

Cabinteely Greenway

Project Feasibility & Options Selection Report

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1 Introduction

1.1 Background

DBFL Consulting Engineers (DBFL) have been commissioned by Dún Laoghaire Rathdown County Council (DLRCC) to undertake a feasibility and options assessment for the Cabinteely Greenway scheme.

The proposed Cabinteely Greenway scheme seeks to provide a safe, high-quality route which improves connectivity for pedestrians and cyclists travelling between local schools, services, amenities and surrounding residential areas.

The purpose of this report, therefore, is to provide detail on the various studies and surveys undertaken, examine the feasibility of all options identified, report on the options assessment process and propose a Preferred Option for the development of the Project.

1.2 Overview

The overall purpose of the project is to enhance connectivity between Bray Road, Cornelscourt to the Cherrywood Greenway for people walking, wheeling and cycling by providing approximately 2.3 km of safe, high-quality greenway infrastructure.

The proposal aligns with Government Policy at both national and local government level in its commitment to ensure that active travel is appropriately provided for as part of an interconnected network of cycle and pedestrian routes. This route forms an important part in the DLR (Dún Laoghaire-Rathdown) Cycle Network and is a strategic north-west / south-east link.

1.3 Project Aims & Objectives

The principle aims and objectives of the scheme, in accordance with the overarching purpose and scope, are to:

- Provide enhanced connectivity between Cornelscourt and Cherrywood for pedestrians and cyclists to encourage increased walking and cycling trips.
- Improve safety for pedestrians and cyclists on routes within 1km of the local primary schools by maximising segregation of pedestrians/cyclists from vehicular traffic.
- Upgrade junctions where facilities for pedestrians and cyclists are limited or non-existent.

- Improve safety for pedestrians and cyclists in accordance with the Design Manual for Urban Roads & Streets (DMURS) and the National Transport Authority's (NTA) Cycle Design Manual (CDM).
- Reduce reliance on car trips by providing sustainable alternative for trips within a 5km catchment.
- Contribute to the achievement of climate action targets by catering for increased travel by walking and cycling.
- Improve accessibility to public transport by walking and cycling.
- Deliver a proposal that is holistic in its approach, focusing on Nature Based Solutions and sustainability where possible.
- To produce a design that is sympathetic to all environmental issues.

1.4 Location and Land Use

The proposed scheme area commences at the Bray Road / Cornelscourt Hill Road junction in Cornelscourt Village, then continues along Glen Lawn Drive, Cabinteely Park, Brennanstown Road and Cherrywood (Bride's Glen /Orchard Square). The scheme from end to end is approximately 2.3km in length and the route will consist of four distinct sections:

Section A: Cornelscourt Village to Glen Lawn Drive

Section B: Glen Lawn Drive to Cabinteely Park

Section C: Cabinteely Park

Section D: Brennanstown Road to Cherrywood (Bride's Glen /Orchard Square)

The overall route, as indicated in the Greater Dublin Area (GDA) Cycle Network Plan (2022) and the DLR Cycle Network Map, and location of key junctions is illustrated in **Figure 1-1** below.



Figure 1-1: Study Area Location and Extents in Wider Context
(Source: Open Street Maps)

The scheme is located close to a number of existing residential and commercial developments and under Dún Laoghaire Rathdown County Development Plan (2022-2028) zoning maps, the scheme passes through or is adjacent a number of land uses which fall within the following zoning objectives;

Objective NC: *"To protect, provide for and-or improve mixed-use neighbourhoods centre facilities".*

Objective A: *"To provide residential development improve residential amenity while protecting the existing residential amenities".*

Objective F: *"To preserve and provide for open space with ancillary active recreational amenities".*

Objective E: *"To provide for economic development and employment".*

Objective DC: *"To protect, provide for and-or improve mixed-use district centre facilities".*

There is also an Objective within the Development Plan *"To protect and preserve Trees and Woodlands"* as denoted on the Land Zoning Map by tree symbols.

Within Cabinteely Park it should also be noted that there are several protected structures (as denoted in orange on the Land Zoning Map). These include Cabinteely House and Stable Complex (RPS No. 1683 and 2062), the Gate Lodge (RPS No. 1980), the Gateway (RPS No. 2101) and the Brennanstown House Gate Lodge (RPS No. 2017).

The alignment of the route (as per the GDA Cycle Network Plan 2022 and DLR Cycle Network Plan) in the context of the DLR County Development Plan 2022-2028 land use zoning objectives is shown in **Figure 1-2** and **Figure 1-3**.

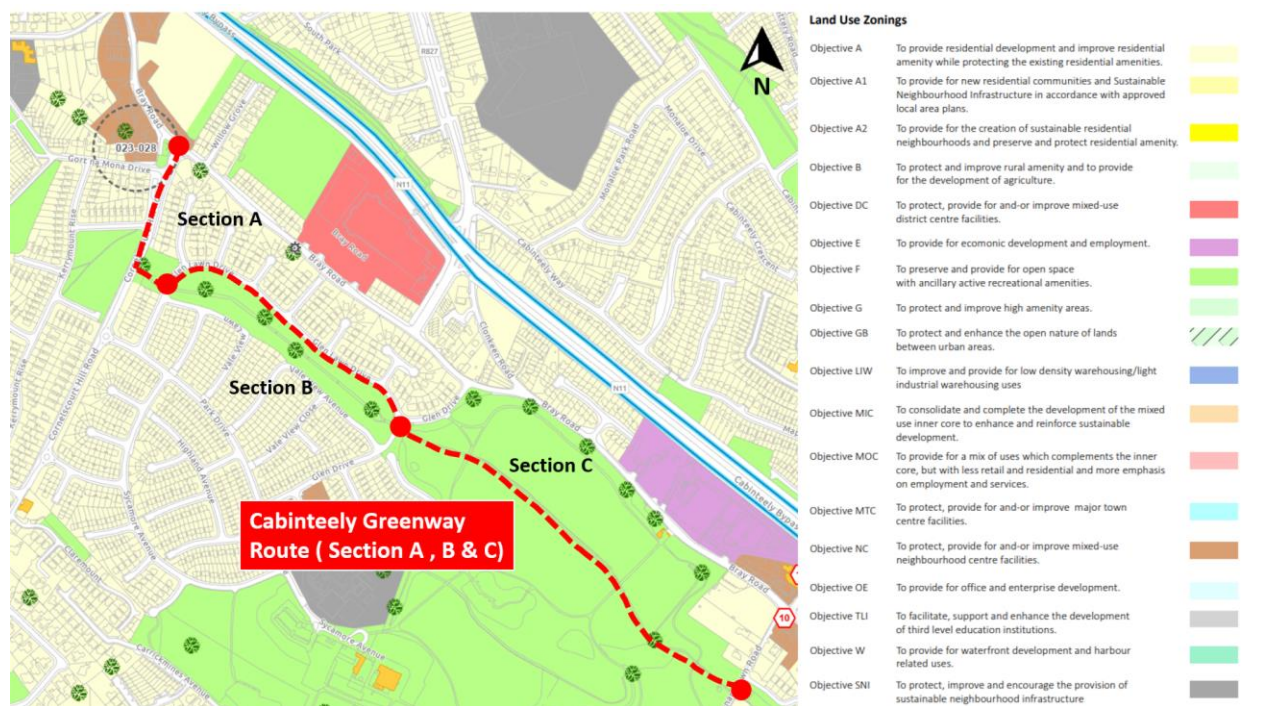


Figure 1-2: Subject Scheme in Context of DLR County Development Plan Land Zoning Objectives (Section A, B and C)

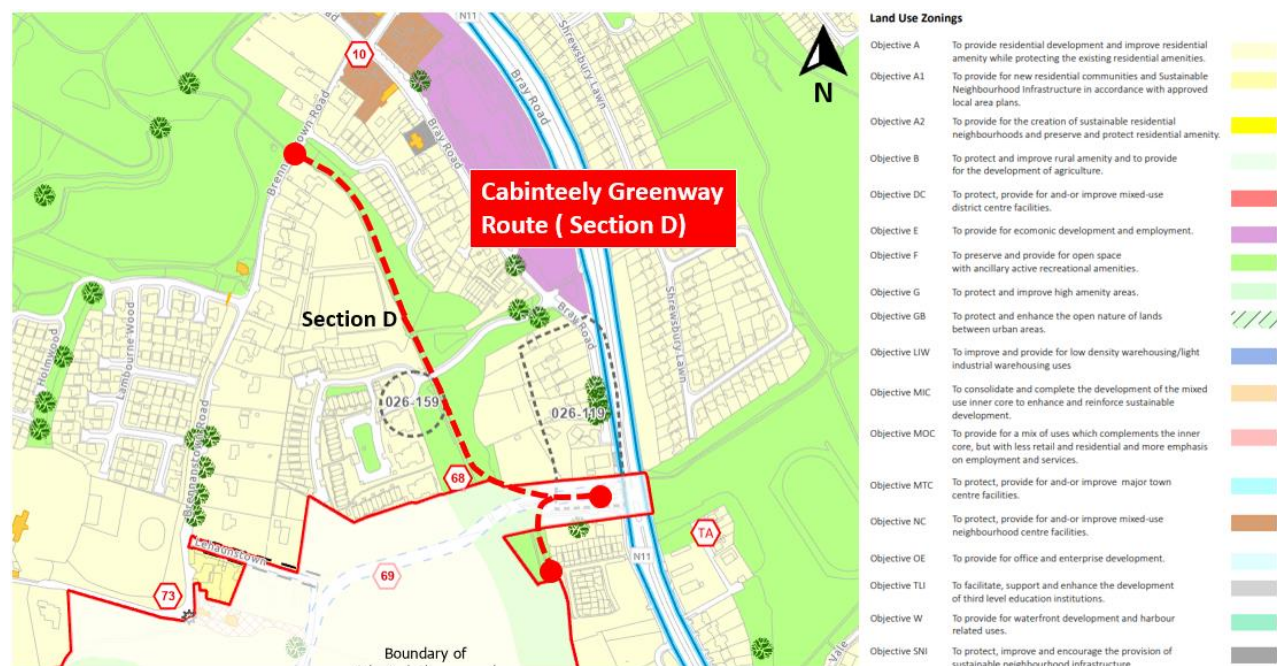


Figure 1-3: Subject Scheme in Context of DLR County Development Plan Land Zoning Objectives (Section D)

The proposed scheme is located within a highly populated urban area. There are several local amenities and services along the route as well as schools and sports facilities. Local amenities either directly on the route or in the vicinity include for example, Cabinteely Park and Cabinteely Library. Primary schools in the immediate vicinity of the route include for example, St. Brigid's Boys' National School and St. Brigid's Girls School. Located on Glen Drive, just south of the proposed route is Park Academy Childcare Cabinteely.

Sports clubs located in close proximity to the proposed route, include Geraldine P. Moran's GAA Club and the Park Celtic pitches. Other amenities and services can be found in Cornelscourt and Cabinteely villages including supermarkets, banks, cafes and restaurants.

The locations of notable local amenities and key attractors are shown in **Figure 1-4**.



Figure 1-4: Locations of Key Local Amenities and Attractors Along Route

1.5 Report Structure

The report structure for this Project Feasibility Study and Options Report is detailed as follows:

- **Section 2** of this report provides a review of the relevant local, regional and national transportation policies.
- **Section 3** sets out the design guidance and principles that will influence the development of options, the design and appraisal of the scheme.
- **Section 4** describes the existing conditions along each of the sections of the route, including junctions and crossing points which have been determined following a series of site visits conducted during August 2023.
- **Section 5** sets out the considerations of alternatives and options developed for each section along the route.
- **Section 6** details the findings of a Multi-Criteria Analysis (MCA) assessment undertaken for each section including the resulting preferred option for each section.
- **Section 7** provides an overall report summary and recommendations regarding a preferred scheme design.

2 Policy Context

2.1 Introduction

It is important that a review of current national, regional and local policy is undertaken and used to inform the development of the options considered for the Cabinteely Greenway Scheme. As **Table 1** shows, there is a strong international, national, and local policy basis for this scheme.

If implemented, the scheme would directly and indirectly achieve a range of policy objectives, including investment in low-carbon and sustainable transport, development of a network of national and local cycle routes, encouraging increased levels of physical activity across the population, attracting tourism and investment, and improving safety for vulnerable road users.

Level	Policy
European and International Policy	• Sustainable and Smart Mobility Strategy – Putting European transport on track for the future (European Commission, 2020) • Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system (European Commission, 2011) • Sustainable Mobility: European Union Green Deal (2019) • Road Infrastructure Safety Management (RISM) Directive (European Parliament, 2008) • European Declaration on Cycling (European Commission, 2024) • Transforming Our World: The 2030 Agenda for Sustainable Development (The United Nations, 2015)
National Policy	• Project Ireland 2040 – National Planning Framework • National Investment Framework for Transport in Ireland (2040) • Climate Action Plan (2024) • National Sustainable Mobility Policy (2022) • Strategy for the Future Development of National and Regional Greenways (2018) • Road Safety Authority Road Safety Strategy 2021-2030 • Every Move Counts – National Physical Activity and Sedentary Behaviour Guidelines for Ireland (2024) • Building for Everyone: A Universal Design Approach 2012
Regional and Local Policy	• Regional Spatial and Economic Strategy (RSES) 2019-2031 and Metropolitan Area Strategic Plan (MASP) (2019) • Greater Dublin Area Transport Strategy (2022-2042) • BusConnects • Greater Dublin Area Cycle Network Plan (2022) • DLR County Development Plan (2022-2028) • DLRCC Climate Change Action Plan (2024-2029) • Active Travel – Safe Walking and Cycling Routes • Dún Laoghaire-Rathdown Age Friendly Strategy 2022-2026

- Dún Laoghaire Rathdown Cycle Network Plan (2012)
- DLRCC Cycling Policy 2010
- The DLR County Biodiversity Action Plan 2021-2025 (Dun Laoghaire - Rathdown)

Table 1: Relevant Policy for Cabinteely Greenway Scheme

The following sections outline these key planning strategy and policy documents influencing the study area extents and surrounding area, including the proposals and plans which govern the development of key infrastructure facilities for all types of traffic including pedestrians and cyclists, public transport and motor vehicles.

European and International Policy

2.2 Sustainable and Smart Mobility Strategy (European Commission, 2020)

The Sustainable and Smart Mobility Strategy (European Commission, 2020) forms the basis for how the EU transport system can successfully implement a green and digital transformation while increasing resilience to future crises. The European Green Deal outlines the intended outcomes of this plan; **to achieve a 90% cut in emissions by 2050 by delivering a “smart, competitive, safe, accessible and affordable transport system”.**



The Sustainable Mobility Strategy puts in place key milestones for all modes of transport to ensure that the EU transport system stays on track in its development towards a smart and sustainable future. There are 10 flagship areas identified to make the vision of the Strategy a reality. The flagship areas relevant to the Cabinteely Greenway Scheme include:

- **Flagship 3: Making interurban and urban mobility more sustainable and healthy:**

As set out in the 2030 climate target plan, increasing the modal shares of collective transport, walking, and cycling, as well as automated, connected and multimodal mobility will significantly lower pollution and congestion from transport, especially in cities and improve the health and well-being of people. Cities are and should therefore remain at the forefront of the transition towards greater sustainability. Active transport modes, such as cycling, have seen growth with cities announcing over 2300 km of extra cycling infrastructure. This should be doubled in the next decade towards 5000 km in safe bike lanes.

- **Flagship 9: Making mobility fair and just for all:**

*The shift towards sustainable, smart, and resilient mobility must be just or else risks not taking place. The Commission will therefore ensure that possibilities under the just transition mechanism are fully explored to **make this new mobility affordable and accessible** in all regions and for all passengers including those with disabilities and reduced mobility.*

- **Flagship 10: Enhancing transport safety and security:**

*The safety and security of the transport system is paramount and should never be compromised and the EU should remain a world leader in this field. **Continuous efforts with international, national and local authorities, stakeholders, and citizens is key if we are to meet our goal of zero fatalities from mobility.***

2.3 Roadmap to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System (European Commission, 2011)

The EU Transport White Paper 6 (2011) focussed on the reduction of emissions from transport and a series of target actions have been established for Member States, including supporting increasing demand for mobility whilst meeting the 60% emission reduction target. The White Paper sets out a specific objective in relation to the ‘zero-vision’ on road safety, that particular attention should be given to vulnerable road users such as pedestrians and cyclists including through safer infrastructure. It also notes that facilitating walking and cycling should become an integral part of urban mobility and infrastructure design.

2.4 Sustainable Mobility: European Union Green Deal (2019)

The European Union Green Deal launched a new growth strategy for the EU that aims to transform the EU improving the quality of life, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050. Transport accounts for a quarter of the Union’s greenhouse gas emissions and these continue to grow. To achieve climate neutrality, a 90% reduction in transport emissions is needed by 2050. Reaching this target, includes actions such as: investing in environmentally friendly technologies; and the roll out of roll out of cleaner, cheaper and healthier forms of private and public transport.

2.5 Road Infrastructure Safety Management (RISM) Directive (European Parliament, 2019)

The directive 2008/96/EC on Road Infrastructure Safety Management (RISM) defined procedures to ensure the safety of the trans-European (TEN-T) road network. These covered different stages and aspects of planning, design and operation of major roads, but focused primarily on the safety

of car-occupants. In November 2019, a revision of the directive was published in the Official Journal of the European Union. This saw a number of amendments which paid more attention to the safety of pedestrians and cyclists. For example, Article 6b “Protection of vulnerable road users” states that “*Member States shall ensure that the needs of vulnerable road users are taken into account in the implementation of the procedures set out in Article 3 to 6a.*”

2.6 European Declaration on Cycling (European Commission, 2024)

The European Parliament, the Council and the European Commission released a joint Declaration on Cycling which outlines the importance of cycling as a healthy & sustainable mode of travel and recreation across the European Union, and an emphasis on the delivery of cycling infrastructure. The Declaration seeks to act as a compass in guiding policies and initiatives related to cycling.

Providing safe environments are paramount to encouraging people to cycle, including the provision of segregated cycle paths. Improving road safety and the accessibility of cycling to all people via installation of “more and better” cycling infrastructure across the European Union.

2.7 Transforming Our World: The 2030 Agenda for Sustainable Development (The United Nations, 2015)

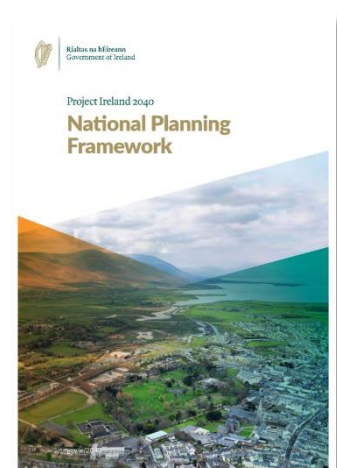
The United Nations set out the 2030 Agenda for Sustainable Development (A/RES/70/1) in 2015. This agenda encompasses the 17 Sustainable Development Goals. The targets outlined include halving global road deaths, providing transport systems which are safe, accessible & sustainable with consideration for children and other vulnerable persons, as well as consuming resources in a sustainable fashion.

National Policy

2.8 ‘Project Ireland 2040’ - National Planning Framework

The National Planning Framework 2040 (NPF) was published in February 2018 and now sets the strategic vision for the spatial development of Ireland for the period from 2018-2040. On foot of the completion of the NPF the Eastern and Midlands Regional Assembly has prepared their own strategy in accordance with the Framework set by the NPF. This was adopted in June 2019 and is known as a Regional Spatial and Economic Strategy.

According to the NPF, the National Strategic Outcomes (including Compact Growth and Sustainable Mobility) are supported by Strategic



Investment Priorities where Housing and Sustainable Urban Development and National Road Networks are the first and second priorities (see **Figure 2-1** below). These concepts are central to the proposed scheme.



Figure 2-1: NPF Strategic Investment Priorities for Ireland (Source: www.NPF.ie)

Table 2 sets out the National Strategic Outcomes and actions which the Cabinteely Greenway scheme closely aligns with:

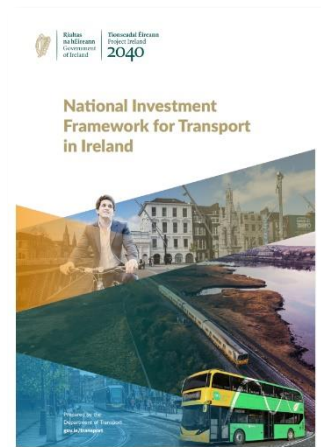
NSO	Action
1. Compact Growth	Ensure transition to more sustainable modes of travel (walking, cycling, public transport) and energy consumption (efficiency, renewables) within an urban context
2. Enhanced Regional Accessibility	Enabling more effective traffic management within and around cities and re-allocation of inner city road-space in favour of bus-based public transport services and walking/cycling facilities
4. Sustainable Mobility	Develop a comprehensive network of safe cycling routes in metropolitan areas to address travel needs and to provide similar facilities in towns and villages where appropriate

7. Enhanced Amenities and Heritage	Implementation of planning and transport strategies for the five cities and other urban areas will be progressed with a major focus on improving walking and cycling routes, including continuous greenway networks and targeted measures to enhance permeability and connectivity
------------------------------------	--

Table 2: Cabinteely Greenway Alignment with National Strategic Outcomes (NSOs)

2.9 National Investment Framework for Transport in Ireland (2040)

The National Investment Framework for Transport in Ireland (NIFTI) is the framework created by the Department of Transport for prioritising future investment in the land transport network. This is done to support the delivery of the National Strategic Outcomes. The Framework aims to contribute to Ireland's decarbonisation effort, support vibrant and successful communities, deliver a high performing transport system, and promote a strong and balanced economy.



In an effort to cater for rising travel demand as well as decarbonising the transport sector, there will be a significant investment in sustainable mobility. This includes major public transport schemes, improved access to sustainable mobility in our towns and rural areas, and major investment in cycling and pedestrian infrastructure. There are four Investment Priorities for the NIFTI:

- Decarbonisation
- Protections & Renewal
- Mobility of people and goods in urban areas
- Enhanced regional and rural connectivity.

The Framework also includes a Modal Hierarchy and Intervention Hierarchy for the maintenance and implementation of physical infrastructure.



Figure 2-2: NIFTI Modal Hierarchy (Source Department of Transport)

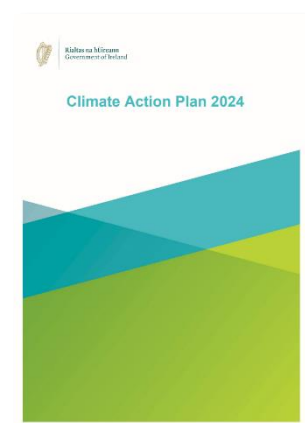


Figure 2-3: NIFTI Intervention Hierarchy (Source: Department of Transport)

2.10 Climate Action Plan (2024)

The Climate Action Plan (CAP) 2024 sets out a major programme for change in response to reducing Ireland's greenhouse gas emissions. The proposals outlined in the Plan are aimed at achieving a net zero carbon energy system within Ireland and it is envisaged that these proposals will also have associated positive economic and societal benefits, including cleaner air, warmer homes, and a more sustainable economy in the longer term.

Ireland's transport system plays a critical role in realising the ambitious targets of the Climate Action Plan. Consequently, to make growth less transport intensive a number of key policies are identified, including the expansion of walking, cycling and public transport to promote a mode shift. The measures to deliver on the transport related targets set out in the Climate Action Plan cover the following:



- Mode Shift;
- Conversion of Public Fleets;
- Incentives and Regulation;
- EV Charging Network;
- Use of Biofuels;
- CNG Network; and
- Emerging Technologies.

The Climate Action Plan makes a commitment to delivering a modal shift, encompassing a range of behavioural change and sustainable transport measures; the following targets are set out within the plan to be achieved by 2030:

- An additional 125,000 sustainable journeys;
- 50% increase in daily active travel journeys;
- 130% increase in daily public transport journeys; and
- 25% reduction in daily car journeys.

Key actions arising from the Climate Action Plan 2024 include the following:

- **TR/24/11(TF):** Advance roll-out of walking/cycling infrastructure in line with National Cycle Network and CycleConnects plans

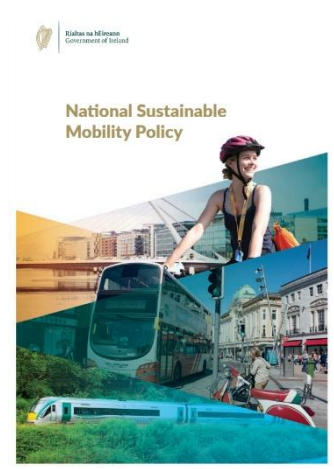
The delivery of the proposed Cabinteely Greenway Scheme will help to fulfil the transport targets outlined above by enhancing connectivity to local schools, services and amenities, and surrounding residential estates by sustainable modes. The scheme will also complement and integrate with several other ongoing/planned projects in the wider locality including the Cherrywood Greenway network.

2.11 National Sustainable Mobility Policy (2022)

The National Sustainable Mobility Policy sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations. It is accompanied by an action plan to 2025 which contains actions to improve and expand sustainable mobility options across the country by providing safe, green, accessible, and efficient alternatives to car journeys.

It also includes demand management and behavioural change measures to manage daily travel demand more efficiently and to reduce the journeys taken by private car.

The policy aligns with the targets of the Climate Action Plan 2021 by aiming to deliver at least 500,000 additional daily active travel and public transport journeys by 2030 and a 10% reduction in the number of kilometres driven by fossil fuelled cars. **Table 3** sets out the National Strategic Outcomes which the Cabinteely Greenway Scheme closely aligns:



Core Actions

Goal 1: Improve mobility safety

4. Continue to protect and renew road infrastructure for all road users including sustainable mobility users

Goal 3: Expand availability of sustainable mobility in metropolitan areas

19. Deliver additional cycling infrastructure projects in the five cities

Goal 6: Take whole of journey approach to mobility, promoting inclusive access for all

48. Promote the principle of 'Access for All' across sustainable mobility services through; - Expansion of wheelchair accessible bus stops suitable for coach lifts

Goal 7: Design Infrastructure according to Universal Design Principles and Hierarchy of Road Users Model

56. Fund local authorities to upgrade existing active travel infrastructure to meet safety, permeability and design standards

Table 3: Relevant Actions from the National Sustainable Mobility Policy Action Plan 2022-2025

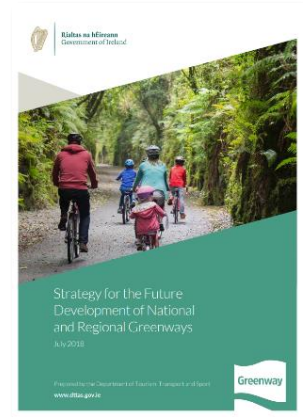
2.12 Strategy for the Future Development of National and Regional Greenways (2018)

The objective of this document is to assist in the strategic development of nationally and regionally significant Greenways in appropriate locations and constructed to appropriate standards. It also aims to increase the number and geographical spread of Greenways of scale and quality around the country over the next 10 years with a consequent significant increase in the number of people using Greenways as a visitor experience and as a recreational amenity.

The purpose of the strategy is to develop Greenways that relate to the development of Greenways of scale i.e., for new developments or extension of existing Greenways that are more than 20k or shorter distances where it is proposed to join a number of existing Greenways to form longer, more strategic routes. The Strategy objectives comprise:

- A Strategic Greenway network of national and regional routes, with a number of high-capacity flagship routes that can be extended and/or link with local Greenways and other cycling and walking infrastructure;
- Greenways of scale and appropriate standard that have significant potential to deliver an increase in activity tourism to Ireland and are regularly used by overseas visitors, domestic visitors and locals thereby contributing to a healthier society through increased physical activity;
- Greenways that provide a substantially segregated off road experience linking places of interest, recreation and leisure in areas with beautiful scenery of different types with plenty to see and do; and
- Greenways that provide opportunities for the development of local businesses and economies; and
- Greenways that are developed with all relevant stakeholders in line with an agreed code of practice.

The Strategy for the Future Development of National and Regional Greenways document outlines the 'Five S Criteria' that the designers shall take cognisance of whilst undertaking project appraisal in line with TII Publications (Standards and Technical). However, these are not headline project appraisal criteria. The 'Five S criteria' are: "*Scenic, Sustainable, Substantially Segregated & Shared Use, Strategic and Offer Lots to See and Do*".



2.13 Ireland's Government Road Safety Strategy 2021-2030

The Road Safety Authority (RSA) published their Road Safety Strategy in 2021. The Strategy adopts the Safe Systems approach to road safety and underpins Ireland's long-term goal of achieving Vision Zero by 2050.

To ensure the long-term goal is achieved, a target has been set to reduce road deaths and serious injuries by 50% by 2030. The actions within the Strategy include several relating to safe and healthy modes of travel, including:



- Develop a National Cycle Network plan for interurban rural cycling and walking, providing connections to active travel networks and Greenways. Develop an implementation plan for delivery in Phases 2 & 3 of the Road Safety Strategy.
- Continue to implement an active travel infrastructure scheme where Local Authorities can apply for funding to develop improved active travel infrastructure.
- Encourage modal shift to support environmental, safety and health objectives by promoting the use of sustainable and active modes of travel.
- Promote and support an expanded Cycle Right training programme which includes online theory and practical skills for children and adults.
- Conduct a review of road traffic policy and legislation to prioritise the safety of walking and cycling.
- Conduct a case study of countries that have adopted mechanisms to reduce traffic (for example car free streets in urban areas) to enhance the safety of other road users and make recommendations for Ireland.

The key safety performance indicators cover several active travel related measures including the following:

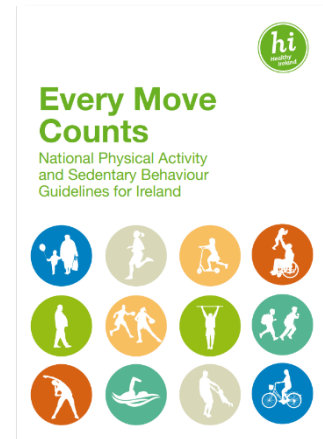
- **KSPI 3:** % of high-risk KSI rural and urban junctions treated to operate within Safe System limits.
- **KSPI 7:** Proportion of extra cycle and pedestrian infrastructure developed to make urban and interurban mobility healthy and sustainable.

2.14 Every Move Counts – National Physical Activity and Sedentary Behaviour Guidelines for Ireland (2024)

This document produced by the Department for Health, draws upon guidance from the World Health Organisation. It provides the guidelines for physical activity and sedentary behaviour for all ages groups and abilities. Inadequate infrastructure for physical activity is highlighted as a factor which may inhibit people's ability and capacity to be physically active. Redistributing space allocated for motorised transport to active travel was designated as a key message.

Safe routes for walking and cycling were specifically mentioned as provisions which may encourage people to reach the target level of physical activity each day/week. Accessible and universally designed spaces give further opportunity to participating in activity outdoors.

Regular physical activity provides significant assistance in increasing people's mental and physical health. This activity can take the form of "walking, wheeling or cycling, dancing, doing sport or playing with your kids". The recommended activity guidelines are outlined in **Figure 2-4** below.



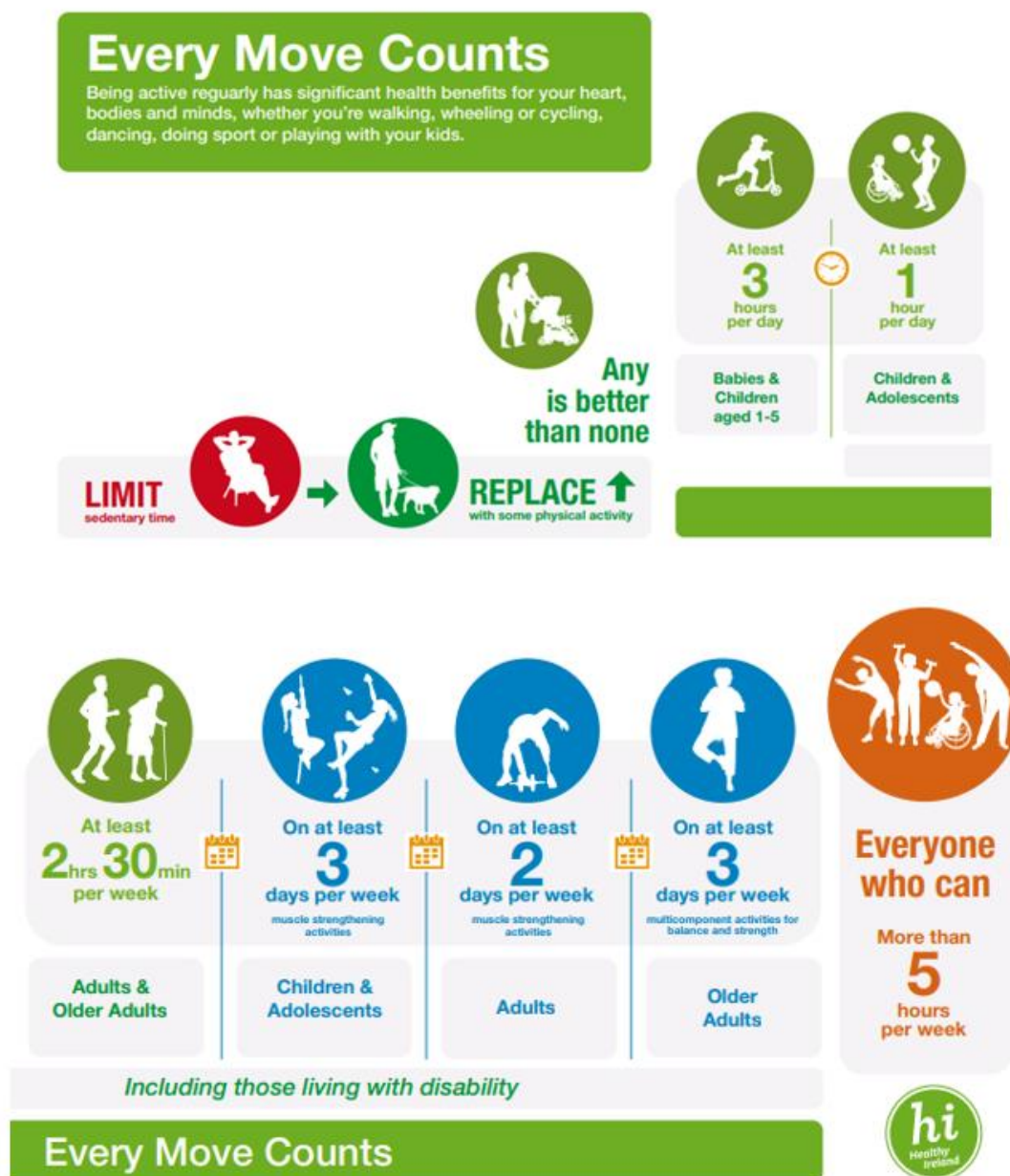


Figure 2-4: The Physical Activity Graphic (Source: Every Move Counts National Physical Activity and Sedentary Behaviour Guidelines for Ireland)

2.15 Building for Everyone: A Universal Design Approach (2012)

The "Building for Everyone: A Universal Design Approach" provides comprehensive best practice guidance on how to design, build and manage buildings and spaces so that they can be readily accessed and used by everyone, regardless of age, size ability or disability. It aims to:

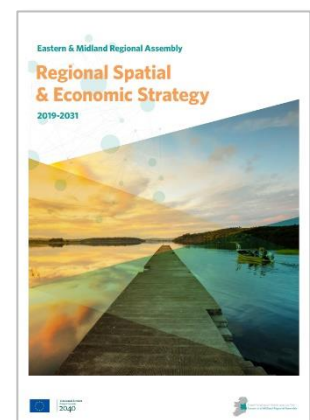
- Identify and promote best practice with regard to universal design of the built and external environment
- Provide best practice guidelines while recognising existing regulations in Ireland
- Provide guidelines that are usable by and accessible to the target audience and
- Promote the achievement of universal design in Ireland

The guidance comprises 10 booklets, the most relevant to this project being Booklet 1 – External environment and approach and Booklet 10 – Planning and Policy.

Regional and Local Policy

2.16 Regional Spatial and Economic Strategy (RSES) 2019-2031 and Metropolitan Area Strategic Plan (MASP) (2019)

The regional strategy sets out a long-term strategic planning and investment strategy for the Dublin area, surrounding counties and Midlands area to 2031. The strategy is authored by the Eastern and Midland Regional Assembly and co-funded by the Irish Government and European Union. Chapter 6 'Economy and Employment' and specifically sub-section 'Retail' recognises Cornelscourt as a Level 3 District Centre. As such the proposed scheme provides a key route for a number of neighbourhoods to reach these retail centres via active travel.



Chapter 8 'Connectivity' of the strategy promotes the importance of the integration of land use and transport, prioritising development of lands which are, or will be, most accessible by walking, cycling and public transport, including infill and brownfield sites. Furthermore, the strategy promotes a shift to more efficient modes (i.e. active travel modes) to reduce car dependency. A number of guiding principles on the Integration of Land Use and Transport are outlined to inform future projects in the region at all levels, including:

- *"The management of space in town and village centres should deliver a high level of priority and permeability for walking, cycling and public transport modes to create accessible, attractive,*

vibrant, and safe, places to work, live, shop, and engage in community life. Accessibility by car does need to be provided for."

- *"Planning at the local level should prioritise walking, cycling and public transport by maximising the number of people living within walking and cycling distance of their neighbourhood or district centres, public transport services, and other services at the local level such as schools."*
- *"Support the '10 minute' settlement concept, whereby a range of community facilities and services are accessible in short walking and cycling timeframes from homes or accessible by high quality public transport to these services in larger settlements. "*
- *"The retrospective implementation of walking and cycling facilities should be undertaken in existing neighbourhoods, in order to give a competitive advantage to these modes. Where possible, developments shall provide for filtered permeability."*
- *"Support investment in infrastructure and behavioural change interventions to encourage and support a shift to sustainable modes of transport and support the use of design solutions and innovative approaches to reduce car dependency."*
- *"Where additional road capacity is provided within or around any town which has an objective to cater for traffic that currently uses the road network in central areas and their immediate environs, that this additional capacity would be used for the improvement of public transport, walking and cycling networks through the reallocation of road space to these modes."*

The MASP identifies cycling and walking as a key element in promoting and creating healthier places, mitigating climate change and facilitating tourism and metropolitan scaled amenities such as strategic cycling networks having regard to the NTA Greater Dublin Area Cycle Network Plan:

- **RPO 5.3** seeks that future development in the Dublin Metropolitan area shall be planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes (walking and cycling) and public transport use and creating a safe and attractive street environment for pedestrians and cyclists.

2.17 Greater Dublin Area Transport Strategy (2022 - 2042)

The GDA Transport Strategy sets out the framework for transport across the Greater Dublin Area up to 2042 and has been updated to ensure consistency with current spatial planning policies and objectives, including national policies based on sustainability as set out in climate action plans.



The overall aim of the Transport Strategy is *“To provide a sustainable, accessible and effective transport system for the Greater Dublin Area which meets the regions climate change requirements, serves the needs of urban and rural communities and supports economic growth”*.

The Transport Strategy also recognises the challenge presented by poor urban environments in the Metropolitan towns which are dominated by vehicles and the disproportionate adverse impacts this can have, particularly on persons with disabilities, the elderly and the socially. One of new aspects of the Transport Strategy is the emphasis placed on the urban design and placemaking as part of better street design in urban areas. As part of the implementation of the Transport Strategy, the following key relevant measures are set out:

Measure PLAN15 – Urban Design in Walking and Cycling Projects

In the design, planning and prioritisation of walking and cycling schemes, the NTA and the local authorities will ensure the incorporation of urban design and placemaking considerations, taking into account architectural heritage, and will consider how greater biodiversity could be fostered.

Measure PLAN16 – Reallocation of Road Space

The NTA, in conjunction with the local authorities, will seek the reallocation of road space in Dublin City Centre, Metropolitan towns and villages, and towns and villages across the GDA to prioritise walking, cycling and public transport use and prioritise the placemaking functions of the urban street network.

Furthermore, the Transport Strategy refers to the importance of access to local services and the concept of the ‘15 – Minute City’ and a ‘Town Centres First’ approach whereby people should be able to meet most of their needs within a short walking or cycling distance of their home.

2.18 BusConnects

BusConnects is a strategic transport plan transforming and revamping the current bus system by building the “next generation” of bus corridors on the busiest routes and redesigning routes with the aim to offer, fast predictable and reliable bus journeys.

The revised bus network proposals, shown in **Figure 2-5**, indicate that the proposed scheme will be well served by a number of interconnecting city bound and local routes further supplemented by a Core Bus Corridor (CBC) route enabling a high frequency service to the City Centre. With regards to the subject scheme, the following key points are noted (frequency below is shown for weekdays):

- **Local Route L26:** Kilternan – Cabinteely - Deansgrange – Blackrock (30 mins)
- **Local Route L27:** Ballyogan – Cabinteely – NRH – Dún Laoghaire (30 mins)
- **Peak- Only Route X1:** Kilcoole – Southern Cross – City Centre (12 services / day)
- **Peak- Only Route X2:** Newcastle – kilcoole – Southern Cross – City Centre (6 services/day)
- **Spine Route E1:** Northwood – City Centre – Kimmage (8-10 mins)



Figure 2-5: Proposed BusConnects Network in the vicinity of the Cabinteely Greenway Scheme

The focus of the BusConnects Dublin Core Bus Corridor aspect is the delivery of the core bus network and associated bus infrastructure that is needed to make the bus system operate efficiently and reliably. The intention of the proposals is to develop the bus corridors so that each will have a continuous bus priority, in other words, a continuous bus lane in each direction, along with segregated cycle lanes where practicable.

2.19 Greater Dublin Area Cycle Network Plan (2022)

This updated plan provides a substantial update and expanse of the previous 2013 GDA Cycle Network Plan. Whereas the 2013 GDA Cycle Network Plan focused on identifying the links necessary for providing an adequate network for the cyclists, the 2022 GDA Cycle Network Plan aims to strengthen access and local permeability within Dublin and the GDA towns and cycling connectivity between them.

The updated Cycle Network Plan map is shown in **Figure 2-6** below. The subject scheme section A is classified as a 'Secondary' route across its full length. The subject scheme section B and C is classified as a "Greenway - Leisure" route. Section D of the subject scheme is classified as a "Greenway - Utility".

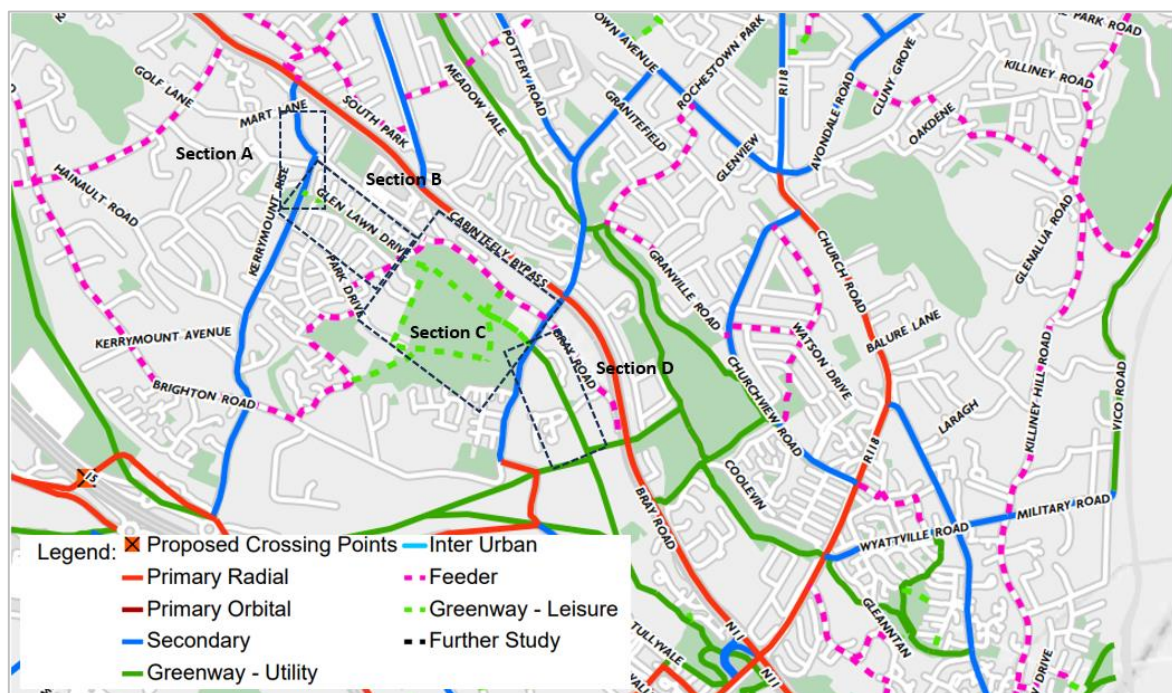
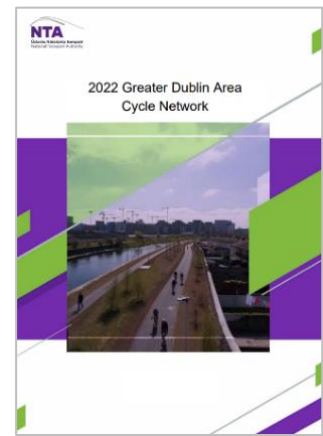


Figure 2-6: 2021 GDA Cycle Network Plan
(Source: 2022 GDA Cycle Network Plan – Dublin Southeast)

2.20 DLR County Development Plan (2022 - 2028)

The DLR County Development Plan (2022 – 2028) sets out the vision for Dún Laoghaire-Rathdown and policy objectives and overall strategy for proper planning and sustainable development within the County over the lifespan of the Development Plan.

The development plan's Core Strategy outlines the county's population projections in line with the RSES and the NPF. **Table 4** within the development plan projects an average annual population growth between 2016 – 2028 in the region of 2,594 – 3,177.



Dún Laoghaire-Rathdown	2016	2026 (Low to High)	Q1 2028 (Low to High)	Total Pop Growth 2016 – Q1 2028	Average Annual Pop Growth 2016 - 2028
	218,000	246,750 – 252,375	249,125 – 256,125	31,125 – 38,125	2,594 – 3,177

Table 4: DLR Core Strategy – Population Projections
(Source: DLR County Development Plan)

The plan's Development Management chapter states that the standards “take into account the increasing availability of options for travel other than by car and the need to encourage non car modes by limiting car parking supply.” As such, a growing DLRCC population with no proportional increase in car parking supply will result in a shift to active travel modes. With respect to the subject scheme there is a **Specific Local Objective (SLO 68)** within the County Development Plan 2022-2028 “To create a linear park along the Loughlinstown river incorporating a pedestrian route and cycleway (greenway), which will link Cabinteely Park to the sea at Rathsallagh”.

In the context of the subject scheme, the following other relevant transport and development objectives are set out within Plan:

Policy Objective T4: Development of Sustainable Travel and Transport - It is a Policy Objective to promote, facilitate and cooperate with other transport agencies in securing the implementation of the transport strategy for the County and the wider Metropolitan Area as set out in Department of Transport's 'Smarter Travel, A Sustainable Transport Future 2009 –2020' and subsequent updates and the NTA's 'Transport Strategy for the Greater Dublin Area 2016-2035.

Policy Objective T11: Walking and Cycling - It is a Policy Objective to secure the development of a high quality, fully connected and inclusive walking and cycling network across the County and integration of walking, cycling and physical activity with placemaking including public realm improvements.

Policy Objective T12: Footways and Pedestrian Routes - *It is a Policy Objective to maintain and expand the footway and pedestrian route network to provide for accessible, safe pedestrian routes within the County in accordance with best accessibility practice.*

Policy Objective T13: County Cycle Network - *It is a Policy Objective 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 2013 and subsequent revisions, subject to environmental assessment and route feasibility.*

Policy Objective T23: Roads and Streets - *It is a Policy Objective, in conjunction and co-operation with other transport bodies and authorities such as the TII and the NTA, to secure improvements to the County road network – including improved pedestrian and cycle facilities, subject to the outcome of environmental assessment (SEA, EIA and AA), flood risk assessment and the planning process.*

Policy Objective T31: Accessibility - *It is a Policy Objective to support suitable access for people with disabilities, including improvements to transport, streets and public spaces. Accessibility primarily concerns people with reduced mobility, persons with disabilities, older persons and children.*

Policy Objective T32: Personal Safety - *It is a Policy Objective to provide and support initiatives that will promote the personal safety of women and vulnerable users who are using all forms of public transport as well as motorists, cyclists and pedestrians. This would include all Luas, DART and bus stops, carparks, cycle parking facilities, laneways and other areas of common use. Initiatives could include well lit surroundings, use of CCTV. There would also be an emphasis on placing entrances/exits to public transport and cycle facilities close to busy built up areas.*

Policy Objective PHP40: Shared Space Layouts - *It is a Policy Objective to promote safer and more attractive streets and public realm for all road users throughout the County by proactively engaging with, and adhering to, the 'shared space' concept and guidance set out in the 'Design Manual for Urban Roads and Streets' (2013).*

Policy Objective OSR5: Public Health, Open Space and Healthy Placemaking - *It is a Policy Objective to support the objectives of public health policy including Healthy Ireland and the National Physical Activity Plan (NPAP) 2016, to increase physical activity levels across the whole population thus creating a society, which facilitates people whether at home, at work or at play to lead a more active way of life.*

Policy Objective OSR8: Greenways and Blueways Network - *It is a Policy Objective to develop a comprehensive network of County Greenways linking parks and public open spaces and to liaise with*

adjoining local authorities and other stakeholders to achieve and improve wider external linkages and corridors, to enable enhanced connectivity to wider strategic networks, and to allow for the long-term strategic expansion of urban areas (consistent with NPO 62 of the NPF).

Furthermore, the County Development Plan in Section 9.3.1.4 states that “in order to ensure careful planning, design and management of greenways at a County level, the Council will:

- *Avoid impacts on the integrity of European Conservation Sites (SACs and SPAs), and nationally designated sites (NHAs), which includes taking account of protected species or qualifying interests that may occur/use areas outside designated sites.*
- *Support the objectives of the National Biodiversity Action Plan, 2017 – 2023 and the forthcoming DLR County Biodiversity Action Plan, 2020- 2025.*
- *Avoid and/or minimise impacts on locally important biodiversity in DLR.*
- *Ensure suitable buffer zones of at least 5m are in place on any proposed routes (including associated infrastructure) that may be likely to have a potential impact on habitats or species along rivers, riparian areas, coastal areas, or mountain paths.*
- *Protect existing hedgerows, important treelines, and individual trees against unnecessary damage during planning, design, and the development of each greenway route.*
- *Avoid the accidental introduction and the spread of Invasive Alien Species (IAS) such as Japanese Knotweed and Giant Hogweed during the development and maintenance of the greenway route.*
- *Carry out IAS surveys, and where necessary, develop an IAS Management Plan for proposed greenway routes. The Greenway projects will comply with the requirements and objectives of the Habitats Directive and are in line with the Strategic Environment Assessment (SEA) Objectives of the Greater Dublin Area Cycle Network Plan (and subsequent revisions).”*

Policy Objective PHP14: Age Friendly Strategy - *It is a Policy Objective to support and facilitate the implementation of the Dún Laoghaire Rathdown Age Friendly Strategy 2016-2020.*

PHP35: Healthy Placemaking - *It is a Policy Objective to:*

- *Ensure that all development is of high quality design with a focus on healthy placemaking consistent with NPO 4, 26 and 27 of the NPF, and RPO 6.1, 6.12, 9.10 and 9.11 of the RSES.*
- *Promote the guidance principles set out in the ‘Urban Design Manual – A Best Practice Guide’ (2009), and in the ‘Design Manual for Urban Roads and Streets’ (2013).*
- *Ensure that development proposals are cognisant of the need for proper consideration of context, connectivity, inclusivity, variety, efficiency, distinctiveness, layout, public realm, adaptability, privacy and amenity, parking, wayfinding and detailed design.*

PHP36: Inclusive Design & Universal Access - It is a Policy Objective to promote and support the principles of universal design ensuring that all environments are inclusive and can be used to the fullest extent possible by all users regardless of age, ability or disability consistent with RPO 9.12 and 9.13 of the RSES.

Policy Objective GIB24: Rivers and Waterways - It is a Policy Objective to maintain and protect the natural character and ecological value of the river and stream corridors in the County and where possible to enhance existing channels and to encourage diversity of habitat and nature-based solutions that incorporate biodiversity features. It is also policy (subject to the sensitivity of the riverside habitat), to provide public access to riparian corridors, to promote improved passive recreational activities.

Policy Objective HER26: Historic Demesnes and Gardens - It is a Policy Objective that historic demesnes and gardens should be identified and protected to reflect and acknowledge their significance as part of our National Heritage. The following houses and gardens are listed: Cabinteely House, Marlay House, Fernhill and Old Conna.

Policy Objective PO GIB1: Green Infrastructure Strategy - it is a Policy Objective to continue to implement, and update, the DLR Green Infrastructure (GI) Strategy, to protect existing green infrastructure and encourage and facilitate, in consultation with relevant stakeholders, the development, design and management of high quality natural and semi-natural areas. This recognises the ecosystems approach and the synergies that can be achieved with regard to sustainable transport, provision of open space, sustainable management of water, protection and enhancement of biodiversity.

The Cabinteely Greenway will strengthen Corridor 4 Dún Laoghaire to the Mountains (**Figure 2-7**) and also Corridor 5 Intra Urban of the Green Infrastructure Strategy (**Figure 2-8**) as set out in Appendix 14 of the of the Dún Laoghaire-Rathdown County Development Plan 2022-2028.

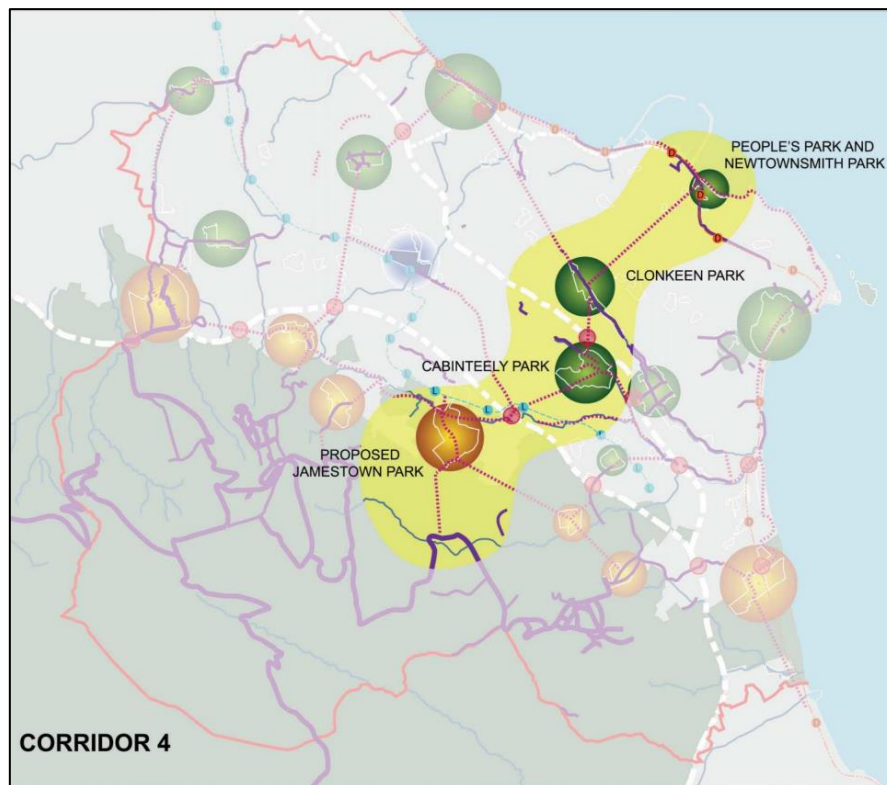


Figure 2-7: Corridor 4 - Dún Laoghaire to the Mountains (Source: DLR County Development Plan 2022 – 2028)

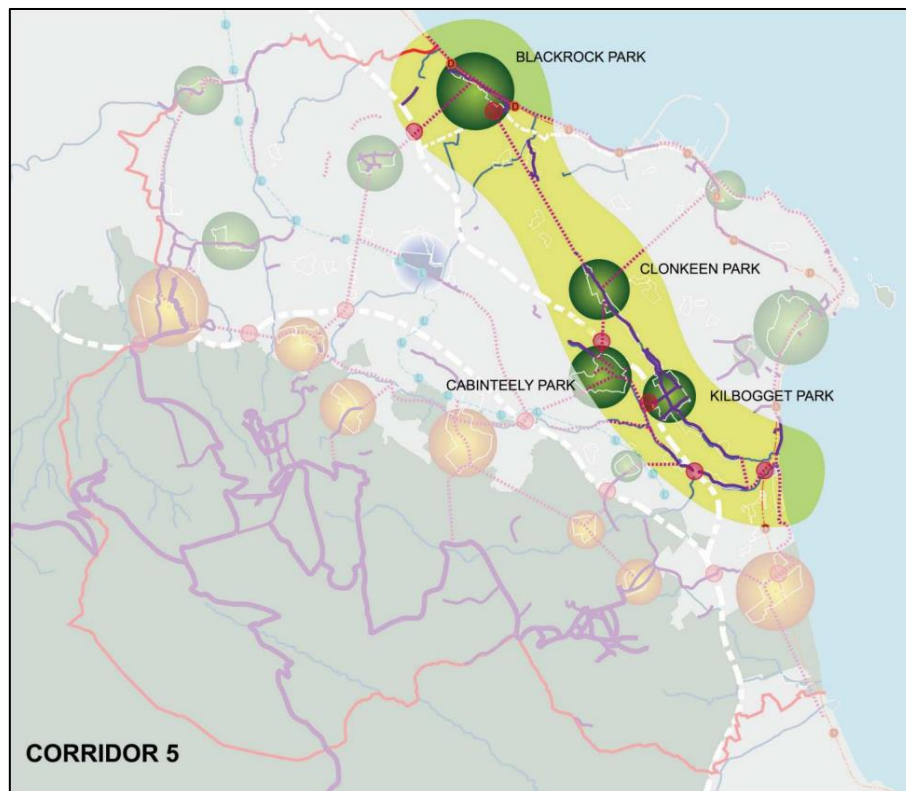
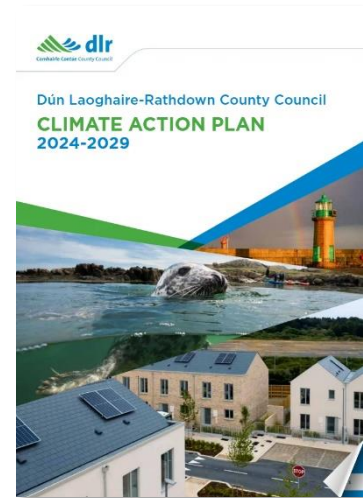


Figure 2-8: Corridor 5 – Intra Urban (Source: DLR County Development Plan 2022 – 2028)

2.21 DLRCC Climate Change Action Plan (2024 - 2029)

The Climate Change Action Plan (2024 – 2029) sets out DLRCC's process to improve energy efficiency and reduce greenhouse gas emissions, while making the County a more climate-resilient region. This will be achieved by a range of ongoing and planned actions in six thematic areas: Energy and Buildings, Transport, Flood Resilience, Nature-Based Solutions, Circular Economy and Resource Management and Community Engagement. The actions in these themes address the four targets of the plan which are as follows;

- 50% improvement in dlr's energy efficiency by 2030
- 51% reduction in dlr's greenhouse gas emissions by 2030
- To make Dublin a climate resilient region, by reducing the impacts of future climate change-related events, and
- To actively engage and inform our communities on climate action.



The plan acknowledges that by improving public transport and cycling networks, congestion and pollution is reduced, air quality is improved and noise impacts are reduced. Also by encouraging cycling and walking, the health of local communities can be improved. As part of the Strategic Priorities set out in the plan, active travel (walking and cycling) and public transport solutions will be prioritised, including consideration of reallocation of road space to these modes of travel, and accessibility. Supporting this, the '10 Minute Neighbourhoods' concept is a key priority to address carbon emissions, congestion and air quality issues in the Dún Laoghaire Rathdown area.

Key transport actions identified in the Climate Action Plan include relevant to the subject scheme include:

- **T1** – Deliver a safe and active travel network for people of all ages and abilities by implementing the County and Greater Dublin Area Cycle Network
- **T8** – Reallocate road space to provide for sustainable travel alternatives
- **T9** – Identify opportunities to implement permeability and connectivity in the planning process
- **T17** – Expand the number of controlled crossings and zebra crossings

- **T23** – Explore the use of sustainable methods of road surfacing that minimises the use of raw materials

2.22 Active School Travel – Safe Walking and Cycling Routes

DLRCC's main aims of the active school travel scheme is to provide students and parents with safe, direct and comfortable walking and cycling routes to schools. The project aims to also to provide an alternative for families who do not or cannot drive, may not be able to avail of public transport or who wish to travel to school on foot or by bike. The COVID-19 pandemic, in part, initiated this project which was first proposed in August 2020.

The plan seeks to help avoid traffic congestion at school entrances, as well as encouraging a shift away from the use of the private car, particularly for short journeys. This initiative is also aligned with the Council's wider climate action agenda, including objectives of the County Development Plan and the Council's Climate Change Action Plan, and is in line with national policy on enabling and promoting sustainable transport. Three routes proposed as par to the plan include:

- **Sea to Mountains:** *will link east to west across the County. Starting at Blackrock Dart Station, crossing the N11 to Deerpark. It will then continue south linking to the Sandyford Cycle Route and Kilmacud Luas Stop and on to the Slang River Greenway and Wicklow Way.*
- **Park to Park:** *will link north to south across the county. Starting at the coast at Blackrock Dart Station then joining to the existing pathways in Rockfield Park. From there it will continue south along Deansgrange Road linking to the Loughlinstown to Deansgrange Greenway and ending by linking south to the coast.*
- **Mountains to Metals:** *will link east west across the county. Starting at the Sandyford Cycle Route, linking to the Sea to Mountains Route, the route also links up to the Park to Park route, north through residential areas and new developments and on to the Metals.*

The location of the subject Cabinteely Greenway scheme relative to the three schemes noted above, is shown in **Figure 2-9** below.

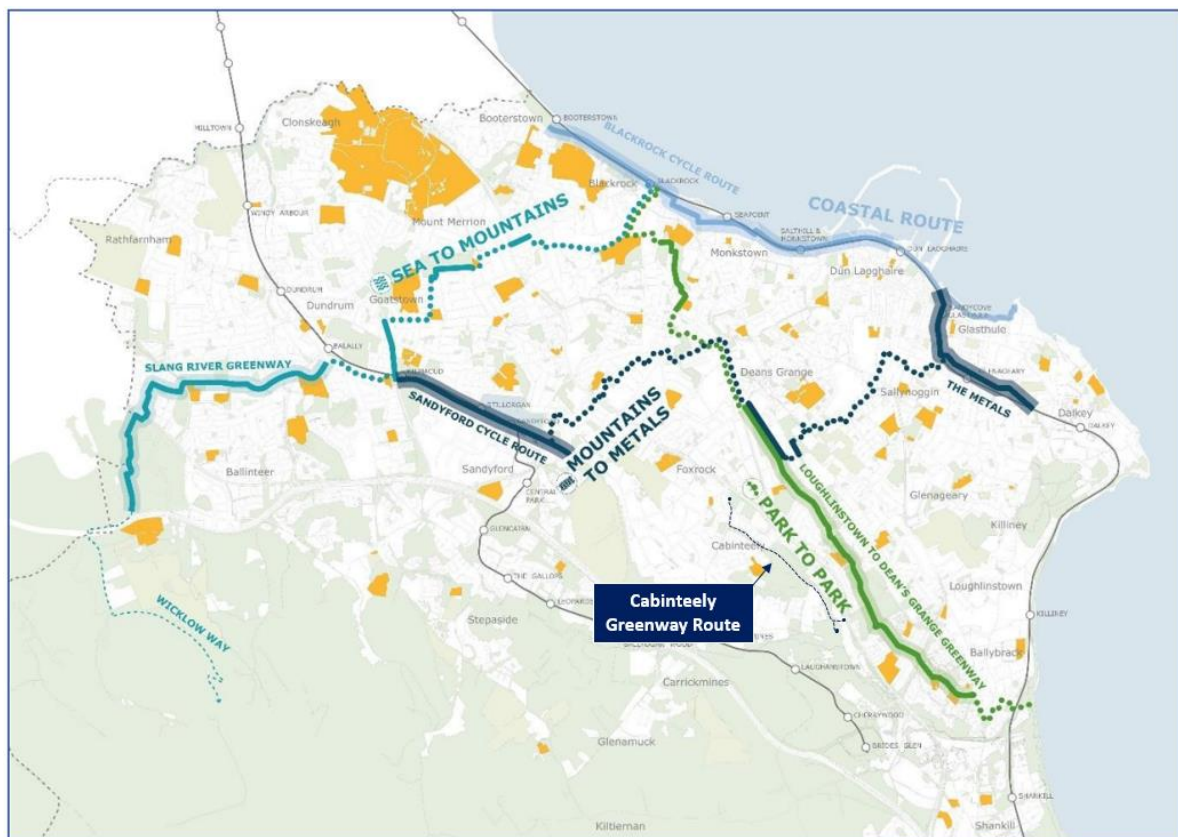


Figure 2-9: Safe Walking and Cycling Routes
(Source: Active School Travel - Project Update December 2021)

2.23 Dún Laoghaire Rathdown Age Friendly Strategy 2022-2026

The DLR Age-Friendly Strategy (2022 – 2026) sets out four strategic priorities, these include the Physical Environment, Shared Services, the Social Environment and Working Together. With regards to the Physical Environment, one of the key objectives (Objective 1.2) is to *'Influence the provision of safe and accessible transport and infrastructure to enable older people engage actively within their communities'*.

The Strategy notes that to achieve this the following is required:

- 1.2.4: Enhance pedestrian facilities in the County for the widest range of users. KPIs for this include number of pedestrian crossing facilities improved and length of footpaths upgraded.
- 1.2.5: Carry out improvements to the cycle network. KPIs for this include length of cycle track improved and accessible for all cycling abilities and number of cycle schemes at various stages of development.



2.24 Dún Laoghaire Rathdown Cycle Network Plan (2012)

Within the DLR Cycle Network Plan, Section A of the scheme is designated as a 'busy traffic route', Section B, C and D are designated as a 'pedestrian/cycle routes suitable for all users'. The proposed scheme will complement and integrate with several other ongoing/planned facilities in the wider locality including the Cherrywood Greenway network.

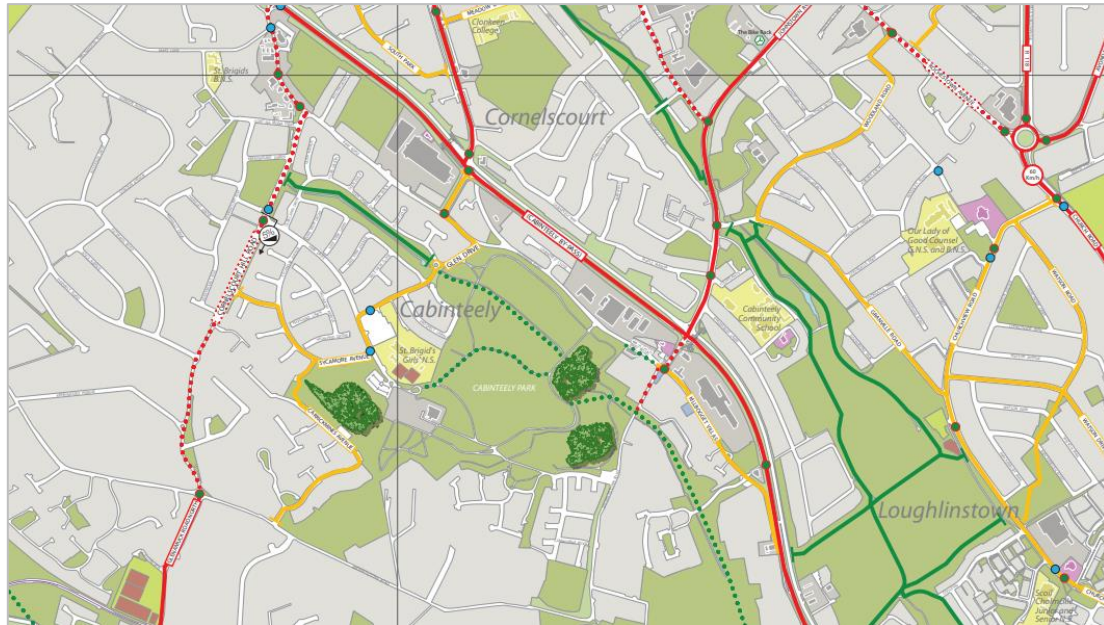


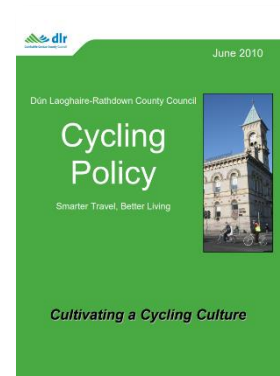
Figure 2-10: DLRCC Cycle Network Plan (Source: DLRCC)

2.25 Dún Laoghaire Rathdown Cycling Policy (2010)

The vision of the DLR Cycling Policy is to *"cultivate a cycling culture, through the implementation of appropriate infrastructure and promotional measures, that positively encourages all members of the community to cycle at all life stages and abilities as a mode of sustainable transport that delivers environmental, health and economic benefits to both the individual and the community"*.

The Policy states that in order to contribute to achieving local and national goals, it focuses its attention on the provision of infrastructure, promotion and marketing on the following activities:

- Trips to school
- Trips to work
- Trips to and from public transport interchanges as part of onward journeys to work
- Other utility trips i.e. trips to shops, leisure facilities etc.



- Recreational and tourism trips, including countryside access
- Long distance and rural routes

2.26 The DLR County Biodiversity Action Plan 2021-2025 (Dun Laoghaire – Rathdown)

The DLR County Biodiversity Action Plan is a five year plan with targeted actions to protect biodiversity for the benefit of future generations.

The plan designates Cabinteely Park as a locally important biodiversity site (LIBS05 Cabinteely Park) , meaning that it contributes to the biodiversity of Dún Laoghaire outside of formal conservation.

The greenway also passes through the Leopardstown to N11 Biodiversity Corridor. Biodiversity corridors contain areas of varied ecological importance which link habitats together. Development is not precluded in these areas, but they need to be subject to ecological assessment. **Figure 2-11** below shows the County-wide Ecological Network map.



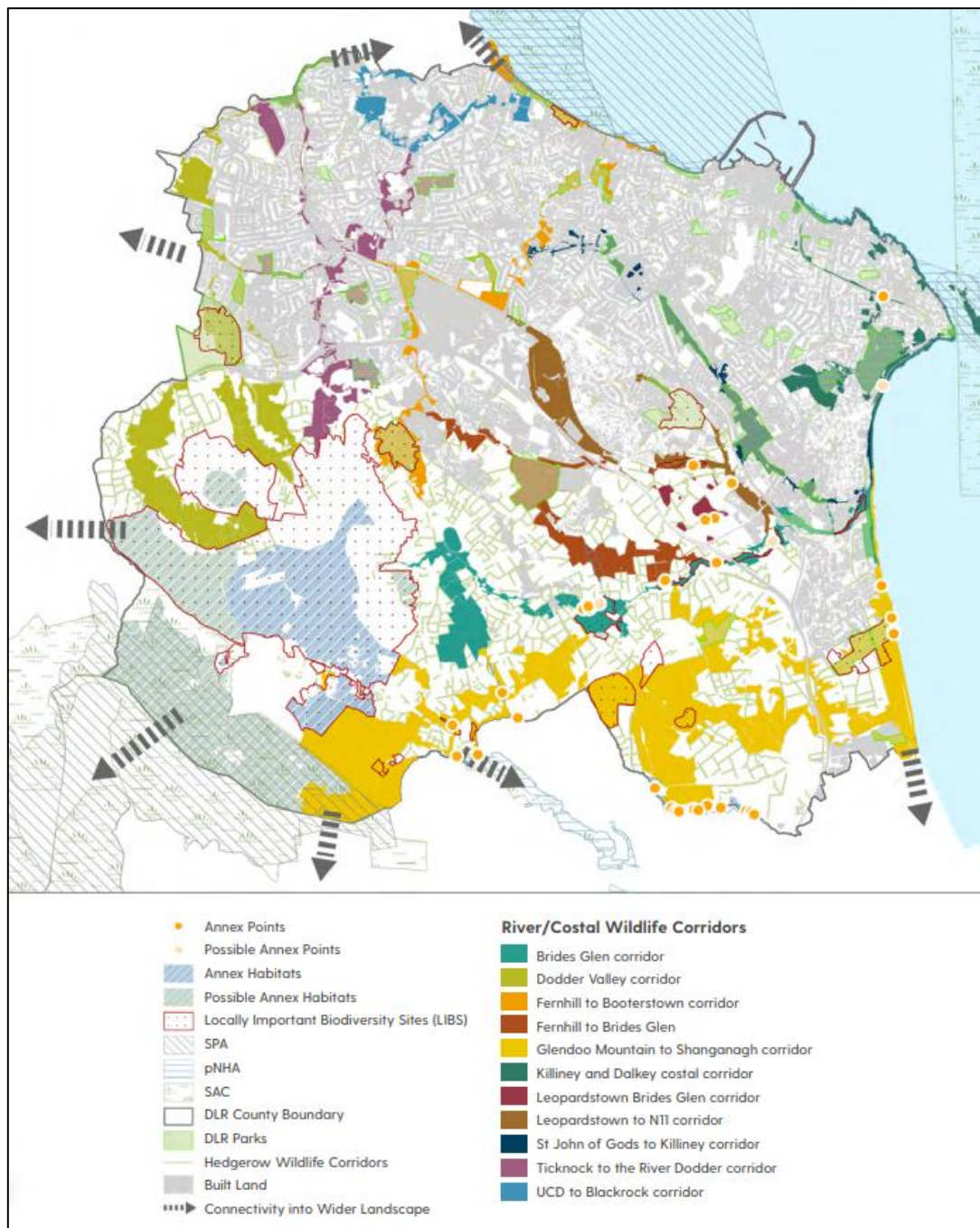


Figure 2-11: DLR County-wide Ecological Network (DLR County Biodiversity Action Plan 2021-2025)

The design team includes an ecologist, ensuring that ecological considerations will inform the design of Cabinteely Greenway.

3 Design Guidance

3.1 Design Manual for Urban Roads and Streets (2019)

The Design Manual for Urban Roads and Streets (DMURS) (May 2019) provides guidance relating to the design of urban roads and streets. It presents a series of principles, approaches and standards that are necessary to achieve balanced, best practice design outcomes with regard to street networks and individual streets.

The manual places a significant emphasis on car dominance in Ireland and the implications this has had regarding the pedestrian and cycle environment. The four key design principles of DMURS include:

Design Principle 1: *Support the creation of integrated street networks which promote higher levels of permeability and legibility for all road users, and in particular more sustainable forms of transport.*

Design Principle 2: *The promotion of multi-cultural, place-based streets that balance the needs of all users within a self-regulating environment.*

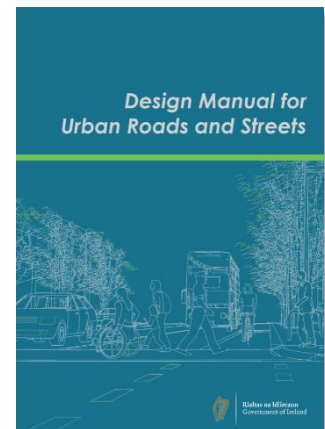
Design Principle 3: *The quality of the street is measured by the quality of the pedestrian environment.*

Design Principle 4: *Greater communication and co-operation between design professionals through the promotion of a plan-led, multidisciplinary approach to design.*

The document encourages more sustainable travel patterns and safer streets by proposing a hierarchy for user priorities, with pedestrians at the top indicating that walking is the most sustainable form of transport. Second in the hierarchy are cyclists with public transport third in the hierarchy and private motor vehicles at the bottom. By placing private vehicles at the bottom of the hierarchy, the document indicates that there should be a balance on street networks and cars should no longer take priority over the needs of other users.

DMURS acknowledges the challenges in retrofitting permeability to existing built up areas, whereby the dendritic nature of some street patterns makes it difficult to retrofit as there are very little connection opportunities. A number of processes and design principles are suggested by DMURS to assist in successfully retrofitting permeability to existing built up areas, including:

- Rather than seeking to retrofit a fully permeable network, focus on key desire lines where maximum gain can be achieved throughout the minimum amount of intervention;
- Ensure any plan highlights reductions in journey times, walking distances etc.;



- Identify potential reduction in private vehicle use or increases in cycling and walking;
- Ensure links are short, overlooked, have clear sight lines, and are well lit to mitigate antisocial behaviour. Longer links should be limited to those which go through areas of open space;
- Implement a package of landscape improvements that will directly add to the attractiveness of an area; and
- Where possible focus on formalising routes which are currently used by more able pedestrians but due to barriers are not suitable for use by the mobility impaired and disabled.

The focus of the manual is to promote an integrated approach towards creating and designing street networks which are simpler in structure, with higher levels of connectivity to reduce travel distances on foot or by bike, but which also incorporate elements of urban design and landscaping to help manage behaviours and provide high quality street environments.

3.2 Cycle Design Manual (2023)

The Cycle Design Manual (CDM) has recently been published by the National Transport Authority (NTA) and overseen by the Department of Transport. The Cycle Design Manual replaces the previous National Cycle Manual, published by NTA in 2011.



The new Cycle Design Manual provides guidance on the design of both on-road and off-road cycle facilities for both urban and rural locations. The manual sets out five main requirements for cycle-friendly infrastructure, comprising: **Safety, Coherence, Comfort, Directness** and **Attractiveness**. Section 4.2.7 and TL106 of the CDM outlines the key design considerations in relation to Greenways and Shared Active Travel Facilities including the following:

- Plan and design for all kinds of users - the facility should be multi-access;
- Incorporate safe systems principles and meet the requirements for cyclists;
- Protect users from motor traffic;
- Separate users (people, cycling, walking and wheeling) where necessary;
- Making intuitive and clear which space is allocated to different users;
- Reduce the need to slow down/stop; and
- Design with maintenance in mind.

With regards to segregation, it is noted that shared-use facilities are often suitable where:

- The density of users is low meaning less interactions and potential conflict;
- There is low speed differential between users (e.g. area with high place function or at road crossings);
- Where segregation results in facilities that are too narrow for cyclists and pedestrians; and
- Where segregation may make the layout too confusing and result in users straying into each other's space, increasing potential conflict.

Segregated facilities can be considered where significant flows of pedestrians and/or cyclists exist, as indicated in **Table 5** below which provides recommended arrangements depending on the density of pedestrians using the facility.

Density of Pedestrians (users/hr/m)	Recommended Arrangement
<100	Shared-use usually appropriate
101-199	Segregation may be considered
>200	Segregation should be considered

*Table 5: Pedestrian Densities
(Source: Cycle Design Manual, Table 4.14)*

With regards to appropriate widths for Greenways and Shared Active Travel Facilities, the CDM notes that Greenways in urban areas will generally be busier than in rural areas. All routes should meet the absolute minimum widths set out in **Table 6** to be able to “comfortably accommodate larger cycles and mobility scooters and designers should also consider the current, forecast and any target increase in users. A width greater than the minimum will increase the level of service, enable sociable (side by side) cycling and walking, and help minimise conflicts between users”.

Location	Desirable Minimum Width	Absolute Minimum Width
Urban areas	4.0m	3.0m
Rural areas	3.0m	2.5m

*Table 6: Shared Active Travel Facility and Greenway Widths
(Source: Cycle Design Manual, Table 4.15)*

Further guidance is provided in the CDM in relation to other key design elements including the use of speed control measures and access controls. Notably the CDM states that shared facilities between pedestrians and cyclists adjacent to carriageways generally result in a reduced quality of

service for both modes and should not be considered as a first option. However, shared facilities may be acceptable in the following situations if well-designed and implemented:

- At heavily constrained junctions where the space does not exist to maintain segregation between pedestrians and cyclists;
- Where a length of shared use may be the only practical way of achieving a continuous cycle route; and
- Where high cycle and high pedestrian flows occur at different times.

Recommended minimum widths for shared facilities carrying up to 300 pedestrians per hour are given in **Table 7**. Wherever possible, and where pedestrian flows are higher, it is stated that greater widths should be used to reduce conflict.

Flow	Desirable Minimum Width	Absolute Minimum Width at Pinch Points
≤ 300 pedestrians and ≤ 300 cyclists per hour	4.0m	3.0m
≤ 300 pedestrians and > 300 cyclists per hour	4.5m	4.5m

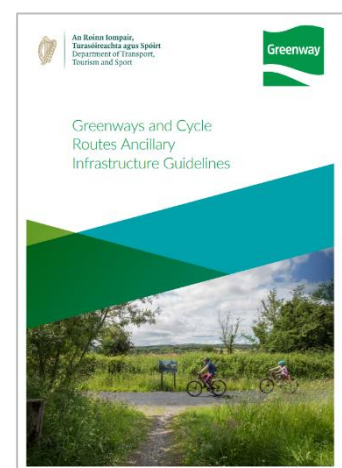
*Table 7: Recommended Minimum Widths for Shared Paths
(Source: Cycle Design Manual, Table 4.16)*

3.3 Greenways and Cycle Routes Ancillary Infrastructure Guidelines (2022)

The Greenways and Cycle Routes Ancillary Infrastructure Guidelines was published by the Department of Transport in partnership with Sport Ireland in July 2018, subsequently updated in January 2022.

It provides guidance on the installation and creation of ancillary infrastructure intended to bring routes to life and make it an attractive and enjoyable experience for users.

This document supports the national Strategy for the Future Development of National and Regional Greenways published by the Department of Transport Tourism and Sport. The guidelines place significant emphasis on user expectations, and establishes five key outcomes from a well-planned and managed route, including:



- Be safe and perceived to be safe.
- Offer an attractive pleasant experience: with aesthetic Route design, good scenery integrating with its surrounding, and opportunities to visit local attractions and include places for resting, refreshment and stopping off.
- Be accessible via public transport at critical points, and convenient to use, with due consideration given for the needs of individuals with disabilities.
- Be part of a coherent trail or network with signposted routes and destinations and be continuous and recognisable with consistent standards.
- Be appropriate, in that it is easy to use, well maintained and addresses user recreation and/or their commuting expectations.

A table presented in section 1.3.1. of the document and shown in **Figure 3-1** below, provides a summary of the needs and expectations of different types of cyclists who are likely to use the routes.

Route User Type Requirements			
	Leisure Cyclists	Cycle Tourists	Commuter Cyclists
Characteristics	Vary greatly in age, skill and fitness, and include families	Large skill variation, often heavily equipped and may travel in groups	Various ages, skills
Main Locations	Close to settlements – up to 50km approximately	Scenic, attractive areas, designated destinations	In and between urban, educational, and employment areas
Route-Layout	Off-road and low gradients for families - varies for road cyclists	Generally off-road, although experienced cyclists tend to prefer on-road	Direct, safe Route
Route-Selection	- Cycle loops - Regular resting areas - Opportunities to buy food and drink - Integration with public transport and car parking	- Scenic and interesting Routes connecting tourist attractions - Linking settlements - Food and drink and accommodation - Integration with public transport	- High-quality surface - Low traffic or none - Integration with public transport

*Figure 3-1: Road User Type Requirements
(Source: Greenway and Cycle Routes Ancillary Infrastructure Guidelines).*

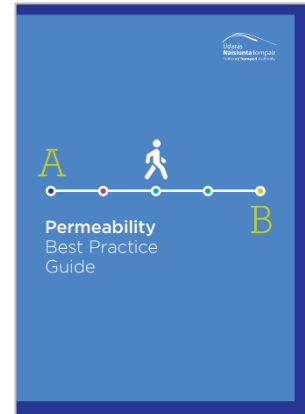
The document emphasises that the design and management of routes, should provide a safe, attractive, accessible, coherent, and appropriate experience whilst not undermining the local environment.

It also noted that the personality or theme of the route should ideally reflect the nature of the community's history and the land that it traverses, by acknowledging the legacy of its setting along with the use of appropriate local materials.

3.4 Permeability Best Practice Guide (2015)

In 2015 the National Transport Authority (NTA) published the Permeability Best Practice Guide which provides the basis for delivering choice in existing built-up areas by promoting permeability for pedestrians and cyclists.

A key element of this is addressing the legacy of severance built into the expansions of towns and cities over recent years. The guide emphasises the importance of creating permeable neighbourhoods, where people can walk / cycle through areas safely and conveniently. This in turn confers a competitive advantage to active modes over the private car.

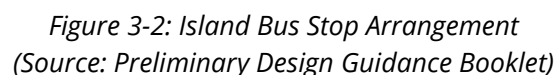
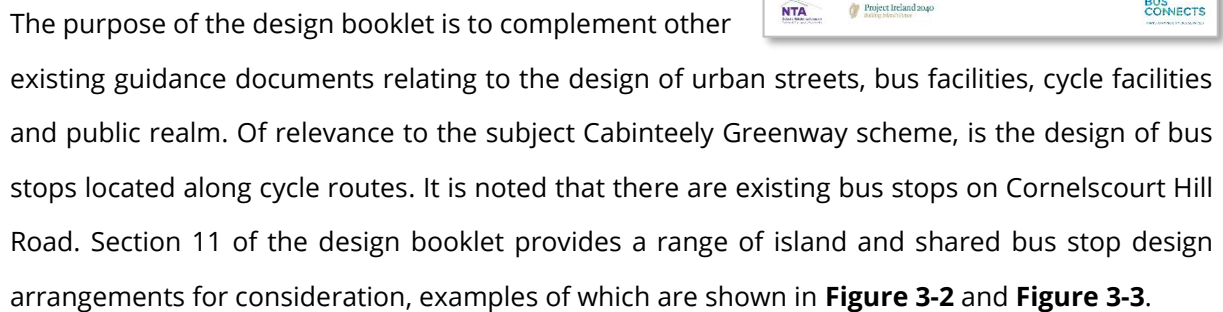


The benefits of creating permeable networks are broadly categorised into the following four areas:

- **Local Economic Well Being:** by creating neighbourhoods where people can easily access local shops and businesses by walking or cycling.
- **Public Transport:** making it easier and quicker to access public transport thereby encouraging increased use of public transport. It may also result in reduced journey times and financial savings for users compared to private car travel.
- **Health:** 'Designing in' opportunities for walking and cycling to support healthy activity and instil healthy travel patterns into people's daily lives.
- **Community Development and Social Capital:** Creating connected, lively, and usable spaces in the local community generates opportunities for day-to-day social interactions, which in turn contribute to a greater sense of community.

The concept of filtered permeability is the common theme running throughout the guide. Whereby any trip in a built-up environment should be most direct by walking and cycling, not necessarily by private car. By minimising the distance and time it takes people to walk, and cycle encourages travel by these modes instead of the private car.

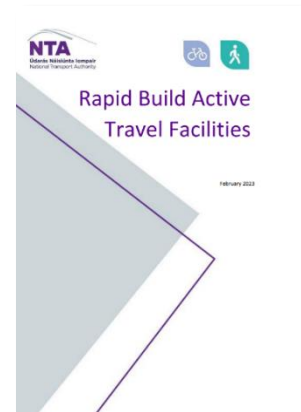
The Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors (April 2022) informs the design of cross-sections and junctions across the BusConnects network to ensure consistency and the provision of safe facilities for all road users.



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3.6 Rapid Build Active Travel Facilities (2023)

The purpose of the advice note, published by the NTA in February 2023, is to give guidance on the options available to deliver high quality walking and cycling infrastructure using rapid build, cost-effective methods in order to reduce car-dependency and to favour sustainable modes over the private car, and as a means of achieving reductions in carbon emissions. Rapid Build Infrastructure is infrastructure that can generally be accommodated within the existing carriageway or verge and has limited drainage impacts. This may include:



- Road markings/traffic restrictions;
- Narrowing/converting general traffic lanes to active travel facilities;
- Converting on-street parking to active travel facilities;
- Creating Traffic Free streets; and
- Redesigning junctions to provide greater capacity for walking, cycling and public transport.

The approach has been set out by the NTA in order to align with both the Climate Action Plan 2023 and the Intervention Hierarchy set out in NIFTI which prioritises maintaining, optimisation, and improving over new construction.

A separate report has been prepared by DBFL which examines the feasibility and appropriateness of potential rapid build options for the Cabinteely Greenway scheme. The Rapid Build Options Report should be read in conjunction with this report.

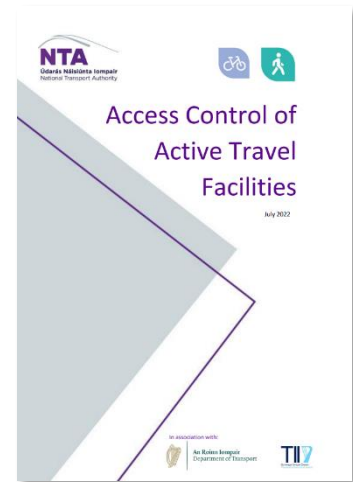
The Rapid Build Options Report concluded that rapid build construction methods are feasible along Section A (Cornelscourt Hill Road) and Section B (Glen Lawn Drive), however rapid build is not considered appropriate along Section C (Cabinteely Park) and Section D (Brennanstown Road to Bride's Glen / Cherrywood Network).

Whilst rapid build options are feasible on Sections A and B, when they are considered in the context of the full scheme, they are unlikely to reach the full potential of the scheme in terms of offering a consistent, legible and attractive overall route. By implementing rapid build on these sections, it may compromise the entirety of the route, given that high-quality traditional build methods will need to be implemented within Cabinteely Park and Brennanstown Avenue sections. Therefore, in order to achieve the project objectives and align with relevant national and local policy, it was recommended that full upgrade traditional build methods are considered for the full route.

3.7 Access Control of Active Travel Facilities (2022)

The purpose of the advice note, published by the NTA in July 2022, is to provide guidance for suitable access controls that may be provided only where necessary to prevent inappropriate vehicular access to pedestrian and cycling facilities, including shared greenways and segregated cycleways, to achieve consistent universal access to all such active travel facilities.

Where access control is required, the note states that bollards may be used to demark the entry point to a pedestrian or cyclist facility with a minimum clear width of 1.5m to accommodate the full range of mobility vehicles and those using cargo bikes. Guidance regarding the implementation of access gates, barriers and walls is also provided, noting that any access controls should maintain the free flow of cyclists through obstructions.



4 Existing Conditions

4.1 Introduction

The scheme, which has been identified as a strategic north-west / south-east link, commences at the Bray Road / Cornelscourt Hill Road signalised junction and extends approximately 2.3 km, passing through Cabinteely Park and ties into the Cherrywood Green Routes Network.

The scheme passes through predominantly residential areas, although there are also a number of local services and amenities, such as Cabinteely Park, adjacent to the route as well as a number of local schools. The following sections examine the current characteristics of the study area in terms of physical features, opportunities and constraints which currently exist, as well as the current pedestrian, cyclist and traffic environment. For the purposes of this review, the route has been split into four distinct sections:

- **Section A:** Cornelscourt (Bray Road / Cornelscourt Hill Road Junction) to Glen Lawn Drive
- **Section B:** Glen Lawn Drive to Cabinteely Park
- **Section C:** Cabinteely Park
- **Section D:** Brennanstown Road to Cherrywood (Bride's Glen / Orchard Square)

The overall route and the four distinct sections are illustrated in **Figure 4-1** below.

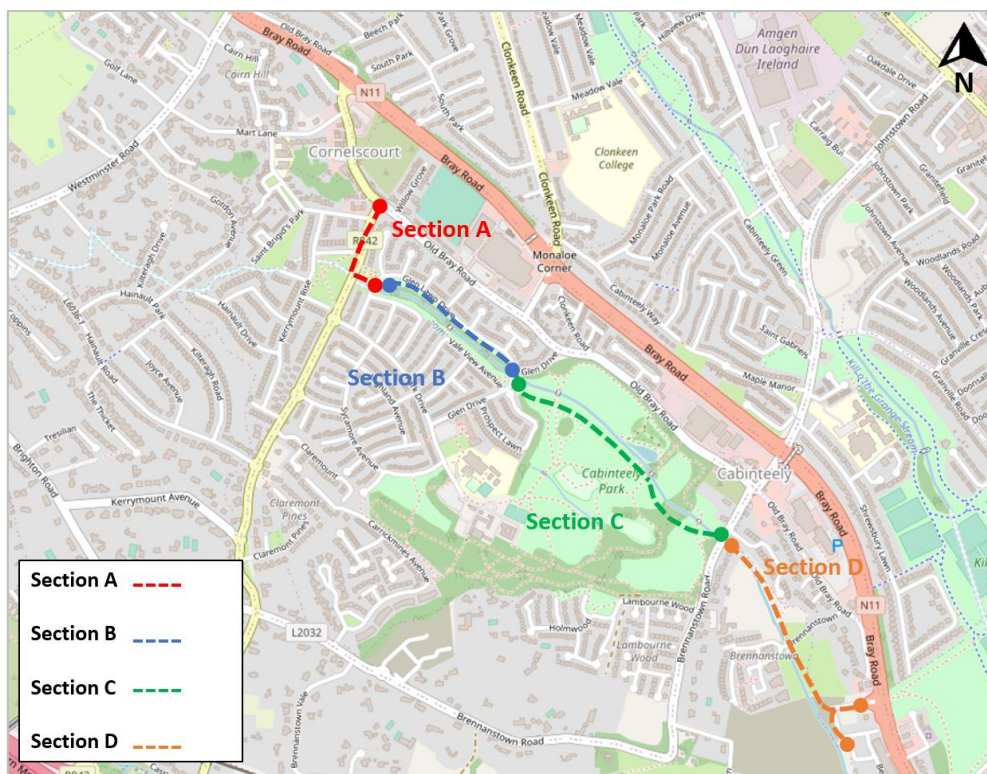


Figure 4-1: Scheme Overview

4.2 Section A: Cornelscourt to Glen Lawn Drive

Existing Pedestrian & Cyclist Facilities

Bray Road and Cornelscourt Hill Road form a three-arm signalised junction. At this junction controlled pedestrian crossings with dropped kerbs and tactile paving are provided on all arms of the junction. It is noted that the footpath on the northern side of the junction is interrupted by two driveways, as shown in **Figure 4-2**. Advanced stop lines (ASLs) are provided for cyclists on the western and southern approaches to the junction. However, there are no other dedicated facilities for cyclists travelling through this junction.



Figure 4-2: View Looking South at the Bray Road / Cornelscourt Hill Road Signalised Junction

Footpaths are provided on both sides of Cornelscourt Hill Road, although these are relatively narrow being c. 1.5m wide. Street lighting is provided on both sides of the road. Cyclists are required to travel on-road along Cornelscourt Hill Road and share the road with motor traffic.



Figure 4-3: View Looking South on Cornelscourt Hill Road

Existing Public Transport Facilities

There are regular bus services along Cornelscourt Hill Road. North and southbound bus stops are located on Cornelscourt Hill Road serving the No. 63 bus route operated by GoAhead which connects Dun Laoghaire to Kilternan with a frequency of approximately 30 minutes in the peak hours (Mondays to Fridays). **Figure 4-4** below shows the southbound bus stop located approximately 86m south of the Bray Road / Cornelscourt Hill Road junction.



Figure 4-4: Existing Bus Stop (Stop ID: 3309) on Cornelscourt Hill Road

Existing Road Network

Bray Road is a two-way single lane carriageway that is subject to a posted speed limit of 50km/h. On-street car parking is facilitated on the northern side of Bray Road on approach to the signalised junction with Cornelscourt Hill Road. Cornelscourt Hill Road is also a two-way single lane carriageway subject to a posted speed limit of 50km/h with traffic lane widths between 4.0m–4.5m. Cornelscourt Road forms priority junctions with Gort Na Mona Drive, Kerry Mount Green to the west. The general layout of Cornelscourt Hill Road is shown in **Figure 4-5**.



Figure 4-5: View Looking South on Bray Road

4.3 Section B: Glen Lawn Drive to Cabinteely Park

Existing Pedestrian & Cyclist Facilities

Along Glen Lawn Drive a footpath is available on the northern side of the road. Dropped kerbs are provided at the side road junctions, although no tactile paving is provided. Public street lighting is located on the southern side of the road within the green space area as shown in **Figure 4-6**. Cyclists are required to travel on-road along Glen Lawn Drive and have to share the road space with motorised vehicles.



Figure 4-6: View Looking East on Glen Lawn Drive

At the eastern end of Glen Lawn Drive is a three-arm roundabout with Glen Drive. There are footpaths available on both sides of each arm of the roundabout. Informal crossings comprising dropped kerbs, but no tactile paving, are provided on the northern and southern arms.



Figure 4-7: Poor Pedestrian Facilities at Glen Lawn Drive / Glen Drive Roundabout

Existing Road Network

Glen Lawn Drive is subject to a 50km/h speed limit and provides access to residential properties within the Glen Lawn area. There are six priority junctions along the northern side of Glen Lawn Drive providing access to residential cul-de-sacs. Some on-street car parking occurs along Glen Lawn Drive, predominantly on the northern side. At its eastern end, Glen Lawn Drive forms a three-arm roundabout with Glen Drive, as show in **Figure 4-8** with a 17m Inscribed Circle Diameter (ICD) and single lane approach/departure lanes on all arms.



Figure 4-8: View Looking North Towards Glen Lawn Drive / Glen Drive Roundabout

4.4 Section C: Cabinteely Park

Existing Pedestrian & Cyclist Facilities

At present there is a network of paths throughout Cabinteely Park, with pedestrian access points located on Glen Drive, Bray Road, Carrickmines Avenue and Park Drive. Footpaths through the park are c.2.0m – 3.0m wide and it is noted that there is no public lighting within the park. At present, cyclists are not permitted within the park area, except cycling by children under 8 supervised by an adult.

Entrances to the park are closed at nighttime, with closing times varying between 5pm – 10:30pm depending on the time of year. The park opens at 8am every morning throughout the year. Some informal paths are mown in the grassed areas through the park as shown in **Figure 4-9**.



Figure 4-9: Existing Informal Grassed Paths Through Cabinteely Park

4.5 Section D: Breannanstown Road to Cherrywood (Bride's Glen/Orchard Square)

Existing Pedestrian & Cyclist Facilities

Pedestrian facilities on Brennanstown Road are poor, with an existing narrow 1.2m wide footpath provided on the western side of the road only, as shown in **Figure 4-10**. While a footpath is provided on the northern side of Carraig Glen, there are no pedestrian crossing facilities connecting to the footpath on the western side of Brennanstown Road.



Figure 4-10: View Looking South on Brennanstown Road

To the south of the Carraig Glen / Brennanstown Road junction, is a dense wooded area. Observations on site indicated an informal path through this area, as shown in **Figure 4-11**, which appears to be well used as a short cut through to Brennanstown Avenue.



Figure 4-11: Informal Path Through Wooded Area Off Brennanstown Road

At the end of the Carraig Glen cul-de-sac is a footpath which continues southwards connecting to Brennanstown Avenue, as shown in **Figure 4-12**. There are no dedicated facilities for cyclists travelling on Brennanstown Road, Carraig Glen or Brennanstown Avenue, cyclists are required to share the road with motor vehicles.



Figure 4-12: View Looking South Towards Brennanstown Avenue

Existing Road Network

Brennanstown Road is subject to 50km/h speed limit and is a single lane two-way 6.0m wide carriageway (traffic lanes of 3.0m width in both directions). Street lighting is provided along the western section of the road.



Figure 4-13: View Looking North on Brennanstown Road

Brennanstown Road forms a priority junction with Carraig Glen. Carraig Glen is subject to a 30km/h speed limit and is a cul-de-sac serving a small number of residential properties. The carriageway is c. 6.5m wide. On street parking is restricted along part of Carraig Glen by double yellow line road markings.

Brennanstown Avenue, which is accessed via the Old Bray Road, provides access to the Brennanstown Square residential area. It is c.7.0m wide and has a number of speed humps in place to aid the reduction of vehicle speeds.

4.6 Road Safety Review

As part of this assessment, the Road Safety Authority (RSA) collision database was reviewed in order to ascertain the safety record along the proposed scheme route. The data reviewed on the website covers a 12-year period from 2005 – 2016 inclusive and indicates basic information on all reported incidents. **Figure 4-14** below indicates the locations and severity of the collisions recorded along the scheme extents.

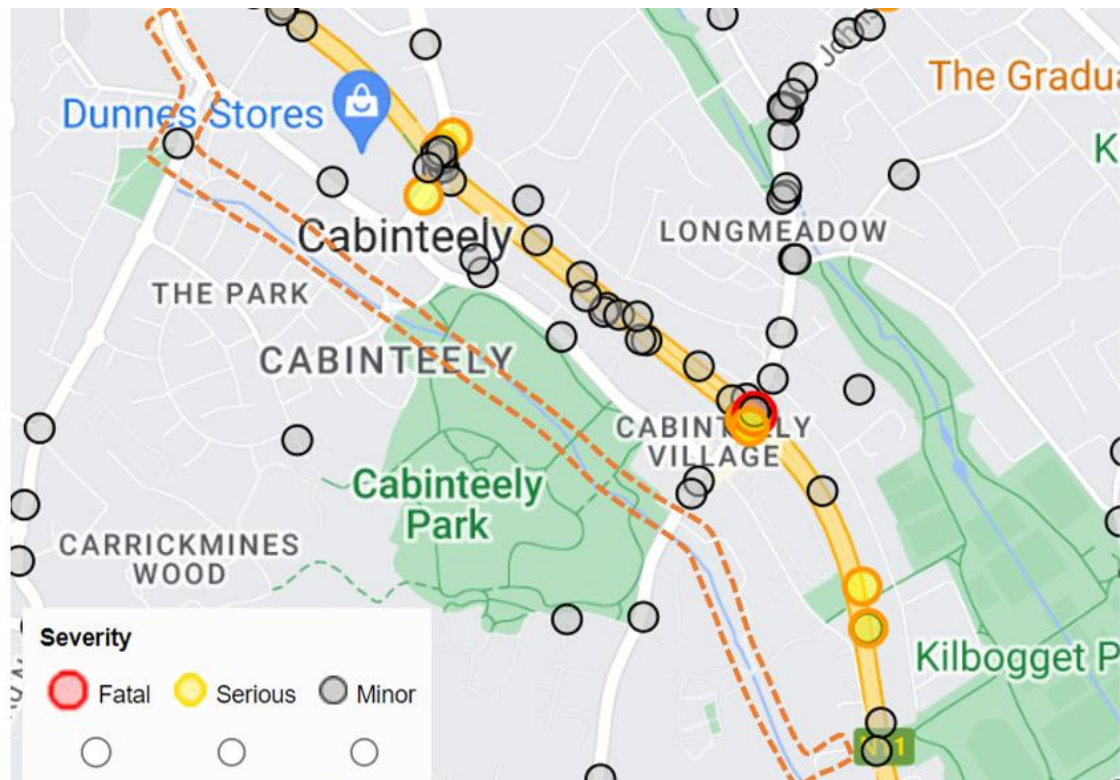


Figure 4-14: Collision Database along the route extent (Source: RSA)

For the years assessed, as shown in the figure above, there has been a total of 1 incident recorded along the route and this collision was minor in nature. This incident occurred in 2006 and involved a motorcycle and pedestrian. The subject route extents are predominantly off road, hence why the number of recorded collisions is low.

However, examining the existing available parallel route along the N11, a significant number of collisions are recorded, including six serious and one fatal collision. Further detail regarding the categories of road users involved in these collisions was not available. Nonetheless, the aim of the scheme is to improve safety for vulnerable road users, by providing a dedicated, safe and attractive route for people walking, wheeling and cycling. The proposed route would offer these users an alternative to using the heavily trafficked N11 route where there are a significant number of recorded collisions, thereby helping to minimise risks to road users.

4.7 Summary

The preceding sections highlight the existing road conditions of the study extents. Overall, there is poor connectivity for pedestrians or cyclists wishing to travel from Cornelscourt through to Druid's Glen / Orchard Square and the wider Cherrywood area. At present, the most direct route for pedestrians / cyclists wishing to travel between these areas is to use the N11 which is a heavily trafficked, high speed, car dominant route. Alternatively, pedestrians and cyclist could use the existing network through the residential areas or along the Old Bray Road, although it is noted that the Old Bray Road is relatively constrained at certain sections and requires cyclists to travel on road. Pedestrians can travel through the park area, although cyclists are not currently permitted to travel through the park.

However, provision for those travelling on foot through these areas is disjointed and safe crossing points are generally lacking. The existing network does not cater for desire lines. Similarly, existing cycling infrastructure is greatly lacking, with cyclists required to share the road with motorised traffic.

In summary, the existing environment offers poor connectivity for people walking, wheeling or cycling. The current network infrastructure is unattractive for younger, less confident or older cyclists and unlikely to support any future aspirations for achieving a greater sustainable transport mode share.

5 Consideration of Alternatives and Options

5.1 Introduction

As noted previously, the scheme is approximately 2.3 km in length extending along Bray Road/ Cornelscourt Hill Road junction, Glen Lawn Drive, passing through Cabinteely Park, Brennanstown Road and ends at the Cherrywood Greenway. The Cabinteely Greenway route will consist of four distinct sections including:

- **Section A:** Cornelscourt (Bray Road / Cornelscourt Hill Road Junction) to Glen Lawn Drive
- **Section B:** Glen Lawn Drive to Cabinteely Park
- **Section C:** Cabinteely Park
- **Section D:** Brennanstown Road to Cherrywood (Bride's Glen / Orchard Square)

An assessment of potential options for the scheme was carried out to identify the possible options to be brought forward for detailed consideration and the Multi-Criteria Analysis (MCA). The following sections outline the options considered for the Cabinteely Greenway Scheme.

Consideration of Alternative Routes:

It should be noted that alternative routes on the wider network were not considered as part of this project. This is because the proposed scheme is currently identified within the **2022 GDA Cycle Network Plan** as a **Greenway Utility / Leisure route** (ref: Figure 2-6) and also within the **DLR Cycle Network Plan** (ref: Figure 2-10) as a '**pedestrian/cycle route suitable for all users**'.

During the development of these cycle network plans, a detailed exercise was undertaken in terms of identifying key origins and destinations and a route selection process carried out to identify the most optimum routes to cater for desire lines and provide a sufficiently dense network of cycle routes. Routes were then classified depending on their strategic importance within the overall network e.g. Primary, Secondary, Feeder, Greenway etc.

Consequently, the subject scheme was identified as part of this overall wider pedestrian and cycle network development. Accordingly, this project seeks to consider and develop the more specific design details for the route relating to its precise alignment, cross section, junction/crossing arrangements, materials, environmental considerations etc.

5.2 Do-Nothing Option

The base case for comparison of the proposed scheme involves the existing facilities for pedestrians and cyclists and no changes to current junction arrangements between Cornelscourt and Cherrywood (Bride's Glen / Orchard Square).

Given that current footpath widths are inadequate or absent along some sections and existing facilities for cyclists are limited between Cornelscourt and Cherrywood, the 'Do-Nothing' option would inhibit the development of the transport goals detailed in the GDA Cycle Network Plan, DLRCC Cycle Network Plan, the Transport Strategy for the Greater Dublin Area 2022 – 2042, as well as a number of other key policy documents as outlined previously in Section 2.

Thus, the 'Do-Nothing' Option presents a significant lost opportunity in terms of enhancing connectivity between Cornelscourt and Cherrywood and complementing / integrating with several other ongoing/planned projects in the wider locality. Also, the 'Do-Nothing' option would make no contribution to improving safety for vulnerable road users and would be unlikely to support any future aspirations for increasing sustainable mode share in the locality.

In summary, the 'Do-nothing' scenario is likely to reinforce a reliance on private vehicles as the primary mode of transport for existing / future residents of the surrounding lands, thereby contravening the objectives of the project.

5.3 Do Something Options

The Cabinteely Greenway scheme is identified as a Secondary / Greenway – Leisure / Greenway – Utility route across the different sections in the updated GDA Cycle Network. It is also identified as a 'pedestrian / cycle route suitable for all users' in the DLR Cycle Network Plan, therefore alternative routes were not considered as noted previously.

Set out in the following sections are the options considered to be potentially achievable within the identified corridor. Typically, an initial 'Stage 1' high level sifting of potential options is undertaken, followed by a more detailed 'Stage 2' assessment.

However, given the nature of the scheme and the environment through which it passes, the potential options capable of achieving the scheme objectives are limited and therefore all of these have been considered as part of the 'Stage 2' detailed assessment involving a 'Multi Criteria Analysis' (MCA) which is discussed later in Section 6. The route options considered are described in the following sections.

5.4 Section A: Cornelscourt Village to Glen Lawn Drive

Option 1: Shared Path on Eastern Side of Cornelscourt Hill Road

Option 1, as shown in **Figure 5-1** below, proposes a 4.0m wide shared path on the eastern side of Cornelscourt Hill Road. Upgrades to the Bray Road / Cornelscourt Hill Road signalised junction are minimal, comprising the inclusion of Toucan crossings on all arms of the junction to the provide connections to / from the proposed shared path.

The proposed shared path is positioned towards the eastern boundary wall to mitigate any potential impacts on the existing trees within the verge area. The existing bus stop on the east side of the Cornelscourt Road is maintained and a separate bus stop landing area provided adjacent to the shared path. As the route progresses eastward towards Glen Lawn Drive, the shared path's width is reduced to 3.0m. This reduction in width is designed to minimize any disruption to the green area and preserve existing trees.

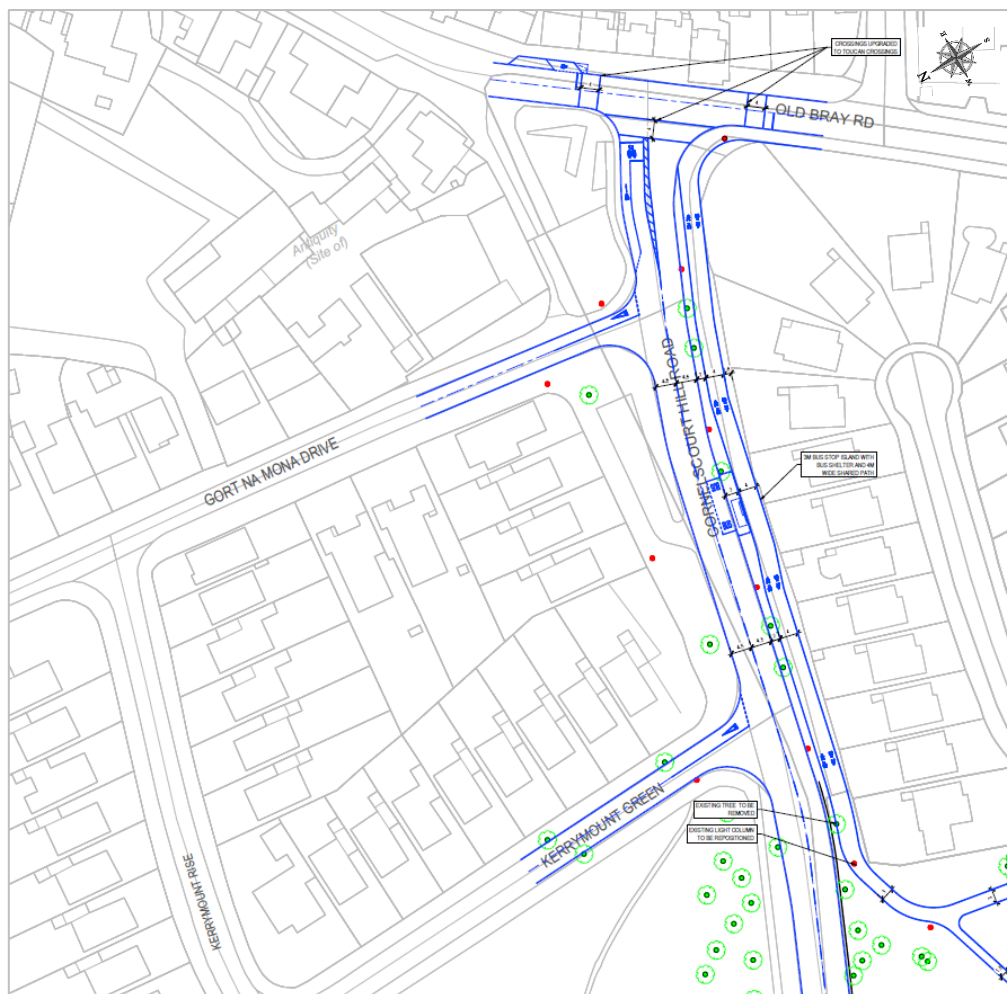


Figure 5-1: Route Section A – Option 1
[DBFL Drawing No. 210093-X-X-0100-Z00-DTM-SK-DBFL-CE-1211]

Route Section A: Option 1

Opportunities

- Pedestrians and cyclists segregated from vehicular traffic, reducing potential conflict points
- Verge maintained on eastern side and no-dig construction method avoids impacting existing trees
- Bus stop and shelter on the roadside edge which does not require bus passengers to cross a separate cycle track when accessing bus stop
- Some space released on the southwest side of Bray Road junction (due to replacement of separate left / right turn lanes with a combined lane) allowing for public realm enhancements although not as much compared to Option 3
- Simpler construction and lower capital construction costs when compared to other options, particularly Option 2

Constraints

- Shared facilities less desirable than segregated facilities although anticipated volumes of pedestrian and cyclist users in accordance with Cycle Design Manual thresholds for shared use on urban greenways
- Space at the Bray Road / Cornelscourt Road signalised junction very constrained, particularly on the northern side of the junction
- Crossing distance for pedestrians over southern arm (Cornelscourt Hill Road) of junction remains the same as existing although separate left / right turn lanes on southern arm replaced with combined lane
- Crossing facilities at junction not significantly improved compared to existing situation and other options considered

Option 2: Cycle Tracks Both Sides of Cornelscourt Hill Road

Option 2, as shown in **Figure 5-2**, proposes 2.0m segregated cycle tracks on both sides of Cornelscourt Hill Road and a 2.0m footpath on the eastern side. This option also provides a connection to Glen Lawn Drive via a shared path.

At the junction of Cornelscourt Hill Road / Bray Road junction, the separate left/right turn traffic lanes become one combined lane. The southbound bus stop located on the eastern side of Cornelscourt Hill Road is upgraded to an island bus stop arrangement as per the Cycle Design Manual and BusConnects preliminary design guidance.

Full set back continuous footpath and cycle track crossings are provided on the side road junctions of Kerry Mount Green and Gort na Móna Drive, which will provide priority for pedestrians and cyclists. A new combined zebra crossing is provided on Cornelscourt Hill Road, offering a safe connection to the shared path linking Glen Lawn Drive.

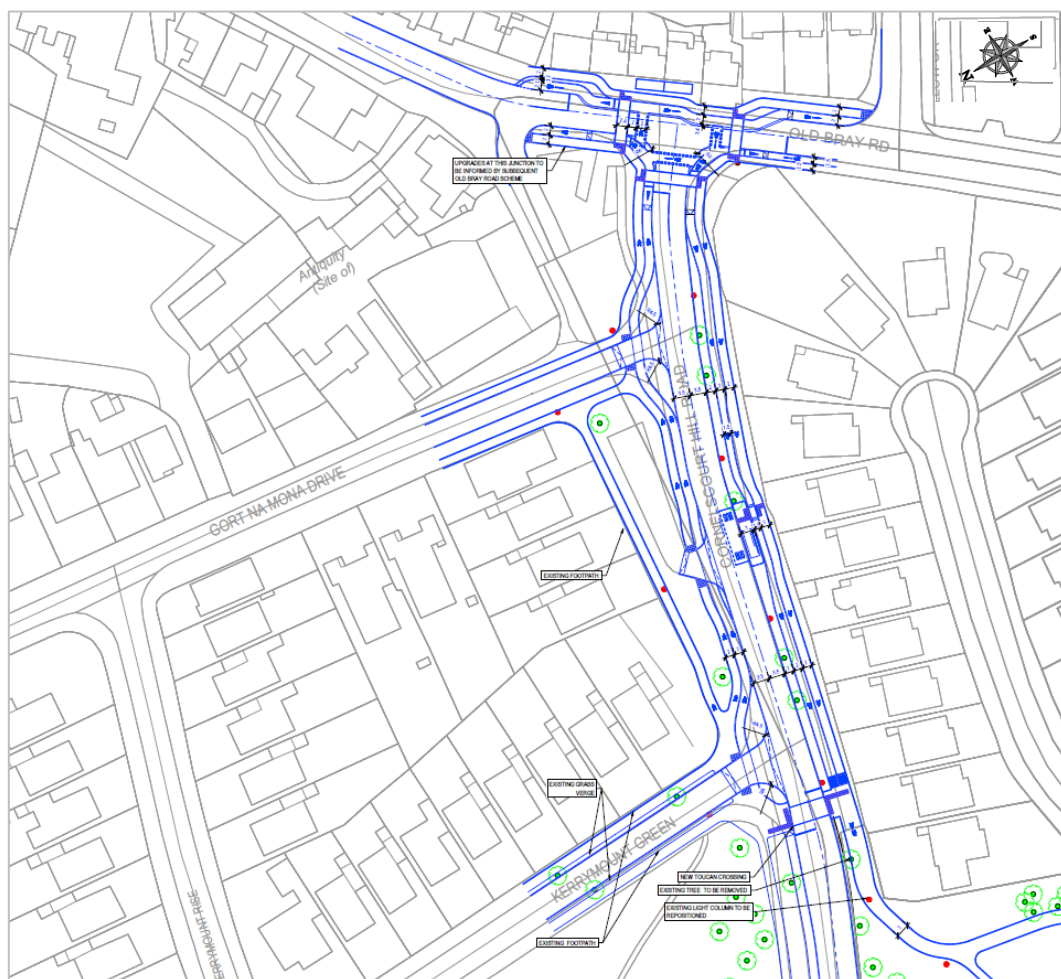


Figure 5-2: Route Section A – Option 2
[DBFL Drawing No. 210093-X-X-0100-Z00-DTM-SK-DBFL-CE-1221]

Route Section A: Option 2

Opportunities

- Pedestrians and cyclists segregated from vehicular traffic, reducing conflict points
- Pedestrian and cyclist movements also segregated, reducing possible conflict points
- Verge maintained on eastern side and no-dig construction method avoids impacting existing trees
- New mid-block controlled crossing could also be incorporated on Cornelscourt Hill Road to facilitate connections to Gort Na Mona and Kerry Mount Green

Constraints

- Space at the Bray Road / Cornelscourt Road signalised junction very constrained which limits ability to accommodate key dimensions for protected junction layout
- Crossing of cycle track required to access the southbound bus stop which may be a concern to bus passengers with visual impairments
- No space released on the southwest side for public realm enhancements, compared to other options, due inclusion of segregated cycle tracks on both sides of the road
- Reduces extents of existing green space on western side of road to facilitate segregated footpath / cycle track
- More complex construction and higher capital costs compared to Option 1, 3 and 4

Option 3: Two-Way Cycle Track & Footpath on Eastern Side

Option 3, as shown in **Figure 5-3** below, proposes a 3.0m segregated two-way cycle track and 2.0m footpath on the eastern side of Cornelscourt Hill Road. Similar to Option 2, the separate left/right turn traffic lanes at the Cornelscourt Hill Road / Bray Road junction become one combined lane. Toucan crossings are provided over all arms of the junction. An assessment of the impact of this proposed arrangement on the operational performance of the junction is presented in **Appendix A**. The analysis indicates that the junction would still continue to operate well within capacity under this reconfigured layout.

The southbound bus stop upgraded to an island bus stop arrangement as per the BusConnects preliminary design guidance. A new combined zebra crossing on Cornelscourt Hill Road junction is also provided, facilitating a safe connection to / from the route. The route follows the same alignment as Option 1 and 2 through the green space area linking to Glen Lawn Drive.

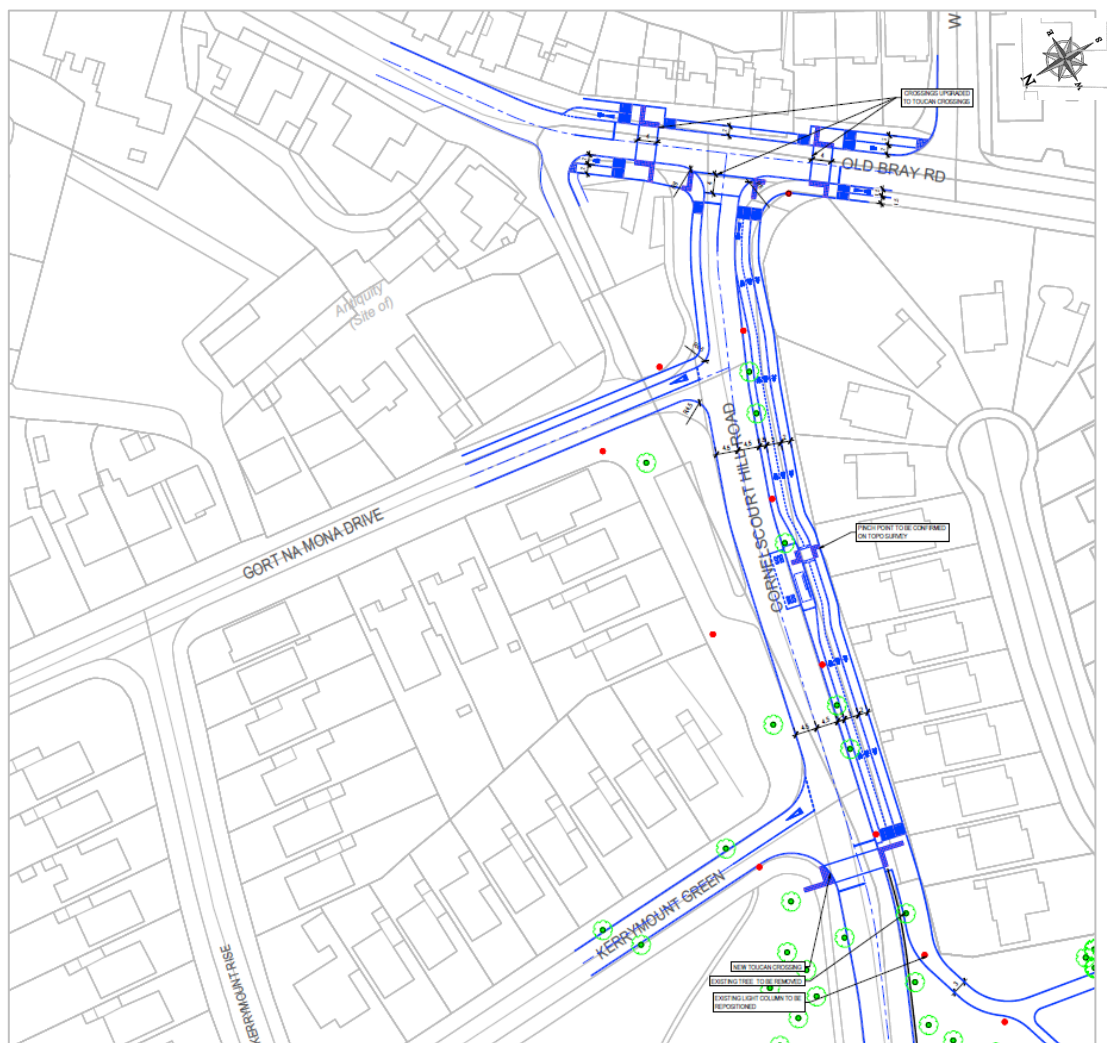


Figure 5-3: Route Section A – Option 3
[DBFL Drawing No. 210093-X-X-0100-Z00-DTM-SK-DBFL-CE-1231]

Route Section A: Option 3

Opportunities

- Pedestrians and cyclists segregated from vehicular traffic, reducing conflict points
- Crossing distance on southern arm (Cornelscourt Hill Road) reduced due to replacement of separate left / right turn lanes with a combined lane
- New mid-block controlled crossing could also be incorporated on Cornelscourt Hill Road to facilitate connections to Gort Na Mona and Kerry Mount Green
- Space released on the southwest side for public realm enhancements due to replacement of separate left / right turn lanes with a combined lane

Constraints

- Space at the Bray Road / Cornelscourt Road signalised junction very constrained particularly on the northern side of the junction
- Safety for pedestrians / cyclists improved compared to existing scenario, however Toucan crossings at signalised junction less desirable compared to segregated crossings but space is limited to accommodate segregated facilities at the junction
- Crossing of two-way cycle track required to access the southbound bus stop may be a concern to bus passengers with visual impairments
- Existing trees within verge on eastern side of road likely to be impacted due to 5.0m width of facility (2.0m footpath / 3.0m two-way cycle track)
- More complex construction and higher capital costs compared to Option 1 but less than Option 2

Option 4: Shared Path on Eastern Side & Upgraded Junction

Option 4, as shown in **Figure 5-4** below, is essentially a combination of Option 1 and Option 3, whereby a 4.0m wide shared path is provided on the eastern side of Cornelscourt Hill Road. The Cornelscourt Hill Road / Bray Road junction would be upgraded with Toucan crossings provided over each arm of the junction. An assessment of the impact of this proposed arrangement (which is similar to Option 3) on the operational performance of the junction is presented in **Appendix A**. The analysis indicates that the junction would still continue to operate well within capacity under this reconfigured layout.

The southbound bus stop upgraded to an island bus stop arrangement as per the CDM and BusConnects preliminary design guidance. A new combined zebra crossing on Cornelscourt Hill Road junction is also provided, facilitating a safe connection to / from the route. The route follows the same alignment as Option 1, 2 and 3 through the green space area linking to Glen Lawn Drive.

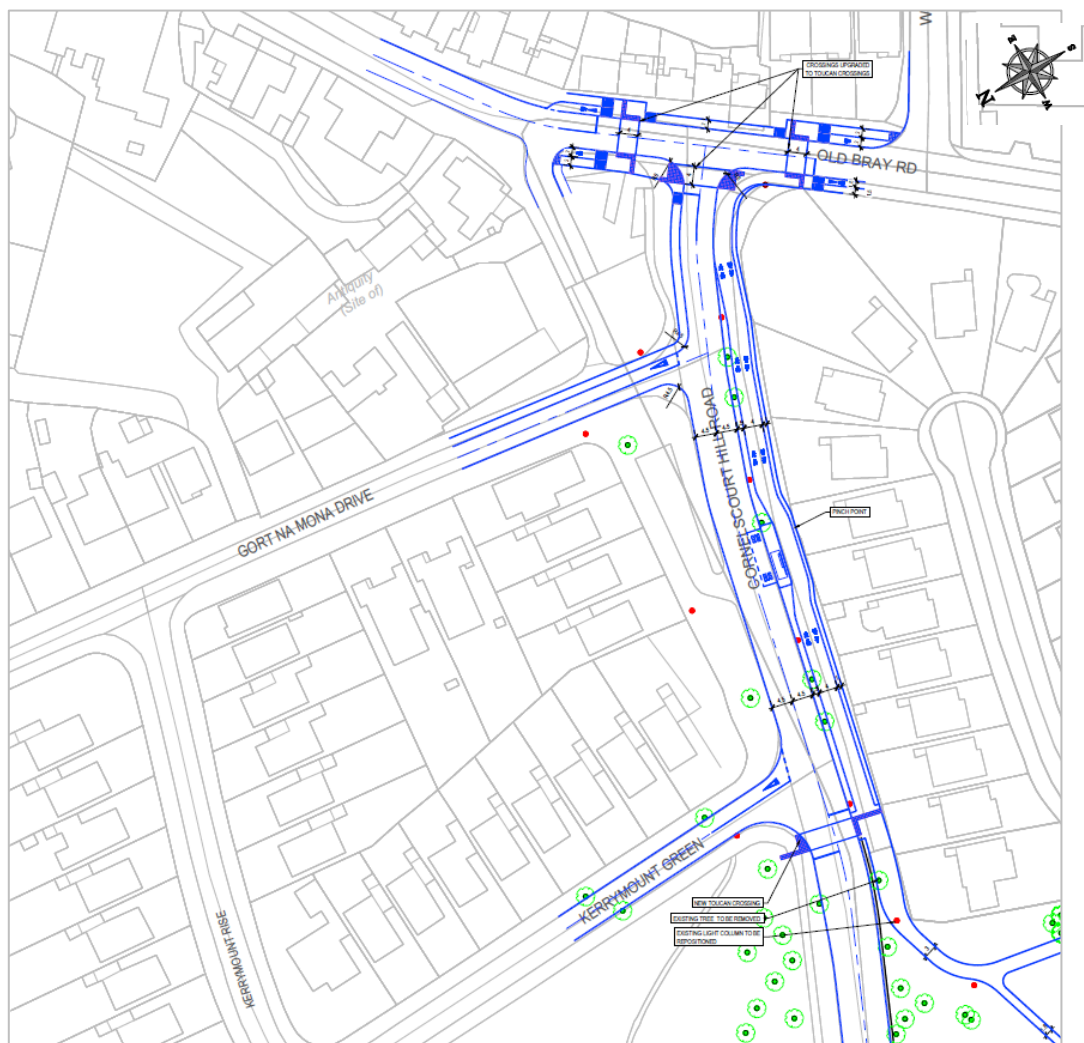


Figure 5-4: Route Section A – Option 4
[DBFL Drawing No. 210093-X-X-0100-Z00-DTM-SK-DBFL-CE-1241]

Route Section A: Option 4

Opportunities

- Pedestrians and cyclists segregated from vehicular traffic, reducing conflict points
- Crossing distance on southern arm (Cornelscourt Hill Road) reduced due to replacement of separate left / right turn lanes with a combined lane
- Verge maintained on eastern side and no-dig construction method avoids impacting existing trees
- Bus stop and shelter on the roadside edge which does not require bus passengers to cross a separate cycle track when accessing bus stop
- New mid-block controlled crossing can be incorporated on Cornelscourt Hill Road to facilitate connections to Gort Na Mona and Kerry Mount Green
- Space released on the southwest side of junction for public realm enhancements due to replacement of separate left / right turn lanes with a combined lane
- Simpler construction and lower capital construction costs when compare to other Options, particularly Option 2

Constraints

- Shared facilities less desirable than segregated facilities although anticipated volumes of pedestrian and cyclist users in accordance with Cycle Design Manual thresholds for shared use on urban greenways
- Space at the Bray Road / Cornelscourt Road signalised junction very constrained particularly on the northern side of the junction
- Safety for pedestrians / cyclists at the Bray Road junction improved compared to existing scenario, however Toucan crossings at signalised junction less desirable compared to segregated crossings but space is limited to accommodate segregated facilities at the junction

5.5 Section B: Glen Lawn Drive to Cabinteely

Option 1a: Cycle Street on Glen Lawn Drive & change roundabout to priority junction

Option 1a, as shown in **Figure 5-5**, proposes to convert Glen Lawn Drive to a cycle street arrangement, comprising textured central and edge strips to emphasise the low-speed nature of the street and ensure priority for cyclists through a self-enforcing design.

As cycle streets are access-only streets for vehicles, a modal filter is proposed at the Glen Lawn Drive / Vale View junction. This would remove any through vehicle traffic and help to keep two-way vehicle flows low, thereby helping to provide cyclists with a level of comfort comparable to that provided by a traffic free route.

Continuous, raised footpaths would also be provided over each of the side road junctions along Glen Lawn Drive enabling pedestrians to assert priority over vehicles.

At the existing Glen Lawn Drive / Glen Drive roundabout, it is proposed to convert this junction into a priority T-junction, with Glen Lawn Drive as the minor arm.

To facilitate east-west connectivity along the greenway, a new raised combined zebra crossing is provided over Glen Drive. In turn, this would connect to a new entrance into Cabinteely Park.

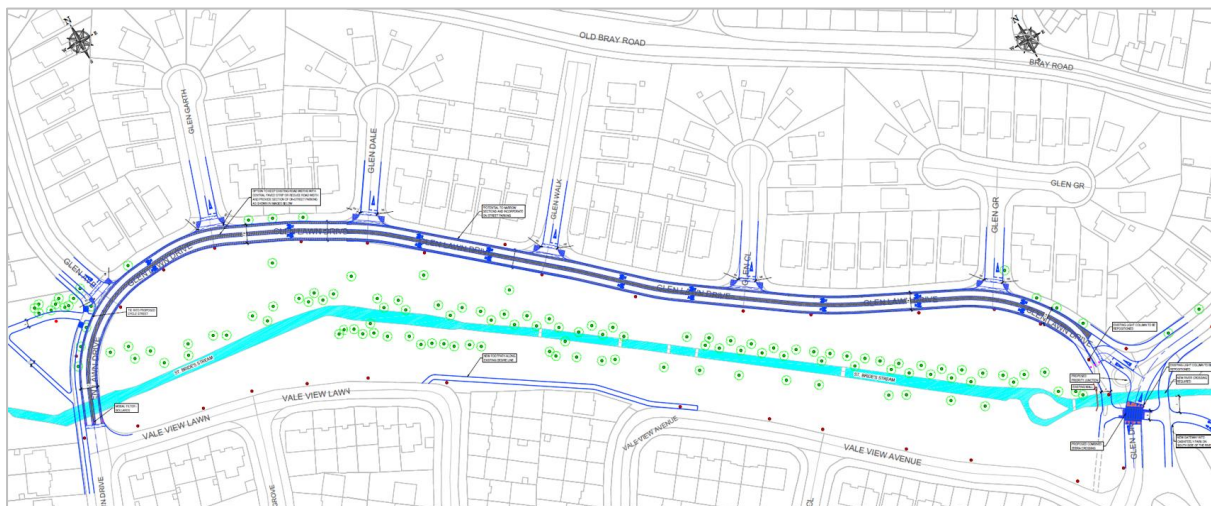


Figure 5-5: Route Section B – Option 1a
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1212 / 1213]

Route Section B: Option 1a

Opportunities

- Introduction of modal filter at Glen Lawn Drive / Vale View junction removes through traffic (i.e. eliminates any rat running) whilst maintaining access for local residents, refuse and emergency vehicles
- Low vehicle volumes low as a result of modal filter create more suitable and attractive environment for cycle street arrangement on Glen Lawn Drive
- Raised continuous footpaths provided at side roads enhance level of service for pedestrians compared to existing scenario
- No impact to existing open green space on southern side of Glen Lawn Drive
- Change in surface materials e.g. textured central and edge strips can enhance the overall streetscape along Glen Lawn Drive
- Glen Lawn Drive / Glen Drive junction converted to priority T-junction which is slightly more compact compared to roundabout arrangement freeing space for public realm enhancements
- Potential to reduce overall road width along Glen Lawn Drive to help lower vehicle speeds

Constraints

- Lower level of service for cyclists compared to other options, particularly for less confident cyclists due to mixing with vehicular traffic on road
- Connections to other sections of the route at the western / eastern ends of the scheme not as clear / legible compared to other options
- Car parking may still occur along the cycle street, particularly when events / activities occur in the park, which may be hazardous and impact legibility of the route for cyclists
- Reductions in vehicle speeds on the major arm of the converted priority T-junction (i.e. along Glen Drive) may not be as great compared to the upgraded roundabout under Option 2
- More complex construction and higher capital costs compared to other options, particularly if road width is reduced requiring realignment of kerb, drainage, services etc. and converting roundabout to priority T-junction

Option 1b: Cycle Street on Glen Lawn Drive & roundabout Upgraded

Option 1a, proposes to convert Glen Lawn Drive to a cycle street arrangement. While both Option 1a and Option 1b propose a cycle street along Glen Lawn Drive, the level of physical interventions proposed under Option 1b is less than the proposed under Option 1A. Current 85thile vehicle speeds are 50.95km/h. This is in excess of the 30km/h speed limit on Glen Lawn Drive. Based on the Cycle Facilities Selection Guide in the CDM, for a street to be suitable as a Mixed Street, peak hour traffic volumes should be <200 peak hour pcu's and vehicle speeds should be ≤30km/h. Peak hour volumes on Glen Lawn Drive are <200 pcu's per hour. Therefore, interventions such as a modal filter would not be warranted. However, given existing vehicle speeds, traffic calming would be required to reduce speeds down below 30km/h. Therefore, Option 1b proposes traffic calming in the form of three raised tables over the side road junctions along Glen Lawn Drive.

At the western end, a raised combined zebra crossing is proposed on Glen Lawn Drive facilitating a safe connection to Cornelscourt Hill Road. The roundabout at Glen Lawn Drive / Glen Drive is retained, albeit reconfigured to provide raised zebra crossings on the western/northern arms, and combined raised zebra provided on the southern arm facilitating a safe, direct onwards connection into Cabinteely Park. The roundabout geometry is tightened up to help reduce vehicle speeds.

Route Section B: Option 1b

Opportunities

- Vehicle volumes along Glen Lawn Drive are still low even without the introduction of a modal filter
- Introduction of raised tables will help to reduce vehicle speeds along Glen Lawn Drive
- No impact to existing open green space on southern side of Glen Lawn Drive
- Existing Glen Lawn Drive / Glen Drive roundabout is retained but upgraded with raised crossings and reduced corner radii which will encourage lower vehicle speeds through the junction and highlight priority for pedestrians / cyclists
- Simpler construction and lower capital costs compared to other options as existing kerbline is retained along Glen Lawn Drive

Constraints

- Lower level of service for cyclists compared to other options, particularly for less confident cyclists due to mixing with vehicular traffic on road
- Through traffic movement (i.e. rat running) not eliminated as there is no modal filter proposed
- Connections to other sections of the route at the western / eastern ends of the scheme not as clear / legible compared to other options
- Overspill on-street car parking may still occur along Glen Lawn Drive when events / activities occur in the park

Option 2: Shared Path along southern edge of Glen Lawn & roundabout reconfigured

Option 2, as shown in **Figure 5-6** below, proposes a 4.0m wide shared path along the southern edge of Glen Lawn Drive. At the western end, a new raised combined zebra crossing is proposed. Under this option, through traffic would still be permitted along Glen Lawn Drive.

The shared path would be offset from the existing kerb edge by $\approx 2.0\text{m}$ to facilitate a grassed verge, within which the existing public lighting would be retained. The 2.0m verge would also provide some additional separation between motorised traffic and users along the greenway, helping to enhance comfort levels for users.

Under this option, the roundabout at Glen Lawn Drive / Glen Drive is retained, albeit reconfigured to provide raised zebra crossings on the western and northern arms, with a combined raised zebra provided on the southern arm. The geometry of the roundabout is also tightened up to help reduce vehicle speeds.

The proposed new crossing over the southern arm facilities a safe, direct onwards connection to the east. In turn, this would connect to a new entrance into Cabinteely Park.



Figure 5-6: Route Section B – Option 2
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1222 / 1223]

Route Section B: Option 2

Opportunities

- Higher level of service for cyclists compared to Option 1 as users are segregated from vehicular traffic, reducing potential conflicts
- Route alignment through open green space south of Glen Lawn Drive avoids impacting existing trees
- Connections to other sections of the route, at the western and eastern ends, more legible compared to other options, particularly Option 1
- Raised continuous footpaths could also be provided at side roads to enhance level of service for pedestrians compared to existing scenario
- Existing Glen Lawn Drive / Glen Drive roundabout is retained but upgraded with raised crossings and reduced corner radii which will encourage lower vehicle speeds through the junction and highlight priority for pedestrians / cyclists
- Simpler construction and lower capital costs compared to other options as existing kerbline is retained along Glen Lawn Drive

Constraints

- Through traffic movement (i.e. rat running) not eliminated as there is no modal filter proposed, however this option could be easily adapted to include a modal filter as per Option 1
- No change to existing carriageway width along Glen Lawn Drive which does not support lowering vehicle speeds along this street, although buildouts could easily be incorporated as per Option 5
- Overspill on-street car parking may still occur along Glen Lawn Drive when events / activities occur in the park

Option 3: Shared Path north side of Vale View & change roundabout to priority junction

In option 3, as shown in **Figure 5-7**, a 4.0m shared path is proposed along the northern edge of Vale View Lawn and Vale View Avenue. Similar to Option 2, at the western end, a new raised combined zebra crossing is proposed. Under this option, through traffic would also still be permitted along Glen Lawn Drive.

The shared path would be offset from the existing kerb edge along Vale View Lawn and Vale View Avenue by 2.0m to facilitate a grassed verge, within which the existing public lighting would be retained. The 2.0m verge would also provide some additional separation between motorised traffic and users along the greenway, helping to enhance comfort levels for users.

At the eastern end, it is proposed to convert the Glen Drive / Glen Lawn Drive roundabout into a priority T-junction, with Glen Lawn Drive being the minor arm. A new raised combined zebra crossing is proposed over Glen Drive, south of the junction with Glen Lawn Drive. This would provide a safe, direct crossing and connection into Cabinteely Park.

It is noted that there are gradients between the proposed crossing points at either end of Glen Lawn Drive and Vale View Lawn and Vale View Avenue that would need to be addressed as part of the design to ensure avoid steep inclines.



Figure 5-7: Route Section B – Option 3
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1232 / 1233]

Route Section B: Option 3

Opportunities

- Higher level of service for cyclists compared to Option 1 as users are segregated from vehicular traffic, reducing potential conflicts
- Connections to other sections of the route, at the western and eastern ends, more legible compared to other options, particularly Option 1
- Simpler construction and lower capital costs compared to other options as there are no changes to existing kerblines except for reconfigured junction at Glen Drive

Constraints

- Level differences between crossings at western and eastern ends and Vale View Lawn / Vale View Avenue are noticeably steeper compared to other options which continue along Glen Lawn Drive
- Route is not as visually direct or legible compared to other options which continue along Glen Lawn Drive
- Through traffic movement (i.e. rat running) not eliminated as there is no modal filter proposed, however this option could be easily adapted to include a modal filter as per Option 1
- Reductions in vehicle speeds on the major arm of the converted priority T-junction (i.e. along Glen Drive) may not be as great compared to the upgraded roundabout under Option 2
- Route alignment through open green space north of Vale View Lawn / Vale View Avenue avoids removing existing trees, however the path is closer to the stream / tree line compared to Option 2. New lighting would be required along central section which may have ecological impacts compared to other options

Option 4: Glen Lawn made one way for traffic & two-way cycle track

In option 4, as shown in **Figure 5-8**, it is proposed to make Glen Lawn Drive one-way for vehicular traffic, with the other traffic lane converted to a 4.0m wide two-way cycle track. At the western end, a new raised combined zebra crossing is proposed, although compared to Option 2 and 3, this would be a shorter crossing as it would only have to cross one traffic lane.

Under this option, through traffic would still be permitted along Glen Lawn Drive, albeit in a westbound direction only. Vehicular access to each of the cul-de-sacs off Glen Lawn Drive would operate as right in / right out.

To enhance facilities for pedestrians along Glen Lawn Drive, it is proposed to provide raised, continuous footpaths over each of the side road junctions, enabling pedestrians to assert priority over vehicles.

At the eastern end, it is proposed to convert the Glen Drive / Glen Lawn Drive roundabout into a priority T-junction, with Glen Lawn Drive being the minor arm and facilitating westbound traffic only i.e. no left / right turn from Glen Lawn Drive onto Glen Drive. Similar to Option 3, a new raised combined zebra crossing is proposed over Glen Drive, south of the junction with Glen Lawn Drive. This would provide a safe, direct crossing and connection into Cabinteely Park.



Figure 5-8: Route Section B – Option 4
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1242 / 1243]

Route Section B: Option 4

Opportunities

- Higher level of service for cyclists compared to Option 1 as users are segregated from vehicular traffic, reducing potential conflicts, although there is less of a buffer compared to Options 2, 3 and 5
- Access maintained for local residents, refuse and emergency vehicles
- Connections to other sections of the route, at the western and eastern ends, more legible compared to other options, particularly Option 1 and Option 3
- Raised continuous footpaths provided at side roads enhance level of service for pedestrians compared to existing scenario
- No impact to existing open green space on southern side of Glen Lawn Drive
- Glen Lawn Drive / Glen Drive junction converted to priority T-junction which is slightly more compact compared to roundabout arrangement freeing up space for public realm enhancements
- Converting Glen Lawn Drive to one traffic lane removes potential for overspill on-street car parking arising from events / activities in the park
- Simpler construction and lower capital costs compared to other options as there are no changes to existing kerblines except for reconfigured junction at Glen Drive and western end connecting to Vale View Lawn

Constraints

- Legibility of traffic management arrangements i.e. one-way operation may take time for motorists to adapt to
- Through traffic movements (i.e. rat running) not fully eliminated as modal filter is not feasible under this option
- Reductions in vehicle speeds on the major arm of the converted priority T-junction (i.e. along Glen Drive) may not be as great compared to the upgraded roundabout under Option 2
- Reductions in westbound vehicle movements along Glen Drive may not be as great as other options considered as it would be a clear straight route

Option 5: Two-way cycle track south of Glen Lawn Drive & Landscaped Buildouts

Option 5, as shown in **Figure 5-9**, proposes a 3.0m wide two-way cycle track along the southern side of Glen Lawn Drive. At the western end, a new raised combined zebra crossing is proposed. Under this option, through traffic would still be permitted along Glen Lawn Drive. The pedestrian crossings over the side road junctions are upgraded to provide continuous, raised crossings.

The existing overly wide carriageway along Glen Lawn Drive is reduced down to 5.5m. This requires a full realignment of the existing kerbline, drainage, services etc. Additionally, a number of landscaped buildouts are proposed along Glen Lawn Drive creating localised narrowings which will assist in lowering vehicle speeds. The buildouts would also contribute to the overall aesthetics of the streetscape by allowing for more street trees and planting to be introduced.

The two-way cycle track would therefore be offset from the new kerbline by 2.5m, providing a generous buffer between the cycle track and carriageway. This buffer would allow for additional new planting.

Under this option, the roundabout at Glen Lawn Drive / Glen Drive is retained, albeit reconfigured to provide raised zebra crossings on the western and northern arms, with a combined raised zebra provided on the southern arm. The geometry of the roundabout is also tightened up to help reduce vehicle speeds.

The proposed new crossing over the southern arm facilitates a safe, direct onwards connection to the east. In turn, this would connect to a new entrance into Cabinteely Park.



Figure 5-9: Route Section B – Option 5
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-0202 / 0203]

Route Section B: Option 5

Opportunities

- Higher level of service for cyclists compared to Option 1 as users are segregated from vehicular traffic, reducing potential conflicts
- Route alignment through open green space south of Glen Lawn Drive avoids impacting existing trees
- Connections to other sections of the route, at the western and eastern ends, more legible compared to other options, particularly Option 1
- This option could also be easily adapted to provide a shared path rather than two-way cycle track on south side of Glen Lawn Drive depending on consistency required with other sections of the route
- Raised continuous footpaths provided at side roads enhance level of service for pedestrians compared to existing scenario
- Existing Glen Lawn Drive / Glen Drive roundabout is retained but upgraded with raised crossings and reduced corner radii which will encourage lower vehicle speeds through the junction and highlight priority for pedestrians / cyclists
- Realignment of the existing kerbline on Glen Lawn Drive and introduction of buildouts will assist in lowering vehicle speeds
- The new kerbline and buildouts also allow for additional planting and street trees to be implemented which contribute to the aesthetics of the streetscape
- The buildouts may also assist in deterring overspill on-street parking from occurring along Glen Lawn Drive when events/activities take place in the park

Constraints

- Through traffic movement (i.e. rat running) not eliminated as there is no modal filter proposed, however this option could be easily adapted to include a modal filter as per Option 1
- Reduces extents of available on-street parking for residents, although it is noted that all properties directly accessed from Glen Lawn Drive have off-street parking
- More complex construction and significantly higher capital costs compared to other options as existing kerbline, drainage, services are realigned along Glen Lawn Drive

Option 6: Shared Path along southern edge of Glen Lawn Road & Landscaped Buildouts

Following the public consultation event on July 9, 2024, feedback from the local community was taken into account. Participants were asked about their preferred route for Section B (Glen Lawn Road). Three options were presented:

- Road Narrowing, Buildouts, and Shared Path
- Shared Path only
- Traffic Management for Quiet Street

A modified version of the options presented was also voted on. The results showed that approximately 25 participants (43%) voted for a modified version of the options presented, while 21 participants (36%) opted for the Road Narrowing, Buildouts, and Shared Path route. Based on these results, a sixth option was considered, reflecting the voting preferences for the preferred route in Section B. **Figure 5-10** shows the number of respondents who preferred each option.

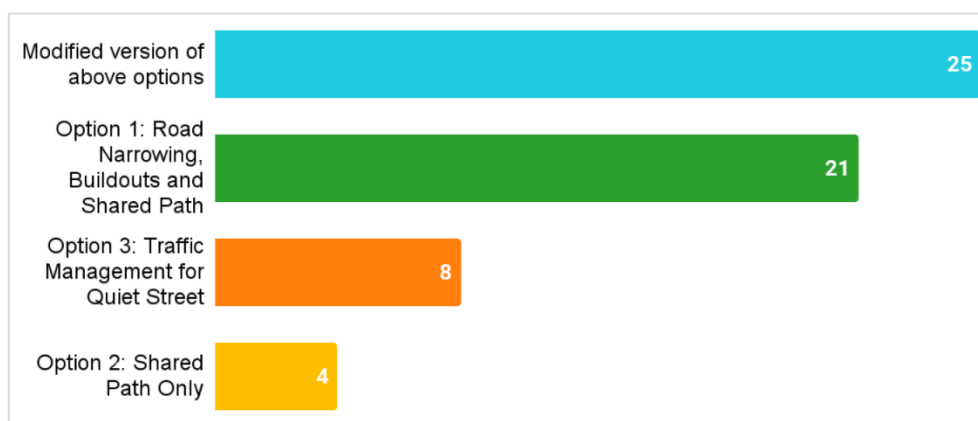


Figure 5-10: Community Preferences for Section B Route Options (Source: Cabinteely Greenway Proposal Stakeholder Consultation Report)

Option 6, as shown in **Figure 5-11**, proposes a 4.0m wide shared path along the southern edge of Glen Lawn Drive. Similarly to Option 5, at the western end, a new raised combined zebra crossing is proposed. Under this option, through traffic would still be permitted along Glen Lawn Drive.

The pedestrian crossings over the side road junctions are upgraded to provide continuous, raised crossings. The existing overly wide carriageway along Glen Lawn Drive is reduced down to 5.5m. This requires a full realignment of the existing kerblines, drainage, services etc. Additionally, a number of landscaped buildouts are proposed along Glen Lawn Drive creating localised narrowings which will assist in lowering vehicle speeds. The buildouts would also contribute to the overall aesthetics of the streetscape by allowing for more street trees and planting to be introduced.

The shared path would be offset from the new kerbline by 2.5m, providing a generous buffer between the shared path and carriageway. This buffer would allow for additional new planting.

Under this option, the roundabout at Glen Lawn Drive / Glen Drive is retained, albeit reconfigured to provide raised zebra crossings on the western and northern arms, with a combined raised zebra provided on the southern arm.

The geometry of the roundabout is also tightened up to help reduce vehicle speeds. The proposed new crossing over the southern arm facilities a safe, direct onwards connection to the east. In turn, this would connect to a new entrance into Cabinteely Park.

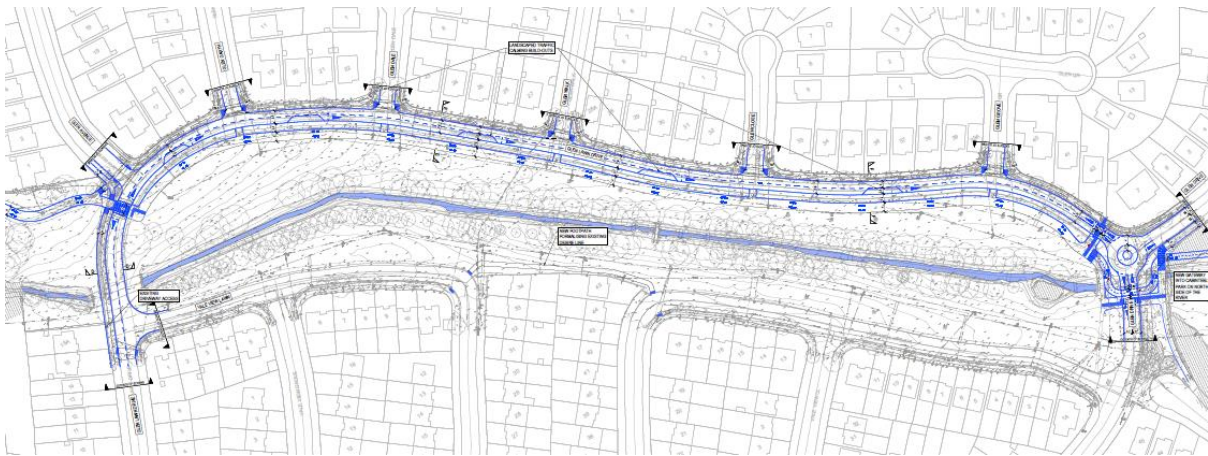


Figure 5-11: Route Section B – Option 6
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-0202 / 0203]

Route Section B: Option 6

Opportunities

- Higher level of service for cyclists compared to Option 1 as users are segregated from vehicular traffic, reducing potential conflicts
- Route alignment through open green space south of Glen Lawn Drive avoids impacting existing trees
- Connections to other sections of the route, at the western and eastern ends, more legible compared to other options, particularly Option 1
- This option could also be easily adapted to provide a two-way cycle track rather shared path on south side of Glen Lawn Drive depending on consistency required with other sections of the route
- Raised continuous footpaths provided at side roads enhance level of service for pedestrians compared to existing scenario
- Existing Glen Lawn Drive / Glen Drive roundabout is retained but upgraded with raised crossings and reduced corner radii which will encourage lower vehicle speeds through the junction and highlight priority for pedestrians / cyclists
- Realignment of the existing kerbline on Glen Lawn Drive and introduction of buildouts will assist in lowering vehicle speeds
- The new kerbline and buildouts also allow for additional planting and street trees to be implemented which contribute to the aesthetics of the streetscape
- The buildouts may also assist in deterring overspill on-street parking from occurring along Glen Lawn Drive when events/activities take place in the park

Constraints

- Through traffic movement (i.e. rat running) not eliminated as there is no modal filter proposed, however this option could be easily adapted to include a modal filter as per Option 1
- Reduces extents of available on-street parking for residents, although it is noted that all properties directly accessed from Glen Lawn Drive have off-street parking
- More complex construction and elevated capital costs compared to other options as existing kerbline, drainage, services are realigned along Glen Lawn Drive

Option 7: Alternative Route Along Old Bray Road

As noted previously, alternative routes on the wider network were generally not considered as part of this project given that the proposed scheme is currently identified within the 2022 GDA Cycle Network Plan as a Greenway Utility / Leisure route and also within the DLR Cycle Network Plan as a 'pedestrian / cycle route suitable for all users'.

However, following feedback and discussion with the local community as assessment was undertaken regarding the feasibility of locating this section of the route along the Old Bray Road rather than Glen Lawn Drive. The findings of this assessment and reasons for discounting this option from the subsequent Multi Criteria Assessment (MCA) are presented in **Appendix B**.

5.6 Section C: Cabinteely Park

Option 1: Shared Path southern side of St. Brides Stream

Option 1, as shown in **Figure 5-12**, proposes a new path situated on the southern side of the St. Brides Stream. This includes the creation of a new entrance into the park, located southeast of the existing Glen Drive / Glen Lawn Drive roundabout.

The alignment of the path under this option is proposed to maximise the separation distance between the path and the stream as much as possible, whilst also considering the topography and gradients through the park and maintaining a direct route. The route is located within the middle riparian buffer zone, 15m – 30m from the banks of the stream, as required under the 'Planning for Watercourse in the Urban Environment' (Inland Fisheries Ireland (IFI)) in order to protect the watercourse.

The exception being two localised points where this separation distance is not achievable. Firstly, at the point where the route enters the park via a new entrance off Glen Drive, the separation between the path and the stream would be c. 7.0m. Secondly, the proposed route would cross the stream at a point just east of the 'Proclamation of the Irish Republic' memorial garden. This would require a new bridging structure for crossing pedestrians and cyclists.

The path shown in the sketch option drawings is a 4.0m shared path, although it is noted that an alternative is to provide a segregated route through the park (on the same alignment) comprising a 2.0m pedestrian path and 3.0m two-way cycle track.



Figure 5-12: Route Section C – Option 1
[DBFL Drawing Nos. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1214 / 1215]

Route Section C: Option 1

Opportunities

- This route provides a direct route through the park, keeping to desire lines for people travelling through the park
- As it is a new route through the park, it minimises potential impacts on existing users of the park i.e. existing walking / running routes largely unaffected, this route can be clearly distinguished from other existing paths through the use of colours / materials
- Route alignment avoids impacting existing trees in the park, with the exception of potentially some trees towards the southern end of route
- Route alignment is further away from trees compared Option 2 and 3 which would run adjacent to large tree areas, which has greater environmental impacts due to lighting
- Route alignment can be designed to provide suitable gradients, allowing for gentle slopes and speeds of cyclists to be easier managed compared to Option 2
- Route alignment can largely follow existing mown path through grassed area which helps to minimise impacts on existing biodiversity
- Given higher volumes of pedestrian activity within the park this option could be easily adapted to provide a segregated footpath / cycle track rather than a shared path arrangement
- New route enables new bridges to be constructed to appropriate widths for comfortable use of both pedestrians / cyclists
- Route alignment is further away from Cabinteely House compared to Option 2, therefore visual impact is minimised

Constraints

- Intersections where the route crosses existing paths in the park need to manage potential conflicts / speed differentials between different users
- Construction of new path increases extent of hard paving through the park compared to Options 2 and 3 which utilise parts of the existing path network within the park
- Lighting design to consider potential ecological impacts on existing wildlife / biodiversity
- More complex construction and significantly higher capital costs compared to other options as it is an entirely new route requiring new crossings of the stream

Option 2: Shared path south of St. Bride's Stream using existing network

Option 2, as shown in **Figure 5-13**, proposes integrating the route with the existing path network within the park, located to the southern side of the stream. This would involve upgrading / widening the existing path network in this area of the park. A key consideration under this option is the gradients that would be encountered by cyclists travelling along this route alignment. There are some relatively steep sections which may deter less able-bodied cyclists. Furthermore, some of these gradients may result in cyclists building up speed on downhill sections which could increase risk of conflicts.

Similar to Option 1, this option would exceed the minimum separation distances from the stream as required by the IFI 'Planning for Watercourse in the Urban Environment' document, with the exception of the two localised points where this separation distance is not achievable (i.e. at the new entrance off Glen Drive and the stream crossing point as noted previously).

Under this option, there is also the potential to upgrade / widen the paths connecting to the Bray Road entrance. This could be done in addition to or as an alternative to the route requiring the branch of the route requiring the new river crossing. It is noted that the paths in this area pass through a dense woodland area. Therefore, the impacts of widening paths upon tree retention would have to be considered.

The path shown in the sketch option drawings is a 4.0m shared path, although it is noted that an alternative is to provide a segregated route through the park (on the same alignment) comprising a 2.0m pedestrian path and 3.0m two-way cycle track.

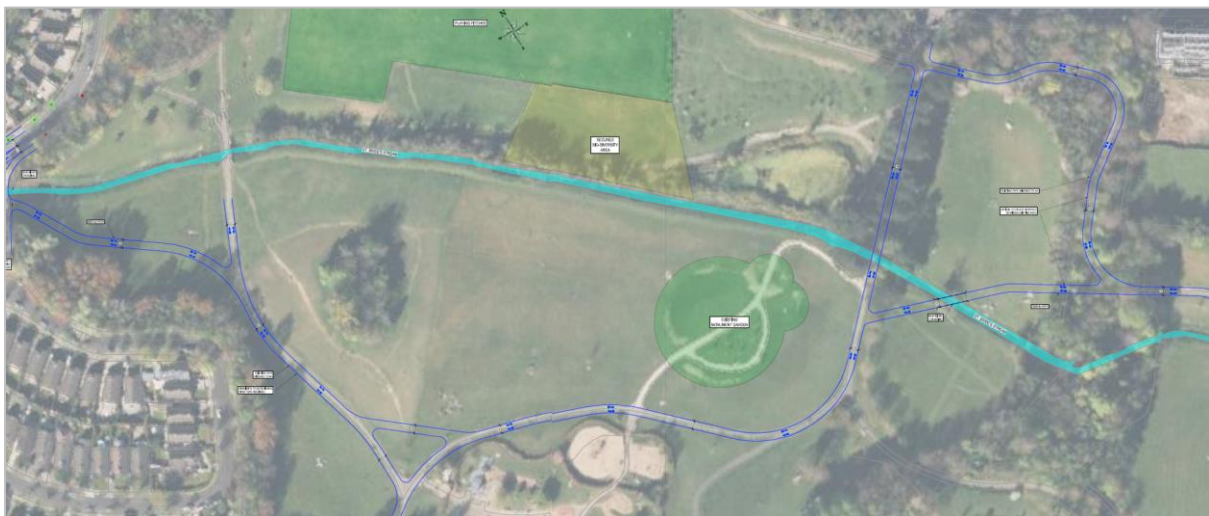


Figure 5-13: Route Section C – Option 2
[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1224 / 1225]

Route Section C: Option 2

Opportunities

- Route utilises / upgrades existing path network therefore the extent of new hard paved area in the park is less compared to Option 1
- Impacts on existing stream biodiversity potentially less as the route is located further away from the stream compared to Option 1
- Given higher volumes of pedestrian activity within the park this option could be adapted to provide a segregated footpath / cycle track rather than a shared path arrangement
- Route can be clearly distinguished from other existing paths through the use of colours / materials

Constraints

- This route is less direct and slightly longer for users travelling through the park and therefore may be less attractive to use compared to Option 1
- As this option uses the existing path network south of the stream it may introduce conflict with existing park users, particularly where it passes adjacent the playground area
- Achieving suitable gradients along this section is more challenging, compared to Option 1 and Option 2, which may give rise higher cyclist speeds travelling downhill and increase risk of conflicts with other users
- Following this route alignment brings the scheme closer to Cabinteely House compared to Option 1 and 3, which would have a greater visual impact
- Ecological impacts on existing wildlife / biodiversity due to lighting potentially greater compared to Option 1, as route would pass closer to or through greater areas of existing trees
- Less complex construction and lower capital costs compared to Option 1 as it upgrades existing path network

Option 3: Shared path north of St. Bride's Stream using existing network

Option 3, as shown in **Figure 5-14**, proposes integrating the route with the existing path network within the park, located to the northern side of the stream. This would involve upgrading / widening the existing path network in this area of the park. Contrary to Option 2, gradients along this alignment are not as severe and is relatively level along this section.

A new section of path would be required connecting the entrance on Glen Drive to the existing network within the park. Aside from the immediate area beside the new entrance on Glen Drive, the minimum separation distances from the stream would be exceeded for the remainder of the route through the park. A new entrance located on Glen Drive into Cabinteely Park, adjacent to Old Bray Road, offers potential landscaping opportunities.

This route would pass along the northern edge of the playing pitches. During matches / training sessions there is understood to be high levels of pedestrian activity in this area by players and spectators. This would need to be considered as part of the design of the route to minimise potential conflicts.

This option could continue along the existing path network to the east of the Bray Road entrance which passes through a dense woodland area. The impacts of widening this path in terms of tree retention would have to be considered / avoided where possible. Rather than running the path through the woodland area, an alternative may be to run the path along the edge of the woodland on the existing grassland to minimise impacts.

The path shown in the sketch option drawings is a 4.0m shared path, although it is noted that an alternative is to provide a segregated route through the park (on the same alignment) comprising a 2.0m pedestrian path and 3.0m two-way cycle track.



Figure 5-14: Route Section C – Option 3
[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1234 / 1235]

Route Section C: Option 3

Opportunities

- Route utilises / upgrades existing path network therefore the extent of new hard paved area in the park is less compared to Option 1
- Impacts on existing stream biodiversity potentially less as the route is located further away from the stream compared to Option 1
- Given higher volumes of pedestrian activity within the park this option could be adapted to provide a segregated footpath / cycle track rather than a shared path arrangement, with consideration of existing constraints (e.g. trees, playing pitches)
- This route alignment is relatively flat allowing suitable gradients to be more easily achieved compared to Option 2
- Route alignment brings the scheme further away from Cabinteely House compared to Option 1 and 2, which minimises visual impact
- Route can be clearly distinguished from other existing paths through the use of colours / materials

Constraints

- This route is less direct and slightly longer for users travelling through the park and therefore may be less attractive to use compared to Option 1. However when compared to Option 1, Option 2 has a Detour Factor of 1.1 which is within the target value of 1.2 for designing well connected direct cycle networks as per CROW design guidance.
- As this option uses the existing path network north of the stream it may introduce conflict with existing park users, particularly where it passes adjacent the playing pitches where spectators may be gathered during matches / training
- Ecological impacts on existing wildlife / biodiversity due to lighting is potentially greater compared to Option 1 and 2, as route would pass closer to or through greater areas of existing trees
- Less complex construction and lower capital costs compared to Option 1 as it upgrades existing path network

5.7 Section D: Brennanstown Road to Cherrywood

Option 1: Path Continues Along Eastern Side of St. Bride's Stream

Option 1, as shown in **Figure 5-15**, proposes a new combined zebra crossing on Brennanstown Road. The crossing would be located west of the junction with Carraig Glen. The path would be 4.0m wide at the point where it exits the park area and at the crossing. A new opening into the existing woodland area (on the opposite side of the road to the park) would be created as the route continues eastwards to the rear of the Carraig Glen properties.

The width of the path along this section will be informed by ecological considerations and potential impacts on trees but will be 3.0m – 4.0m wide. After passing through the densely wooded area, the path will continue at a width of 4.0m.

A new combined zebra crossing is proposed where the route crosses Brennanstown Avenue. After passing through the junction, the shared path runs along the east side of the stream and continues south to the new Druid's Glen road scheme.

The path would tie into the wider Cherrywood Green Routes Network via an underpass under the new Druid's Glen road, although it is noted that it would be on the opposite side to the future greenway to be delivered as part of the Tudor Homes residential scheme. A connection to the N11 could be created via the existing path which connects to Orchard Square.

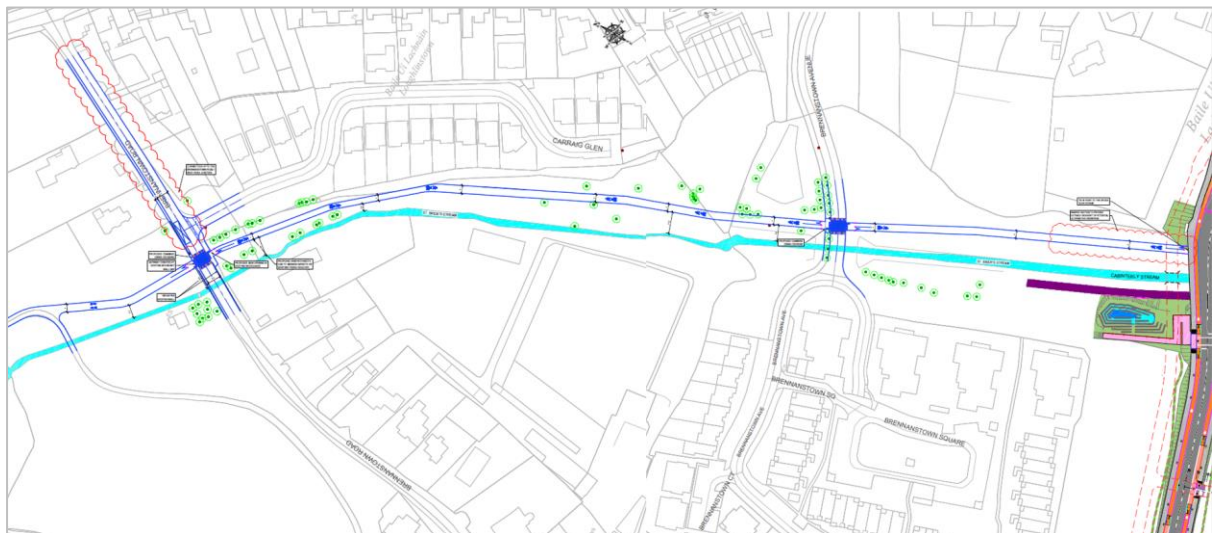


Figure 5-15: Route Section D - Option 1
[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1216 / 1217]

Route Section D: Option 1

Opportunities

- Shared path arrangement minimises impacts on constrained section south of the Brennanstown Road crossing whilst according with design guidance and thresholds of shared path use as per the CDM
- Formalises existing desire line being used by pedestrians through the wooded area south of Brennanstown Road
- Facilitates direct connection to future residential development to the south (on former Doyles Nursery lands)
- Route alignment is relatively flat allowing suitable gradients to be more easily achieved compared to Option 2
- Avoids disruption / removal of on-street parking along Carriag Glen compared to Option 2
- More comfortable, direct crossing over Brennanstown Avenue facilitated compared to Option 2 and 3

Constraints

- Not feasible to provide direct connection to the Bride's Glen Road scheme at its southern end without excessively long ramp section, therefore compromising connectivity to wider pedestrian / cyclist network
- No onward connection south connecting to the Cherrywood Green Routes Network facilitated under this option
- Limited passive surveillance of route by existing residential activity, although it is noted permitted residential development to the east / west will improve this in the future
- Entirely new route so involves greater extents of hard paving compared to other options
- More complex construction, particularly if ramp provided up to Bride's Glen Road level, and higher capital costs compared to other options

Option 2: Cycle Street Along Carrig Glen & Continues On West Side of Stream

Option 2, as shown in **Figure 5-16**, proposes a new combined zebra crossing on Brennanstown Road. The crossing would be located west of the junction with Carraig Glen. The path would be 4.0m wide at the point where it exits the park area and at the crossing. The path would then connect to Carraig Glen, where it is proposed to create a cycle street.

The cycle street arrangement would continue to the end of the cul-de-sac, where the path would then join the existing path towards Brennanstown Avenue. This path would be widened to 4m and connect to a new combined zebra crossing on Brennanstown Avenue. On the southern side of the crossing, the path would turn to continue along the west side of the stream.

The path would tie into the new Druid's Glen road scheme which incorporates a ramped connection up to the proposed controlled crossing. This would also facilitate connections for pedestrians and cyclists out to the N11. The path could also branch off to connect with the proposed greenway on the western side of the stream which continues under the road, into the proposed Tudor Homes residential scheme and connecting into the wider Cherrywood Green Routes Network.

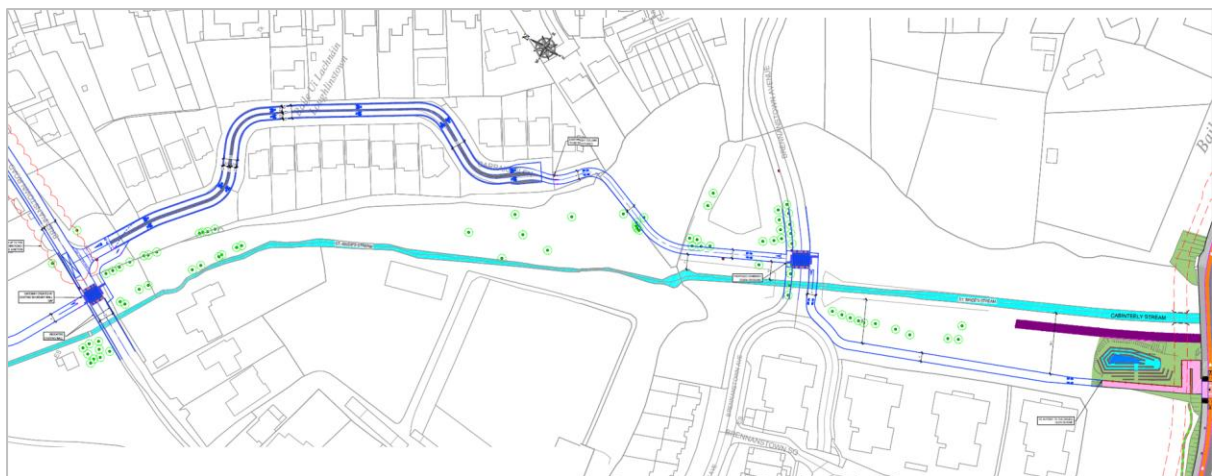


Figure 5-16: Route Section D – Option 2
[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1226 / 1227]

Route Section D: Option 2

Opportunities

- Avoids impacting constrained wooded area south of the Brennanstown Road
- Direct connection to the Bride's Glen Road scheme facilitated at its southern end providing onward connectivity to wider pedestrian / cyclist network
- Utilises existing fire tender route adjacent Brennanstown apartments, thereby minimising extent of new infrastructure compared to other options
- Greater levels of passive surveillance of route by existing residential activity compared to other options as it passes through Carraig Glen and adjacent apartment blocks
- Connection south connecting to the Cherrywood Green Routes Network can also be facilitated under this option

Constraints

- Not as legible or direct a route as other options and would involve pedestrians / cyclists changing between different layouts i.e shared path, cycle street, segregated path, which is confusing over short sections
- Does not cater for or formalise existing desire line being used by pedestrians through the wooded area south of Brennanstown Road
- Does not facilitate a direct connection to future residential development to the south (on former Doyles Nursery lands)
- Offers a lower level of service for pedestrians and cyclists, particularly less confident cyclists as they required to share the road on Carraig Glen, albeit a lowly trafficked road
- Relatively steep gradient from the end of Carraig Glen to Brennanstown Avenue which may give rise to cyclists increasing speeds and increase risk of conflicts
- Sharp turn required at crossing over Brennanstown Avenue to accommodate path continuing within the extents of the existing bridge
- Route runs along fire tender route in front of the apartment blocks which may give rise to concerns regarding overlooking by adjacent ground floor residents
- Requires removal / reduction in on-street parking along Carraig Glen
- More complex construction along Carraig Glen, although capital costs not as high compared to other options as new stream crossing is not required

Option 3: Path Along Eastern Side of St. Bride's Stream then Cross to Western Side

Option 3, as shown in **Figure 5-17**, is similar to Option 1 in terms to the section between Brennanstown Road and Brennanstown Avenue comprising a path which runs along the rear of the Carraig Glen properties.

The width of the path along this section will be informed by ecological considerations and potential impacts on trees but will be 3.0m – 4.0m wide. After passing through the densely wooded area, the path will continue at a width of 4.0m.

A new combined zebra crossing is proposed where the route crosses Brennanstown Avenue. After passing through the junction, the path turns to continue along the west side of the stream.

The path would tie into the new Druid's Glen road scheme which incorporates a ramped connection up to the proposed controlled crossing. This would also facilitate connections for pedestrians and cyclists out to the N11. The path could also branch off to connect with the proposed greenway on the western side of the stream which continues under the road, into the proposed Tudor Homes residential scheme and connecting into the wider Cherrywood Green Routes Network.

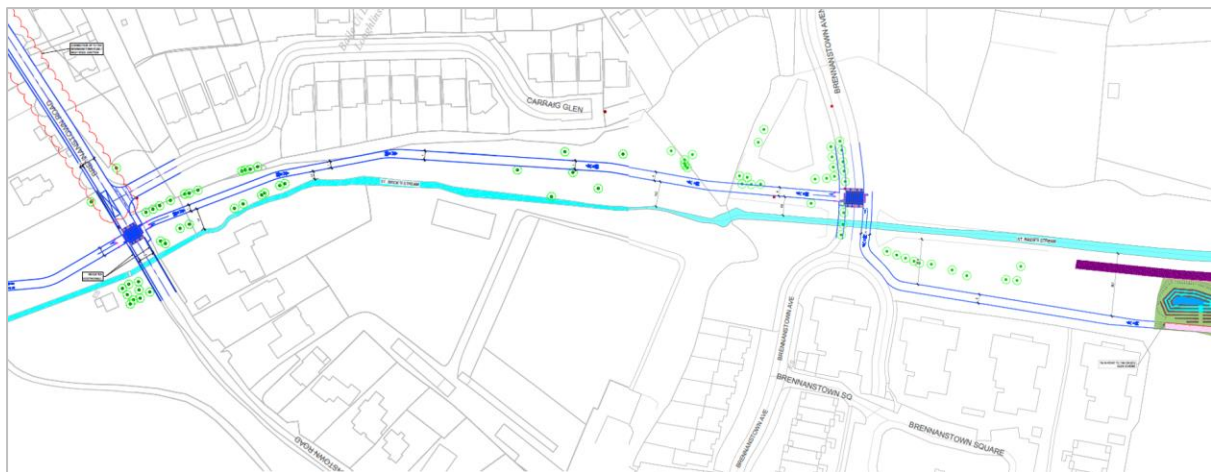


Figure 5-17: Route Section D - Option 3

[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-1236 / 1237]

Route Section D: Option 3

Opportunities

- Shared path arrangement minimises impacts on constrained section south of the Brennanstown Road crossing whilst aligning with the design guidance and thresholds of shared path use / urban greenways as per the CDM
- Formalises existing desire line being used by pedestrians through the wooded area south of Brennanstown Road
- Facilitates direct connection to future residential development to the south (on former Doyles Nursery lands)
- Route alignment is relatively flat allowing for suitable gradients to be more easily achieved compared to Option 2
- Direct connection to the Bride's Glen Road scheme facilitated at its southern end providing onward connectivity to wider pedestrian / cyclist network
- Avoids disruption / removal of on-street parking on Carraig Glen compared to Option 2
- Utilises existing fire tender route adjacent Brennanstown apartments, thereby minimising extent of new infrastructure compared to other options
- Passive surveillance of route adjacent the apartment blocks and future permitted residential developments will improve passive surveillance along northern section
- Connection south connecting to the Cherrywood Green Routes Network could also be facilitated under this option

Constraints

- Sharp turn required at crossing over Brennanstown Avenue to accommodate path continuing within the extents of the existing bridge
- Route runs along fire tender route in front of the apartment blocks which may give rise to concerns regarding overlooking by adjacent ground floor residents
- Simpler construction and lower capital costs compared to other options such as Option 1, 2 and 4

Option 4: Path Along Eastern Side & New Crossing of St. Bride's Stream to Western Side

Option 4, as shown in **Figure 5-17**, is similar to Option 1 and Option 3 in terms to the section between Brennanstown Road and Brennanstown Avenue comprising a path which runs along the rear of the Carraig Glen properties.

The width of the path along this section will be informed by ecological considerations and potential impacts on trees but will be 3.0m – 4.0m wide. After passing through the wooded area, the path will continue along the eastern side of the stream, where a connection to the adjacent permitted residential development to the west of the stream will be facilitated.

A new combined zebra crossing is proposed where the route crosses Brennanstown Avenue. The path then continues along the eastern side of the stream, where it will then cross over to the western side of the stream via a new bridge.

The path would then tie into the new Druid's Glen road scheme which incorporates a ramped connection up to the proposed controlled crossing. This would also facilitate connections for pedestrians and cyclists out to the N11. The path also branches off to connect with the proposed greenway on the western side of the stream which continues under the road, into the proposed Tudor Homes residential scheme and connecting into the wider Cherrywood Green Routes Network.

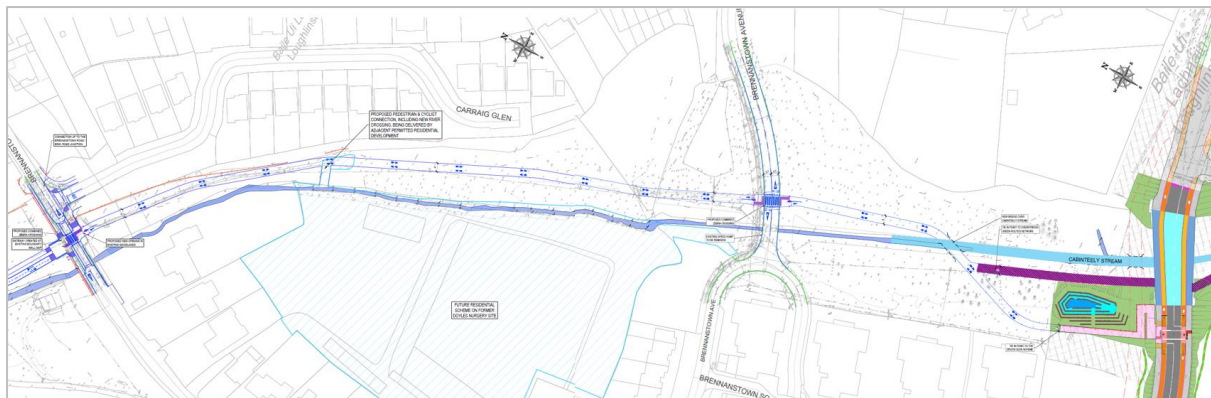


Figure 5-18: Route Section D - Option 4
[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-0206 / 0207]

Route Section D: Option 4

Opportunities

- Shared path arrangement minimises impacts on constrained section south of the Brennanstown Road crossing whilst aligning with the design guidance and thresholds of shared path use / urban greenways as per the CDM
- Formalises existing desire line being used by pedestrians through the wooded area south of Brennanstown Road
- Facilitates direct connection to future residential development to the south (on former Doyles Nursery lands)
- Route alignment is relatively flat allowing for suitable gradients to be more easily achieved compared to Option 2
- Direct connection to the Bride's Glen Road scheme facilitated at its southern end providing onward connectivity to wider pedestrian / cyclist network
- Avoids potential overlooking / privacy concerns from adjacent apartments as route does not run along fire tender route (compared to option 2 and 3)
- Avoids disruption / removal of on-street parking on Carraig Glen compared to Option 2
- Connection south to the Cherrywood Green Routes Network easily facilitated

Constraints

- Limited passive surveillance of route by existing residential activity, although it is noted future approved residential to the east / west will improve this in the future
- Greater extent of new hard paving / infrastructure compared to other options
- More complex construction and higher capital costs as new stream crossing is required

Option 5: Path Along Eastern Side & 3.0m Shared Path

Option 5, as shown in **Figure 5-19** is similar to Option 1,3 and Option 4 in terms to the section between Brennanstown Road and Brennanstown Avenue comprising a path which runs along the rear of the Carraig Glen properties.

The path will be 3.0m wide at the point where it enters the woodland area to the rear of the Carraig Glen properties. It will then broaden to 4m wide once it exits the ecologically sensitive area.

A new combined zebra crossing is proposed where the route crosses Brennanstown Avenue. The path then continues along the eastern side of the stream, where it will then cross over to the western side of the stream via a new bridge.

The path would then tie into the new Druid's Glen road scheme which incorporates a ramped connection up to the proposed controlled crossing. This would also facilitate connections for pedestrians and cyclists out to the N11. The path also branches off to connect with the proposed greenway on the western side of the stream which continues under the road, into the proposed Tudor Homes residential scheme and connecting into the wider Cherrywood Green Routes Network.

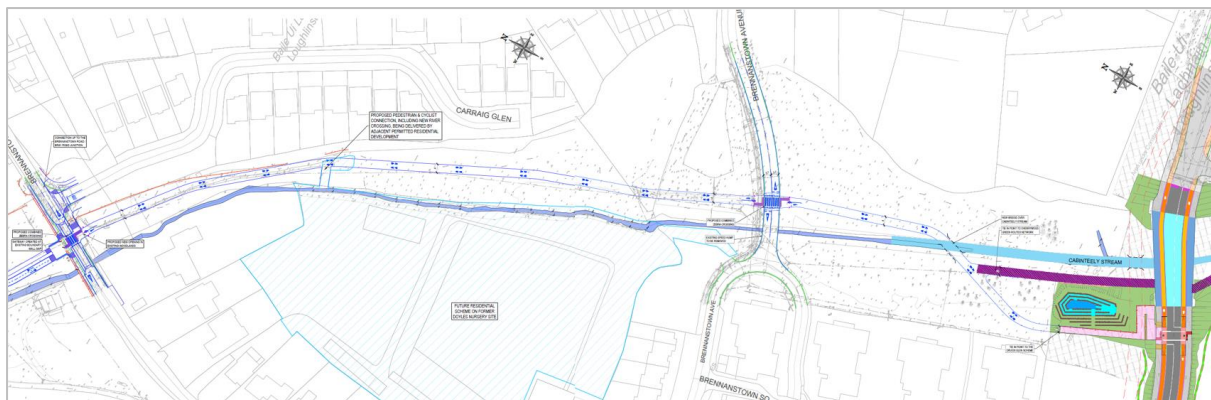


Figure 5-19: Route Section D - Option 5

[DBFL Drawing No. 230119-X-0100-Z00-DTM-SK-DBFL-CE-0206 / 0207]

Route Section D: Option 5

Opportunities

- Shared path arrangement minimises impacts on constrained section south of the Brennanstown Road crossing whilst aligning with the design guidance and thresholds of shared path use / urban greenways as per the CDM
- Formalises existing desire line being used by pedestrians through the wooded area south of Brennanstown Road
- Facilitates direct connection to future residential development to the south (on former Doyles Nursery lands)
- Route alignment is relatively flat allowing for suitable gradients to be more easily achieved compared to Option 2
- Direct connection to the Bride's Glen Road scheme facilitated at its southern end providing onward connectivity to wider pedestrian / cyclist network
- Avoids potential overlooking / privacy concerns from adjacent apartments as route does not run along fire tender route (compared to option 2 and 3)
- Avoids disruption / removal of on-street parking on Carraig Glen compared to Option 2
- Connection south to the Cherrywood Green Routes Network easily facilitated
- Lesser extent of new hard paving / infrastructure compared to other option 4

Constraints

- Limited passive surveillance of route by existing residential activity, although it is noted future approved residential to the east / west will improve this in the future
- Greater extent of new hard paving / infrastructure compared to other option 1,2, and 3
- More complex construction and higher capital costs as new stream crossing is required
- Offers a lower level of service for pedestrians and cyclists, particularly less confident cyclists, due to the reduction of the path to 3 meters wide.

6 Options Assessment

6.1 Introduction

The assessment of options follows the guidelines set out in the National Transport Authority's Simplified Project Approval Process for Minor Works (July 2021). The options are first sifted against the objectives for the scheme, followed by a Multi-Criteria Analysis (MCA) of options that pass the initial screen.

Each section has been assessed individually with various design options, as discussed previously in Section 5, and appraised in order to determine the optimal layout for people walking, wheeling and cycling. The 'Do-Nothing' option is eliminated as it fails to meet any of the project objectives by not providing a safe, attractive connection between Cornelscourt and Cherrywood for active mode users.

6.2 Multi-Criteria Analysis (MCA)

In order to determine the preferable design option along the route, it was necessary to undertake an appraisal of the options developed for each section of the scheme. A Multi-Criteria Analysis (MCA) has been undertaken based on a number of criteria as set out by the Department of Transport. An MCA is used to describe any structured approach to determine overall preferences among alternative options, where the options should accomplish multiple objectives.

The Transport Appraisal Framework (TAF) published in June 2023 by the Department of Transport provides appraisal and implementation guidance to ensure investment in transport projects fulfil strategic policy objectives and deliver value for money. Within the TAF, the Transport and Accessibility Appraisal (TAA) sets out a number of performance metrics which have been used to inform the MCA, these include:

- **Transport User Benefits and Other Economy Impacts** – Impacts arising from changes in economic welfare of transport network users following implementation.
- **Accessibility Impacts** – Impacts on households' access to key services such as education, healthcare, and employment opportunities.
- **Social Impacts** – Impacts for socially disadvantaged households as well as impacts on transport users with different mobility needs (e.g. limited mobility or disabilities), as well as the potential gender impact of a scheme.

- **Land Use Impacts** – Impacts related to the public realm as well as connectivity with existing transport infrastructure in an area.
- **Safety Impacts** – Impacts specifically on vulnerable road users.
- **Climate Change Impacts** – Direct impacts (positive and adverse) on greenhouse gas emissions, considering Climate Action and Climate Adaptation for both implementation and operation stages.
- **Local Environmental Impacts** – Impacts on the surrounding environment, including sites of cultural and historical significance.

The Transport Appraisal Framework (TAF) replaces the Common Appraisal Framework (CAF) for Transport Projects and Programmes (Published in 2016 and updated subsequently) and fully aligns the transport appraisal guidance with the Public Spending Code (PSC). Whilst the TAF replaces the CAF, the NTA Project Appraisal Guidelines still require all transport projects to be appraised in accordance with the CAF. Therefore, to ensure a robust MCA is undertaken, a hybrid approach has been taken in terms of assessing the scheme under a combination of the TAF and CAF assessment criteria. It is noted that there is significant commonality between both the TAF and CAF assessment criteria, the main difference being the inclusion of Climate Change Impacts as part of the TAF criteria.

The appraisal criteria were reviewed in the context of the proposed scheme and certain criteria were not included as they were not considered pertinent to the impacts of the scheme or where all options would have comparable impacts under the same criteria. For example, the CAF includes consideration of 'Physical Activity' impacts which is not expressly included within the TAF criteria. However, it was considered that the 'Physical Activity' criteria would have comparable impacts between all options and is not included within the MCA assessment.

Similarly, Travel Time, Transport Costs, Accessibility Impact on Deprived Groups and Connection to Zoned Lands were all considered comparable across all options and therefore excluded from the MCA. Accordingly, the criteria and sub-criteria applied for the MCA are outlined in **Table 8** below.

Criteria	Assessment Sub-Criteria
1. Transport User Benefits & Other Economic Impacts	1a) Journey Reliability 1b) Journey Quality 1c) Capital Costs
2. Accessibility Impacts	1a) Access to Key Services & Jobs 1b) Access to Recreational Facilities
3. Social Impacts	3a) Transport users with different mobility needs 3b) Gender Impacts
4. Land Use Impacts	4a) Change in Quality of Public Realm 4b) Connectivity & Integration with Wider Transport Network
5. Safety Impacts	5a) Collisions and Related Impacts 5b) Other Safety Impacts
6. Climate Change Impacts	6a) Climate Change Mitigation 6b) Climate Change Adaption
7. Local Environment Impacts	7a) Air Quality 7b) Noise and Vibration 7c) Biodiversity 7d) Water Resources and Soil Quality 7e) Landscape and Visual Quality 7f) Cultural and Heritage

Table 8: MCA Assessment Criteria and Sub Criteria

1. Transport User Benefits & Other Economic Impacts

1a. Journey Reliability: This criterion refers to the variance in travel times which can be experienced for the same journey type.

1b. Journey Quality: This criterion measures the quality of a journey outside of journey time and cost considerations e.g. the degree to which cycle lanes are segregated, a coherent network.

1c. Capital Cost: Assessment of indicative infrastructure cost estimates, noting there are no expected land acquisition costs for any options. At this early stage, specific cost estimates have not been produced but professional judgement has been used based on an understanding of the level of works required along with Whole Lifetime Costs i.e. cost of maintenance of the options.

2. Accessibility Impact

2a. Access to Key Services and jobs: This criterion assesses the potential impact of an option on general public's accessibility to key services which are required to maintain a basic level of

wellbeing (i.e. retail, educational facilities, healthcare facilities, transport services etc) and access to employment.

2b. Access to Recreational Facilities: This criterion assesses the impact of a scheme option on the general public's accessibility to community amenities (i.e. local sports facilities, parks, playgrounds etc).

3. Social Impacts

3a. Transport users with different mobility needs: Evaluating how an option may impact on transports users with disabilities or limited mobility and their difficulty accessing the facilities.

3b. Gender Impacts: This criterion evaluates how the option will impact transport users and how these may vary by gender.

4. Land Use Impacts

4a. Change in Quality of Public Realm: This criterion assesses the likely impact on the quality of public realm, including provision of public amenities and green space.

4b. Connectivity & Integration with Wider Transport Network: This criterion assesses the option in terms of achieving an integrated, high-quality and well connected scheme in the context of the wider existing and proposed transport network.

5. Safety Impacts

5a. Collisions and Related Impacts: Assessing the design options for providing adequate road safety for all road users and identify estimated impacts on vulnerable users.

5b. Other Safety Impacts: This criterion assesses the interventions in terms of lighting, signage or other measures that can help prevent anti-social behaviour and increase actual and perception of personal safety.

6. Climate Change Impacts

6a. Climate Change Mitigation: This criterion assesses the emission reduction through fleet change, modal shift and change in travel behaviour as result of the scheme.

6b. Climate Change Adaptation: This criterion refers to measures to prepare for and respond to the impacts of climate change that are now locked in.

7. Local Environment Impacts

7a. Air Quality: Assesses the impact of options, positively or otherwise, in terms of air quality.

7b. Noise and vibration: Assesses the impact of options, positively or otherwise, in terms of noise and vibration.

7c. Biodiversity: Assesses the impact on specific flora or fauna or on defined habitats due to the construction, presence, or the operation of transport infrastructure.

7d. Water Resources and Soil Quality: Assesses the impact of the options on surface water and watercourses, soil, and geology as a result of land-take and possible ground excavations.

7e. Landscape & Visual Quality: Assesses the potential to impact on landscape character, topography, vegetation, natural features, views etc.

7f. Cultural Heritage: Assesses each option in terms of the impact that the proposals have on sites of cultural and historical importance.

For each assessment criterion considered, options have been relatively compared against each other based on a five-point scale, ranging from having significant advantages to having significant disadvantages over other route options.

For illustrative purposes, this five-point scale is colour coded as presented in **Table 9** with the most advantageous options graded 'dark green', disadvantageous options graded 'red' and neutral options graded 'yellow'.

Colour	Description
Dark Green	Significant advantages over other options
Light Green	Some advantages over other options
Yellow	Neutral compared to other options
Orange	Some disadvantages compared to other options
Red	Significant disadvantages compared to other options

Table 9: MCA Colour Coded Ranking Scale

6.3 MCA Results: Section A - Cornelscourt to Glen Lawn Drive

Criteria	Assessment Sub-Criteria	Option 1 (Shared Path on Eastern Side)	Option 2 (Single Tracks Both Sides)	Option 3 (Two-Way Track on Eastern Side)	Option 4 (Shared Path & Upgraded Junction)
1. Transport User Benefits & Other Economic Impacts	1a) Journey Reliability				
	1b) Journey Quality				
	1c) Capital Costs				
2. Accessibility	1a) Access to Key Services & Jobs				
	1b) Access to Recreational Facilities				
3. Social	3a) Transport users with different mobility needs				
	3b) Gender Impacts				
4. Land Use	4a) Change in Quality of Public Realm				
	4b) Integration with wider transport network				
5. Safety	5a) Collisions and Related Impacts				
	5b) Other Safety Impacts				
6. Climate Change	6a) Climate Change Mitigation				
	6b) Climate Change Adaption				
7. Local Environment	7a) Air Quality				
	7b) Noise and Vibration				
	7c) Biodiversity				
	7d) Water Resources and Soil Quality				
	7e) Landscape and Visual Quality				
	7f) Cultural and Heritage				

Table 10: MCA for Section A of the Cabinteely Greenway

Transport User Benefits & Other Economics Impacts: All options are considered to offer comparable benefits in terms of journey reliability. In terms of journey quality, both options 2 and 3 are considered to offer significant advantages as they both offer segregated facilities for pedestrians and cyclists. Option 1 and Option 4 are slightly less advantageous than Option 2 and Option 3 as a shared facility offers lower journey quality compared to segregated facilities. Option 2 is most disadvantageous with respect to capital cost as it would be more expensive to construct given works are required to both sides of Cornelscourt Hill Road, compared to Option 1, Option 3 and Option 4 which only require works to the eastern side of the road.

Accessibility Impacts: In terms of accessibility, all options provide significant benefits in improving access to key services, employment areas and recreational facilities. Each option provides enhanced facilities for pedestrians and cyclists linking Cornelscourt village and the Glen Lawn Drive area.

Social Impacts: Option 1 and Option 4 present disadvantages compared to the other options as shared facilities can be a deterrent to people with mobility/visual impairments and elderly people particularly in the vicinity of the bus stop and people boarding/alighting buses. Options 2 and 3 offers advantages over Option 1 and 4 as pedestrians and cyclists are segregated, although the two-way cycle track would require more vulnerable pedestrians to look both ways (may be less intuitive) and make a slightly wider crossing movement at the island bus stop. Whereas Option 2 offers advantages due to segregated facilities and crossing of a single track required at the island bus stop. Option 4 offers advantages over Option 1 however, as there are improved facilities for vulnerable road users at the Bray Road signalised junction.

In terms of gender impacts, as Option 2 and Option 3 provide segregated facilities which are more likely to encourage female cyclists compared to the shared facility under Option 1 and 4. Forward visibility is restricted slightly by an adjacent boundary wall where the route turns eastwards into the open space linking Glen Lawn Drive. This may give rise to concerns about people being obscured from view and the walls on either side of this section of the route may contribute to a sense of entrapment. However, all options will benefit from public lighting.

Land Use Impacts: The shared path under Option 1 and Option 4, would be more compact and have less of an impact on the public realm compared to Option 2 and 3. This means more public space can be allocated for other purposes, such as soft landscaping, tree planting etc. Option 2 is least advantageous as this option requires more space on both sides of the road. In relation to

connectivity with the wider transport network, all options provide high quality connections and are therefore neutral compared to each other.

Safety Impacts: Option 1 presents some disadvantages compared to Options 2 and 3, as a shared path increases potential conflicts between pedestrians and cyclists. Limited improvements to the Bray Road signalised junction are proposed under Option 1. Option 2 and 3 are rated more positively as they provide segregated cycle tracks that reduce the risk of conflict between pedestrian and cyclists as well as between cyclists and motorists. Option 2 is rated slightly higher than Option 3 and Option 4 as it provides a greater level of segregation between modes at the Bray Road signalised junction.

In relation to other safety impacts, all options will benefit from adequate lighting and signage that help to deter anti-social behaviour and will help to encourage greater numbers of people walking / cycling which in turn will increase passive surveillance.

Climate Change: Considering emissions from the transport sector be one the most significant contributors to Irish emissions of greenhouse gases (GHGs) and greenhouses gas equivalents (GHGes), all options will help to reduce emissions through encouraging a modal shift and change in travel behaviour as a result of the scheme. As Option 1 and 4 provide a shared facility, they are considered less likely to encourage an uplift in walking / cycling compared to Option 2 and Option 3 which offer more attractive segregated facilities.

All three options will help to reduce road congestion and lowering emissions of air pollutants associated with motor vehicles by providing alternatives to car usage. However, emissions can also be created during the construction of a scheme. Option 2 is rated less positively because it will require more construction work, which could generate more material use and, consequently, more construction traffic. By comparison, Options 1 and 3 may involve less construction activity as it is focused on the eastern side of Cornelscourt Hill Road only.

Each of the options may have an impact in terms of Climate Change Adaptation and flooding due to the resulting increase in hard paved surfacing. However, appropriate materials and construction methods will be considered for each option (e.g. permeable asphalt, SUDs features) to mitigate against any negative impacts.

Local Environment: Option 2 is slightly less advantageous compared to Options 1, 3 and 4 for its impact on Biodiversity, Landscape and Visual Quality as the provision of the cycle track on the western side may impacts existing trees/green space. Similarly, Option 2 may have slightly greater

impacts on Air Quality, Noise and Vibration, and Water Resources and Soil Quality compared to Option 1, 3 and 4 as construction works will be required on both sides of the road.

Option 1 and Option 4 are slightly more advantageous due to their compact nature which will require less use of existing verges / green space and less construction work.

Option 3 is also considered less advantageous compared to Option 1 and 4 in terms of its impacts on biodiversity and Landscape and Visual quality as it would impact on the existing trees within the verge along the eastern side of the road.

All options are rated neutral for their impacts on Cultural and Heritage because they are located a suitable distance away from sites of cultural and historical importance.

A summary of the assessment and relative ranking of route options against the seven assessment criteria is presented in **Table 11** below.

Criteria	Option 1	Option 2	Option 3	Option 4
Transport User Benefits & Other Economic Impacts				
Accessibility				
Social				
Land Use				
Safety				
Climate Change				
Local Environment				

Table 11: Results Summary of the MCA for Section A

The MCA indicates that Option 3 and Option 4 offer comparable overall benefits. On balance it is considered that Option 4 more preferable when considered as part of the overall scheme, particularly in terms of providing consistency across the route, as the remaining sections of the route comprise a shared path (evaluated in following sections) and therefore the shared path under Option 4 would maintain a consistent layout along this section.

Consequently, Option 4 comprising a 4.0m wide shared path on the eastern side of Cornelscourt Hill Road and upgraded pedestrian / cyclist facilities at the Bray Road signalised junction is the preferred option for Section A.

6.4 MCA Results: Section B – Glen Lawn Drive to Cabinteely Park

Criteria	Assessment Sub-Criteria	Option 1a (Cycle Street + Modal Filter + Carriageway Works)	Option 1b (Cycle Street + traffic calming, no modal filter)	Option 2 (Shared path south side of Glen Lawn Dr)	Option 3 (Shared path north side of Vale View Ave)	Option 4 (Glen Lawn Drive one way for traffic)	Option 5 (Path south side of Glen Lawn Dr & Buildouts)	Option 6 (Shared path south side of Glen Lawn Dr & Buildouts)
1. Transport User Benefits & Other Economic Impacts	1a) Journey Reliability							
	1b) Journey Quality							
	1c) Capital Costs							
2. Accessibility	1a) Access to Key Services & Jobs							
	1b) Access to Recreational Facilities							
3. Social	3a) Transport users with different mobility needs							
	3b) Gender Impacts							
4. Land Use	4a) Change in Quality of Public Realm							
	4b) Integration with wider transport network							
5. Safety	5a) Collisions and Related Impacts							
	5b) Other Safety Impacts							
6. Climate Change	6a) Climate Change Mitigation							
	6b) Climate Change Adaption							
7. Local Environment	7a) Air Quality							
	7b) Noise and Vibration							
	7c) Biodiversity							
	7d) Water Resources and Soil Quality							
	7e) Landscape and Visual Quality							
	7f) Cultural and Heritage							

Table 12 :MCA for Section B of the Cabinteely Greenway

Transport User Benefits & Other Economics Impacts: All options are considered to provide comparable benefits in terms of journey reliability. Option 4 is considered to offer a slight advantage in terms of journey quality as it provides segregated facilities for pedestrians and cyclists, however pedestrians would be required to cross several side road junctions which wouldn't be required under Option 2 or 3. Option 5 could be designed as either a two-way cycle facility which offer segregation from cyclists, although as per Option 2 / 3 they would be required to cross several side road junctions. Alternative Option 6 offers a shared facility which would provide a direct route for pedestrians and avoids side road crossings – either layout has benefits in terms of journey quality. Options 1a/1b are slightly disadvantageous compared to the other options as cyclists would have to share the road with motor vehicles, albeit volumes would be low and cyclists would have priority. Option 3 is also disadvantageous as it is less direct and coherent as a route compared to the other options.

Option 1b is expected to have lowest associated costs, while Options 2 and 3 are likely to have a slightly higher Capital Cost as it would involve constructing an entirely new section of infrastructure. Option 1a and Option 4 are anticipated to be broadly comparable in terms of costs. Option 5 and 6 would have substantially higher costs compared to all options, given the level of works involved in realigning kerbs, drainage, buildouts etc along Glen Lawn Drive.

Accessibility Impacts: All options enhance accessibility to the key services, employment areas and recreational facilities. The four options improve facilities for pedestrian and cyclists, since they offer direct access to Cabinteely Park and enhance connectivity for pedestrians and cyclists to Academy Park Childcare Cabinteely and St. Brigid's Girls school, located to the south of the route.

Social Impacts: Option 1a/1b offers advantages over option 2 and 3 as pedestrians and cyclists are segregated, although cyclists with adapted bicycles would be required to share the cycle street with motorists which may be intimidating to less confident cyclists. Option 2 and Option 3 propose a wide shared path which may deter some people with mobility/visual impairments or elderly people, however there is good segregation from motorised traffic. Option 4 offers a slight advantage over the other options due to the segregated two-way cycle track reducing potential conflicts between cyclists, pedestrians and motorists, although pedestrians with mobility impairments would be required to cross over several side road junctions with increased risk of conflict with turning vehicles compared to Option 2 and 3 which avoid these side roads. Option 5 propose a two-way cycle facility offer segregation from cyclists, although pedestrians would be required to cross several side road junctions and follow a slightly less direct route. Alternatively,

Option 6 offers a shared facility that provides a direct and more attractive route for pedestrians with mobility impairments, as it avoids side road crossings, which may be preferable. Additionally, this option enhances safety by reducing potential conflict points, offers a continuous and uninterrupted path, and promotes inclusivity by accommodating all types of users, including pedestrians, cyclists, and those with mobility impairments.

In terms of gender impacts, Options 2, 3, 4 and 5 are considered more advantageous as they offer full segregation from motorised traffic. Studies indicate that segregated facilities are more likely to encourage female cyclists, as it gives them a sense of security. Option 1a/1b would require less confident cyclists to share the road with motor vehicles, which may deter some female cyclists. All options will benefit from good levels of lighting and passive surveillance from adjacent properties.

Land Use Impacts: The reconfiguration of the existing infrastructure under Option 1a/1b and 4, would have advantages as they largely avoid construction of new infrastructure in the existing green space area. However, they both offer limited opportunities to create an attractive, visually appealing route for pedestrians and cyclists. Whereas Option 2 and 3, whilst they require construction of a new path along the edge of the green space area, with this comes the opportunity to provide additional landscaping, tree lined paths, seating areas etc. Option 5 and 6 are considered more advantageous as the introduction of the buildouts and increased buffer width provides opportunities for greater landscaping / public realm enhancements.

In terms of connectivity and integration with the existing and future transport network, Option 2 is most advantageous as it provides a coherent, direct connection for all users compared to the other options.

Safety Impacts: Option 4 offers advantages as the segregated two-way cycle track would reduce possible conflicts between cyclists and pedestrians as well as between cyclists and motorists. However, this option would require pedestrians to cross over several side roads, compared to Option 2 and 3. Options 2 and 3 offer advantages over Option 1a and 1b due cyclists not having to share the road with motorised traffic, as is the case with Option 1a/1b under the cycle street arrangement. Whilst the shared path under Option 2 and 3 may give rise to a slight risk of conflict between pedestrians and cyclist, the 4.0m width gives ample room for the anticipated volume of users to move along comfortably. Under Option 3 there is a notable gradient down towards Vale View Lawn where cyclists could pick up speed and may increase risk of collisions with other users. Option 1a and Option 1b are most disadvantageous due to cyclists mixing with traffic. Option 5 and 6 are considered to offer the greatest advantages as the narrowing of the road width plus the

introduction of the buildouts will reduce vehicle speeds and make it less car dominated and intimidating for pedestrians / cyclists.

In relation to other safety impacts, all options will benefit from adequate lighting and signage that help to deter anti-social behaviour and will help to encourage greater numbers of people walking / cycling which in turn will increase passive surveillance, along with the passive surveillance offered by the adjacent properties.

Climate Change: All options will encourage and support an increase in active modes and help to reduce road congestion, lowering emissions of air pollutants associated with motor vehicles by providing alternatives to car usage. However, emissions can also be created during the construction of a scheme. Option 2 and 3 are slightly more disadvantageous as they require more intensive construction work which could generate more material use and, consequently, more construction traffic. By comparison, Options 1a, 1b and 4 are more advantageous as they require less construction work.

All options are considered to have comparable benefits under Climate Change Adaption as appropriate materials and construction methods will be considered for each option (e.g. permeable asphalt, SUDs features) to mitigate against any negative impacts.

Local Environment: Option 2, 3, 5 and 6 may have slightly greater benefits for users in terms of Air Quality, Noise and Vibration as they provide greater levels of segregation from motorised traffic compared to Option 1 and 4. However Option 1 and 4 would reduce the amount of through traffic and thereby help to improve air quality, noise and vibration for local residents. Option 5 and 6, along with the introduction of buildouts may make it less attractive for through traffic / rat running and therefore help to improve air quality, noise and vibration.

In terms of Biodiversity, Option 1a, 1b and Option 4 are proposed with the existing street corridor and therefore the impact on biodiversity would be minimal, where a new path in the green space area is proposed under Option 2 and 3 although this comprise only a grassed area so the impact on biodiversity is also considered minor. All options would propose enhancements to the adjacent green space area to improve biodiversity in the area, although Option 5 and Option 6 are considered to offer the greatest benefits as additional biodiversity planting can be provided within the buffer / buildouts.

Option 1a, 1b and 4 are considered to be most advantageous in terms of impacts on water resources and soil quality as they are contained within the existing street corridor. Option 2, 5

and 6 are slightly less advantageous as a new path would be constructed in the green space area, although this would be an appropriate distance from the St. Brides Stream. Option 3 however would bring the path slightly closer to the stream and is therefore considered disadvantageous.

In terms of Landscape and Visual Quality, both Option 5 and 6 are considered the most advantageous as it offers an opportunity to provide an attractive path through the green area with the inclusion of an increased landscaped buffer and buildouts which will transform the street from car dominated to a more people-oriented space. Option 2 offers some advantages in terms of enhancing the streetscape with additional planting / trees although not as much as Option 5 and Option 6. For option 3 there may not be sufficient space to achieve enhancements along the route. The reconfiguration to the street to a cycle street including resurfacing could offer some advantages under Option 1a, however Option 1b and Option 4 provide limited opportunities to create a visually attractive route for users.

All options are rated neutrally for their impacts on Cultural and Heritage because they are located a suitable distance way from sites of cultural and historical importance.

A summary of the assessment and relative ranking of route options against the six assessment criteria is presented in **Table 13** below.

Criteria	Option 1a	Option 1b	Option 2	Option 3	Option 4	Option 5	Option 6
Transport User Benefits & Other Economic Impacts							
Accessibility							
Social							
Land Use							
Safety							
Climate Change							
Local Environment							

Table 13: Results Summary of the MCA for Section B

The results from the MCA Assessment indicate that Option 5 and 6, comprising an off-road path along the southern edge of Glen Lawn Drive with narrowing of the existing carriageway and introduction of buildouts, present advantages over the other options considered, particularly in terms of Accessibility, Land Use, Safety and Local Environment.

However, both Option 5 and Option 6 have prohibitively high associated costs compared to the other options assessed due to the level of works involved relating to road narrowing, drainage, buildouts etc.

Options 1a, 2 and 4 also present advantages and on balance it is considered that Option 2 is preferable when considered as part of the overall scheme, particularly in terms of providing consistency across the route, as the remaining sections of the route comprise a shared / off road path and therefore the shared path under Option 2 would maintain a consistent layout along this section. Additionally, Option 2 provides a direct and more attractive route for pedestrians with mobility impairments, as it avoids side road crossings, which may be preferable. This option also enhances safety by reducing potential conflict points, offers a continuous and uninterrupted path, and promotes inclusivity by accommodating all types of users.

Consequently, Option 2 comprising a 4.0m wide shared path on the southern side of edge of Glen Lawn Drive is the preferred option for Section B.

6.5 MCA Results: Section C – Cabinteely Park

Criteria	Assessment Sub-Criteria	1 Option (New path south side of the stream)	Option 2 (Upgraded path south of stream using existing network)	Option 3 (Upgraded path north of stream using existing network)
1. Transport User Benefits & Other Economic Impacts	1a) Journey Reliability			
	1b) Journey Quality			
	1c) Capital Costs			
2. Accessibility	1a) Access to Key Services & Jobs			
	1b) Access to Recreational Facilities			
3. Social	3a) Transport users with different mobility needs			
	3b) Gender Impacts			
4. Land Use	4a) Change in Quality of Public Realm			
	4b) Connectivity with wider transport network			
5. Safety	5a) Collisions and Related Impacts			
	5b) Other Safety Impacts			
6. Climate Change	6a) Climate Change Mitigation			
	6b) Climate Change Adaption			
7. Local Environment	7a) Air Quality			
	7b) Noise and Vibration			
	7c) Biodiversity			
	7d) Water Resources and Soil Quality			
	7e) Landscape and Visual Quality			
	7f) Cultural and Heritage			

Table 14: MCA for Section C of the Cabinteely Greenway

Transport User Benefits & Other Economics Impacts: In terms of journey reliability, Option 1 offers a direct route through the park, compared to Option 2 and 3 which are less direct using the existing path network around the southern / northern edges of the park. In terms of journey quality, Option 1 provides scope to route a new path which minimises gradients. Using the existing paths under Option 2 and Option 3 may be less attractive for users given potential for conflicts with existing users of the park e.g. playground and football pitches. Option 1 is most advantageous as it would be an entirely new route, located away from existing park users. Option 2 is considered least advantageous as it includes some steep sections which may not be easily addressed.

Option 1 is most disadvantageous with respect to capital cost as it would be more expensive to construct a new path, compared to Option 2 and Option 3 which would upgrade / widen existing paths within Cabinteely Park.

Accessibility Impacts: In terms of accessibility, all options provide significant benefits in improving access to key services, employment areas and recreational facilities. Each option provides enhanced facilities for pedestrians and cyclists linking Glen Lawn Drive area and Brennanstown Road, passing through the Cabinteely Park, therefore all options offer comparable benefits in terms of Accessibility.

Social Impacts: In terms of transport users with different mobility needs, Option 1 provides a new path however this would have a steeper gradient of 1:25 along the section from the 1916 commemorative garden down to Brides Stream. Similarly, Option 2 includes some steep sections which may be uncomfortable and a deterrent for people with mobility impairments. The steepest gradient along Option 3 is a 1:33, south of the Old Bray Road park entrance down towards the ditch crossing. Consequently, Option 3 provides the least challenging gradients for users with different mobility requirements. For all options there is the opportunity to provide either a shared or segregated path. However, to encourage less confident users and reduce potential conflicts a segregated path would be preferable.

All options provide significant benefits for encouraging more female cyclists and pedestrians by providing an off-road route. Option 2 and 3 offer slight advantages as they would pass by existing well used areas such as the playground and football pitches, offering passive surveillance. Whilst Option 1 may be considered slightly more secluded, it does have good sightlines in all directions helping to contribute to a sense of openness and avoid potential entrapment areas or areas for people to hide which can make female users feel less safe, especially after dark. All options would consider appropriate lighting to also enhance personal safety, particularly for female users.

Land Use Impacts: Option 2 and Option 3 provide the opportunity to improve the public realm of existing circulation routes and the route's relationship with amenities along the way. For instance, Option 2 and Option 3 improve existing surfacing and ancillary elements i.e. street furniture, incidental play. There is the opportunity to improve the interface with the playground & 1916 commemorative garden (Option 2), and the interface with the pitches and main entrance from the Old Bray Rd. (Option 3). Whereas, Option 1 will be reducing the aesthetic / functional value of the existing pollinator sites through which it will pass. Any new tree planting, biodiversity friendly planting & SuDS interventions through the existing natural pollinator site will only change the natural environment type to an alternative landscaped environment type.

In terms of connectivity to the wider transport network, Option 3 is considered slightly more advantageous compared to Option 1 and Option 2 as it provides a closer connection to existing public transport links along Old Bray Road and the N11.

Safety Impacts: Options 2 and 3 are slightly less advantageous compared to Option 1 as the increase in the number of users on the existing path network within the park, albeit on widened paths, may increase the risk of conflicts between the different user groups. Option 1 provides a new path through the park to accommodate additional pedestrian and cyclist movements, thereby minimising impact on existing users.

In relation to other safety impacts, it is proposed that each of the route options would be lit. The level / type of lighting needs to be considered with respect to potential impacts on existing wildlife. Appropriate wayfinding signage through the park would also be provided for each option. Each option seeks to encourage greater numbers of people walking / cycling which in turn will increase passive surveillance, together with existing uses within the park, which will help to deter anti-social behaviour.

Climate Change: All options aim to lower these GHGs emissions and GHGs by promoting a change in travel behaviour and a shift to more sustainable modes of transport. During construction, Option 1 is considered less advantageous as it is an entirely new route which would require greater resources compared to Options 2 and 3 which could reuse / recycle part of the existing path network.

All options are considered to have comparable benefits in terms of Climate Change Adaptation as appropriate materials and construction methods will be considered for each option (e.g. permeable asphalt, SUDs features) to mitigate against any negative impacts.

Local Environment: In terms of air quality, noise and vibration, all options will encourage change in mode share from private vehicles to active travel modes, and consequently will help to reduce emissions of air pollutants associated with motor vehicles. Option 1 is considered to be slightly more advantageous given that the directness of the route is more likely to encourage a modal shift towards sustainable modes and therefore likely to achieve greater reductions in private car use on the wider network with resulting benefits in terms of air, noise and vibration.

With respect to the environmental and biodiversity impacts, an assessment was undertaken by the ecologists appointed for the scheme which compared Option 1 and Option 3, this can be found in **Appendix C**. Option 1 was found to have greater negative impacts in terms of the St Brides Stream and the established meadow area which are the most sensitive and least common habitats in the area and facilitate high levels of biodiversity. Therefore, Option 1 presents disadvantages compared to Option 3. Similarly, Option 1 is slightly less advantageous compared to Options 2 and 3 in terms of its impact on water resources and soil quality as it requires a full new path construction.

With respect to landscape and visual quality impacts, the provision of a new path under Option 1 would change/alter existing uninterrupted views within the park and therefore is considered less advantageous compared to Option 2 and 3 which are along existing paths within the park.

In terms of cultural and heritage impacts, Option 2 and 3 are advantageous as they utilise the existing paths with the park. Option 1 is considered to be slightly disadvantageous given that it would be a new route interrupting existing views from Cabinteely House.

Criteria	Option 1	Option 2	Option 3
Transport User Benefits & Other Economic Impacts			
Accessibility			
Social			
Land Use			
Safety			
Climate Change			
Local Environment			

Table 15: Results Summary of the MCA for Section C

The MCA shows Option 3, an upgraded route around the northern edge of the park, as being more advantageous compared to Option 1 and 2, particularly in terms of the social, land use, climate change and local environment criteria. Whilst Option 1 offers benefits in terms of transport user

benefits, following an assessment of the ecological impacts, it is considered that the negative impact of Option 1 upon St Brides Stream and the established meadow areas within the park would be greater than Option 3. Whilst both route options pose potential ecological impacts, Option 3 on balance would lead to less disturbance and greater overall benefits and therefore is the preferred option for Section C.

6.6 MCA Results: Section D – Brennanstown Road to Cherrywood

Criteria	Assessment Sub-Criteria	Option 1 (Path on eastern side of St. Brides Stream)	Option 2 (Cycle street on Carraig Glen, then path on west side of stream)	Option 3 (Path on east side, then west side after crossing Brennanstown Ave)	Option 4 (Path on east side and new crossing of stream further south)	Option 5 (Path on east side and 3.0m Shared Path)
1. Transport User Benefits & Other Economic Impacts	1a) Journey Reliability					
	1b) Journey Quality					
	1c) Capital Costs					
2. Accessibility	1a) Access to Key Services & Jobs					
	1b) Access to Recreational Facilities					
3. Social	3a) Transport users with different mobility needs					
	3b) Gender Impacts					
4. Land Use	4a) Change in Quality of Public Realm					
	4b) Connectivity with wider transport network					
5. Safety	5a) Collisions and Related Impacts					
	5b) Other Safety Impacts					
6. Climate Change	6a) Climate Change Mitigation					
	6b) Climate Change Adaption					
7. Local Environment	7a) Air Quality					
	7b) Noise and Vibration					
	7c) Biodiversity					
	7d) Water Resources and Soil Quality					
	7e) Landscape and Visual Quality					
	7f) Cultural and Heritage					

Table 16: MCA for section D of the Cabinteely Greenway

Transport User Benefits & Other Economics Impacts: All options are comparable in terms of journey reliability. Option 4 is most advantageous in terms of journey quality as it provides a fully segregated (from traffic) route and ties into the future proposed greenway to the south, which connects to the wider Cherrywood Green Routes Network. It also connects to the ramp to the Druid's Glen road, facilitating a direct connection to the N11. Option 5 also shows advantages in terms of journey quality compared to options 1, 2, and 3, as it has similar characteristics to Option 4 but provides slightly fewer advantages due to the reduction of the path by 3 meters.

Option 4 and 5 also avoids the tight, right angle turn when crossing at Brennanstown Ave, instead it continues straight making it more comfortable for cyclists. Option 1 is less advantageous as the connections to the Cherrywood Green Routes and N11 would not be as clear or direct. Option 1 is also less advantageous as it would require cyclists to mix with vehicles along the cycle street. Options 1, 2, and 3 have relatively comparable capital costs. Options 4 and 5 are anticipated to be slightly higher due to the requirement for a new crossing of the stream, but Option 4 will still be slightly higher than Option 5.

Accessibility Impacts: All options provide benefits in improving access to existing and future key services, employment areas and recreational facilities. Option 1 is considered to be slightly less advantageous compared to Option 2 and 3, as the connection at the southern end to the wider Cherrywood Green Routes Network and Druid's Glen / N11 would not be a clear or direct.

Social Impacts: Option 1 presents slight disadvantages compared to Option 2 and 3 due to the aforementioned poorer connections to the Cherrywood Green Routes Network and Druid's Glen / N11. Option 2 is slightly less advantageous compared to Option 1, 3, 4 and 5 as it includes a cycle street on Carraig Glen which may be less attractive for children, elderly, disabled, or inexperienced cyclist as they may prefer segregated facilities that offer more protection and separation from motor traffic. Option 3, 4 and 5 are most advantageous as they offer a fully segregated route from traffic and provides direct accessible connections to the Cherrywood Green Routes Network and Druid's Glen / N11.

In terms of gender impacts, Option 2 comprises a cycle street on Carraig Glen within a residential area, which would provide benefits in terms of lighting, visibility, and passive surveillance. This is more likely to encourage more female pedestrians / cyclists and increase the sense of personal safety compared to Option 1, 3, 4 and 5, which offer a shared path through the existing woodland area. However, it is noted that the permitted adjacent residential developments will improve passive surveillance along this section of the route in the future.

Land Use Impacts: Option 1, Option 3, Option 4 and Option 5 have some advantages compared to Option 2 as the off road path can improve the quality of the public realm by providing a formal route along existing established desire lines, offer better recreational and leisure opportunities, and enhance the natural and scenic value of the area. Pedestrians and cyclists are likely to prefer routes that offer more aesthetic or environmental benefits, such as beside riversides, through woodland etc. compared to the route through the residential estate.

In relation to connectivity with the wider transport network, Option 1 is least advantageous given that Options 2, 3, 4 and 5 provide clearer, more direct and accessible connections to the Cherrywood Green Routes Network and Druid's Glen / N11.

Safety Impacts: Option 1, 3, 4 and 5 are more advantageous compared to Option 2, as they offer off-road paths for cyclists and pedestrians, compared to Option 2, which offers a cycle street for part of its length and could make cyclists feel less safe due to mixing with motor vehicles.

Regarding other safety impacts, Option 1, 3, 4 and 5 have some disadvantages compared to Option 2, as the route passes through the existing woodland area, which has less passive surveillance and could possibly encourage antisocial behaviour without appropriate mitigation. However, all options will benefit from adequate lighting and signage to help deter antisocial behaviour and improve safety. As noted previously, the permitted adjacent residential developments will improve passive surveillance along this section of the route in the future.

Climate Change: All options will support a reduction traffic congestion and lowering emissions of air pollutants associated with motor vehicles by providing alternatives to car usage. However, Option 1, 3, 4 and 5 are less advantageous compared to Option 2 as they would involve more construction work for the new path to the rear of Carraig Glen, which could cause a slightly more impacts in terms of emissions of air pollutants due the construction activities.

All options are considered to have comparable benefits in terms of Climate Change Adaptation as appropriate materials and construction methods will be considered for each option (e.g. permeable asphalt, SUDs features) to mitigate against any negative impacts.

Local Environment: In terms of air quality, noise and vibration, all options will encourage a change in mode share from private vehicles to active travel modes, and consequently help to reduce emissions of air pollutants as well noise and vibration associated with motor vehicles. Option 1, 3, 4 and 5 are anticipated to offer a greater modal shift as they offer a full off-road option compared to Option 2.

Option 1, 3, 4 and 5 are disadvantageous compared to Option 2 with respect to biodiversity, and water resources and soil quality as a new route would be created through the woodland and natural vegetation adjacent the stream south of Brennanstown Road which may have direct or indirect impacts in the flora, fauna and watercourse.

Option 1, 3, 4 and 5 offer advantages in terms of offering an attractive, peasant route through the woodland area. All options offer opportunities to enhance the aesthetics of the surrounding area and green spaces along the southern section adjacent the stream.

All options are rated neutrally for their impacts on Cultural and Heritage because they are located a suitable distance way from sites of cultural and historical importance.

Criteria	Option 1	Option 2	Option 3	Option 4	Option5
Transport User Benefits & Other Economic Impacts					
Accessibility					
Social					
Land Use					
Safety					
Climate Change					
Local Environment					

Table 17: Results Summary of the MCA for Section D

The MCA indicates that Option 5 is more advantageous than Option 1, 2, 3 and 4. Particularly in terms of transport user benefits, capital costs, accessibility, social, land use and local environment criteria.

7 Options Assessment: Emerging Preferred Scheme

7.1 Overview

Following the MCA assessment the Emerging Preferred Scheme is presented below. The preliminary design will be developed based on this assessment during the NTA PAG Phase 3 of the project. In general, the scheme comprises a new 3.0m-4.0m shared path constructed along the route. New / existing crossing points will be provided in accordance with current design standards and guidelines. Details regarding the preferred arrangement along each section is provided below.

7.2 Section A: Cornelscourt to Glen Lawn Drive

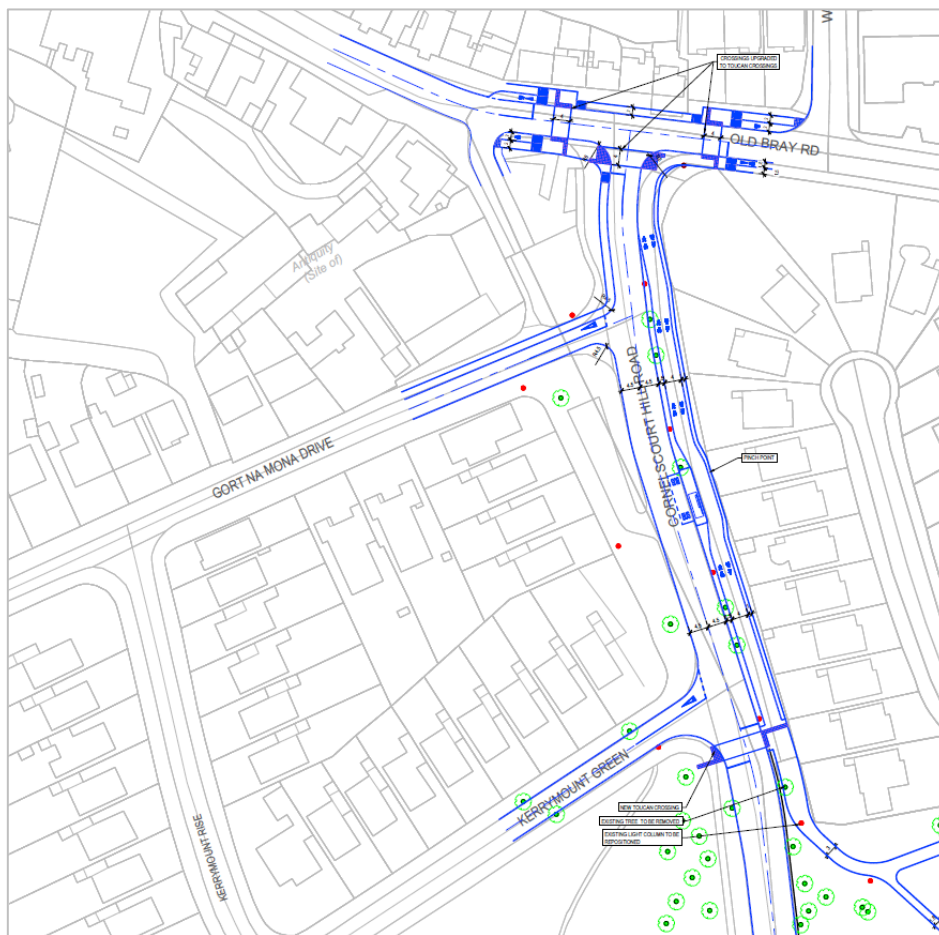


Figure 7-1: Section A Emerging Preferred Option

- Cornelscourt Hill Road / Bray Road junction upgraded as per TL506 Signal-Controlled Junction incorporating Toucan Crossings as per the Cycle Design Manual.
- 4.0m wide Toucan crossings provided on all arms of the signalised junction.
- One combined left/right approach lane on southern arm of signalised junction.
- Access maintained to properties on northern side of the signalised junction.

- 4.0m wide shared path provided on the eastern side of Cornelscourt Hill Road.
- Southbound bus stop upgraded to an island bus stop arrangement as per the BusConnects preliminary design guidance.
- Combined zebra crossing on Cornelscourt Hill Road junction provided (location to be confirmed subject to achieving required sightlines) to facilitate safe connections to / from the route.
- Route continues through the green space area linking to Glen Lawn Drive – localised narrowing to 3.0m to minimise impact on green space / trees where necessary.

7.3 Section B: Glen Lawn Drive to Cabinteely Park



Figure 7-2: Section B Emerging Preferred Option

- 4.0m wide shared path along the southern edge of Glen Lawn Drive
- At the western end, a new raised combined zebra crossing provided over Glen Lawn Drive.
- Two-way traffic maintained along Glen Lawn Drive.
- Glen Lawn Drive / Glen Drive roundabout reconfigured to provide raised zebra crossings on all arms.
- The geometry of the roundabout is also tightened up to help reduce vehicle speeds and priority given to pedestrians and cyclists reinforced through raised crossings.
- New crossing on the southern arm facilitates a safe, direct onwards connection into Cabinteely Park.

7.4 Section C: Cabinteely Park



Figure 7-3: Section C: Emerging Preferred Option

- Closure of existing park entrance on Glen Drive.
- New entrance from Glen Drive into Cabinteely Park located on north side of the stream.
- New entrance from Glen Drive into Cabinteely Park adjacent to Old Bray Road.
- Consideration to be given to connection to N11 via Clonkeen Road
- New path ties into existing path network which runs along northern side of the park.
- Path to be upgraded, which could be a shared (4.0m) or segregated (5.0m) use for pedestrians and cyclists – preference is segregation through the park given anticipated volumes.
- Consideration to be given to locating eastern end of the route adjacent the woodland area to avoid impacting existing trees as a resulting of widening existing path.
- Consideration to be given to new areas of tree planting, biodiversity friendly planting, public realm enhancements etc. along route where feasible / appropriate.

7.5 Section D: Brennanstown Road to Cherrywood

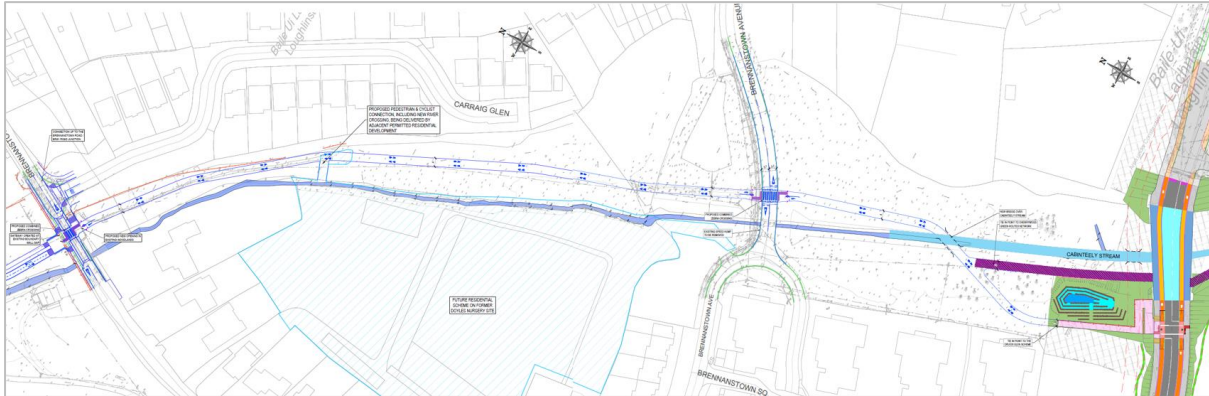


Figure 7-4: Section D: Emerging Preferred Option

- New path connects to the new crossing on Brennanstown Road then continues south eastwards to the rear of the Carraig Glen properties.
- The path will be 3.0m wide at the point where it enters the woodland area to the rear of the Carraig Glen properties. It will then broaden to 4m wide once it exits the ecologically sensitive area.
- New path continues along eastern side of the St. Brides Stream.
- Where the route crosses Brennanstown Avenue a new combined zebra crossing is proposed.
- The path continues south along the eastern side of the stream and then a new bridge is proposed to cross over to the western side.
- The path ties into the new Druid's Glen road scheme which incorporates a ramped connection up to the proposed controlled crossing as well as facilitating a connection to the N11 for pedestrians and cyclists.
- The path will also branch off to connect with the proposed greenway on the western side of the stream which continues under the road, into the proposed Tudor Homes residential scheme and connecting into the wider Cherrywood Green Routes Network.

7.6 Preliminary Cost Estimate

The current potential costs associated with the emerging preferred scheme are outlined below. These costs are indicative and subject to variation as proposals are developed and progressed through the stages of the project life cycle.

The following factors have been identified which are anticipated to have an influence on the construction costs of the proposed Cabinteely Greenway Scheme:

- The extents of any realignment/upgrades to junctions and link sections
- Traffic management around Cornelscourt Hill Road, Glen Lawn Drive and Brennanstown Road and junctions such as Cornelscourt Hill Road / Old Bray Road and Glen Lawn Drive / Glen Drive roundabout
- Increased cost due to market forces and/or inflation
- Ground conditions (e.g. environmental sensitivities)
- The scale and finish to public realm and landscaping enhancements to be delivered as part of the scheme (e.g. type of planting/trees, street furniture, lighting etc)
- Availability or delays in supply of material due to supply chains
- Potential utility diversions and / or coordination with any planned utility services upgrade schemes in surrounding area

The total estimated cost of the scheme is **€4,753,986.42** ex Vat, this is broken down as set out in **Table 18** below:

Item	Cost
Main Contracts(s) Costs	€2,022,782.22
Preparation and Administration	€1,000,000.00
Traffic Management	€111,345.81
Inflation	€203,718.32
Risk	€372,002.98
Contingency	€1,044,137.09
Total (Excluding VAT)	€4,753,986.42
VAT	€736,788.16
Total (Including VAT)	€5,490,774.58

Table 18: Cabinteely Greenway Scheme Costs

8 Next Steps

This Project Feasibility & Options Selection Report has been prepared to identify the Emerging Preferred Scheme for the Cabinteely Greenway. In accordance with the NTA Project Approval Guidelines, the next stage of the project is Phase 3: Preliminary Design which will develop and refine the preferred scheme. The preliminary design will involve more detailed consideration of the constraints and impacts along the route along preparation of the preliminary cost estimate.

Furthermore, the preliminary design will seek to ensure that the scheme continues to deliver on the project objectives. As part of the next stage, details regarding key aspects of the design including lighting, environmental mitigation measures, SUDs and drainage requirements, public realm and landscaping proposals will be developed.

Key stakeholders will be engaged throughout the development of the preliminary design which will include internal DLRCC departments such as planning, parks, roads, as well as the NTA, elected members, local residents and businesses and utility providers.

The Preliminary Design will form the basis of the planning consent process for the scheme. It is anticipated that the scheme will progress through a Part 8 application. The DLRCC Planning Department will be consulted to confirm and agree the appropriate statutory planning process for this scheme prior to any application being submitted.

Appendix A : Cornelscourt Hill Road / Bray Road Junction Analysis



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TECHNICAL NOTE 230119-DBFL-TR-XX-TN-C-002

Subject:	Traffic Modelling Results	Produced by:	LS
Project:	Cabinteely Greenway	Checked by:	AD
Job No:	230119	Date:	21 May 2024

1. Introduction

In order to analyse and assess the impact of the proposed upgraded junction arrangement on Cornelscourt Hill Road / Bray Road, a comparison of the traffic modelling results relating to the existing signalized junction arrangement and the proposed upgraded junction arrangement was undertaken. These changes are proposed for this junction as part of the wider Cabinteely Greenway Active Travel Scheme, which seeks to provide a safe, high-quality route improving connectivity for pedestrians and cyclists traveling between local schools, services, amenities, and surrounding residential areas.

The analysis used the Transport Research Laboratory (TRL) computer package TRANSYT for the signalized junctions. When considering signalized junctions, a Degree of Saturation (DoS) greater than 90% would indicate a junction approaching operational capacity. For the TRANSYT analysis, a 60-minute AM and PM peak hour period has been simulated from 08:00-09:00 and 16:45-17:45, respectively.

2. Assessment Scenario

Bray Road and Cornelscourt Hill Road form a three-arm signalized junction. At this junction, controlled pedestrian crossings with dropped kerbs and tactile paving are provided on all arms of the junction. On the southern arm of the signalized junction, separate left/right turn traffic lanes toward Bray Road take place.

As part of the emerging preferred option of Section A (Cornelscourt to Glen Lawn Drive), the change from a separate left/right turn to a combined left/right approach lane on the southern arm (Cornelscourt Hill Road) is proposed. Two different traffic scenarios have been assessed, namely (a) the Do-Nothing and Do-Something.

The “Do-Nothing scenario” assumes no changes or upgrades to the junction layout, and the “Do-Something scenario” involves proposed changes to the junction arrangement, specifically the proposed combined left/right approach lane on the southern arm.

3. Traffic Modelling Results

The existing three-arm signalized junction has been analysed in TRANSYT for Do- Nothing and Do-Something scenario. The arms were labelled as follows within the TRANSYT model as:

1. Bray Road (NW)
2. Bray Road (SE)
3. Cornelscourt Hill (S)



Figure 3-1: Bray Road /Cornelscourt Hill Road Existing Junction

The principal results of the operational assessment of this signal-controlled junction during the weekday morning and evening peaks are summarised in Table **3-1**.



Year	Arm	Description	AM Peak Hour			PM Peak Hour		
			DoS %	Mean Delay (s)	MMQ (PCUs)	DoS %	Mean Delay (s)	MMQ (PCUs)
DN	1	Bray Road (NW)	37%	16.62	3.97	44%	16.3	5.06
	2	Bray Road (SE)	47%	18.1	5.41	45%	16.5	5.31
	3	Cornelscourt Hill Road (S)	50%	27.56	7.68	55%	30.1	7.77
DS	1	Bray Road (NW)	47%	23.25	4.76	58%	24.65	6.23
	2	Bray Road (SE)	60%	26.18	6.52	59%	25.08	6.54
	3	Cornelscourt Hill Road (S)	71%	30.11	8.41	72%	31.49	8.24

Table 3-1: TRANSYT Analysis Results for Cornelscourt Hill Road / Bray Road Junction

The TRANSYT results (**Table 3-1: TRANSYT Analysis Results for Cornelscourt Hill Road / Bray Road Junction**) indicate that the Cornelscourt Hill Road / Bray Road junction operates within capacity under the “Do-Nothing” scenario. During the AM Peak, the maximum DoS value recorded was 50% and during the PM peak the maximum DoS value recorded 55%.

Similarly, the results for the “Do-Something” scenario indicate that this junction will continue to operate within capacity. During the AM Peak, the maximum DoS value recorded was 71% and during the PM peak the maximum DoS value recorded 72%.

The results indicate an increase in DoS with the upgraded junction. As expected, the largest increase occurred in “Arm 3,” where the major change was implemented. Despite the changes, the junction will continue to operate within its capacity.

4. Conclusion

The results of the TRANSYT analysis indicates that the upgrading from a separate left/right turn to a combined left/right approach lane on the southern arm will result in a slight increase in maximum DoS values, maximum delay and maximum MMQ on all arms in both AM and PM peak hours. Nevertheless, the junction will still continue to operate well within capacity even after the proposed alterations.



Appendix B : Old Bray Road Feasibility Assessment



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TECHNICAL NOTE 230119-DBFL-TR-XX-TN-C-001

Subject:	Feasibility Assessment of Old Bray Road	Produced by:	LS
Project:	Cabinteely Greenway	Checked by:	AD
Job No:	230119	Date:	21 May 2024

1. Introduction

This Technical Note (TN) has been prepared as part of the initial option sifting process for the Cabinteely Greenway. The assessment presented below relates to Section B of the proposed Greenway which will connect Cornelscourt to Cabinteely Park. Within the **2022 GDA Cycle Network Plan**, as shown in **Figure 1-1**, the scheme is identified as a **Greenway Utility / Leisure route** and within the **DLR Cycle Network Plan**, as shown in **Figure 1-2**, it is identified as a '**pedestrian/cycle route suitable for all users**'. Under both plans the route is shown to run through the Glen Lawn Drive residential area.

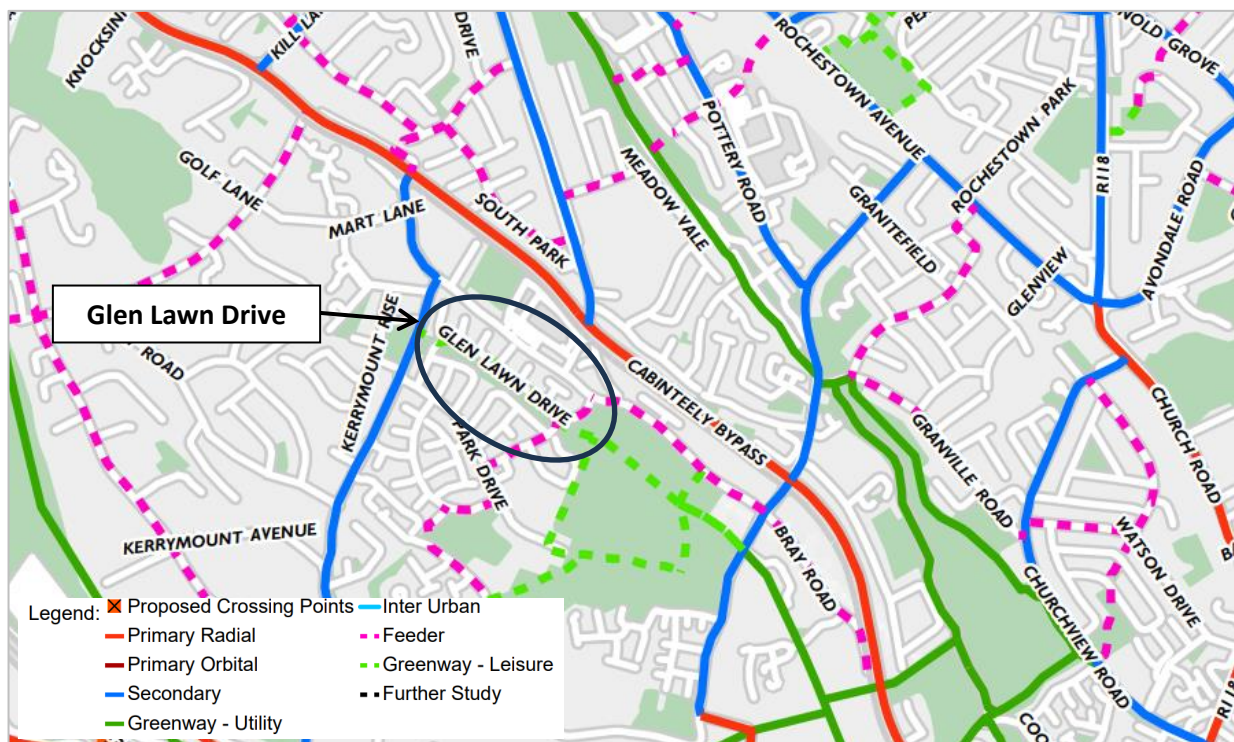


Figure 1-1: 2022 GDA Cycle Network Plan – Dublin Southeast (Source: NTA)

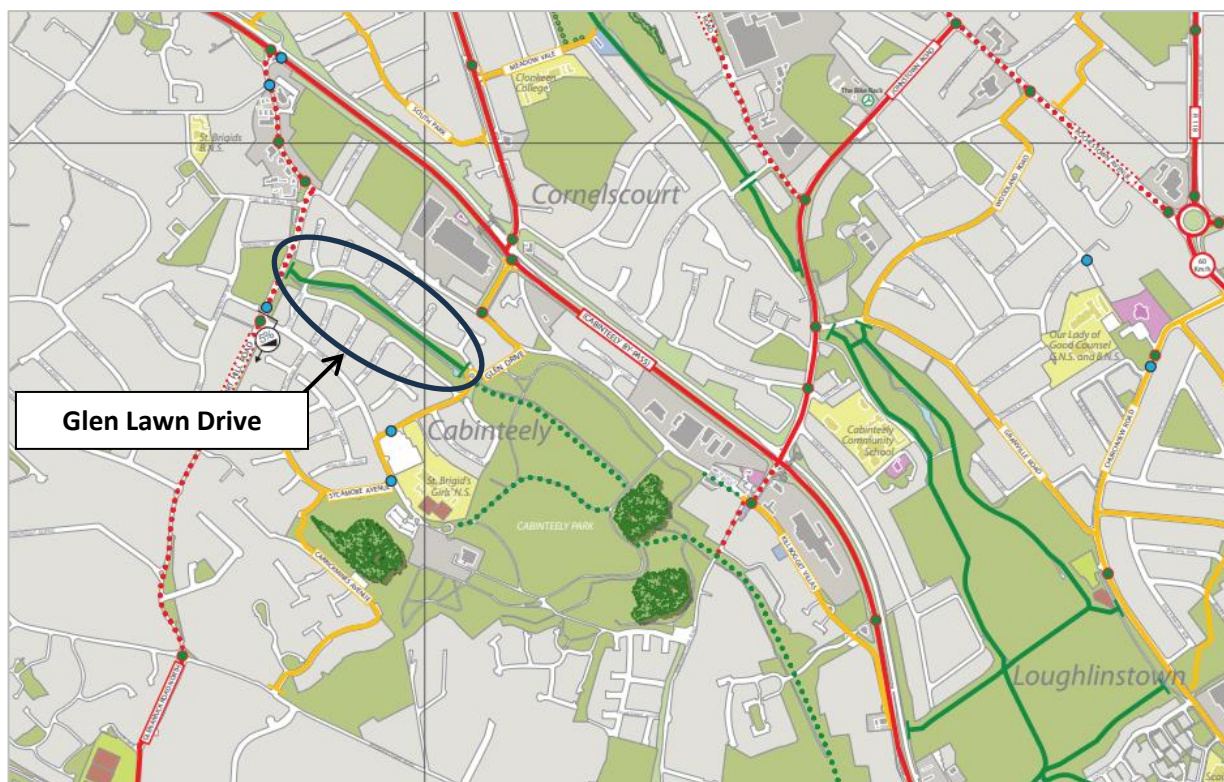


Figure 1-2: DLR Cycle Network Plan (Source: DLRCC)

During the development of these cycle network plans, a detailed exercise was undertaken in terms of identifying key origins and destinations and a route selection process carried out to identify the most optimum routes to cater for desire lines and provide a sufficiently dense network of cycle routes. Routes were then classified depending on their strategic importance within the overall network e.g. Primary, Secondary, Feeder, Greenway etc.

Following feedback and discussions with the local community, it was agreed that the feasibility of providing a route along the Old Bray Road rather than along Glen Lawn Drive would be considered as part of the options assessment. Consequently, this TN presents the findings regarding the feasibility assessment of an active travel route along the Old Bray Road, as shown in **Figure 1-3**, as an alternative to the route going through Glen Lawn Drive.

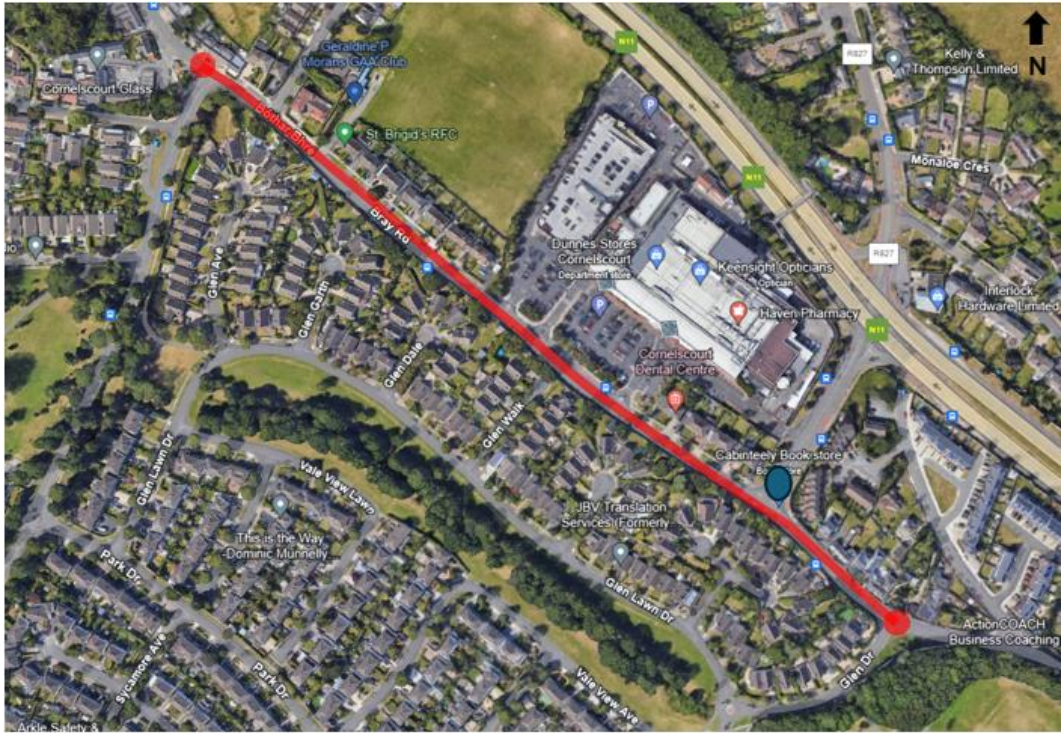


Figure 1-3: Section of Old Bray Road Considered as Alternative Route

2. Challenges and Constraints

Narrow Widths

The corridor of Old Bray Road between the Cornelscourt Hill Road and Glen Drive junctions varies in width, being between c.11.00m – 15.00m wide. Along the southwestern side of the street is a continuous boundary wall. Whereas along the northeastern side are numerous private driveways plus entrances serving the Cornelscourt Shopping Centre. A typical cross section of a constrained point (c.11.7m wide) on Old Bray Road is illustrated below (Figure 2-1).

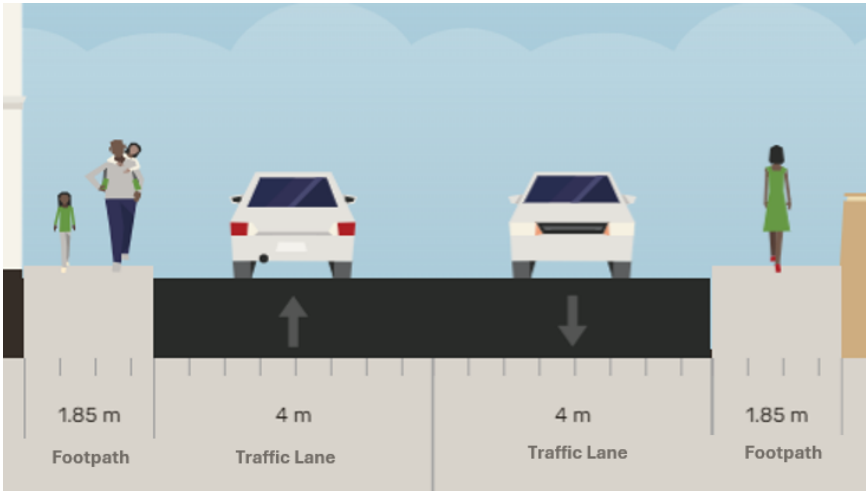


Figure 2-1: Typical Cross Section on Old Bray Road

The objectives of the scheme are to provide safe and attractive walking and cycling facilities in order to encourage a greater uptake in active modes. Given the physical constraints along Old Bray Road, it would not be possible to maintain two-way traffic flow whilst providing walking and cyclist facilities in accordance with the required dimensions. In accordance with the Design Manual for Urban Roads and Streets (DMURS) a street such as Old Bray Road would require minimum traffic lane widths of 3.0m. If footpaths were retained at their existing widths (c. 1.85m), then this would only leave 1.0m either side for cycle facilities which is well below the required standard of 2.0m, as indicated below.

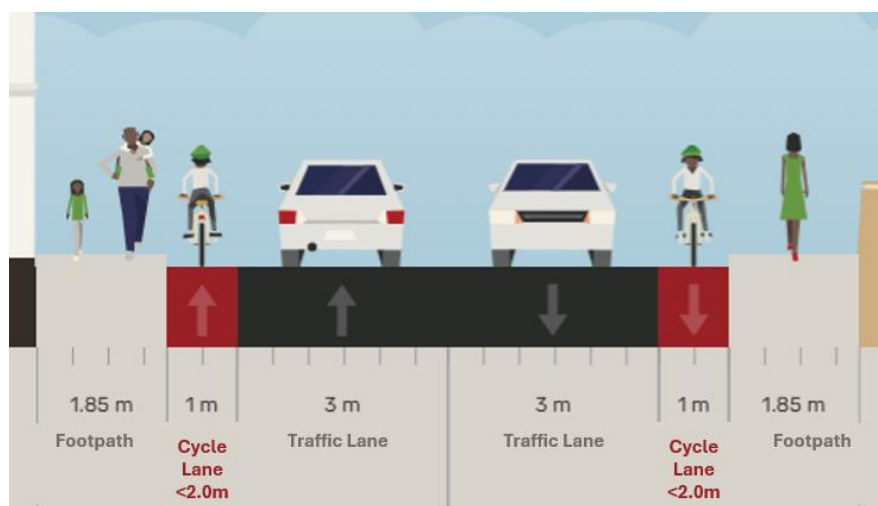


Figure 2-2: Inadequate Width to accommodate Cycle Facilities & Maintain Two-Way Traffic

Therefore, in order to accommodate appropriate walking and cycling facilities, it is likely that alternative traffic management arrangements would be required along Old Bray Road, for example introducing a one-way system for traffic or introducing one lane shuttle runs over constrained sections. Given the existing volumes of traffic and function of this road, neither of these options would be desirable as they would have significant implications in terms of traffic on the local road network.

Traffic Volumes

Old Bray Road can be classed as a Link Street under DMURS classifications, and as such it provides a link between the centres of Cabinteely and Cornelscourt. At present it carries moderate traffic volumes, but notably more compared to the quieter residential street through Glen Drive.

Even if upgraded cycling facilities are implemented along Old Bray Road it may still feel a more intimidating environment for less confident / inexperienced cyclists comparing to using a route through a much quieter street like Glen Lawn Drive. Furthermore, there are numerous driveways, junctions and the busy vehicular entrances to the Cornelscourt Shopping Centre which cyclists would be required to navigate and cross if the route were to run along Old Bray Road. By



comparison a route along Glen Drive would have significantly fewer crossings and potential conflict points with vehicles, making it therefore a much safer route than Old Bray Road.

Connectivity & Legibility of Route

Whilst providing a route along the Old Bray Road would provide a direct connection to / from Cornelscourt and Cabinteely Park, the immediate catchment or direct access for users along this section is relatively limited. By comparison a route through the Glen Lawn Drive area brings the facility much closer to local users wishing to access the route and has a greater immediate catchment area. The closer the proximity of the route to users, the more likely people are to use and access it.

Existing Trees in Verges

The construction of a new cycle track on Old Bray Road could have a significant impact on the existing trees along the road located within the verge on the north-east side of the road. These trees would likely have to be removed (approx. 5 no. trees) as part of any upgrades. By comparison, there is sufficient space along Glen Lawn Drive for a facility to be provided without impacting existing trees in the green space area.

3. Conclusion

Given the current physical constraints and traffic function of Old Bray Road, it is concluded that providing upgraded active travel facilities along here would not be appropriate as part of the Cabinteely Greenway scheme. A route along Old Bray Road would not support the objectives of the scheme, specifically the aim to attract less confident and inexperienced cyclists when quieter, lower trafficked options such as Glen Lawn Drive may be feasible.

In addition, as per the DLR Cycle Network Plan and the 2022 GDA Cycle Network Plan, a cycle route is proposed that runs along Glen Lawn Drive and not the section of Old Bray Road between Cornelscourt Hill Road and Glen Lawn Drive.



Appendix C : Cabinteely Park Route Options Ecological Impacts Assessment

Cabinteely Park Route Options

FTA: Aimée Dunne, DBFL Consulting Engineers

From: Christopher Doyle, Flynn Furney Environmental Consultants.

Date: 16/05/2024

Re: Assessment of Potential Ecological Impacts

Introduction

This report serves to outline the potential ecological impacts associated with developing two separate route options through Cabinteely Park as part of the larger Cabinteely Greenway Project. The two routes are shown in figure 1. The southern route (solid line) is the developer's preferred route through the park. The northern route (dotted line) is the alternative route being considered.

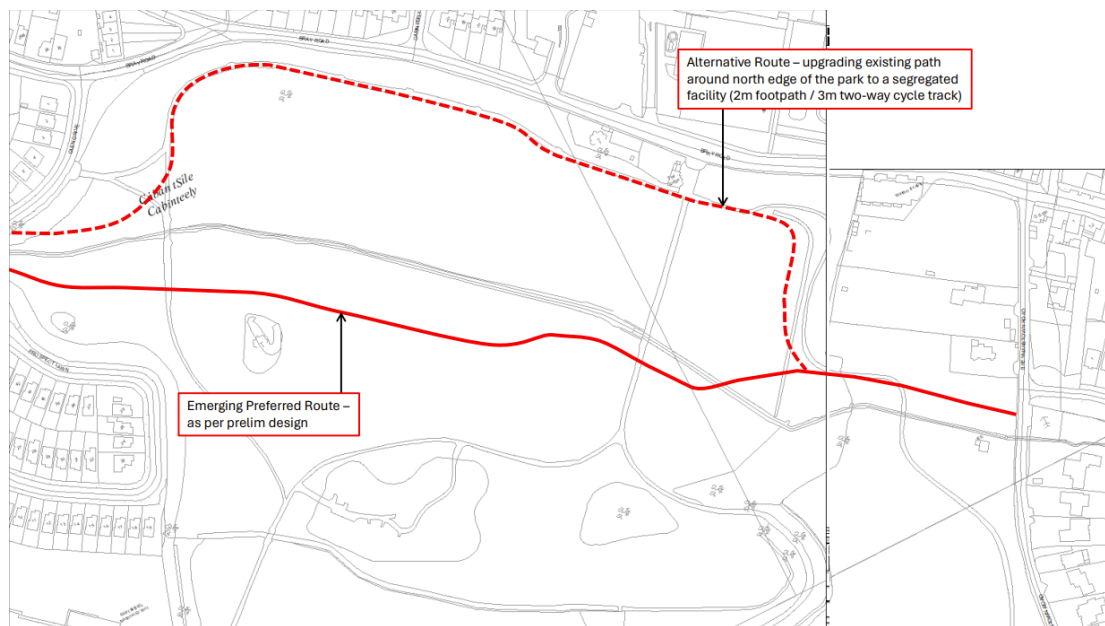


Figure 1: Both route options running through the park. Solid line = preferred route, dotted line = alternative route.

The alternative route is being considered as several ecological impacts were raised in association with the construction of the Preferred Route. All potential ecological impacts associated with developing both routes are presented below.

N.B. This is a high-level assessment of potential ecological impacts based upon a site walkover and a desk study of route options. This assessment is to inform route selection within the larger project and should not be treated as a stand in for an Ecological Impact Assessment.



Figure 2: Habitats around the two route options.

Potential Ecological Impacts

An ecological impacts rating was used to identify the degree of impacts upon an ecological feature (habitats, assemblages, species or individuals that occur in the vicinity of a project). In order to determine the degree of impact, the sensitivity of the ecological resources was determined using the ecological evaluation guidance given in NRA (2009) as outlined in table 1 below.

Table 1: Predictors of Ecological Resource Value.

Habitat	Species
Condition Size Rarity Conservation Status Legal Status	Biodiversity Value Legal Status Conservation Status

The ecological impacts rating is given in table 2 below. Impacts are scored from 1 to 3 depending on whether they will have a low, moderate or high likelihood of having a negative effect on local biodiversity.

Table 2: Ecological Impacts Rating.

Low (1)	Not sensitive or slightly sensitive ecological feature.
Moderate (2)	Moderately sensitive ecological feature that could be negatively affected by development. Includes species or habitats that are not directly protected but are of considerable ecological value.
High (3)	Highly sensitive ecological feature. This could be a protected species or sensitive habitat such as a watercourse or wetland.

Each of the two routes are assessed under the following impact categories, which are considered the most relevant, but not necessarily the only, potential impacts arising from the development:

- Habitat loss
- Light pollution
- Tree removal
- Construction over watercourse
- Invasive species

Table 3: Ecological Impacts of the Options.

Route	Description	Ecological Impacts Rating	Rationale
Preferred Route	Route running south of the stream through meadow and following some	High (3)	<u>Habitat Loss</u> This route will require the creation of new path in an area currently under meadow cover. No detailed survey of floral diversity in the meadow has been carried out to date, however the



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	existing, though grassy, paths. Route comes close to the stream towards the east end of the park before crossing it (new bridge will be required).	High (3) Moderate (2)	preliminary site walkover showed significantly increased diversity when compared to adjacent amenity grassland areas. Some of the meadow area has been planted with wildflowers, while others (the westernmost section in particular) appear to have been allowed to revert to meadow more naturally over a longer period. Meadows of the extent present here are uncommon in the greater urban area. This option will result in the loss of 500-750 m² of meadow, depending on whether the path is 2 or 3 m wide. Approximately 500-750 m² of amenity grassland will also be lost to create this route. This habitat type is of a lower floral diversity than the meadow and areas of a similar size and quality are not uncommon in the wider area. <u>Light Pollution</u> This route runs largely between 30 and 10 m from the stream. New lighting will create light spill upon the riparian zone along the Cabinteely Stream. Good lighting design may minimise the impacts and spill onto unlit zones, but any lighting will still illuminate areas that have been left dark for a long time. Otter (<i>Lutra lutra</i>) is a protected species that has been recorded in the park. This species is largely active between sunset and sunrise and so new lighting may create disturbance to its foraging routes. <u>Tree Removal</u> A number of trees will require removal for this route. 5-10 trees at the far west end of the park where the new entrance will be created will require removal. These are not uncommon
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		Moderate (2)	species but deserve retention as they are mature trees in an urban area. More trees, around 10-15 will require removal at the west end as the path cuts through the woodland and joins the existing trail. <u>Construction Over a Watercourse</u> Construction of a new bridge at the east end of the park will change the character of the stream in the immediate area around the new bridge. Works to create the bridge may require piping or rerouting of the stream and the risk of contamination is always elevated in construction areas. <u>Invasive Species</u> No invasive species were found along this route.
	Total	11	
Alternative Route	Route runs on north side of the river, largely along existing tarmac path. Route comes in close proximity to treeline. No river crossing is required.	Low (1) Moderate (2)	<u>Habitat Loss</u> No existing meadow will be lost for the development of this route. Approximately 2000 m² of amenity grassland will be lost to upgrade the existing 2 m path to include a 3 m cycle lane. This habitat type is of a lower floral diversity than the meadow and areas of a similar size and quality are not uncommon in the wider area. <u>Light Pollution</u> New lighting along this route presents the risk of lighting spill on the treeline along the north edge of the park. This should ideally be avoided through good lighting design but light spill



			within the wooded area would be partially screened but the existing hedgerow vegetation at the path's edge. This section of woodland is lit from the far side at night by residential street lighting, though there is a wall that would prevent too much light pollution. <u>Tree Removal</u> Similar to the other route, a number of trees will require removal for this route. 5-10 trees at the far west end of the park where the new entrance will be created will require removal. These are not uncommon species but deserve retention as they are mature trees in an urban area. The same 10-15 trees will require removal at the west end as the path cuts through the woodland and joins the existing trail. <u>Construction Over a Watercourse</u> No river crossing will be required for this route. <u>Invasive Species</u> Winter Heliotrope is present along the 100 m strip at the westernmost edge of this route. This is a moderate impact invasive species, and the development of the route here poses the risk of spreading it throughout the park if good biosecurity measures are not adhered to.
		Moderate (2)	
		Low (1)	
		Low (2)	
	Total	8	

Evaluation and Conclusion

While both options have some similar impacts, namely the loss of amenity grassland and the loss of several mature trees at the east and west end of the project, the Preferred Route does present a higher ecological impact score (11) than the Alternative Route (8). The biggest factor in the scoring relates to the unlit stream and the meadow, which are the most sensitive and least common habitats

in the area respectively, and both facilitate relatively higher levels of biodiversity (in terms of meadow vs. Amenity grassland and unlit stream vs. partially lit stream).

Light pollution along the stream can reduce its suitability as habitat for a range of species that are dependent on varying levels of darkness, such as invertebrates, bats, birds and Otters. All of which use the park and the latter three of which are protected under Irish and European legislation. Though invertebrates do not have specific protection, they form the base of food chains on which larger animals depend, including protected species.

With regards to the Alternative Route, some light spill on the woodland area at the north may result from the development of this option. Negative impacts upon the woodland/treeline strip as a result of lighting may be less severe than similar impacts upon the stream due to partial screening from the hedgerow at the edge of the path, and that one side of the woodland strip is already partially illuminated from the far side. Animals using this strip after dark would already be habituated to some levels of light pollution after dark.

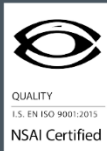
Further, the Preferred Route will require the construction of a new pedestrian and cycle bridge over the stream. While small bridges can be built with limited to negligible residual impact upon watercourses, there will always be a higher chance of pollution and disturbance associated with building a bridge, as opposed to not building a bridge. As above, the bridge would also direct lighting into an area along the stream that is currently unlit.

The development of the Alternative Route does present the risk of spread of the invasive plant Winter Heliotrope, which is not overly abundant in the park. This species can have significant effects on native wildlife; however its distribution is limited, and management of this stand is feasible. The development of this route may present an opportunity to manage/remove this section of infestation entirely.

Though both route options pose potential ecological impacts, it is the conclusion of this assessment that the Alternative Route would lead to lower habitat loss, light pollution and species disturbance.

References

National Roads Authority (2009). Guidelines For The Assessment Of Ecological Impacts Of National Road Schemes. NRA, Dublin.



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