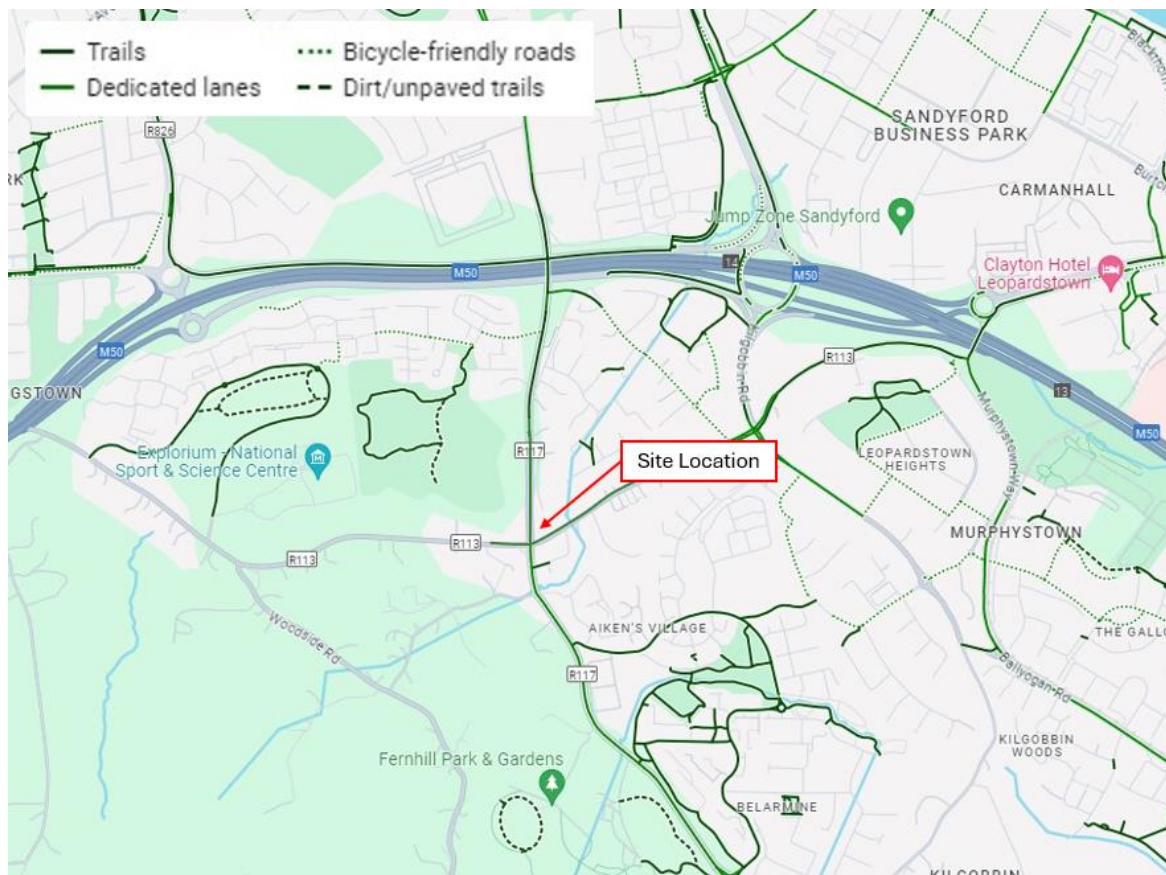


Figure 4-9 – Current Cycling Infrastructure in the vicinity of the Development

4.4 Public Transport Infrastructure

4.4.1 Existing

Both Dublin Bus and the Luas serve the development. With the following serves available within walking distance from the site:

1. Green Line Luas
2. 47 Bus
3. 44 Bus
4. 44B Bus
5. 114 Bus

The public transport routes in the vicinity of the site are displayed in Figure 4-11. The closest bus stop to the development is Stop 3493 Lambs Cross and Stop 3491 Lambs Cross. These stops serve the 114 and 44B in both directions. Table 4-1 details the public transport routes and frequencies.

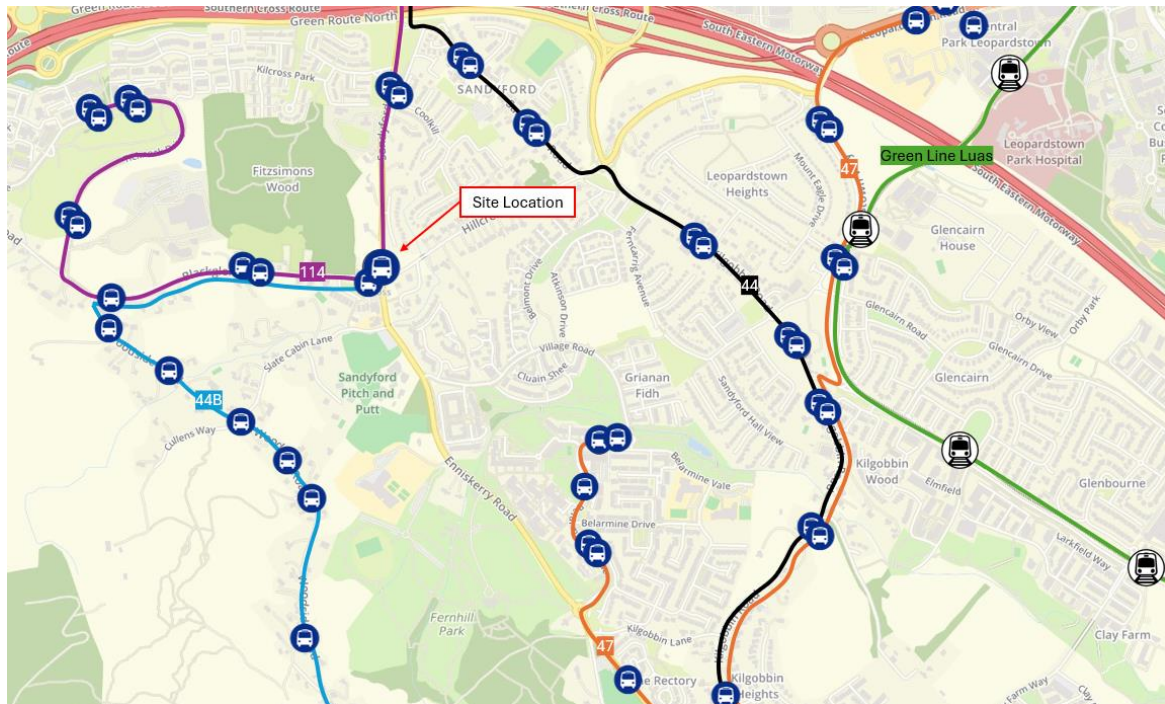


Figure 4-11 – Existing Public Transport Infrastructure

Table 4-1 – Public Transport Frequency

Operator	Route	To/From	No. of services		
			Weekdays	Saturday	Sunday
Dublin Bus	44	Enniskerry - DCU	06:45 to 07:00 every 45 min 07:00 to 9:30 every 30 min 09:30 to 17:30 every hour 18:45 to 19:45 every hour 21:00 to 23:00 every hour	07:30 to 18:30 every hour 18:30 to 19:45 every 75 min 21:00 to 23:00 every hour	09:30 to 18:30 every hour 18:30 to 19:45 every 75 min 21:00 to 23:00 every hour

	44B	Dundrum Luas Station - Glencullen	Five services a day, 06:50, 07:45, 08:50, 15:45 and 17:30	No service	No service
	47	Poolbeg St. - Belarmine	07:40 to 08:30 every 50 min 08:30 to 09:10 every 40 min 09:10 to 10:15 every 65 min 10:15 to 15:15 every 75 min 15:15 to 16:00 every 45 min 16:00 to 19:30 every 30 min 20:30 to 23:30 every hour	07:30 to 23:30 every hour	09:30 to 23:30 every hour
GoAhead	114	Blackrock - Rockview	06:10 to 07:00 every 20 min 07:00 to 07:40 every 40 min 07:40 to 08:30 every 50 min 08:30 to 09:40 every 70 min 09:40 to 10:35 every 55 min 10:35 to 18:35 every hour 18:35 to 19:30 every 55 min 19:30 to 20:30 every hour	No service	No service
Luas	Green Line	Bridesglen - Parnell/ Broombridge	05:30 to 00:30 Services regularly run every 3 to 4 min at peak times and every 15 min at night.	06:30 to 00:30 Services regularly run every 3 to 4 min at peak times and every 15 min at night.	07:00 to 23:00 Services regularly run every 3 to 4 min at peak times and every 15 min at night.

4.4.2 Proposed

Bus Connects is a National Scheme to improve Bus services within Dublin, Limerick, Cork and Galway. The scheme aims to improve Bus and cycle lane infrastructure, provide network redesign, state of the art ticketing system, new bus livery, new bus stops and shelters, zero transmission bus fleets, new park and rides and a simpler fare structure to encourage those to use public and active travel modes of transportation. The scheme includes eight key spines (spines A to G) which all travel to Dublin City Centre, each spine will have multiple additional stems of the spines (i.e A1, A2, A3). In addition to the spines there will be a series of orbital routes connecting Dublin together. The Proposed Scheme is a key measure that delivers on commitments within the National Development Plan (2021-2030), the Transport Strategy for the Greater Dublin Area (2016-2035) the Climate Action Plan (2021) and the National Planning Framework 2040.

While no 'Spine' routes are planned within the vicinity of the site, various local, orbital, peak-only and express routes will serve the development. As seen in Figure 4-12, the following three routes are directly outside the development:

1. 86: Ticknock - Goatstown - Mountjoy Square (30-minute frequency)
2. 87: Belarmine - Dundrum - Mountjoy Square (60-minute frequency)
3. 88: Enniskerry - Belarmine - Dundrum - Mountjoy Square (60-minute frequency)

With the following eleven routes within walking distance:

1. L33: Glencullen – Dundrum (60-minute frequency)
2. L13: Kilternan - Stillorgan Village - UCD – Ringsend (60-minute frequency)

3. P13: Kiltarnan - Stepside – UCD (2-minute frequency during peak hours)
4. P16: Whitechurch – UCD (2-minute frequency during peak hours)
5. 74: Dundrum - Whitechurch - Crumlin - City Centre (30-minute frequency)
6. 80: Liffey Valley - City Centre – Ballinteer (15-30 minute frequency)
7. L35: Rockbrook – Dundrum (60-minute frequency)
8. L27: Ballyogan - Cabinteely - NRH - Dún Laoghaire (30-minute frequency)
9. L26: Kiltarnan - Cabinteely - Deansgrange – Blackrock (30-minute frequency)
10. E1: Northwood - City Centre - Bray Main St. – Ballywaltrim (8–20-minute frequency)
11. E2: Charlestown - City Centre - Dún Laoghaire (8–20-minute frequency)



Figure 4-12 – Bus Connects Dublin

Additionally, Luas Finglas is the proposed extension of the Luas Green Line from its terminus in Broombridge to the north of Finglas in Charlestown. The extension will include the addition of four Luas stops along its 3.9-kilometre length (St. Helena's, Finglas Village, St. Margaret's Road and Charlestown), with a new park and ride located at the Charlestown Luas Stop. The line will be constructed mostly using grass track and will include a parallel cycle path along much of the route. The extension will reduce journey times, encourage safe walking and cycling, improve accessibility and social inclusion, improve transport interchange and reduce reliance on private cars. Therefore, extending the distance and accessibility from the development.

4.5 Other

4.5.1 Car Sharing

GoCar is a carsharing service available to those in Ireland. GoCar members can book cars online or via the app for durations of as little as an hour. They then unlock the car with their phone or a GoCard; the keys are in the car; with fuel, insurance and city parking all included. The benefits of such car sharing services include:

- The reduction of cars on the road and therefore traffic congestion, noise, and air pollution.
- Frees up land traditionally used for private parking spaces.
- Encourages and potentially increases use of public transport, walking and cycling as the need for car ownership is reduced.

Using the GoCar.ie website, GoBase locations can be found. There are multiple GoBase locations within a 3km radius of the development. The closest GoBase locations are highlighted in red in Figure 4-13. These locations are:

1. Glencairn Park and Ride
2. Heather Road, BSQ
3. Sandyford Road by Balally Hill

The GoBase locations relative to the site and the cars available at the GoBase locations are highlighted in Table 4-2.

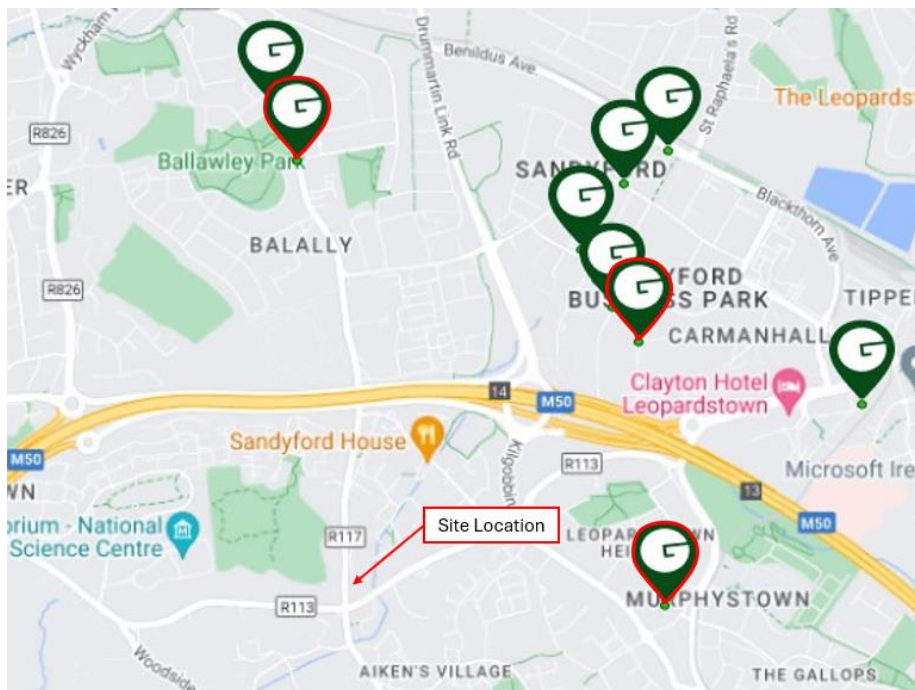




Figure 4-13 – GoBase Locations

Table 4-2 – GoBase Locations and Information

No.	GoBase Locations	Vehicle Class/ Cars Available	Approximate Distance from the Development
1	Glencairn Park and Ride	GoTripper 	21-minute walk 1.5km
2	Heather Road, BSQ	GoExplore 	37-minute walk 2.6km

3	Sandyford Road by Balally Hill	GoCity 	27-minute walk 1.9km
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4.5.2 *Bike Sharing*

There are no Dublin Bike stations within the vicinity of the site. However, Bleeper and MOBY Bikes are two station-less bike sharing services currently operating in Dublin. station-less bikes are mainly located in areas currently underserved by Dublin Bikes. These bikes are occasionally located within the vicinity of the development; however, since they are station-less it is not always a given that a bike will be available within the location.

5 PUBLIC TRANSPORT IMPACT

5.1 Context

A public transport assessment was not conducted within the vicinity of the site. However, a public transport assessment had been conducted in and around the Balally development site; which is less than a five-minute drive (1.8km) in to/from the Balally development to the Lambs Cross development as detailed in Figure 4-14. Therefore, the impact the Balally development will have on the public transport system can be considered to be similar for the Lambs Cross development.



Figure 4-14 – Distance between Balally and Lambs Cross Developments

5.2 Introduction

A public transport assessment was undertaken by Punch Consulting Engineers in November 2022 with the report and findings issued in March 2023 supporting a planning application for a residential/commercial development at the site adjacent to the proposed site. The report reviewed local buses and trains in the vicinity of the site. A survey was undertaken during school and college term on a mid-week working day at the following locations as per Figure 4-15 below. The survey was conducted at peak times in the morning and evening; 8:00 to 9:00 for am and 17:00 to 18:00 for pm.



Figure 4-15 – Public Transport Stop Survey (Source: Punch CE Report 172454-PUNCH- XX-XX-RP-C-0007)

5.3 Public Buses

The summary of the findings is listed below in Table 4-3. Thus, all public transport had 75% usage allowing for a potential 25% spare capacity. Based on standard public buses seating 90 passengers this equates to 472no. available seats. The proposed number of new residents in the development will be between 45 to 90 for the 37 units. With the current modal split (detailed in section 7.2) for the area being 6% bus and 17% train/Luas; the capacity is adequate for future proposed residents.

Table 4-3 - All Bus Stops Am and PM Survey Results (Source: Punch CE Report 172454-PUNCH- XX-XX-RP-C-0007)

Time	No. Buses	Bus Capacity	No. Passengers	Spare Capacity	Spare Capacity (%)
8:00 - 9:00	7*	630	158	472	75%
17:00 - 18:00	7	630	158	472	75%

5.4 Public Trains

Services northbound towards Broombridge and southbound towards Brides Glen are provided at the nearest LUAS Green Line station to the proposed site. The summary of the findings is listed below in Table 4-4. The proposed number of new residents in the development will be between 45 to 90 for the 37 units. With the current modal split (detailed in section 7.2) for the area being 6% bus and 17% train/Luas; the capacity is adequate for future proposed residents.

Table 4-4 – Kilmacud LUAS Stop Am and Pm Survey Results (Source: Punch CE Report 172454-PUNCH- XX-XX-RP-C-0007)

Time	No. Luas	Luas Capacity	No. Passengers	Spare Capacity	Spare Capacity (%)
8:00 - 9:00	33	13464	7548	5916	43%
17:00 - 18:00	29	11832	5406	6426	55%

Furthermore, the analysis was completed on the Kilmacud Luas Stop; the Glencarin Luas stop is the closest stop to the Lambs Cross Development.

Green Line trams operate four routes/services:

1. Brides Glen to/from Parnell,
2. Brides Glen to/from Broombridge,
3. Sandyford to/from Parnell, and
4. Sandyford to/from Broombridge.

There are four stops and a depot in between the Glencarin and Kilmacud stop. The Kilmacud stop is served by all four above routes where the Glencarin stop is only served by two of the routes. Additionally, in between the stops there are two park and ride facilities as illustrated in Figure 4-16. The Kilmacud stop therefore caters to a larger population due to the additional serves and park and ride facilities and it can be safely assumed that the impact of the Lambs Cross development on the Luas will be similar or less than the Balally development.



Figure 4-16 – Green Line Luas Route in reference to the Balally and Lambs Cross Developments

6 PRE – OCCUPATION BASELINE MODE SHARE

6.1 Purpose of the Baseline

This section provides information on the travel behaviour of the existing population of the locality and similar development types. This is necessary to predict the travel patterns of future residents at the development sites and identifying existing constraints which may impact upon the sustainability of future development.

The subject site is located within a city suburban area with predominantly residential land uses though there are other land uses nearby within walking distances such as employment, commercial, schools and leisure.

6.2 Mode Share

The travel mode share from the Census 2011 and 2016 for all trips to work, school or college for residents of Dun Laoghaire – Rathdown is displayed in Figure 6-1 and it shows, while the car remained the dominant mode of transport with 52% of trips this is reduction of car use on the 2011 figure of 55%. The mode of share target for car as set out in the Dublin City Development Plan is 17% for car usage by 2028. The reduction of the car usage for commuting is therefore in the positive direction.

Means of Travel	2011	% of Total	2016	% of Total	2011-2016 Change
On Foot	17,462	14%	18,387	14%	925
Bicycle	6,723	5%	8,864	7%	2,141
Bus/ Minibus/ Coach	13,796	11%	15,180	11%	1,384
Train/DART/ LUAS	15,646	12%	19,040	14%	3,394
Motorcycle	937	1%	861	1%	-76
Car (Driver)	49,558	39%	50,021	37%	463
Car (Passenger)	19,560	16%	20,614	15%	1,054
Van/lorry/ other	2,419	2%	2,466	2%	47
Total	126,101	100	135,433	100	9,332

Figure 6-1 - Means of Travel to Work, School, or College for Residents in DLR (Source: Dun Laoghaire – Rathdown County Development Plan 2022 – 2028)

Using the 2022 Census data, the mode share and travel habits for the Electoral Divisions (Dundrum-Balally, Dundrum-Sandyford and Glencullen) in which the development is located was extracted. Figure 6-2 displays the modal share breakdown, the most common modes of transport into car driver (27.30%), train/Luas (16.68%), car passenger (15.49%) and on foot (11.76%). The total percentage of those cycling and using public transport is under the 2019 average. However, this census was taken before the BRIS was completed. With the addition of BRIS and proposed improvements in the area the use of public and active travel modes will increase.

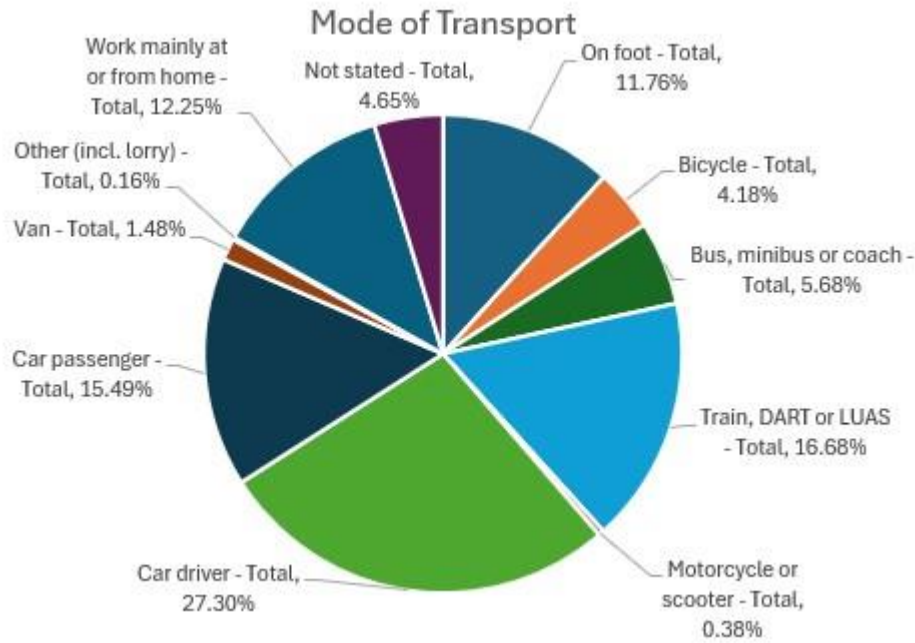


Figure 6-2 – Mode of Transport for those living locality to the development

The census also revealed the journey time and travel time of those living near the development. A large proportion of those travelling took 15 minutes to 30 minutes (31%), 30 minutes to 45 minutes (25%) and under 15 minutes (19%). Very few travelled for 45 minutes or more as seen in Figure 6-3. Additionally, majority of those travelled between 07:00 and 08:30 (63.26%) in the morning with the remaining percent travelling before 07:00 and after 08:30. Thereby, making the peak travel time 07:00 to 08:30 in the area.

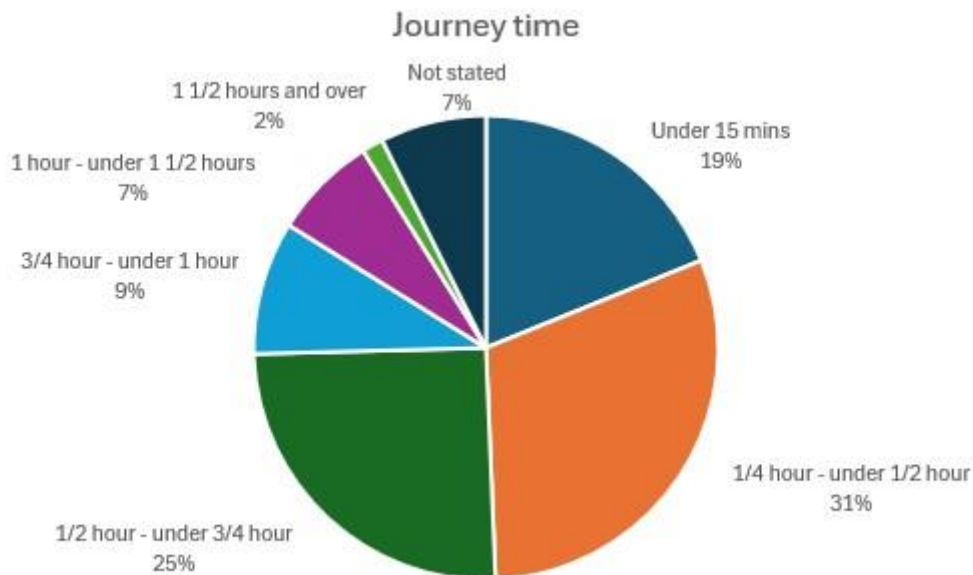


Figure 6-3 – Journey time

7 TRAFFIC IMPACT

7.1 Construction Traffic Impact

Relative to the operational stage, the construction period will be temporary in nature. Construction traffic is only expected to consist of materials delivery and removal vehicles.

It is difficult to assess the exact quantum of traffic that will be generated during the construction period as it will vary throughout the construction process as different activities have different associated transportation needs. However, due to the nature of this development it can be assumed that there will be approximately fifty construction site staff at peak time, and it is expected that the site would generate approximately 10 vehicles during the morning and evening peak hours.

The number of HGVs generated during the construction phase will be evenly spread out throughout the day and in general will not coincide with peak commuter periods.

The following points are noted regarding construction traffic:

- In general, the construction day will begin and end outside of peak travel hours. As a result, most workers travelling to and from the site will arrive before the a.m. peak hour and depart after the p.m. peak hour.
- On site parking will not be prohibited due to the site constraints and to encourage staff to travel by numerous public options serving the area.
- Material delivery vehicles travelling to and from the site will be spread across the course of the working day meaning the number of HGVs travelling during the peak hours will be relatively low.

Construction traffic associated with the construction of the proposed development will vary during the construction phase. The proposed sequencing of the construction of the proposed development is as follows:

- Initial set-up of the site, including security and construction compound.
- Identifying and locating above and below ground utilities and services at the site.
- Development of the proposed substructure and superstructure. This will include deliveries of machinery, steel rebar, brick, and concrete, roofing materials, and prefabricated element deliveries on HGVs.
- Internal finishing, including the mechanical and electrical fit out; and
- External landscaping

Overall, it is expected that the level of traffic generated by the construction works will be negligible during the peak traffic hours, and as a result, it is expected to have negligible impact on the surrounding road network with respect to capacity.

7.2 Operational Stage

7.2.1 Car-Parking

Current proposed for car parking are guided by and fulfil the requirement of the Dun Laoghaire – Rathdown County Council Parking Standards as described in the development plan 2022 – 2028. Car parking standards are set out in Chapter 12, Table 12.5 of the development is shown below:

Land Use		Zone 1 MTC Areas and Blackrock	Zone 2 Near Public Transport	Zone 3 Remainder of County (non-rural)	Zone 4 Rural
Houses:	Criterion	Maximum	Standard	Standard	Standard
House 1 bed	unit	1	1	1	Case by case
House 2 bed	unit	1	1	1	Case by case
House 3 bed or more	unit	1	2	2	Case by case
Apartments and Sheltered Housing:					
Apt 1 bed	unit	1	1	1*	Case by Case
Apt 2 bed	unit	1	1	1*	Case by Case
Apt 3 bed +	unit	1	2	2*	Case by Case

Figure 7-1 – Car Parking Zones and Standards (Source: Dun Laoghaire – Rathdown County Development Plan 2022 – 2028)

The location of the development is classified as Parking Zone 3, i.e., an area which are generally characterised by:

- Access to a level of existing or planned public transport services,
- A reasonable level of service accessibility, existing and planned, by walking or cycling, and
- A capacity to accommodate a higher density of development than rural areas.

The DLR Development Plan also states ‘Within parking zone 3 maximum standards shall apply to uses other than residential where the parking standard shall apply. In zone 3 additional parking shall be provided for visitors in residential schemes at a rate of 1 per 10’.

Table 7-1 - Car Parking Requirement

Unit Type	No. of Units	Required spaces	Required visitor spaces
1-bed	29	29	3
2-bed	8	8	1
Total	37	37	4

As per the DLR development plan requirements 37 car parking spaces for the residents and 4 visitor spaces are required within the development.

The development proposes to have a total of 36 parking spaces, broken down as follows:

- 22 no. under croft residential spaces,
- 2 no. under croft residential accessible parking spaces,
- 11 no. surface external residential spaces, and

- 1 no. surface external visitor spaces.

DLR development plan states, *'In some instances, in zone 3 reduced provision may be acceptable dependent on the criteria set out in 12.4.5.2 (i)'*. Section 12.4.5.2 Application of standards set an assessment Criteria for deviation from the Car Parking Standards set out above, the criteria include:

1. Proximity to public transport services and level of service and interchange available.
2. Walking and cycling accessibility/permeability and any improvement to same.
3. The need to safeguard investment in sustainable transport and encourage a modal shift.
4. Availability of car sharing and bike / e-bike sharing facilities.
5. Existing availability of parking and its potential for dual use.
6. Particular nature, scale and characteristics of the proposed development (as noted above deviations may be more appropriate for smaller infill proposals).
7. The range of services available within the area.
8. Impact on traffic safety and the amenities of the area.
9. Capacity of the surrounding road network.
10. Urban design, regeneration and civic benefits including street vibrancy.
11. Robustness of Mobility Management Plan to support the development.
12. The availability of on street parking controls in the immediate vicinity.
13. Any specific sustainability measures being implemented including but not limited to the provision of bespoke public transport services and mobility interventions.

As described in this section, along with sections four, five and six of this report,

- The development site has a high level of proximity to public transport services including Luas and bus,
- There is a significant level of active travel permeability within the vicinity of the site, as detailed by the accessibility/catchment maps,
- There is a wide availability of car sharing and bike / e-bike sharing facilities,
- The proposed park is within the site boundary rather than on-street parking.

The site is located at the junction of Sandyford Road and Hillcrest Road, this junction (as described above) underwent the Blackglen Road Improvement Scheme and provided improved traffic flow, and improved public transport, cycling and walking infrastructure. Furthermore, this junction there are various amenities including a grocery shop, vets, community centre, national school, butchers, hairdresser, beauty salon and a cafe; these amenities have parking. Additionally, the site is a 15-minute walk/ 5-minute cycle to Sandyford Village and less than 30-minute walk/ 10-minute cycle to Sandyford Business Park, which holds further amenity options.

Therefore, the provision of 36 parking spaces for the development is considered acceptable.

Furthermore, to the number of parking spaces, DLR Development Plan also sets out parking bay dimensions to be a minimum 2.4 metres in width and 4.8 metres in length with

parking bay widths suitable for people with disabilities shall be a minimum of 2.4 metres wide – with a 1.2 metres buffer on both sides - and 6.0 metres in depth.

34 no. of the parking bays are proposed to be 2.4 metres in width and 4.8 metres in length, with an additional 2 no. to be 2.4 metres wide – with a 1.2 metres buffer on both sides - and 6.0 metres in depth.

7.2.2 Bicycle Parking

As per Table 4.1 from the DLCRR cycle standards, 1 short stay (visitor) parking space is required per 5 units, and 1 long stay parking space per unit is required. Since there are 37 no. apartment unit; there is therefore a requirement for 8 short stay cycle parking, and 37 long stay cycle parking. Totalling 45 cycle parking spaces required for the development.

In contrast, SPRR 4 - Cycle and Storage, Sustainable Residential Development and Compact Settlements Guidelines for Local Authorities 2024 states '*a general minimum standard of 1 cycle storage space per bedroom should be applied. Visitor cycle parking should also be provided*'.

Table 4.1 Cycle parking for residential development		
Residential Development type	1 short stay (visitor) parking space per: (Minimum of 2 spaces)	1 long stay parking space per: (Minimum of 2 spaces)
Apartments, Flats, Sheltered housing	5 units	1 unit
Houses - 2 bed dwelling	5 units	1 unit
Houses - 3+ bed dwelling	5 units	1 unit
Sheltered housing	5 units	1 unit
Student Accommodation	5 bedrooms	2 bedrooms

Figure 7-2 – Cycle Parking Requirements

In addition to the apartments there is a non-residential community space totalling 171.6m². As per Table 4.2 in the DLCRR cycle standards 1 short stay visitor parking is required per 100m² GFA.

Table 4.2 Cycle parking for non-residential development		
Development type	1 short stay (visitor) parking space per: (Minimum of 2 spaces)	1 long stay parking space per: (Minimum of 2 spaces)
Institutions, Community Centres, Library, Museum, Art Gallery	100m ² GFA	5 Staff

Figure 7-3 – Further Cycle Parking Requirements

In accordance with SPRR 4 - Cycle and Storage, Sustainable Residential Development and Compact Settlements Guidelines for Local Authorities 2024 and Table 4.1 and Table 4.2 of the Cycle Parking for Residential Development, Standards for Cycle Parking and associated Cycling Facilities for New Developments the development proposes to have 49 no. Internal Cycle Spaces (Secure Long Stay- for Residents), 2 no. Internal (Secure Long Stay- Non-Residential Community Space) and 20 no. surface (Short Stay Visitor for Residential Community Space). Which meets both SPRR 4 and the requirements set out by DLRCC.

In addition to the cycle parking, the is proposed to be 2 no. motorcycle parking spaces located in the under croft in accordance with paragraph 12.4.7 DLR Development Plan 2022-2028.

7.2.3 Traffic Impact

The traffic impact of the proposed development is expected to be negligible primarily given the low level of car parking proposed which will reduce car-based trips to and from the development, particularly during peak hours.

Table 2.1 in the TII Traffic and Transport Assessment Guidelines, 2014 sets a number of thresholds, above which a Traffic Impact Assessment must be completed.

Table 7-2 - Traffic Management Guidelines Thresholds for Transport Assessments

Traffic Management Guidelines Thresholds for Transport Assessments	
Residential development of more than 200 dwellings.	
Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.	
Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive.	

Table 2.3 in the TII Traffic and Transport Assessment Guidelines, 2014 sets out a series of further threshold which include:

Table 7-3 - Traffic Management Guidelines Thresholds for Transport Assessments

Traffic Management Guidelines Thresholds for Transport Assessments	
Vehicle Movements	The character and total number of trips in/ out combined per day are such that as to cause concern.
Location	The site is not consistent with the National Guidance or Local Plan Policy, or accessibility criteria combined in the Development Plan
Other Considerations	The development is part of the incremental development that will have significant transport implications.
	The development may generate traffic at peak times in a heavily trafficked/ congested area or near a junction with a main traffic route.
	The development may generate traffic, particularly heavy vehicles in a residential area.
	There are concerns over the developments potentials effects on road safety.
	The development is in a tourist area with potential to cause congestion.
	The planning authority considers that the proposal will result in a material change in trips patterns or raises other significant transport implications.

The development will provide 37 dwelling units with 36 car parking spaces, so the absolute maximum number of vehicle movements in the AM and PM peak hours will not exceed 36. Consequently, the impact of the development on the surrounding road network is expected to be negligible.

8 AIMS AND OBJECTIVES OF THE TMMP

8.1 Overview

To measure the ongoing success of the TMMP and its various measures, it is important that a series of targets and objectives are set at the outset.

As this is pre-occupation residential TMMP, it is expected that the final targets of the TMMP will be taken forward upon site occupation. As such, the pre-occupation baseline targets should be at this time considered as guidance until post- occupation baseline residential surveys are undertaken.

8.2 Aims and Objectives

The overall aim of the MMP for the proposed development is to minimise the proportion of single occupancy vehicle trips and address the forecast transport impacts of the end-users of the site. The objectives can be summarised as considering the needs of residents in relation accessing facilities for employment, education, health, leisure, recreation and shopping purposes, including identifying local amenities available that reduce the need to travel longer distances.

8.3 Targets

Targets are the specific quantitative goals based on the objectives described above. Targets are important as they give the TMMP direction from its inception, providing measurable goals.

Since the overall aim of the TMMP is to reduce reliance upon the private car, it is appropriate to set a target which relates to this objective. The primary outcome indicator used will be mode share of the resident of the proposed development.

It will therefore be necessary to collect data to identify and understand the post-occupation baseline and ongoing travel habits, against which the TMMPs progress can be measured. It is recommended that resident's travel surveys be carried out to establish the post-occupation baseline travel data for the site and inform the final TMMPs targets.

9 MOBILITY MANAGEMENT MEASURES

9.1 Proposed TMMP Action Plan Measures

TMMPs have a wide range of possible “hard” and “soft” measures from which to choose from with the objective of influencing travel choices. The following section introduces proposed TMMP measures that can be implemented once the site is occupied. The finalised measures within the TMMP will be informed by the insight gained by the Post-Occupation Baseline Travel Survey results.

The proposed residential TMMP Action Plan is summarised into the following sections:

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

9.2 Mobility Manager

A Mobility Manager will be appointed, and their role will be to manage the implementation of the Residential TMMP for the Lambs Cross site. The role involves being the main point of contact for travel information, promotion, and improvements. This may also be organised in the form of a residents’ group once the development is fully occupied and operational. The remit of the Mobility Manager includes the following:

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

9.3 Reducing the need to travel

The provision of on-site or within walking distance of the site services to reduce the need of residents to utilise a vehicle to travel will be crucial to embedding a sustainable travel culture within the site from the outset.

9.4 Welcome Travel Pack

A ‘Welcome Travel Pack’ can be provided to all new residents with the intention that each resident is made fully aware of the travel choices available to them. This will also give the

best possible opportunity to the new residents to consider more sustainable modes of travel.

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

- Provision of information on services and amenities provided locally (both on-site and nearby), particularly those within walking and cycling distance.
- Maps showing the pedestrian and cycle routes in proximity to the site, including site cycle parking and cycle hire locations; advised routes (with journey times) into the city centre and also to public transport interchanges (e.g., Luas Red Line / Green Line Interchanges, Connolly Station, Dun Laoghaire Station, Bray Daly Station, Cherrywood etc.).
- Provision of information about local public transport services and tickets including a plan showing the location of bus stops, Luas stops, and bus routes.
- Provision of information on the health benefits of walking and cycling.
- Provision of details of online car-sharing services along with the benefits of car sharing, such as reduced congestion, better air quality, reduction in traffic noise and cost savings to the individuals taking part.
- Provision of information on the financial and environmental costs associated with driving and support regarding tips for green driving techniques.

9.5 Marketing and Travel Information

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

The Mobility Manager can market and promote the TMMP to residents of the development in the following ways:

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

9.6 Walking

Walking is the most sustainable and accessible mode of travel. Any individual in fair health can incorporate walking into part of their journey. Furthermore, 30 minutes of moderate

activity 5 or more times per week is likely to enhance the health and fitness of the individual. To encourage walking, a number of measures will be considered:

- Promotion of National Walking Month.
- Provision of maps of local walking routes to key destinations in the vicinity of the site.
- Making information on local pedestrian routes and facilities available.
- Raising awareness of the health benefits of walking.

9.7 Cycling

To encourage residents to cycle, the following measures will be implemented or considered:

- Provision of adequate, secure bicycle parking at convenient locations within the development.
- Posting of information on the local cycle network routes on communal notice boards and social media.
- Provision of information on the Bike to Work scheme.
- Provision of vouchers local bike shops to all residents.
- Promotion of Bike Week events in the Sandyford area.
- Promotion of cycle security and bike marking schemes to reduce bike theft.
- Promotion of cycle safety.
- Provision of cycle toolkit in a communal area such as the bike store.
- Exploring the potential for local bike shops to set up a monthly bike maintenance drop in.
- Setting up of a Bicycle User Group (BUG).

9.8 Public Transport

The following measures will be considered to encourage residents and visitors to travel by public transport:

- Provision of vouchers towards sustainable travel to encourage modal shift.
- Provision of up-to-date bus details including timetables/ contact information in the welcome packs on resident notice boards.
- Provision of wayfinding information to access key transport modes.
- Liaison with local bus companies regarding future improvements and/ or extension to local services.

Cost awareness can be a contributing factor in the decision to travel by car or public transport. Residents can be made aware of the savings that can be made by purchasing season and other discounted ticket types.

9.9 Managing Car Use

To encourage lower levels of car use and private car ownership i.e. promote a car free lifestyle, the following measures can be considered:

- Provision of free car club membership for a period for each dwelling and car club credit vouchers.
- Designation of a section of car parking within the car park for priority use for those that car share and/ or low emission vehicles.
- Provision of details for the proposed car club and current car club operators within the vicinity of the site.

11 MONITORING AND REVIEW

11.1 Monitoring and Review

The monitoring of travel behaviour is vital to measure progress towards targets. Monitoring will be undertaken by the management company after occupation.

The MM will consult with the occupiers to promote the concept of the TMMP, as well as identifying objectives for encouraging active travel.

Monitoring surveys will be conducted at intervals following occupations of the development. The MM will organise surveys aimed at obtaining updated information on the travel patterns of the residents. The TMMP will be updated on the receipt of survey results.

The MM will be responsible for monitoring on-site and off-site facilities for sustainable modes. It will be the duty of the MM to report any significant issues observed or any useful comments received from residents on either on-site or off-site facilities.

11.2 Data Collection Analysis

As the development, has not yet be constructed, it is not possible to undertake any travels surveys.

To understand travel habits, travel surveys will be distributed to all residents after occupation. Recipients will be encouraged to participate, and the surveys would extract the following key information:

- Place of work/study.
- Usual mode of travel and reason for modal choice.
- Attractiveness of various sustainable modes.
- Any barriers of sustainable modes.
- Initiatives that would encourage residents to travel more sustainably.

The information obtained will be used to undertake travel performance indicator and modal split analysis.