

DUNDRUM AREA-BASED TRANSPORT ASSESSMENT



APPENDIX A: BASELINE ASSESSMENT REPORT

May 2021



DUNDRUM AREA-BASED TRANSPORT ASSESSMENT

BASELINE ASSESSMENT REPORT

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1. INTRODUCTION

1.1 Background to the Dundrum ABTA

SYSTRA Ltd and JB Barry & Partners, have been commissioned by Dún Laoghaire-Rathdown County Council (DLRCC) to assist them in developing an Area Based Transport Assessment (ABTA) for Dundrum and its environs. The key purpose the ABTA is to guide the future transport and mobility needs of the Dundrum Local Area Plan (LAP) area, taking into account the transport demand arising from existing and projected development both within the LAP boundary and the wider area of influence. It is one of a number of complementary assessment processes which will be used in the development of the Dundrum LAP that is currently being prepared by the council.

ABTA's seek to maximise opportunities for the integration of land use and transport planning, with an emphasis on delivering sustainable travel solutions. The Dundrum ABTA will be undertaken to determine the key infrastructure measures, as well as policy and behavioural change measures, required in Dundrum to tackle existing constraints in transport capacity, to plan for appropriate levels of development to facilitate the projected growth in population and employment, and to encourage sustainable mobility.

1.2 Overview of the Baseline Assessment – report structure and contents

Following the guidelines set out in TII/NTA's 'Area Based Transport Assessment (ABTA) Guidance Notes – December 2018'¹, the following tasks will be undertaken as part of the Dundrum ABTA:

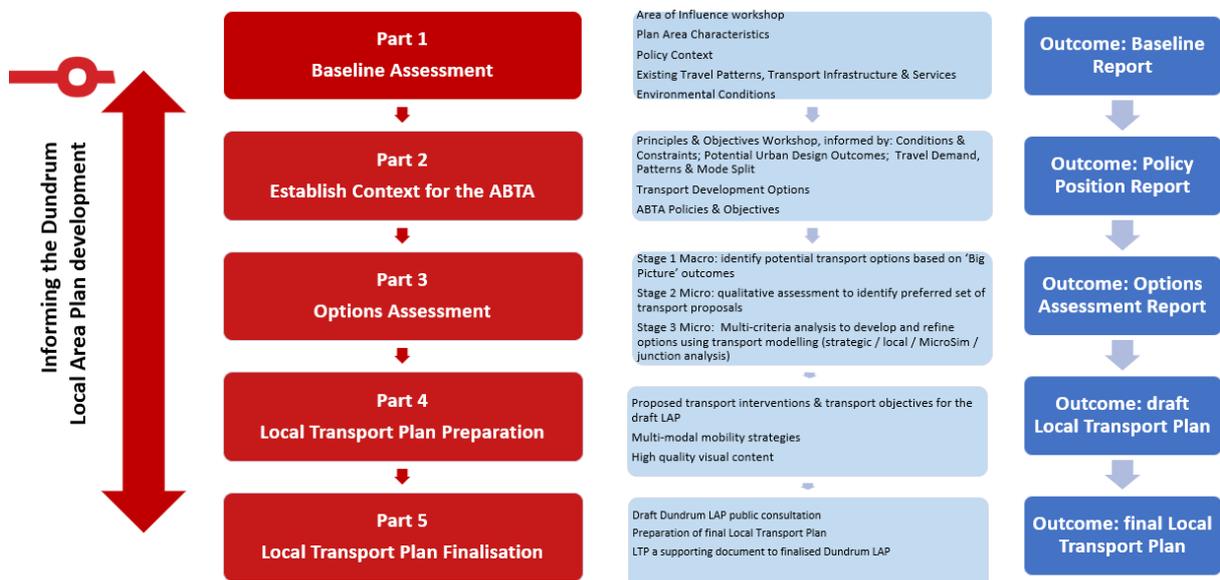


Figure 1.1 Dundrum ABTA Methodology

This Baseline Assessment report forms Part 1 of the ABTA, with the aim to gain a clear understanding of the existing spatial characteristics, land uses, transport conditions and constraints relating to the Plan area. It focuses on the following:

¹ Source: https://www.nationaltransport.ie/wp-content/uploads/2020/07/Area_Based_Transport_Assessment_ABTA.pdf

Chapter 2 – Policy Context:

Chapter Two provides an overview of existing National, Regional and local polices, and guidelines, relevant to the development area that are used to inform the Dundrum ABTA.

Chapter 3 – Area Characteristics:

Chapter Three outlines the ABTA study area including the location and relative dispersal / concentration of land uses, along with any physical constraints e.g. challenging topography.

Chapter 4 – Existing Travel Patterns:

Chapter Four gives an overview of the likely trip distribution profile, average trip lengths and mode shares for the Dundrum ABTA study area using 2016 Census data.

Chapter 5 – Existing Transport Infrastructure:

Chapter Five reviews the existing walking and cycling infrastructure, public transport capacity and services, and road network conditions within the study area.

Chapter 6 – Dundrum LAP Pre-Draft Consultation:

Chapter Six summarises some of the key transport related findings from the Pre-Draft LAP Consultation carried out with local residents and stakeholders in 2018.

Chapter 7 – Environmental Conditions:

Chapter Seven establishes the environmental, heritage and archaeological considerations for the ABTA. It identifies the baseline environment conditions and any potential sensitive receptors.

Chapter 8 – Conclusion and Next Steps:

Chapter Eight summarises the key points raised in the Baseline Assessment tasks above. A Strength's, Weaknesses, Opportunities and Threats (SWOT) assessment is undertaken to inform the next steps in the ABTA process.

2. POLICY CONTEXT

2.1 Introduction

The following chapter provides an overview of relevant National, Regional and local polices and plans which were used to inform the Dundrum ABTA. Table 2.1 below outlines the key documents reviewed within the following sections.

Table 2.1 Planning and Policy Documents

National Level
<ul style="list-style-type: none"> ○ Project Ireland 2040: National Planning Framework 2040 ○ Project Ireland 2040: National Development Plan 2018 – 2027 ○ Smarter Travel – A Sustainable Future 2009 – 2020 ○ National Climate Action Plan 2019
Regional Level
<ul style="list-style-type: none"> ○ Eastern & Midland Regional Assembly Regional Spatial & Economic Strategy (RSES) 2019 – 2031 ○ Metropolitan Area Strategic Plan (MASP) ○ Transport Strategy for the Greater Dublin Area 2016-2035 ○ Greater Dublin Area Cycle Network Plan
Local Level
<ul style="list-style-type: none"> ○ Dún Laoghaire-Rathdown County Development Plan 2016-2022 ○ DRAFT Dún Laoghaire-Rathdown County Development Plan 2022-2028 ○ Dún Laoghaire-Rathdown County Council Climate Change Action Plan 2019-2024 ○ Pre-Draft Issues Paper for the Dundrum Local Area Plan ○ Dún Laoghaire-Rathdown Cycle Network Review (2012) ○ Dundrum Community, Cultural & Civic Action Plan (CCCAP) ○ Goatstown Local Area Plan 2010-2022
Guidance Documents
<ul style="list-style-type: none"> ○ National Cycle Manual ○ Design Manual for Urban Roads and Streets ○ Permeability: A Best Practice Guide ○ Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities

2.2 National Plans, Policies and Objectives

Project Ireland 2040: National Planning Framework 2040

The *National Planning Framework* (NPF) sets out Ireland's planning policy up to 2040, outlining a series of national strategic outcomes and key principles which are intended to inform policies at a regional and local level and guide development and investment in the years to come. The NPF Outcomes include:

- Compact growth
- Sustainable mobility
- Transition to a low carbon and climate resilient society.

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

The NPF identifies a number of strategic investment priorities including sustainable development, environmentally sustainable public transport and climate action. The NPF also outlines objectives to cut emissions through the use of renewable or low carbon alternatives and improve air quality through integrated land use and spatial planning that supports public transport, walking, and cycling in preference to increased use of the private car.

To achieve compact growth, the NPF sets a target for 40% of new housing development to be built on sites within existing urban footprints, with 50% of this growth to be accommodated within the five cities of the country (Dublin, Cork, Waterford, Limerick, and Galway).

Project Ireland 2040: National Development Plan 2018 – 2027

As part of Project Ireland 2040, the National Development Plan (NDP) is underpinned by a clear spatial perspective through the National Planning Framework (NPF) to guide national, regional and local planning and investment decisions in Ireland over the next two decades. The National Strategic Outcomes of the plan are:

- Compact Growth;
- Enhanced Regional Accessibility;
- Strengthened Rural Economics and Communities;
- Sustainable Mobility;
- A Strong Economy supported by Enterprise, Innovation and Skills;
- High Quality International Connectivity;
- Enhanced Amenity and Heritage;
- Transition to a Low-Carbon and Climate-Resilient Society;
- Sustainable Management of Water Waste and other Environmental Resources; and
- Access to Quality Childcare, Education and Health Services.

Alongside these are Strategic Investment Priorities, many of which link to sustainable transport and access to employment, education, healthcare and childcare. In relation to Dundrum, the NDP provides a commitment of a Luas network extension to the Green Line both to Bray to the south and as far as

Smarter Travel – A Sustainable Future 2009 – 2020

Smarter Travel, A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020 recognises the need to provide an integrated transport network that enables the efficient, effective and sustainable movement of people and goods, in order to contribute to economic, social and cultural progress. This policy recognises that without intervention, congestion will get worse, transport emissions will continue to grow, economic competitiveness will suffer, and quality of life will decline. The key goals are as follows:

- Improve quality of life and accessibility to transport for all including people with reduced mobility and those who may experience isolation due to lack of transport.
- Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks.
- Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions.
- Reduce overall travel demand and commuting distances travelled by the private car.
- Improve security of energy supply by reducing dependency on imported fossil fuels.

The policy outlines clear targets to:

- Address the current unsustainable transport and travel patterns and to reduce the health and environment impacts of current trends.
- Deliver a sustainable transport system in line with climate change targets.
- Reduce work related commuting by car from a current modal share of 65% down to 45%.
- Increase commuting by sustainable modes to 55% of all commuting trips.

National Climate Action Plan 2019

In 2015, Ireland, as a member state of the European Union, became a signatory of the Paris Agreement which aims to limit global warming to below 2 degrees centigrade above pre-industrial levels and to limit the temperature increase to 1.5 degrees. To contribute to the achievement of this, Ireland is required to deliver a 30% reduction (relative to 2005 levels) in greenhouse gas emissions by 2030.

Transport was responsible for 20.1% of Ireland's greenhouse gas emissions in 2018², and was second only to agriculture in terms of emission share by sector. Road transport accounted for the majority of these emissions, with private cars accounting for 40%, Heavy Goods Vehicles (HGVs) for 14% and Light Goods Vehicles (LGVs) for 6%, with public and private buses accounting for less than 3% of emissions.

The *National Climate Action Plan 2019* sets out an ambitious course of action for each sector to achieve the level of decarbonisation required to achieve its 2030 targets for carbon emissions and creating a pathway towards achieving net zero emissions by 2050, in line with the State's international commitments under the Paris Agreement. Decarbonising transport is a key tenet of the NCAP, and will require a significant modal shift from car to public transport and active travel, as well as a significant uptake of electric vehicles and increased use of biofuels.

² Source: http://www.epa.ie/pubs/reports/air/airemissions/ghg2018/Ireland%20GHG%201990-2018%20Final%20Inventory_April%202020.pdf

2.3 Regional Plans, Policies and Objectives

Eastern & Midland Regional Assembly Regional Spatial & Economic Strategy (RSES) 2019 – 2031

The Eastern and Midland RSES shares a vision that focuses on equality and wellbeing of all people across rural and urban contexts:

“To create a sustainable and competitive Region that supports the health and wellbeing of our people and places, from urban to rural, with access to quality housing, travel and employment opportunities for all.”

The primary statutory objective of the Strategy is to support implementation of Project Ireland 2040 and the NPF. The RSES aims to provide a spatial framework to promote smart compact growth as an alternative to continued suburban sprawl around cities and towns, with the resultant negative impact on the environment and people’s health and wellbeing.

The RSES implement the practical implications of the NPF at a regional level. Where the NPF identifies population targets, the RSES translate these population targets into anticipated increases for each local authority area. Local Authorities are required to demonstrate consistency with the NPF in their Development Plans and by extension, their Local Area Plans. The strategy is centred around three key principles:

- **Healthy Placemaking** - to promote people’s quality of life through the creation of healthy and attractive places to live, work, visit and study in;
- **Climate Action** - the need to enhance climate resilience and to accelerate a transition to a low carbon economy recognising the role of natural capital and ecosystem services in achieving this;
- **Economic Opportunity** - to create the right conditions and opportunities for the region to realise sustained economic growth and employment that ensures good living standards for all.

Metropolitan Area Strategic Plan (MASP)

The Metropolitan Area Strategic Plan (MASP), which is a key feature of the RSES, consists of 12-year planning frameworks crossing the administrative boundaries of the Dublin Local Authorities. The vision statement for the MASP is as follows:

Over the years to 2031 and with a 2040 horizon, the Dublin metropolitan area will;

“build on our strengths to become a smart, climate resilient and global city region, expanding access to social and economic opportunities and improved housing choice, travel options and quality of life for people who live, work, study in or visit the metropolitan area”

The MASP envisages a population in the Metropolitan area of 1.65 million people by 2031, or an increase of 250,000 people (18%) over a 15 year period. The anticipated rate of population growth has significant implications for the Dún Laoghaire-Rathdown administrative area and for its two established Major Town Centres, Dundrum and Dún Laoghaire.

Transport Strategy for the Greater Dublin Area 2016-2035

The overarching purpose of the strategy is “to contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods” and provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades. The Strategy is required under legislation to be consistent with the Regional Planning Guidelines for the Greater Dublin Area 2010-2022, and as such the Strategy sets out the framework to deliver the necessary transport provision in line with the Guidelines.

The key emerging messages from the policy background to the Strategy strongly link to the ABTA, including:

- Transport must be a key consideration in land use planning;
- A significant *reduction in the share of trips undertaken by car is required*, particularly in relation to short trips and commuter trips, and
- An associated increase in walking, cycling and public transport is also required.

The Strategy divides the GDA into travel segments and corridors, placing Dundrum in radial Corridor F “Arklow – Wicklow – Greystones – Bray – Cherrywood – Dundrum – Dun Laoghaire – to Dublin City Centre”. It sets out key measures to address some of the issues for ‘Corridor F’, including:

- Increasing capacity of the South Eastern rail line via enhancements to existing infrastructure;
- Increasing capacity of DART services;
- Upgrading the Luas Green Line to Metro standard from the city centre, and a new Luas line between its current terminus and Bray;
- Road schemes including upgrades to the M11/M50 junction and Loughlinstown roundabout;
- Local level enhancements including better cycle and pedestrian provision and local road and public transport improvements; and
- More integrated public transport ticketing;

The Strategy also outlines the goals for land use and transport integration as follows:

- Reducing the need to travel;
- Reducing the distance travelled;
- Reducing the time taken to travel;
- Promoting walking and cycling; and
- Promoting public transport use.

It should be noted that the GDA Transport Strategy is currently being reviewed to produce an updated Strategy which will set out the framework for investment in transport infrastructure and services up to 2042. The revision of the Strategy will be consistent with the spatial planning policies and objectives set out in the Regional Spatial and Economic Strategy (RSES) as adopted by the Eastern and Midland Regional Assembly, and finalised in January 2020. These objectives in turn are consistent with the National Planning Framework and the National Development Plan, as set out in Project Ireland 2040.

Greater Dublin Area Cycle Network Plan

The Greater Dublin Area Cycling Network Plan was developed to identify and determine in a consistent, clear and logical manner the following cycle networks within the GDA:

- The Urban Cycle Network at the Primary, Secondary and Feeder level;
- The Inter-Urban Cycle Network linking the relevant sections of the Urban Network and including the elements of the National Cycle Network within the GDA. It shall also include linkages to key transport locations outside of urban areas such as airports and ports; and
- The Green Route Network being cycle routes developed predominately for tourist, recreational and leisure purposes.

The plan provides information to the NTA and the Local Authorities within the GDA on what bicycle facilities are currently available, where they are missing sections, what is their condition and what improvements are likely to be required. In addition, a strategic cycle network map of the GDA is prepared to help the NTA in allocating funding towards the implementation of strategically important schemes. Information outlined in the GDA Cycle Network Plan will allow cycle infrastructure projects to be prioritised in terms of the importance to the strategic network and the likely cycle demand for such a scheme.

The proposed cycle network in the Dundrum area is outlined in Figure 2.2, overleaf. It is presented as a hierarchy of corridors that provide differing levels of importance for cyclists and they are:

- **Primary Network:** Main cycle arteries that cross the urban area, and carry most cycle traffic;
- **Secondary Network:** Links between the principal cycle routes and local zones; and
- **Feeder:** Connections from zones to the network levels above and/or cycle routes within local zones.

Please note, the NTA is currently in the process of updating the GDA Cycle Network Plan and anticipates that this will be published later in 2021. The updated Cycle Network Plan will be an important input into the review of the Transport Strategy for the Greater Dublin Area.

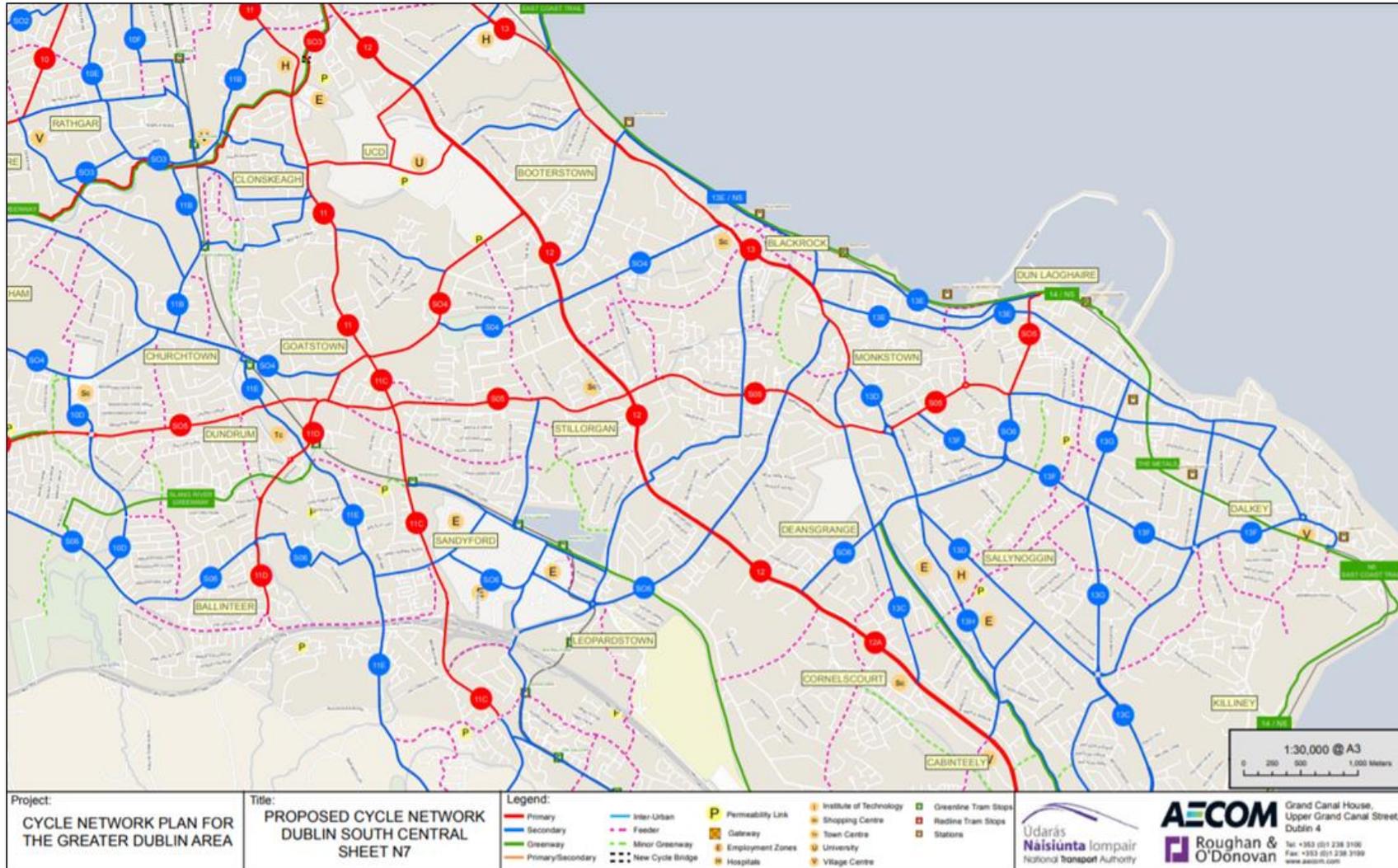


Figure 2.2 GDA Cycle Network Plan

2.4 Local Plans, Policies and Objectives

Dún Laoghaire–Rathdown County Development Plan 2016-2022

The Dún Laoghaire - Rathdown County Development Plan 2016-2022 (CDP) takes cognisance of, and accords with, national and regional policy. The Core Strategy, seeks to ensure a level of equilibrium between residential land supply in the County and forecast household growth. This is achieved by undertaking a Housing Land Availability Study to assess and quantify the supply of zoned land, coupled with an assessment of the population targets provided in the aforementioned NPF and RSES.

The LAP lands at Dundrum are an important part of the Council's residential land supply, given the ability of land zoned Major Town Centre to accommodate an appropriate proportion of this type of development as well as the incorporation of the Central Mental Hospital lands into the LAP boundary. Under the Settlement Hierarchy in the current CDP, Dundrum, along with Dún Laoghaire are identified as:

“key urban nodes with potential to grow as important development centres due to their favoured location with regard to public transport networks, comparison shopping facilities and employment and services provision”.

Dundrum falls under the category of 'serviced land' in the Core Strategy, as compared to part-serviced land such as Cherrywood or unserviced land, such as at Rathmichael, for example. As such, it is included in the same category as Sandyford, Stepside, and Kiltiernan. The Core Strategy identifies that all serviced land combined has the capacity to accommodate 18,000 residential units across a total of 410 hectares of land. Dundrum will accommodate an appropriate proportion of these units, subject to local capacity and conditions, to be assessed through the development management process.

The CDP also provides the overarching planning framework for the County, sets out the zoning 'hierarchy', and incorporates a considerable number of policies and objectives relating to the future development of the Plan area.

Specific Local Objectives (SLO) are also identified on the LAP lands and are listed in the CDP. The following SLOs relate to the Dundrum LAP area:

- No. 4 – To encourage the retention and development of the Airfield Estate for educational, recreational and cultural uses.
- No. 80 – To facilitate, support and enhance educational facilities in the County, in particular the activities of Dundrum College of Further Education that will foster strong links between education, community and the business sector in the County.
- No. 92 – To redevelop the former flats site Rosemount Court as part of the Council's Housing Programme.
- No. 134 – To prepare a Local Area Plan for Dundrum.
- No. 149 – That any future redevelopment of Dundrum Village Centre (Phase 2) shall provide for and retain a range of complementary non-retail uses including - but not limited to - employment, restaurant, leisure, entertainment, cultural, community, and civic uses – to supplement that already provided for within the wider Dundrum Town Centre.
- No. 150 – To ensure that Phase 2 of the Dundrum Town Centre takes cognisance of the character and streetscape of the Old Main Street.

DRAFT Dún Laoghaire–Rathdown County Development Plan 2022-2028

The preparation of the Draft County Development Plan 2022-2028 is now underway and is currently at consultation stage. The Plan sets out an approach centred on the core principle of sustainability with a focus on creating vibrant, liveable, climate resilient communities.

In terms of transport and mobility, the plan focuses on promoting compact growth and ensuring that people can easily access their homes, employment, education and the services they require by means of sustainable transport. The overall policy approach is:

- To adopt the ‘Avoid-Shift-Improve Approach’ to transport. This approach is based on avoiding or reducing the need to travel, shifting to more environmentally friendly modes and improving the energy efficiency of motorised transport modes.
- To integrate land use and transport policies.
- To support the demand management approach which focuses on moving people from the private car to more sustainable modes.
- To improve permeability for the pedestrian and cyclist.
- To provide attractive high-quality inclusive and connected walking and cycling networks with direct routes to local destinations and public transport hubs

There are a number of policies outlined in the draft plan to promote active travel including:

- **Policy Objective T10:** to secure the development of a 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 improvements;
- **Policy Objective T11:** to maintain and expand the footway and pedestrian route network to provide for accessible, safe pedestrian routes within the County;
- **Policy Objective T12:** to secure improvements to the County Cycle Network in accordance with the Dún Laoghaire-Rathdown Cycle Network Review whilst supporting the NTA on the development and implementation of the Greater Dublin Area Cycle Network Plan; and
- **Policy Objective T14:** to support the provision of bike rental (pedal and e-bike) across the County

The plan promotes the ‘10-minute’ neighbourhood concept, where a range of facilities and services are accessible in a short walking and cycling timeframe from homes, or are accessible by high quality public transport located within a short walk from home. Dundrum is one example of an urban village within Dún Laoghaire-Rathdown that could apply this concept given the proximity of a number of services within the village and the availability of the Luas Green Line.

It is an objective of the draft plan to manage the demand for car travel and encourage the use of walking, cycling and public transport. One element of this is the introduction of parking standards, ensuring that, in assessing development proposals, appropriate consideration is given to the accommodation of vehicles attracted to the site within the context of Smarter Travel (the Government policy aimed at promoting modal shift to more sustainable forms of transport). Four parking zones have been defined based on proximity to quality public transport as well as the range and accessibility, on foot or by bicycle, of services within an area. Dundrum Major Town Centre is categorised as Zone 1, the Luas corridor is included in Zone 2 and the remainder of the study area is classed as Zone 3. Within each of these zones, various maximum parking standards have been defined for different land-use types and these are outlined in further detail in Table 12.6 of the Draft County Development Plan.

The plan takes cognisance of the Retail Strategy for the Greater Dublin Area 2008 – 2016 and the Eastern and Midland Regional Authorities ‘Regional Spatial and Economic Strategy 2019 – 2031’, in defining the retail hierarchy of the County and defining Dundrum as a Major Town (Policy Objective RET3 & RET4). It acknowledges Dundrum Town Centre’s (Shopping Centre) significant role as one of the most successful comparison retail shopping locations in the country attracting customers from a broad geographic area bringing revenue into the locality and aiding job creation.

The draft plan also incorporates a number of the Specific Local Objectives (SLO) for Dundrum from the current CDP, with the following additions:

- No. 2: To accord with the policies of the adopted Goatstown Local Area Plan.
- No. 4: To promote potential additional future uses of the Dublin Eastern Bypass reservation corridor, including a greenway/cycleway, a pedestrian walkway, biodiversity projects, recreational opportunities - inclusive of playing pitches - public transport provision and other suitable temporary uses, pending a decision from Transport Infrastructure Ireland/Central Government in relation to the future status of the Bypass. Any potential additional future short-term uses of the reservation corridor will be subject to a joint feasibility study to be undertaken by TII and the NTA.
- No. 8: That any future redevelopment of the old shopping centre lands, Dundrum shall provide for residential use and retain a range of complementary non-retail uses including - but not limited to - employment, restaurant, leisure, entertainment, cultural, community and civic uses – to supplement that already provided for within Dundrum Major Town Centre.
- No. 9: To ensure that any future redevelopment of the old shopping centre lands, takes cognisance of the character and streetscape of the Old Main Street, and maintain where appropriate, and possible existing buildings and/or facades. Building Heights alongside Main Street must be sensitive to the original streetscape, in keeping with its character and Candidate Architectural Conservation Area status.
- No. 10: To retain, improve and encourage the provision of sustainable neighbourhood infrastructure facilities.
- No. 11: To support the recommendations of the Dundrum Community, Cultural and Civic Action Plan.
- No. 113: Any integration of / or connectivity between the Central Mental Hospital lands with the adjoining residential area should include the development of enhanced sporting facilities/ infrastructure for existing and future residents.
- No. 114: To support the provision of a Dundrum Community, Cultural and Civic Centre, which integrates into a civic square/plaza area, to be located at the northern end of Dundrum town.

Dún Laoghaire-Rathdown County Council Climate Change Action Plan 2019-2024

The Dún Laoghaire-Rathdown Climate Change Action Plan has been adopted by the Elected Members and represents an important step forward for the Council in tackling a critical issue for both current and future generations. The CCAP sets out Council’s approach to both combating the causes of climate change as well as mitigating against its effects and building resilience through adaptation at a local level. The CCAP is organised around the following Key Action Areas:

- Energy and Buildings
- Transport
- Flood Resilience
- Nature-Based Solutions
- Resource Management

Pre-Draft Dundrum Local Area Plan

DLRCC are currently preparing the Dundrum Local Area Plan which sets out a series of principles and objectives that clearly define the development strategy for Dundrum over the next 6-10 years. The preparation of the Dundrum ABTA is a critical component of the LAP process. It will help inform the transport objectives that feed into the final LAP strategy.

Dún Laoghaire - Rathdown County Council Cycle Network Review (2012)

In 2012, a County Cycle Network was developed following a comprehensive evidence-based review that assessed all cycling routes in the County in terms of quality of service. The Cycle Network, illustrated in Figure 2.3, provides a priority listing for the development of Primary and Secondary Cycle Routes in the County. Specific routes identified which are relevant to the Dundrum ABTA study area include:

- **The Goatstown Radial Route** from Clonskeagh Road to Ballyogan Rd via the Drummartin Link Road;
- **The Dundrum Radial Route** from Dundrum Road towards Stepside via Main Street and Sandyford Road;
- **The Nutgrove Radial Route** connecting Grange Road to Braemor Road via Nutgrove Shopping Centre;
- **The Churchtown to Booterstown Orbital Route** via Taney Road. The Taney Cross to N11 section of this route is currently at preliminary design stage;
- **The Dundrum to Dún Laoghaire Orbital Route** via Dundrum Main Street and Kilmacud Road Upper. The design of this route is currently at tender stage;
- **The Nutgrove to Milltown Link Route** via Churchtown Road Lower; and
- **The Ballinteer to Dundrum Link Route** via Ballinteer Avenue, Wyckham Way and Overend Avenue;

The delivery of this network is ongoing with some cycle infrastructure improvements implemented, whilst others are at various stages of design.

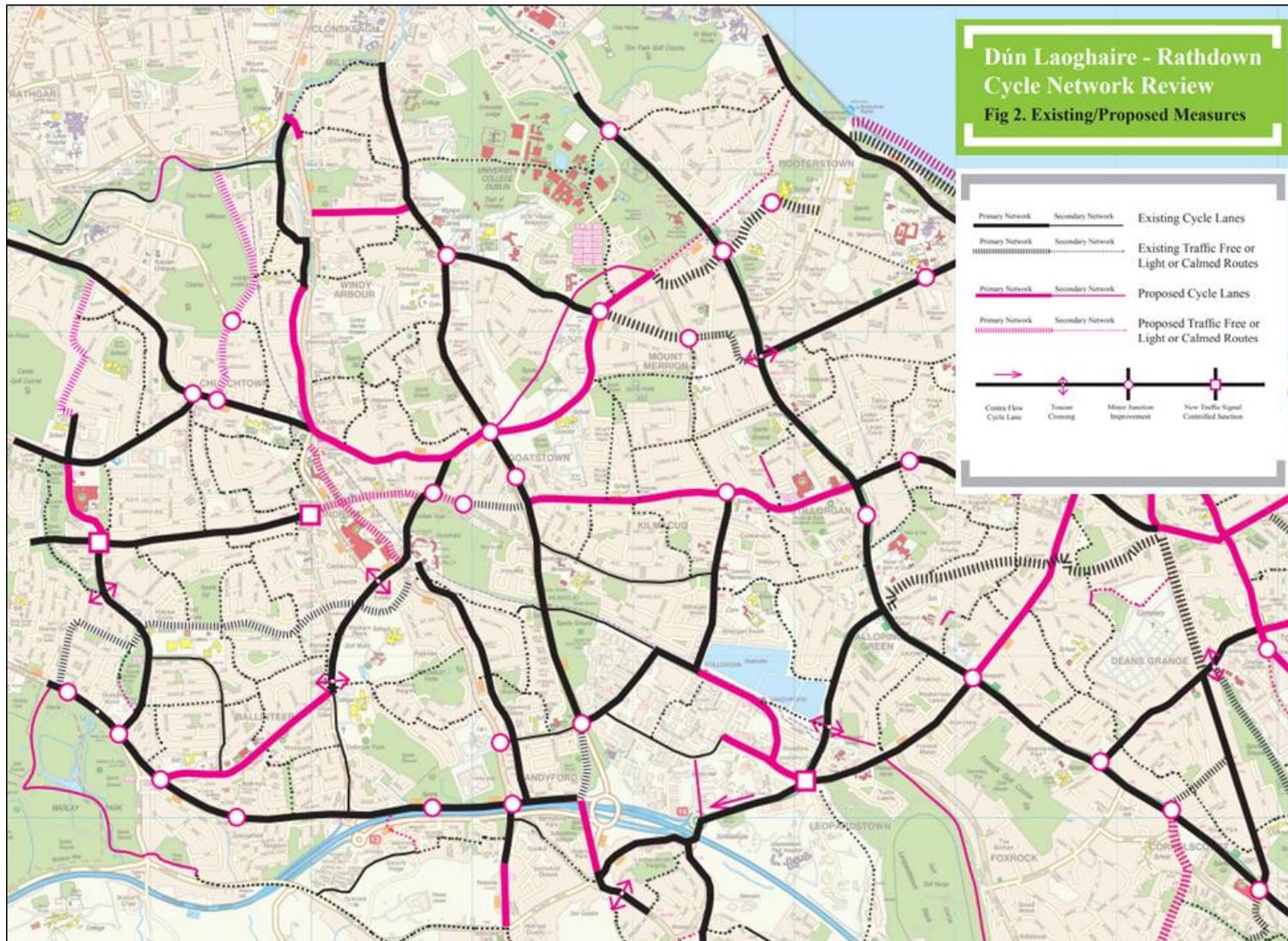


Figure 2.3 Dún Laoghaire – Rathdown Cycle Network Review

Dundrum Community, Cultural & Civic Action Plan (CCCAP)

The Dundrum Community, Cultural and Civic Action Plan (CCCAP) was prepared following the Council's successful application for funding to prepare the study through the Urban Regeneration and Development Fund (URDF).

The purpose of the CCCAP was to assess the existing provision of community, civic and cultural assets and, following an assessment of projected population growth in the area and future demand, to make recommendations regarding the required facilities to service the current and future population of Dundrum.

The CCCAP sets out a number of short, medium and long term actions in response to the anticipated need for community facilities in the Dundrum area. These actions will be taken into consideration as appropriate during the ABTA process.

Goatstown Local Area Plan 2012-2022

Goatstown is a suburb located less than 2km from Dundrum Town Centre. It is also an important confluence of a number of major radial and orbital routes that pass through the County of Dún Laoghaire-Rathdown. In line with the County Development Plan, a LAP for Goatstown sets out a strategy for the proper planning and sustainable development of the area.

Due to its proximity to Dundrum, the proposed development of Goatstown needs to be considered as part of the ABTA. Dundrum Town Centre is a major attractor for trips from Goatstown as it provides a comprehensive range of facilities including cinema, theatre, restaurants and a very broad retail offering. The ABTA process will take cognisance of development potential within the Goatstown LAP when assessing future travel demand.

Further Planning and Transportation Policy Documents

A number of other important national and regional planning and transportation policy guidance documents have been considered in the drafting of the ABTA. These include:

- Dún Laoghaire-Rathdown Open Space Strategy 2011-2015
- Dún Laoghaire-Rathdown Green Infrastructure Strategy 2016
- Dún Laoghaire-Rathdown Local Economic and Community Plan 2016-2021
- Dún Laoghaire-Rathdown Library Development Plan 2016-2020
- Dún Laoghaire-Rathdown Arts Development Plan 2016-2022
- Dún Laoghaire-Rathdown Age Friendly Strategy 2016-2020
- Dún Laoghaire-Rathdown Sports Facilities Strategy 2017-2022
- Dún Laoghaire-Rathdown Tourism Strategy & Marketing Plan 2017-2022
- Report on Community Facilities in Dundrum Area (Nexus 2017)
- National Disability Inclusion Strategy (2017 – 2021)

2.5 Guidance Documents

National Cycle Manual

The *National Cycle Manual* follows the principles of Sustainable Safety and provides guidance on integrating cycling in the design of urban areas, and seeks to challenge planners and engineers to place more emphasis on incorporating cycling within transport networks.

Sustainable Safety consists of five key principles; functionality, homogeneity, legibility, forgivingness and self-awareness and meeting the five needs of cyclists; road safety, coherence, directness, attractiveness and comfort. The Manual sets out best practise as well as current legislation and policy for all elements of cycle infrastructure designs and planning, including standards for managing potential conflict, quality of infrastructure such as surface, link and crossing types, and segregation / interaction. All aspects of the Manual are underpinned by the Principles of Sustainable Safety. The Manual sets out the steps for accommodating cycling on the transport network:

- **Legislation and Policy** – this sets out the main statutory, and non- statutory provisions regarding cycling, as well as current policy;
- **Planning for the Bicycle** – this covers actions to promote and deliver for cycling, including urban design, traffic managements and facilities development, as well as overall cycle network planning;
- **Designing for the Bicycle** – sets out the design process for determining appropriate infrastructure including crossings, links, roundabout and turns;
- **Getting the Details Right** – sets out further detail following design of cycle infrastructure, including lighting, drainage, and cycle parking;
- **Maintenance** – sets out roles and responsibilities for ensuring cycle facilities can be used and their purpose fulfilled through continued inspection and maintenance.

Please note, the NTA is currently in the process of updating the National Cycle Manual and anticipates that this will be published later in 2021.

Design Manual for Urban Roads and Streets

The *Design Manual for Urban Roads and Streets* (DMURS) sets out design standards for urban roads and streets promoting an integrated design approach within urban areas (cities/towns/villages). It balances the place function (i.e. needs of residents and visitors) and the transport function (i.e. needs of pedestrians, cyclists, public transport, cars and goods vehicles).

By utilising the Manual, the end goal is that well-designed streets are placed at the heart of sustainable communities to promote access to walking, cycling and public transport. The standards, approaches and principles set out in this Manual apply to the design of all urban roads and streets (where speed limit is 60kmph or less) except for Motorways and, in exceptional circumstances, certain urban roads and streets which have provided written consent from Sanctioned Authorities.

The Manual itself is underpinned by a holistic design-led approach based upon a collaborative and consultative design process. The Manual recognises the importance of creating secure and connected places that work for all, characterised by creating new and existing streets as attractive places which prioritise access from pedestrians and cyclists whilst also balancing the available for access from appropriate vehicular access and movement.

The following four principles are presented within the manual which help to achieve a more place-based and integrated approach to road and street design. These are:

- **Connected networks** – support to create street networks which promote high levels of permeability and legibility for all, with a particular emphasis on more sustainable forms of transport.
- **Multi-functional streets** – promoting multi-functional, place based streets which balance the needs of all users in self-regulating environment.
- **Pedestrian focus** – quality of street is measured by the quality of environment user, with pedestrians and cyclists the preferred users.
- **Multi-disciplinary approach** – greater co-operation between design professionals through the promotion of a plan-led, multidisciplinary approach to design.

Permeability: A Best Practice Guide

The National Transport Authority's (NTA) *Permeability: A Best Practice Guide* provides guidance on how best to facilitate demand for walking and cycling in existing built-up areas. This relates to the retention and creation of linkages within the urban environment for people to walk and cycle from their homes to shops, schools, local services, places of work and public transport stops and stations. In the latter case, by providing connections to existing public transport services, access to these services will be improved and increased levels of use may be expected.

The guidance provides a basis for the delivery of sustainable mode choice in existing built-up areas by promoting permeability for pedestrians and cyclists, whilst also addressing the legacy of severance inherent in the recent expansions of Irish towns and cities. Characteristics of a permeable environ are, in turn, highlighted as:

- Interconnected pedestrian and cycle street network.
- Absence of high walls and fences segregating housing areas and local/district centres.
- Absence of cul-de-sacs for pedestrians and cyclists.
- Secure, well-lit, overlooked pedestrian and cycle links between housing areas and between housing and local/district centres.

Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities

This guidance document published by the Department of Housing, Local Government and Heritage sets out standards to local authorities for apartment development. The Dundrum area is going to experience an increase in apartments in the short-medium term with developments at Walled Garden and Marmalade Lane recently granted planning permission. Dundrum Phase 2 and the development of the Central Mental Hospital lands are also likely to include a significant level of apartment development.

Of particular interest to the Dundrum ABTA is the proposed level of parking provided at these new developments as this will have a direct influence on car ownership and trip making by car. The standards state that the quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria.

It states that in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances. These locations are most likely to be in cities, especially in or adjacent to (i.e. within 15 minutes walking distance of) city centres or centrally located employment locations. This includes 10 minutes walking distance of DART, commuter rail or Luas stops or within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services.

The guidance also sets out standards for the quality and quantity of bicycle parking, including:

- A general minimum standard of 1 cycle storage space per bedroom shall be applied;
- For studio units, at least 1 cycle storage space shall be provided; and
- Visitor cycle parking shall also be provided at a standard of 1 space per 2 residential units

Further Design Guidance

A number of other important guidance documents have been considered in the drafting of the ABTA. These include:

- Standards for Cycle Parking and associated Cycling Facilities for New Developments (2018);
- Best Practice Guidelines Quality Housing for Sustainable Communities (2007);
- Sustainable Residential Development in Urban Areas Guidelines for Planning Authorities (2009);
- Retail Design Manual (2012); and
- Urban Design Manual (2009).

2.6 Summary

This chapter provided an overview of the relevant national, regional and local policies and guidelines that inform the Dundrum ABTA. In summary:

- National, Regional and Local policy all include objectives to support compact growth and shift demand away from the private car onto more sustainable modes such as walking, cycling and public transport.
- There are a number of key transport infrastructure measures which form a part of the Government's Project Ireland 2040 - National Planning Framework (NPF), the National Development Plan (NDP) 2018-2027, and the NTA Greater Dublin Area (GDA) Transport Strategy. The items relevant to Dundrum include:
 - o Capacity enhancements to the Luas Green Line between St. Stephen's Green and Bride's Glen;
 - o Metro South;
 - o Extension of Luas Green Line to Bray; and
 - o Extension of Luas Cross City to Finglas.
- A number of design guidance have been referenced including the National Cycle Manual, DMURS, and Permeability: A Best Practice Guide. These have been used to review existing infrastructure in Dundrum and will be referenced when identifying options for assessment.
- The Greater Dublin Area Cycle Network Plan, along with the Dún Laoghaire – Rathdown Cycle Network Review, sets out a proposed cycle network for the area around Dundrum. This will be reviewed in further detail when identifying options for improving cycle infrastructure as part of the ABTA.
- A number of local policies, plans and strategies have been referenced such as the DLRC County Development Plan, Dundrum Community, Cultural and Civic Action Plan (DCCCAP) and the Goatstown LAP. The implications of these strategies and plans will be considered as part of the ABTA process.

3. DUNDRUM AREA CHARACTERISTICS

3.1 Introduction

This chapter focuses on the characteristics of the Dundrum area. Firstly, the methodology used to define the study area for the ABTA is defined, which broadly aligns with the ‘15-minute neighbourhood’ concept. The remainder of the chapter then explores the population demographics and land-use within the study area, including:

- Information on residents with a focus on elements which may impact on trip making such as age profiles, car ownership and employment;
- Identifying key trip generators (residential areas) and attractors (employment, shopping locations and schools) within the study area which drive trip making; and
- Any physical constraints such as topography which may impact on potential options for assessment and travel patterns for residents in the area.

3.2 Study Area Definition

Dundrum is a well-established major town centre located in south Dublin serving the western side of the county of Dun Laoghaire – Rathdown and is a designated “Metropolitan Consolidation Town” in the DLRC County Development Plan 2016-2022. It is a centre of employment and retailing as well as a focal point for the surrounding residential communities and has undergone significant transformation in the last few decades with major infrastructural improvements such as the Luas and a new road network in combination with significant commercial, retail and residential development.

When defining the study area for the ABTA, the following items were considered:

- The potential catchment for walking and cycling;
- The impact of potential schemes on traffic movements; and
- Wider areas of interest which are likely to attract trips from the study area.

The following sections described these elements in further detail, including how they have been used to establish the final study area for the Dundrum ABTA.

Potential Catchment for walking and cycling

The ‘15-minute neighbourhood’ is currently a popular concept in transport planning and urban design. It works on the principle that residents in an area can access key services such as schools, shops, healthcare etc. along with high quality public transport services within 15-minute walk. Dundrum has the potential to achieve this ‘15-minute neighbourhood’ objective due to the availability of numerous services within the town centre such as retail, employment, healthcare, along with the high-capacity Luas service connecting to the city centre.

As such, this concept was used to inform the development of the study area. Geographic Information System (GIS) mapping was used to generate a 15-minute Crow-Fly walk catchment boundary from key destinations within Dundrum, illustrated in Figure 3.1. Within this boundary area, the impact of specific measures will be analysed to improve accessibility and permeability for walking and cycling.

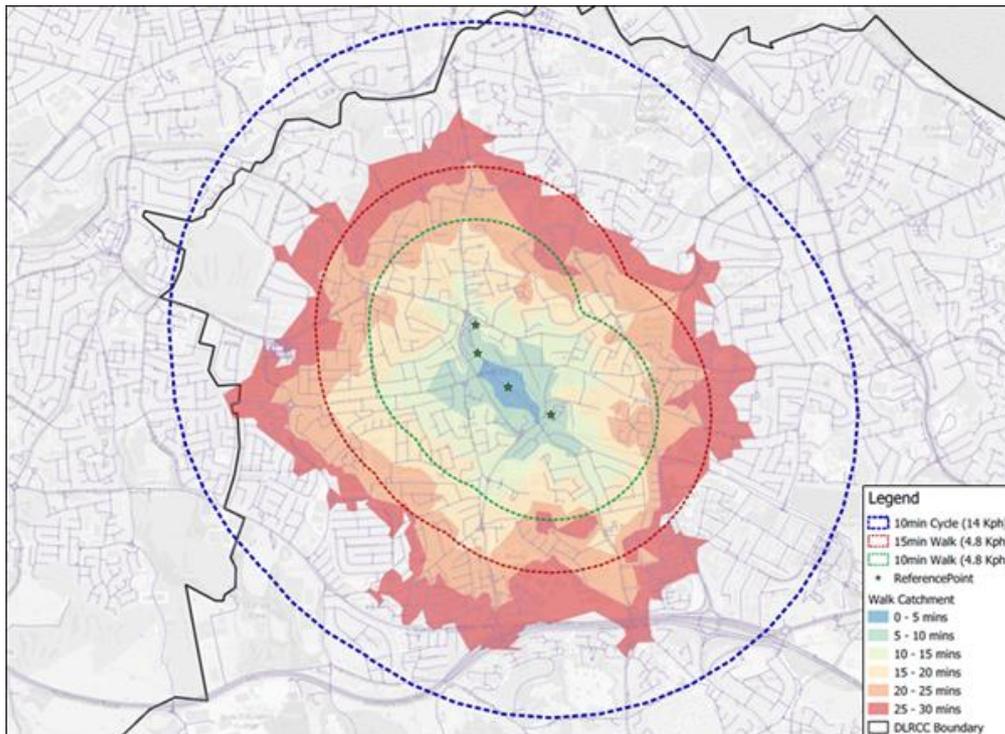


Figure 3.1 Dundrum Walk Catchment Boundaries

Road Network Link Flow Changes

Transport Analysis Guidance (TAG) in the UK recommends looking at the impact of introducing proposed schemes on road network performance to determine the Area of Influence. Within Dundrum, there is very little scope for large scale road infrastructure changes. In general, the interventions are likely to be focused on upgrading junctions and re-allocating road space for pedestrians and cyclists.

In order to determine the influence of these types of infrastructure schemes, the NTA's 2016 base year East Regional Model (ERM) was used to test the impact of the COVID mobility measures introduced in Dundrum. This included the introduction of a segregated cycle lane in a southbound direction on Main St with the northern end of the street becoming 1-way only for vehicular traffic. Figure 3.2 outlines the results of this assessment with links shown that experience a change in traffic volumes of greater than 5% due to the introduction of the COVID measures. The results indicated that the majority of roads most significantly impacted by the test measures were located within the 15-minute walk catchment area as outlined in Figure 3.2.

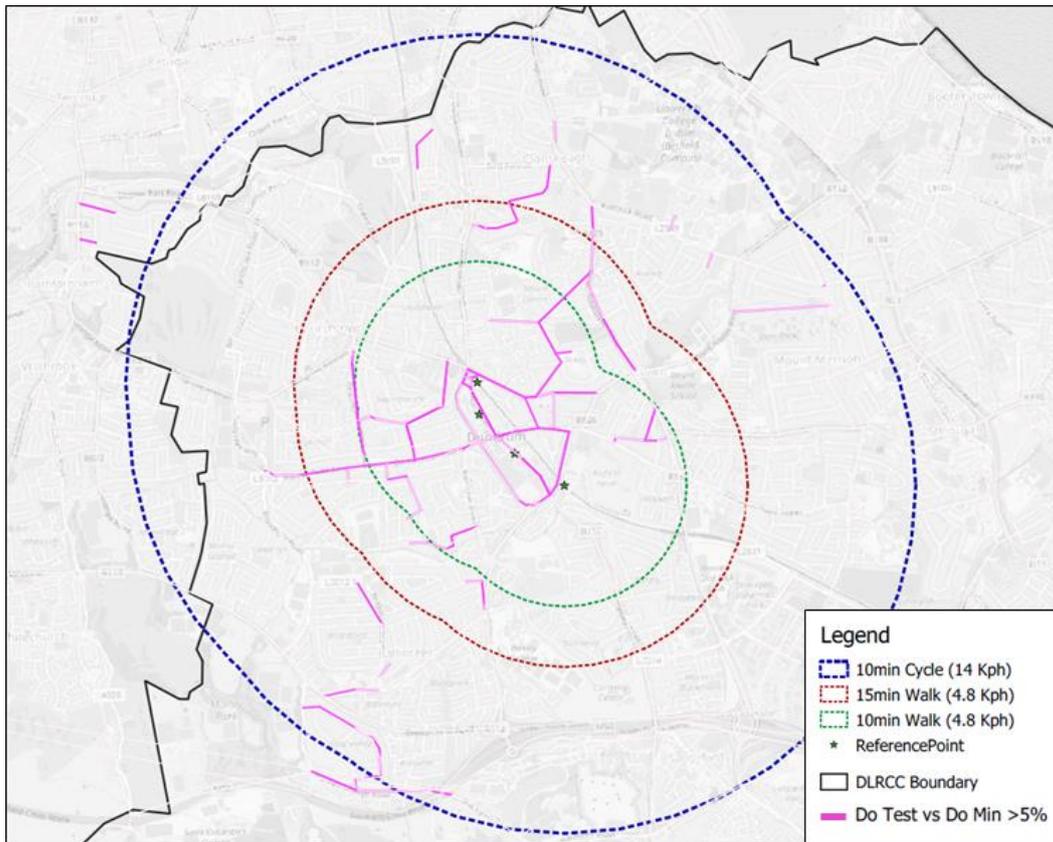


Figure 3.2 Change in Link Flows in Test Scenario

Wider Areas of Interest

Whilst the 15-Minute catchment captures the more local impacts of proposed transport measures, it is also important to investigate the influence of any proposals on access to key destinations for the study area. In relation to Dundrum, areas such as Sandyford Industrial Estate, UCD, Marlay Park, Nutgrove Shopping Centre and Stillorgan are important attractors. As part of the ABTA, the impact of the proposed options on access to these locations will be analysed, with high-level objectives included to improve connectivity.

Final Study Area

Through consultation with DLRCC and the NTA, the finalised study area was extended to the north to capture access to the proposed development site at the Central Mental Hospital lands. It was also extended westward to align with the Dún-Laoghaire Rathdown county boundary. Finally, the study area boundary was also aligned with Census Small Areas as this provided a direct link to:

- **Census data** on population, employment and travel patterns to/from the study area; and
- **East Regional Model (ERM) zones** which will facilitate easier analysis of model data when undertaking options assessment.

The study area for the Dundrum ABTA is illustrated in Figure 3.3. Specific measures on accessibility and improvements for pedestrians and cyclists will be focused within the identified 15-minute walk

catchment. However, outside of the defined study area, the influence of proposed measures on access to key destinations will also be considered.

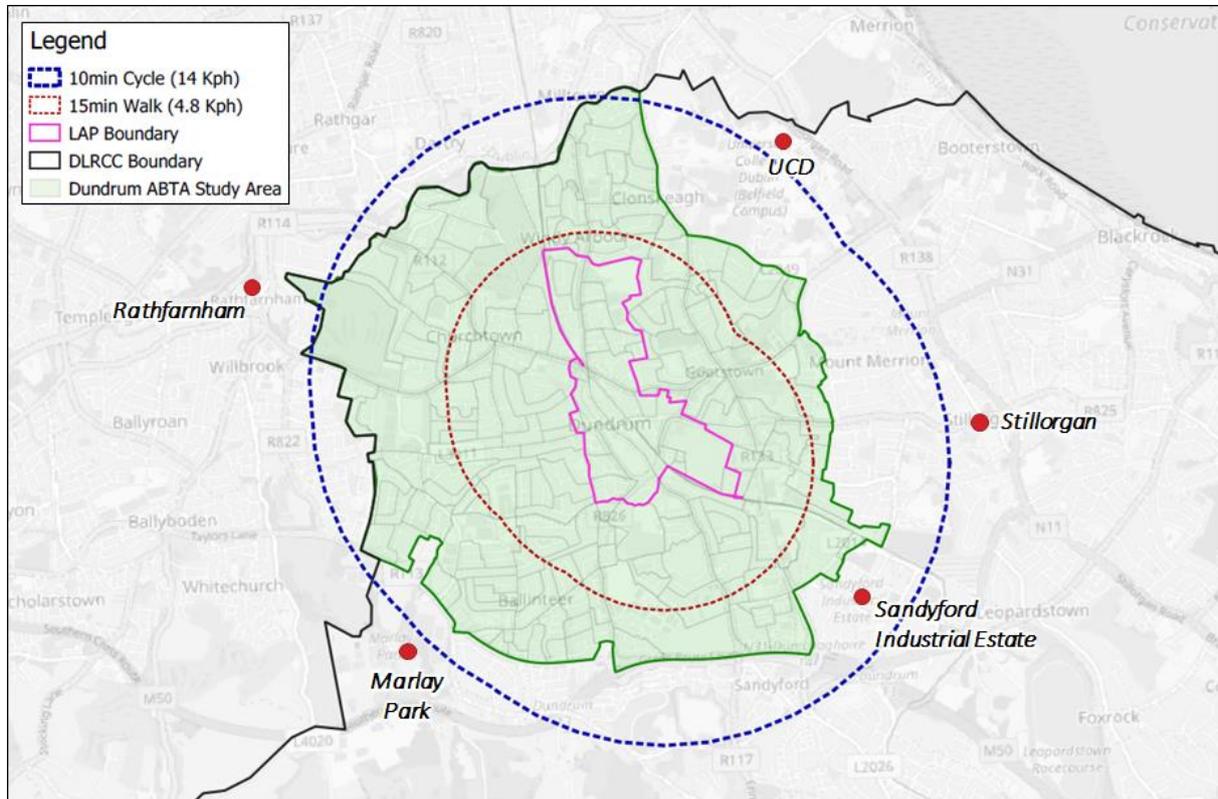


Figure 3.3 Dundrum ABTA Study Area

3.3 Demographic Profile

Introduction

To better understand the profile of residents in the area, and their travel patterns, this section presents data extracted from the 2016 Census Small Area Population Statistics (SAPS) dataset³. It summarises information on the proportion of residents travelling to work and school, what type of jobs people do, as well as high level information on age, gender, and car ownership.

Total Population

As shown in Table 3.1 below, the ABTA Study Area has an estimated population of 51,483 according to the 2016 Census. This represents a population growth of 4.27% against the previous 2011 Census which is a slightly higher growth rate than that seen nationally (3.8%). The population within the study area is also likely to increase in the immediate to short – term due to a number of high density residential schemes either planned or under construction in the Dundrum area (see Section 3.4 for further details).

³ 2016 Census Small Area Population Statistics available on the Central Statistics Office website at: <https://www.cso.ie/en/census/census2016reports/census2016smallareapopulationstatistics/>

Table 3.1 Dundrum Study Area Population

Area	2011 Population	2016 Population	2011-2016 Growth
Dundrum ABTA Study Area	49,375	51,483	4.27%

Population by Age

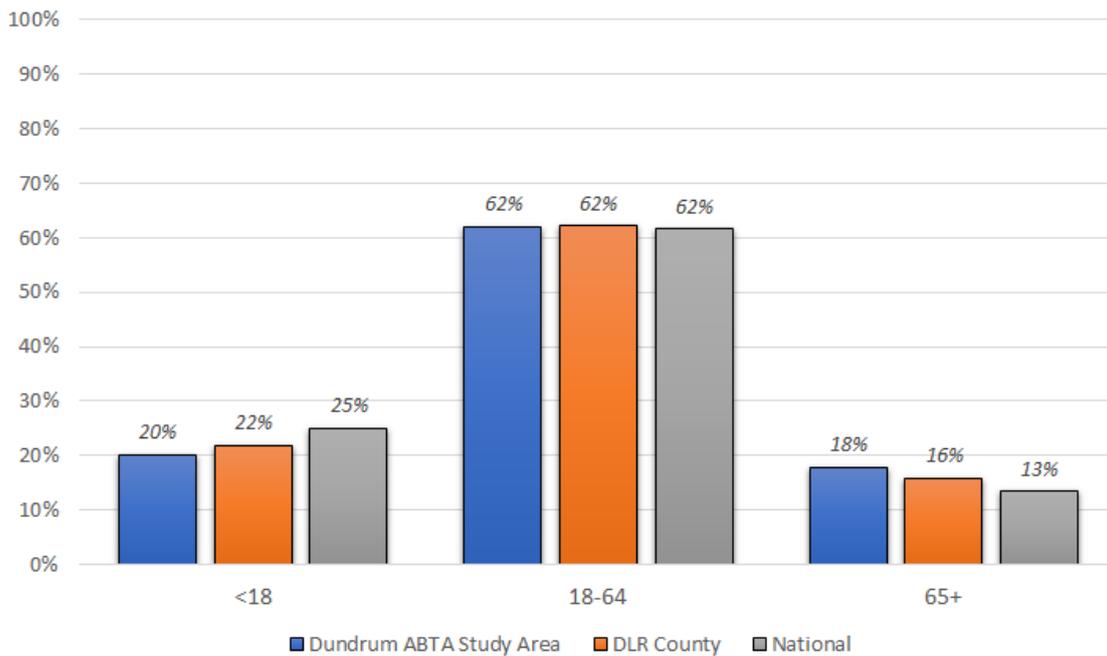


Figure 3.4 Population by Age

Figure 3.4 outlines the age split of those living in the study area. The results indicate that the Dundrum ABTA study area has a slightly higher proportion of residents over the age of 65 than both the Dún Laoghaire-Rathdown (DLR) County Area, and the national average. Approximately 20% of the study area population are under the age of 18, with a large proportion of those travelling locally to primary and post-primary schools.

Employment Type

Figure 3.5 outlines the principal economic status for population aged 15 years and older for the study area, DLR County and the Republic of Ireland (National). The results indicate that approx. 54% of residents within the study area are employed, which is in-line with both the county and national average. The proportion of residents which are unemployed (4%) and classed as 'Other' (10%) are also in-line with the County average. In this instance, 'Other' represents those looking after home/family and residents who are unable to work due to permanent sickness or disability. Overall, approx. 67% of the population aged 15 years and older are either in work or education and are likely to be making trips during the busiest peak periods.

Employment Status

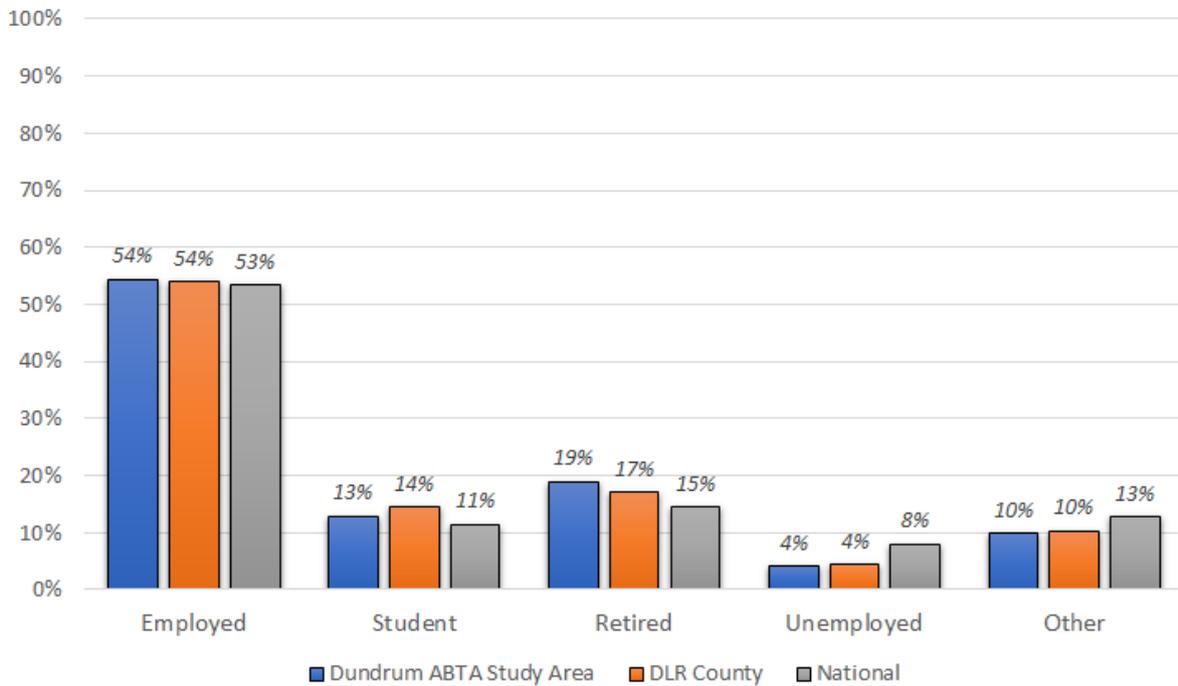


Figure 3.5 Employment Status

Of those that are employed, a significant proportion (72%) are in professional, managerial, administrative and technical occupations (Figure 3.6). This includes a variety of professions including business and financial services, engineering, IT, legal and also healthcare and education⁴. The proportion of residents involved in these industries is significantly higher than the national average (46%) which is likely due to the proximity of the study area to Dublin city centre.

It also interesting to note that a relatively small proportion of the population (6%) are employed in sales and customer service occupations (includes sales assistants, cashiers, check-out operators etc.). This is despite the fact that Dundrum Town Centre, one of the largest shopping centres in the country, is located within the study area.

⁴ Full breakdown of occupations in each sector is provided at:
<https://www.cso.ie/en/releasesandpublications/ep/p-cp11eoi/cp11eoi/bgn/>

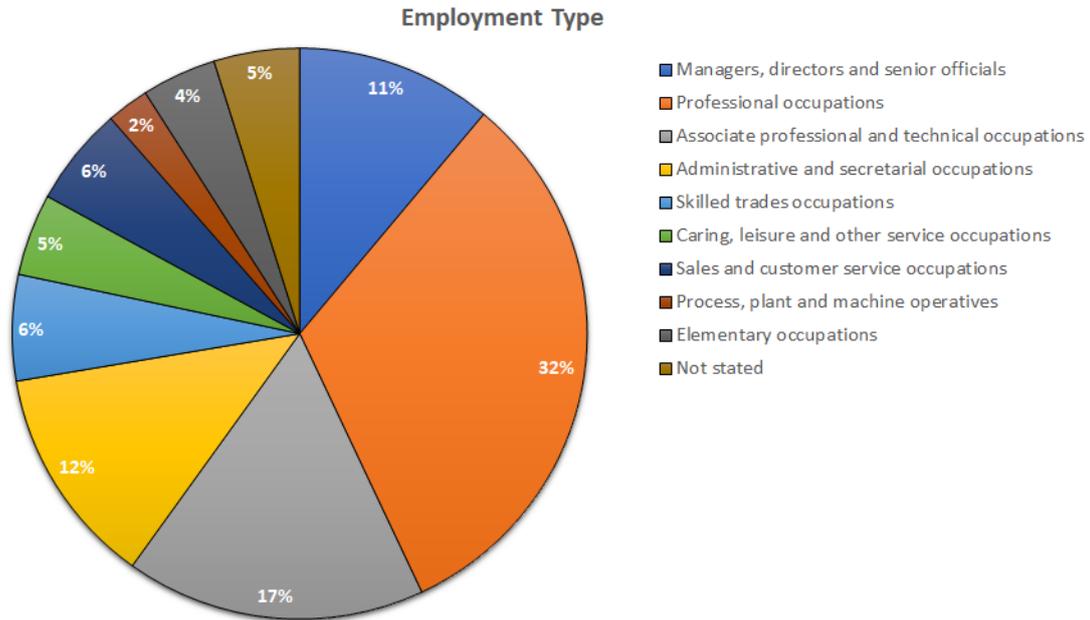


Figure 3.6 Percentage of Study Area Population by Occupation

Car Ownership

Figure 3.7 outlines the level of car ownership within the Dundrum ATBA study area. The results indicate that approx. 12% of households do not own a car and may be reliant on other means of transport including public transport, cycling, walking, taxis, etc. However, in general car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more. This would suggest that it's likely the private car is regularly used for discretionary trip making.

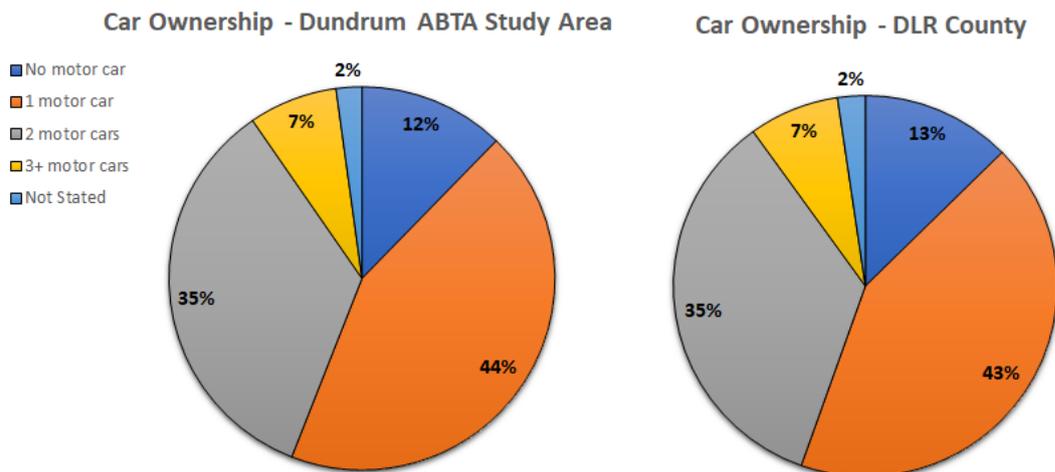


Figure 3.7 Proportion of Households with Cars

3.4 Existing Land Use

Trip Generators – Population Density

The population density in Figure 3.8 is derived from Census 2016 SAPS dataset. As outlined previously, SAPS data is publicly available on the Central Statistics Office (CSO) web page and provides a range of information on population demographics for a number of geographical levels. The data in Figure 3.8 is presented at ‘Small Area’ level which is designed as the lowest level of geography for the compilation of statistics in line with data protection and generally comprises of between 80 and 120 dwellings. The overall population levels for each of the Small Areas were divided by the associated area to identify the most densely populated regions of the Dundrum ABTA Study Area (population/sq km).

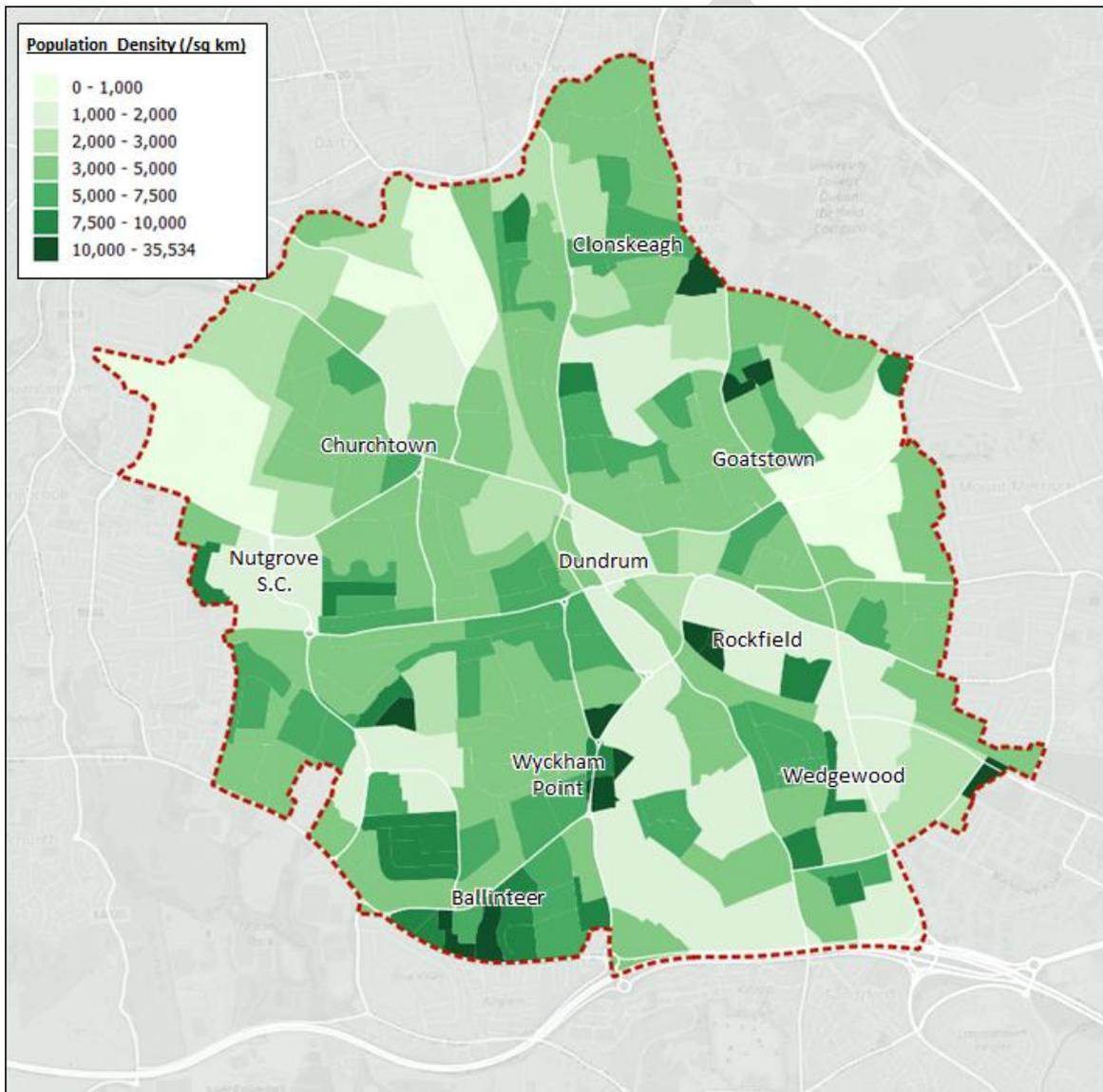


Figure 3.8 Population Density – Dundrum ABTA Study Area

The results in Figure 3.8 represent a relatively dispersed population in residential areas around Dundrum. The town centre itself has quite a low residential density and is primarily comprised of commercial and retail services. There are a number of higher density apartment complexes (illustrated in dark green in Figure 3.8) throughout the study area including:

- Wyckham Point;
- Rockfield apartment blocks (The Willow, The Rowan and The Holly) at Balally Luas stop; and
- Trimbleston apartments in Goatstown

Some of the other more densely populated areas include more established suburban areas such as Ballinteer, Goatstown and Clonskeagh.

Trip Generators – Planning Applications

To gain an insight in to potential new short/medium term trip generators, the online planning service for Dun Laoghaire Rathdown County Council⁵ was accessed to identify planning applications in the Dundrum Local Area that may be relevant to the ABTA. Planning applications relating to public amenities, leisure facilities, healthcare, transport plans, and large scale housing etc. were searched for. Notable planning applications in the study area, mainly relating to Strategic Housing Developments are illustrated in Figure 3.9 and include the following:

- ABP30815720, Strategic Housing Development with 628 apartment units at Marmalade Lane, Wyckham Avenue; permission granted 06/01/2021.
- ABP30955321, Strategic Housing Development with 299 apartment units at the Goat Bar and Grill, 240 Lower Kilmacud Road, registered 23/02/2021.
- ABP30943021, Strategic Housing Development with 698 student apartment units at Our Lady's Grove, Goatstown Road; registered 12/02/2021.
- ABP30768320, Strategic Housing Development with an additional 54 units at site with existing permission for 253 apartment units at Green Acres Convent, Drumahill House and the Long Acre, upper Kilmacud Road, Dundrum; permission granted 10/11/2020.
- ABP30754520, Strategic Housing Development with a total of 142 apartment units on a site with existing permission for 116 units at Walled Garden, Gort Mhuire, Dundrum; permission granted 23/10/2020.
- ABP30526119, Strategic Housing Development with 107 apartment units at Building 5, Dundrum Town Centre, Sandyford Road; permission granted 02/12/2019.
- D18A/0686, Change of use of Dundrum Methodist Church to include part time day care centre; permission granted 04/12/2018.
- PC/H/02/20, Part 8 Housing Development at Moyola Court, Churchtown; registered 07/08/2020.

Whilst not submitted for permission yet, it is also worth mentioning the redevelopment of the Central Mental Hospital site which is advanced in the planning process. It is envisaged that this development will consist of approximately 1,260 new build residential units with appropriate supporting amenities⁶.

⁵ Source: www.planning.agileapplications.ie/dunlaoghaire

⁶ Source: <https://lda.ie/projects/central-mental-hospital-dundrum-dublin/>



Figure 3.9 Key Planning applications – Dundrum ABTA Study Area

Trip Attractors – Employment Destinations

Figure 3.10, overleaf, illustrates the key employment attractors within the Dundrum ABTA study area. The analysis has been derived from Census 2016 Place of Work, School or College - Census of Anonymised Records (POWSCAR) data. The POWSCAR database includes a range of information on travel patterns for trips to work and school as recorded in the Census⁷. This data was used to identify the total number of destination work trips for each of the Census Small Areas within the Dundrum ABTA study area.

The results in Figure 3.10 indicate that Dundrum town centre is the largest attractor of employment trips within the study area. In total, the Census records suggest that approx. 31% of all employment trips destined for the study area are travelling to Dundrum (over 7,000 trips).

Other large employment destinations highlighted in Figure 3.10 include:

- Dundrum Business Park – 2,253 trips;
- Nutgrove Shopping Centre and Retail Park – 2,135 trips; and
- Stillorgan Business Park – 1,641 trips

⁷ further information on POWSCAR is available on the CSO website at:
<https://www.cso.ie/en/census/census2016reports/powscar/>

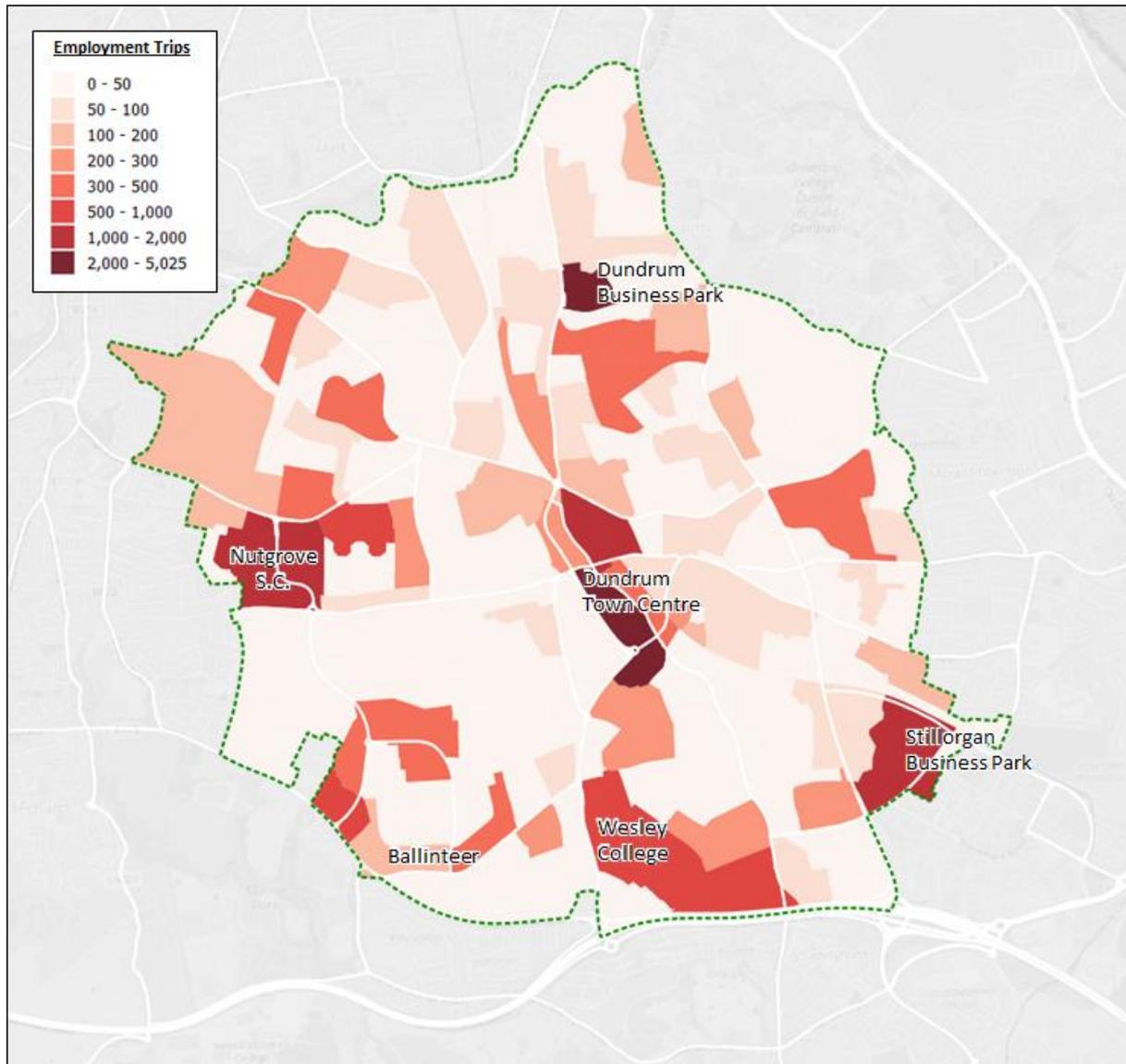


Figure 3.10 Dundrum ABTA Study Area – Employment Destinations

Trip Attractors – Schools

Data published by the Department of Education on Primary and Post-Primary Schools in the Republic of Ireland was received from the NTA. This included information on the location and number of pupils in each school in the study area from 2018 which is illustrated in Figure 3.11 overleaf.

The study area is well served with 16 primary schools and 8 post-primary schools. Holy Cross National School and Taney National School are located in very close proximity to Dundrum centre whilst the remainder of the schools are dispersed throughout the study area. Further information on the accessibility of these schools for residents is provided in Chapter 5 of this report.

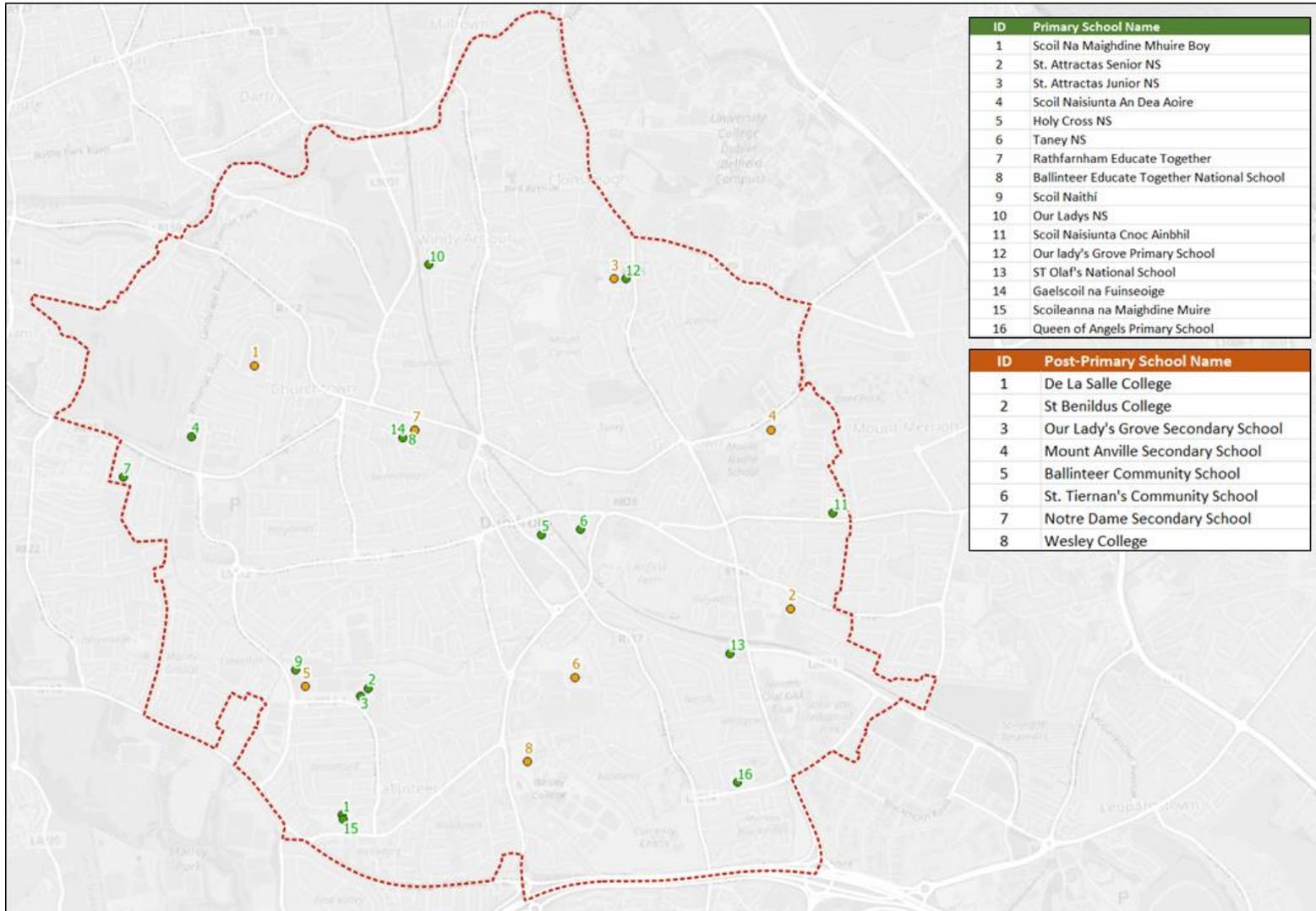


Figure 3.11 Dundrum ABTA Study Area Schools

3.5 Topography & Physical Constraints

DLRCC provided information from LIDAR topographic mapping for the Dundrum area. This was converted into 1 metre and 5 metre elevation contours which are illustrated in Figure 3.12.

The contour mapping indicates that Dundrum Main Street is at a low point to surrounding areas with relatively steep elevation changes to the east, south and west in particular. This topography makes modal shift to cycling a challenge, where steep gradients can be perceived as barriers to cycling. Sandyford Road, Kilmacud Road Upper, Taney Road and Overend Avenue have gradual steep hills which are difficult to navigate for new cyclists. There is potential for electric bikes to help address this issue while also positively impacting on new demographic and distance based market segment opportunities to increase cycling in the local area.

Figure 3.12 also indicates significantly steep gradients on the western side of the Dundrum Bypass. This acts as a barrier for pedestrian/cycle accessibility to Main Street from residential areas to the west with a single bridge crossing at the Ballinteer Road. To the east of the village, the Luas line causes considerable severance for residential areas with only four crossing points of the Luas line within the LAP area (Taney Road, Dundrum Luas underpass, Kilmacud Road Upper and Overend Way).

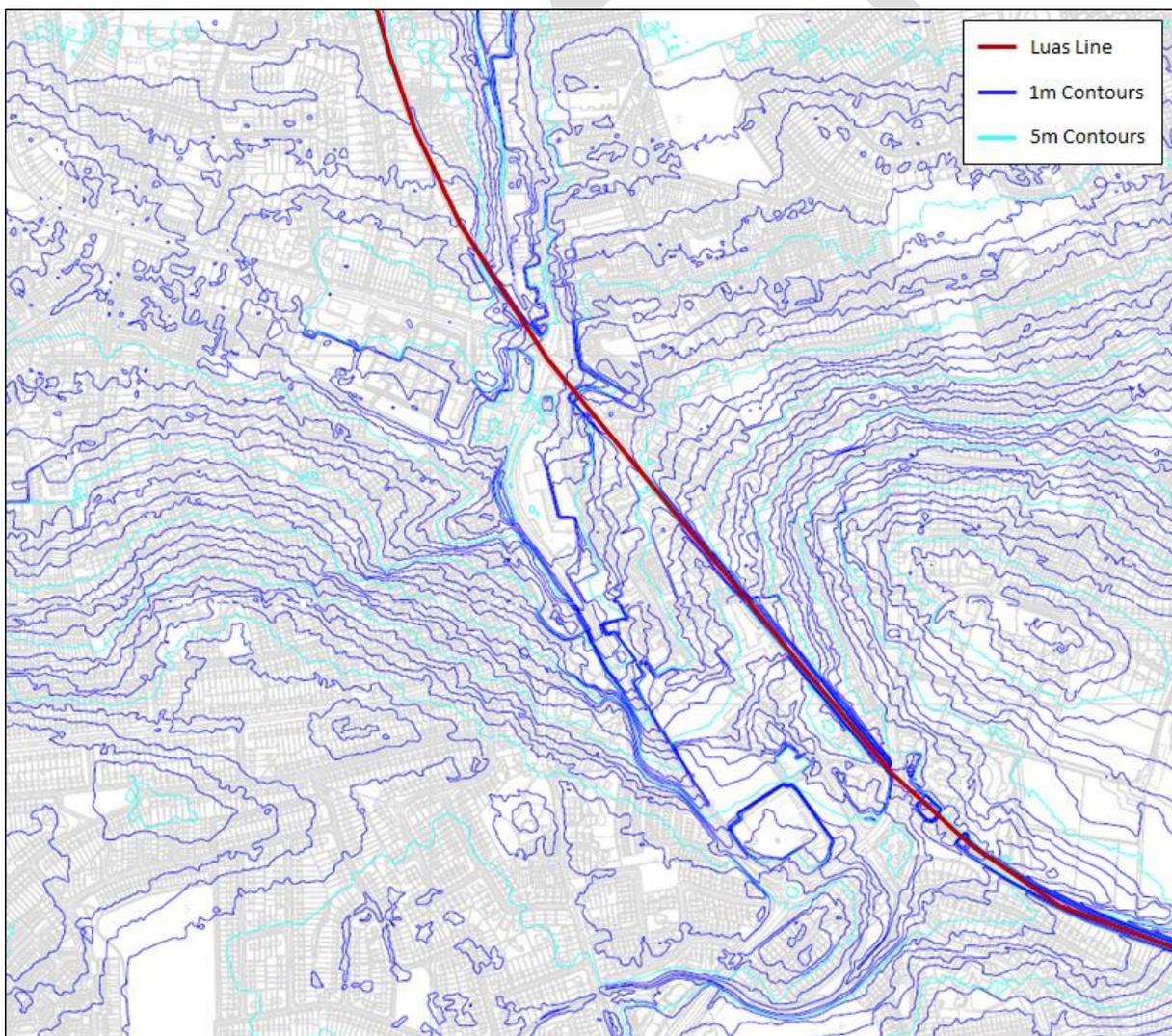


Figure 3.12 Dundrum Contour Map

3.6 Summary

The previous sections outline the methodology used to define the Dundrum ABTA study area, along with an overview of the key characteristics for the area. In summary:

- The study area has been primarily based on a 15-minute walk catchment of Dundrum, taking cognisance of proposed future developments in the area along with wider areas of interest such as UCD, Sandyford, Marlay Park and Stillorgan.
- The study area has a population of 51,483 according to the 2016 Census, which is a 4.27% growth from 2011. Approx. 20% of the population are under 18, with 18% over the age of 65.
- For residents of the area 15 and over, 54% are employed with a further 13% in education. Of those that are employed, a significant proportion (72%) are in professional, managerial, administrative and technical occupations (primarily office based employment).
- 12% of households do not own a car and may be reliant on other means of transport including public transport, cycling, walking, taxis, etc. However, in general car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more.
- Population is generally dispersed around residential estates within the study area. Dundrum town centre itself has quite a low residential density and is primarily comprised of commercial and retail services. It should be noted that population statistics have been derived from 2016 Census data, and residential density is an evolving situation as new developments occur.
- There are also a number of new Strategic Housing Developments which have been recently granted planning permission within the study area.
- Dundrum town centre is the largest attractor of employment trips within the study area, representing approx. 31% of demand (or just over 7,000 trips).
- Other large employment destinations include Dundrum Business Park (2,253 trips), Nutgrove Shopping Centre and Retail Park (2,135 trips) and Stillorgan Business Park (1,641 trips).
- In terms of education, the study area is well served with 16 primary schools and 8 post-primary schools.
- Dundrum Main Street is at a low point to surrounding areas with relatively steep elevation changes to the east, south and west in particular.
- Sandyford Road, Kilmacud Road Upper, Taney Road and Overend Avenue all have gradual steep hills which can be perceived as barriers to cycling. However, there is a potential for electric bikes to help address this issue.

4. EXISTING TRAVEL PATTERNS

4.1 Introduction

The following chapter provides an overview of existing travel patterns for residents within the study area based on 2016 Census data, focusing on:

- **Trip Distribution Profile:** Identifying the key destinations and desire lines for travel;
- **Trip Length Distribution:** Outlining the demand for travel at various distance bands for employment and education trips. This also includes information on the various modes used for different journey distances; and
- **Mode Share:** Highlights the proportion of trips undertaken by walk, cycle, public transport and car for employment and education purposes.

In order to determine the travel pattern for residents, two main Census data sources were used, namely:

- **Small Area Population Statistics (SAPS):** provides information on population demographics including details on commuting patterns such as mode used, typical journey times and time of departure; and
- **Place of Work, School or College - Census of Anonymised Records (POWSCAR):** includes a range of information on travel patterns for trips to work and school as recorded in the Census. For the purpose of the Dundrum ABTA project, the NTA provided an anonymised version of the POWSCAR database for trips to/from Dún Laoghaire Rathdown County.

4.2 Trip distribution profile

The POWSCAR database was analysed to identify the distribution of employment trips travelling to/from the Dundrum ABTA study area in the AM period. For ease of presentation of results, areas have been grouped into sectors for the analysis. These sectors broadly align with the NTA settlements, with more disaggregated sectors in close proximity to the study area. The results of the sector distribution analysis are illustrated in Figure 4.1 and 4.2.

Approximately 30% of work trips originating within the study area are travelling to Dublin City Centre. The largest attractor overall is the area to the southwest of city which is a large employment location and is also well connected from Dundrum via the Luas. 11% of commuting trips remain within the study area, and due to the local nature of these trips, there may be an opportunity to support this demand via walking and cycling. Other significant attractors of trips include:

- Sandyford Business Park (5%);
- Ranelagh and Ballsbridge Sector (7%);
- UCD (3%);
- Dún Laoghaire (3%); and
- Rathgar (3%).

Outside of these main attractors, the remaining commuting trips are quite dispersed with approx. 23% of demand distributed across a large number of settlements. The dispersed nature of these trips can make them difficult to serve via public transport leading to increased usage of the private car.

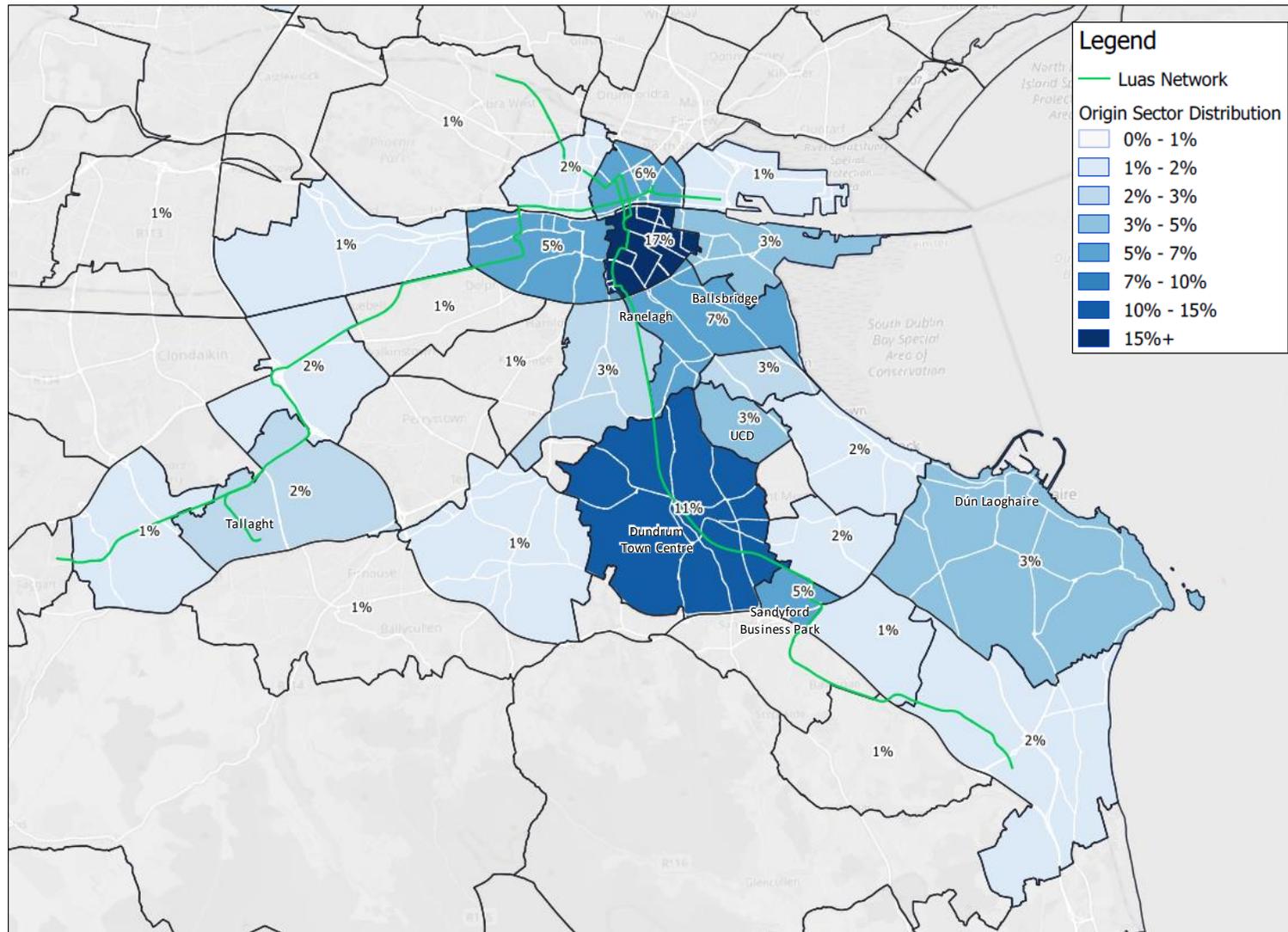


Figure 4.1 POWSCAR Trips to Work (%) – Originating within Study Area

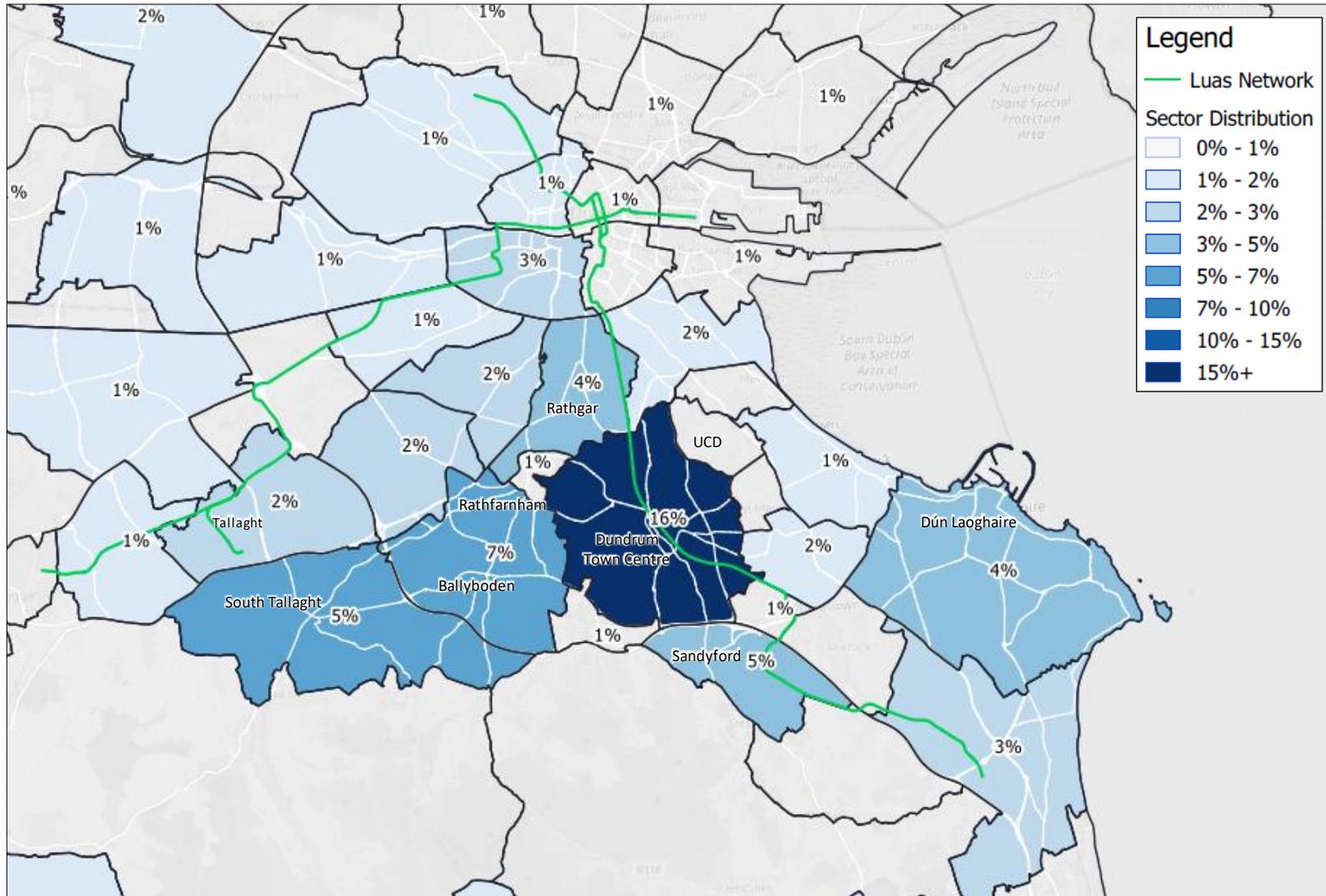


Figure 4.2 POWSCAR Trips to Work (%) – Travelling to Study Area

For commute trips travelling to the study area, around 16% are local trips which originate within the study area itself. Other main origins include areas adjacent to the study area such as Rathgar, Rathfarnham, Ballyboden, South Tallaght and Sandyford. It should be noted that the distribution in Figure 4.2 represents travel to work in the AM period only. The distribution is likely to be substantially different during the weekend or evening peak where retail trips to Dundrum Town Centre are more prevalent.

Internal Trip Distribution - Employment

Figure 4.3 illustrates the key destination for commuting trips travelling internally within the Dundrum ABTA study area. As expected, the key destinations are predominately in-line with the employment trip attractors outlined in Figure 3.10 previously. The Dundrum town centre is the largest destination for internal employment trips, representing approx. 28% of all internal demand (just over 1,000 trips). Outside of Dundrum, other key destinations include Dundrum and Stillorgan Business Parks, Nutgrove Shopping Centre and Ballinteer. Links between these key destinations and local residential areas should be strengthened for walking and cycling to support sustainable travel.

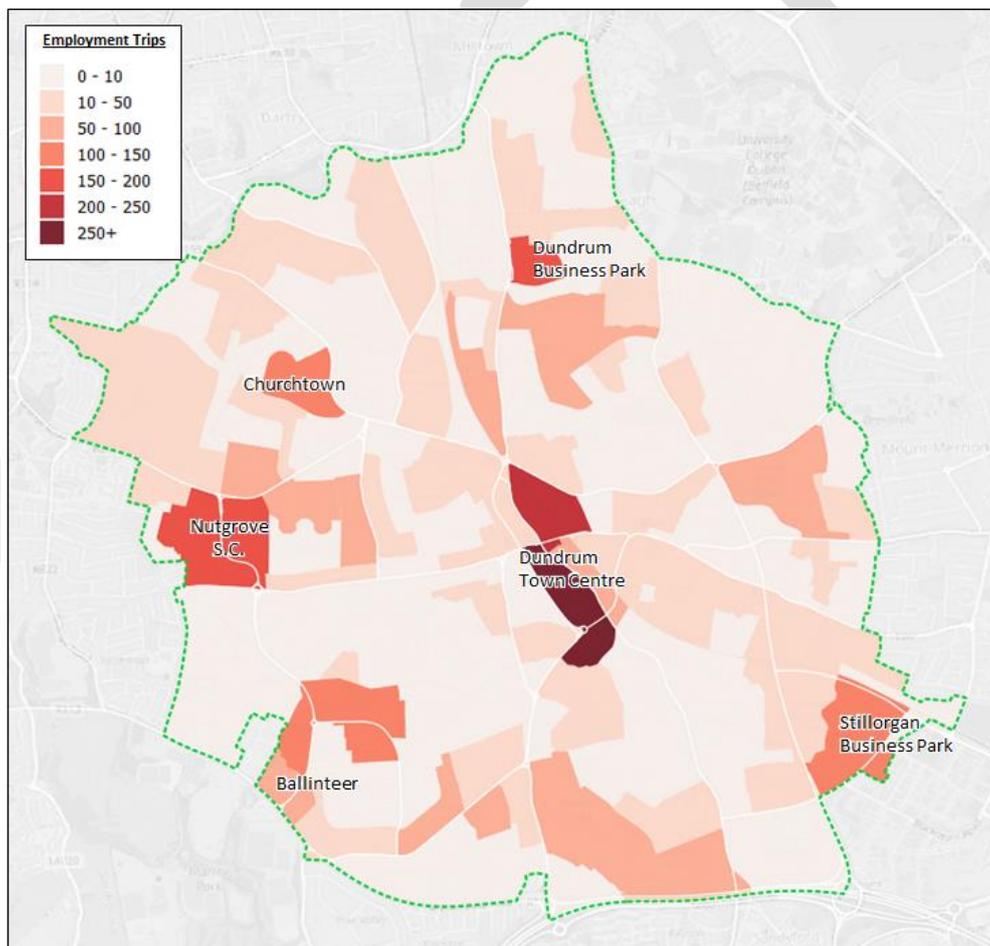


Figure 4.3 Internal Trip Distribution - Employment

4.3 Trip Length Distribution

There is a general association between trip length and mode choice. For example, at shorter distances the average person may be willing to walk or cycle to access goods, services or employment. However, as trip lengths increase, these modes become less attractive. Similarly, short distance trips by public transport may be unattractive compared to alternative modes as the wait time would be a significant proportion of overall journey time. In terms of distance, trips generally break down into:

- Short – generally serviceable by walking or cycling
- Medium – generally serviceable by cycling, public transport or car; and
- Long – generally serviceable by public transport or car.

Analysis was undertaken to determine the trip length distribution by mode for employment and education purposes from 2016 POWSCAR data. This was used to establish the typical trip lengths, and modes used, for journeys by residents of the study area and help identify where opportunities might exist to further support a shift away from the private car and onto sustainable modes.

Employment Trips

Figure 4.4 overleaf, illustrates the trip length distribution by mode for all work related trips generated within the study area. The results⁸ indicate the following:

- The majority of trips (88%) are less than 10km in length with the highest level of demand travelling between 5-10 km (nearly 14,000 trips). This is reflective of the location of Dundrum which is approximately 6km from Dublin city centre.
- 14% of trips originating within the study are less than 2km in length (25 minute walk at 4.8 km/hr). However, the car mode share for these journeys is still relatively high at 49% and measures should be introduced to encourage more walking and cycling for these shorter distance commutes.
- Car is the dominant mode of transport for medium to longer distance trips of between 2-10km. For the short/medium distance journeys of 2-5km, it can be difficult for public transport to compete with journey times by car due to wait times, walking to stops etc. Also, as outlined in the trip distribution analysis, the employment trips tend to be quite dispersed outside of the main destinations.
- Almost all trips of greater than 10km are undertaken by car (>90% mode share). Approx. 12% of all employment trips originating within the study area are more than 10km in length. The dominance of the private car for these journeys is likely due to the dispersed pattern of these longer distance trips along with the lack of public transport alternatives.

⁸ It should be noted that the number of walk trips of greater than 40km is overestimated in the analysis due to errors in filling out the Census form and the anonymising of records to mask low values. This represents an extremely small proportion of overall demand (<1%) and should be ignored as part of the TLD analysis.

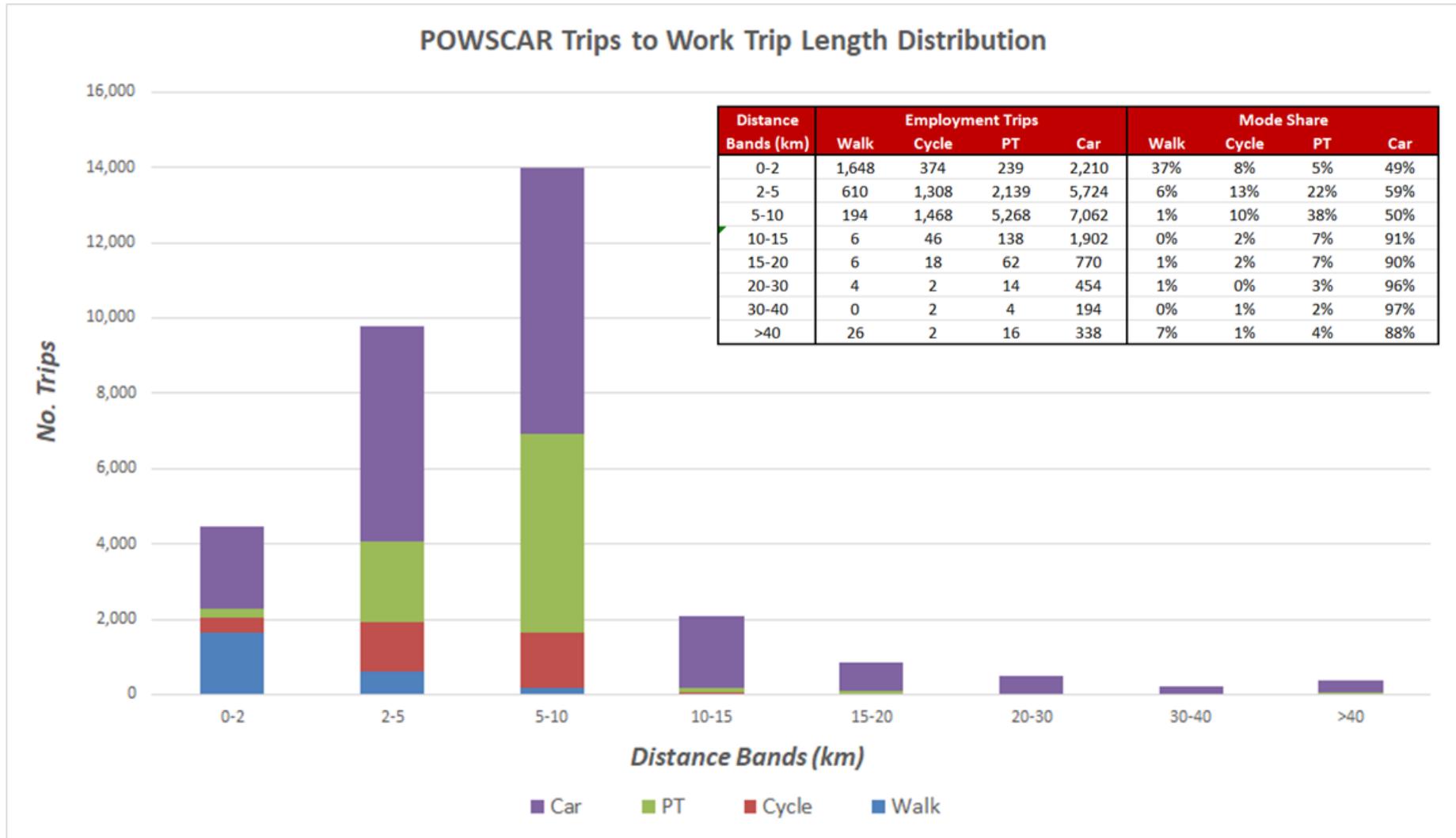


Figure 4.4 Employment Trip Length Distribution by Mode

Education Trips

Figure 4.5 illustrates the trip length distribution by mode for all education related trips generated within the study area. The results indicate the following:

- Approx. 80% of education trips are less than 5km in length with the majority travelling less than 2km. This indicates that a large proportion of children are within walking and cycling distance to school.
- Walking and cycling represents around 56% of trips to school of less than 2km. However, the private car is still quite heavily used for these shorter distance journeys representing 41% of demand.
- Car is the dominant mode of transport for education trips of between 2-5km. This distance range is likely to be too long for walking, particularly for younger children. In general, cycling represents a relatively small proportion of all education trips of less than 5km. This may in part be due to the challenging topography and lack of cycling facilities in certain areas.

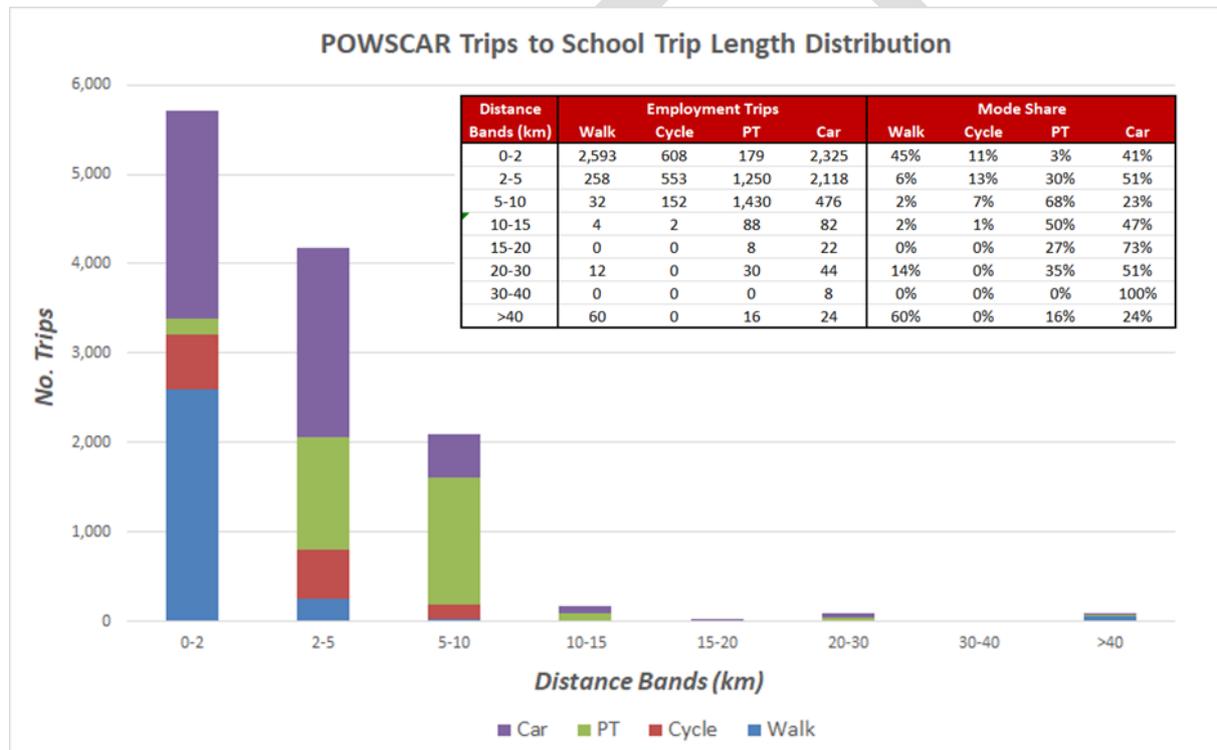


Figure 4.5 Education Trip Length Distribution by Mode

4.4 Mode share

As outlined previously, SAPS data provides information from the census on the typical mode of transport used for travelling to work and education. This data was used to identify the proportion of trips originating within the study which are made by walking, cycling, public transport and car. This provided information on the level of use of each mode in general, whilst also highlighting specific areas where a specific mode of transport may be particularly dominant or underutilised.

Employment Trips

Figure 4.6 illustrates the mode share for trips to work originating within the study area by walk, cycle, public transport and car (including drivers, passengers, motorcycle/scooters, vans and lorries). Figure 4.7 and 4.8 then outline how the percentage of residents using each of the modes varies across the study area.

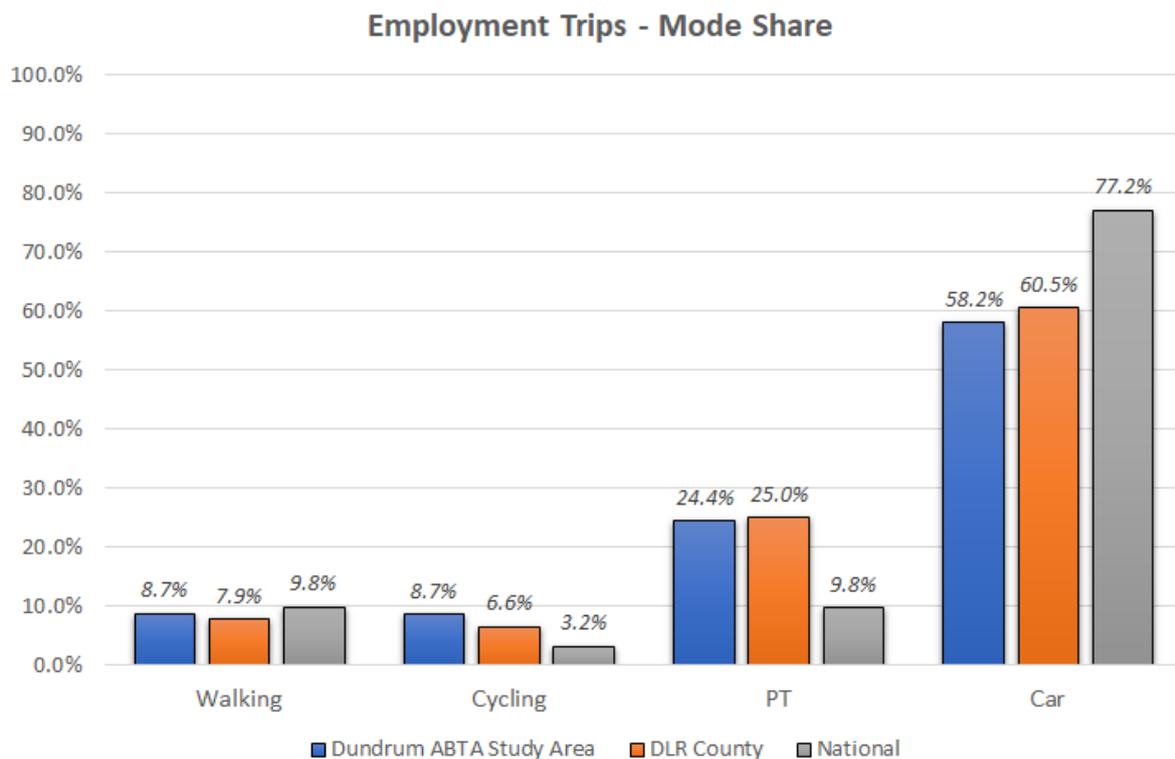


Figure 4.6 Employment Trip Mode Share

Walking accounts for 8.7% of trips to work from the study area which is broadly in-line with both the county and national averages. In general, most of the study area has walk mode shares of around 5%-10% with slightly higher proportions in the more suburban centres such as Dundrum, Goatstown and Clonskeagh. The highest mode share for walking is seen in residential areas near the Stillorgan Business Park area, indicating employees living close to their place of work.

The cycling mode share for the study area is similar to that of walking at 8.7%. This is slightly higher than for DLR County, and substantially higher than the national average (3.2%). Figure 4.7 indicates that the highest mode shares for cycling are experienced in the north of the study area in locations such as Clonskeagh, Goatstown and Churchtown. The south of study area has low cycling mode shares

typically less than 5% which could indicate a barrier to cycling in these areas that could be addressed through the ABTA process.

Public transport in both Dundrum and the DLR County represent about a quarter of the mode share which is substantially higher than the national average due to the proximity to Dublin city and the availability of high quality public transport links. As expected, the highest public transport mode shares are visible close to the Luas stops, in particular near Dundrum and Balally stations. Within the study area, approx. 78% of public transport trips are undertaken using the Luas with 22% by bus.

In general, the private car is the most dominant mode of transport for work trips from the study area, however, the 58% mode share is substantially lower than the national average (77%). Figure 4.8 indicates that the car mode shares are generally highest towards the outskirts of the study area, in proximity to the strategic road network, with substantially lower values closer to Dundrum town centre.

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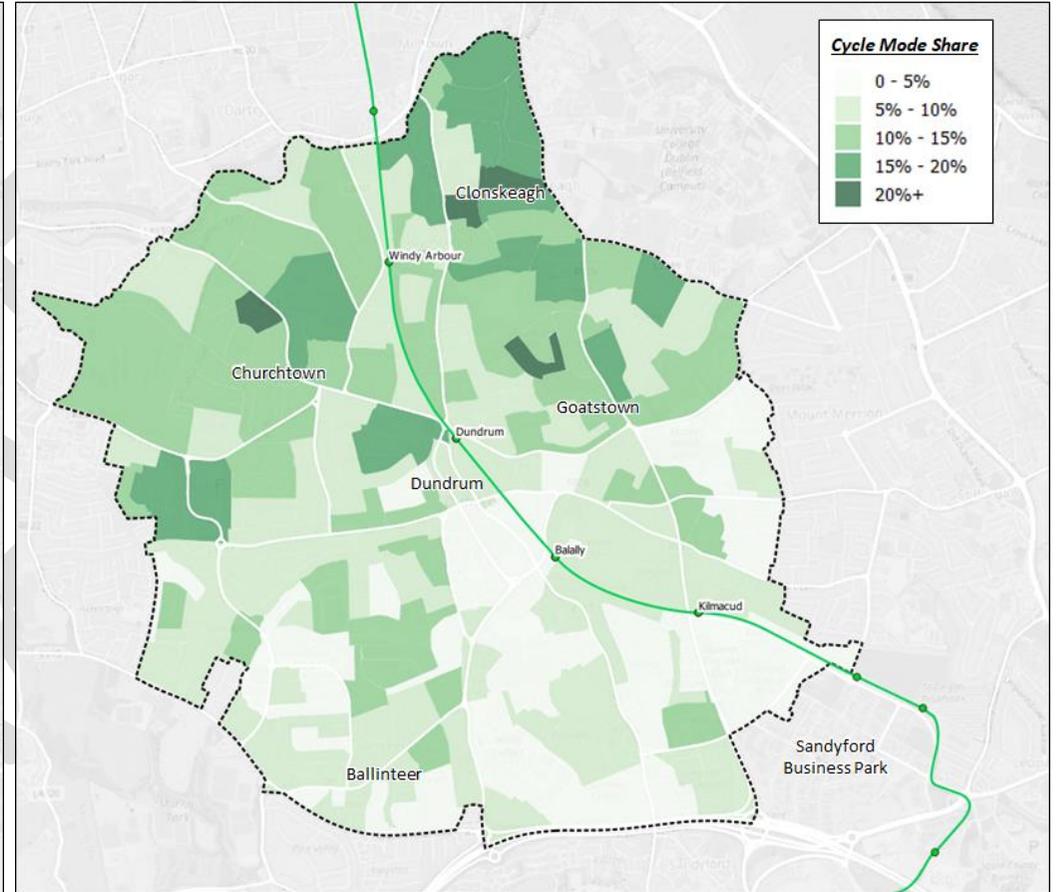
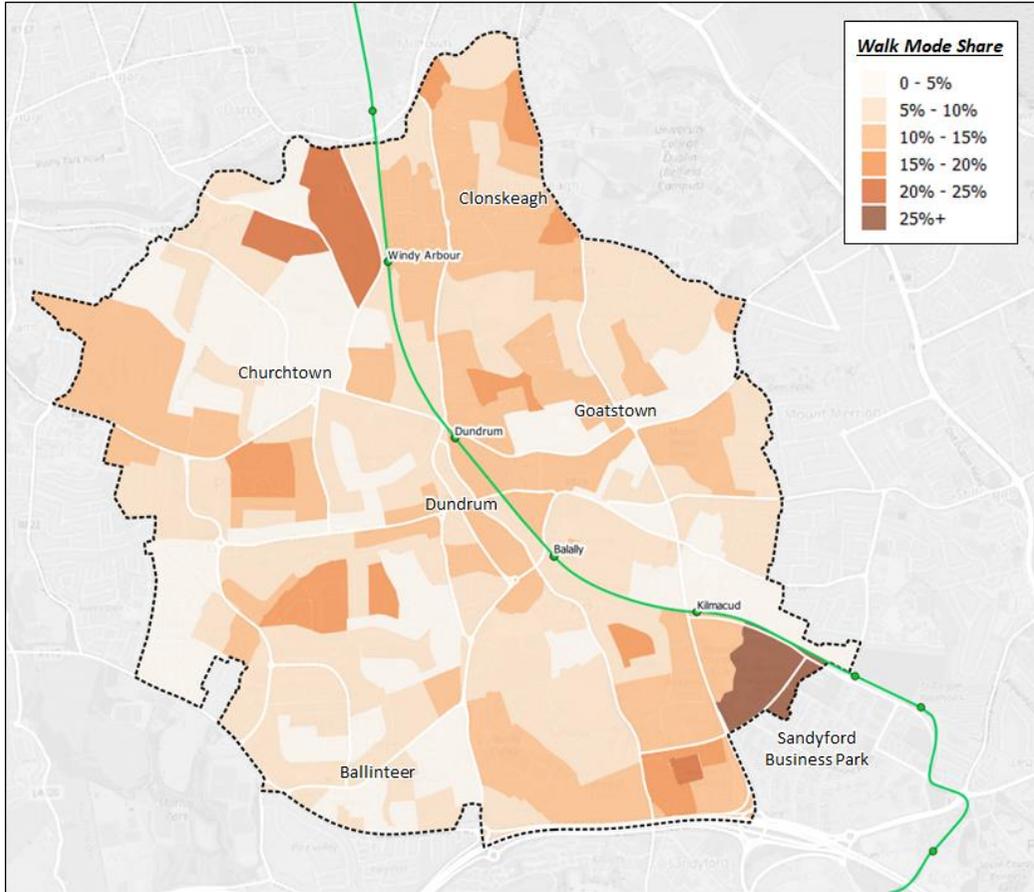


Figure 4.7 Employment Trip Mode Share – Walk & Cycle

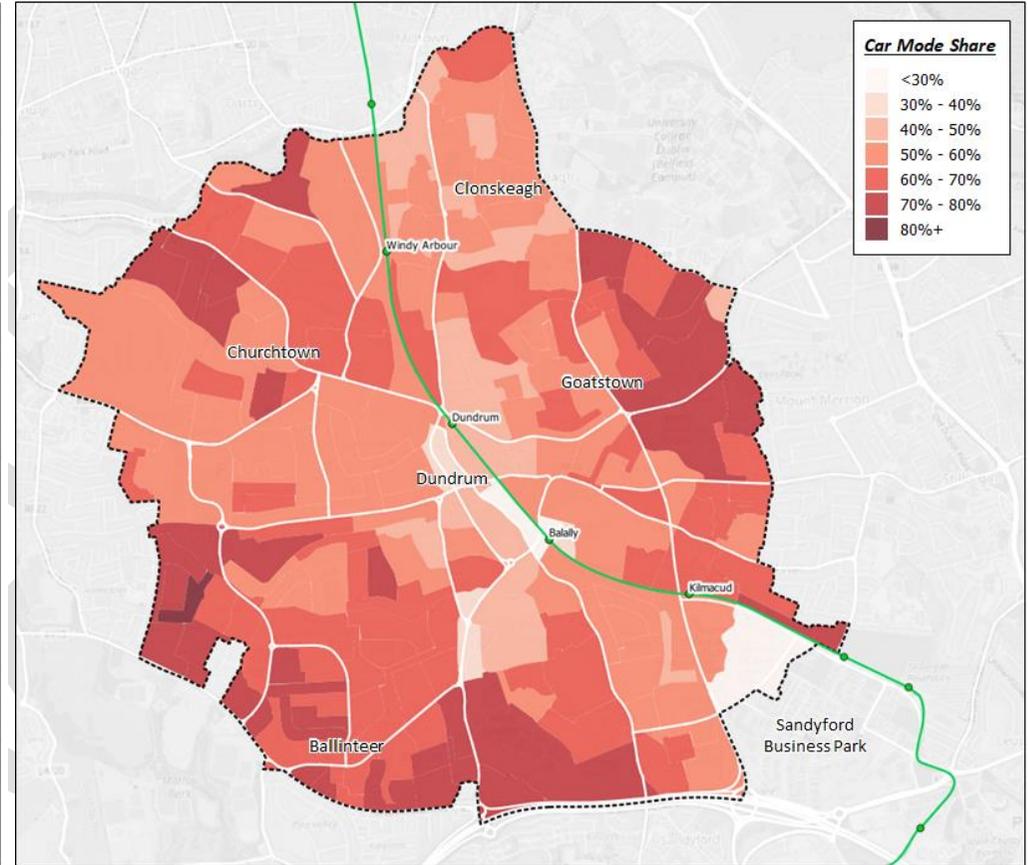
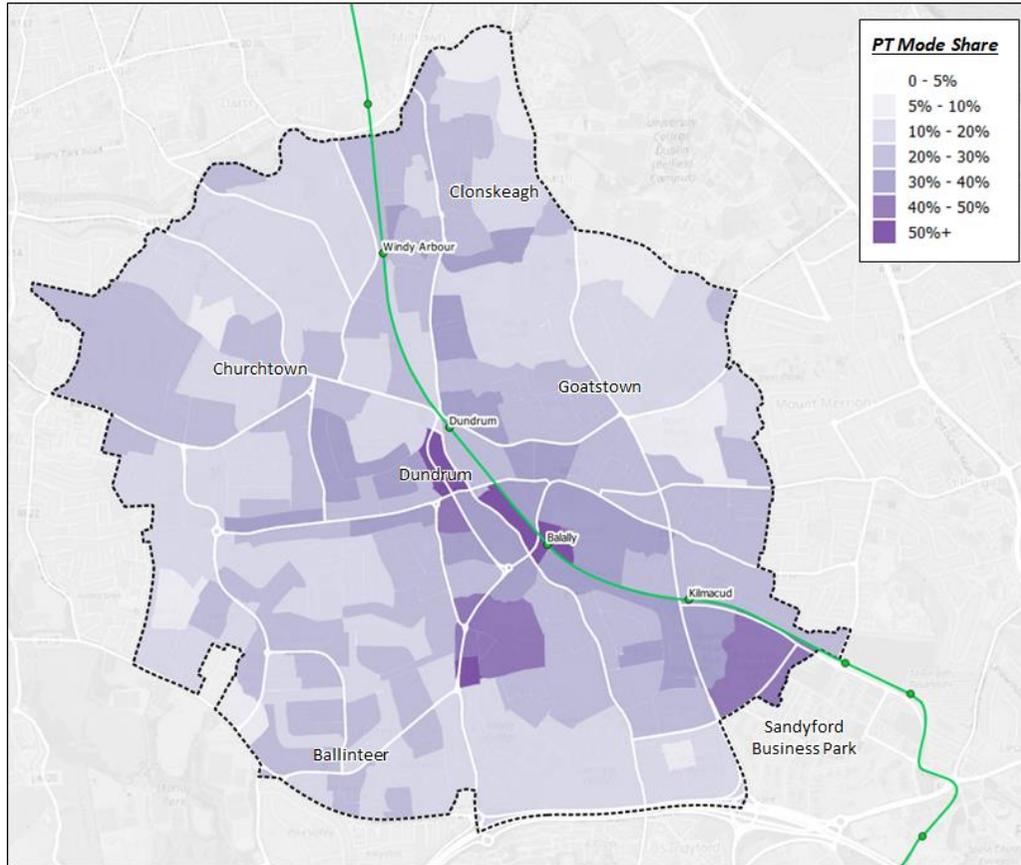


Figure 4.8 Employment Trip Mode Share – Public Transport & Car

Education Trips

Figure 4.9 illustrates the mode share for trips to education originating within the study area by walking, cycling, public transport and car. The overall mode share for active travel (walking and cycling) is close to 40%, higher than the county as a whole (32%) and more than 10% higher than the national average (26.5%). Cycling in particular is significantly higher than the county average, and represents one in ten trips to education. Public transport mode share is 20% which is in line with the national average, though slightly lower than the county as a whole. Overall, car is still the dominant mode of transport for education-related trips, accounting for approx. 41% of all journeys.

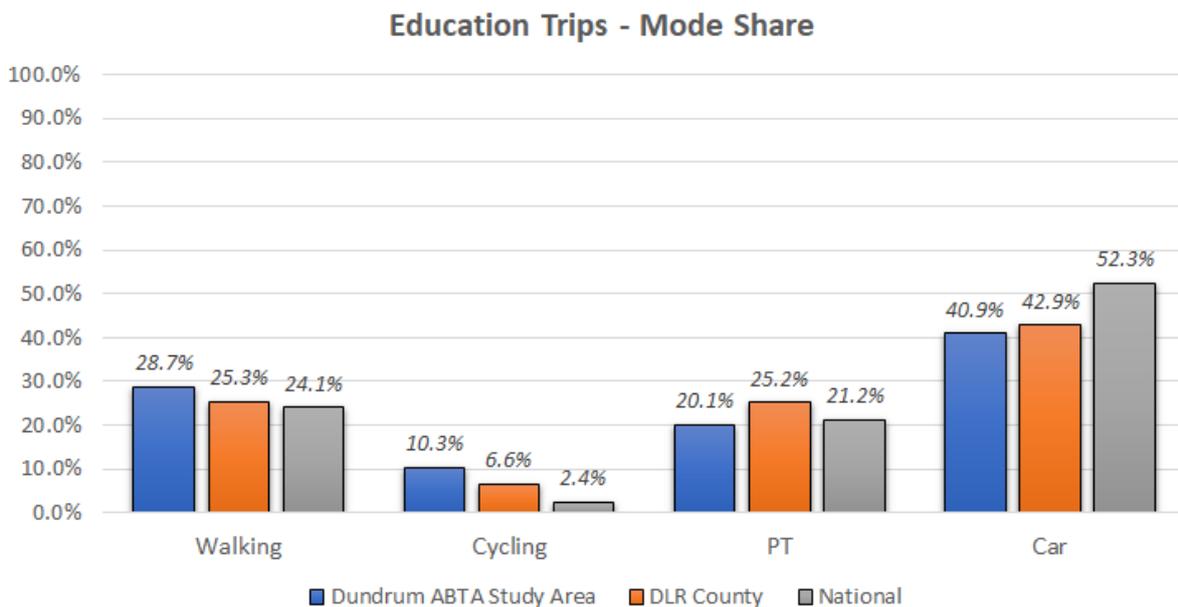


Figure 4.9 Education Trips Mode Share

Figure 4.10 and 4.11 overleaf, illustrates how the mode share for education trips varies throughout the study area. Walk mode share is highest in residential areas in close proximity to primary and post-primary schools within the study area. As discussed in Section 4.3, the majority of education trips are less than 2km and a large proportion of these are undertaken by walking. Cycling mode shares are varied across the study area, however, in general the proportion of trips undertaken by bike are higher in the northern and eastern locations.

The public transport mode shares appear to be highest around Dundrum town centre and the Luas stops. The areas around St. Attracta's and Ballinteer Community School also have a relatively high proportion of public transport use which is probably related to a local school bus service. As per employment trips, the car mode share for education is predominantly higher at the edge of the study area particularly in Churchtown and Goatstown.

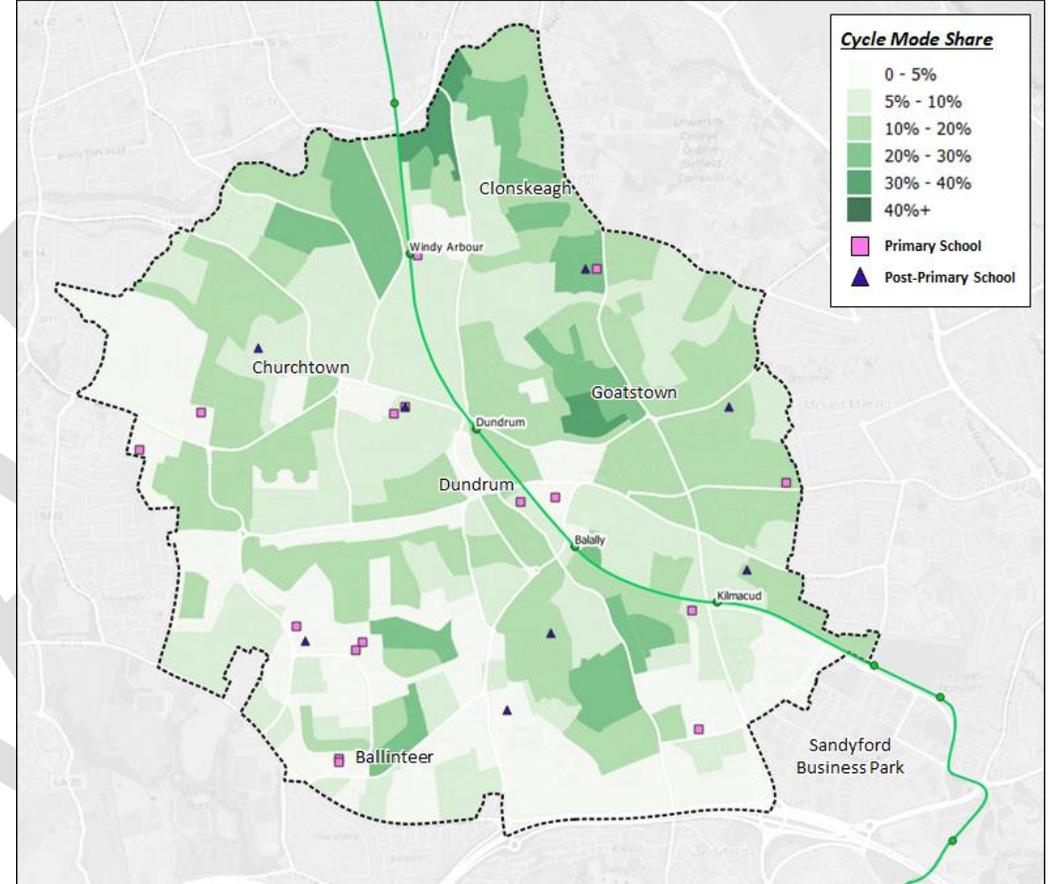
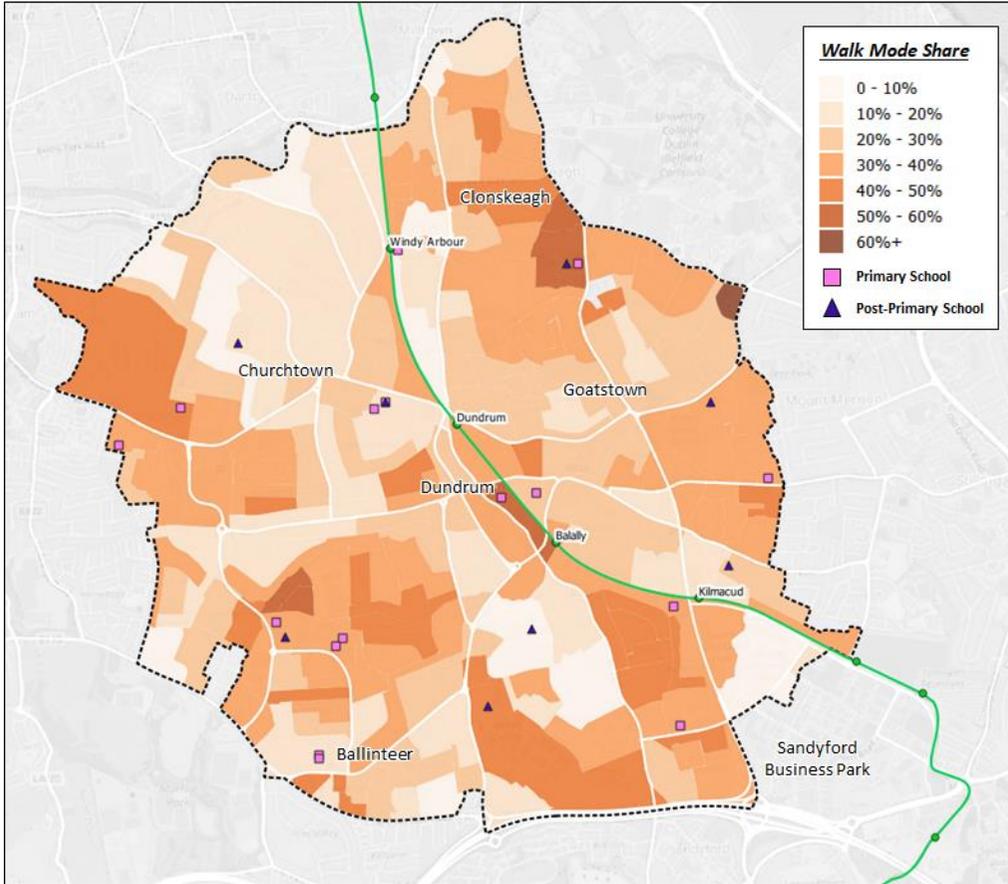


Figure 4.10 Education Trip Mode Share – Walk & Cycle

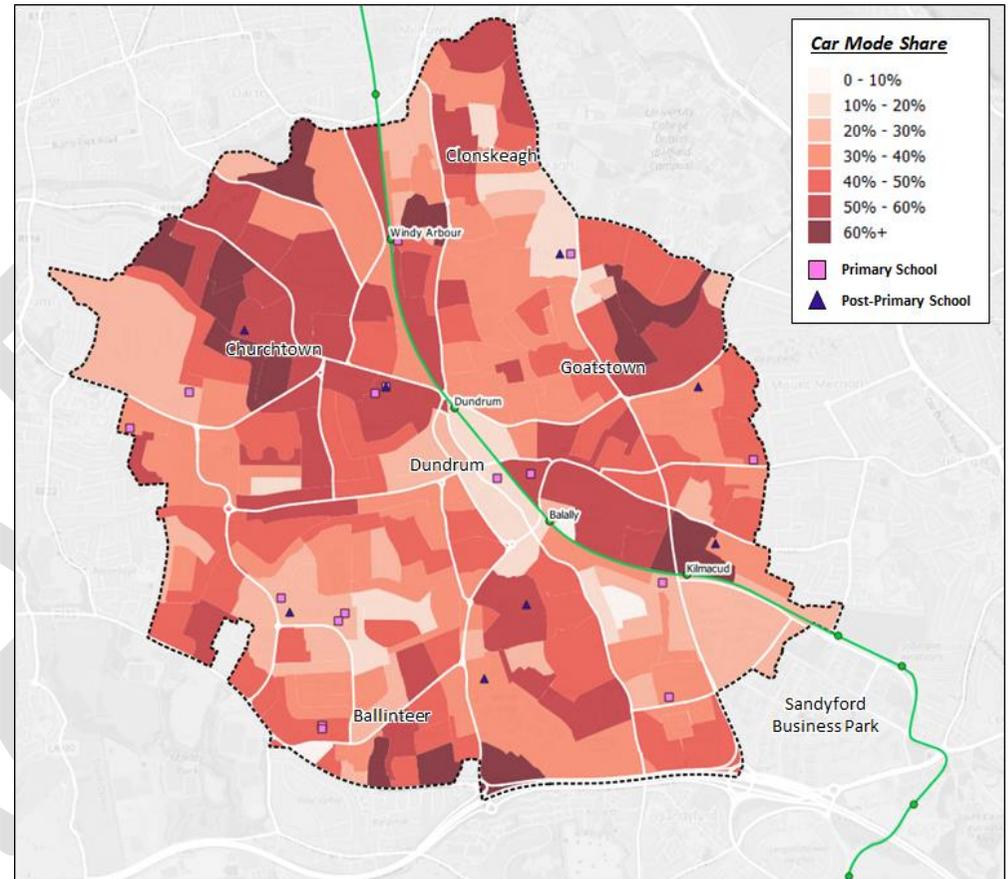
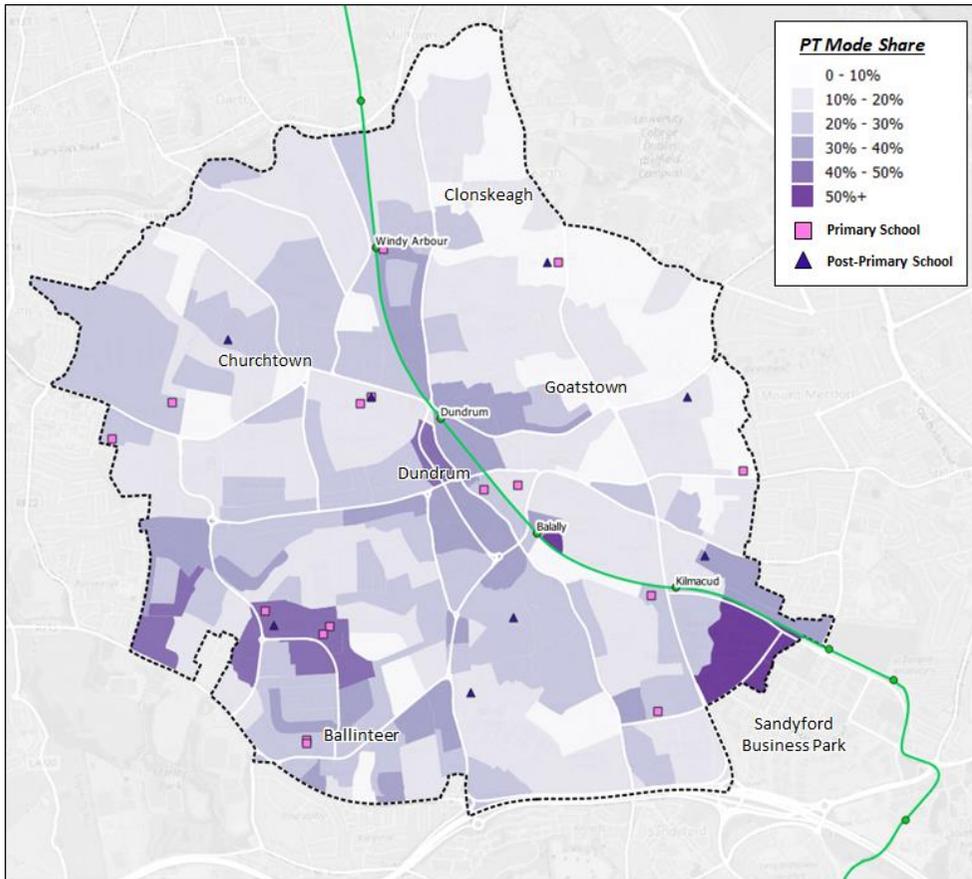


Figure 4.11 Education Trip Mode Share – Public Transport & Car

4.5 Summary

The previous sections provided an overview of existing travel patterns for residents in the study area based on analysis of 2016 Census data. In summary:

Trip Distribution

- Approximately 30% of work trips originating within the study area are travelling to Dublin city centre, with 17% going to the southwest of city which is a large employment location and is also well connected from Dundrum via the Luas.
- 11% of commuting trips remain within the study area, and due to the local nature of these trips, there may be an opportunity to support this demand via walking and cycling.
- For commute trips travelling to the study area, main origins include areas adjacent to the study area such as Rathgar, Rathfarnham, Ballyboden, South Tallaght and Sandyford.
- A significant proportion of commute trips to/from the study area are distributed across a large number of settlements. The dispersed nature of these trips makes them difficult to serve via public transport leading to increased usage of the private car.
- The Dundrum town centre is the largest destination for internal employment trips, representing approx. 28% of all internal demand (just over 1,000 trips). Other key destinations include Dundrum and Stillorgan Business Parks, Nutgrove Shopping Centre and Ballinteer.

Trip Length Distribution

- The majority of commute trips (88%) are less than 10km in length with the highest level of demand travelling between 5-10 km (nearly 14,000 trips).
- 14% of commute trips originating within the study are less than 2km in length (25 minute walk at 4.8 km/hr). However, the car mode share for these journeys is still relatively high at 49%.
- Car is the dominant mode of transport (54%) for medium to longer distance commute trips of between 2-10km.
- Approx. 12% of all employment trips originating within the study area are more than 10km in length, with over 90% of them undertaken by car.
- Approx. 80% of education trips are less than 5km in length with the highest number (46%) travelling less than 2km. This indicates that a large proportion of children are within walking and cycling distance to school.
- Walking and cycling represents around 56% of trips to school of less than 2km. However, the private car is still quite heavily used for these shorter distance journeys representing 41% of demand.
- In general, cycling represents a relatively small proportion of all education trips of less than 5km. This may in part be due to the challenging topography and lack of cycling facilities in certain areas.

Mode Share

- Approx. 18% of commute trips originating in the study area are undertaken by active modes, split evenly between walking and cycling (8.7% each).
- The south of the study area has low cycling mode shares typically less than 5% which could indicate a barrier to cycling in these areas.
- Public transport in both Dundrum and the DLR County represent about a quarter of the mode share for commute trips. Within the study area, approx. 78% of public transport trips are undertaken using the Luas with 22% by bus.
- The private car is the most dominant mode of transport for work trips from the study area, however, the 58% mode share is substantially lower than the national average (77%).
- The overall mode share for active travel (walking and cycling) to education is close to 40%, higher than the county as a whole (32%) and more than 10% higher than the national average (26.5%).
- Cycling in particular is significantly higher than the county average, and represents one in ten trips to education.
- Public transport mode share is 20% which is in line with the national average, though slightly lower than the county as a whole.
- Overall, car is still the dominant mode of transport for education-related trips, accounting for approx. 41% of all journeys.

5. EXISTING TRANSPORT INFRASTRUCTURE

5.1 Introduction

This chapter sets out the characteristics of existing transport infrastructure in the Dundrum ABTA study area, including:

- **Walking and Cycling Accessibility:** identifying the accessibility to public transport and key services such as schools, healthcare etc. for residents within the study area by walking and cycling.
- **Walk and Cycle Infrastructure:** provides an overview of facilities for pedestrians and cyclists including elements such as footpath provision, crossing facilities and cycle lanes.
- **Public Transport:** outlines the key public transport services operating throughout the study area with information on destinations served, typical headways, along with boarding and alighting information where available.
- **Road Network Conditions:** identifies the key roads within the study area including information on typical areas of congestion and a review of key junctions.

5.2 Walking and Cycling Accessibility

Walking Catchment Analysis – Town Centre

As outlined in the trip distribution analysis in Section 4.3, Dundrum Main St. and town centre is the main attractor for local employment trips. It is also likely to be the main attractor for shopping, going to restaurants, meeting friends etc. Catchment analysis was undertaken to identify the number of people currently within 15 minute walk of the centre of Dundrum using the existing network. This was then compared to a theoretical crow-fly 15-minute walk boundary. The purpose of this analysis was to highlight areas of the network that in-theory should be able to access the town centre within 15 minutes, but currently cannot do so. This can be used to identify potential permeability issues in the network.

Figure 5.1 illustrates the results of the catchment analysis. An assumed walk speed of 4.8 km/hr was used to identify the distance a person can travel within 5, 10 and 15 minutes. For the purpose of this analysis, the catchment was determined based on accessing anywhere on Main St. and the northern section of Sandyford Road (Pink line in Figure 5.1). Census 2016 population data was then used to determine the number of residents within 15 minute walk of the town centre.

The results indicate that a total of 15,668 people live within the 15-minute walk catchment of Dundrum centre. This represents just under two thirds (63%) of all residents living within the 15-minute theoretical crow-fly boundary (24,737). Therefore, around 9,000 residents are within 15 minutes of

the town centre but cannot currently walk there within that timeframe due to the layout of the pedestrian network.

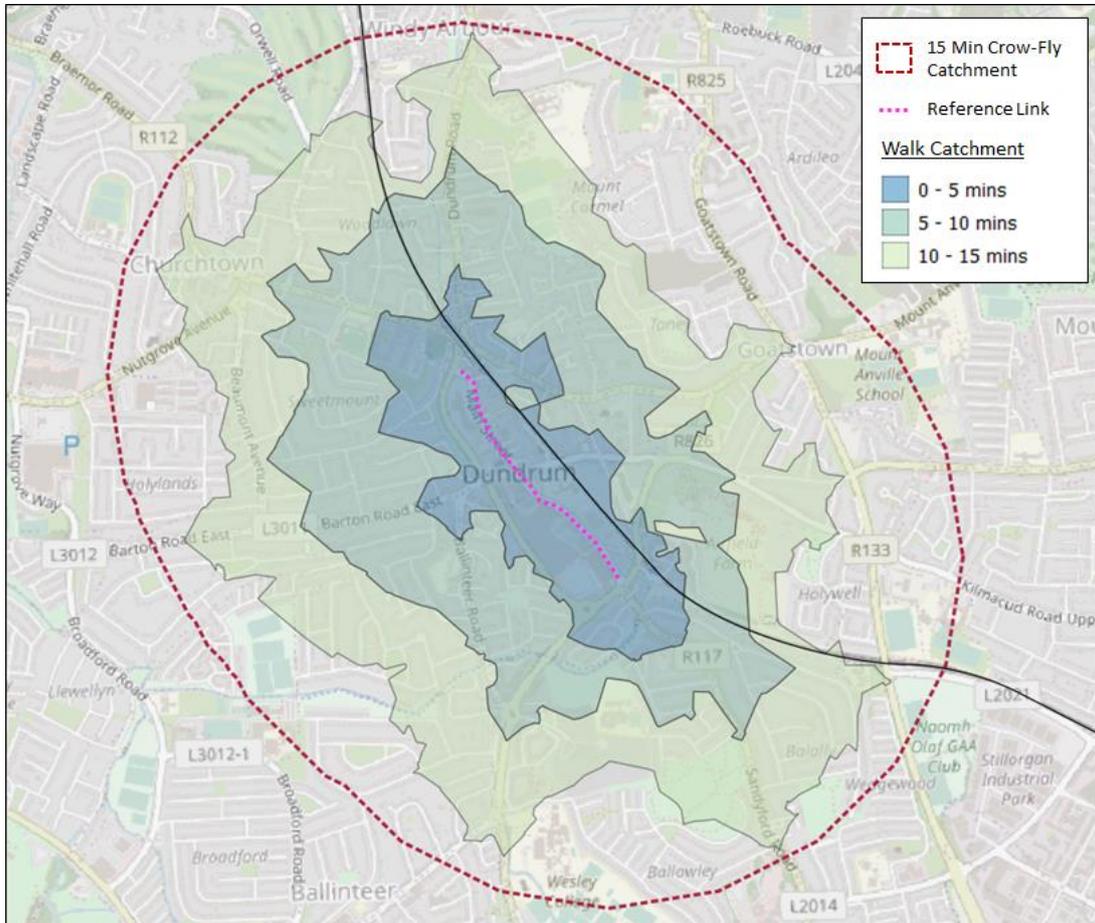


Figure 5.1 Dundrum Main Street Catchment Analysis

ATOS (Accessibility to Opportunities and Services)

ATOS is a measure of how easy it is to access key services and employment by walking and cycling. In developing the ATOS tool, the NTA have followed a methodology used by Transport for London and adapted it to make it more suitable for use outside of large metropolitan areas.

The ATOS tool calculates accessibility to Employment, Primary Education, Post Primary Education, general medical practitioners (GP’s), Food Shopping and Open Spaces using the following data sources:

Table 5.1 ATOS Data Sources

Service	Data Sources
Employment	Census Workplace Zones
Primary Education	Dept. Education School Lists
Post Primary Education	Dept. Education School Lists
Health (GPs)	GeoDirectory (NACE Q.86.21)

Service	Data Sources
Food Shopping	GeoDirectory (NACE G.47.11)
Open Spaces	Development Plans

Prior to running the calculation, the user specifies criteria for the assessment including the number of services to look for and an acceptable walk/cycle time (e.g. find two primary schools within 15 minute walk). The tool then generates a score for each location within the specified study area (based on 100m grid squares). The score is calculated based on how travel times to the nearest relevant destinations (for the specific type of service) compare to the average travel time across all locations.

- Score A: Travel times to relevant destinations are more than one standard deviation below the average
- Score B: Below the average, but by not more than one standard deviation
- Score C: Average or above, but by not more than one standard deviation
- Score D: Between one and two standard deviations above the average
- Score E: More than two standard deviations above the average

For employment, the ATOS tool calculates the number of jobs available within a specified journey time by walking and cycling. Using ATOS as part of the baseline toolkit allows identification of areas that have good accessibility to key services, with a low score potentially highlighting areas of poor permeability.

ATOS – Access to Schools

The ATOS tool has been run for access to primary and post-primary schools within the study area by walking and cycling, and the results are presented in Figure 5.2 and 5.3, overleaf. For this analysis, the defined criteria was the ability to access any primary school (at least one) and any post-primary school within a 15 minute walk and 10 minute cycle. As outlined above, the scoring for each grid is then determined by how the travel time compares to the average travel time for all squares that have access to a primary/post-primary school within the specified timeframes.

The results indicate that there is generally good accessibility to primary schools within the study area. All residents are within a 10-minute cycle of their nearest school, and the majority of residents are within a 15-minute walk. There are small pockets on the periphery of the study area to the northeast, northwest and south that fall narrowly outside the 15-minute walk catchment. As expected, areas closest to primary schools have the shortest travel times and best ATOS scores, with scores decreasing as distances and travel times increase.

For post-primary schools, access is again relatively good with all residents of the study area within a 10-minute cycle of their nearest school. There is a good dispersal of post-primary schools throughout the study area, and as such, a large proportion of residents are within 15-minute walk of their nearest school. There are a few areas to the north of St. Tiernan’s Community School, south of St. Benildus College and west of Our Lady’s Grove Secondary School where accessibility could potentially be improved.

It should be noted that for post-primary schools in particular, location is not the only factor in the decision on what school to attend with aspects such as reputation, religion, school gender, fees etc. all considered. However, in general the majority of residents within the study area are within a 15-minute walk and 10 minute cycle of their nearest school, and as such, there should be opportunities to support and encourage walking and cycling for these journeys.

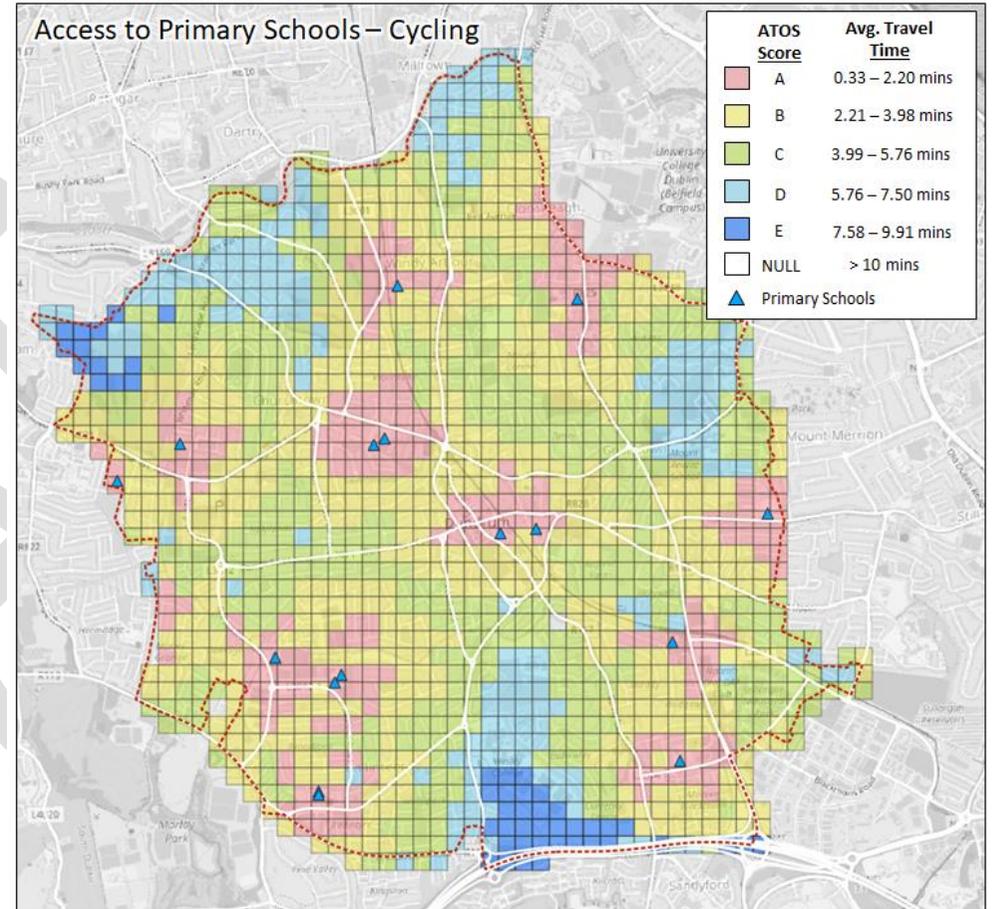
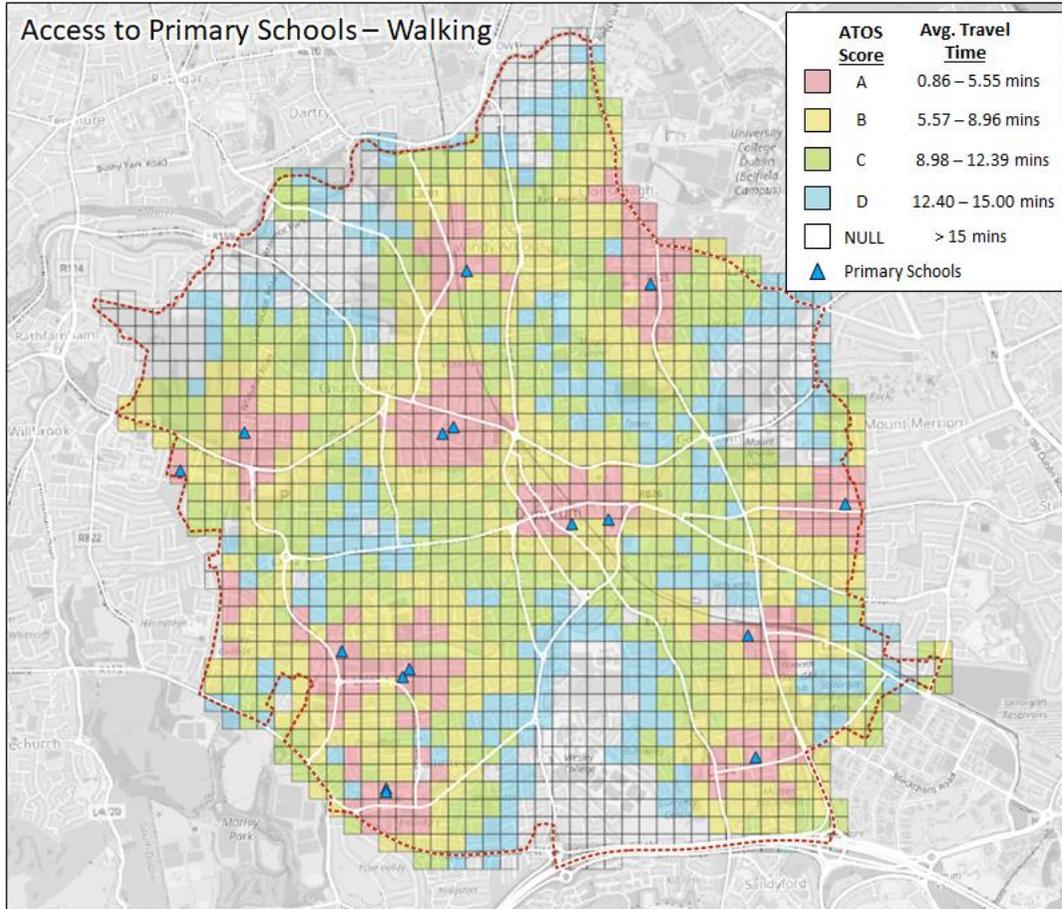


Figure 5.2 ATOS Primary School Results – Walking and Cycling

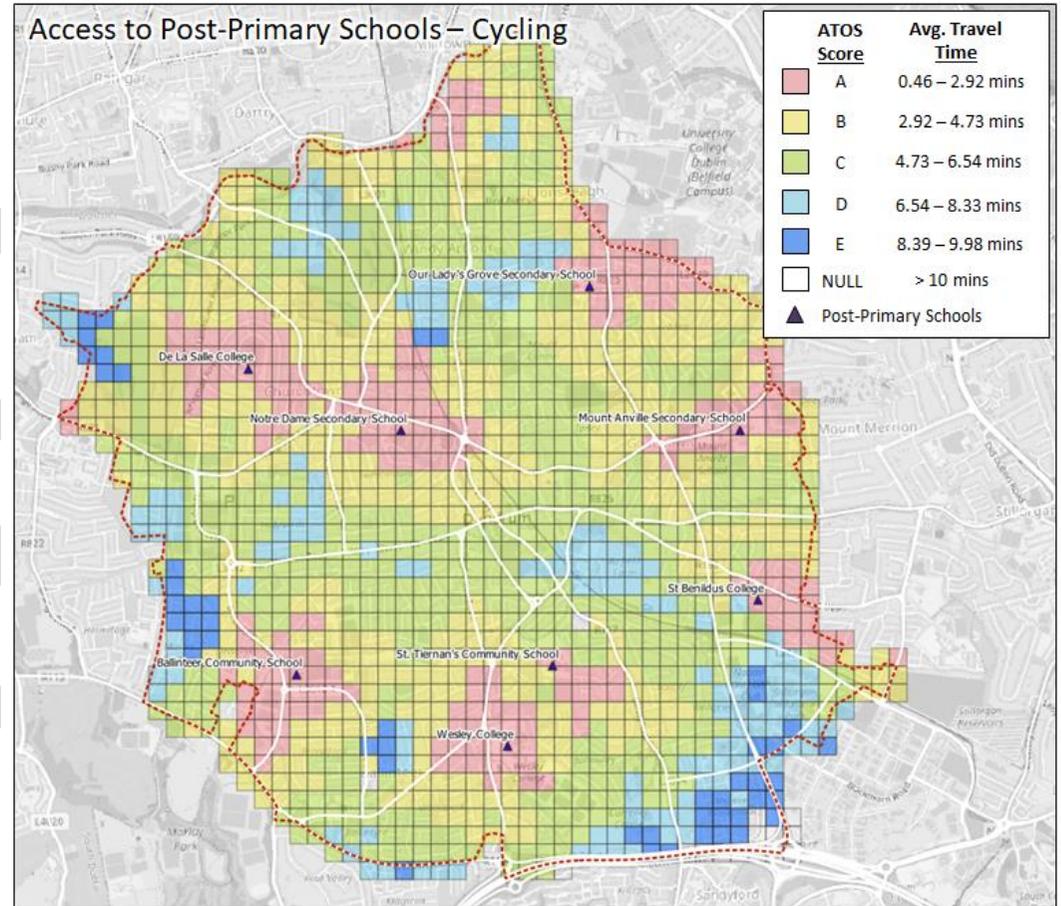
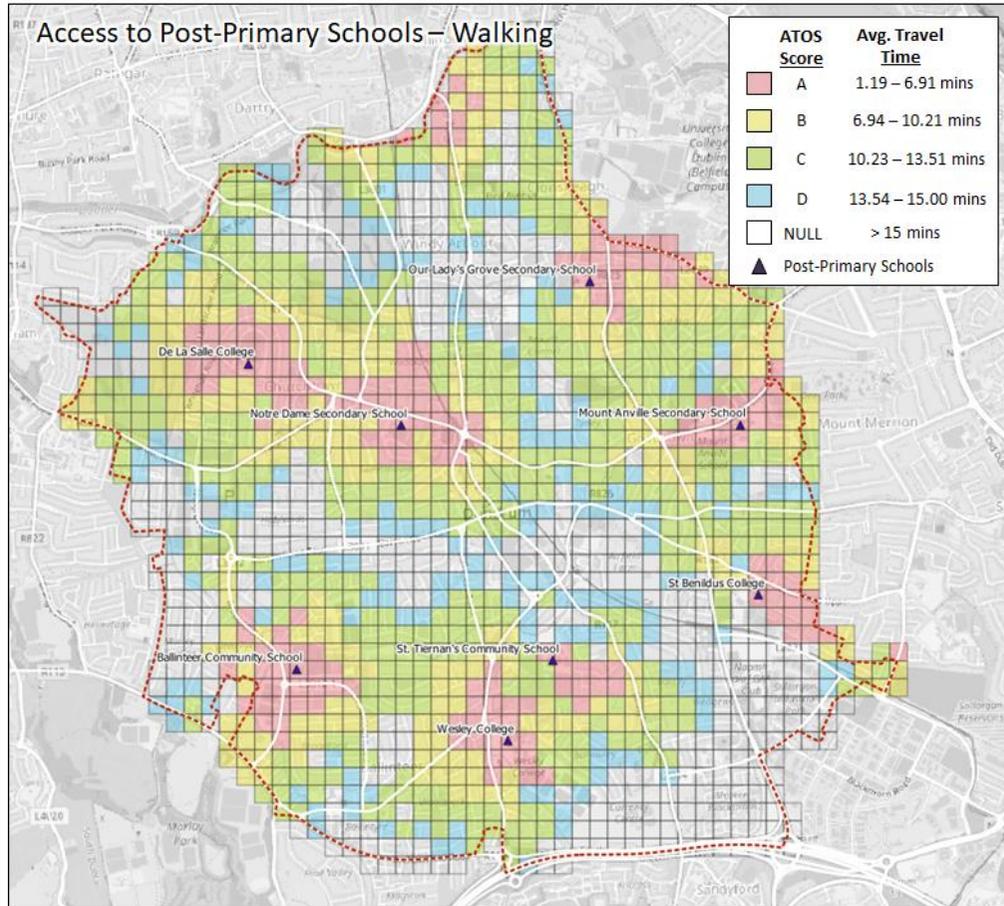


Figure 5.3 ATOS Post-Primary School Results – Walking and Cycling

ATOS – Access to Employment

As outlined previously, the ATOS tool calculates the number of jobs available within a specified journey time based on data from the Census Workplace Zones. Figure 5.4 illustrates the number of jobs available to each 100m grid square within a 15-minute walk. The results indicate that residents close to Dundrum town centre and Sandyford Business Park have access to the most employment with approx. 4.5 – 12 thousand jobs within a 15-minute walk. This aligns with previous analysis on trip patterns, as these areas attract the most employment trips during the AM period.

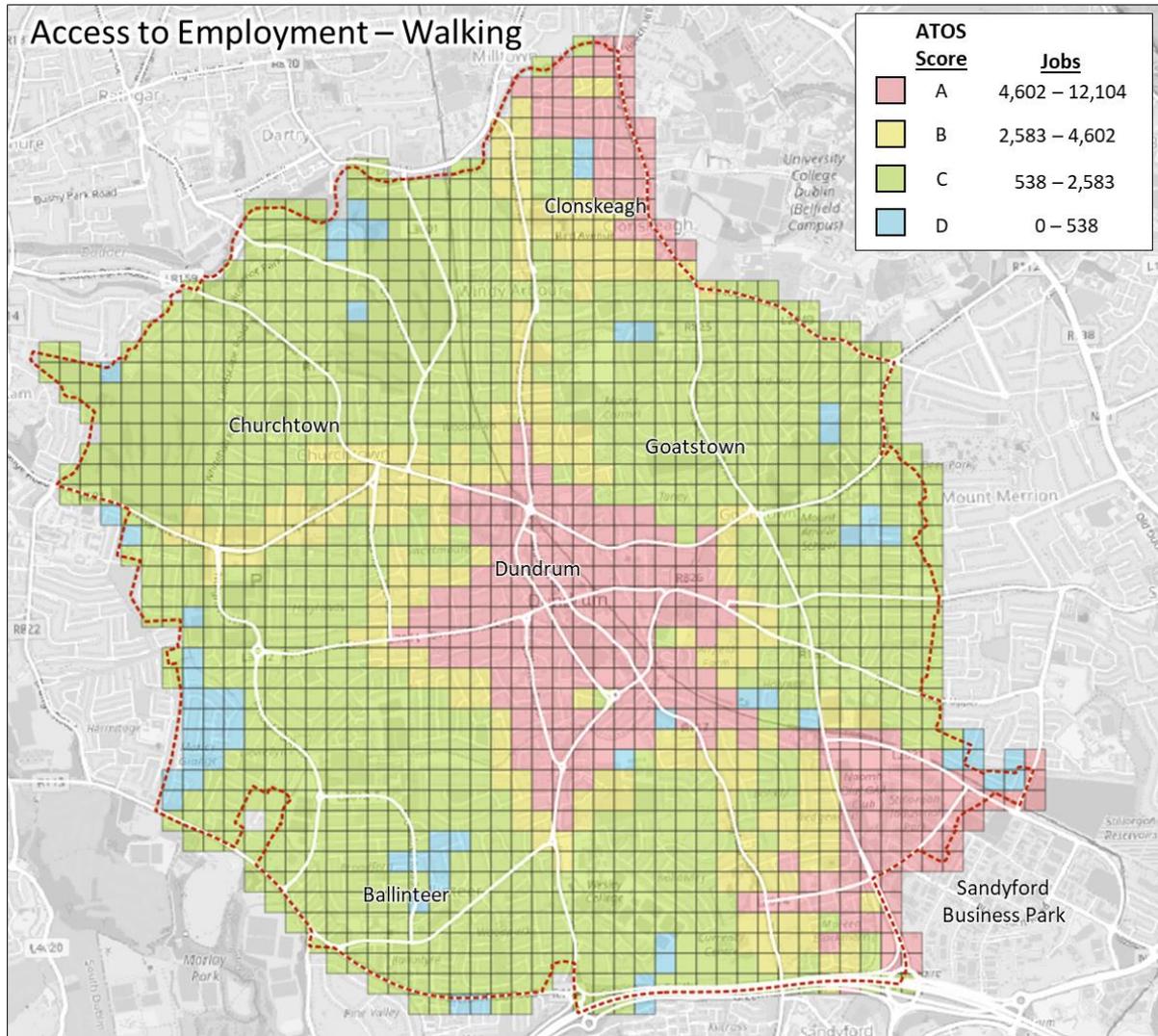


Figure 5.4 ATOS Access to Employment (Walking)

ATOS – Access to Key Services

The data sources outlined in Table 5.1 were used to identify the location of food shops, general medical practitioners (GPs) and parks/open spaces within the study area. The ATOS results for each of these services were then combined to identify areas that currently might satisfy the '15-Minute' neighbourhood concept i.e. have access to key essential services (such as shops, healthcare etc.), schools and high quality public transport within a 15-minute walk from their home.

The results of this analysis are outlined in Figure 5.5, and indicate that the majority of the study area have access to key services within a 15-minute walk (areas highlighted in green). In this instance, the key services have been defined as schools (primary or post-primary), shops, GPs and parks/green spaces.

The largest area not satisfying the criteria is around Clonskeagh, however, a number of residents in this area will be able to access the Luas at Windy Arbour or Milltown within a 15-minute walk to connect to a wide range of services. Similar analysis was undertaken for cycling in the study area, and the results indicated that all residents are located within a 10-minute cycle of key local services. Further information on accessibility to community and civic facilities for the LAP area is included in the Dundrum Community, Cultural & Civic Action Plan (CCCAP).

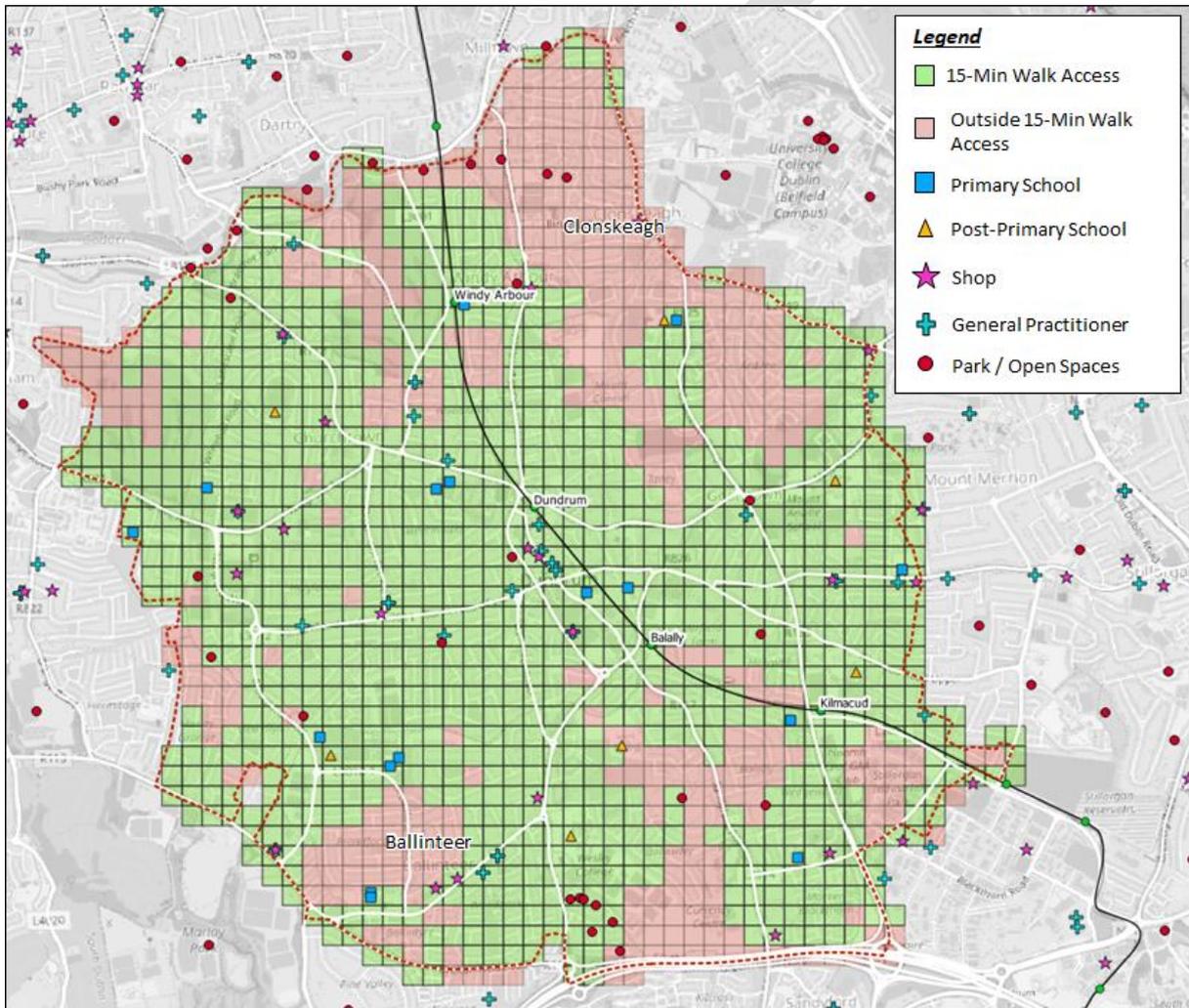


Figure 5.5 ATOS Access to Key Services (Walking)

PTAL (Public Transport Accessibility Level)

PTAL is a tool created by the NTA to measure the accessibility of an area to public transport services. The methodology used to create PTAL follows an approach developed by Transport for London and is outlined in their document “Assessing transport connectivity in London⁹”.

PTAL values range from zero to six, where the highest value represents the best connectivity. A location will have a higher PTAL if:

- It is at a short walking distance to the nearest stations or stops
- Waiting times at the nearest stations or stops are short
- More services pass at the nearest stations or stops
- There are major rail stations nearby
- Any combination of all the above.

The origin for any PTAL calculation is a 100m grid. An Accessibility Index is calculated for each PT Stop and each route at the PT Stop for every square that is within an acceptable walk distance. The Accessibility Index is calculated using the information above, frequency, average wait time and a reliability factor which is different for rail and bus. The Accessibility Index for each stop and route is summed in order to give an overall Accessibility Index for a grid square. This is then converted to a PTAL score based on a standard range outlined in Figure 5.6.

PTAL	Access Index range	Map colour
0 (worst)	0	
1a	0.01 – 2.50	
1b	2.51 – 5.0	
2	5.01 – 10.0	
3	10.01 – 15.0	
4	15.01 – 20.0	
5	20.01 – 25.0	
6a	25.01 – 40.0	
6b (best)	40.01+	

Figure 5.6 Conversion from Accessibility Index to PTAL

The PTAL results for Dundrum are illustrated in Figure 5.7, overleaf. It should be noted that the PTAL scoring system is based off accessibility in the London metropolitan area, and has not been adjusted to reflect more suburban/rural areas in Ireland. As such, PTAL scores of 5, 6 or 6a are only really achievable within Dublin city centre where there are a number of overlapping public transport services. Out in more suburban areas such as Dundrum, a PTAL score of 3 or 4 is considered to be very good.

As outlined in Figure 5.7, the area around Dundrum station has the highest PTAL score of 4 due to the availability of high quality Luas services, and bus stops serving the route 14, 17/d, 44/b, 161, 75 and 175. As outlined previously, the more services operating via an area leads to an improved PTAL score. This is why Dundrum, Balally and Windy Arbour perform better than the Kilmacud Luas stop as there are also bus services operating in close proximity to these stations.

⁹ Source: <http://content.tfl.gov.uk/connectivity-assessment-guide.pdf>

Outside Dundrum centre and the main Luas stations, the rest of the study area grids have PTAL scores of 1a, 1b or 2. In general, nearly all residents within the study area have access to a public transport stop within a 15-minute walk. However, for a number of people their closest service is bus which, depending on the route, can be quite infrequent.

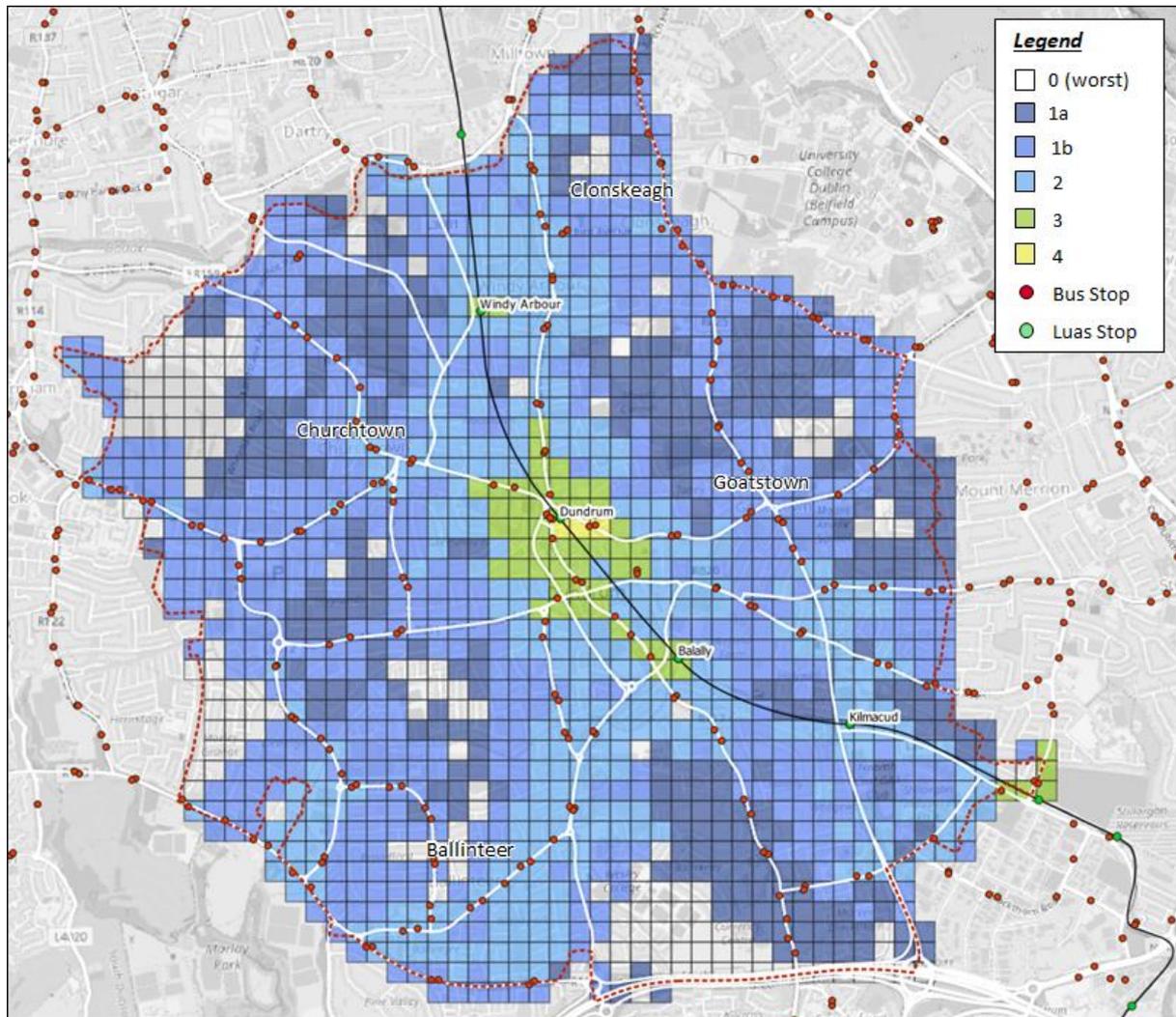


Figure 5.7 Dundrum ABTA Study Area PTAL Results

5.3 Walk and Cycle Infrastructure

A detailed review of walking and cycling facilities along key links within the study area was undertaken. For walking facilities, the assessment focuses on footpath provision and pedestrian crossings. The Design Manual for Urban Roads and Streets¹⁰ (DMURS) sets out that a minimum footpath width of 1.8m is considered adequate for areas of low pedestrian activity, whilst the desirable width is 2.5m. A minimum width of 3.0m is considered adequate for areas of moderate to high pedestrian activity. A minimum width of 4.0m is considered adequate in areas of high pedestrian activity. Pedestrian

¹⁰ Source: <https://www.gov.ie/en/publication/3360b1-design-manual-for-urban-roads-and-streets/>

crossings are described in terms of their frequency, type and provision of dropped kerbs, tactile paving, road markings and pedestrian guard rails.

A description of existing cycle facilities along each link is also provided with reference to availability, cycle facility type (i.e. segregated cycle track, on-road cycle lane, contra flow cycle lane, etc), approximate width and length. Figure 5.8, illustrates the key links within the study area that were reviewed for walking and cycling facilities. Further details on this review, along with maps and photos, are provided in Appendix A.

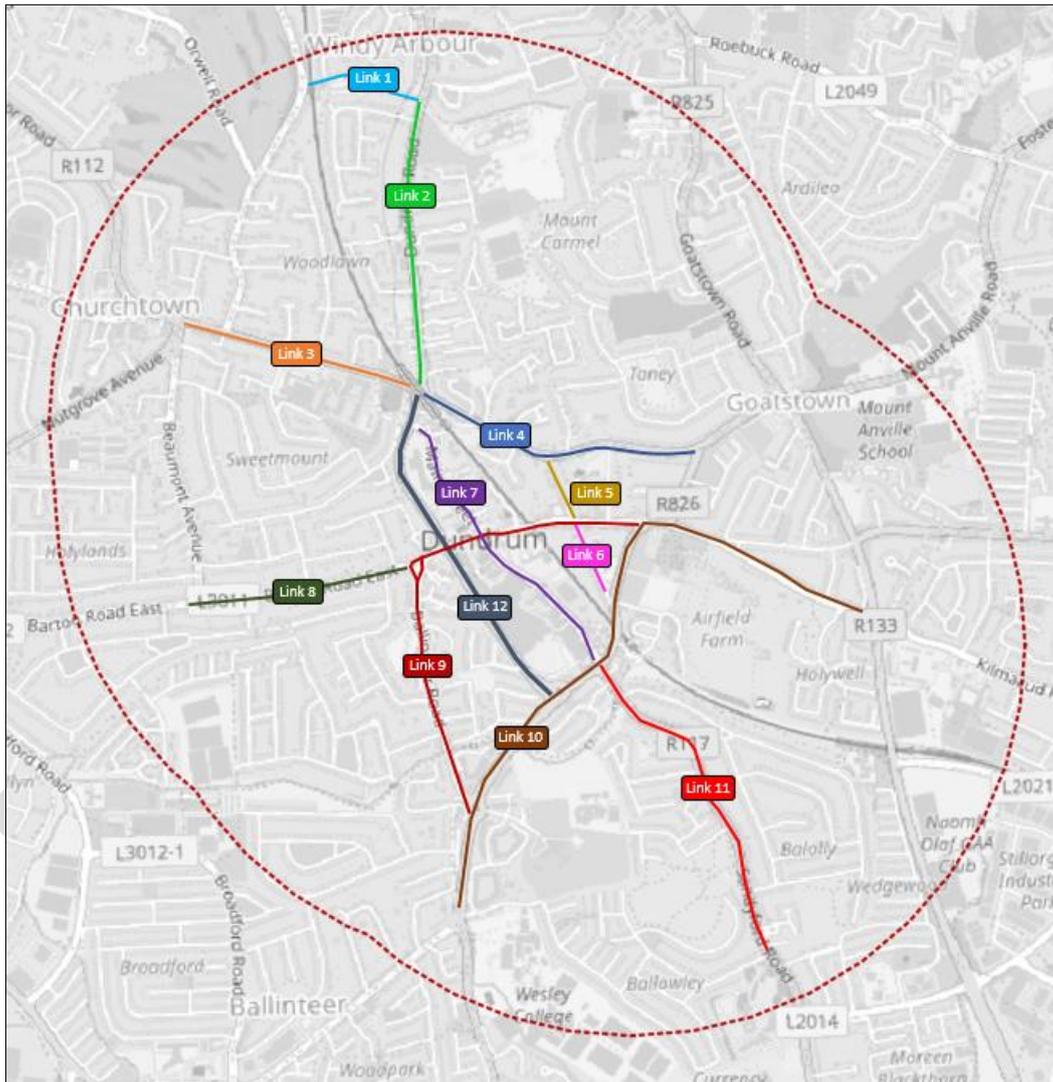


Figure 5.8 Links Included in Walk and Cycle Review

In summary, pedestrian infrastructure is quite varied throughout the study area. Recent mobility enhancement works on main street have significantly improved the urban realm and provided a better environment for walking and cycling. However, other parts of the network have quite narrow footpaths and limited crossing facilities. Dundrum Road for example, which is the main link to the north from main street, has narrow footpaths in places. This, combined with relatively high traffic volumes mean that it is not a very attractive route for pedestrians or cyclists. There is also limited accessibility to Main Street from the East and West. To the east, the Luas line acts as a barrier with access via

Overend Avenue, Kilmacud Road Upper, Dundrum Luas station and Taney Road only. To the west, the steep gradients and limited crossing facilities on the bypass act as a barrier for pedestrian movements.

Figure 5.9 provides an overview of existing cycle infrastructure on roads across the study area. The Wyckham Way, R112 (Churchtown Rd), Brehon Field Rd and sections of the Drummartin Link Road have segregated cycle facilities. Other key access routes to Dundrum such as the Sandyford Road, Dundrum Bypass, Barton Road East and Overend Ave have advisory cycle lanes in place. A number of the junctions on access to Dundrum such as the Taney Cross Junction, Wyckham Roundabout and Sandyford Rd/Wyckham Way junction are more vehicular focused and not very pedestrian/cycle friendly. These junctions all have large cross-sections with high traffic volumes and conflicting movements which can make them unattractive for walking and cycling (further information on the function and layout of these junctions is provided in Section 5.5).

There is also currently no cycling infrastructure along Ballinteer Road and Kilmacud Road Upper on the east-west route, or on Dundrum Road to the north, which may in part be due to the width of these roads. Dundrum Road is a key link towards the city centre, and is likely to become more important in the future in creating a sustainable link to Dundrum town centre with the development at the Central Mental Hospital site. However, delivering cycle network improvements in line with National Cycle Manual guidance is challenging on this corridor given existing street characteristics.

Cycle Parking

Figure 5.10 below, outlines the location of existing bicycle parking facilities within the Dundrum ABTA study area. Outside of Dundrum village, the availability of cycle parking is very limited with a small number of stands scattered around areas such as St. Attracta's school in Ballinteer, Churchtown, Windy Arbour Luas stop, Dundrum Business Park and Kilmacud Road Lower.

Within Dundrum, Figure 5.10 illustrates the number of bicycle stands at each location with approx. 87 stands shared between the Balally and Dundrum Luas stops. In total, there are around 217 bike stands located along Main Street and North Sandyford Road. The majority of bicycle parking (165 stands) are located on North Sandyford Road at the shopping centre and the DLRCC car park, with a relatively low level of parking facilities serving Main Street.

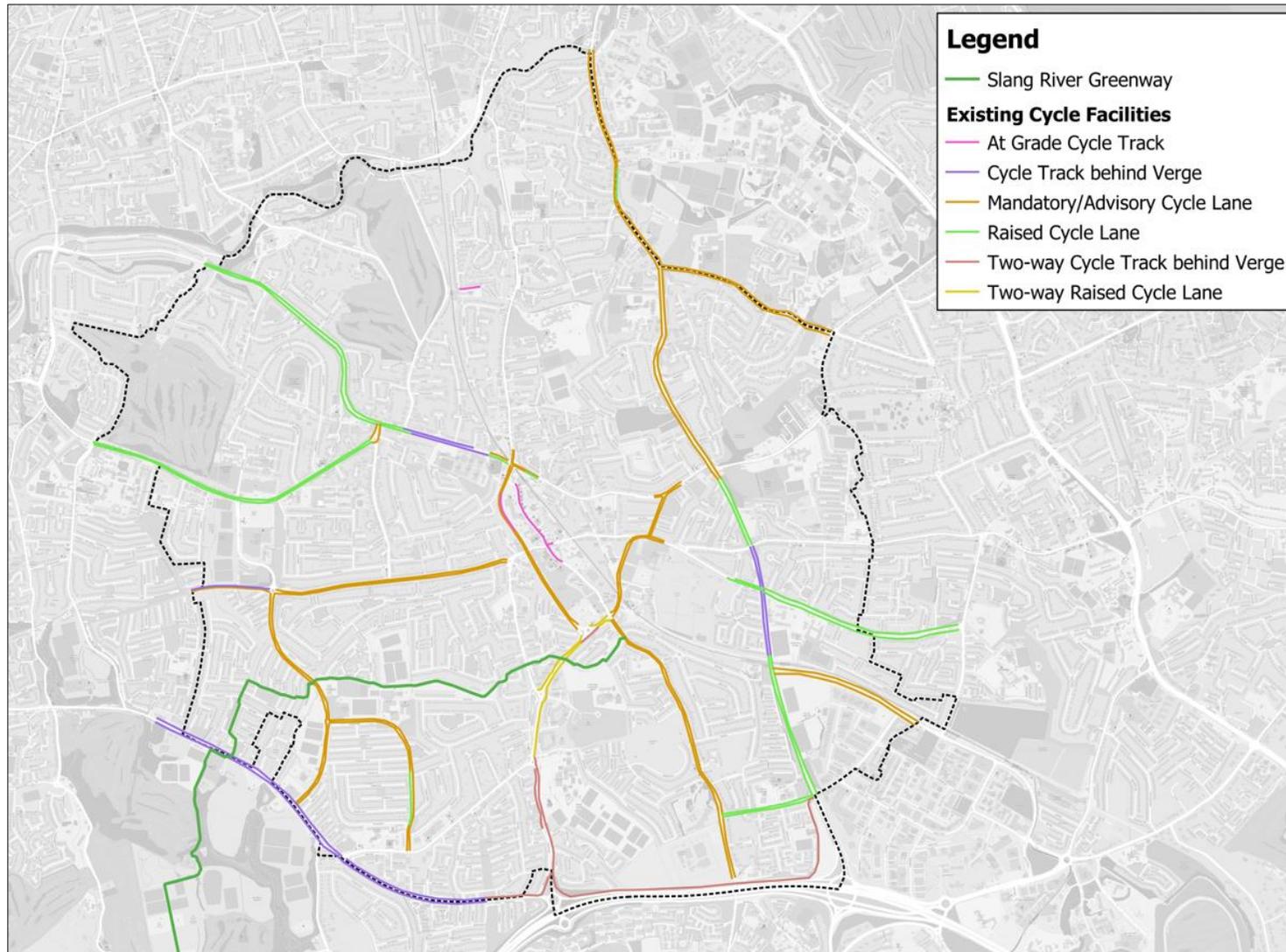


Figure 5.9 Existing Cycle Infrastructure

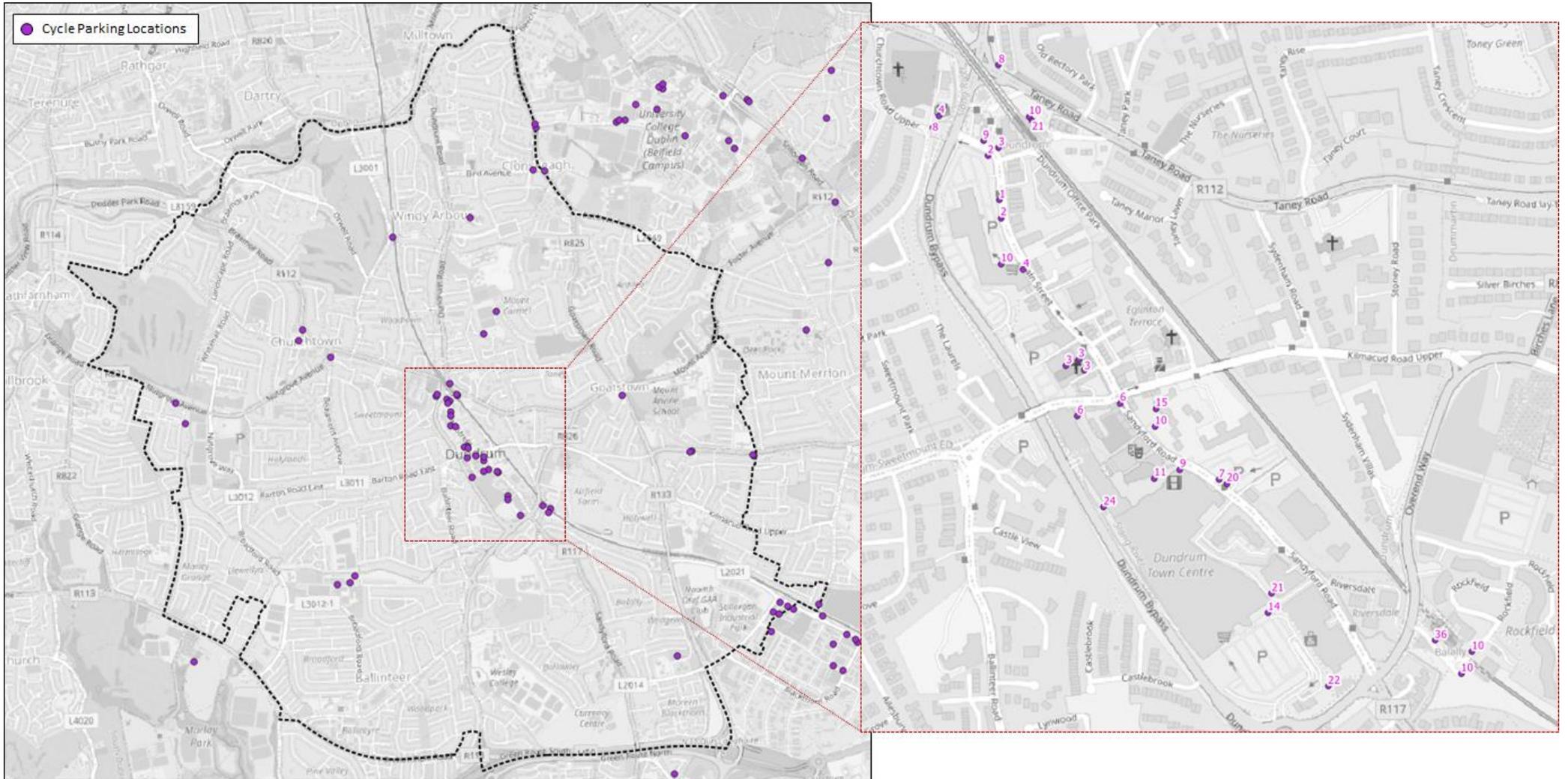


Figure 5.10 Existing Cycle Parking Facilities

5.4 Public Transport

The Dundrum ABTA study area is served by the Luas light rail network along with a number of Dublin City Bus services operated by Dublin Bus and Go Ahead Ireland. The following section provides an overview of the services operating in the area with information on headways, locations served and potential future improvements to the PT network.

Luas

The Luas Green Line operates from Bride’s Glen to Dublin city centre every 3-5 minutes during the peak periods with four stops within the study area at Windy Arbour, Dundrum, Balally and Kilmacud.

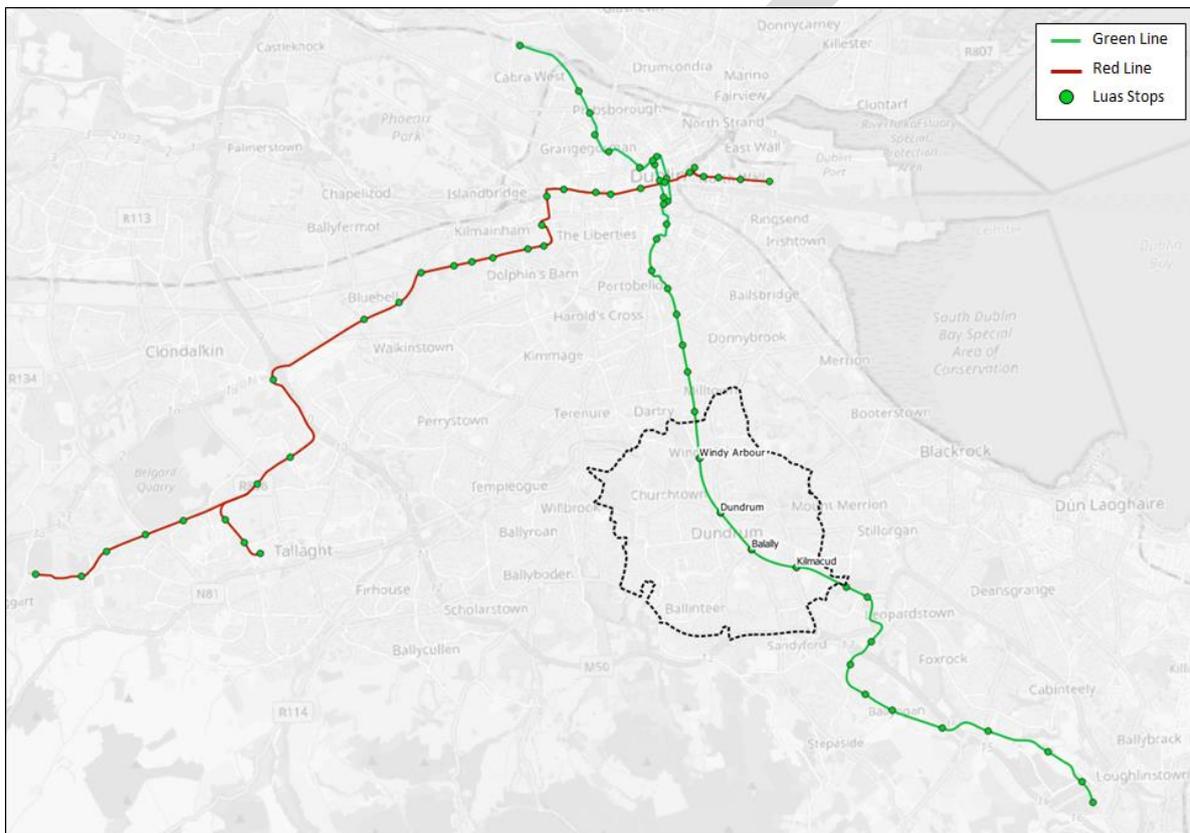


Figure 5.11 Luas Network

2019 Luas Census data was analysed to determine the level of Luas usage during pre-COVID conditions. Figure 5.12 overleaf, illustrates the number of passengers recorded as boarding in the AM peak hour (08:00 – 09:00) in an inbound direction towards Dublin city, along with those alighting in the PM peak hour (17:00 – 18:00) in an outbound direction. The results indicate that Balally and Dundrum stations are the busiest in the AM peak with 1,458 boardings. Similarly, in the outbound direction in the PM peak, Dundrum experiences the largest number of alightings. In total, the four stations within the study area experience 2,076 boardings in the AM peak and 1,271 passengers alighting in the PM.

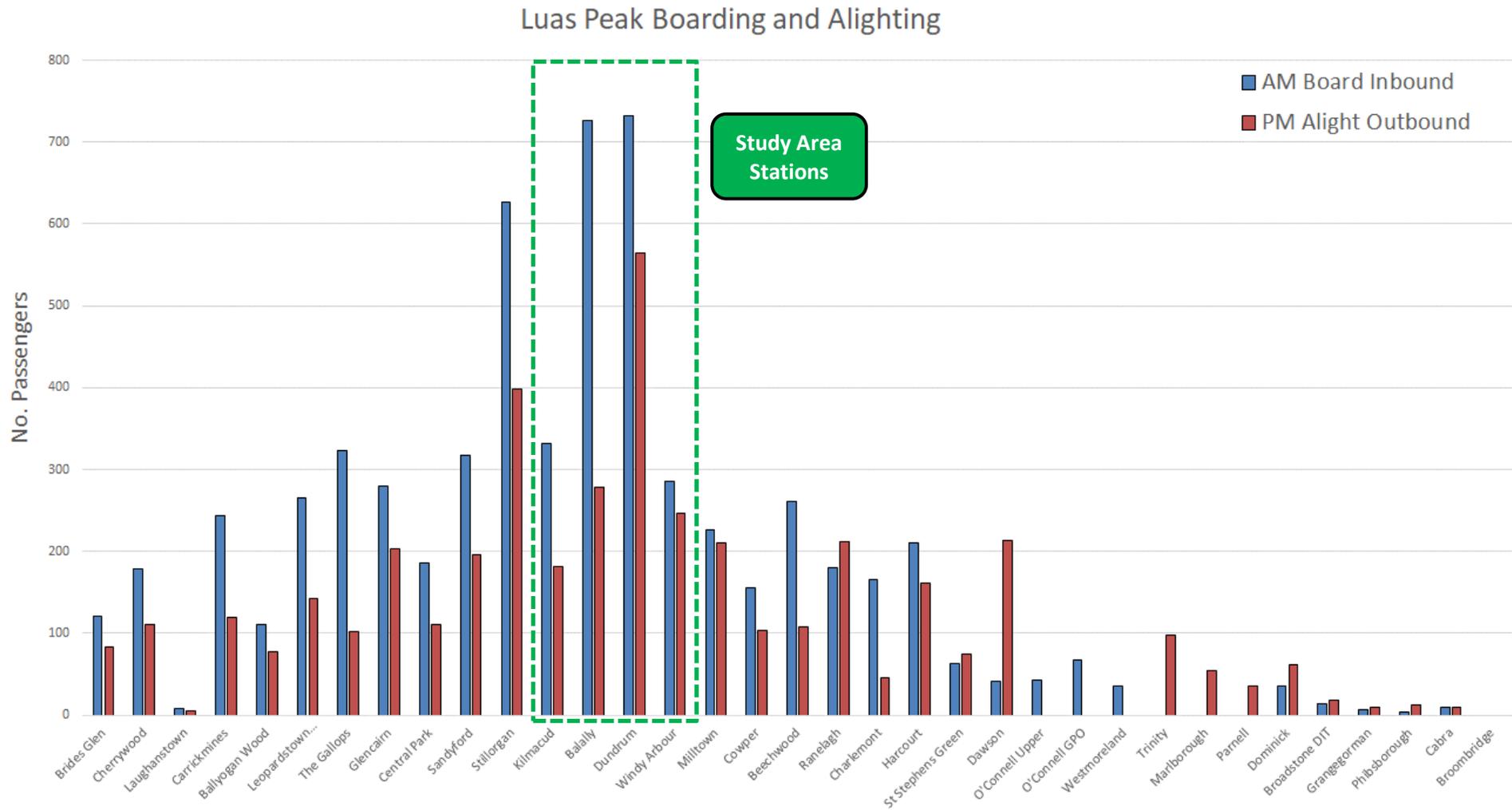


Figure 5.12 Luas Peak Hour Boarding and Alighting

The Luas Census also provides information on tram volumes and operational capacity during the survey period. This data is summarised in Table 5.2, outlining the percentage utilisation for trams travelling towards the city centre in the AM peak hour at Balally and Dundrum.

Table 5.2 Luas Utilisation

Tram	Time	% Utilisation	
		Balally	Dundrum
5010	08:04:59	74%	82%
5004	08:07:31	51%	60%
5031	08:10:21	53%	61%
5005	08:14:18	89%	102%
5009	08:15:52	51%	61%
4012	08:19:46	84%	97%
5028	08:22:26	49%	66%
5012	08:28:35	88%	100%
3020	08:30:00	91%	106%
5016	08:32:15	77%	93%
5011	08:35:13	69%	81%
5008	08:37:18	42%	53%
5029	08:39:35	28%	37%
5021	08:42:38	63%	71%
5020	08:45:29	49%	58%
5024	08:51:45	71%	80%
5013	08:53:51	53%	66%
5030	08:56:07	24%	29%

The results in Table 5.2 indicate that at Dundrum station the Luas is starting to operate over capacity, particularly during peak commuter travel times for arriving in Dublin before 09:00. This would suggest that at certain points during the AM peak hour, passengers are unable to board the tram as it is already full and must wait on the platform for the next service to arrive.

The Transport Strategy for the Greater Dublin Area (2016 – 2035)¹¹ identified the need to further develop the light rail network to support sustainable development and alleviate current capacity issues. Projects that could particularly benefit the Dundrum ABTA study area include:

- Green Line Capacity Enhancement - capacity enhancements to the Luas Green Line between St. Stephen’s Green and Bride’s Glen (in advance of Metro South) allowing longer and higher capacity trams to be brought into service on this line (project completed in 2021);
- Metro South - Luas Green Line Capacity Upgrade from the south city centre to Bride’s Glen, completing a full north-south high-capacity high-frequency cross-city rail corridor through the central spine of the Metropolitan Area; and
- Extension of Luas Green Line to Bray, providing a second rail alternative to this large town, connecting to the city centre and major destinations along the corridor at Cherrywood, Sandyford and Dundrum.

Bus

Table 5.3 outlines the bus routes currently serving the study area including their regular morning peak frequency. In total, the census data suggests that only approx. 5% of work trips generated within the study area are undertaken by bus, with Luas representing the vast majority of public transport demand (78%).

Table 5.3 Study Area Bus Services

Route No.	Route Description	AM Peak Frequency
14	From Dundrum Luas Station to Beaumont (Ardlea Rd.)	Every 10-15 minutes
17	From Rialto to Blackrock (via Dundrum)	Every ~30 minutes
75/a	From Dun Laoghaire Stn to Tallaght (Via. Dundrum/ Sandyford Ind Est)	Every ~30 minutes
175	From UCD – Kingswood Avenue	Every ~30 minutes
44	From DCU Towards Enniskerry	Every 30-60 mins
61	From Eden Quay to Whitechurch (via Dundrum)	Every 30-60 mins
44B	From Dundrum Luas Station To Glencullen	Every ~60 mins at morning peak
161	From Dundrum Luas Station to Rockbrook/Tibradden	Every ~90 minutes
116	From Parnell Sq. to Whitechurch	1 per day

¹¹ Available at: https://www.nationaltransport.ie/wp-content/uploads/2016/08/Transport_Strategy_for_the_Greater_Dublin_Area_2016-2035.pdf

There are a number of orbital routes connecting Dundrum to areas not served by the Luas e.g. 17 to UCD and Blackrock, 75/a to Dún Laoghaire and Tallaght and the 175 to UCD. However, these services are relatively infrequent and work related trips to these areas tend to be car dominated. From the trip distribution analysis, approx. 16% of work trips from Dundrum are travelling to Sandyford Business Park, Dún Laoghaire, Tallaght and UCD with 65% of these trips undertaken by car.

There is also limited bus priority infrastructure across the study area with bus lanes present on sections of the Sandyford Road and Churchtown Road. The bus lanes on the Wyckham Way are not currently in use and are open to all traffic.

BusConnects

The bus network in Dublin is set for a major overhaul over the next couple of years due to the implementation of the BusConnects network redesign. Figure 5.13 illustrates the key services that will be operating via the study area under the BusConnects programme. The Dundrum area will be served by the A2 and A4 branch routes (12 minute headways), S6 orbital routes to Tallaght, UCD and Blackrock (15 minute headway) along with other city bound, local and peak time services. There will also be a new bus interchange facility within Dundrum connecting services to the Green Luas Line.



Figure 5.13 BusConnects Services

5.5 Road Network Conditions

Figure 5.14 illustrates the key National, Regional and Local roads serving the study area, including:

- **Wyckham Way (R826)** which functions as a distributor road connecting Dundrum to Junction 13 of the M50;
- **Sandyford Road (R117)** connecting Dundrum south towards the Sandyford Business Park which is a significant employment trip attractor for the study area;
- **Dundrum Bypass** which was opened in 2002 to alleviate congestion on Main Street. It operates with a single vehicular lane and on-road cycle lane in both directions of travel;
- **Dundrum Road (R117)** which connects Dundrum northbound to Milltown and Dublin city centre;
- **Dundrum Main Street** which has seen significant changes in the past year due to the mobility and public space enhancement works. This included the removal of a traffic lane and repositioning of parking spaces to reallocate space for the safety of pedestrians, through wider footpaths, and cyclists, by means of a new contra-flow facility.
- **Taney Road (R112)** connecting Dundrum eastward towards Goatstown and the N11

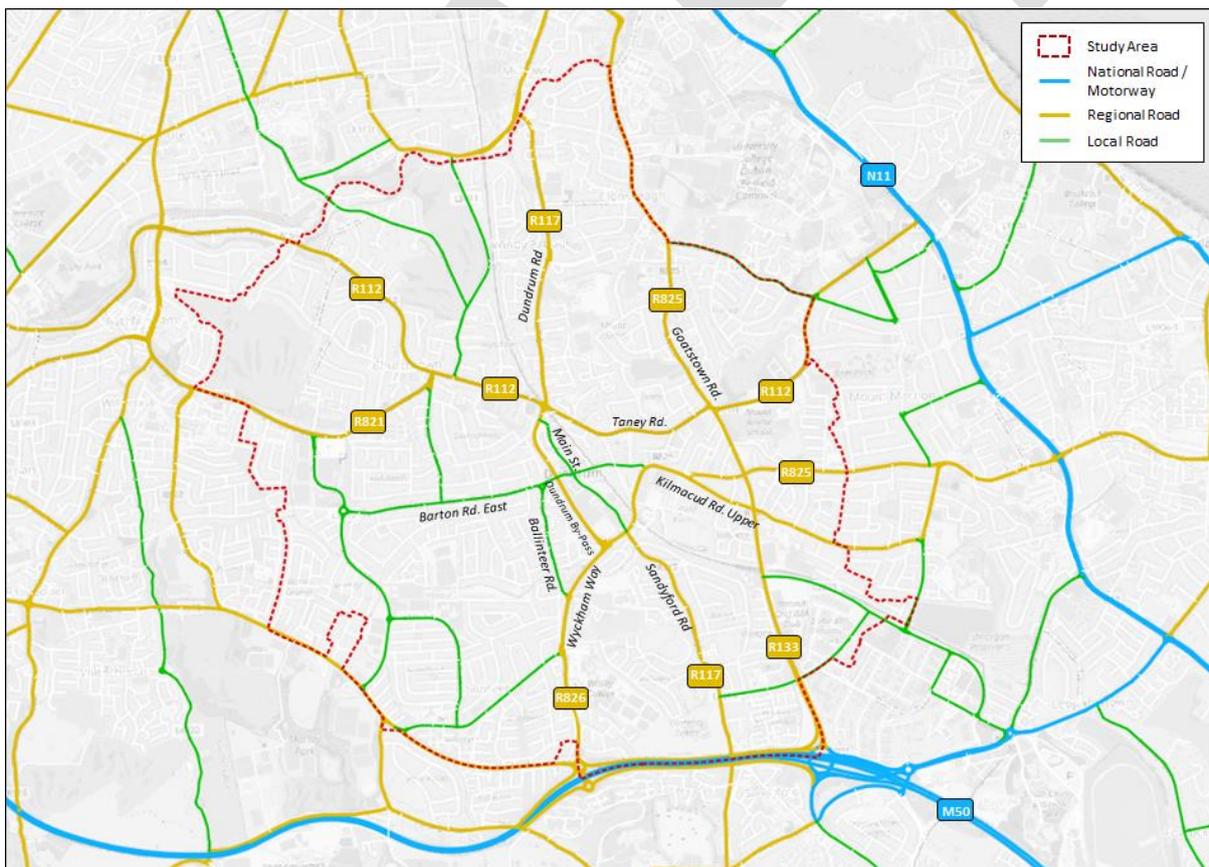


Figure 5.14 Study Area Road Network

The existing road network around Dundrum reaches capacity during peak commuter and shopping periods, with a combination of both local and strategic traffic contributing to congestion.

In order to determine the most significant areas of congestion, DLRC provided information from their Tom Tom database of average speeds on the network around Dundrum. The database reads information from satellite navigation systems and smart phones which have location services turned on to identify travel times and speeds on the network. This information was extracted for the month of November 2019, and the average speeds on the links were compared for an off-peak (06:00 – 07:00) and AM peak (08:00 – 09:00) hour. Figure 5.15 illustrates the results of this analysis highlighting the percentage change in speeds between the peak and off-peak hours.

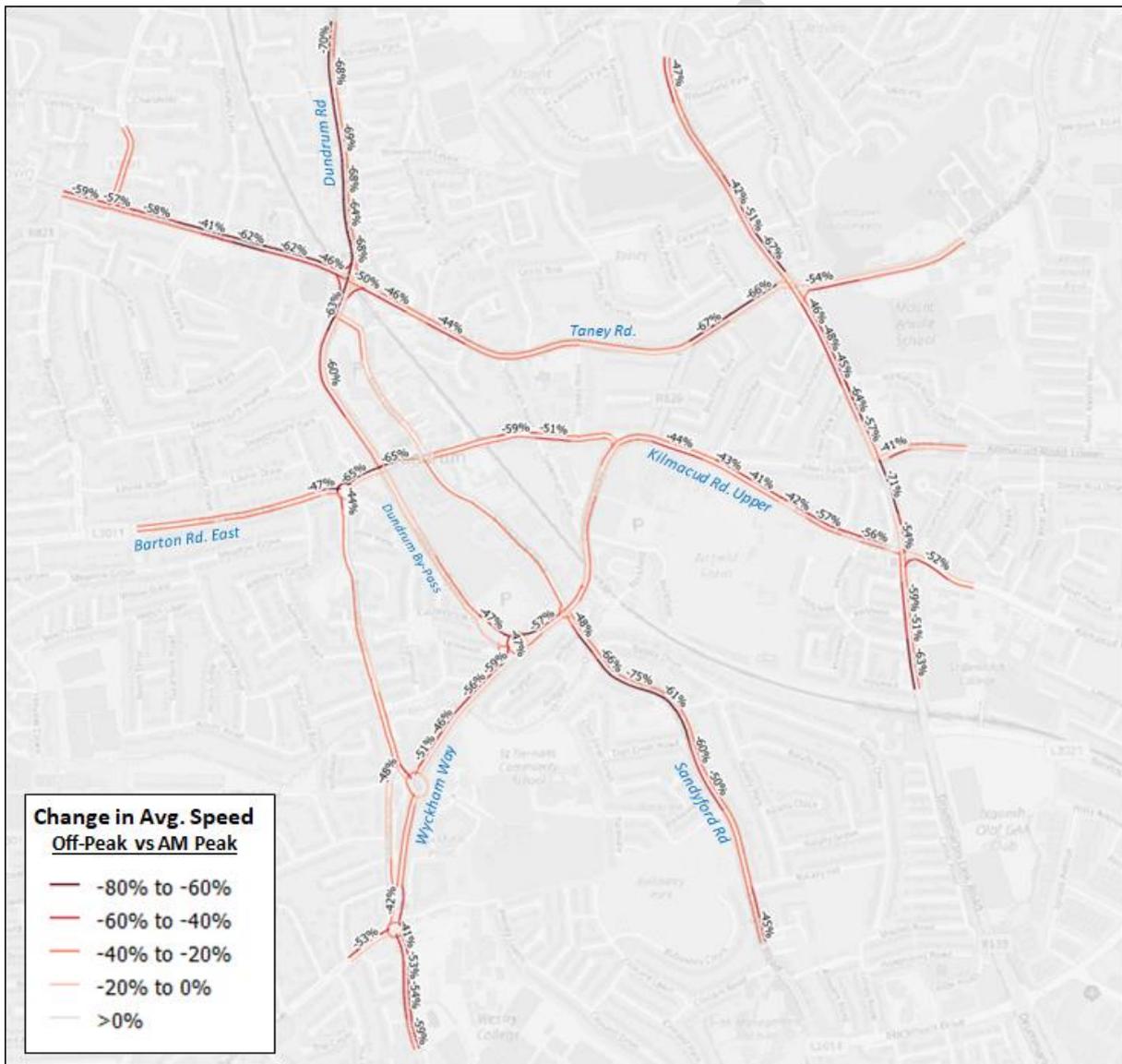


Figure 5.15 Study Area Road Network

The results in Figure 5.15 highlight a general reduction in vehicular speeds across the network during the peak hour which is primarily due to increased traffic volumes and congestion. Areas experiencing significant reductions in speeds include Wyckham Way, Dundrum Bypass/Taney Road junction, Sandyford Road and Dundrum Road towards the city centre. Many of these areas have reductions in

average speeds of between 60% and 80% when compared to an off-peak hour. Some of these routes are also likely to experience increases in future traffic with envisaged future development as outlined in Section 3.4.

Junction Conditions

A detailed review was undertaken on some of the key junctions around Dundrum town centre illustrated in Figure 5.16. This focused on junction arrangements, facilities for pedestrians/cyclists and highlighting any potential issues noted.

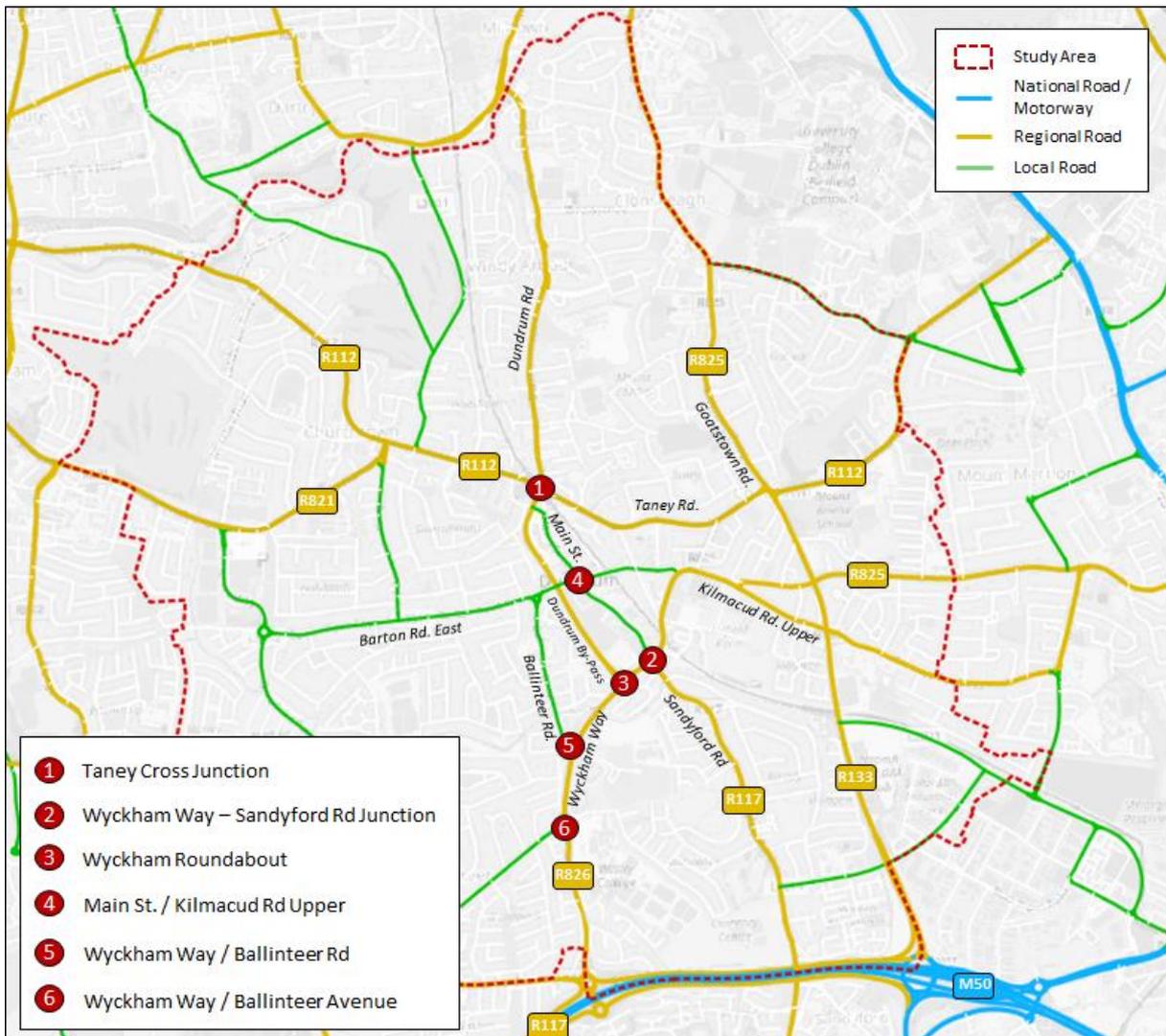


Figure 5.16 Junctions for Detailed Review

1. TANEY CROSS JUNCTION



Key Points:

- Large signalised junction with three lanes of traffic at the stop-line on each arm for straight ahead and right turning movements. Left turning slip lanes provided on each arm. Traffic merges back to one lane after the junction.
- Junctions in close proximity on each arm which may impact on performance, particularly the signalised junctions to the south and west.
- Heavily trafficked junction during normal non-Covid conditions. Typically congested in the peak periods.
- Unattractive for walking/cycling due to the size of the junction and crossing widths – particularly for vulnerable road users.
- Cycle lanes provided through junction, however, high traffic volumes along with a number of conflicting turning movements means that this junction can be quite daunting for cyclists.
- Key access for pedestrians/cyclists to Dundrum Main St. from the north.

2. WYCKAM WAY / OVEREND WAY / SANDYFORD RD JUNCTION



Key Points:

- Large signalised junction - unattractive for walking/cycling due to the number of approach lanes and associated crossing widths (Particularly for vulnerable road users)
- Dedicated left-turning slip lanes provided on the south, west and north approach arms
- Link to Sandyford Business Park and Dundrum Main St.
- Typically experiences large traffic volumes during peaks hours in non-Covid conditions.
- Strong left turning vehicular movement from Sandyford Road to Wyckam Way - conflict with cyclists going straight to Main Street.
- Two strong left turning vehicular movements on Overend Ave (westbound) into Luas P&R and onto Sandyford Road (southbound) - conflict with cyclists going straight to Wyckam Way.

3. WYCKHAM ROUNDABOUT



Key Points:

- Large roundabout which is unattractive for pedestrians due to significant crossing widths. No pedestrian crossing facilities on the south-east or north-west approaches.
- Two approach lanes on each arm with a dedicated left-turn slip lane on the south-eastern approach.
- Poor sight lines at zebra crossing on Dundrum Town Centre arm
- Cycle lanes provided adjacent to the roundabout, however, poor linkages through the junction for cyclists – particularly in an East-West direction.
- Wyckham Way is a key link connecting Dundrum to the M50, and typically experiences large traffic volumes during commuter and shopping peaks in non-Covid conditions
- One of most heavily used vehicular accesses to Dundrum Town Centre
- Needs to accommodate Goods delivery access to Tesco

4. MAIN ST. / KILMACUD RD UPPER



Key Points:

- Signalised junction with rationalised vehicular movements due to COVID mobility works – 1-way traffic on Main Street and 1-way approach from Kilmacud Rd Upper
- COVID-19 Mobility works have improved cycling accessibility, particularly in a North-South direction along Main St. and east towards Kilmacud Rd Upper
- Very steep gradients for cyclists heading east along Kilmacud Rd Upper towards Taney Parish Primary School – challenging for children cycling to school
- No cycle lanes connecting residential areas to the West to Main St along Ballinteer Rd
- Good pedestrian crossing facilities and footpath widths, particularly towards Main St.

5. WYCKHAM WAY / BALLINTEER ROAD



Key Points:

- Large un-signalised roundabout with two approach lanes on north, south and western arms which is unattractive for pedestrians due to significant crossing widths.
- No pedestrian crossing facilities on any of the approach arms. Nearest crossing located approx. 65m north of the junction.
- Cycle lanes provided adjacent to the roundabout, however, poor linkages through the junction for cyclists. There is no raised ramp/pavement treatment provided to give priority for cyclists using cycle lanes to the east of the roundabout.
- Typically experiences large traffic volumes during peaks hours in non-Covid conditions – located on main link from Dundrum to the M50.
- Significant level of residential development on the eastern approach with future SHDs planned at Walled Garden and Marmalade Lane.

6. WYCKHAM WAY / BALLINTEER AVENUE



Key Points:

- Un-signalised roundabout with relatively small radius given the volume of traffic throughput during peak hours.
- No pedestrian crossing facilities on any of the approach arms. Nearest crossing located approx. 30m south of the junction.
- Cycle lanes provided adjacent to the roundabout, however, poor linkages through the junction for cyclists. There is no raised ramp/pavement treatment provided to give priority for cyclists using cycle lanes to the east of the roundabout – located inside gates of Wesley College rather than in-line with cycle lanes.
- The entrance to Wesley College, one of the largest schools within the study area, is located on the eastern arm. Relatively poor connectivity for pedestrians/cyclist from residential areas to the west on Ballinteer Avenue to the school.
- Typically experiences large traffic volumes during peaks hours in non-Covid conditions – located on main link from Dundrum to the M50.

5.6 Summary

The previous sections of this chapter provide an overview of existing transport infrastructure in the Dundrum ABTA study area. In Summary:

Walking and Cycling

- A total of 15,668 people are within a 15-minute walk of Dundrum. However, a further 9,000 residents are within 15 minutes of the town centre but cannot currently walk there within that timeframe due to the layout of the pedestrian network.
- In general, the majority of residents within the study area are within a 15-minute walk and 10-minute cycle of their nearest school, and as such, there should be opportunities to support and encourage walking and cycling for these journeys.
- Recent mobility enhancement works on main street have significantly improved the urban realm and provided a better environment for walking and cycling in the village.
- Dundrum Road, which is the main link to the north from main street, has quite narrow footpaths and road widths in places. This, combined with relatively high traffic volumes mean that it is not a very attractive route for pedestrians or cyclists.
- Severance due to the Luas line, steep gradients and limited crossing points on the bypass hinder pedestrian accessibility to Main St. from the east and west.
- A number of the key junctions on access to Dundrum such as the Taney Cross Junction, Wyckham Roundabout and Sandyford Rd/Wyckham Way junction are not very pedestrian/cycle friendly.
- There is currently no cycling infrastructure on access to Dundrum from the east or west along Ballinteer Road and Kilmacud Road Upper. There is also no cycle infrastructure on the Dundrum Road linking north to the city centre.

Public Transport

- The study area is served by the Luas Green Line and a number of Dublin Bus and Go Ahead Ireland bus services.
- The Luas operates at 3-5 minute headways providing a fast, reliable connection to the city centre. 2016 Census data suggests that 78% of residents within the study travelling to work via public transport use the Luas.
- Boarding and alighting data indicate that Balally and Dundrum stations are two of the busiest on the network with trams starting to reach capacity in the AM peak hour at these locations.
- Census data indicates that only 5% of work trips generated within the study area are undertaken by bus.
- There are a number of orbital bus routes connecting Dundrum to areas not served by the Luas, however, these are quite infrequent.
- From the trip distribution analysis, approx. 16% of work trips from Dundrum are travelling to Sandyford Business Park, Dún Laoghaire, Tallaght and UCD with 65% of these trips undertaken by car.
- There are a number of public transport proposals for the study area including Luas capacity enhancements, Metro South and the implementation of the BusConnects network redesign.

Road Network

- The existing road network around Dundrum reaches capacity during peak commuter and shopping periods, with a combination of both local and strategic traffic contributing to congestion.
- Wyckham Way, Dundrum Bypass/Taney Road junction, Sandyford Road and Dundrum Road towards the city centre experience the largest congestion with speed reductions of between 60%-80% during the AM peak (08:00-09:00).
- Some of the key junctions on access to Dundrum are quite vehicular focused. Wide cross-sections, high traffic volumes and a number of conflicting turning movements can make these junctions unattractive for walking and cycling.

6. DUNDRUM LAP PRE-DRAFT CONSULTATION

6.1 Introduction

The following chapter summarises some of the feedback received from local residents and stakeholders on transport related issues as part of the Dundrum Local Area Plan pre-draft consultation process. This gives us a better understanding of current issues for local stakeholders which will be used to inform the objectives and options for assessment within the ABTA.

The Pre-Draft Consultation process ran for a period of 4 weeks from November 26th to the 14th December 2018. Two public consultation events were held in Dundrum, on the 27th November 2018 and the 11th December 2018. Both sessions were very well attended. Written submissions were received from the public and the Councils' 'Citizen Space' consultation hub was also used. As well as advertising in the National press, social media channels (Facebook and Twitter) were used to publicise the process. A radio interview on local radio station 'Dublin South FM' – which broadcasts from Dundrum - was also used to inform the public about the forthcoming Local Area Plan and issues that may be of interest. A total of 153 submissions were received from the public, and the following sections provide a brief overview of the main transport related concerns.

6.2 Public Transport

A significant number of submission dealt with issues around public transport, specifically bus and Luas. Issues raised included:

- concerns regarding overcrowding on the Luas at peak hours;
- Poor quality access to the two Luas stations – Dundrum and Balally
- concerns regarding the potential negative impacts of construction of MetroLink on Luas services – although many submissions recognised the importance of proceeding with the upgrade; and
- concerns regarding the proposed routing of buses on Main Street, as a result of BusConnects network redesign implementation.

Several submissions suggested that BusConnects proposals to route buses through the Main Street will result in a doubling of bus traffic on the street and will not be consistent with traffic calming objectives, and that the Bypass road is a more appropriate route for many buses. It should be noted that this consultation was undertaken in 2018 prior to the mobility and public space enhancement updates. These works have made Main St. one-way in a northbound direction shifting some buses onto the bypass.

Some submissions suggested that a bus interchange at the Dundrum Luas stop should not interfere with objectives in the County Development Plan to create a focal point at this end of Main Street and cautioned against the potential negative visual impacts of a large scale interchange at this location.

6.3 Cyclist Facilities

Many submissions lamented the lack of dedicated cycle tracks and expressed the view that the LAP should focus, as a priority, on a range of cycle facilities. Also concerns were expressed regarding the consistency/connectivity of the wider cycle track network, where it exists.

Several submissions suggested extending the Slang River Greenway through the plan area – it presently terminates at Sandyford Road.

6.4 Roads/Traffic/Parking

The following issues were noted relating to roads, traffic and parking:

- Problems regarding congestion/tailbacks/queuing particularly at busy times for the Shopping Centre (Saturdays/holidays etc) were identified, particularly on Sandyford Road/ Wyckham/ Bypass road.
- Some submissions referred to the issue of on street parking by workers at Dundrum shopping Centre and suggested parking should be provided for workers in the underground car parks. Other submissions referred to illegal/inconsiderate parking as a problem on the Main Street.
- Traffic bound for the Shopping Centres should be required to use the bypass access and should avoid Main Street.
- A number of submissions recommended closing the car park access to Dundrum Town Centre opposite the Dom Marmion site, on the grounds that it diminished the pedestrian environment in the area.
- A number of submissions made reference to a problem with rat-running through residential estates, due to congestion on main roads.

There were conflicting views regarding the Main Street with some arguing for a one-way system (south to north), some vehemently opposing any change to the status quo (a pro-forma submission signed by Pembroke Cottage traders/residents). A number of submissions called for a full pedestrianisation of the street. Again it should be noted that this consultation was undertaken prior to the COVID mobility and public space enhancements on Main Street.

6.5 Site Specific Issues

Two proposed development sites in particular generated a number of submissions as part of the consultation, namely:

- Dundrum Phase 2; and
- Central Mental Hospital Site

Whilst not specifically transport related, these are the largest sites for development within the Dundrum ABTA study area and are likely to generate future travel demand. As such the submissions and issues noted during the consultation are referenced here.

Dundrum Phase 2

A submission was received from the owner of the Dundrum Town Centre Site, ('Dundrum Retail Limited Partnership', a partnership between Hammersons and Allianz) outlining the following:

- It is intended to intensify and consolidate the development of the lands to include additional retail floorspace over the next 10-15 years.
- The Phase II lands will be developed as a high density mixed use development with a range of retail/food & beverage/non-retail services/office community and residential uses

- Smaller sites to be developed to provide residential/commercial uses to enhance the quality of the built environment
- Some site specific issues were raised:
 - **Dundrum Town Centre:** proposals for additional 30,000 sq.m retail floorspace as extensions to volume/height of existing buildings
 - **Dundrum Phase II:** Proposals for 36,000 sq.m retail floorspace and residential development to accommodate a 'population of 2,000'. Proposals will likely include the replacement of all buildings on the west of Main St, with the exception of Glenville Terrace/Maher's Terrace.
 - **Pembroke District:** On foot of recently granted planning permission, a new amenity space 'Pembroke Square' will be completed with associated restaurant/retail uses
 - **Dundrum South Residential (Building 5):** a planning application for this building, at present only constructed to podium level, will be submitted in the near term
 - **Maher's Terrace:** Potential here to regenerate/redevelop in the similar vein to Ashgrove Terrace
 - **Waldemar Terrace:** Redevelopment proposals could form part of a larger scheme

Central Mental Hospital Site

A significant number of submissions raised issues in relation to the Central Mental Hospital (CMH) lands, including:

- Several submissions stated that the current single access point to the CMH lands will not be sufficient for a more intensive residential development. Many submissions questioned the potential impacts on adjacent residential areas if an additional vehicular access to the site is provided at Rosemount/Friarsland/Larchfield/Mulvey Park. It was stated that Dundrum road is highly congested at peak time – additional development at CMH will exacerbate this situation.
- Some submissions referred to building heights for future development – some submissions suggest that height should be capped at 5 storeys, other submissions suggested housing, rather than apartments should be provided and suggested a cap of 2-3 storeys.
- The provision of a new school on the site should be considered.
- A number of submissions suggested linking up the open space at Rosemount with new open space to be provided as part of the CMH redevelopment.
- Some submissions highlighted the problems of housing delivery and affordability in the area and recognised the role that a large scale housing project could deliver on the CMH lands.
- One submissions recommended a more mixed form of development on the lands, to include commercial/office development to complement the nearby Dundrum Office Park.
- Some submissions recommended removing the walls around the site, in order to open up green areas/community facilities to be provided on the site to neighbouring residents. Others expressed a preference for the majority of the walls to remain.
- A number of submissions questioned the merit of using public land to provide a majority of private housing.

A submission was received from the Land Development Agency who will be responsible for advancing the development of the CMH lands. The submission states:

- It is intended to vacate the present Mental Hospital function in 2020
- The site is 11.3 hectares in area and facilitates the creation of a new neighbourhood, setting its own character
- There is approximately 2 hectares of land associated with buildings to be retained on the site
- It is likely that a second access point may be needed for emergency purposes
- An initial target of 1,500 residential units has been estimated
- A masterplan will be prepared for the site. A suitable transition between existing and proposed development
- The development will include a range of residential choices including those for older people who may wish to downsize

DRAFT

6.6 Summary

The previous sections provide a brief synopsis of submissions received from local residents and stakeholders as part of the LAP pre-draft consultation process in 2018. In summary, some of the key transport issues noted were:

Public Transport:

- Overcrowding on the Luas at peak hours and poor quality access to Dundrum and Balally stations.
- Concerns regarding the proposed routing of buses as a result of BusConnects network redesign implementation.
- Concerns around the location of a proposed bus interchange at Dundrum Luas stop, and that it should not interfere with objectives in the County Development Plan to create a focal point at this end of Main Street.

Cycling:

- Many submissions lamented the lack of dedicated cycle tracks in the LAP area. Concerns were expressed regarding the consistency/connectivity of the wider cycle track network, where it does exist.

Roads/Traffic/Parking:

- Problems regarding congestion/tailbacks/queuing particularly at busy times for the Shopping Centre (Saturdays/holidays etc), particularly on Sandyford Road /Wyckham /Bypass road.
- Issue of on street parking by workers at Dundrum shopping Centre. Other submissions referred to illegal/inconsiderate parking as a problem on the Main Street.
- A number of submissions made reference to a problem with rat-running through residential estates, due to congestion on main roads
- Issue with traffic bound for the shopping centre causing congestion on Main St. Suggestions made that car park access to Dundrum Town Centre should be closed on Main St./Sandyford Rd.
- Concern that the current single access point to the Central Mental Hospital lands will not be sufficient for a more intensive residential development.
- Many submissions questioned the potential impacts on adjacent residential areas if an additional vehicular access to the site is provided at Rosemount / Friarsland/ Larchfield/ Mulvey Park. It was stated that Dundrum road is highly congested at peak time – additional development at CMH will exacerbate this situation.

7. ENVIRONMENTAL CONDITIONS

7.1 Introduction

The following chapter establishes the environmental, heritage and archaeological considerations for the ABTA. It identifies the baseline environment and any potential sensitive receptors. Opportunities for enhancement of the built and natural environment are also identified here where possible.

Where sensitive receptors are identified, the principle of mitigation by avoidance is preferable and will be integrated into any future transportation schemes/ plans.

7.2 Baseline Environmental Assessment

This chapter was prepared with the use of a number of publicly available online resources including, but not limited to, the following:

- Appropriate Assessment Tool Mapping Resource, <https://gis.epa.ie/EPAMaps/AAGeoTool/>, (EPA, accessed May 2021).
- Dundrum Local Area Plan Draft 2019 – 2025, (DLRCC, 2019).
- Dun Laoghaire Rathdown Development Plan 2016 – 2022, (DLRCC, 2016).
- Historic Environment Viewer, <https://maps.archaeology.ie/HistoricEnvironment/>, (Government of Ireland, accessed May 2021).
- The National Parks and Wildlife Service (NPWS) database containing information on European sites, National sites, and their Conservation Objectives and supporting documents, www.npws.ie/protected-sites, (NPWS, ND).
- The National Biodiversity Action Plan 2017 – 2021, (Department of Culture, Heritage, and the Gaeltacht, 2017).
- The National Biodiversity Data Centre (NBDC) database, <https://maps.biodiversityireland.ie/Map>, (NBDC, accessed May 2021).
- The Office of Public Works (OPW) Flood Mapping Service, <https://www.floodinfo.ie/map/floodmaps/>, (OPW, accessed May 2021).

7.3 Designated Sites

There are 15 designated European sites (Natura 2000) located within 15km of the Dundrum Local Area (see Figure 7.1) including:

- South Dublin Bay and River Tolka Estuary SPA (Site Code 004024) .
- Wicklow Mountains SPA (Site Code 004040).
- North bull Island SPA (Site Code 004006).
- Dalkey Islands SPA (Site Code 0047172).
- Baldoyle Bay SPA (Site Code 004016).
- Howth Head Coast SPA (Site Code 004113)
- South Dublin Bay SAC (Site Code 000210).
- Wicklow Mountains SAC (Site Code 002122).
- Knocksink Wood SAC (Site Code 000725).
- North Dublin Bay SAC (Site Code 000206).
- Glenasmole Valley SAC (Site Code 001209).

- Rockabill to Dalkey Island SAC (Site Code 003000).
- Ballyman Glen SAC (Site Code 000713).
- Howth Head SAC (Site Code 000202).
- Baldoyle Bay SAC (Site Code 000199).
- Bray Head SAC (Site Code 000714).

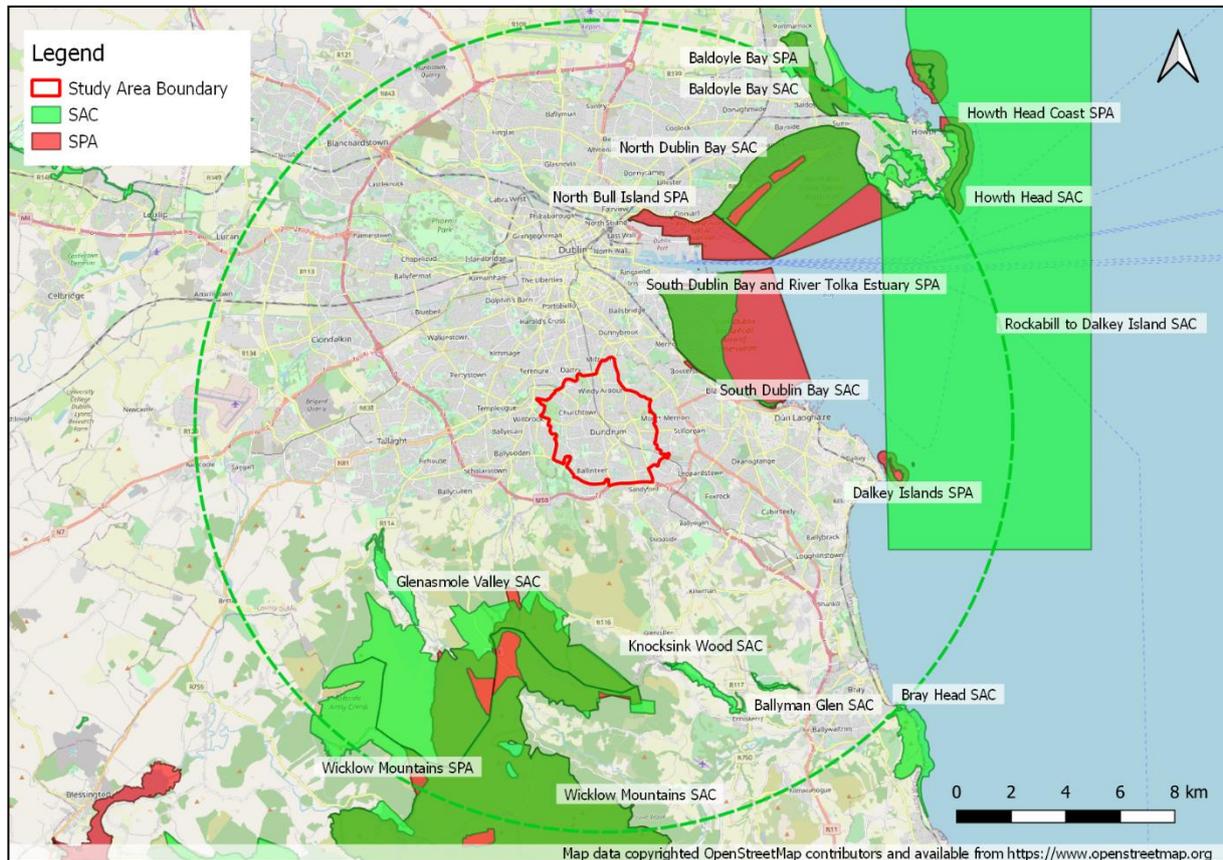


Figure 7.1 Designated European sites

There are also a number of non-statutory nationally designated sites, known as proposed natural heritage areas (pNHA) in the nearby area including:

- Fitzsimon's Wood pNHA (Site Code 001753), approx. 2.5km south east.
- Dodder Valley pNHA (Site Code 000991), approx. 5.6km west.
- Glensmole Valley pNHA (Site Code 001209), approx. 8.8km south west.
- Dingle Glen pNHA (Site Code 001207), approx. 6.8km south east.
- Dalkey Coastal Zone and Killiney Hill pNAH (Site Code 001206), approx. 8.5km east.
- South Dublin Bay pNHA (Site Code 000210), approx. 3.7km east.
- Grand Canal pNHA (Site Code 002104), approx. 4.5km north.
- North Dublin Bay pNHA (Site Code 000210), approx. 7.6km north east.

A number of these sites are hydrologically connected to the Dundrum local area via the River Slang/ River Dodder including South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, Rockabill to Dalkey Island SAC, South Dublin Bay pNHA, and North Dublin Bay pNHA.

7.4 Ecological Receptors

A number of protected and invasive species have been recorded in the Dundrum Local Area as recorded within the National Biodiversity Data Centre (NBDC) OS Tiles O12U, O12T, and O12Y (NBDC, 2021). Protected species include Otter, Pine Marten, Lesser Noctule, Daubenton's Bat, Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Common Frog, Red Squirrel, Badger, Hedgehog, Smooth Newt, Common Lizard, Pygmy Shrew, Red-footed Falcon, Peregrine Falcon, Kestrel, Snowy Owl, Little Egret, Kingfisher, Rock Pigeon, Common Pheasant, Wood Pigeon, Mallard, Tufted Duck, Snipe, Curlew, Starling, Swift, Great Black-backed Gull, Teal, Mew Gull, Barn Swallow, Oystercatcher, Cormorant, House Martin, House Sparrow, Water Rail, Coot, Little Grebe, Spotted-flycatcher, Lesser Black-backed Gull, Mute Swan, Sand Martin, House Martin, Redshank, and Herring Gull.

Invasive species listed on the Third Schedule of the Birds and Natural Habitats Regulations (S.I. No. 477) recorded in the aforementioned NBDC OS Tiles include Giant Hogweed, Giant Rhubarb, Japanese Knotweed, Bohemian Knotweed, Indian Balsam, Nuttall's Waterweed, Canadian Waterweed, Harlequin Ladybird, Grey Squirrel, American Mink, and Brown Rat.

7.5 Hydrology

The River Slang, a tributary of the River Dodder (Waterbody Code IE_EA_09D010900) runs through the Dundrum local area from south to north, see Figure 7.2. The Little Dargle and the Ticknock Stream are also located within the Dundrum Local Area in the west. The River Dodder delineates the Dundrum Local Area in the north. The Carrickmines Stream cuts through a small section in the south east. The Dodder Area for Action (AFA) as designated under the Water Framework Directive National River Basin Management Plan is located in Dundrum also. It should be noted that this section of the River Dodder/ River Slang is regarded as a Nutrient Sensitive Area. It should be noted that the Catchment Flood Risk Assessment Management (CFRAM) Programme maps are currently being updated for the Dundrum Local Area and these will be reviewed when they are published.

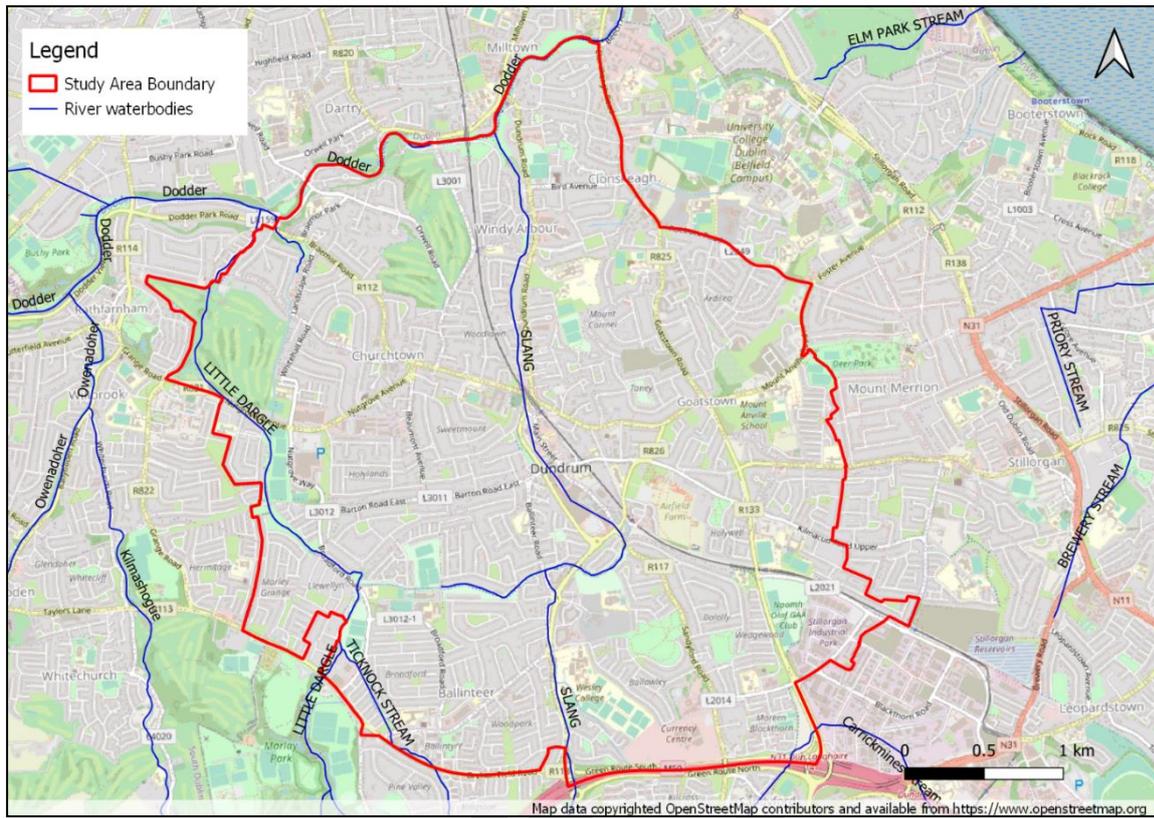


Figure 7.2 Hydrology

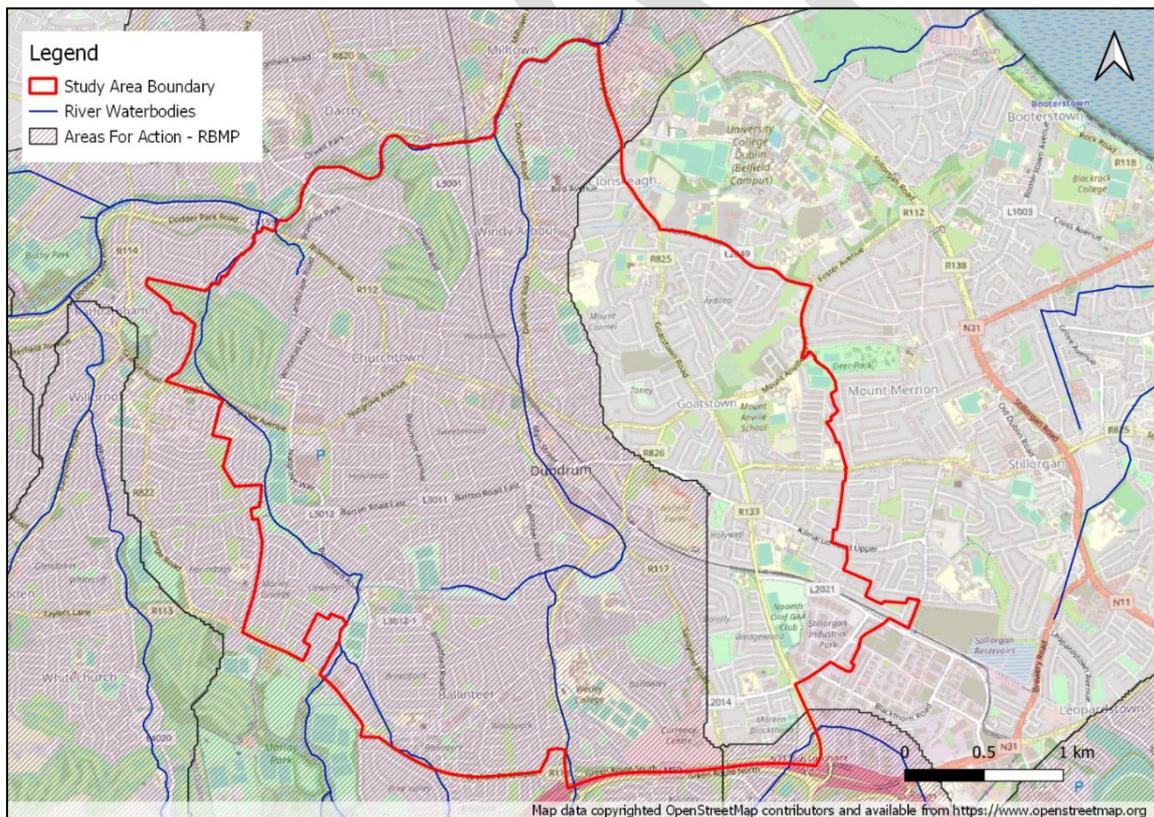


Figure 7.3 Hydrology – Dodder Area For Action

The Office of Public Works (OPW) Flood Mapping Service (<https://www.floodinfo.ie/map/floodmaps/>) was accessed to identify historic flooding events in the Dundrum Local Area. It should be noted that a number of historic flooding events have occurred in the area, some of which are noted as recurring, including:

- Dundrum Road flood event from the Dundrum River, 23/09/1957 (ID 626), and 24/10/2011 (11711).
- Dundrum Road flood event, River Slang Frankfort, 14/08/1986 (ID 1267), and 23/10/2011 (ID 11483).
- Dundrum Road, under the Dundrum Bridge, 10/06/193 (ID 265).
- Dundrum Road, under the Dundrum Bridge (Old Railway Line), recurring (ID 2025).
- River Slang, Pyelands, recurring (ID 2201).
- Larchfield Estate, recurring (ID 2017).
- Roebuck, 10/06/1963 (ID 264).
- Dundrum Shopping Centre, 23/10/2011 (ID 11720).
- Riverdale flood, 23/10/2011 (ID 11719).
- Willowbank Apartments, Sandyford Road, 23/10/211 (ID 11728).
- River Slang, Old Ballinteer Road, recurring (ID 2077).
- Rosemount Dundrum Road, recurring (ID 2026).
- Junction of Nutgrove Avenue and Beaumont Avenue, 10/06/1963 (ID 266).
- Little Dargle Grange Road, 07/11/1982 (ID 2214).
- Manor Rise, near the Grange Road, recurring (ID 2071).
- Barton Drive, Ballyboden, 03/02/1994 (ID 2205).
- Nutgrove Avenue, Little Dargle, 23/09/1957 (ID 56).
- Nutgrove Avenue near Loreto Abbey, 23/10/2011 (ID 11714).
- Lakelands Close, Stillorgan, 21/01/1980 (ID 2149).
- Classon Bridge on the River Dodder, 05/11/2000 (ID 3309), and 24/10/2011 (ID 11705).
- Dartry Cottages, Dodder Park, 05/11/2000 (ID 673).
- Orwell Gardens, Lower Dodder Road, 27/10/1880 (ID 1228), 16/10/1886 (ID 659), 24/08/1905 (ID 657), 26/08/1912 (ID 660), 02/09/1931 (ID 237), 10/08/1946 (ID 658), 23/09/1957 (ID 731), 18/12/1958 (ID 77), 01/11/1968 (ID 1231), and 02/12/2003 (ID 349).
- Braemor Road, Little Dargle at Badgers Glen Park 25/12/1956 (ID 259), 10/02/1958 (ID 60), and 02/09/1931 (ID 53).

7.6 Heritage and Archaeology

The National Monument Service provides access to the Archaeological Survey of Ireland (ASI) database (<https://www.archaeology.ie/archaeological-survey-database>). This database is also known as the Sites and Monuments Record (SMR) and it was accessed to identify features of archaeological interest in the Dundrum Local Area. There are a number of protected archaeological features within the area (see Figure 7.4) including:

- An ecclesiastical enclosure (DU022-016001-).
- Graveyard (DU022-016003-).

- Church (DU022-016002-).
- Graveslab (DU022-016004-).
- Graveslab (DU022-016005-).
- Castle - tower house (DU022-023001-).
- Castle – tower house (DU022-024----).
- Castle - Anglo-Norman masonry castle (DU022-023002-).
- Mound (DU022-021----).
- Building (DU022-015----).
- Enclosure (DU022-022----).
- Mill – unclassified (DU022-096001-).
- Mill – unclassified (DU022-096002-).
- Bridge (DU022-097----).
- Mill – unclassified (DU022-004006-).
- Bridge (DU022-004001-).
- Water mill – unclassified (DU022-004003-).
- Water mill – unclassified (DU022-004002-).
- Ford (DU022-093).
- Ecclesiastical enclosure (DU022-036002-).
- Church (DU022-036001-).

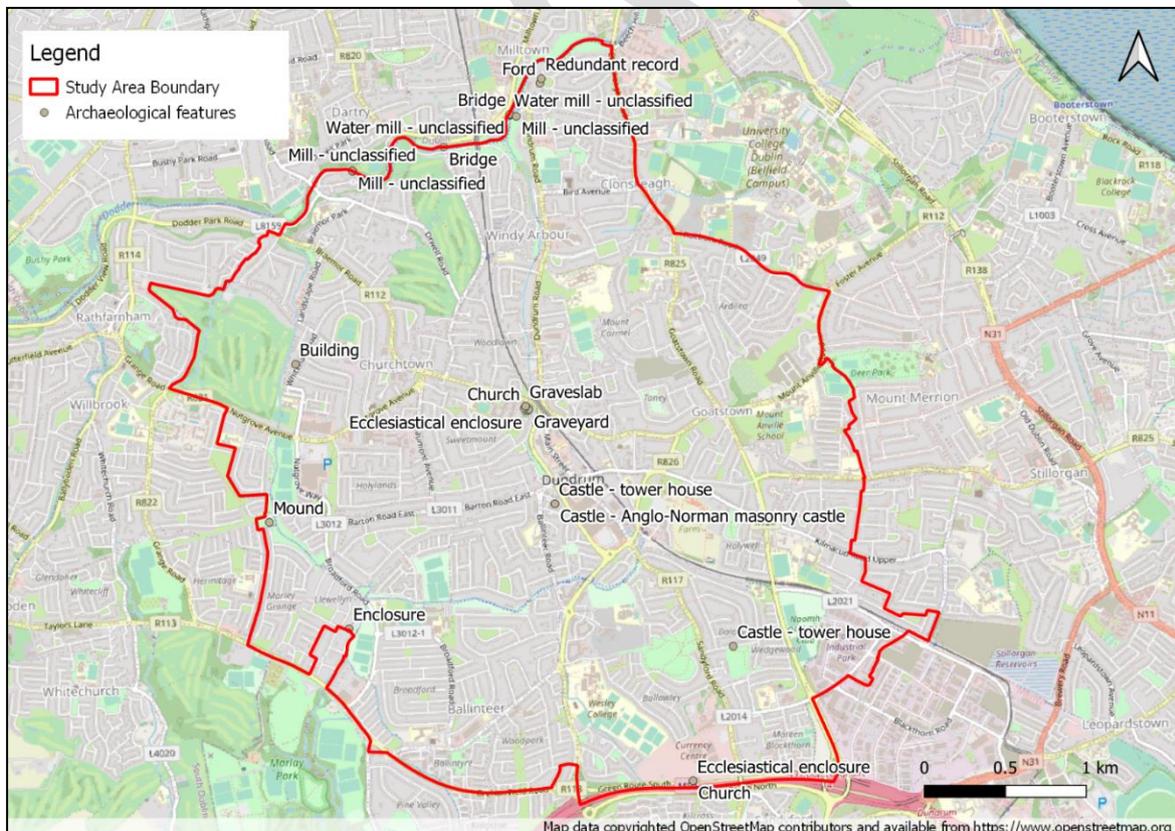


Figure 7.4 Features of archaeological interest

There are two Architectural Conservation Areas, one at Pembroke Cottages, and one at Sydenham Road. A Candidate Architectural Conservation Area is located at the crossroads of Main Street/ Kilmacud Road Upper/ Ballinteer Road.

The Dundrum Draft Local Area Plans were reviewed for records of protected structures in the Dundrum area, which include:

- Holy Cross Church (RPS 1129).
- Dundrum Courthouse (RPS 1110).
- The Mill House (RPS 1234).
- Herbert Hill (RPS 1362).
- Ardglass House (RPS 1422).
- The Railway Station (RPS 905).
- Airfield House (RPS 1204).
- Saint Nathi's Church (RPS 857).
- Houses on Sydenham Road (RPS 1924, 1925, 1926, 1927, 1952, 1952).

7.7 Environmental Conclusions

The Dundrum Local Area has been assessed in terms of environmental facets including designated sites, ecological receptors, hydrology, cultural heritage and archaeology, and sensitive receptors have been identified where present. In summary:

- A number of protected species have been identified, as well as invasive species listed on the Third Schedule of the Birds and Natural Habitats Regulations (S.I. No. 477).
- There are a number of historic flooding events in the Dundrum Local Area, predominantly along the River Slang, Little Dargle Stream and River Dodder.
- The section of the River Dodder/ River Slang within the study area is listed as a Nutrient Sensitive Area and the Dodder Area for Action is located here also.
- There are some features of archaeological, architectural and cultural heritage interest in the Dundrum Local Area which need to be considered when developing options as part of the ABTA.
- It is considered that the identified sensitive receptors herein do not pose a significant constraint at this time. However, further assessments, site inspections, and targeted surveys may be required in the future to determine the potential impacts of development in the Dundrum Local Area.

8. CONCLUSION AND NEXT STEPS

8.1 Summary

This report outlines the existing land use characteristics, travel patterns, transport infrastructure and environmental conditions for the Dundrum ABTA study area. In summary:

Chapter 2 – Policy Context

A number of relevant national, regional and local policies and guidelines that inform the Dundrum ABTA were reviewed. In summary:

- National, Regional and Local policy all include objectives to support compact growth and shift demand away from the private car onto more sustainable modes such as walking, cycling and public transport.
- There are a number of key transport infrastructure measures which form a part of the Government's Project Ireland 2040 - National Planning Framework (NPF), the National Development Plan (NDP) 2018-2027, and the NTA Greater Dublin Area (GDA) Transport Strategy. The items relevant to Dundrum include:
 - Capacity enhancements to the Luas Green Line between St. Stephen's Green and Bride's Glen;
 - Metro South;
 - Extension of Luas Green Line to Bray; and
 - Extension of Luas Cross City to Finglas.
- A number of design guidance have been referenced including the National Cycle Manual, DMURS, and Permeability: A Best Practice Guide. These have been used to review existing infrastructure in Dundrum and will be referenced when identifying options for assessment.
- The Greater Dublin Area Cycle Network Plan, and the Dún Laoghaire-Rathdown Cycle Network Review, set out a proposed cycle network for the area around Dundrum. This will be reviewed in further detail when identifying options for improving cycle infrastructure as part of the ABTA.
- A number of local policies, plans and strategies have been referenced such as the DLRCC County Development Plan, Dundrum Community, Cultural and Civic Action Plan (DCCCAP) and the Goatstown LAP. The implications of these strategies and plans will be considered as part of the ABTA process.

Chapter 3 – Plan Area Characteristics

- The study area has been primarily based on a 15-minute walk catchment of Dundrum, taking cognisance of proposed future developments in the area along with wider areas of interest such as UCD, Sandyford, Marlay Park and Stillorgan.
- The study area has a population of 51,483 according to the 2016 Census, which is a 4.27% growth from 2011. Approx. 20% of the population are under 18, with 18% over the age of 65.
- For residents of the area aged 15 and over, 54% are employed with a further 13% in education. Of those that are employed, a significant proportion (72%) are in professional, managerial, administrative and technical occupations (primarily office based employment).

- 12% of households do not own a car and may be reliant on other means of transport including public transport, cycling, walking, taxis, etc. However, in general car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more.
- Population is generally dispersed around residential estates within the study area. Dundrum town centre itself has quite a low residential density and is primarily comprised of commercial and retail services.
- There are also a number of new Strategic Housing Developments which have been recently granted planning permission within the study area.
- Dundrum town centre is the largest attractor of employment trips within the study area, representing approx. 31% of demand (or just over 7,000 trips).
- Other large employment destinations include Dundrum Business Park (2,253 trips), Nutgrove Shopping Centre and Retail Park (2,135 trips) and Stillorgan Business Park (1,641 trips).
- In terms of education, the study area is well served with 16 primary schools and 8 post-primary schools.
- Dundrum Main Street is at a low point to surrounding areas with relatively steep elevation changes to the east, south and west in particular.
- Sandyford Road, Kilmacud Road Upper, Taney Road and Overend Avenue all have gradual steep hills which can be perceived as barriers to cycling. However, there is a potential for electric bikes to help address this issue.

Chapter 4 – Existing Travel Patterns

Trip Distribution

- Approximately 30% of work trips originating within the study area are travelling to Dublin city centre, with 17% going to the southwest of city which is a large employment location and is also well connected from Dundrum via the Luas.
- 11% of commuting trips remain within the study area, and due to the local nature of these trips, there may be an opportunity to support this demand via walking and cycling.
- For commute trips travelling to the study area, main origins include areas adjacent to the study area such as Rathgar, Rathfarnham, Ballyboden, South Tallaght and Sandyford.
- A significant proportion of commute trips to/from the study area are distributed across a large number of settlements. The dispersed nature of these trips can make them difficult to serve via public transport leading to increased usage of the private car.
- The Dundrum town centre is the largest destination for internal employment trips, representing approx. 28% of all internal demand (just over 1,000 trips). Other key destinations include Dundrum and Stillorgan Business Parks, Nutgrove Shopping Centre and Ballinteer.

Trip Length Distribution

- The majority of commute trips (88%) are less than 10km in length with the highest level of demand travelling between 5-10 km (nearly 14,000 trips).

- 14% of commute trips originating within the study are less than 2km in length (25 minute walk at 4.8 km/hr). However, the car mode share for these journeys is still relatively high at 49%.
- Car is the dominant mode of transport (54%) for medium to longer distance commute trips of between 2-10km.
- Approx. 12% of all employment trips originating within the study area are more than 10km in length, with over 90% of them undertaken by car.
- Approx. 80% of education trips are less than 5km in length with the highest number (46%) travelling less than 2km. This indicates that a large proportion of children are within walking and cycling distance to school.
- Walking and cycling represents around 56% of trips to school of less than 2km. However, the private car is still quite heavily used for these shorter distance journeys representing 41% of demand.
- In general, cycling represents a relatively small proportion of all education trips of less than 5km. This may in part be due to the challenging topography and lack of cycling facilities in certain areas.

Mode Share

- Approx. 18% of commute trips originating in the study area are undertaken by active modes, split evenly between walking and cycling (8.7% each).
- The south of the study area has low cycling mode shares typically less than 5% which could indicate a barrier to cycling in these areas.
- Public transport in both Dundrum and the DLR County represent about a quarter of the mode share for commute trips. Within the study area, approx. 78% of public transport trips are undertaken using the Luas with 22% by bus.
- The private car is the most dominant mode of transport for work trips from the study area, however, the 58% mode share is substantially lower than the national average (77%).
- The overall mode share for active travel (walking and cycling) to education is close to 40%, higher than the county as a whole (32%) and more than 10% higher than the national average (26.5%).
- Cycling in particular is significantly higher than the county average, and represents one in ten trips to education.
- Public transport mode share for education trips is 20% which is in line with the national average, though slightly lower than the county as a whole.
- Overall, car is still the dominant mode of transport for education-related trips, accounting for approx. 41% of all journeys.

Chapter 5 – Existing Transport Infrastructure

Walking and Cycling

- A total of 15,668 people are within a 15-minute walk of Dundrum. However, a further 9,000 residents are within 15 minutes of the town centre but cannot currently walk there within that timeframe due to the layout of the pedestrian network.

- In general, the majority of residents within the study area are within a 15-minute walk and 10-minute cycle of their nearest school, and as such, there should be opportunities to support and encourage walking and cycling for these journeys.
- Recent mobility enhancement works on main street have significantly improved the urban realm and provided a better environment for walking and cycling in the village.
- Dundrum Road, which is the main link to the north from main street, has quite narrow footpaths and road widths in places. This, combined with relatively high traffic volumes mean that it is not a very attractive route for pedestrians or cyclists.
- Severance due to the Luas line, steep gradients and limited crossing points on the bypass hinder pedestrian accessibility to Main St. from the east and west.
- A number of the key junctions on access to Dundrum such as the Taney Cross Junction, Wyckham Roundabout and Sandyford Rd/Wyckham Way junction are not very pedestrian/cycle friendly.
- There is currently no cycling infrastructure on access to Dundrum from the east or west along Ballinteer Road and Kilmacud Road Upper. There is also no cycle infrastructure on the Dundrum Road linking north to the city centre.

Public Transport

- The study area is served by the Luas Green Line and a number of Dublin Bus and Go Ahead Ireland bus services.
- The Luas operates at 3-5 minute headways providing a fast, reliable connection to the city centre. 2016 Census data suggests that 78% of residents within the study travelling to work via public transport use the Luas.
- Boarding and alighting data indicate that Balally and Dundrum stations are two of the busiest on the network with trams starting to reach capacity in the AM peak hour at these locations.
- Census data indicates that only 5% of work trips generated within the study area are undertaken by bus.
- There are a number of orbital bus routes connecting Dundrum to areas not served by the Luas, however, these are quite infrequent (30 – 60 minute headways).
- From the trip distribution analysis, approx. 16% of work trips from Dundrum are travelling to Sandyford Business Park, Dún Laoghaire, Tallaght and UCD with 65% of these trips undertaken by car.
- There are a number of public transport proposals for the study area including Luas capacity enhancements, Metro South and the implementation of the BusConnects network redesign.

Road Network

- The existing road network around Dundrum reaches capacity during peak commuter and shopping periods, with a combination of both local and strategic traffic contributing to congestion.
- Wyckham Way, Dundrum Bypass/Taney Road junction, Sandyford Road and Dundrum Road towards the city centre experience the largest congestion with speed reductions of between 60%-80% during the AM peak (08:00-09:00).

- Some of the key junctions on access to Dundrum are quite vehicular focused. Wide cross-sections, high traffic volumes and a number of conflicting turning movements can make these junctions unattractive for walking and cycling.

Chapter 6 – Dundrum LAP Pre-Draft Consultation

The following issues were noted by residents and local stakeholders during the Dundrum LAP pre-draft consultation process:

Public Transport

- Overcrowding on the Luas at peak hours and poor quality access to Dundrum and Balally stations.
- Concerns regarding the proposed routing of buses as a result of BusConnects network redesign implementation.
- Concerns around the location of a proposed bus interchange at Dundrum Luas stop, and that it should not interfere with objectives in the County Development Plan to create a focal point at this end of Main Street.

Cycling

- Many submissions lamented the lack of dedicated cycle tracks in the LAP area. Concerns were expressed regarding the consistency/connectivity of the wider cycle track network, where it does exist.

Roads/Traffic/Parking

- Problems regarding congestion/tailbacks/queuing particularly at busy times for the Shopping Centre (Saturdays/holidays etc), particularly on Sandyford Road /Wyckham /Bypass road.
- Issue of on street parking by workers at Dundrum shopping Centre. Other submissions referred to illegal/inconsiderate parking as a problem on the Main Street.
- A number of submissions made reference to a problem with rat-running through residential estates, due to congestion on main roads.
- Issue with traffic bound for the shopping centre causing congestion on Main St. Suggestions made that car park access to Dundrum Town Centre should be closed on Main St./Sandyford Rd.
- Concern that the current single access point to the Central Mental Hospital lands will not be sufficient for a more intensive residential development.
- Many submissions questioned the potential impacts on adjacent residential areas if an additional vehicular access to the site is provided at Rosemount / Friarsland/ Larchfield/ Mulvey Park. It was stated that Dundrum road is highly congested at peak time – additional development at the Central Mental Hospital will exacerbate this situation.

Chapter 7 – Environmental Conditions

- A number of protected species have been identified, as well as invasive species listed on the Third Schedule of the Birds and Natural Habitats Regulations (S.I. No. 477).

- There are a number of historic flooding events in the Dundrum Local Area, predominantly along the River Slang, Little Dargle Stream and River Dodder.
- The section of the River Dodder/ River Slang within the study area is listed as a Nutrient Sensitive Area and the Dodder Area for Action is located here also.
- There are some features of archaeological, architectural and cultural heritage interest in the Dundrum Local Area which need to be considered when developing options as part of the ABTA.
- It is considered that the identified sensitive receptors herein do not pose a significant constraint at this time. However, further assessments, site inspections, and targeted surveys may be required in the future to determine the potential impacts of development in the Dundrum Local Area.

8.2 SWOT Analysis

The findings from the Baseline Assessment have been used to inform a Strengths, Weaknesses, Opportunities and Threats/Constraints (SWOT) analysis for the study area, and the results are outlined in Table 8.1 overleaf. This will be used to inform subsequent stages of the ABTA, in particular the objective setting and options development.

Table 8.1 Dundrum ABTA SWOT Analysis

Strengths	Weaknesses
<p>Key Points:</p> <ul style="list-style-type: none"> ○ Designated a “Metropolitan Consolidation Town” in the DLRCC County Development Plan 2016-2022. ○ High frequency Luas operating within the study area providing fast, reliable services to Dublin city centre, and other employment centres such as Sandyford and Cherrywood. ○ Location of Dundrum Town Centre within the study area providing a mix of uses including retail, restaurants, theatre and a cinema. ○ Car mode share (58%) for trips to employment is well below the national average. ○ The mode share for walking and cycling to education is close to 40% which is higher than the county (32%), and more than 10% higher than the national average. ○ Recent mobility and public space enhancement works have significantly improved the public realm on Main Street and the northern end of Sandyford Rd, and made it a more attractive environment for walking and cycling. ○ There is good accessibility for children travelling to education with 16 primary schools and 8 post-primary schools located across the study area. UCD, one of the largest universities in the country, is also located in close proximity to the study area. 	<p>Key Points:</p> <ul style="list-style-type: none"> ○ Car remains the dominant mode of transport, even for shorter distance commute trips. ○ A number of key junctions on access to Dundrum are unattractive to pedestrians and cyclists due to large cross-sections, high traffic volumes and conflicting turning movements. ○ There are accessibility issues for pedestrians accessing Dundrum village from the east and west. The Luas line causes some severance to the east, and steep gradients and the Dundrum Bypass act as a barrier to the west. ○ There is no cycle infrastructure on key local routes accessing the town centre such as Kilmacud Road Upper, Ballinteer Road and Dundrum Road. ○ The Luas is operating at capacity when it reaches Dundrum and Balally stops, leading to overcrowding on services. ○ The existing road network around Dundrum reaches capacity during peak commuter and shopping periods leading to congestion and delay. ○ 2016 Census data suggests that a significant proportion of commute trips to and from the study area are quite dispersed in nature which can be difficult to serve via public transport. ○ Orbital bus services are currently quite limited with infrequent headways to key destinations such as Dún Laoghaire, Sandyford Business Park and Tallaght. Overall the level of bus use for commuting is quite low at around 5%.

Opportunities

Key Points:

- Significant improvements to public transport planned for the area including the Luas capacity enhancement, Metro South and the BusConnects network redesign.
- A number of different services within the study area including education, healthcare, retail, high frequency public transport and employment which support the creation of a 10/15-minute neighbourhood.
- A significant proportion (11%) of work trips remain within the study area with opportunities to serve this shorter distance travel by walking and cycling.
- The majority of trips to school are less than 2km in length which should be serviceable by walking and cycling.
- A relatively large proportion of work and education trips of less than 2km are undertaken by car. There is an opportunity to attract some of this demand onto sustainable modes through improvements for walking and cycling in the study area.
- Dundrum could be classed as a 'highly accessible area' with parking restrictions feasible for new developments.

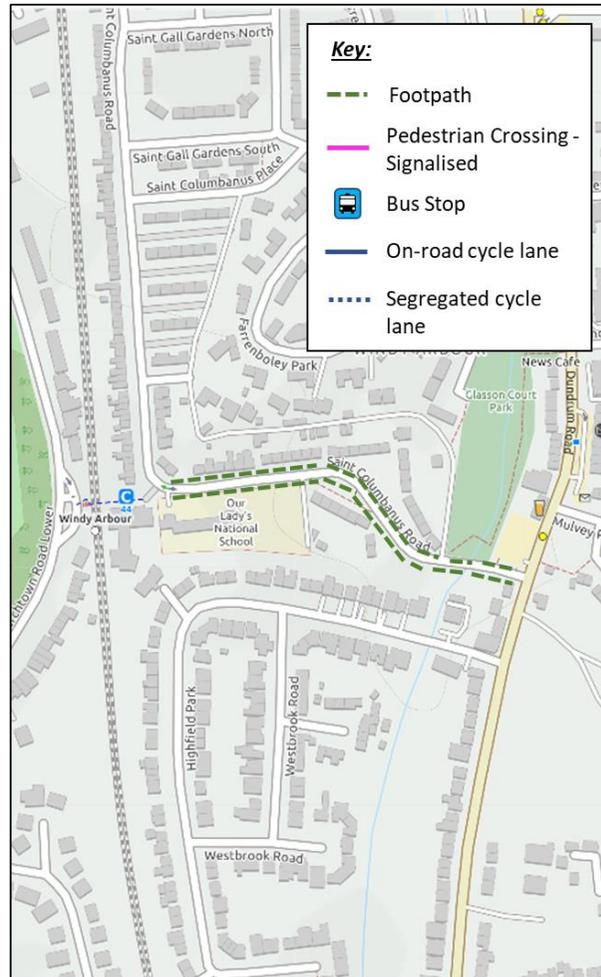
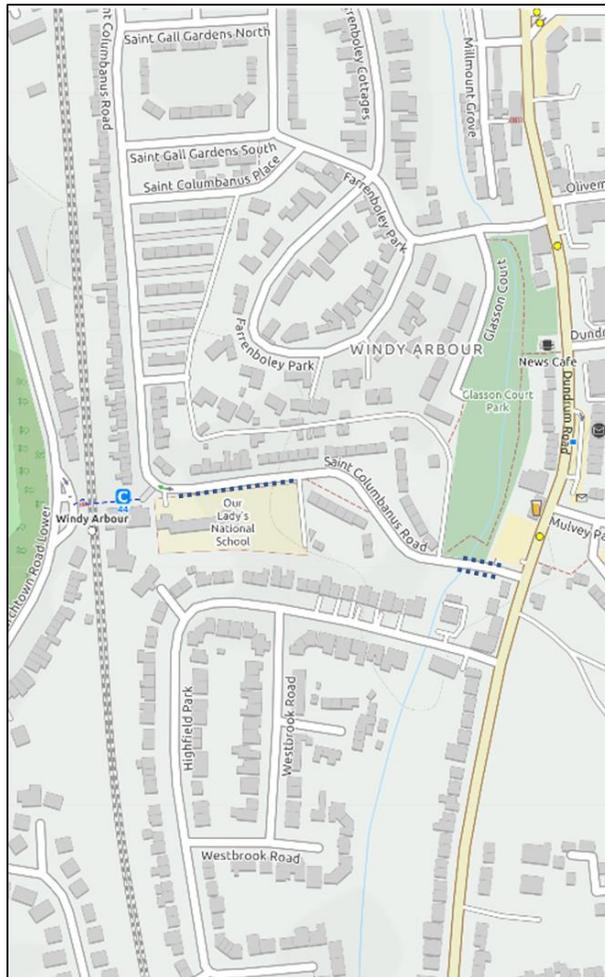
Threats / Constraints

Key Points:

- Car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more. If this pattern continues for new developments it will likely lead to additional vehicular traffic on the road network.
- Narrow street widths on key local routes such as the Kilmacud Road Upper and Dundrum Road (R117) makes delivery of cycle infrastructure a challenge, difficult choices include fully or partially displacing vehicular traffic or costly land-take.
- The Dundrum road network is already operating at or near capacity and there is no scope for additional road capacity to be provided.
- The Wyckham Way, Dundrum Bypass and the Dundrum Road acts as a strategic vehicular traffic corridor between the M50 and the city centre. As such, there is likely to be a significant amount of vehicular traffic passing through the study area.
- One of the largest development sites within the study area is at the Central Mental Hospital site. This opens onto the Dundrum road (R117) which is already congested in the peak periods. If strong sustainable links are not provided to public transport and Dundrum centre, there is a risk that development at this site will generate a significant amount of additional car demand.
- In general, the topography in the study area can be challenging for cyclists, particularly for children cycling to school.

APPENDIX A - Existing Walking and Cycling Infrastructure Review

Link 1 - St Columbanus' Road



Link 1 - St Columbanus' Road

General

Link 1 begins on St Columbanus' Road, outside Our Lady's National School at the entrance to the Windy Arbour Luas stop, and continues until the junction with Dundrum Road. It traverses a mostly residential area as well as serving a school, Luas stop and park.

Cycling

- On St. Columbanus' Road, there is a 1.5m segregated contra flow cycle track westbound for around 95m outside the school connecting to the Luas stop.
- Towards the Dundrum Road junction, there is a short segregated eastbound cycle track to merge cyclists onto the footpath before the junction which provides access to a Toucan crossing and the shared path through Mulvey Park.
- Outside of these short cycle tracks, cyclists share the road with motor vehicles. The road is narrow (~3m) and traffic calmed with occasional ramps.

Junctions and crossings

- There is a toucan crossing for cyclists to Mulvey park, but no protection for cyclists turning left or right onto Dundrum Road.

Walking

- There are continuous footpaths on both sides of the road for this link. On the side of the road next to the school and contra-flow cycle track, the footpath is approximately 1.2m in width. The footpath on the other side of the street varies in width between approximately 1.5m and 2.5m, narrowing for parking spaces.

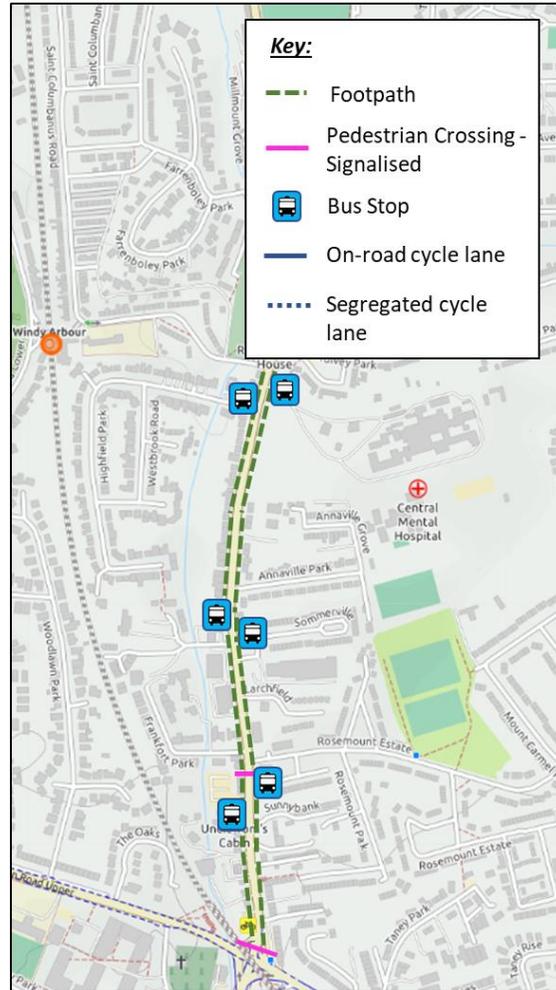
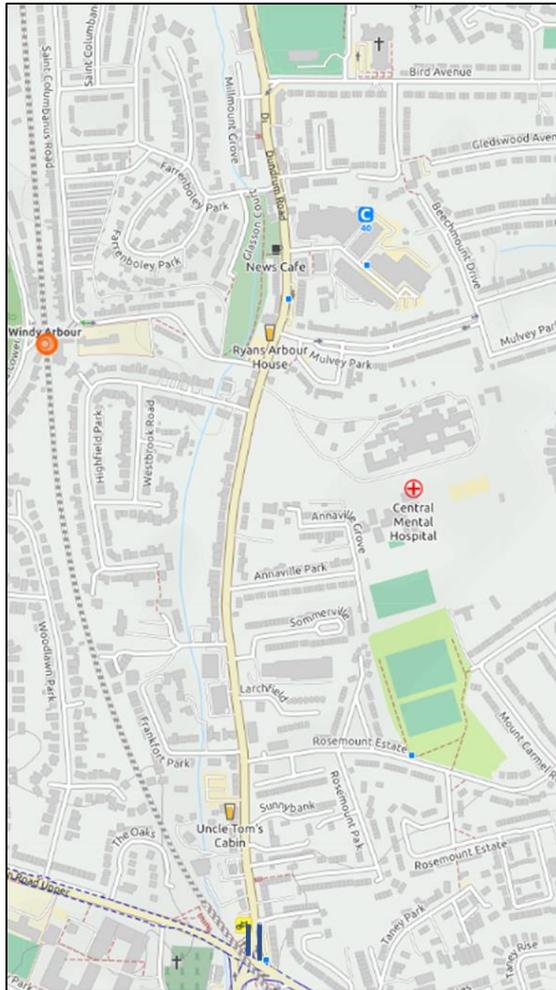
Junctions and crossings

- Across St. Columbanus' Road, before the junction with Dundrum Road, there is an uncontrolled crossing with a dropped kerb, and tactile paving;
- At the junction with Dundrum Road, across the East Bound arm of the junction, there is a signalised toucan crossing, with dropped kerb and tactile paving.
- There are no other controlled or uncontrolled crossings along the road.

Bus stops

- This link features no bus stops.

Link 2 - Dundrum Road



Link 2 - Dundrum Road

General

Link 2 is on the Dundrum Road, beginning with the junction with St. Columbanus' Road, until the Taney Road/Churchtown Road junction. It serves the Central Mental Hospital site, as well as various shops and services. There are a number of housing estates off the road.

Cycling

- There is no provision for cycling along the link until the approach to the Taney Road/Churchtown Road junction where there is a short section of on-road cycle lane to the junction.

Crossings and Junctions

- The Taney Road/Churchtown Road junction can be an unattractive environment for cycling, with left slip turns at every side of the junction and no protection through the junction for cyclists.
- Cyclists are not protected at side roads and are vulnerable to conflicting vehicular movements.

Walking

- Along the whole link, there are footpaths on both sides of the road. The footpaths vary in width but are generally 1.5-2m wide. The western footpath is generally narrower, with long sections narrower than 1.5m.

Crossings and Junctions

- For approximately 600m between the St. Columbanus' Road junction, and the junction with Rosemount Estate, there is no pedestrian

crossing. After the junction with Rosemount Estate, there is a signalised crossing with tactile paving and dropped kerbs;

- For pedestrians crossing side roads along the link, there are dropped kerbs but no tactile paving;
- The large crossroads at the southern end of the link is relatively hostile for pedestrians, with left slip turns at every side of the junction with three crossings needed to go straight ahead. All these movements are signalised.

Bus Stops

- There is a bus stop (Dundrum Hospital, Stop 2822) approximately 10m on from the Taney Cross junction, for Southbound traffic. The bus stop does have shelter and an accessible kerb, but it does not have seating. The bus stop is on a footpath which is approximately 1.5m in width. The bus stop on the other side of the road for Northbound traffic (Dundrum Hospital, Stop 2894), has only a pole with accessible kerbs. The bus stop is on a footpath approximately 1.5 in width.
- Shortly before the junction with Sommersville, there are two bus stops. Sommersville, Stop 2823 serves Southbound traffic and has shelter, seating and dropped kerb, and is on a 3.0m wide footpath. The bus stop on the other side of the road (Frankfort), Stop 2893 also has shelter, seating and a dropped kerb, and is on a 3.5m footpath.
- After the junction with Rosemount Estate, there are a further two bus stops both with shelter and dropped kerb. The bus stop serving Southbound traffic (Rosemount Estate, stop 5032) is on a 2.0m footpath, while the bus stop serving northbound traffic (Rosemount Estate, stop 2892) is also 2.0m.

Link 3 - Churchtown Road Upper

General

Link 3 starts at the junction on Churchtown Road Upper with Beaumont Avenue, and ends at the junction with Dundrum Road. The road is mostly residential, and is situated near a primary school and a post primary school.

Cycling

- From the junction with Beaumont Avenue, there are narrow but continuous and segregated cycle tracks, adjacent to traffic westbound and well segregated with a buffer eastbound, for the majority of the link. The eastbound cycle track merges with the bus lane and then changes to an on-road cycle lane as it approaches the Dundrum Road junction. Island/shared landing bus stops are provided at most stops along the link.

Crossings and junctions

- The eastbound cycle track is offered some protection from left turning vehicles at side road junctions like Glenbowe Park and Woodlawn Park.
- There is no real provision for cyclists to make right turns along the link.

Walking

- There are footpaths on both sides of the road, continuous for the entirety of the link, varying between 1.5m and 2.0m.

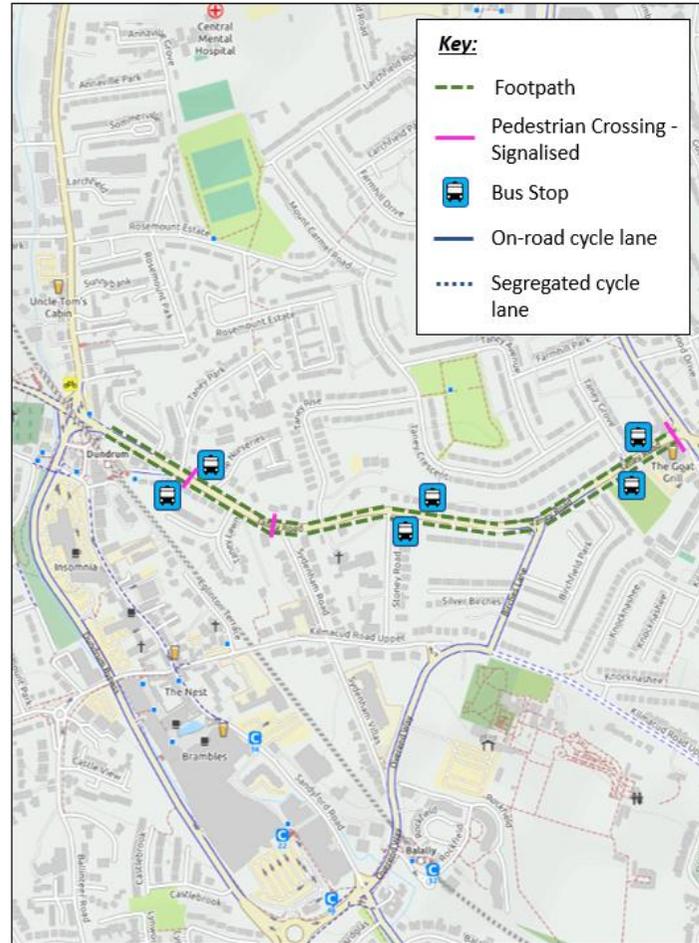
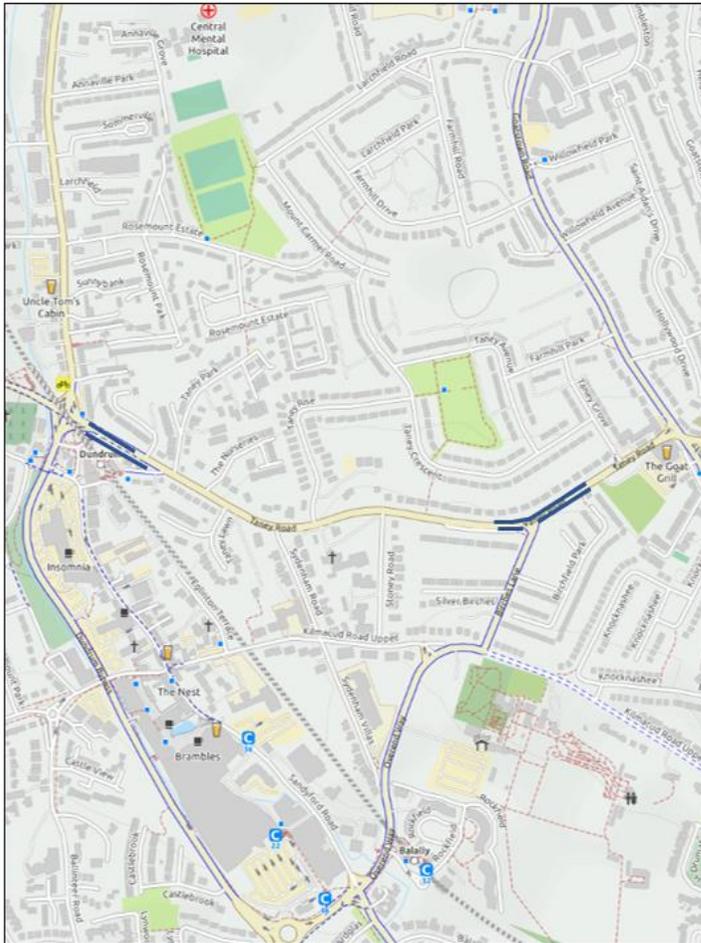
Crossings and junctions

- There is a signalised crossing after the junction with Beaumont Avenue, with tactile paving and a dropped kerb;
- There are signalised pedestrian crossings on the east and northern arms of the junction with Churchtown Road Lower with tactile paving and a dropped kerbs;
- There is a signalised crossing after the junction with Woodlawn Park, with tactile paving and a dropped kerb;
- There are signalised pedestrian crossings on the east and northern arms of the junction with Churchtown Road Upper with tactile paving and a dropped kerbs;
- Side roads generally have a raised table across the junction;
- For pedestrians crossing side roads along the link, there are dropped kerbs but no tactile paving;

Bus stops

- Approximately 50m after the junction with Beaumont Avenue, there is a bus stop on both sides of the road, serving eastbound traffic (Churchtown Road, Stop 1055), and westbound traffic (Beaumont Avenue, Stop 1035). Both bus stops have shelter, seating, and an accessible kerb, and are on pavement approximately 3.5m in width and 2.6m in width respectively;
- Before the junction with The Oaks, there is a bus stop serving westbound traffic (Notre Dame School, Stop 2867), which has shelter, seating, and an accessible kerb, and is on pavement approximately 1.8m in width.
- After the junction with The Oaks, there is a bus stop serving eastbound traffic (The Oaks, Stop 2868), which has just a pole, and an accessible kerb, and is on pavement approximately 2m.

Link 4 - Taney Road



Link 4 – Taney Road

General

Link 5 begins on Taney Road at the junction with the Dundrum Road and continues until the junction with Goatsown Road and Drunmartin Road. The area is mostly residential with some commercial/hospitality services at the eastern end of the link.

Cycling

- On the link, there is a cycle lane on the westbound side of the footpath for the entirety of the link.
- For approximately 150m, there is a cycle track, adjacent to traffic, across the junction with Birches Lane
- There are short sections of on-road cycle lanes approaching Birches Lane;
- There are short sections of cycle tracks approaching the Dundrum Road junction.

Walking

- The footpath is continuous on both sides of the road;
- On the eastbound side of the road, the footpath ranges from 1.0m to 2.75m;
- On the westbound side of the road, the footpath is approximately 2.0m in width.

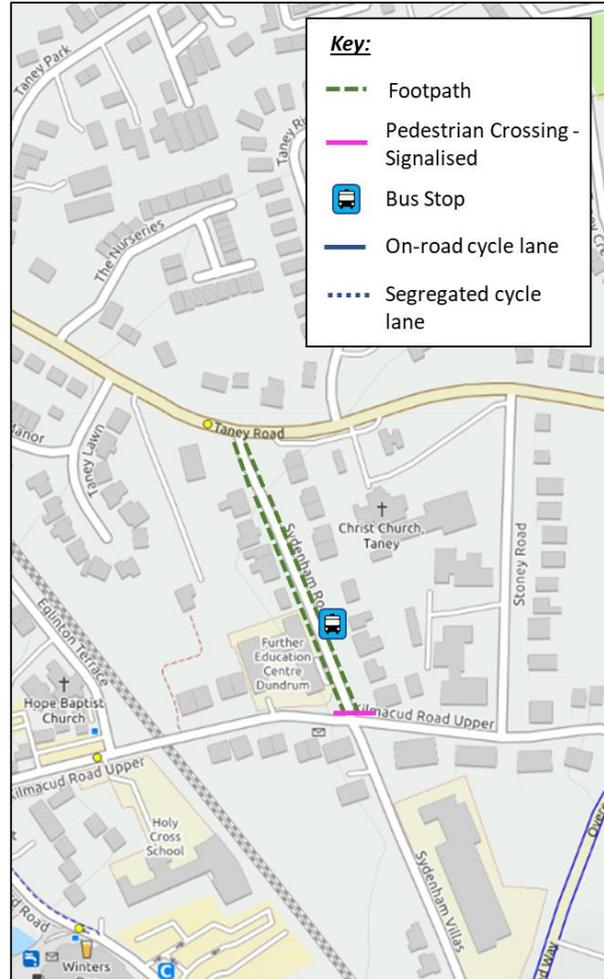
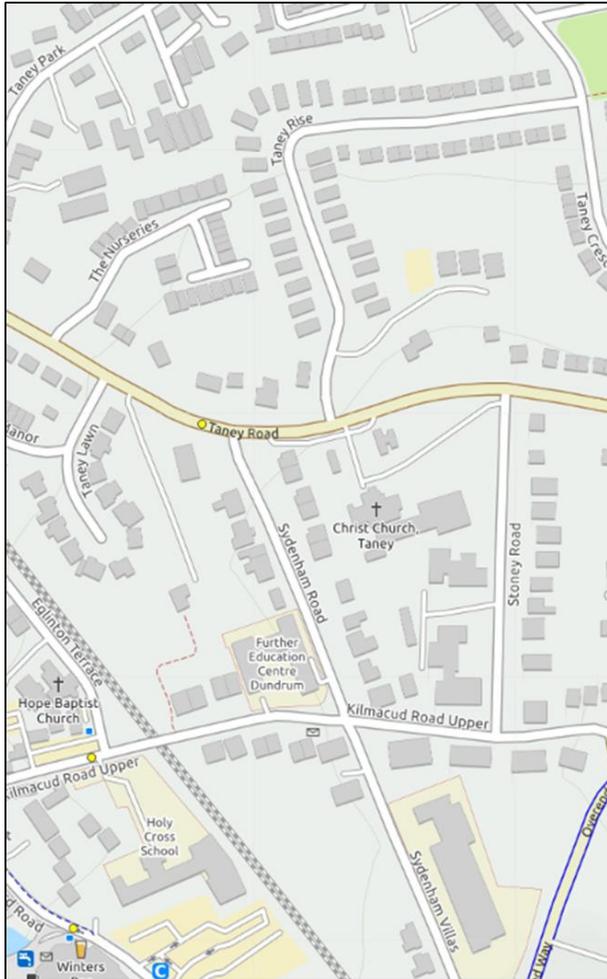
Crossings and junctions

- After Taney Park, there is a signalised pedestrian crossing with tactile paving and dropped kerb;
- Across the junction with Birches Lane, there is a signalised pedestrian crossing with tactile paving and dropped kerb;
- On Taney Road, at the junction with Goatstown Road and Drunmartin Road there is signalised pedestrian crossing with tactile paving and dropped kerb, on each arm.

Bus stops

- There are two bus stops either side of the road, after Taney Park. Both bus stops are poles. The stop serving eastbound traffic (Taney Park, Stop 7719) is on a footpath approximately 2.2m, while the bus stop serving westbound traffic (Taney Park, Stop 10160) is on a footpath approximately 2.75m;
- There are two bus stops either side of the road, after Stoney Road. Both bus stops are poles. The stop on serving eastbound traffic (Taney Crescent, 10158) is on a footpath approximately 1.4m, while the bus stop serving westbound traffic (Stoney Road, 10159) is on a footpath approximately 1.75m.

Link 5 - Sydenham Road



Link 5 - Sydenham Road

General

Link 6 begins on Sydenham Road, at the junction with Taney Road, and ends at the junction with Kilmacud Road Upper. It serves a predominantly residential area as well as the Dundrum Adult Education Service.

Cycling

- There is no cycling infrastructure either along the link or at junctions.

Walking

- There are continuous footpaths on both sides of the road, both approximately 1.5m in width.

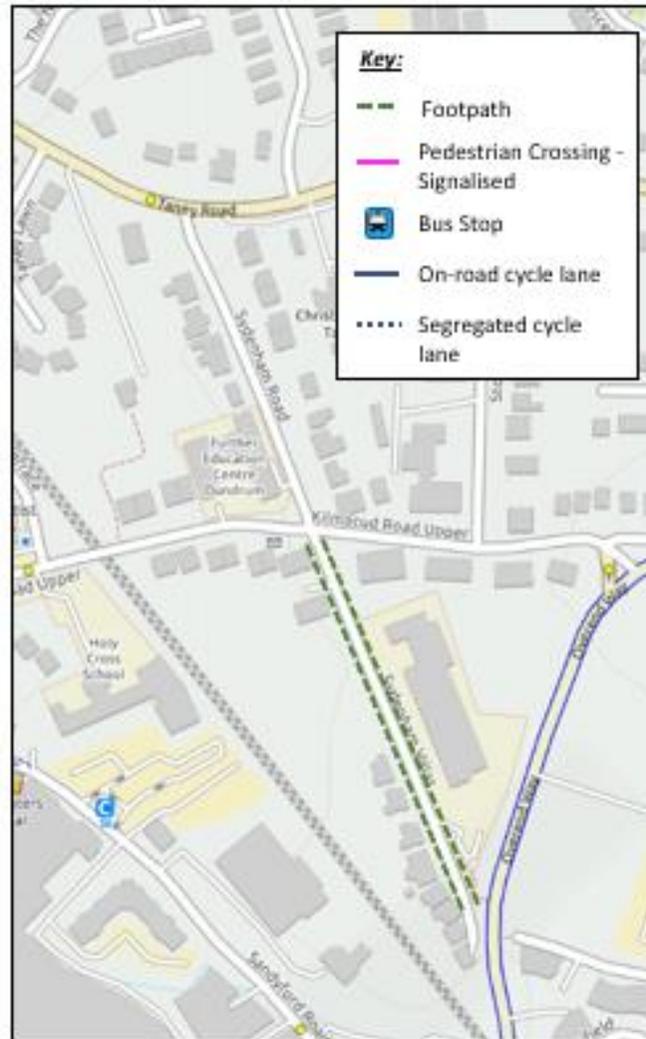
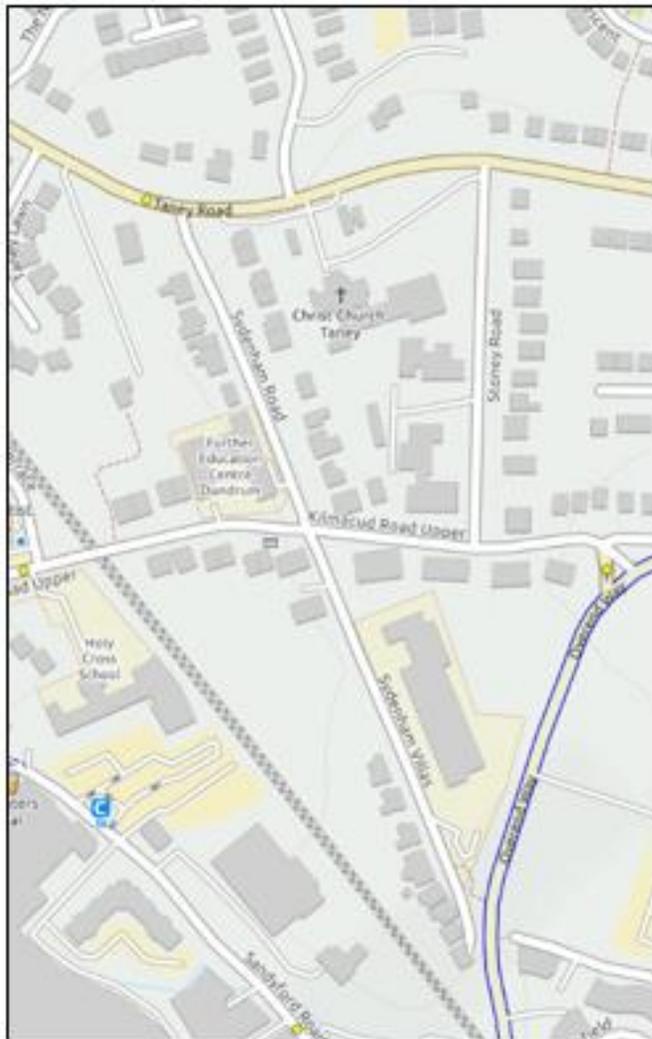
Crossings and junctions

- At the end of the link, at the junction with Kilmacud Road Upper, there is a signalised pedestrian crossing with tactile paving and dropped kerb on all arms of the junction. There are no formal crossings along the link or at the junction with Taney Road.

Bus stops

- On the link there is a bus stop serving Southbound traffic (Sydenham Road, stop 7720), but does not appear to have shelter, and is on a footpath approximately 1.5m in width.

Link 6 - Sydenham Villas



Link 6 - Sydenham Villas

General

Link 7 begins on Sydneyham Villas, after the junction with Kilmacud Road Upper and ends at a cul de sac by Overend Avenue. The road serves Taney Parish Primary School and detached houses.

Cycling

- There is no cycling specific infrastructure on the road. There is however bike parking in the primary school. The road is narrowed by informal on-street parking.
- Cyclists can dismount and use the pedestrian access to Overend Avenue, however this offers a low level of service.

Walking

- There are continuous footpaths on both sides of the road. The western footpath is narrow at approx. 1.0m, while the eastern footpath is wider, around 2.5m.

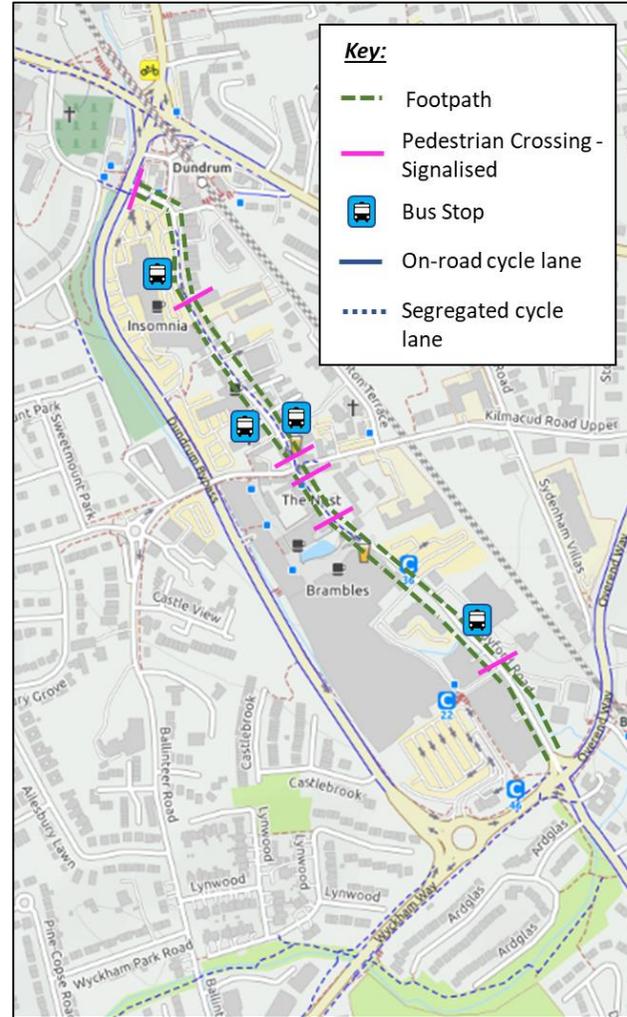
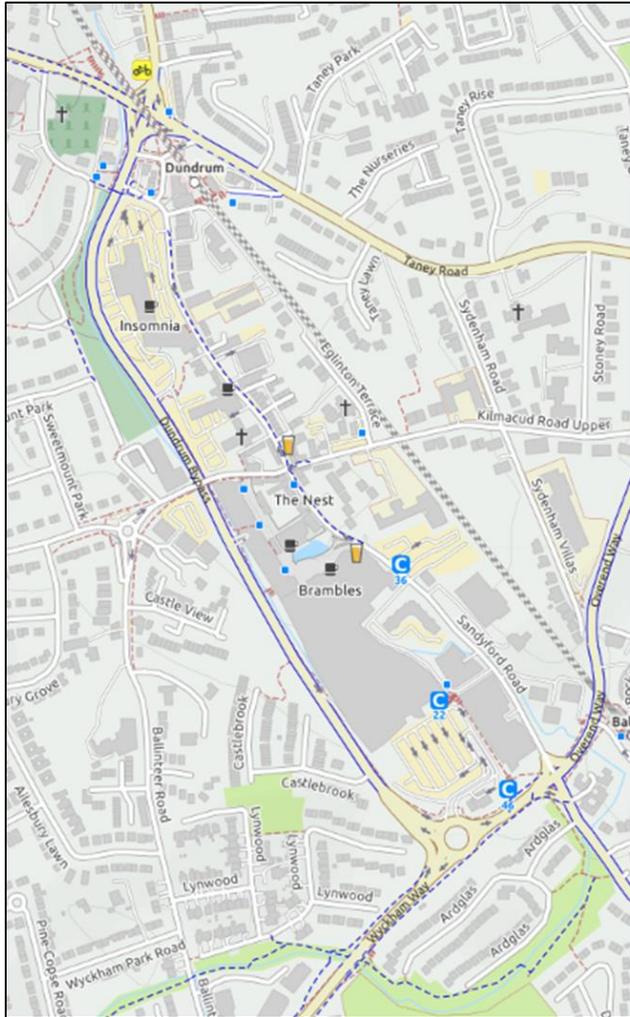
Crossings and junctions

- There are no formal crossings along the link. There is no formal crossing across Sydenham Villas at the junction with Kilmacud Road Upper, but there are signalised crossings at all other arms of the junction.
- There is a pedestrian access to Overend Avenue at the southern end of the link.

Bus stops

- There are no bus stops on this link.

Link 7 - Main Street



Link 7 - Main Street

General

Link 8 begins on Main Street, after the junction with Dundrum Road, and ends on Sandyford Road with the junction with Overend Avenue. There are a large number of shops, restaurants and caf  s along the street as well as serving Dundrum Town Centre. Sandyford Road features a primary school and college.

Cycling

- A segregated contra-flow cycle track is in place along Main Street as part of Covid Mobility measures;
- There is a short contra-flow link onto Kilmacud Road Upper;
- The main one-way carriageway has been narrowed to 3.0m with painted cycle signs to encourage cyclists to take primary position;
- Outside Glenville Dental, there is bicycle parking on the pavement. Next to the carpark on Main Street, there is sheltered bike parking.

Walking

- There are continuous footpaths on both sides of the road. The footpath next to northbound traffic ranges between 1.5m and 2.5m in width, while the footpath next to southbound traffic ranges between 1.5m and 2.7m in width;
- Footpaths have been further widened locally in areas as part of Covid Mobility measures, as well as added seating and planters.

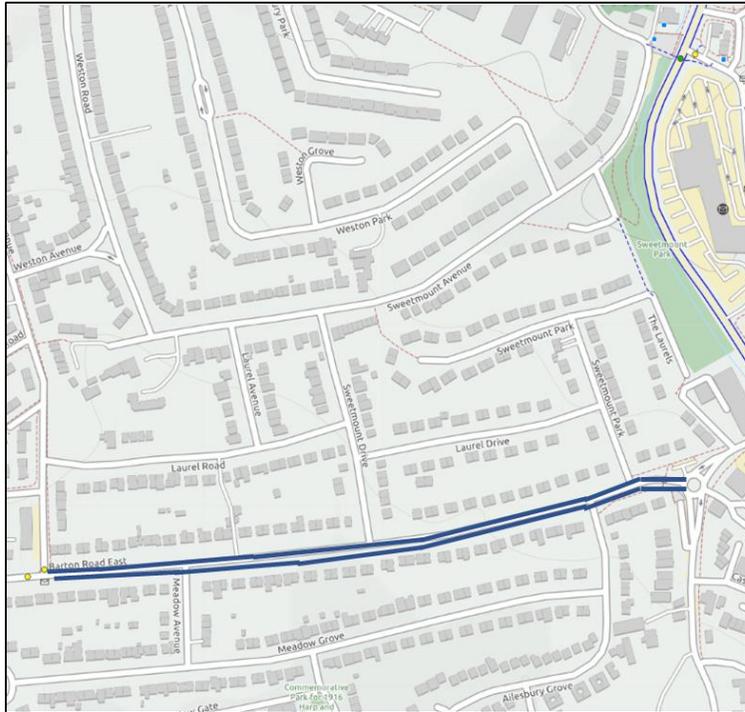
Crossings and junctions

- There are a number of signalised crossings along the street including next to Lidl, there is a signalised pedestrian crossing, with dropped kerb and tactile paving;
- At the junction with Ballinteer Road, and Kilmacud Road, there is a signalised pedestrian crossing on all four arms, with dropped kerb and tactile paving;
- As part of Covid Mobility measures a number of uncontrolled raised crossings have been added along Main Street, including outside EBS and Bank of Ireland.

Bus stops

- Next to the bank of Ireland, there is a bus stop serving northbound traffic (Dundrum Luas, stop 2866), which is just a pole, on a pavement approximately 1.5m in width;
- There is a northbound bus stop next to Pembroke Cottages (Holy Cross Church, Stop 2865). It is on a footpath approximately 2.8m and features shelter and seating.

Link 8 - Barton Road East



Link 8 - Barton Road East

General

Link 9 begins on Barton Road East, at the junction with Beumont Avenue, and ends on the roundabout with Ballinteer Road. It serves a predominantly residential area.

Cycling

- There are continuous on-road cycle lanes, adjacent to traffic on this link, on both sides of the road, both approximately 1.0m-1.5m in width.

Crossings and Junctions

- The roundabout with Ballinteer Road has no dedicated infrastructure for cyclists through the junction.

Walking

- There are continuous footpaths on both sides of the road, both approximately 2.0m in width. They are well separated from the road by a grass verge.

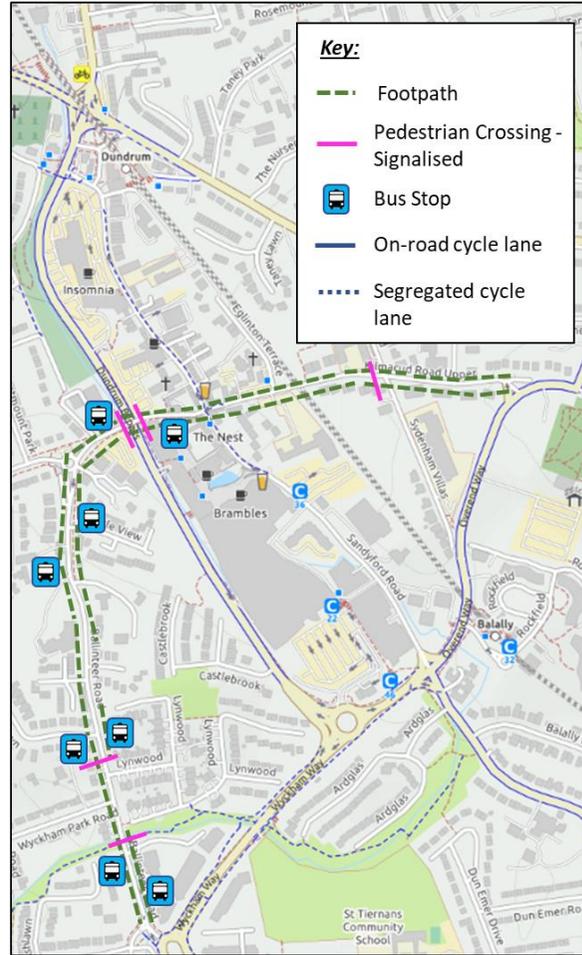
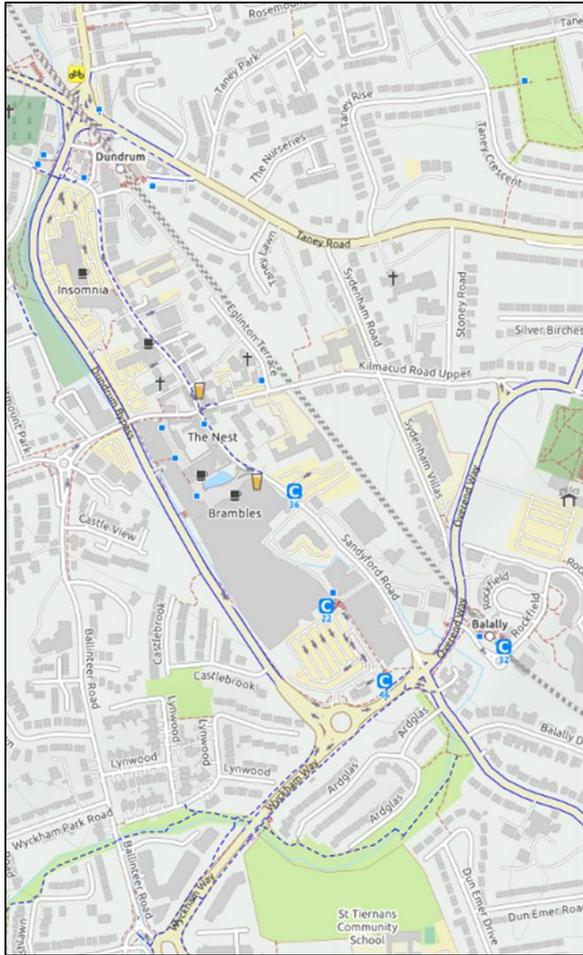
Crossings and junctions

- This link features no formal crossings or junctions. There is only a signalised crossing on one side of the roundabout with Ballinteer Road.

Bus stops

- This link features no bus stops.

Link 9 – Ballinteer Road / Kilmacud Road Upper



Link 9 – Ballinteer Rd / Kilmacud Rd Upper

General

Link 10 begins on Ballinteer Road and ends on Kilmacud Road, before the junction with Overend Avenue. The road is mostly residential, there is a primary school on Kilmacud Road Upper and buildings with a number of uses on either side of the junction with Main Street.

Cycling

- There is no cycling infrastructure either along the link or at junctions.

Walking

- The pavement next to northbound traffic is continuous for the entirety of the link, and ranges in width between 1.0m and 2.0m.
- The pavement next to southbound traffic is not continuous, pausing at different points for approximately 150.0m, at the pinch point after Lynwood. The width of the footpath ranges between 2.0m and 2.5m.

Crossings and junctions

- After Southmede, there is a toucan crossing, with dropped kerb and tactile paving;
- On the Wyckham Way roundabout, there are uncontrolled pedestrian crossings on each exit;
- On the Barton Road East roundabout, there are uncontrolled pedestrian crossings on each arm apart from a signalised crossing across Barton Road East;
- On the junction with Sandyford Road and Kilmacud Road Upper, there are signalised pedestrian crossings on each arm;

- On the junction with Sydenham Road and Main Street, there are signalised pedestrian crossings on each arm;
- At the end of the link, the junction with Kilmacud Road Upper features a left slip turn but has signalised crossing on two out of three arms plus the slip turn.

Bus stops

- After Ballinteer Road, there are two bus stops either side of the road. The bus stop on serving southbound traffic (Lynwood, stop 2843) is on a footpath approximately 2.6m and features only a pole. The bus stop serving northbound traffic (Wyckham Park Road, Stop 2863) is on a footpath approximately 1.0m, and a pole;
- There is a bus stop serving southbound traffic (Lynwood, Stop 2843), after Lyndwood, with a pole, on a pavement approximately 2.5m in width. On the other side of the road, there is a bus stop serving northbound traffic (Wyckham Park Road, Stop 2863), with a pole, and is on a footpath approximately 1.0m in width;
- After Ballinteer Road, there is a bus stop serving northbound traffic (The Gables, Stop 2864), with a pole, and is on a footpath approximately 1.0m in width;
- After the Ballinteer Road roundabout, there is a bus stop serving eastbound traffic (Dundrum Centre, Stop 4486) with a pole and on a footpath approximately 1.6m in width.

Link 10 – Wyckham Way/Kilmacud Rd Upper



Link 10 - Wyckham Way/Kilmacud Rd Upper

General

Link 11 begins on Wyckham Way, just after Clonlea Wood and ends on Kilmacud Road Upper, after Carrick Lawn. The link is near two post primary schools. It serves predominantly residential uses, including a number of apartment developments and serves Dundrum village and Dundrum Town Centre.

Cycling

- From the junction with the M50 there is a two-way cycle track on the eastern side of the road, well segregated from the road. The cycle track is 2.5-3.0m wide.
- After the first R826/Wyckham Place roundabout, there are two-way cycle tracks on both sides of the road until the roundabout with the Dundrum Bypass where the eastern cycle track ends;
- After the Dundrum Bypass roundabout, there is a two-way cycle track on either side of the road, segregated from traffic until the Sandyford Road junction;
- After the junction with Sandyford Road, there are one-way on-road cycle lanes on each side of the road and adjacent to traffic, for a further 540m. Here there is no protection for cyclists at junctions;
- The on-road cycle lanes end at Birches Lane before beginning again on the approach to the Drumartin Road junction.

Crossings and junctions

- The two-way cycle tracks navigate roundabouts through uncontrolled crossings on one side, often there is a lack of crossings on sides of the roundabouts making right or left turns difficult;

- There is no protection for cyclists at junctions after the two-way cycle tracks end.

Walking

- There are continuous footpaths on both sides of the road, varying in width between 1.5m and 2.5.

Crossings and junctions

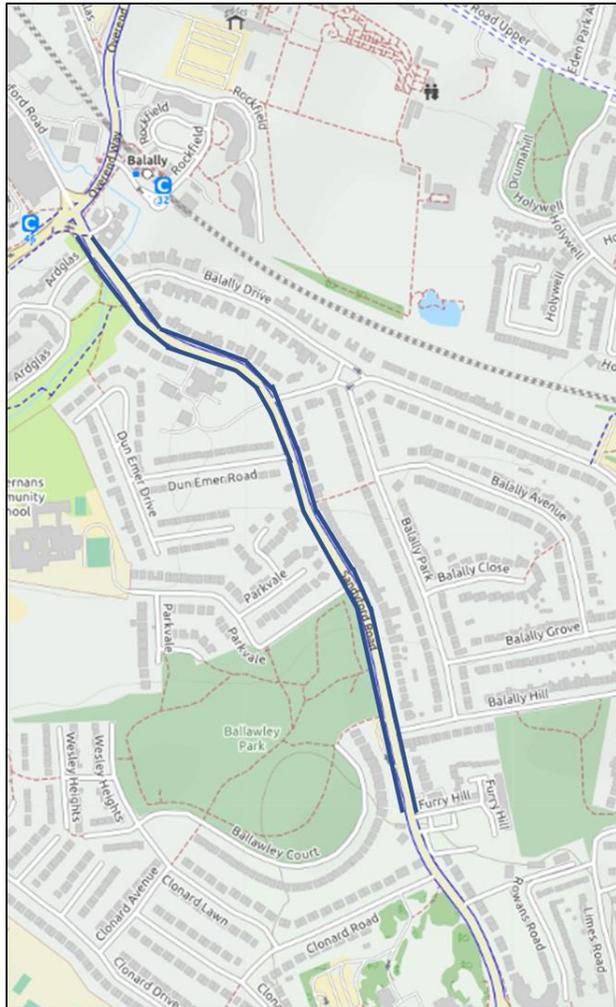
- There are a number of toucan crossings between the M50 junction 13 roundabout and the roundabout with Ballinteer Avenue;
- On the Northern and Western side of the roundabout with Wyckham Way there are no crossings;
- After the roundabout, on Wyckham Way, there is a staggered signalised toucan crossing, with tactile paving and dropped kerb;
- At the R826/Wyckham Place roundabout, there are uncontrolled pedestrian crossings on all sides;
- After the Balinteer Road roundabout, there is a staggered signalised toucan crossing, with tactile paving and dropped kerb;
- There is a mix of controlled and uncontrolled crossings at the Dundrum Bypass roundabout with no crossings across Wyckham Way. The presence of slip turns means it takes three crossings to cross the Dundrum Bypass;
- At the junction with Sandyford Road, there are staggered signalised pedestrian crossings with tactile paving and dropped kerb on each arm;
- After the junction with Rockfield, there is a signalised pedestrian crossing with tactile paving and dropped kerb;
- At the junction with Kilmacud Road Upper, there is a staggered signalised pedestrian crossing with tactile paving and dropped kerb;

- On the junction with Birches Lane, there is a signalised pedestrian crossing with tactile paving and dropped kerb on the northern and eastern arms.

Bus stops

- After the first roundabout on Wyckham Way, there are two bus stops on both sides of the road. The bus stop serving southbound traffic (Wyckham Way, Stop 2845) has shelter and seating and is on a footpath 1.5m in width. The bus stop serving northbound traffic (Ballinteer, Wesley College, Stop 2861) has shelter and seating and is on a footpath 3.0m in width;
- After the second roundabout on Wyckham Way, there are two bus stops on both sides of the road. The bus stop serving southbound traffic (Wyckham Way, Stop 10103) has just a pole and is on a footpath 2.0m in width. The bus stop serving northbound traffic (Wyckham Way, Stop 10156) has shelter and seating is on a footpath 1.0m in width;
- Just past Birches Lane there are bus stops in both directions. The stop serving westbound traffic (Birches Lane, stop 2887), has just a pole and is on footpath 2.0m in width. The stop serving eastbound traffic (Overend Way, Stop 2872), also has just a pole and is on a footpath 2.5m in width;
- After Knocknashee, there is a bus stop serving westbound traffic (Knocknashee, stop 2886), which is on a footpath 1.5m in width. There is a bus stop serving eastbound traffic (Knocknashee, Stop 2873), which is on a footpath 1.5m in width;
- After Eden Park Avenue, there is a bus stop serving westbound traffic (Eden Park Avenue, stop 2885), which has shelter and seating and is on footpath 1.5m in width. There is a bus stop serving eastbound traffic (Eden Park Avenue, Stop 2874), which is only a pole, and is on a footpath 1.6m in width.

Link 11 - Sandyford Road



Link 11 - Sandyford Road

General

Link 12 begins on Sandyford Road at the junction with Wyckham Way/Overend Avenue, and ends before Furry Hill. It serves a predominantly residential area with housing fronting onto the street.

Cycling

- There are continuous on-road cycle lanes on each side of the road. The cycle track is interrupted at bus stops.

Crossings and junctions

- There is some protection offered at side roads as there is a raised table across most side roads which would slow approaching vehicles.
- The junction with Wyckham Way/Overend Avenue has three left slip turns and no protection for cyclists through the junction.

Walking

- There is a continuous footpath on both sides of the road. The eastern footpath ranges from 2.0m to 3.0m in width. The western footpath ranges from 2.0m to 3.5m in width.

Crossings and junctions

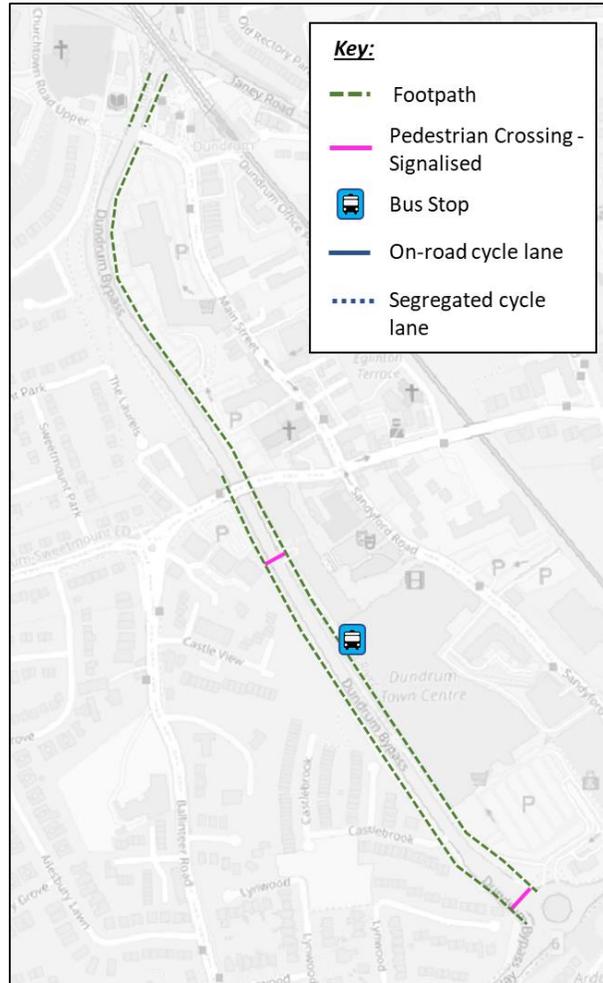
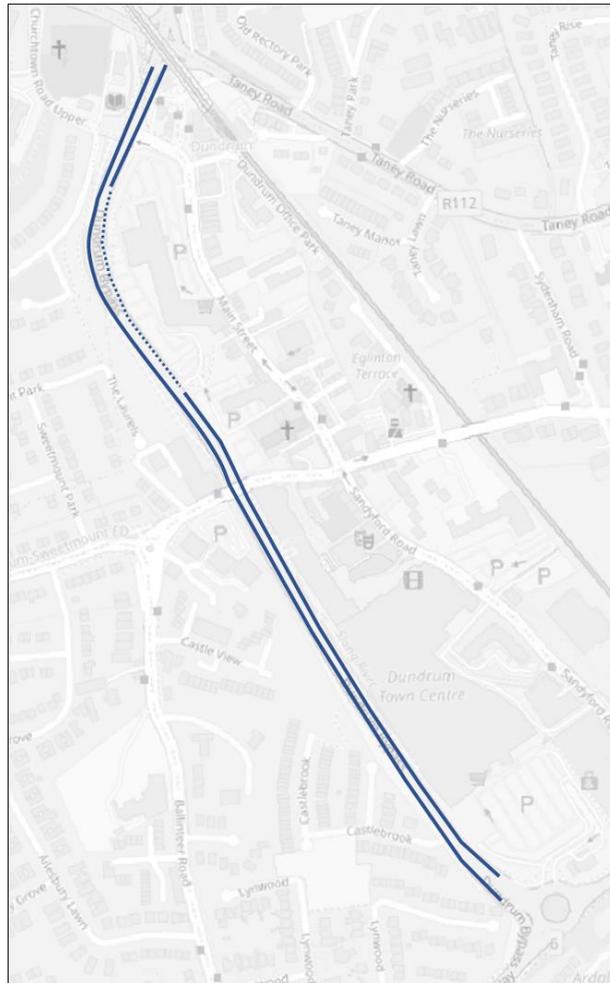
- At the junction with Balally Drive, there are signalised pedestrian crossings on all sides of the junction, with tactile paving and dropped kerb;

- On the junction with Dun Emer Road, there are signalised pedestrian crossings, with tactile paving and dropped kerb;
- Before Balally Hill, there is a signalised pedestrian crossing, with tactile paving and dropped kerb;
- There is a raised table with tactile paving crossing across many side roads on the link, providing pedestrian priority.

Bus stops

- After McGrane Court, there is a bus stop on either side of the road. The bus stop serving southbound traffic (Balally Drive, stop 2829) has shelter and seating and is on a footpath 3.0m in width. The bus stop serving northbound traffic (Balally Drive, stop 2840) has shelter and seating and is on a footpath 2.3m in width;
- After Dun Emer Road, there is a bus stop serving southbound traffic (Dun Emer Road, stop 2830) and has shelter and seating and is on a footpath 2.2m in width;
- After Parkvale there is a bus stop serving northbound traffic (Ballawley Park, stop 2838) and has shelter and seating and is on a footpath 2.5m in width.

Link 12 - Dundrum Bypass



Link 12 - Dundrum Bypass

General

Link 12 is the Dundrum Bypass from the Churchtown Road Upper/Taney Road junction until the roundabout with Wyckham Way. The link features mostly commercial uses to the east and residential to the west. The southern end of the link provides access to Dundrum Town Centre.

Cycling

- There are cycle tracks on both sides of the road along the Dundrum Bypass, which are segregated in a southbound direction for small segments.

Walking

- There is a continuous footpath on the eastern side of the road along the entire link, this footpath is approximately 1.5m wide.
- There is no footpath on the western side of the road from the second junction with Main Street southwards for approximately 400m.

Crossings and Junctions

- There are a number of signalised crossings across the four different arms and slip turns of the junction with Taney Road and Churchtown Road Upper. All crossings have tactile paving, dropped kerb, and guard rail;
- Across the northern of the two junctions with Main Street, there is an uncontrolled crossing, with dropped kerb;
- On all sides of the second junction with Main Street, there is a signalised pedestrian crossing, with tactile paving and dropped kerbs.

Bus Stops

- Before the junction with Taney Road and Churchtown Road Upper, there is a bus stop (Taney Road, Stop 2824) serving Southbound traffic which has shelter, seating and an accessible kerb, on a footpath which is approximately 2m in width.
- New bus stops (7716 & 7717) have been added for southbound buses that uses to use Main Street/Sandyford Road before the implementation of the Main Street one-way system. Both of these stops are towards the southern end of the link.

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