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Dún Laoghaire-Rathdown County Council

Project:

Living Streets: Dún Laoghaire

Report:

Options Assessment Report



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1. INTRODUCTION

1.1 Background

During 2020 and 2021, Dún Laoghaire-Rathdown County Council (DLRCC) introduced several interventions across the county in response to the Covid-19 pandemic. One of these was the Summer Streets project in Dún Laoghaire which temporarily pedestrianised George's St Lower. Following a review of this temporary scheme, DLRCC in conjunction with the NTA, are now working on developing a permanent design for the area. Barry Transportation (BT) have been appointed by DLRCC to provide engineering consultancy services for this project.

The initial study area is shown in the figure below and has been split into two sections, the extents of street improvement works on George's Street Upper and Lower and the wider study area for mobility and traffic management interventions.

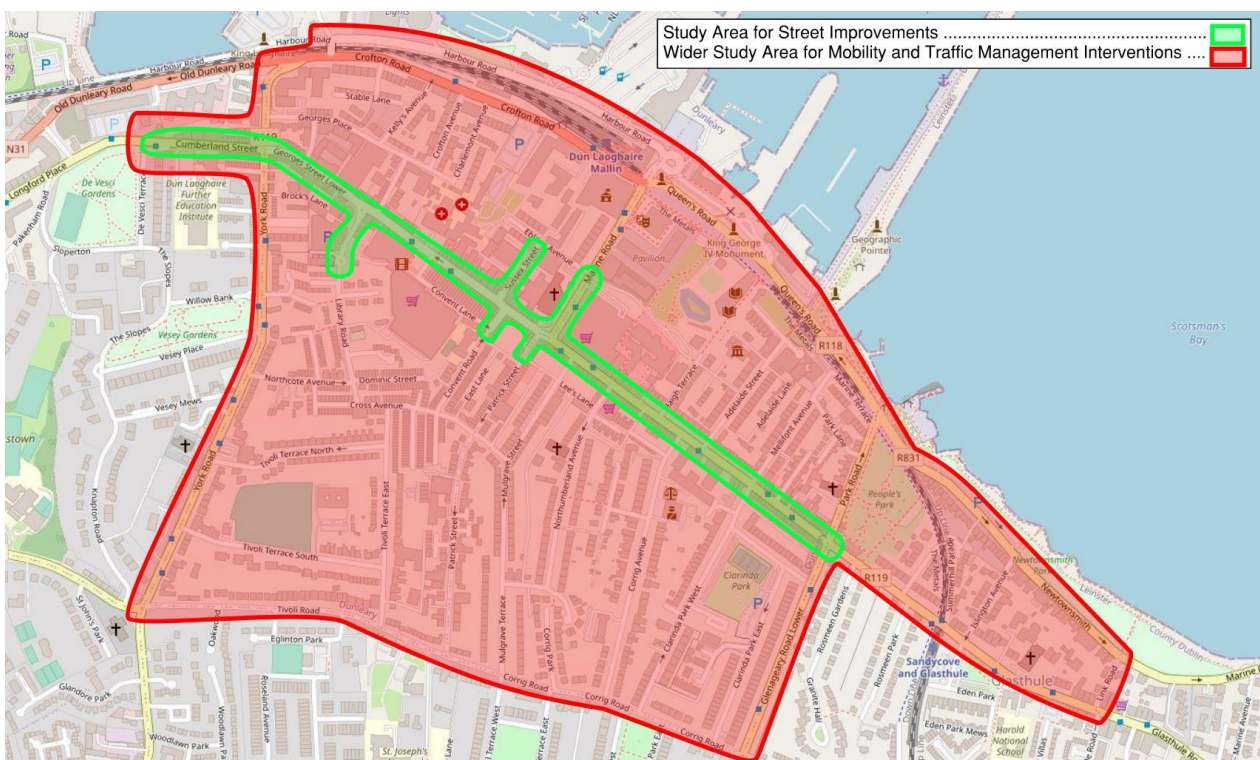


Figure 1 – Study Area

1.2 Purpose

The purpose of this report is to assess the potential options for the Living Streets Dún Laoghaire project. Several options have been developed and each option has been assessed relative to one another and a preferred option recommended.

2. POLICY CONTEXT, PROJECT NEED & OBJECTIVES

Overview

The need for the Living Streets Project in Dún Laoghaire is consistent or in line with the following National, Regional and Local policy documents.

European Policy Content:

- EU Transport White Paper 6
- European Union Green Deal
- Road Infrastructure Safety Management (RISM) Directive
- European Urban Mobility Framework

National Policy Context:

- National Planning Framework - Project Ireland 2040;
- National Development Plan 2021 - 2030 - Project Ireland 2040;
- National Investment Framework for Transport in Ireland (NIFTI)
- National Sustainable Mobility Policy;
- Road Safety Authority Road Safety Strategy 2021 - 2030;
- Climate Action Plan 2023; and
- National Physical Activity Plan
- Building for Everyone: A Universal Approach – Planning and Policy 2012
- Town Centre First

Regional Policy Context:

- Regional Spatial and Economic Strategy for the Eastern and Midland Regional Assembly 2019 - 2031;
- GDA Cycle Network Plan 2022 (Draft);
- NTA Transport Strategy for the Greater Dublin Area 2022 - 2042

Local Policy Context:

- DLR County Council Development Plan 2022 - 2028;
- DLR Climate Change Action Plan 2019 - 2024;
- Dún Laoghaire-Rathdown Age-Friendly Strategy 2022-2026;
- Dún Laoghaire-Rathdown Cycling policy.

Guidance Documents

- Design Manual for Urban Roads and Streets (DMURS)
- Cycle Design Manual
- National Investment Framework for Transport in Ireland (NIFTII)
- Traffic Signs Manual
- Traffic Management Guidelines

2.1 European Policy Context

EU Transport White Paper 6

The European Union Transport White Paper 6 (2011) focused on the reduction of emissions from transport and established a series of target actions for Member States, including supporting increasing demand for mobility whilst meeting the 60% emission reduction target.

In Ireland, between 1990 and 2016, transport emissions increased by 139% with road transport increasing by 145%. Nearly 20% of Ireland’s greenhouse gas emissions come from transport and it accounts for the largest share of energy use. Transport emissions have been the fastest growing source of Ireland’s greenhouse gas emissions in recent years. The Environmental Protection Agency (EPA) projects that without intervention transport sector emissions will increase by 11.3% over the period 2020 to 2035.

Therefore, essential interventions are needed to shift Ireland onto a low carbon ethos as it manages an increasing population and increased demand for housing, employment, and transport infrastructure. Investing in quality bus corridors will promote a modal shift to public transport from private car use reducing private vehicle numbers on our country’s national and regional road networks in both urban and rural settings. By encouraging this modal shift transportation emissions will be reduced an addition to journey times and journey time reliability improvements due to reduced traffic on our road network.

Reductions in private vehicle number son the network reduces potential conflicts with pedestrians and cyclists on the network improving safety and aligning with

European Union Green Deal

The European Green Deal was adopted in 2020 and contains a set of policy initiatives (presented in the figure below) aimed at making the European Union climate neutral by 2050. Overall, the Green Deal aims to reduce emissions by at least 50% by 2030 and achieve net-zero emissions by 2050 by introducing new strategies, funding and legislation for the circular economy, transport, buildings, and biodiversity. Two of these strategies are described in further detail.



Figure 2.1: European Green Deal focus areas

EU Sustainable and Smart Mobility Strategy

Forming part of the European Green Deal, the EU’s Sustainable and Smart Mobility Strategy aims to reduce transport emissions across the Union through funding, regulations and policy supports for clean and sustainable mobility. While naturally EU policy mainly focuses on pan-European measures and cross-border mobility, the Strategy does reiterate strong support for investment in urban walking and cycling infrastructure by member states.

The Strategy places a particular emphasis on urban mobility and increasing the sustainable mode shares for trips to work, school, and other key destinations. The scheme will make progress towards the strategy, as shown in the table below.

No.	Action
35	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. The Commission will further engage with cities and Member States to ensure that all large and medium-sized cities that are urban nodes on the TEN-T network put in place their own sustainable urban mobility plans by 2030. The plans should include new goals, for example on having zero emissions and zero road fatalities. 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 bicycle lanes. The Commission is also considering developing a mission in the area of Climate-neutral and Smart Cities ²⁸ as a strategic priority for joint action to accomplish decarbonisation within a large number of European cities by 2030
37	The EU and Member States must deliver on our citizens’ expectations of cleaner air, less noise and congestion, and eliminating fatalities on our city streets. By revising the Urban Mobility Package to promote and support these sustainable and healthy transport modes, the Commission will contribute to the improvement of the current European framework for urban mobility. Clearer guidance is needed on mobility management at local and regional level, including on better urban planning, and on connectivity with rural and suburban areas, so that commuters are given sustainable mobility options. European policies and financial support should also reflect the importance of urban mobility for the overall functioning of the TEN-T, with provisions for first/last mile solutions that include multimodal mobility hubs, park-and-ride facilities, and safe infrastructure for walking and cycling.

Figure 2.2: EU Sustainable and Smart Mobility Strategy

This scheme will provide new and safer pedestrian infrastructure and significant additional green landscaping. This will also contribute towards reducing carbon emissions by promoting active travel throughout the county and creating a safe framework for urban mobility.

EU Biodiversity Strategy for 2030

The Biodiversity Strategy is also part of the European Green Deal, and it “aims to put Europe’s biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet”. Noting that “the biodiversity crisis and the climate crisis are intrinsically linked”, the strategy notes the dual benefits of green infrastructure or nature-based solutions, such as cooling in urban areas, reducing pollution and flooding, mitigating the impact of natural disasters, and protecting wildlife and biodiversity. It also recognises the value of green and open spaces to physical and mental wellbeing, particularly in urban areas where space is limited.

The Biodiversity Strategy recommends a number of actions aimed at greening urban areas, including:

- The “systemic integration” of healthy ecosystems, green infrastructure, and nature-based solutions into urban planning, including in public spaces, infrastructure and the design of buildings and their surroundings.
- The development of ‘Urban Greening Plans’ in all European cities of at least 20,000 inhabitants which would focus on creating biodiverse and accessible urban parks, green spaces, and tree-lined streets; as well as improve connections between existing green spaces.

The scheme provides a prime opportunity to integrate green infrastructure into the design of walking and cycling facilities, and to enhance the urban realm throughout the scheme extents. New planters and roughly 120 new trees as well as the integration of SUDS throughout the entirety of the scheme will not only help enhance the public realm but will also help comply with the EU Biodiversity Strategy by integrating green infrastructure and nature-based solutions in Dún Laoghaire.

Road Infrastructure Safety Management (RISM) Directive

The European Union has set a ‘Vision Zero’ target, which aims to halve fatalities on European roads by 2030 and reduce this to ‘almost zero’ by 2050. Influenced by a ‘Safe Systems’ approach, which is a road safety concept that deaths and serious injuries are largely preventable by good design and maintenance of road infrastructure, the ‘Vision Zero’ target is accompanied by a suite of European and national policies and programmes aimed at achieving this strategic ambition.

Accordingly, the Directive on Road Infrastructure Safety Management (RISM) defines procedures for EU member states to improve safety on European road networks. Under RISM, each member state is required to carry out actions to monitor and improve road safety on the network, including network-wide ‘Safety Ranking’, regular Road Safety Inspections, Road Safety Audits during planning and design of infrastructure, training, certification and knowledge exchange with local authorities and European partners. While RISM was originally intended to cover just the TEN-T network, the 2019 revision to the RISM Directive notes that it is: “desirable for those RISM principles to be applied to other parts of the European road network”.

RISM was updated in 2019 to require Member States to take into account the needs of ‘vulnerable road users’ in network planning, design, and operation, which are defined as “non-motorised road users, including, in particular, pedestrians and cyclists”. In planning and designing road infrastructure, the updated RISM Directive places much greater emphasis on separating protecting vulnerable road users from the risks of high-speed and high-volume traffic, and requires authorities to consider things such as:

- “Provisions for cyclists, including the existence of alternative routes or separations from high-speed motor traffic.
- Density and location of crossings for pedestrians and cyclists.
- Provision for pedestrians and cyclists on affected roads in the area.
- Separation of pedestrians and cyclists from high-speed motor traffic or the existence of direct alternative routes on lower class roads”.

This project has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS) and incorporates the re-allocation of road space to pedestrians. A key goal of this scheme is to increase safety for vulnerable road users and will be subject to several Road Safety and Road User Audits as the design progresses.

European Urban Mobility Framework

With Europe being one of the most urbanised regions of the world, with a huge variety of towns and cities that are important hubs of economic and social activity, European cities are often looked up to by the rest of the world as attractive places to visit, live, study, work and do business in, with mobility and transport as key enablers. However, cities are still facing major challenges to further improve their mobility and transport system. At the same time, they still have to fully tackle the negative consequences of transport for society, health and environment, namely the creation of greenhouse gas emissions, air and noise pollution as well as congestion and road fatalities.

The Conference of Parties to the Paris Agreement in Glasgow (COP26) drew the spotlight on the implementation of international climate commitments, as the Union is doing with the European Green Deal. Urban mobility can make a major contribution, not just by reducing the sizeable amount of greenhouse gas emissions caused by it, but also by becoming less polluting, less congesting, and safer. As the Union's 2030 Climate Target Plan⁷ confirms, the deployment of zero-emission vehicles in the urban context will only deliver a part of these objectives. A clear priority should be placed at national and local level on the development of public transport, walking and cycling, as well as connected, shared mobility services.

On the one hand, the COVID-19 pandemic has disrupted mobility and transport. On the other hand, and especially in cities, the pandemic has also drove cities to improve infrastructure for active mobility. Therefore, now it is more than needed to emerge from the crisis with a more resilient, smarter, and more sustainable urban mobility system, which is also key to the overall resilience of the transport system and the economy. Addressing these challenges promises more sustainable urban nodes with a higher quality of life and better connectivity, affordability, and accessibility of mobility services for urban and their surrounding rural areas. To achieve the major transition in urban mobility, swift and significant action and investment is needed at EU, national, regional, and particularly local level.

In order to contribute to the EU's increasingly ambitious climate, environmental, digital, health and societal objectives, the EU needs to take more decisive action on urban mobility to shift from the current approach based on traffic flows to an approach based on moving people and goods more sustainably. This means a stronger collective / public transport backbone, better active mobility (e.g. walking, cycling) options and efficient zero emission urban logistics and last mile deliveries. While such multimodality should be the guiding principles for urban mobility, zero-emission and connected and automated mobility will be a key component of the transition to a climate-neutral urban future that also enables suburban and rural areas to connect sustainably with cities. Better management of transport and mobility using multimodal hubs and digital solutions is needed to increase system-wide efficiency. The European Urban Mobility Framework sets out how the European Commission plans to approach these issues and provides guidance for local action and offers cities a toolbox for sustainable mobility.

2.2 National Policy Context:

National Planning Framework - Project Ireland 2040

The National Planning Framework (NPF) was published in 2018 and provides a framework to guide public and private investment, and to create and promote opportunities, while protecting and enhancing the environment. The NPF sets out the Government's high-level strategic plan for shaping the future growth and development of Ireland out to the year 2040. Its overarching visions are to:

- Develop a new region-focused strategy for managing growth.
- Linking this to a new 10-year investment plan, the Project Ireland 2040 National Development Plan 2018 - 2027.
- Using state lands for certain strategic purposes.
- Supporting this with strengthened, more environmentally focused planning at local level; and
- Backing the framework up in law with an Independent Office of the Planning Regulator.

The purpose of the NPF is to enable all parts of Ireland, whether rural or urban, to successfully accommodate growth and change, by facilitating a shift towards Ireland's regions and cities other than Dublin, while also recognising Dublin's ongoing key role. The NPF identifies 10 National Strategic Outcomes, as illustrated in **Error! Reference source not found.**, which are the shared goals and benefits for every community across the country.



Figure 2.3: National Strategic Outcomes

Improved road infrastructure for vulnerable road users will support the National Strategic Outcomes as follows:

Compact Growth – NS01

This involves managing the sustainable growth of cities, towns and villages to create more attractive places in which people can live and work. Provision of a cycling and pedestrian infrastructure will enhance the attractiveness, viability and vibrancy of George's Street Upper and Lower along with Cumberland Street in Dún Laoghaire as a means of achieving more sustainable patterns and forms of development.

Sustainable Mobility – NSO4

This is the provision of safe cycling infrastructure such as segregated cycling and walking facilities which will encourage walking and cycling within the area. It will improve the infrastructure for leisure, recreational and commuter users by providing a safe and comfortable route. As well as meet climate action objectives by providing viable alternatives to using motorised modes and particularly reducing private car travel.

A Strong Economy, supported by Enterprise, Innovation and Skills - NSO5

This involves creating places that can foster innovation and enterprise, thereby attracting talent and investment. It also calls for high quality digital connectivity. The construction of cycle facilities enables increased connectivity which can attract and retain talent and investment. It would also increase economic activity within the local area generated by bike repair shops or tourism offerings along the route.

Enhanced Amenity and Heritage – NSO7

This will ensure the town can offer a good quality of life through a well-designed public realm which includes public spaces, parks and streets, as well as recreational infrastructure. It also includes activity-based tourism such as blueways and greenways. Living Streets: Dún Laoghaire will provide recreational infrastructure which encourage activity-based tourism in the area by providing linkages to other walking and cycling trails.

National Development Plan – 2021 – 2030

The National Development Plan 2021 - 2030 was published in 2021 as an early update to the 2018 National Development Plan. Along the 2018 National Development Plan was published along with the National Planning Framework in February 2018 as part of Project Ireland 2040. The 2018 National Development Plan

was developed to (NDP) will drive Ireland's long term economic, environmental, and social progress across all parts of the country over the next two decades and will underpin the successful implementation of the new National Planning Framework (NPF). The updated National Development Plan 2021 – 2030 extends the funding available to support all sectors and regions in Ireland. It will guide national, regional and local planning investment decisions over the coming two decades. It also illustrates the commitment to reforming how public investment is planned and delivered. This will be done through a decisive shift to integrated regional investment plans and stronger co-ordination of sectoral strategies.

The National Development Plan NDP provides €116 billion, which will underpin the National Planning Framework and drive its implementation over the next ten years. This will ensure accessibility between key urban centres of population and their regions which will include the Northern and Western Regions. It will also ensure rural areas are strengthened and rural contribution is harnessed as a major part of Ireland's strategic development.

In terms of active travel, €360 million is being committed to the development of walking and cycling infrastructure all over Ireland over the next 10 years. National Investment Framework for Transport in Ireland (NIFTI).

National Investment Framework for Transport in Ireland

The National Investment Framework for Transport in Ireland (NIFTI) is the Department for Transport's contribution to Project Ireland 2040. This document provides the framework to prioritise future investment in the land transport network to support the delivery of the National Strategic Outcomes identified in the NPF. The following four priorities are noted in terms of investment:



Figure 2.4: NIFTI Investment Priorities

In terms of Enhanced Regional and Rural Connectivity, the NIFTI states that measures should be implemented to ensure access to jobs, leisure, and public services and for people living in rural areas.

According to NIFTI, investment in sustainable modes so that transport users have safe, accessible, reliable and efficient alternatives to the private car will result in decarbonisation of the transport sector whilst also catering for growing populations.

NIFTI acknowledges that Protection and Renewal of assets includes both steady state maintenance of existing infrastructure as well as improvements to ensure safety or increase accessibility.

The Living Streets Project will support the objectives of the NIFTI since there is a strong focus on Mobility of People and Good in Urban areas by optimising and re-designing existing public space on George's Street to be more efficient, sustainable, and equitable. The objective of decarbonisation is met by upgrades to cycling, pedestrian, and some public transport infrastructure, while reducing the prominence given to private cars.

National Sustainable Mobility Policy

The policy sets out a strategic framework to 2030 for active travel and public transport to support Ireland's overall requirement to achieve a 51% reduction in our carbon emissions by 2030 and to reach net zero by 2050.

The policy sets a target to deliver at least 500,000 additional daily active travel trips which will be supported through expanding walking and cycling options across the country, including greenways and ensuring that these new sustainable mobility infrastructure meets the highest safety standards. By providing dedicated pedestrian and cycling facilities along George's Street, the scheme would support and complement the following objectives:

- To improve mobility safety.
- To decarbonise public transport.
- To expand availability of sustainable mobility in metropolitan areas
- To expand availability of sustainable mobility in regional and rural areas.
- To encourage people to choose sustainable mobility over the private car
- To take a whole journey approach to mobility, promoting inclusive access for all.
- To design infrastructure according to Universal Design Principles and the Hierarchy of Road Users model.
- To promote sustainable mobility through research and citizen engagement.
- To better integrate land use and transport planning at all levels.
- To promote smart and integrated mobility through innovative technologies and development of appropriate regulation.

RSA Road Safety Strategy 2021 – 2030

The Road Safety Authority (RSA) Road Safety Strategy 2021 - 2030, sets out targets to be achieved in terms of road safety in Ireland as well as policy to achieve these targets. At the core of the 2021–2030 strategy is the aim to achieve Vision Zero in Ireland by 2050. The primary target of the 2021 – 2030 strategy is *"to reduce road deaths and serious injuries by 50% by 2030."*

The plan sets out strategies for engineering and infrastructure in terms of the benefits that they can have in terms of reducing collisions. The plan acknowledges that there is a substantial difference in fatal and serious injury risks across different modes of travel and are generally higher for pedestrians and cyclists and recognises the importance of providing safe and healthy modes of travel from societal, environmental and health perspectives.

By reducing the conflict points between private vehicles/Public Transport with pedestrians and cyclists, the scheme would support and complement this RSA strategy.

Climate Action Plan 2023

Following the enactment of the Climate Action and Low Carbon Development Act 2015, the Government published the Climate Action Plan 2019 in June 2019, and published an updated Climate Action Plan in 2023. The objective of the plan is to help accelerate the actions required in order to respond to the climate crisis and put climate solutions at the centre of Ireland's social and economic development, to enable Ireland to meet the legally-binding, economy-wide carbon budget and sectoral ceilings agreed in 2022 and the emission reductions targets set out in the Climate Action and Low Carbon Developments Acts. The plan set out actions which extended to all sectors of the economy including Transport. The third Climate Action Plan was published in December 2022 after the signing into law of the Climate Action and Low Carbon Development (Amendment) Act 2021 in July 2021. This plan builds on measures and technologies set out in the 2021 plan to deliver greater ambition. The objective of the Plan is to enable Ireland to meet its EU targets to reduce its carbon emissions by 50% by 2030 with the ultimate objective of achieving a transition to a climate resilient, biodiversity rich and carbon neutral economy no later than 2050.

The Plan sets out measures to deliver targets for all sectors of the economy including Transport. Section 15.3 of the Plan outlines measures and actions required to deliver the sectoral emissions targets in the transport sector. These are categorised as Horizontal, Avoid, Shift, and Improve.

Regarding the ‘Sustainable Mobility’ measure in the Climate Action Plan 2023, the proposed Scheme seeks to support and promote sustainable transport, which will encourage a modal shift from individual vehicle usage. The proposed Scheme seeks to provide improved pedestrian and cycle facilities throughout the length of the scheme, with the aim of encouraging a modal shift to a more sustainable transport mode. Therefore, it is considered that the proposed scheme will align with the Climate Action Plan 2023. Some relevant actions are shown in the table below.

No.	Action
TR/23/14	Promote widespread, consistent, and accelerated implementation of the Design Manual for Urban Road and Streets to ensure improved placemaking and accessibility, including delivery of 10-Minute Towns and 15-Minute Cities.
TR/23/25	Local Areas to identify roads and streets suitable for road space reallocation.
TR/23/27	Pedestrian enhancement plans developed for five metropolitan areas.
TR/23/29	Advance roll-out of 1,000 km walking/cycling infrastructure.
TR/23/31	Advance widespread and consistent implementation of National Cycle Manual guidance and the Design Manual for Urban Roads and Streets with DHLGH.
TR/23/32	Leverage of Protection and Renewal Road infrastructure programme to enhance safety of sustainable mobility users.

Figure 2.5: Extracts from Climate Action Plan applicable to the Scheme.

National Physical Activity Plan

The National Physical Activity Plan aims to improve the health and wellbeing of the population of Ireland through increasing levels of physical activity.

“This Plan is not just about telling people to do more physical activity because it is good for them, it is about:

- Creating increased opportunities for people to be active in ways which fit in to everyday lives and which suits individual needs, circumstances and interests
- Removing the barriers which people face to being active and encouraging people to recognise how to overcome those barriers
- Enhancing cross-sectoral cooperation at national, local and community level to encourage physical activity at every level
- Encouraging a supportive environment where physical activity becomes normal promoting good practice and finding new models of participation which get more people active

There are eight broad thematic action areas identified within the plan:

- Public Awareness, Education and Communication
- Children and Young People
- Health

- Environment
- Workplaces
- Sport and Physical Activity in the Community
- Research, Monitoring and Evaluation
- Implementation through Partnership

The plan sets targets for increases in daily physical activity as well as targets for decreases in the numbers not participating in any weekly physical activity for children, adults and older people.

The scheme will support the targets of this plan by providing a dedicated space to facilitate increased physical activity in a safe manner.

Building for Everyone: A Universal Approach Planning and Policy 2012

Building for Everyone: A Universal Approach is a groundbreaking initiative that advocates for a universal design philosophy in the built environment. This comprehensive approach seeks to create spaces, buildings, and infrastructure that are accessible, inclusive, and user-friendly for all individuals, regardless of age, ability, or mobility status. Developed as a response to the growing importance of social inclusion and diversity, the universal design principles aim to break down barriers, promote equality, and enhance the overall quality of life for people of diverse backgrounds.

Key elements of the *Building for Everyone* initiative include:

- **Inclusive Design Principles:** The policy underscores the importance of integrating inclusive design principles into every stage of the built environment's planning, construction, and maintenance. These principles go beyond mere compliance with accessibility standards, considering the diverse needs and preferences of all users.
- **Accessible Infrastructure:** The framework prioritizes the creation of accessible pathways, entrances, and facilities to ensure equal access and comfortable navigation for individuals with mobility challenges, parents with strollers, and senior citizens, among others.
- **Sensory Considerations:** Recognizing the needs of individuals with sensory impairments, the initiative promotes designs that accommodate various sensory abilities, such as clear signage, wayfinding cues, and acoustically friendly environments.
- **Social Inclusion:** The policy encourages the development of public spaces that foster social interactions, welcoming diverse groups and creating opportunities for people from different backgrounds to connect and engage with one another.
- **Awareness and Training:** To facilitate the successful implementation of universal design, the initiative advocates for raising awareness among designers, architects, policymakers, and construction professionals, promoting the adoption of inclusive practices in their work.
- **Collaboration and Co-Design:** Emphasizing the importance of engaging end-users and diverse stakeholders, the framework supports co-design processes that involve the community in shaping the built environment to better meet their needs and aspirations.
- **Regulatory Support:** The policy recommends aligning regulatory frameworks with universal design principles, thereby encouraging compliance, and fostering a culture of inclusive design across all sectors of the built environment.

By embracing the *Building for Everyone: A Universal Approach*, societies can create an environment that promotes social integration, independence, and dignity for all individuals, irrespective of their abilities. This visionary initiative presents an opportunity to transform the way we conceive, plan, and construct spaces, ultimately creating a more harmonious, accessible, and equitable world that benefits everyone.

Living Streets Dún Laoghaire is a perfect embodiment of the principles to be followed in *Building for Everyone: A Universal Approach*. It strives to create an environment which is inclusive to all road users, particularly active travel road users and vulnerable road users.

Town Centre First

- The Town Centre First policy sets out a range of Actions which collectively will create the framework required to support towns to achieve the desired outcomes and deliver on their own unique vision. These Actions are centred around improving knowledge and understanding of towns and what they need, enhancing the capacity of delivery agents to implement this ambitious policy, building new structures at national and local level, and ensuring that new and existing funds are co-ordinated and targeted towards the implementation of Town Centre First in each town. The key priorities in establishing and growing the framework are:
- A Network of Town Regeneration Officers to bring a co-ordinated approach to delivery across the country and to act as a forum for sharing best practice and informing the ongoing roll-out of the policy. The Town Regeneration Officers will lead the engagement of multi-disciplinary team within each Local Authority, while guiding and supporting Town Teams through the TCF process.
- Capacity building programmes for Town Teams to increase the skills and capabilities of Town Teams and enable them to deliver effectively. This will be supplemented with National TCF Awards and national TCF themed events to recognise successful town initiatives.
- A national, integrated and scaled-up Health Check Programme for towns which builds and expands on the success of the Heritage Council's Collaborative Town Centre Health Check model and results in a national database of towns.
- A Town Centre First Toolkit to include a Web Portal which will provide access to all available TCF resources and funding. The Toolkit will provide a best practice model for developing TCF plans that is informed by existing models and include specific strands targeting key issues associated with the development of our towns such as climate action, digitalisation, enterprise development and social purpose.
- A targeted investment programme to support towns in delivering the interventions identified in their bespoke Town Centre First Plans. This includes existing [Urban Regeneration and Development Fund; Rural Regeneration and Development Fund; Town & Village Renewal Scheme] and new [Croí Cónaithe (Towns) Fund; European Regional Development Fund] funding programmes which will prioritise the delivery of this Town Centre First policy.
- Pathfinder towns that will be immediately assisted to act as initial demonstrators of the TCF policy approach. A key ongoing focus of the policy will also be to identify early-stage towns where local stakeholders require more support to collaborate as part of a Town Team and to access investment programmes.
- Mechanisms to put town centres at the heart of decision making including a methodology to assess the impact of development on town centres for applicability within the statutory planning system and tools to aid Government Departments and their agencies to assess the impact of their investment decisions on town centres.
- Better data which enhances our understanding of Ireland's towns and builds an evidence base for the ongoing evolution of the TCF policy. This will include a new research and evidence platform, agreed data measurement requirements in respect of key social and economic outcomes, and research aimed at establishing the social return from investment in our towns.
- A new National Town Centre First Office established within existing structures to lead and drive the implementation of Town Centre First actions and co-ordinate stakeholder engagement at a national level and across the Local Government Sector.
- Cross-Government focus and alignment through a National Oversight and Advisory Group that will monitor and guide the delivery of the policy, together with Annual Implementation Plans and a commitment to review the policy at three-year intervals. It will include new approaches to collaborating across the range of new and existing Government initiatives impacting on our town centres.

2.3 Regional Planning Context

Regional Spatial and Economic Strategy for the Eastern and Midland Regional Assembly 2019-2031

The RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives. At this strategic level it provides a framework for investment to better manage spatial planning and economic development to sustainably grow the Region to 2031 and beyond.

- The RSES provides a:
- **Spatial Strategy** – to manage future growth and ensure the creation of healthy and attractive places to live, work, study, visit and invest in.
- **Economic Strategy** – that builds on our strengths to sustain a strong economy and support the creation of quality jobs that ensure a good living standard for all.
- **Metropolitan Plan** – to ensure a supply of strategic development areas for the sustainable growth and continued success and competitiveness of the Dublin Metropolitan Area.
- **Investment Framework** – to prioritise the delivery of key enabling infrastructure and services by government and state agencies.
- **Climate Action Strategy** – to accelerate climate action, ensure a clean and healthy environment and to promote sustainable transport and strategic green infrastructure.

The principal statutory purpose of the RSES is to support the implementation of Project Ireland 2040 – National Planning Framework and National Development Plan 2019-2027 and the economic policies of the Government by providing a long-term strategic planning and economic framework for the development of the Regions.

The RSES notes the importance of improving the quality life through promotion and facilitation of cycling and walking, which in turn promotes the reduction of greenhouse gas emissions. The living streets scheme supports these objectives by promoting safe spaces for walking and cycling.

GDA Cycle Network Plan 2022

The Irish Government, the NTA and various State Agencies are committed to ensuring that cycling as a transport mode is supported, enhanced and exploited, in order to achieve strategic objectives and reach national goals. Current policy is set out in various documents produced by the Department of Transport, Tourism & Sport and its Agencies. However, the National Cycle Policy Framework (NCPF) is the key document that sets out 19 specific objectives, and details the 109 individual but integrated actions, aimed at ensuring that a cycling culture is developed in Ireland to the extent that, by 2020, 10% of all journeys will be by bike. The NCPF proposes a comprehensive package of planning/infrastructure and communication/education measures, and emphasises the need for stakeholder participation and adequate funding of the required initiatives. The NCPF requires that cycle-friendly planning principles be incorporated in all national, regional, local and sub-local plans. These ambitious targets can only be achieved if a much higher proportion of trips by bicycle is undertaken in urban areas, in particular within the GDA, where the use of bicycle for many types of trips is already much more common.

In order to ensure that investments are focused on an efficient manner towards reaching these ambitious targets, the NTA and the Local Authorities within the GDA need to know what bicycle facilities are currently available, where they are missing sections, what is their condition and what improvements are likely to be required. In addition, a strategic cycle network map of the GDA needs to be prepared which will help the NTA in allocating funding towards the implementation of strategically important schemes. Information outlined in this report will allow cycle infrastructure projects to be prioritised in terms of the importance to the strategic network and the likely cycle demand for such a scheme.

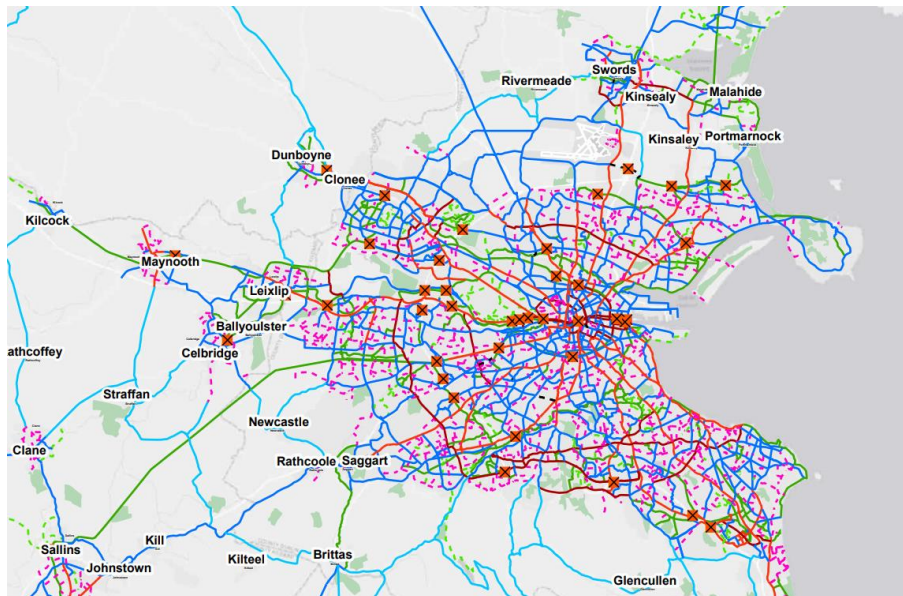


Figure 2.6: GDA Full Cycle Network Plan

NTA Transport Strategy for the Greater Dublin Area 2022 – 2042

The NTA Transport Strategy for the Greater Dublin Area 2022-2042 sets forth an ambitious and transformative vision for the future of transportation in one of Ireland's most populous and economically significant regions. Developed by the National Transport Authority (NTA) in close collaboration with stakeholders and the public, this comprehensive strategy aims to address pressing challenges, such as urbanization, congestion, and climate change, while enhancing accessibility, efficiency, and sustainability in the transport network.

Key elements of the NTA Transport Strategy include:

- **Integrated Transport Network:** The strategy proposes an integrated and multi-modal transport network, seamlessly connecting various modes of transportation, including buses, trains, trams, cycling infrastructure, and walking paths, to provide travellers with flexible and efficient options for their daily commutes.
- **Sustainable Mobility:** Emphasizing sustainable mobility solutions, the strategy promotes the adoption of electric and low-emission vehicles, as well as the expansion of public transportation services to reduce the region's carbon footprint and mitigate the impacts of climate change.
- **Smart Technology Integration:** Leveraging cutting-edge technology, the strategy advocates for the implementation of intelligent transport systems, real-time passenger information, and data analytics to optimize traffic management, reduce congestion, and enhance overall transport efficiency.
- **Connectivity and Accessibility:** Ensuring that transport infrastructure and services cater to the needs of all citizens, including those with disabilities and the elderly, the strategy prioritizes universal accessibility and improved connectivity across the Greater Dublin Area.
- **Transit-Oriented Development:** Encouraging transit-oriented development, the strategy promotes the establishment of high-density, mixed-use developments around transport hubs, fostering vibrant communities and reducing car dependency.
- **Resilience and Adaptation:** Addressing the challenges posed by climate change and potential disruptions, the strategy focuses on building resilient transport infrastructure, considering adaptation measures to safeguard against extreme weather events and future uncertainties.
- **Public Engagement and Collaboration:** Recognizing the importance of community involvement, the strategy advocates for continuous public engagement and collaboration with relevant stakeholders to ensure that the transport network aligns with the needs and aspirations of the region's residents.

As the NTA Transport Strategy unfolds over the 2022-2042 period, its implementation promises to revolutionize the Greater Dublin Area's transportation landscape. By fostering sustainable, interconnected, and people-centred mobility, the strategy endeavours to enhance the region's liveability, economic competitiveness, and environmental stewardship, setting a precedent for other urban areas seeking to navigate the challenges of the 21st century and beyond.

This project aligns with the goals and objectives set out in the NTA's Strategic Transport Plan for Greater Dublin Area (GDA) for the period up to 2042 (Transport Strategy), and the implementation of this project will support the achievement of the goals set out in the strategy.

2.4 Local Planning Context

Dún Laoghaire-Rathdown County Council Development Plan 2022-2028

The County Development Plan guides future growth and development in the County. The DLR County Development Plan sets out the policy objectives and the overall strategy for the proper planning and sustainable development of the County over the plan period from 2022 to 2028. The Plan sets out an approach centred on the core principle of sustainability with a focus on creating vibrant, liveable, climate resilient communities. This Plan is consistent with both the 'National Planning Framework' (2018) (NPF) and the 'Regional Spatial and Economic Strategy' (2019) (RSES).

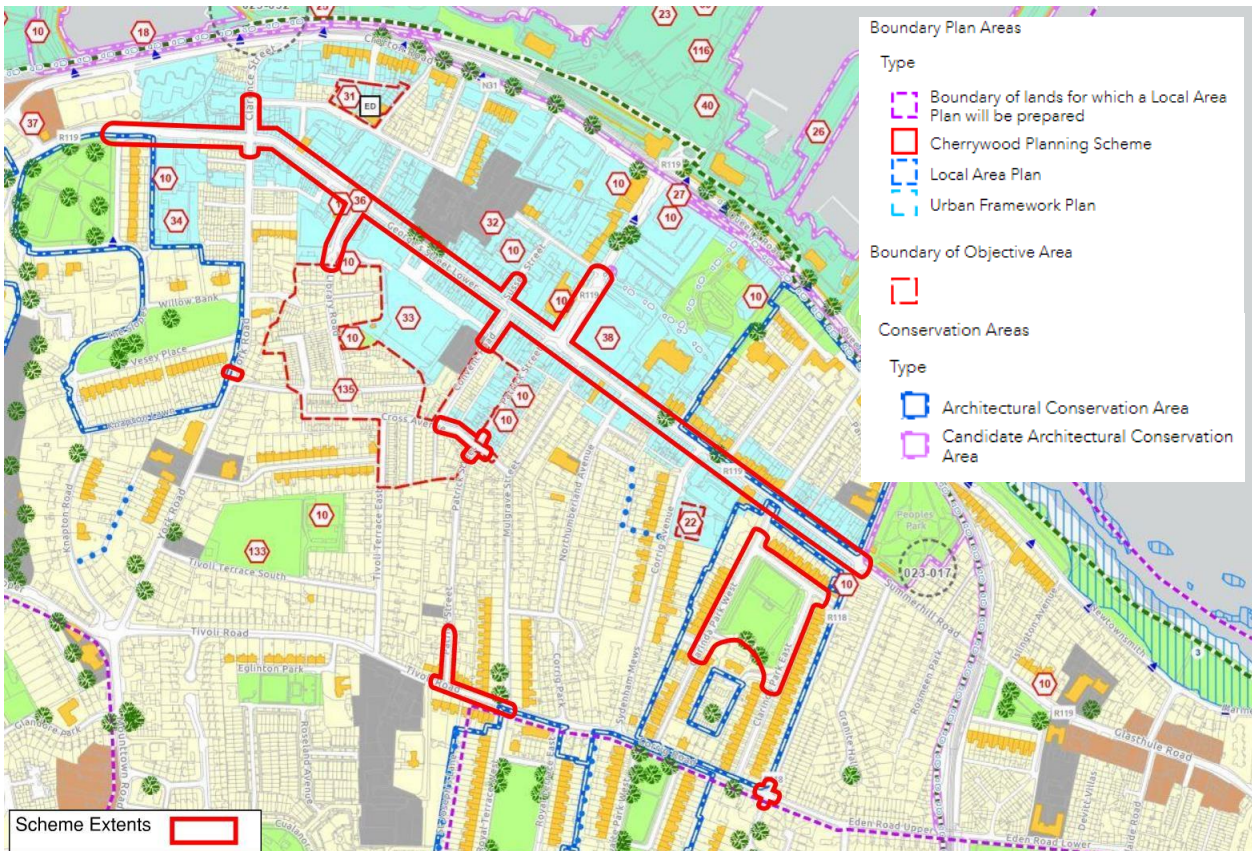


Figure 2.7: Development Plan Map

The DLR development plan interactive map can be found online at:

<https://dlrcouncil.maps.arcgis.com/apps/webappviewer/index.html?id=6e5e0fb0384a47dcb61cbf4e36eb6dcc>

Appendix 19 Interim Dún Laoghaire Urban Framework Plan sets out a vision to guide the ongoing development and regeneration of Dún Laoghaire Town. The scheme supports this vision. This plan can be seen online at:

https://www.dlrco.ie/sites/default/files/atoms/files/appendix_17_-_interim_dufp.pdf



Figure 4.8 Dún Laoghaire Urban Framework Plan Urban Structure

The following objectives in this Urban Framework Plan are supported by this project:

- 4. Improve physical linkages and accessibility between the Town Centre and the Waterfront.
- 5. Encourage and provide for increased pedestrian and cycle permeability between George's Street and Crofton Road.
- 8 Provide a network of attractive and green urban spaces and public realm to enhance the user experience while also tackling climate action to create a low carbon, climate resilient and sustainable town."
- 9 Improve and enhance existing visual amenity and streetscape including lighting within the Interim Framework Plan area.
- 18. To implement a co-ordinated street tree planting and soft landscaping programme, where feasible, to improve air quality, encourage biodiversity and attenuate surface water within the Interim Framework Plan area.
- 19. To seek the incremental rationalisation and consolidation of the principal Town Centre Quarter on George's Street between Bloomfield's Shopping Centre and Corrig Avenue.

23. It is an objective to embrace ‘Smart’ cities initiatives to improve traffic management and include appropriate variable Message Signage (VMS) and smart car parking technologies within the Interim Framework Plan area.

24. To implement the DLR Cycle Network objectives within the Interim Framework Plan area.

25. To undertake a Road User Audit and support the application of DMURS, together with environmental improvements, on Cross Avenue - (Old Victorian Street) and interconnecting streets.

26. To promote the expansion of 30 km/hr limit zones in Dún Laoghaire and Environs in accordance with best practise and speed guidance documents

Some further relevant objectives for George’s Street environs which this proposal supports include *inter alia*; public realm improvements that significantly increase street trees and planting, create narrower carriageways with wider paving, improved surfaces and new public lighting; the need to examine the traffic movements with a view to facilitating increased pedestrian and cycle usage on George’s Street; simplification of the junction between George’s Street and Marine Road could create easier crossing points for pedestrians; and examine the pedestrianizing of the one-way stretch of George’s Street Lower between Marine Road and St Michael’s Hospital.

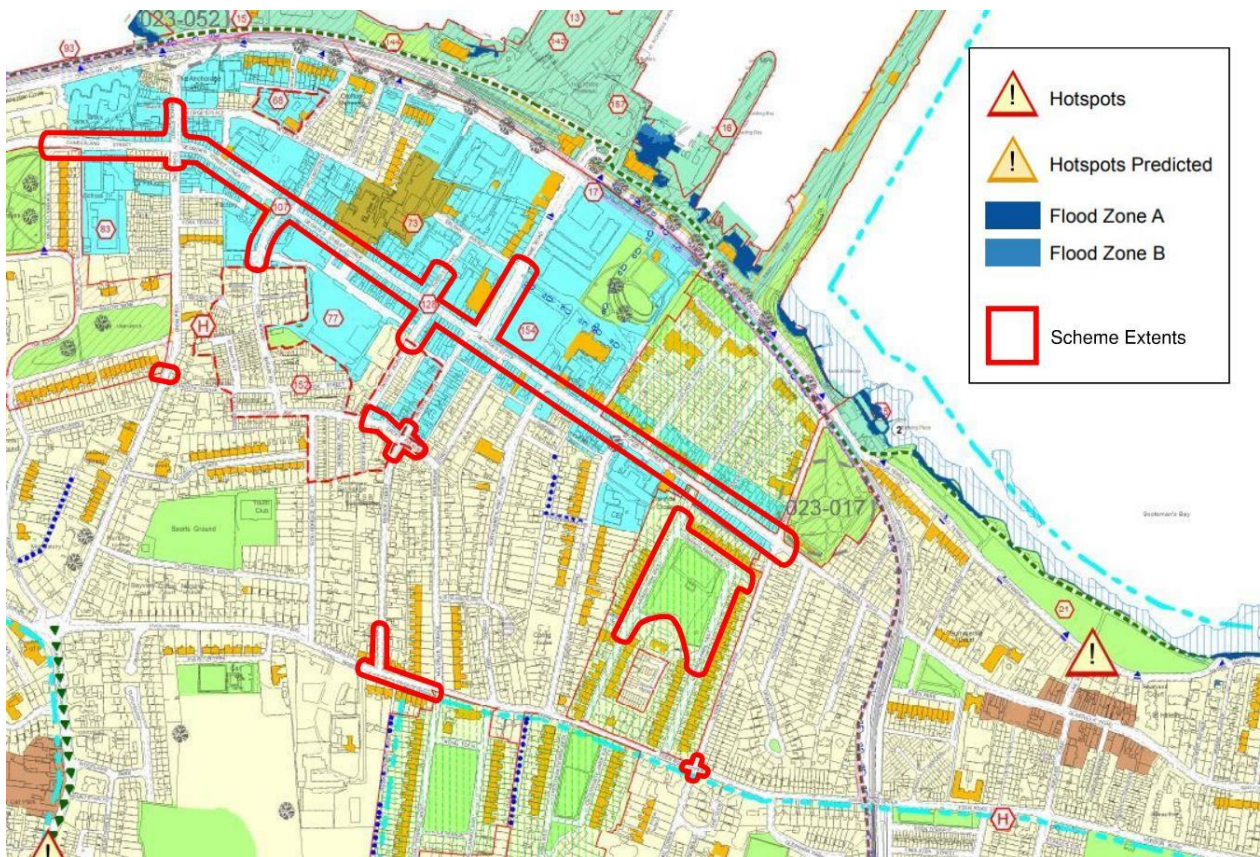


Figure 2.9: Flood Zone Map

The DLR Flood Zone Map can be found online at:

https://www.dlrcoco.ie/sites/default/files/atoms/files/03-map3_2.pdf



Figure 2.10: Ecological Network Map

The DLR Ecological Network Map can be found online at:

https://www.dlrcoco.ie/sites/default/files/atoms/files/supplementary_map_b1_ecological_network_map_1.pdf

With reference to the figures above, the relevant information is summarised below:

- Dún Laoghaire is one of the two major town centres in the County Development Plan which is zoned with the objective MTC 'To protect, provide for and-or improve major town centre facilities'.
- There are two designated Architectural Conservation Areas, Haigh Terrace to Park Road and Clarinda Park.
- Peoples Park is a Candidate Architectural Conservation Area and contains the Martello Tower monument.
- There are some tree symbols with the objective "To protect and preserve Trees and Woodlands" on George's Street and Clarinda Park.
- There are no waterbodies present in the study area. There are coastal areas identified as flood zones on outskirts of the study area, however these are unlikely to be impacted by the scheme which is primarily taking place on George's Street Upper and Lower.

Specific Local Objectives which apply to the area and are supported in the scheme:

SLO 135 To enhance the character, ambiance and quality of the environment, historic streetscapes and public realm of the residential streets in the areas adjoining Lower George's Street, Dún Laoghaire and in particular, the areas of early twentieth century social housing, to ensure that the public realm in this older residential area - in close proximity to the core business district of the Town - is enhanced, improved and maintained to the standard provided for other residential and business districts adjoining Upper and Lower George's Street.

The scheme supports the following relevant policy objectives of the DLR County Development Plan 2022-2028:

- Policy 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 the integration of walking, cycling and physical activity with placemaking including public realm permeability improvements in accordance with relevant Council and National policy and guidelines.
- Policy 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. (Consistent with NPO 27 and 64 of the NPF and RPO 5.3 of the RSES).
- Policy 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 (RPO 8.10, RPO 8.16).
- Policy T28: Road Safety - It is a Policy Objective to implement a Council Road Safety Plan in line with the emerging Government Road Safety Strategy 2021 to 2030 in conjunction with relevant stakeholders and agencies.
- Policy 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. (Consistent with RPO 9.1 and 9.10 of the RSES).
- Policy ST6: 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 MFC1: Multifunctional Centres It is a Policy Objective of the Council to embrace and support the development of the County's Major Town Centres, District Centres and Neighbourhood Centres as multifunctional centres which provide a variety of uses that meet the needs of the community they serve.
- Policy Objective MFC2: Accessible and Inclusive Multifunctional Centres It is a Policy Objective of the Council to promote accessibility to Major Town Centres, District Centres and Neighbourhood Centres by sustainable modes of transportation in order to encourage multi-purpose shopping, business and leisure trips as part of the same journey.
- Policy Objective MFC3: Placemaking in our Towns and Villages It is a Policy Objective of the Council to support proposals for development in towns and villages that provide for a framework for renewal where relevant and ensure the creation of a high quality public realm and sense of place. Proposals should also enhance the unique character of the County's Main streets where relevant.
- Policy PHP4: Villages and Neighbourhoods - It is Policy Objective to implement a strategy for residential development based on a concept of sustainable urban villages as well as promoting and facilitating the provision of "10-minute" neighbourhoods.
- Policy PHP5: Community Facilities - It is Council policy to support the development, improvement, and provision of a wide range of community facilities distributed in an equitable manner throughout the County as well as facilitating and supporting the preparation of a countywide Community Strategy.
- Policy PHP12: The Local Economic and Community Plan - It is Council policy to promote and facilitate participation of key stakeholders in the development and delivery of the Local Economic and Community Plan.
- Policy 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.
- Policy 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.

- Policy 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 PHP37: Public Realm Design - It is Council policy that all development proposals, whether in established areas or in new growth nodes, should contribute positively to an enhanced public realm and should demonstrate that the highest quality in public realm design is achieved.
- Policy 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 pro-actively engaging with, and adhering to, the 'shared space' concept and guidance set out in the 'Design Manual for Urban Roads and Streets' (2013).
- Policy PHP41: Safer Living Environment - It is Council policy to facilitate the promotion and delivery of a safe environment for both the residents of, and visitors to, the County.
- Policy 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 (consistent with RPO 9.16).
- Policy 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 plan seeks to promote walking and cycling as means of transport and for the purposes of mental and physical health. The Living Streets Scheme which comprises walking and cycling facilities supports these objectives, in addition to supporting a wider range of Development Plan policy objectives relating to sustainable transport, economic vitality, accessibility and inclusiveness, enhanced public realm design and green infrastructure measures.

Dún Laoghaire-Rathdown Climate Change Action Plan 2019-2024

Dún Laoghaire-Rathdown County Council's Climate Action Plan sets out how the Council will improve energy efficiency and reduce greenhouse gas emissions in its own buildings and operations, while making Dún Laoghaire-Rathdown a more climate-resilient region, with engaged and informed citizens. This will be achieved by a range of ongoing and planned actions in five key areas which will be continuously monitored, evaluated, and updated to 2030 and beyond.

The key targets set out in the plan are as follows:

- 33% improvement in the Council's energy efficiency by 2020.
- Make Dublin a climate-resilient region by reducing the impacts of future climate change-related events.
- 40% reduction in the Council's greenhouse gas emissions by 2030.
- Actively engage and inform our citizens on climate change.

To fulfil those targets, DLRCC have decided to focus on five key actions areas: transport, food resilience, nature-based solutions, resource management and energy & buildings. This scheme will support the transport and nature-based solutions elements of this plan.

The Living Street Scheme aims at promoting and increasing active travel in Dún Laoghaire and the County, which in turn will help make Dún Laoghaire-Rathdown a more climate-resilient region, with engaged and informed citizens.

Dún Laoghaire-Rathdown Age-Friendly Strategy 2022-2026

The DLR Age-Friendly Strategy 2022-2026 aims to enhance the future of older people in their local areas so that they can engage positively within their communities and neighbourhoods throughout their lives. The Strategy highlights the importance of inclusion and accessibility in the physical environment in terms of public realm and transport, to ensure people can experience a good quality of life throughout their lives. The Strategy contains a series of Strategic Priorities and Objectives. The four Strategic Priorities comprise:

- Strategic Priority 1 - Strengthening DLR as a dynamic place where people will experience a good quality of life throughout the lifespan.
- Strategic Priority 2 - Fostering cohesion to reinforce the sense of attraction, engagement and belonging within communities, neighbourhoods, and places in dlr.
- Strategic Priority 3 - Ensuring that older people experience good health and wellbeing through access to high quality health and community services.
- Strategic Priority 4 - Building on our capacity to work in partnership to support inclusive, sustainable and environmental conditions for people as they grow older in dlr.

Key objectives of the Strategy relevant to the Dún Laoghaire-Rathdown Living Street scheme includes Objective 1.1 '*Develop, maintain and promote a supportive public realm that facilitates social interaction and healthy lifestyles*', and Objective 1.2 '*Influence the provision of safe and accessible transport and infrastructure to enable older people engage actively within their communities.*' The Dún Laoghaire-Rathdown Living Street scheme supports the strategic priorities and objectives set out in the DLR Age-Friendly Strategy, ensuring inclusion and accessibility for all; enhanced pedestrian and cycling routes and a supportive public realm are all key components of the scheme.

Dún Laoghaire-Rathdown Cycling policy

The publication by the government in 2009 of Smarter Travel - a Sustainable Transport Future 2009-2020 followed by the National Cycle Policy Framework 2009 – 2020 (NCPF) has set a new transport agenda in Ireland with an increased emphasis on sustainable transport including cycling. In particular, the NCPF recognises the contribution that cycling can make towards improving the quality of life and health of individuals whilst also contributing to the wider public realm, a stronger economy, and an enhanced environment for all.

The vision in this document 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. This document sets out Dún Laoghaire-Rathdown County Council's own policies in response to the publication of the National Cycle Policy Framework, 2009 – 2020 and includes guidance for developers on cycle parking and cycle facilities to be provided as a consequence of new development.

To deliver its contribution to local and national goals, the Council, through the various policies set out in this document, will focus its attention on the following cycling activities by way of provision of infrastructure, promotion and marketing or any combination of these:

- 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 (except where they contribute to wider objectives, i.e. – above).

The scheme promotes cycling as a mode of transport, and increases safety for cyclists, making cycling facilities accessible to all types of cyclists. The scheme also promotes a healthier lifestyle by encouraging and allowing people to cycle through Dun Laoghaire.

2.5 Project Need

The need for the scheme is considered under the National Investment Framework for Transport in Ireland (NIFTI) with focus on the Investment Priorities. The Department of Transport recently published a framework for guide future investment in the land transport network and to prioritise investment that supports the delivery of the National Strategic Outcomes. The investment objectives of NIFTI are:

- Delivering clean, low-carbon and environmentally sustainable mobility.
- Supporting successful places and vibrant communities.
- Facilitating safe, accessible, reliable, and efficient travel on the network.
- Promoting and strong and balanced economy.

NIFTI includes two ‘hierarchies’ specifying the order in which transport investment should be prioritised: a ‘modal hierarchy’ and an ‘intervention hierarchy’, both of which are shown in the figure below.

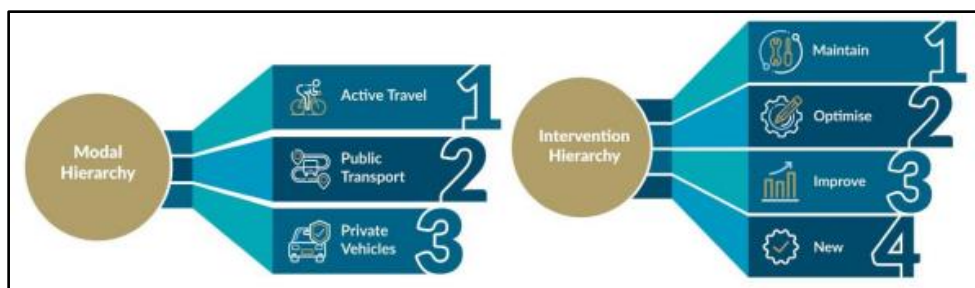


Figure 2-8: Hierarchy of Transport Investment

The Modal Hierarchy differentiates between the modes of transport, and states that Active Travel (walking and cycling) should be prioritised, followed by public transport, and lastly by private vehicles. The scheme has been guided by a user hierarchy which seeks to prioritise active travel and bus users over private cars, which squarely aligns with NIFTI’s Modal Hierarchy.

The Intervention Hierarchy differentiates between the level of intervention proposed, and states that investment should firstly seek to ‘maintain’ existing infrastructure; then to ‘optimise’ or ‘improve’ existing infrastructure; and finally – if it is not possible to achieve an objective through previous steps – to invest in providing ‘new’ infrastructure. The aim of the Investment Hierarchy is to maximise the lifespan and value for money of past investments, and to ensure that more affordable and efficient options for achieving an objective are considered before investing in large-scale transport projects or programmes.

This scheme is mostly aligned with Level 2 (‘optimise’) on the Intervention Hierarchy. While requiring improved infrastructure in parts, the primary focus of the project is optimising and re-designing existing public space on George’s Street to be more efficient, sustainable, and equitable. This includes targeted upgrades to cycling, pedestrian, and public transport infrastructure, while reducing the prominence given to private cars. Allowance for spill-out from cafés into the public space assists with generating additional income for businesses.

The scheme would transform George’s St Lower by pedestrianizing the street to create a safe and welcoming environment for pedestrians. It would replace existing finishes with high quality permanent materials to create a consistent look and feel to George’s Street Upper and Lower. This landscape upgrade would provide better seating, footpaths, and planting. The mobility interventions would make it easier and safer to walk and cycle to and within the town with extended pedestrian infrastructure and enhanced connectivity between George’s Street and its surrounding areas. Additionally, high quality surfaces free of trip hazards and will remove any level differences between pedestrian areas.

Summer Streets

From early July through to the end of September 2021, Dún Laoghaire Rathdown County Council implemented a pilot programme for George's Street Lower called "Summer Streets". This pilot comprised of the pedestrianisation of George's Street Lower, public realm enhancements to Myrtle Square and improvements to the circulation of cyclists in the area. The trial was to assess if a permanent scheme would function within the town.



Figure 2-9: Summer Streets Scheme

This trial period was shown to be success with 81% of residents, 67% of customers and 44% of businesses indicating that they would like to see the changes implemented permanently.¹ This pilot scheme clearly demonstrates the need and demand for such a scheme in Dún Laoghaire village.

Pathfinder

The Pathfinder Programme forms a key part of the implementation of the National Sustainable Mobility Policy, which sets out the government's plan to meet Ireland's requirement to achieve a 50% reduction in greenhouse gas emissions by 2030 in the transport sector.

The Pathfinder Programme is focused on reducing carbon emissions in the transport sector, by enabling the shift to cleaner transport choices. The Pathfinder Programme will bring increased momentum to the delivery of projects at a local level, providing templates for replication and scaling up elsewhere and with a strong emphasis on experimental and innovative approaches.

One of the first tasks of the Leadership Group established to oversee and drive implementation of the Policy was to agree a programme of "pathfinder" projects at local level. A selection of these projects which show the broad spectrum of projects being pursued and promoted under this scheme were selected to be part of the pilot programme in October 2022. The Living Streets: Dún Laoghaire Project is one of the 35 exemplary projects chosen to be included in this phase of the programme.

The Living Streets project promotes a modal shift from private cars to pedestrian and cycling modes for commuting, education and leisure purposes. This is directly in line with the objectives of the Pathfinder Programme which seeks to reduce the emissions of the transport sector by 50%.

¹ https://www.dlrcoco.ie/sites/default/files/atoms/files/dl_summer_streets_evaluation_report_f0.pdf

2.6 Project Objectives

Living Streets (Dún Laoghaire) is a project that involves sustainable mobility and public realm improvements. It aims to make our town and local streets safer and greener, communities more connected, and to keep our economy vibrant. The scheme objectives are:

Safety Impacts (Safe walking and cycling)

The lack of continuous appropriate public transport and active travel facilities can result in conflict points between private cars and pedestrians/cyclists at several locations, particularly at junctions within the study area, increasing the risk of a collision. The following safety objective is to:

- Make walking, cycling, and public transport more convenient, enjoyable, and safer for all.

Transport User Benefits and Other Economic Impacts (Connect communities)

The volumes of existing traffic accompanied by restricted active travel spaces results in an economically inefficient route. The following economic objectives are to:

- Improve connections between bus, rail, and active travel facilities to make it easier for people to get around.
- Enhance the economic vibrancy of Dún Laoghaire as a mixed-use town and its attractiveness as a destination by facilitating the sustainable and efficient movement of people and goods, and by creating an environment that people want to linger in.

Local Environment and Climate Change (Greener places)

The use of private cars to travel within a 1km radius which results in the emission of CO₂ and particulate emissions which are contributing factors to health issues such as asthma, emphysema and other respiratory issues, as well as potential noise issues and negative impacts on the environment resulting in climate change. The key environment objective is to:

- Improve the environment by reducing traffic and related noise and air pollution, and increasing planting in public spaces.

Accessibility Impacts and Social Impacts (Inclusive travel)

To provide additional accessibility to all users, with particular cognisance being paid to those who may be geographically, economically, or socially disadvantaged in any way, the following objective is to:

- Promote equitable travel options and urban design that creates a safe and welcoming experience for all members of society, regardless of age, gender, ability, or income.

Promote health and well-being in the community by enabling safer active travel and enhancing the public realm for outdoor play, recreation, and social interaction.

2.7 Summer Streets Dún Laoghaire

The Dún Laoghaire Summer Streets project was trialled between the 5th of July 2021 and 30th of September 2021 based on a “trial to succeed” model, which enables users, residents, businesses, and visitors to experience the changes implemented as part of the project and to provide feedback on their experiences. The temporary scheme aimed at providing safe, welcoming, and people-friendly public space and at bringing life, food, and energy to the area.

This initiative involved the pedestrianisation of Georges Street Lower and the provision of attractive, safe spaces for cafés and restaurants, allowing diners to enjoy the offerings of hospitality businesses in comfortable surroundings throughout the summer and beyond. This required the diversion of vehicle traffic and the reallocation of existing car parking spaces.

The following table shows the objectives of the Summer Streets project in accordance with the guidance provided in the TII Project Appraisal Guidelines and Department of Transport Common Appraisal Framework (CAF) (Note: CAF has been superseded by TAF since the conclusion of the Summer Streets Pilot Scheme):

CAF Criteria	CAF Description	Scheme Specific Objective
Economy	The impacts of a transport investment on economic growth and competitiveness are assessed under the economic impact and economic efficiency criteria.	<p>Improve the local economic capacity in the area to support and generate positive local economic benefits to businesses and consumers by:</p> <p>Encouraging an increase in footfall; and</p> <p>To support hospitality businesses re-establish following the impacts of Covid-19.</p>
Safety	Safety is concerned with the impact of the investment on the number of transport related accidents.	<p>Improve safety for all road users, including vulnerable user groups.</p> <p>To improve street accessibility and facilitate additional space/capacity for traders on view of Covid-19 safety concerns and requirements for social distancing.</p>
Environment	Environment embraces a range of impacts, such as emissions to air, noise, and ecological and architectural impacts.	<p>To improve the overall quality of the local environment, in terms of air quality, noise and litter.</p> <p>To reduce the impact of vehicular traffic on environmental pollution; and</p> <p>To support the development of the Dún Laoghaire urban village as a space that is welcoming and inviting for residents, shoppers, and businesses.</p>
Accessibility and Social Inclusion	According to the Common Appraisal Framework, accessibility and social inclusion embraces the notion that some priority should be given to benefits that accrue to those suffering from social	<p>To provide welcoming and people-friendly public spaces that are inclusive and accessible; and</p> <p>To provide a favourable basis for all social classes, demographics, and levels of user ability to access public spaces and amenities.</p>

	deprivation, geographic isolation and mobility and sensory deprivation.	
Integration	Integration considers the extent to which the project being evaluated promotes integration of transport networks and is compatible with Government policies, including national spatial and planning policy.	To integrate with the existing transport infrastructure network; and To support active travel modes and where possible transition users from the active mobility infrastructure to the Dún Laoghaire urban village areas
Physical Activity	This relates to the health benefits derived from using different transport modes.	To encourage active mobility as a mean of improving people's health through physical activity; and To encourage improvements in the environmental objectives which can facilitate greater number of physically active users.

Findings from the Trial

An evaluation of the Summer Streets trial was undertaken by Ramboll, details of the full study can be found in the Summer Streets Dún Laoghaire Evaluation Report (April 2022). Some of the key findings from this study are discussed below.

It was found that 15% of south-eastern traffic and 59% of north-western traffic using Georges Street Lower did not have Dún Laoghaire as a destination, meaning that these proportions of traffic were using the street as a shortcut. A traffic survey showed that access to the street increased for pedestrians and cyclists. It was found that there was no significant difference in journey times in the routes analysed.

The objectives were found to be met in terms of reducing the impact of vehicular pollution within the intervention area.

Public transport & bus performances, accessibility and the temporary relocation of bus stops was highlighted as an issue.

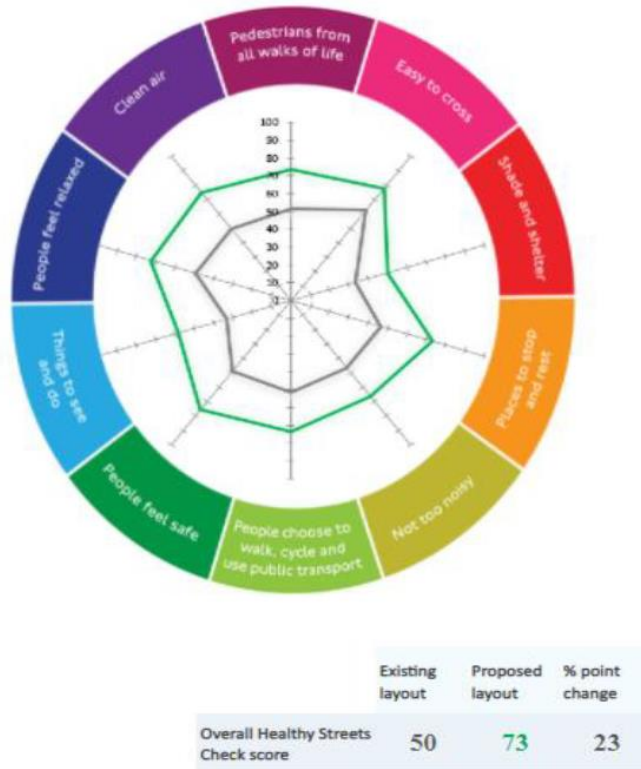
A survey was undertaken during the trial, 82% of residents were found to be in favour of the scheme. 80% thought it made Dún Laoghaire Town Centre a better place, and 75% said they would be disappointed when the scheme ended. In comparison, 55% of the businesses answered that they would not want the scheme to be maintained, 28% reported that they did not see any change the number of customers and 31% reported a large decrease in the number of customers.

83% of the residents questioned said that they think the scheme made the area safer for children. That being said, it was also noted that cyclists and scooters still present a danger to pedestrians on the pedestrianised section of the scheme.

54% of residents and pedestrians that were questioned viewed the noise as reduced from before the scheme, against 39% of the businesses. In comparison, 31% of pedestrians and residents thought the noise was unchanged against 28% from the businesses.

The Summer Streets scheme was also assessed using Transport for London's (TfL) 'Healthy Streets Check for Designers'. The Healthy Streets check comprises 10 indicators which are assessed using 31 metrics relating to accessibility, inclusivity, quality, safety, and the overall 'health' of the street environment. The results for Summer Streets showed substantial improvements to the indicators 'easy to cross', 'not too noisy'

and ‘people feeling safe’, as a result of the removal of vehicle traffic on Georges Street Lower. Other factors contributing to the significant increase in score included the increased provision of cycle parking, new trees and planters and the additional seating for people to stop and rest. The figure below is a visual representation of Healthy Streets Check.



The lessons learnt as well as recommendations from this temporary scheme are valuable in regard to the proposed permanent scheme as it provides valuable insight into what needs to be done differently. The most common concern identified through the surveys and the stakeholder session was around bus stop access, particularly the loss of bus stops outside Argos and the shopping centre. The residents’ associations noted that this impact was felt particularly by the older community and those living just outside main town in areas such as Mounttown. Several stakeholders in the workshop suggested DLRCC explore options for nearby shuttle buses or similar if the scheme were to be reintroduced. Another issue raised by the Residents’ Association was in relation to bin lorries and delivery vans getting stuck, particularly on Convent Road. Other key items raised are as follows:

- Parking: During the stakeholder workshop it was noted that throughout the scheme there were very few cars parking on Sussex Street. It was suggested that this was an education piece, and that potentially there was no awareness that motorists could access it.
- Residents’ association feedback mentioned residents’ concerns for individual traders where they were telling customers the scheme was damaging business, leading them to worry about losing smaller retailers and the town changing completely.
- There were concerns around cyclists in the pedestrianised zone. A more permanent scheme could include increased awareness around the cyclist routes and lack of cyclist access in the pedestrianised zone. Statutory signage could be used to support this.

Several stakeholders acknowledged that there would be a time lag in relation to businesses realising the positive effects of the Summer Streets scheme, and that a longer period than 3 months would be required to see significant uplifts.

The overall sentiment was in favour of a permanent solution, and is supported by the following statistics:

- 81% of residents would like to see the scheme implemented permanently.
- 67% of customers would like to see the scheme implemented permanently.
- 44% of businesses would like to see the scheme implemented permanently.
- Businesses significantly overestimated the number of customers who travel by car and bus and underestimated the number who walk and cycle.
- There was 12% less pedestrian footfall the weekend after the scheme ended than the equivalent weekend the month before; and
- 59% of citybound vehicular traffic in Dún Laoghaire is through traffic, providing no distinguishable economic value to the town.

It is clear from the evaluation that the Dún Laoghaire Summer Streets programme met the objectives set out at the outset and delivered significant environmental and social benefits which in turn supported some economic improvements locally.

3. DESIGN GUIDANCE

The design and assessment of options will be done in accordance with guidance set-out in the Design Manual for Urban Roads (DMURS), National Investment Framework for Transport in Ireland (NIFTI), the National Cycle Manual, the Traffic Signs Manual and Traffic Management Guidelines. It will prioritise the user hierarchy set out in DMURS and NIFTI which promote sustainable forms of transport.



DMURS Road User Hierarchy

4. EXISTING CONDITIONS, CONSTRAINTS AND OPPORTUNITIES

4.1 George's Street Lower from De Vesci Terrace to St. Michael's Hospital

At present, there is a two-way street allowing traffic to travel in a north-western and south-eastern direction, linking Monkstown Road to Dun Laoghaire town through Cumberland Road and George's Street Lower. The current layout has a footpath on either side of the road, a single traffic lane either way for most of the section and intermittent parking on the northern sides of the road, except outside the Dun Laoghaire Further Education Institute where parking can be found on both sides of the road. There are no cycle lanes provided.



Figure 10: Typical Layout

There are several constraints linked to this section, which include the following:

- The available width along this section varies between 11 and 17 meters.
- The presence of underground and overhead utilities may limit work proposals.
- The existing levels of the site must be considered on this section of the scheme regarding building levels and drainage.
- There is on-street parking along some sections of the street.
- Two-way access to St. Michael's Hospital and Convent Lane is required to be maintained.
- Entrances to public and private off-street parking.
- Bus Services

In addition to the above constraints, designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space along the street.
- There is an opportunity to improve pedestrian facilities at crossings and junctions.
- There is an opportunity to include new landscaping and sustainable urban drainage features.
- Following the introduction of the new BusConnects bus network there may be redundant bus stops along this section. There is an opportunity to reallocate this space.

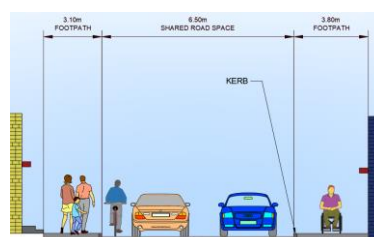


Figure 11: Typical Existing Cross Section for George's Street Lower

4.2 George's Street Lower from Myrtle Square to Patrick Street

At present, there is a one-way street allowing traffic to travel in a north-western direction, linking George's Street Upper to the other section of George's Street Lower. The current layout has a footpath on either side of the road and a single traffic lane. Some sections of the footpath have areas in front of restaurants and cafes that are used as outdoor dining areas. There are no cycle lanes provided.



Figure 12: Typical Layout

There are several constraints linked to this section, these include the following:

- The available width along this section varies between 10 and 11 meters.
- The presence of underground and overhead utilities may limit work proposals.

In addition to the above constraint's designers have identified the following opportunities in this section of the study area:

- Improved public realm space: This section of the scheme provides an opportunity to enhance public realm space, including outside a number of cafes and restaurants.
- There is opportunity to improve pedestrian facilities at crossings and junctions.
- There is an opportunity to include new landscaping and sustainable urban drainage features.
- Following the introduction of the pedestrianised section of the street there will be redundant bus stops along this section. There is an opportunity to reallocate this space.

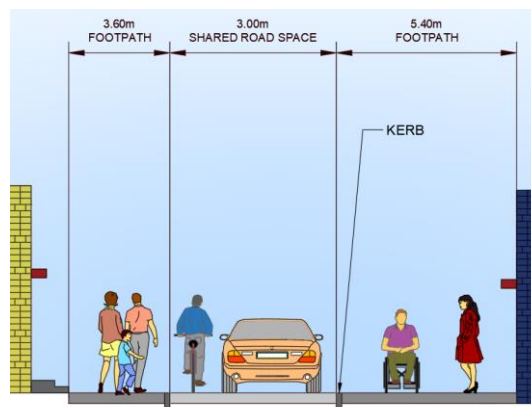


Figure 13: Typical Existing Cross Section for George's Street Lower

4.3 George’s Street Upper

At present, there is a two-way street allowing traffic to travel in a north-eastern and south-western direction, linking George’s Street Lower to Summerhill Road. The current layout has a footpath on either side of the road, a single traffic lane and controlled on-street parking on the southern side of the road along sections. In addition to parking bays there is a loading bay and designated accessible parking spaces for disabled person parking permit holders. There are multiple restaurants, shops, and businesses along the street. There is also access to Dun Laoghaire Garda Station and District Court. There are no cycle lanes provided.



Figure 14: Typical Layout of George’s Street Upper

There are several constraints linked to this section, these include the following:

- The available width along this section varies between 10 and 15 meters.
- The presence of underground and overhead utilities may limit work proposals.
- There are parking spaces on the southern side of the road, including disabled spaces and a loading bay.
- Entrances to public and private off-street parking.

In addition to the above constraints, designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space along the street.
- There is an opportunity to improve pedestrian facilities at crossings and junctions.
- There is an opportunity to include new landscaping and sustainable urban drainage features.

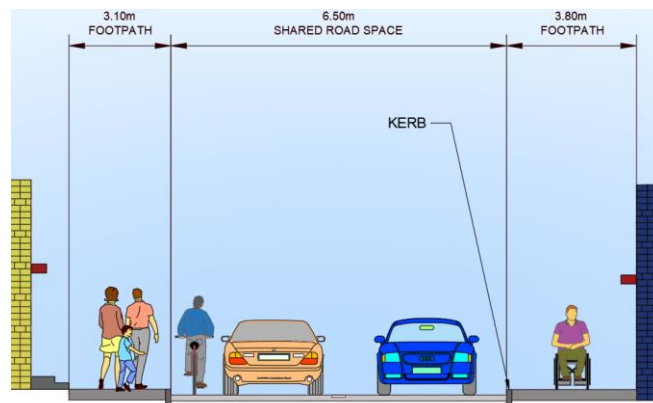


Figure 15: Typical Existing Cross Section for George’s Street Upper

4.4 Area Between Tivoli Road, George's Street, Glenageary Road Lower and York Road

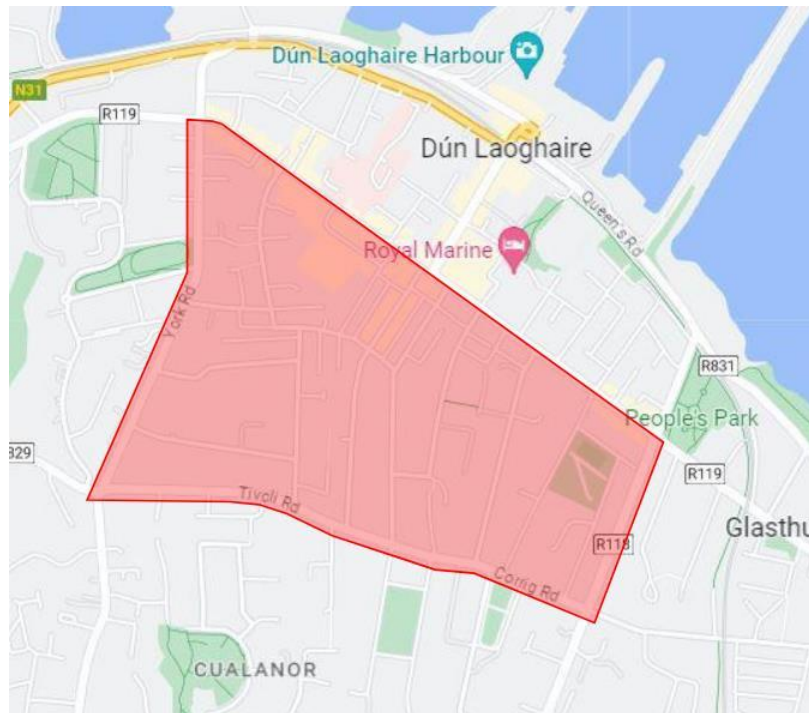


Figure 16: Area Between Tivoli Road, George's Street, Glenageary Road Lower and York Road

At present, both one-way and two-way streets in the greater area typically have a row of parking on one side of the road, although some streets have parking on both sides, and some do not have any parking. The greater area is mostly residential, with the exception of a small number of businesses, restaurants/cafes, and schools. There are no cycle lanes provided.

There are several constraints linked to this section. These include the following:

- There is very little available width throughout these sections.
- The presence of underground and overhead utilities may limit work proposals.
- Entrances to residences and businesses.
- There is on-street parking along the majority of the roads in the area.

In addition to the above constraints, designers have identified the following opportunities in this section of the study area:

- There is an opportunity to encourage sustainable travel through providing quieter, safer streets. This could be achieved through the addition of modal filters at carefully selected locations.
- There is an opportunity to provide enhanced public realm space at key points.
- There is an opportunity to improve pedestrian facilities at crossings and junctions.
- There is an opportunity to provide safety and street improvements outside the two schools.
- There is an opportunity to improve air quality and reduce noise pollution by reducing the levels of through traffic.

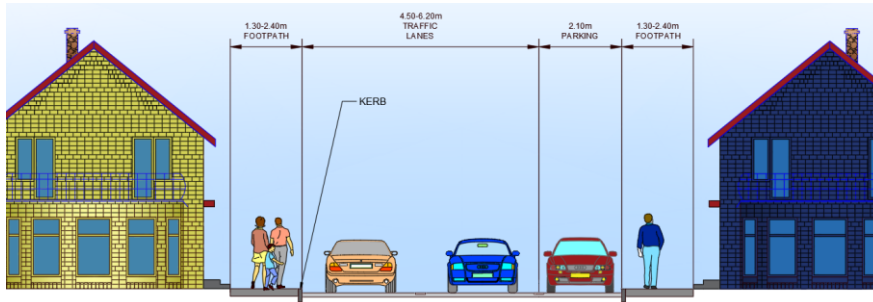


Figure 17: Typical Existing Cross Section for 2-Way Streets

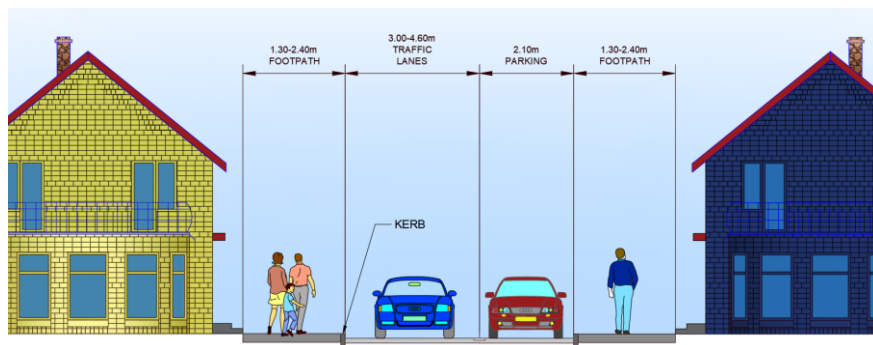


Figure 18: Typical Existing Cross Section for 1-Way Streets

4.5 Clarinda Park

At present, the road network around Clarinda Park is operating as a one-way system. There is parking on both sides of the road on Clarinda Park West and Clarinda Park North, and on the residential side of the road on Clarinda Park East. Within the historical boundary of the park, there is a significant amount of parking spaces (37 on the west side and 58 on the east side). The area surrounding the park is mostly residential with some businesses located in Clarinda Park North, and there are footpaths on all side of the roads except for the park side of the road on Clarinda Park North.

There are several constraints linked to this section. These include the following:

- The width of the streets is approximately 12m from boundary to boundary. This typical layout is a footpath on either side of the road, a single lane for one-way traffic, and parallel parking on both sides of the road.
- The presence of underground and overhead utilities may limit work proposals.
- Entrances to residences and businesses.
- There is on-street parking in the area.
- Heritage constraints within the existing park. Clarinda Park has a rich historic past; any design proposal will be informed by its heritage noting that it was one of the first squares designed in Dun Laoghaire. Framed by period terrace housing on three sides and a stately home on its southern boundary, the parks formal parkland character provides a canvas for improvements which would greatly enhance its positioning as an open space. It will require sensitive integration with current and anticipated needs.
- Biodiversity constraints within the existing park. There are existing mature trees within the park, these trees are of a high amenity value and may also be supporting local wildlife such as bats. An ecological and arboricultural survey would be needed to assess these constraints if any works are proposed within the park.

In addition to the above constraints, designers have identified the following opportunities in this section of the study area:

- There is an opportunity to increase the size of the park by removing car parking and returning it to its historical boundary. This could add significant new landscaping and tree planting to the park increasing biodiversity reducing pollution, promote urban cooling by increased urban greening and reduce carbon emissions. It could also add to the character of the area and provide a larger and more attractive public park for the use of all.
- There is a wide range of options for enhancing the park with new or improved recreational facilities.
- There is an opportunity to encourage sustainable travel through quieter, safer streets, and to reduce the amount of vehicular traffic.
- There is an opportunity improve pedestrian facilities at crossings.



Figure 19: Current and Historical Boundaries of Clarinda Park

4.6 Adjacent Schemes

BusConnects Network Redesign

The National Transport Authority published the new Dublin Area bus network in September 2020. The overall objective of the improved network is a significant increase in capacity and frequency for customers, as well as more evening and weekend services for all spines.

The implementation of the New Network will take place on a phased basis over a number of years, the first phase of the new BusConnects network for Dublin was launched in June 2021 and it is expected to be fully implemented by the end of 2024. The new network is expected to be in place by the time this project has finished construction and so the scheme is being designed with the future network in mind, rather than the existing one.



Figure 20: BusConnects New Network in Dún Laoghaire

If George's St Lower is to be pedestrianised this will require an alteration to the network shown above as busses would no longer be able to use the road. The various options for bus routing are discussed in Chapter 7 of this report and the preferred option is shown in Chapter 8.

5. OPTIONS ASSESSMENT METHODOLOGY

To gain an appreciation of the specific constraints and opportunities within the study area Barry Transportation conducted a comprehensive data collection process consisting of desktop analysis, surveys and site visits. Potential options were then developed bearing in mind the information gathered during the data collection stage. Engineering judgement was used to determine which options were feasible and could be progressed to the options assessment stage. These options were developed using design guidance from National Investment Framework for Transportation Projects (NIFTI) and the Design Manual for Urban Roads and Streets (DMURS).

The options were then compared against one another using Multi-Criteria Analysis (MCA) in accordance with the Department of Transport “Transport Appraisal Criteria” published by the Department of Transport (DTTAS), June 2023.

Each of the proposed options has been assessed against the various options assessment criteria and assigned a colour grade, based on a 5-colour palette shown in Figure 3-1 below.

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

Figure 21: Five-Point Grading Scale

The criteria and sub-criteria considered as part of this assessment are outlined in the paragraphs below.

5.1 Capital Cost

The cost estimate determines the likely capital infrastructure cost of a particular scheme, taking into account the extent of works required in order to construct that scheme. The infrastructure costs include the following:

- Pedestrian and cycle route infrastructure
- Road re-alignment / new road construction
- Junction upgrades
- Drainage
- Pavement
- Services and utilities protection and relocation work
- Lighting
- Landscaping, street furniture and urban realm improvements
- Signs & Lines
- Construction traffic management

5.2 Transport User Benefits and Other Economic Benefits

A qualitative assessment of the proposed scheme was undertaken to determine its impact on each mode of transport. A detailed traffic model of the area was prepared as part of the assessment, and this was used to test the various options considered. See the Living Streets: Dún Laoghaire Traffic Modelling Report for further details of this.

Pedestrians

The level of service provided to pedestrians was assessed under this criterion. Footpath widths, pedestrian desire lines, street ambience and the suitability and convenience of crossing points were considered.

Cyclists

The level of service provided to cyclists was assessed under this criterion. Cycle lane widths, segregation type, gradient, directness, comfort and the suitability and convenience of crossing points were considered. Where speeds and volumes of car traffic are reduced this makes streets safer and more attractive for cycling.

Public Transport

Under this criterion, integration with the public transport network was assessed and compared for each scheme. This includes potential impacts and integration with modes such as public and private busses, DART, public bike schemes and taxis.

For the specific bus routing assessments undertaken in Chapter 7, this criterion was further broken down with two additional sub-criteria used:

Average Bus Journey Time

Typically, shorter bus journey times supports higher patronage as people can get to their destination in shorter time. Bus journey times for each route option have been compared by calculating the estimated journey time between common start and end points. Bus journey times have been calculated usually the following assumptions:

Buses travel at 30kph unless they are delayed.

Dwell time of 10 - 60 sec per stop depending on usage.

Delay of 15 – 120 secs per junction depending on level of priority achievable.

Bus Journey Time Reliability

Reliable bus journey times provides certainty around departure and arrival time for passengers it also allows for a more efficient bus network that can be planned with greater certainty. Options with longer routes and which are more likely to be caught in traffic congestion score poorly under this criterion.

Traffic Network

The anticipated traffic impact expected to be incurred by motorists using private vehicles as a result of the different route options was assessed under this criterion. The disadvantages experienced by motorists in respect of reduced junction capacity and restricted movements will be considered.

5.3 Accessibility Impacts

Access to Key Facilities, Recreation, Jobs and Education

This criterion measures the impacts on the general public's ability to access key services such as healthcare, retail, employment, education and recreation.

For the specific bus routing assessments undertaken in Chapter 7, this criterion was further broken down with two additional sub-criteria used:

Population and Employment Catchments

To assess the potential population and employment catchments for busses the walking distance from bus stop locations along each route was analysed using the network analyst module of ArcGIS to create walk time isochrones from each stop. The distances to the stops correlate to walk times of five, ten and 15min intervals and were estimated based on an average walking speed of 5kph. The population and employment within the isochrones were then calculated based on planning data received from the NTA at CSO small area and work zone level. Where just a portion of a small area fell within the walking catchments the portion of the population/employment within walking distance was estimated proportionally based on area.

Key trip attractors

Trip attractors within a 15-minute walk from stops along a scheme are compared in order to determine schemes which would generate demand for buses along the route (separate to residential and employment populations). Key trip attractors such as schools, universities, retail and commercial centres, hospitals, transport hubs and employment centres are considered in this analysis.

5.4 Social Impacts

Mobility & Vision Impaired Road Users

This criterion assesses the quality of the facilities provided for mobility and vision impaired road users as part of each option.

5.5 Land Use Impacts

Public Realm and Amenities

This criterion examines each option's impact on access and use of the public realm, broadly defined as those areas of the town to which the public has access. This includes streets, footpaths, parks, squares, bridges and public buildings and facilities. Such amenities and public spaces are an important element in contributing to community and personal wellbeing. As such, it is important to consider the potential social impact of scheme options on the public's ability to safely interact and sustainably utilise local amenities and public spaces.

5.6 Safety Impacts

Road Safety

This criterion looks at road safety risks present for all road users in each the options.

5.7 Climate Change Impacts

Climate Mitigation

Emissions from the transport sector are one of the most significant contributors to Irish emissions of greenhouse gases (GHGs) and greenhouse gas equivalents (GHGs). Greenhouse gases and their equivalents contribute to climate change and can also lead to other environmental issues such as acid rain. Transport projects and programmes can have both positive and adverse direct impacts on emissions. This criterion assess the likely change in GHG emissions resulting from each option using outputs from the local area traffic model.

5.8 Local Environment Impacts

Air Quality

Provision of infrastructure has the potential to impact on air quality, these effects are compared for each scheme option under this criterion. The impact is quantified on whether the source of the air pollution (exhaust fumes) has increased or reduced in locations close to sensitive receptors.

Noise and Vibration

Provision of infrastructure has the potential to impact on air quality, these effects are compared for each scheme option under this criterion. The impact is quantified on whether the source of the air pollution (car traffic) has increased or reduced in locations close to sensitive receptors.

Biodiversity

This criterion looks at the impacts on biodiversity, for example, through removal of trees/hedges or creation of new pollinator friendly planting. These impacts are compared for each scheme under this criterion.

Water Resources and Soils and Quality

Construction of infrastructure has the potential to impact on soils and geology. For example, through land acquisition and ground excavation. There is also the potential to encounter ground contamination from historical industries. These considerations are compared for each scheme under this criterion.

The provision of infrastructure may also include aspects (eg: increased run off, or new sustainable urban drainage measures) with the potential to impact on hydrology or water resources. Any such impacts are considered for each option under this criterion.

Landscape and Visual Quality

Schemes have the potential to impact on the landscape and visual aspects of the area, for example, by the removal of front gardens or green spaces or the altering of streetscapes, character and features. Different schemes are compared, and any effects considered under this criterion.

Cultural and Heritage

Effects on archaeological heritage can be considered in terms of impacts on below ground archaeological remains, historic buildings (individual and areas), and historic landscapes and parks. The construction, presence and operation of transport infrastructure can impact directly on such cultural heritage resources through physical impacts resulting from direct loss or damage, or indirectly through changes in setting, noise and vibration levels, air quality, and water levels. Potential impacts of each scheme on Recorded Monuments and Protected Structures (RMPs) are assessed and compared. Potential impacts on Sites of Archaeological or Cultural Heritage, Architectural Conservation Areas and on buildings listed on the National Inventory of Architectural Heritage are also assessed and compared under this criterion.

6. OPTION SELECTION

This options assessment exercise builds upon the work that was done as part of the Summer Streets programme in 2020. During the trial process several options were tested in order to determine the appropriate extents of the pedestrianised area, the access and loading arrangements and location of bus stops, as well as many other issues. The layout of the Summer Streets scheme was iteratively developed over the course of the trial period and issues were resolved on site as they arose.

An evaluation of the Summer Streets programme found that it met the objectives set out at the outset and delivered significant environmental and social benefits which in turn supported some economic improvements locally. The study concluded that a permanent scheme would enable local businesses to further capitalise on the increased footfall and improved public realm to grow, and that the overall attractiveness and liveability of the area would also be positively impacted in the long term. See the Summer Streets Dún Laoghaire Evaluation Report (linked below) for more details of this.

https://www.dlrco.ie/sites/default/files/atoms/files/dl_summer_streets_evaluation_report_f0.pdf

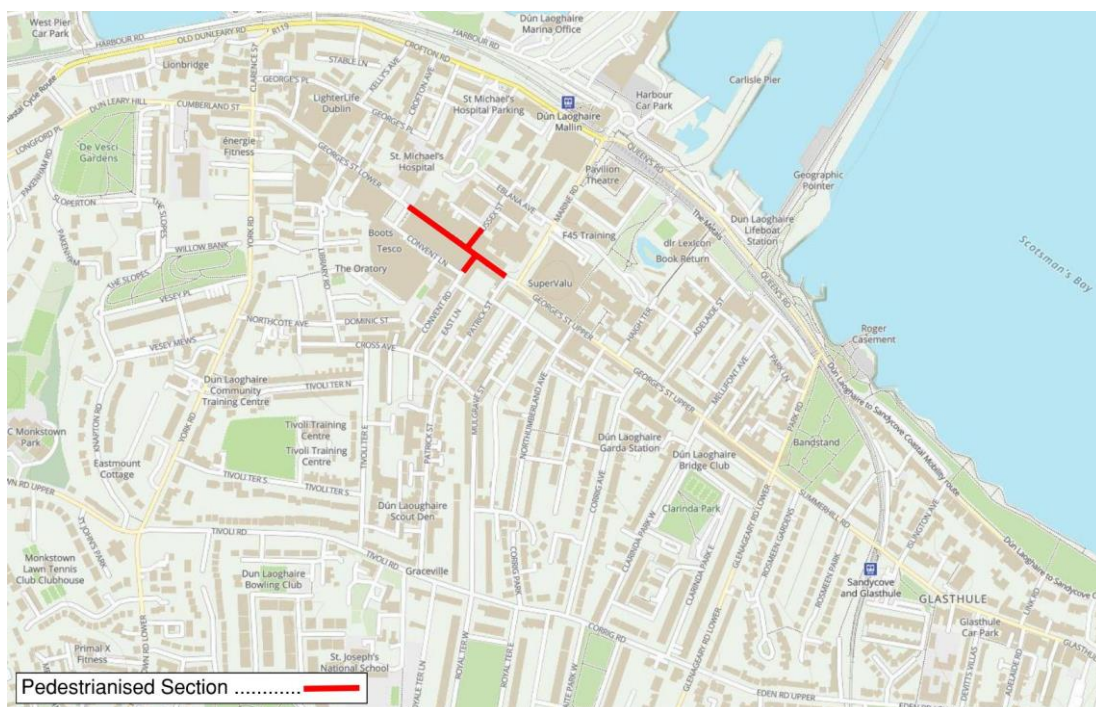
6.1 Options Development

Several options were developed in order to find the scheme that best meets the project objectives. The options that were developed are discussed one-by one in this section of the report.

Options were tested using a detailed local area traffic model to predict the impacts they would have on the wider traffic network. See the Living Streets Dún Laoghaire: Traffic Modelling Report for more details on this exercise.

Option 1

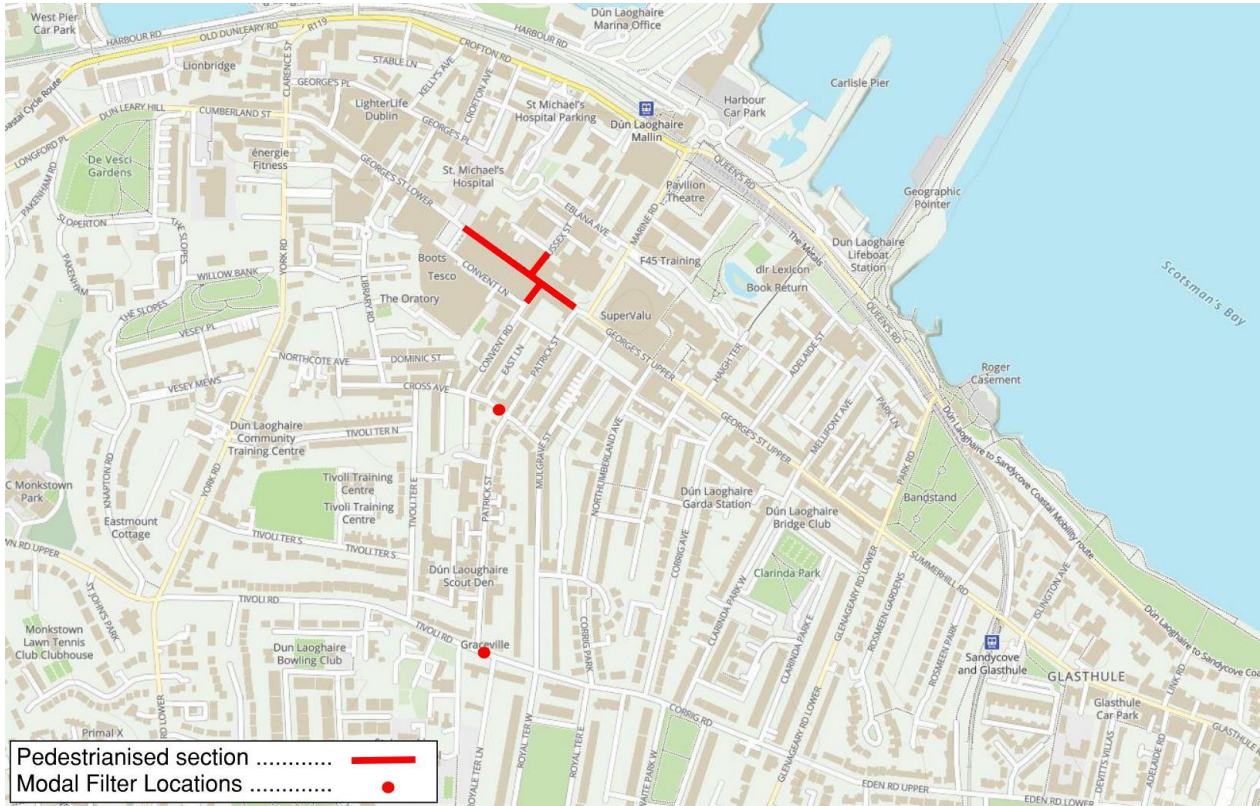
This option pedestrianises George’s Street as per the Summer Streets layout (between Patrick Street and Myrtle Square) and makes no other changes to the street network.



Option 2

This option pedestrianises George's Street and creates new modal filters on Tivoli Road and Cross Avenue. These modal filters would prevent the passage of vehicular traffic at these points but would allow pedestrians and cyclists to pass through.

The locations of these modal filters resulted in a predicted reduction of through traffic in the area, however some routes would remain open to car traffic and these routes would see a significant increase in traffic (such as the route from George's St Upper to Tivoli Road via Patrick St).

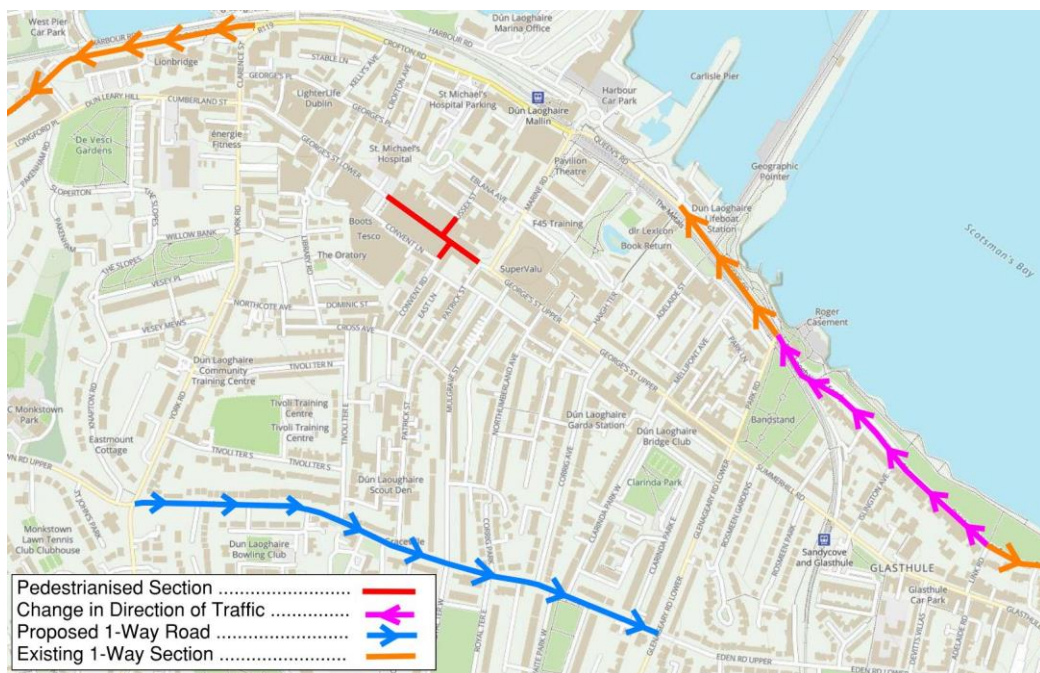


Option 3

This option pedestrianises George's Street, it also proposes to reverse the direction of traffic flow along the Coast Road between Link Road and Park Road and to make Tivoli Road an eastbound only 1-way road.

The change of Tivoli Road to a one-way street would mean that there would no longer be any westbound traffic on the road. The road would remain open to eastbound traffic and this route would continue to be used by through traffic and HGVs, speeds and volumes of vehicular traffic would remain high in this direction and also on side streets such as Patrick St and Mulgrave St. As all streets remain open for through traffic, the volumes of vehicles would be too high for it to be considered appropriate to mix cyclists with car traffic, and to encourage a significant mode shift to walking and cycling. There would also be a concern that making the road one way would encourage increased vehicle speeds which would reduce road safety.

On this option there is a risk that some motorists may choose to drive the wrong way down Tivoli Road for short distances to avoid long detours, which would also pose a safety risk.

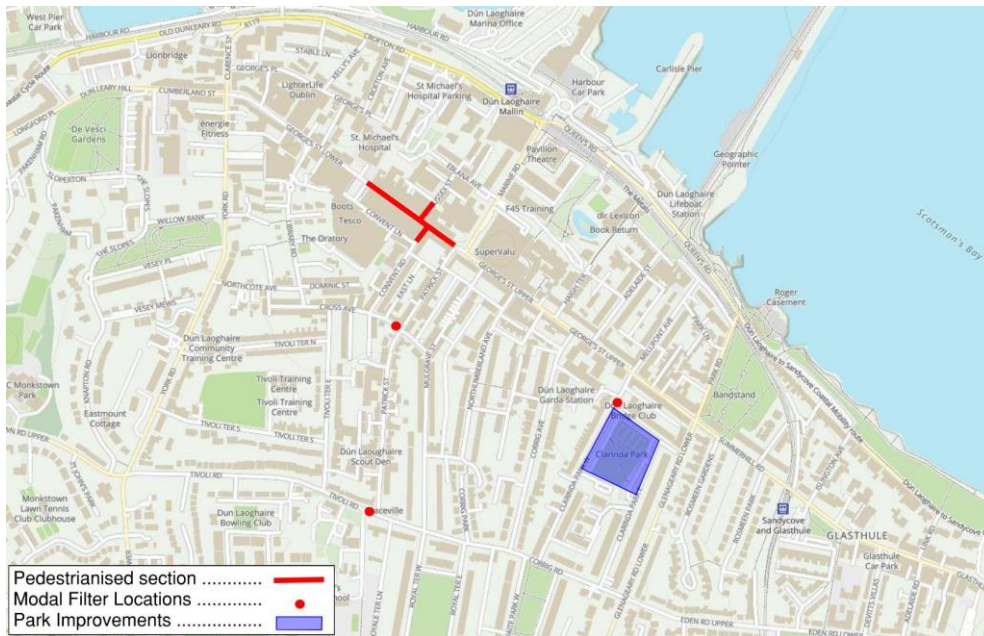


Option 4

This option pedestrianises George’s Street and creates new modal filters on Tivoli Road, Clarinda Park, and Cross Avenue.

The arrangement of the modal filters in this option was found to eliminate all through traffic from the area between George’s St Lower and Tivoli Road. No through routes would remain open and the levels of car traffic would fall considerably, all through trips for HGVs are also removed. The quieter street network would be more attractive for walking and cycling and would promote a modal shift to more sustainable forms of transport.

The inclusion of a modal filter on Clarinda Park West also facilitates the redevelopment of the park. On this option the car parking within the park would be removed to increase the size of the park and return it to its historical boundaries. The park would be fully upgraded with new amenities, landscaping, and tree planting.

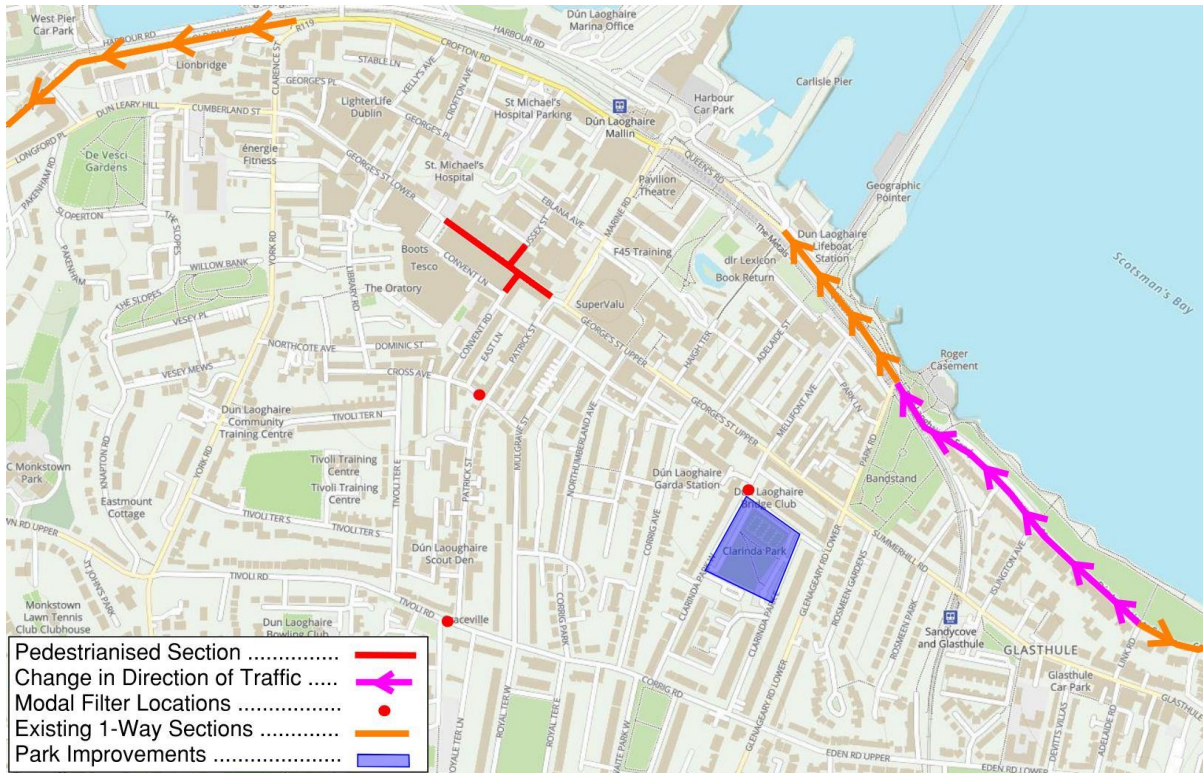


Option 5

This option is similar to Option 4 but also reverses the direction of traffic along the coast from eastbound to westbound between Link Road and Park Road.

This option performs similarly to Option 4, however the change of direction on the Coast Road allows traffic to by-pass the junction of Park Road and Summerhill when travelling west. This was found to greatly reduce the pressure on this junction, allowing the traffic network to operate more efficiently and reducing the delays for buses passing through this junction.

The same improvements to Clarinda Park as Option 4 are also proposed in this option.



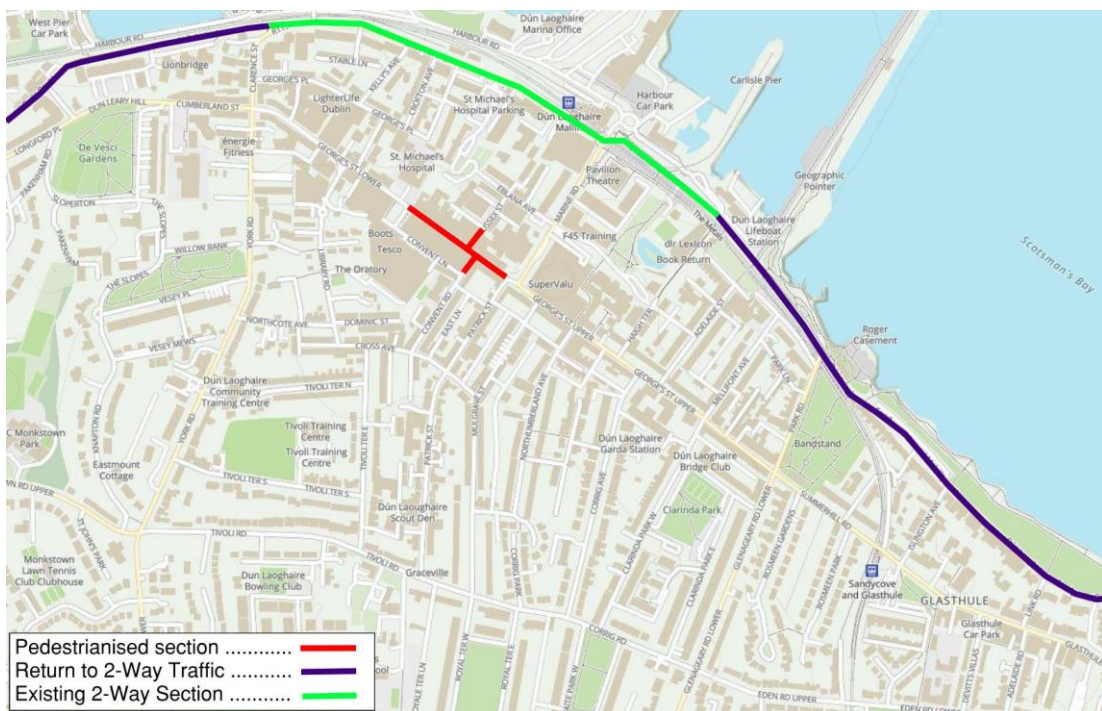
Option 6

This option reintroduces two-way traffic along the coast and removes the temporary segregated cycle track. The layout of the Coast Road on this option would be similar to what was in place before the temporary measures for the Coastal Mobility Route were introduced in 2020. This option includes the pedestrianisation of George’s Street but does not include any modal filters.

The removal of the cycle lanes would see cyclists mixing with general traffic (which would have safety issues), switching to travelling by car (which has environmental and health disbenefits), or choosing not to travel to Dun Laoghaire at all. Travelling by bike is a more efficient use of road space and on a busy day the existing cycle lanes on the Coastal Mobility Route can support more trips by bicycle than could be made by car if the lanes were removed, bike parking also takes up significantly less space. If all of the daily trips on the Coastal Mobility Route switched to the car there isn’t sufficient parking in Dun Laoghaire to accommodate them. This route supports local trips to Dun Laoghaire which frees up road space and parking for those that drive from further away. This option does not meet any of the objectives for supporting sustainable transport and active travel.

The cycle facilities on the Coastal Mobility Route were studied by a team from Technical University Dublin who found that is the highest-performing cycle route within the DLR county area and is one of the best performers across Dublin. It also found that the cycle route is well-used by a wide range of age groups and has significantly more female cyclists than the national average. A recurring theme in the interviews was the recognition that active travel policies were innovative, progressive and aligned with international best practice. Despite reservations regarding some design elements of the CMR, most respondents agreed that a shift to more sustainable forms of mobility was inevitable or how Ireland needs to move towards. They also felt that being early adopters reflected positively on the area as a whole. Copies of the various reports prepared by TUD can be found at the link below.

<https://www.tudublin.ie/explore/news/tu-dublin-studies-find-that-the-coastal-mobility-cycle-route-in-dun-laoghaire-has-become-well-established-and-effective.html>



6.2 Options Assessment

The table below summarises the multi criteria analysis of the various options.

Living Streets: Dún Laoghaire Multi-Criteria Analysis								
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Do Nothing
Capital Cost	Capital Cost	Red	Red	Red	Red	Red	Red	Green
Transport User Benefits and Other Economic Impacts	Pedestrians	Light Green	Light Green	Light Green	Green	Green	Light Orange	Red
	Cyclists	Light Orange	Light Green	Light Green	Green	Green	Red	Light Yellow
	Public Transport	Light Orange	Red	Light Orange	Red	Light Orange	Light Orange	Green
	Traffic Network	Light Orange	Light Orange	Light Green	Red	Light Orange	Green	Green
Accessibility	Access to Key Facilities, Recreation, Jobs and Education	Light Green	Light Green	Light Green	Light Green	Light Green	Light Orange	Light Green
Social Impacts	Mobility & Vision Impaired Road Users	Light Green	Light Green	Light Green	Light Green	Light Green	Red	Light Orange
Land Use Impacts	Public Realm and Amenities	Light Green	Light Green	Light Green	Green	Green	Light Orange	Red
Safety Impacts	Road Safety	Light Green	Light Green	Light Orange	Green	Green	Red	Light Orange
Climate Change Impacts		Light Green	Light Green	Light Green	Green	Green	Red	Red
Local Environment Impacts	Air Quality	Light Green	Light Green	Light Green	Green	Green	Light Orange	Light Orange
	Noise & Vibration	Light Green	Light Green	Light Green	Green	Green	Light Orange	Light Orange
	Biodiversity	Light Green	Light Green	Light Green	Green	Green	Light Green	Light Orange
	Water Resources & Soil Quality	Light Green	Light Green	Light Green	Green	Green	Light Green	Light Orange
	Landscape & Visual Quality	Light Green	Light Green	Light Green	Green	Green	Light Green	Light Orange
	Cultural & Heritage	Light Green	Light Green	Light Green	Green	Green	Light Green	Red

Capital Cost

The Do-Nothing option presents significant advantages as it does not cost anything. All ‘do something’ options are considerably more expensive.

Transport User Benefits and Other Economic Impacts

For Pedestrians, the Do-Nothing Option presents significant disadvantages as it does not propose to pedestrianise George’s Street. Option 6 presents slight disadvantages as it returns the coastal route to a 2-way road, introducing significantly more traffic along the route and making it less safe for pedestrians. Options 1, 2, and 3 present slight advantages as they pedestrianise George’s St Lower. Options 4 and 5 present significant advantages as pedestrianise the street and also create safer walking routes to and from the town through the introduction of modal filters which eliminates through traffic on these streets.

For Cyclists, Option 6 presents significant disadvantages as it removes cycling facilities from the Coast Road. Option 1 presents slight disadvantages as it increases the amount of traffic in the area between George’s Street and Tivoli Road, making it less safe for cyclists. Options 2 and 3 present slight advantages as they slightly reduce car traffic in the area. Options 4 and 5 significantly reduce the car traffic in the area and so increase safety for cyclists in the area.

For Public Transport, Options 2 and 4 present significant disadvantages as the pedestrianisation of George's Street calls for a re-routing of the bus network, the presence of modal filters could lead to more congestion on bus routes and no mitigation measures are proposed. Options 1, 3, 5 and 6 present slight disadvantages as they also require a re-routing of the bus network, but mitigation measures are proposed to reduce traffic on bus routes. The Do-Nothing Option present significant advantages as it does not change the bus network in any way.

Regarding the vehicular traffic network, Option 4 provides significant disadvantages as it proposes three modal filters and the pedestrianisation of George's Street with no mitigating measures. Options 1, 2 and 5 present slight disadvantages as the proposed developments will cause disruptions to the existing traffic network. Option 3 presents slight advantages as it does not include any modal filters. Finally, Option 6 and the Do-Nothing Option present significant advantages as Option 6 prioritises vehicular traffic on the Coast Road and the Do-Nothing Option does not include the pedestrianisation of George's Street Lower.

Under Transport User Benefits and Other Economic Impacts as a whole, Option 5 is preferred. This recommendation is based on the road user hierarchy outlined in the National Investment Framework for Transportation Infrastructure and the Design Manual for Urban Roads and Streets which places active modes at the top, followed by public transport and then car traffic.

Accessibility

This criterion measures the impacts on the general public's ability to access key services such as healthcare, retail, employment, education and recreation.

Access to services and recreational facilities by walking, cycling and cargo bike will be improved on Options 1-5 and new accessible bike parking would be provided close to key services. These modes would become safe and more attractive choices. Options 4 and 5 would create safer routes to and from the town and in particular for children and parents travelling to Dominican Primary School and St Joseph's National School. Option 6 would significantly reduce accessibility for cyclists as the segregated cycling route along the coast would be removed.

All 'do something' options would result in changes to the bus network, the existing bus stop on George's St Lower at Argos would be removed and passengers would instead need to walk to the next closest stop on either Marine Road or York Road (each are approx. 250m way). A key consideration under this criterion is access to St Michael's Hospital. To help with this assessment a mobility survey was undertaken to determine what mode of transport all patients and visitors take to reach the hospital. The survey was carried out on Tuesday 9th of May and Wednesday 10th of May between the hours of 8am and 6pm and a total of 745 people were surveyed. A summary of the travel choices to the hospital is shown below in Figure 21.

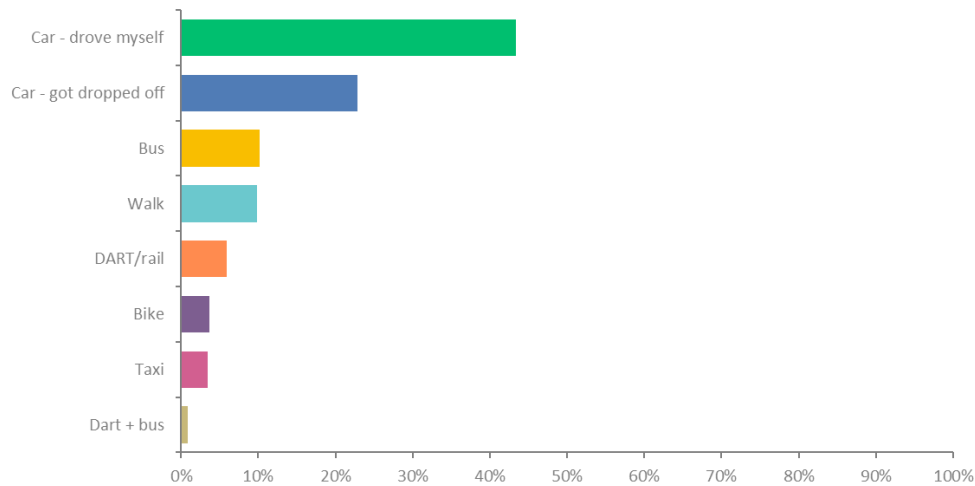


Figure 22: Travel Choices to St. Michael's Hospital

For the 76 users taking the bus to the hospital over a two-day period, the survey identified that their final destination was the following stops: 24% got off at the Argos stop opposite St. Michael's hospital, 24% got off at Marine Road, 18% got off at George's Street Upper and 15% got off at Crofton Road.

For those stopping at Argos (18 people), 78% indicated that they would be willing to walk to the next nearest bus stop if the bus routes were diverted. The Summer Streets assessment recommended that consideration be given to providing alternative options to access the hospital for bus users. This project team considered rerouting local bus services to provide access to the hospital from George's Place, but this was not considered feasible due to the width of the streets. A shuttle bus service was also considered that would run along George's Street. Finally, and 'on demand' taxi service was also considered to provide a dedicated collection option for people that currently get the bus. Following the mobility survey, it was concluded that there is not sufficient demand for any of these facilities and that the proposed pedestrianisation does not significantly impact the users of the hospital that access it by bus. All other access options e.g. car, walk, cycle are not impacted by the proposed scheme. The full survey can be found in Appendix A.

Access to all services by car will remain possible, although on some options, some journeys may take slightly longer (2-4 mins) due to the presence of modal filters.

On balance, Options 1,2,3,4,5 and the Do-Nothing Option have been scored equally under this criterion. Option 6 is the least preferred option as it significantly reduces accessibility by bicycle.

Social Impacts

Regarding Mobility & Vision Impaired Road Users, Option 6 provides significant disadvantages as it reintroduces two-way traffic along the coast at the expense of a segregated two-way cycle track, significantly reducing accessibility along the coast. The existing cycle track is well used by those with mobility scooters, cargo bikes, handcycles and tricycles. The Do-Nothing Option presents slight disadvantages as it does not offer any opportunities to increase accessibility. Options 1 through 3 present slight advantages as they offer some opportunities to increase accessibility along George's Street and some locations in the greater study area. Options 4 and 5 present significant advantages as they offer a large number of opportunities to increase accessibility along George's Street and in the area between George's Street, Tivoli Road, York Road and Glenageary Road Lower.

Land Use Impacts

For Public Realm and Amenities all 'do something' options score well as they provide a larger and more attractive public realm on George's St with new seating and rest areas. Options 4 & 5 score best as they also provide a significant upgrade to Clarinda Park that would provide new recreational amenities for the public.

Safety Impacts

Regarding Road Safety, Option 6 provides significant disadvantages as it returns two-way traffic along the coast at the expense of a segregated two-way cycle track, reducing road safety significantly for cyclists. The Do-Nothing Option presents slight disadvantages as it does not offer any opportunities to increase road safety. Options 1 presents slight advantages as it offers some opportunities for traffic calming measures. Option 3 is less preferred as speeds and volumes of traffic would remain high travelling eastbound on Tivoli Road and there are potential safety risks if motorists chose to ignore the one-way system to avoid circuitous journeys. Options 4 and 5 present significant advantages as they remove through traffic from the area, therefore greatly increasing road safety.

Climate Change

Options 6 would remove the existing high performing active travel infrastructure along the coast and would discourage people from cycling, as a result this scores poorly under this criterion. The Do Nothing Option would not provide any improvements in the area and scores similarly badly. Options 1-3 would provide some improvements for walking and cycling and area slightly preferable. Options 4 and 5 would encourage the biggest shift to sustainable transport modes as they create safer walking and cycling routes to and from the town, this would reduce the transport emissions in the area by the greatest amount and so these two options are most preferred under this criterion.

Local Environment Impacts

Regarding Noise, Vibration and Air Quality, Option 6 and the Do-Nothing Option provide slight disadvantages as Option 6 increases the amount of vehicular traffic along the coast, and the Do-Nothing Option does not present any improvements. Options 1, 2 and 3 present slight advantages as they slightly reduce traffic volumes in the area, and Options 4 and 5 present significant advantages as they greatly reduce the volume of traffic in the area.

Regarding Biodiversity, all the 'do something' options present slight advantages as they offer an opportunity for new tree planting and landscaping, therefore increasing the biodiversity present in the area. Options 4 and 5 also provide a large increase in green space and tree planting in Clarinda Park and so are the most advantageous.

For Soil Quality Water Resources, all the 'do something' options present slight advantages as they offer an opportunity for Sustainable Urban Drainage measures throughout the extent of the scheme. This would catch, store and treat rainwater to reduce the impacts on the stormwater drainage system. Options 4 and 5 are the most preferred as they would also replace paved areas in Clarinda Park with green space and add sustainable drainage features such as swales and raingardens to the park.

Regarding Landscape and Visual, all the 'do something' options present advantages as they offer significant opportunities to increase the visual aspect of the area through quality paving, street furniture and landscaping opportunities. Options 4 and 5 are the most preferred as they would also upgrade Clarinda Park with significant new areas of tree planting and landscaping.

Regarding Cultural and Heritage, all the 'do something' options present advantages as the pedestrianisation of George's Street Lower offers the opportunity to enhance the setting of protected structures and offers the opportunity to include new elements in the streetscape to highlight areas of historical interest. Options 4 and 5 are the most preferred as they also increase the size of Clarinda Park and restore it to its historical boundaries. The Do-Nothing Option presents significant disadvantages as it does not offer any of these opportunities.

Recommendation

Based on the above analysis Option 5 has been recommended as the preferred option for the following reasons

- It would pedestrianise George's St Lower creating a safe, pleasant, accessible, and attractive environment for pedestrians and encourage footfall to the town.
- It would create safer and quieter streets for pedestrians and cyclists on approach routes to the town and the two schools in the area, which will encourage a modal shift to walking and cycling.
- It would greatly increase road safety, reduce noise pollution, and improve air quality levels by removing through traffic from the area. Including removing all HGV through trips.
- It proposes mitigation measures to allow the traffic network to operate more efficiently and reduce delays for bus passengers when compared with Option 4.
- It would allow for substantial new tree planting and landscaping that would increase urban greening, biodiversity, and the attractiveness of the town.
- It would allow for sustainable urban drainage measures to be introduced that would improve the quantity and quality of water discharged to the stormwater network.
- It proposes the reintroduction of the historic park in Clarinda Park which achieves heritage objectives but also increased public realm, recreational, environmental and biodiversity objectives.

A further Options Assessment exercise was done to look at safety improvements

7. BUS ROUTING OPTIONS

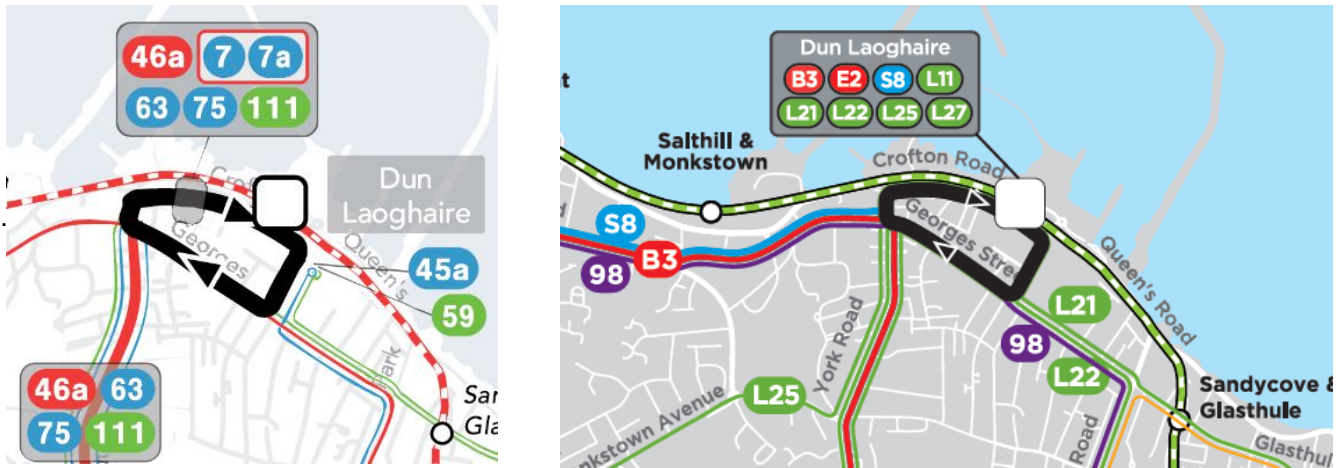
This chapter of the report discussed the impact of the proposed predestination of George’s St on the bus services to the town and assesses the various options available for rerouting of buses.

Existing Scenario

In the existing scenario, George’s Street is serviced by the 7, 7a, 45a, 45b, 46a, 59, 111, 63, 75 and 75a Dublin Bus Services. Buses travel in a clockwise loop going westbound along George’s Street Lower and eastbound on Crofton Road, the figure below on the left shows the existing bus routes.

Future BusConnects Scenario

As is shown in the figure below on the right, in the future scenario after the new BusConnects network has been implemented Dún Laoghaire will be serviced by the B3 and E2 spinal routes, the S8 orbital route, L11, L21, L22, L25 and L27 local routes and the 98 city bound route. Buses use the same clockwise loop as in the current scenario.



Existing and Proposed BusConnects Bus Network

Under the new BusConnects network Dún Laoghaire will be served by 10 different bus routes, for simplicity these have been split into the 3 categories based on the direction they approach from. The table below shows the frequency of each of the new bus lines from 8AM to 9AM for each of the sections

Weekdays 8AM to 9AM					
Section A		Section B		Section C	
Route No.	Buses Per Hour	Route No.	Buses Per Hour	Route No.	Buses Per Hour
S8	4	L11	3	L21	1
B3	4	L25	4	L22	4
98	1	L27	2	98	1
-	-	E2	7	-	-
Total	9	Total	16	Total	6

7.1 Assessment Process

The routes taken by busses that approach Dún Laoghaire from different directions have been assessed in the three separate sections below. Several potential options for the routing of busses have been considered and compared to one another.

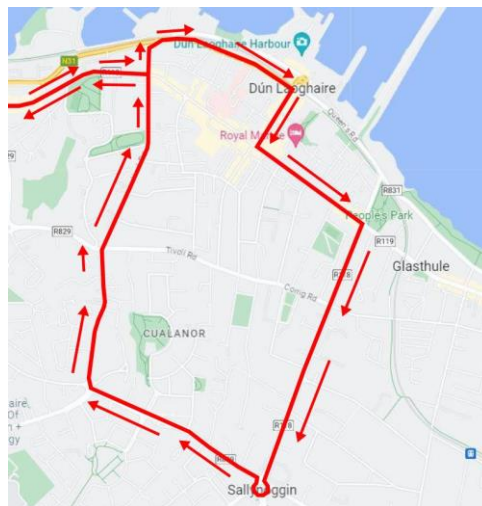
A further option that had busses routed via George’s Place, Crofton Ave and Charlemont Ave was also considered but was not considered to be feasible based on the narrow width of the streets.

Section A: Buses approaching from Monkstown Road/Blackrock direction

Nine buses per hour will approach from this direction on the new BusConnects network, these will be the S8, the B3 and the 98

Option 1

This option consists in outbound buses following Glenageary Road Lower to Sallynoggin, then turning onto Glenageary Road Upper and looping back towards Monkstown Road via Mounttown Road Lower and York Road. Inbound buses would follow York Road and Marine Road into Dún Laoghaire.



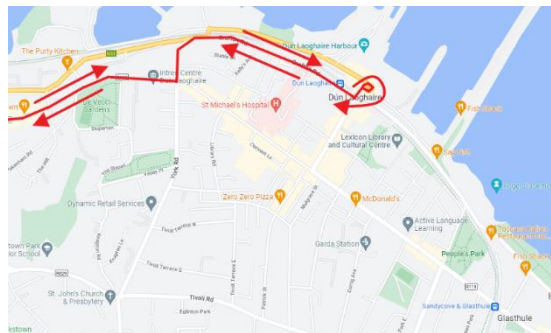
Option 2

This option would consist in inbound buses following York Road, Mounttown Lower, Glenageary Road Upper, Glenageary Road Lower and George’s Street Upper into Dún Laoghaire, and outbound buses would follow the route the opposite way.



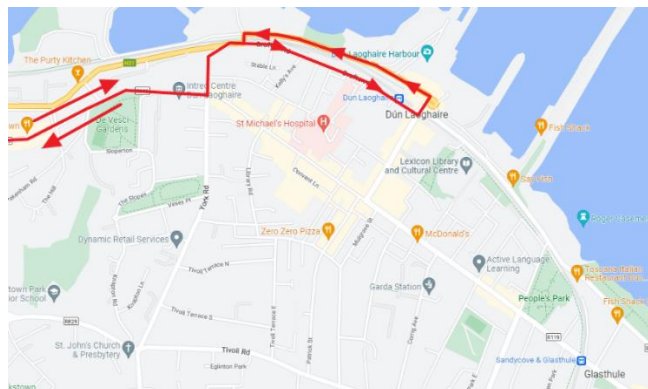
Option 3

This option consists in using Crofton Road and the Harbour Road roundabout to allow buses to return the same way as they arrive. Terminating busses could lay over on Crofton Road or within the harbour before picking up passengers on at the first stop of the return journey on Crofton Road across the road from the DART Station



Option 4

This option consists in buses using Crofton Road and then turning down Marine Road and circling back to Coal Quay Bridge via Harbour Road. Due to the high volume of busses terminating and laying over at the DART station it would not be possible for all busses to have their first and last stop on Crofton Road without doing a 2nd loop around Coal Quay Bridge, this would add unnecessary delays to the bus network.



Option Assessment

Bus Routing Section A						
Assessment Criteria	Sub-Criteria		Option 1	Option 2	Option 3	Option 4
Capital Cost	Capital Cost					
Transport User Benefits and Other Economic Impacts	Pedestrians					
	Cyclists					
	Public Transport	Average Bus Journey Time				
		Bus Journey Time Reliability and Consistency				
	Traffic Network					
Accessibility	Key Trip Attractors					
	Population and Employment Catchment					
Social Impacts	Mobility & Vision Impaired Road Users					
Land Use Impacts	Public Realm and Amenities					
Safety Impacts	Road Safety					
Climate Change Impacts						
Local Environment Impacts	Air Quality					
	Noise & Vibration					
	Biodiversity					
	Water Resources & Soil Quality					
	Landscape & Visual Quality					
	Cultural & Heritage					

Options 1 and 2 present disadvantages in terms of Average Bus Journey Time and Bus Journey Time Reliability and Consistency as they have significantly longer routes and pass through more junctions. Option 2 is worse than Option 1 for reliability as the inbound journey would be significantly longer than the outbound journey, which would make operations planning more difficult. Options 3 and 4 present advantages as they have far shorter and more direct routes. Option 4 would require some busses to loop around Coal Quay Bridge before returning to service which would add extra delays to the network and so is less preferable than Option 3.

Regarding Key Trip Attractors and Population and Employment Catchment, Option 2 has slight advantages as the bus could pick up more people on its a longer route. Option 1 presents slight disadvantages as it only covers areas on one leg of the route and would make two-way journeys more difficult. Option 3 presents slight disadvantages as it has a more direct route and serves fewer people and key trip attractors in the Dún Laoghaire area.

Recommendation

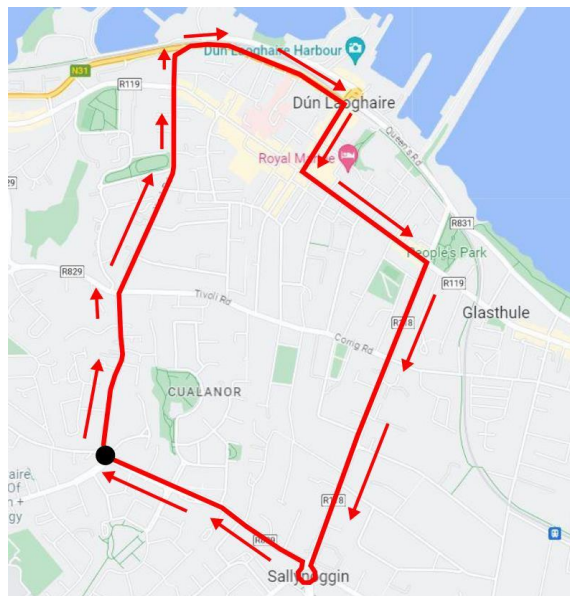
Option 3 is recommended as the preferred option as it has the shortest and most direct route and can facilitate bus stops on both sides of Crofton Road which would help with bus operations and layovers.

Section B: Buses approaching from York Road

16 buses per hour approach will from this direction in the new BusConnects network, these will be the L11, L25, L27 and the E2.

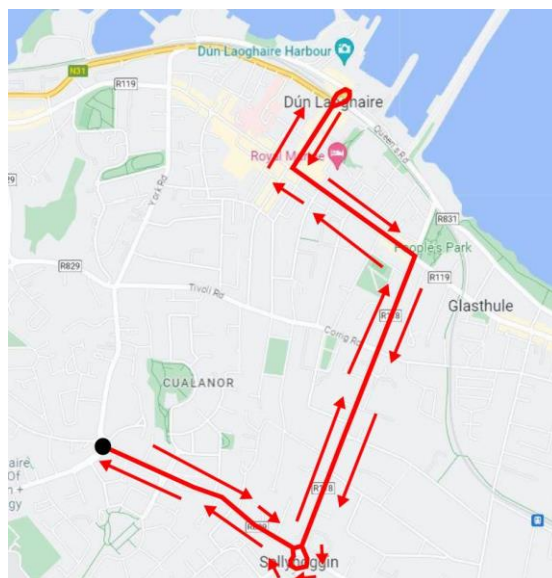
Option 1

This option consists in outbound buses following Glenageary Road Lower to Sallynoggin, then turning onto Glenageary Road Upper, then travelling outbound in their respective directions. Inbound buses would follow York Road and Marine Road to Dún Laoghaire.



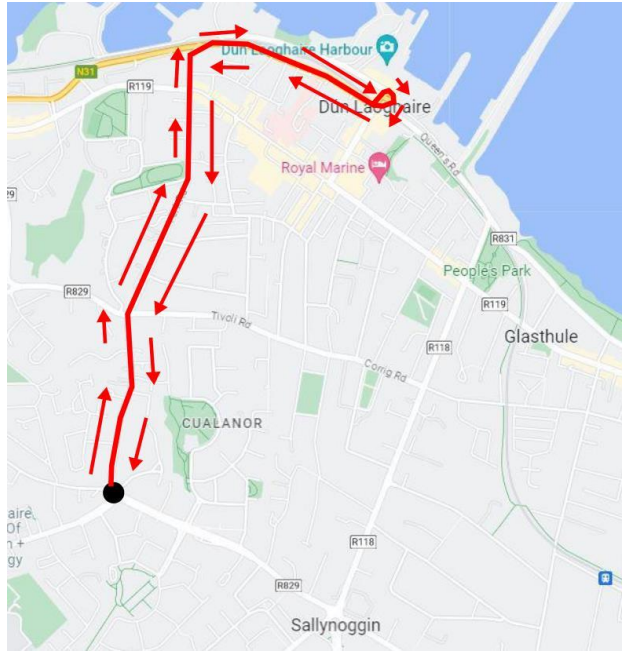
Option 2

This option would consist in inbound buses following Glenageary Road Upper, Glenageary Road Lower and George's Street Upper into Dún Laoghaire, and outbound buses would follow the route the opposite way.



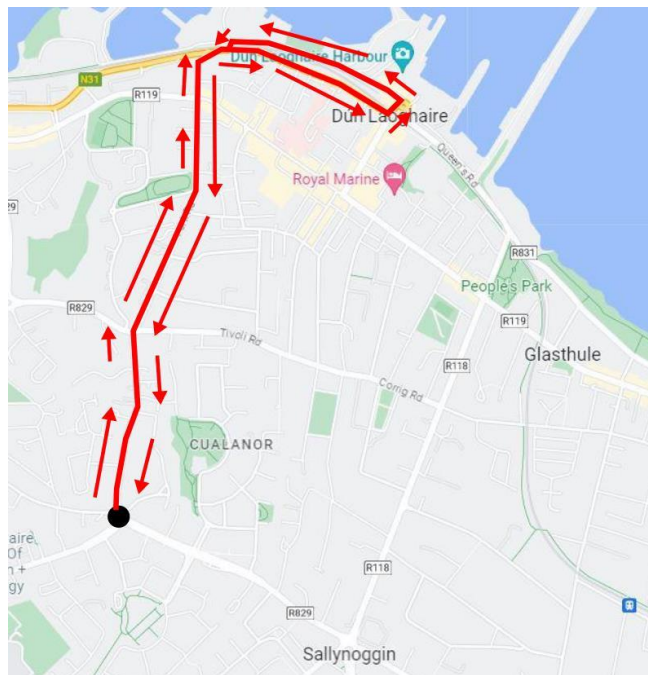
Option 3

This option consists in using Crofton Road the Marine Road roundabout to allow buses to return the same way as they arrive. Terminating busses could lay over on Crofton Road or within the harbour before picking up passengers on at the first stop of the return journey on Crofton Road across the road from the DART Station



Option 4

This option consists in buses using Crofton Road and then turning down Marine Road and circling back to Coal Quay Bridge via Harbour Road. Due to the high volume of busses terminating and laying over at the DART station it would not be possible for all busses to have their first and last stop on Crofton Road without doing a 2nd loop around Coal Quay Bridge, which would add unnecessary delays to the bus network.



Option Assessment

Bus Routing Section B						
Assessment Criteria	Sub-Criteria		Option 1	Option 2	Option 3	Option 4
Capital Cost	Capital Cost					
Transport User Benefits and Other Economic Impacts	Pedestrians					
	Cyclists					
	Public Transport	Average Bus Journey Time				
		Bus Journey Time Reliability and Consistency				
	Traffic Network					
Accessibility	Key Trip Attractors					
	Population and Employment Catchment					
Social Impacts	Mobility & Vision Impaired Road Users					
Land Use Impacts	Public Realm and Amenities					
Safety Impacts	Road Safety					
Climate Change Impacts						
Local Environment Impacts	Air Quality					
	Noise & Vibration					
	Biodiversity					
	Water Resources & Soil Quality					
	Landscape & Visual Quality					
	Cultural & Heritage					

Regarding Average Bus Journey Times and Bus Journey Time Reliability and Consistency, Options 3 and 4 present slight advantages as they are slightly shorter and pass through fewer junctions. Option 1 presents significant disadvantages in terms of Reliability and Consistency as the inbound and outbound routes are different lengths which would make operations planning difficult. Option 4 would require some busses to loop around Coal Quay Bridge before returning to service which would add extra delays to the network and so is less preferred than Option 3.

Regarding Key Trip Attractors and Population and Employment Catchment, Option 2 presents slight advantages as it serves a larger area than Options 3 and 4, and uses George’s Street Upper, contrary to Option 1.

Recommendation

Option 2 has some benefits as it better serves the eastern side of the town and picks up trip attractors along George’s St Upper and Marine Road on its route. However, after consultation with the NTA Option 3 has been recommended as the preferred option as this has the shortest and most direct route and can facilitate bus stops on both sides of Crofton Road. The shorter and more reliable journey time and the better

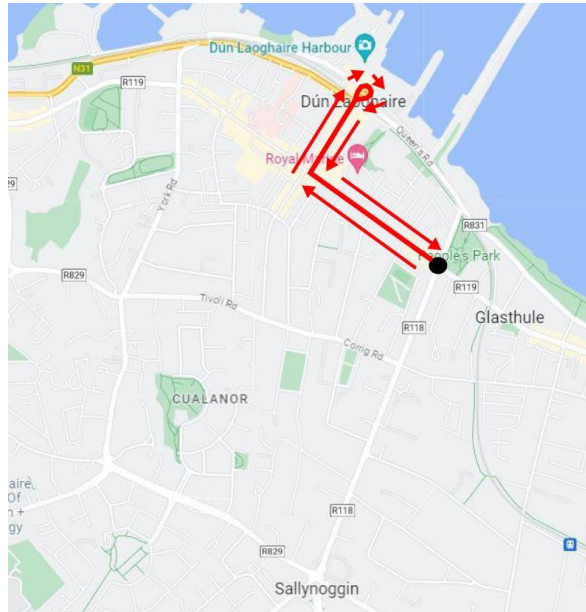
arrangements for drop off of passengers and layover of busses at the DART Station terminus will help the overall bus network run more efficiently.

Section C: Buses approaching from George’s Street Upper

6 buses per hour will approach from this direction in the new BusConnects network, these will be the L21, L22, 98.

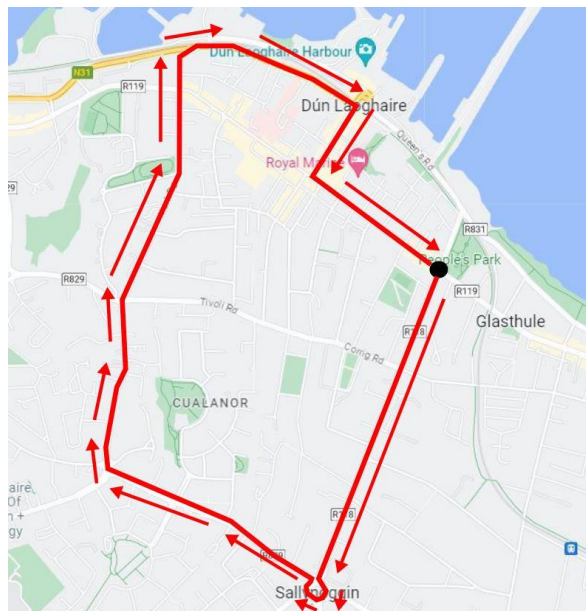
Option 1

This option consists in using George’s St Upper, Marine Road and then Harbour Road roundabout to allow buses to return the same way as they arrive.



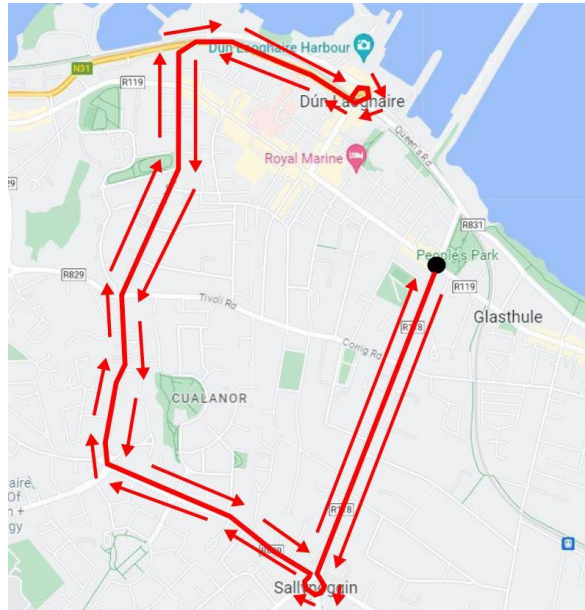
Option 2

This option consists in inbound buses following Glenageary Road Lower to Sallynoggin, then turning onto Glenageary Road Upper and following Mounttown Road Lower, York Road and Marine Avenue into Dún Laoghaire. Outbound buses would use George’s Street Upper to rejoin their respective bus routes.



Option 3

This option consists in inbound buses following Glenageary Road Lower to Sallynogin, then turning onto Glenageary Road Upper and following Mounttown Road Lower, York Road and Marine Avenue into Dún Laoghaire. Outbound buses would follow the same route the opposite way.



Option Assessment

Bus Routing Section C					
Assessment Criteria	Sub-Criteria		Option 1	Option 2	Option 3
Capital Cost	Capital Cost				
Transport User Benefits and Other Economic Impacts	Pedestrians				
	Cyclists				
	Public Transport	Average Bus Journey Time			
		Bus Journey Time Reliability and Consistency			
	Traffic Network				
Accessibility	Key Trip Attractors				
	Population and Employment Catchment				
Social Impacts	Mobility & Vision Impaired Road Users				
Land Use Impacts	Public Realm and Amenities				
Safety Impacts	Road Safety				
Climate Change Impacts					
Local Environment Impacts	Air Quality				
	Noise & Vibration				
	Biodiversity				
	Water Resources & Soil Quality				
	Landscape & Visual Quality				
	Cultural & Heritage				

Regarding Average Bus Journey Times and Bus Journey Time Reliability and Consistency, Option 1 presents significant advantages over Options 2 and 3 as the proposed route for Option 1 is much shorter, more direct and passes through far fewer junctions.

Regarding Key Trip Attractors and Population and Employment Catchment, Option 3 presents slight advantages in both categories as it covers a larger area due to its longer route length. Option 2 presents slight disadvantages as it serves much of the area in one direction only, making it less useful for two-way journeys.

Recommendation

Option 1 is recommended as the preferred option as it has the shortest and most direct route and does not involve any change from the planned routes used in the new BusConnects network.

8. EMERGING PREFERRED OPTION

The preferred option for the overall scheme is Option 5. A drawing of the full preferred scheme has been provided along with this draft report.

The impacts of the scheme on parking, bus routing and a preliminary cost estimate are discussed below in more detail.

8.1 Scheme Description

Living Streets Dún Laoghaire is a mobility and public realm improvement project which aims to enhance the attractiveness, liveability, connectivity, and economic vibrancy of Dún Laoghaire Town. The specific elements of the scheme are discussed in the sections below.

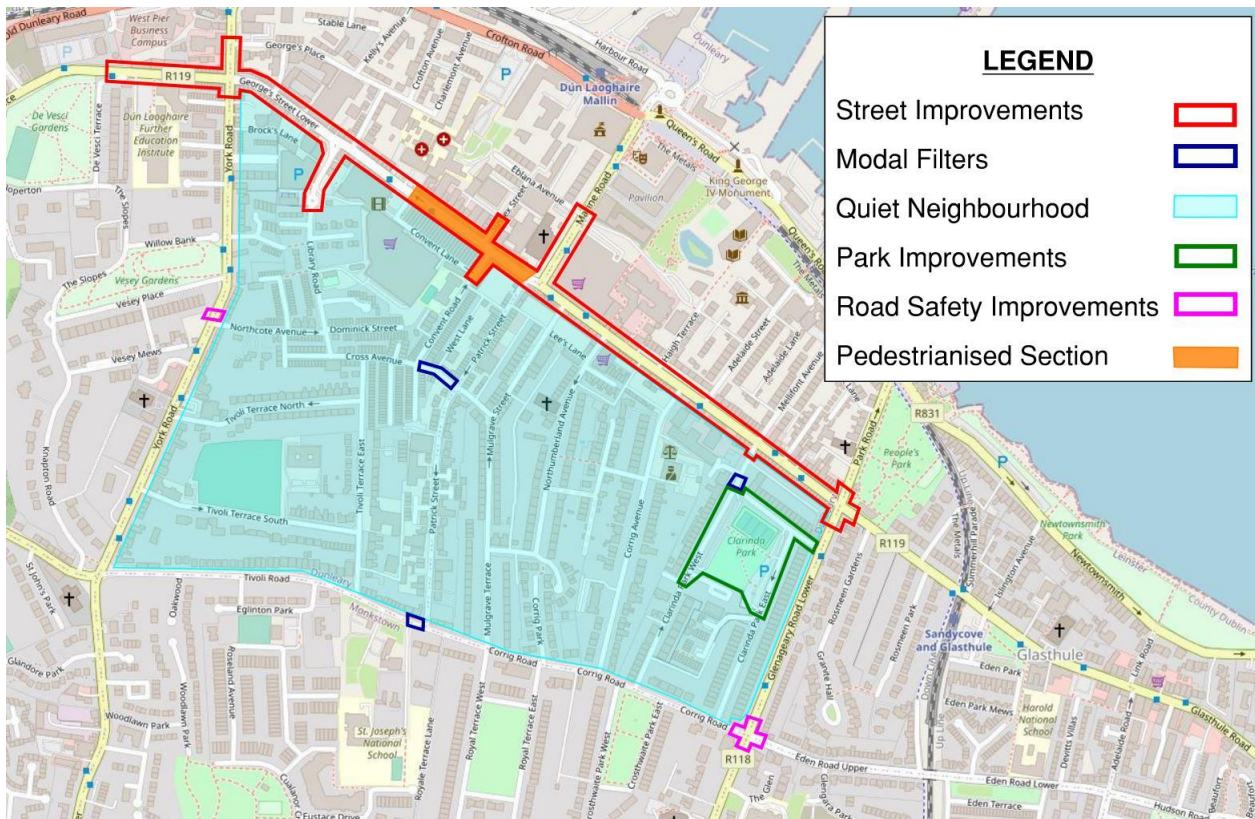


Figure 8-1: Scheme Overview Map

Street Improvements

The scheme will involve an upgrade of 1.2 km of George's St from the junction of De Vesce Terrace on Cumberland St to the junction by the People's Park. Footpaths on both sides of the road will be repaved using high quality durable granite paving, The road carriageway will be narrowed to a maximum width of 6m and the remaining space is proposed to be used to provide wider footpaths, seating and planting. Continuous footpaths will be provided across all side roads that will emphasise the pedestrian priority along this route. The scheme will provide high quality surfaces free of clutter and trip hazards and will remove any level differences between pedestrian areas. Permanent in ground planting, including approximately 100 new trees will be included in the works along with areas of low-level planting. Rain gardens will also be introduced, these areas of vegetation will catch and store rainwater during times of heavy rainfall reducing the burden on water treatment facilities. A new public lighting system will also be provided.

The scheme will pedestrianise 220m of George's St Lower from the junction with Patrick's St to St Michael's Hospital, the street will remain open to traffic in the morning to facilitate loading but will be fully closed to traffic outside of these hours. Two clear areas will be maintained on either side of the street and the central area of the street will feature new seating, planting, and areas for loading (as shown in the image below). Casual seating for local businesses will also be facilitated in this area. Sections of Convent Road and Sussex Street will also be pedestrianised, and these areas will see the creation of two small enclosed parklets



Figure 8.28-2: Typical Layout of the Pedestrianised Section of George's St Lower

Changes will be required to the parking system with 16 on street parking spaces being removed. There will be an increase in the number of disabled spaces from 9 to 14 and loading bays from 4 to 8. Increasing the number of disabled bays, paired with wider, level footpaths will increase accessibility throughout the town centre. The majority of loading bays will be hybrid loading/parking bays, meaning that outside loading hours, they can be used as regular car parking spaces. New electronic smart signage is being considered that will direct people to the various multi storey car parks in the town and identify the number of spaces that are free.

These street improvements will make the town more accessible, welcoming, vibrant and improve its attractiveness as a destination. It will enhance the economic vibrancy of Dún Laoghaire as a major town centre by facilitating the sustainable and efficient movement of people and goods, and by creating an environment that people want to linger in. This will encourage multi-purpose shopping, business, and leisure trips as part of the same journey. It will also provide an urban design that creates a safe and welcoming experience for all members of society, regardless of age, gender, ability, or income.

Modal Filters and Quiet Neighbourhood

The provision of the three modal filters (on Tivoli Road, Cross Avenue and Clarinda Park West) will remove through traffic from the area and make it easier and safer to walk and cycle within the town. These traffic calmed routes will enhance the connectivity for pedestrians and cyclists between George's Street and its surrounding areas. These interventions will also create safer walking and cycling routes to Dominican Primary School and St Joseph's National School. Key active travel routes will also be enhanced through the provision of continuous footpaths across side roads.

Modal filters are areas of road that are closed to car traffic but remain open to pedestrian and cycle traffic. This can be as simple as placing bollards on the road but in this case, they involve the creation of three new parklets, with permanent in ground planting and new seating areas.

A mobility study was undertaken to assess the impacts of the traffic management changes, all destinations will still be reachable by car (except for those located within the pedestrianised zone), although some trips would take slightly longer, (2-4 mins) after the modal filters are in place. The modal filters will improve the

environment by significantly reducing traffic and related noise and air pollution, including removal of all HGV through trips, and will create three new parklets with new planting and seating in public spaces.

Park Improvements

As part of this scheme a major upgrade is proposed to Clarinda Park. The car parking that is currently located in the park is proposed to be removed (loss of 66 spaces) and replaced with green areas, this would increase the size of the park and return it to its historical boundaries. Biodiversity will be increased using pollinator friendly planting and the creation of separate areas dedicated to providing high quality woodland and meadow habitat, new semi-mature native trees will also be planted throughout the park. New seating, artwork, and recreational amenities such as a climbing wall, rebound wall and picnic area are also proposed for the park.

Road Safety

This scheme also involves some additional road safety measures. The junction of Glenageary Road Lower and Corrig Road will be upgraded, this will remove street clutter from locations where the footpaths are narrow, reduce the length of pedestrian crossings and provide more footpath space for pedestrians waiting to cross the road. A new signalised pedestrian crossing is also proposed on York Road at Northcote Avenue to allow pedestrians to safely cross the road here, this will also serve as a traffic calming measure. Details of the options selection for this section of the scheme are available in Appendix B.

8.2 Impacts on on-street parking

The impact of the proposed scheme on the numbers of parking, loading and disabled spaces is shown in the table below.

Streets that are part of the scheme where the current parking bay/disabled bay/loading bay numbers are unchanged are not shown in this table.

Section	Existing			New		
	Parking	Disabled	Loading	Parking	Disabled	Loading
George's Street Upper	17	3	1	14 (-3)	3 (=)	1 (=)
Marine Road	0 (6 taxis)	4	0	0 (=) (6 taxis)	6 (+2)	0 (=)
George's Street Lower (pedestrian section)	0	0	1	0	0 (=)	1 (=)
Sussex Street	4	0	0	0 (-4)	0 (=)	1 (+1)

George's Street Lower	9	1	0	6 (-3)	3 (+2)	3 loading bays (+3) note the big loading bay is a hybrid loading/taxi
Cumberland Street	14	1	0	11 (-3)	2 (+1)	0 (=)
Cross Avenue	5	0	0	2 (-3)	0 (=)	0 (=)
Clarinda Park	319	3	0	252 (-67)	3 (=)	0 (=)
Total	368 + 6 taxis	12	2	285 (-83) + 6 taxis	17 (+5)	6 (+4) Includes 2 hybrid loading/taxi bays

8.3 Proposed Bus Routing

The proposed bus network after the construction of the Living Street: Dún Laoghaire project and the implementation the BusConnects network redesign is shown below. This bus network is the combination of the preferred bus routing options from Chapter 7 of this report.



8.4 Preliminary Cost Estimates

An initial cost estimate has been prepared based on unit rates per km and the estimated cost for the scheme is approx. €17.5m ex VAT.

Please note that this estimate is based on the limited amount of design information available at this stage of the project and is subject to change as the design becomes more developed.

This estimate includes for risk and contingency but is exclusive of VAT.

APPENDIX A – ST. MICHAEL'S HOSPITAL SURVEY



St Michael's Hospital Patient and Visitor Travel Survey *Results*

May 2023

Introduction

This document presents results from a travel survey of patients and visitors to St Michael's Hospital as part of the Living Streets Dún Laoghaire project.

The survey involved a series of closed-ended questions designed to determine:

- What mode of travel they use to get to the hospital that day.
- For those who travel by bus, what bus they took and which stop they arrived at.
- How many people get two buses within the town in order to be dropped directly outside the hospital outside Argos.



Survey Design & Methodology

M-CO* were appointed to administer and evaluate the survey. In consultation with St Michael's Hospital and Dun Laoghaire Rathdown County Council, the design of the survey balanced the need to achieve a robust sample size with rapid roll-out and data capture.

The survey methodology involved:

- Administering the survey over two days mid-week (Tuesday 9th May and Wednesday 10th May), between the hours of 8am and 4pm
- Four survey staff were on site each day to complete the survey with visitors in real time on tablets as they arrived at hospital entrances.
- Two staff were located at the main front door on George's Street Lower.
- One was at Charlemont Terrace (by Outpatients & Physio Departments)
- One staff at Annex Car Park (between heart failure entrance and main reception).
- As the Phlebotomy Clinic was operating a restricted service on the two days of on-site surveying, at the hospital request, paper versions of the survey were left at that clinic on another occasion during clinic hours to improve accuracy of the sample.
- If visitors/patients were clearly observed arriving by car, taxi or bike, their transport mode was marked on the form by the surveyor, with no need to interview them, unless to clarify that they were not staff.



*Note: M-CO are a strategic design and project management consultancy and are the public consultation consultants on the wider Living Streets Dún Laoghaire project team led by Barry Transportation Ltd.



Results

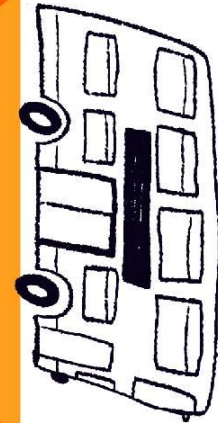


**Living
Streets**

Dún Laoghaire

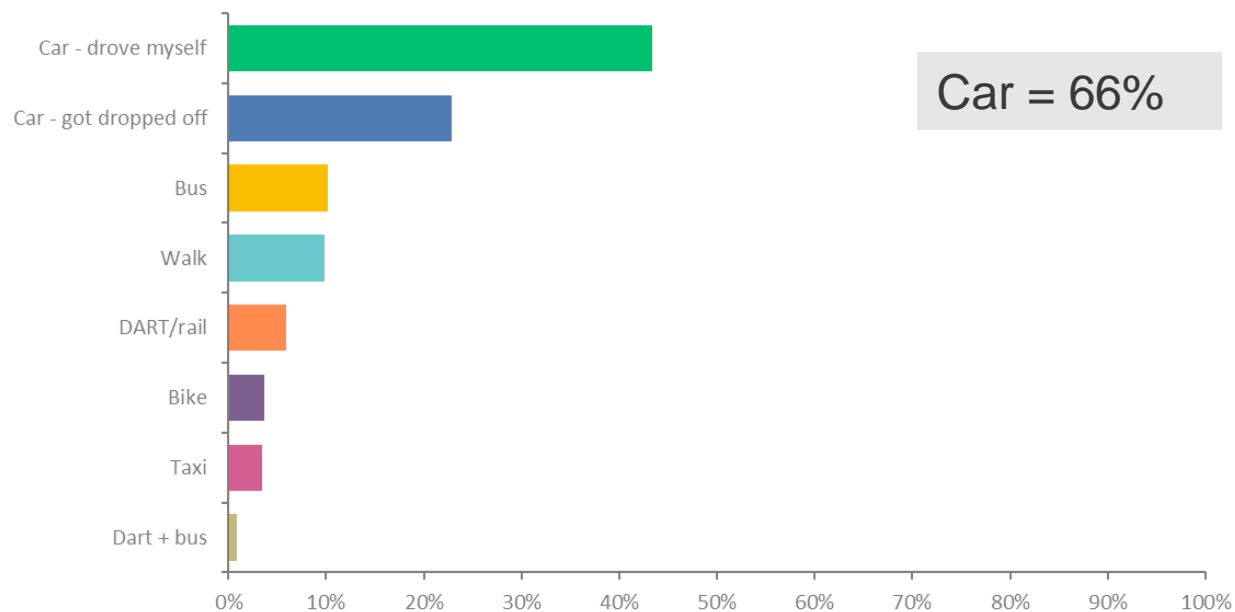
Summary - mode of travel

- Mode of travel to the hospital was captured for 745 people, across two days (average of 372 per day).
- Most patients and visitors arrived by car at 66%
 - 43% drove themselves
 - 23% were dropped off
- **Bus and walking** were the second most popular mode of travel after the car, at 10% each.
- 6% arrived by **DART / Rail**.
- 76 respondents in total got the **bus** to the hospital.
- 24% of these got off at the stop opposite St Michael's Hospital ('Argos' stop) and another 24% got off at Marine Road. These numbers are followed by Georges Street Upper (18%), and Crofton Road (15%).



Q1: How did you get to the hospital today?

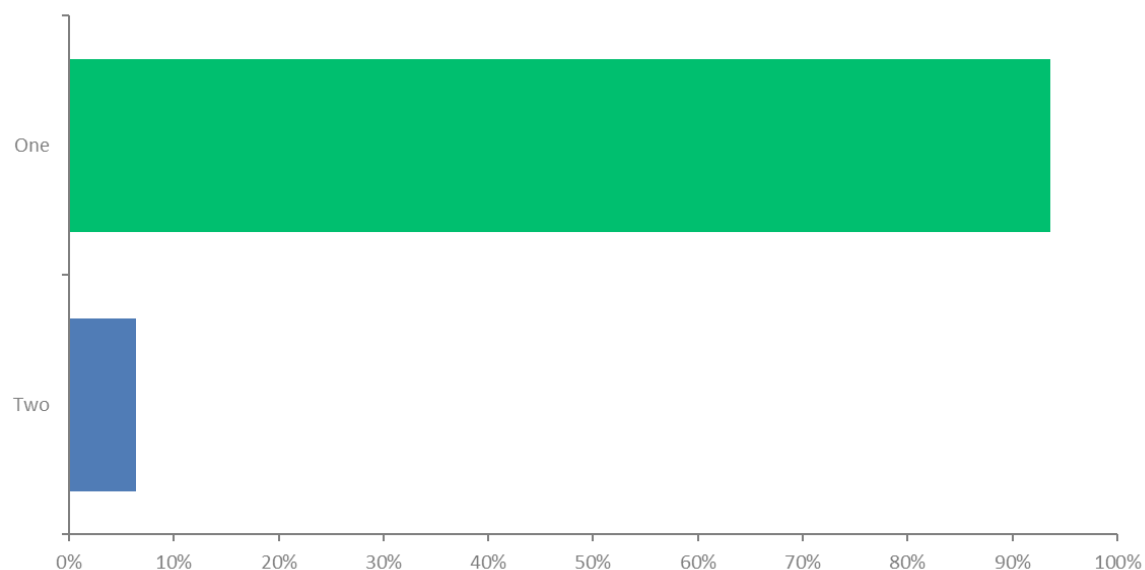
N = 745



Car = 66%

ANSWER CHOICES	RESPONSES
▼ Car - drove myself	43% 323
▼ Car - got dropped off	23% 170
▼ Bus	10% 76
▼ Walk	10% 73
▼ DART/rail	6% 44
▼ Bike	4% 27
▼ Taxi	3% 26
▼ Dart + bus	1% 6
TOTAL	745

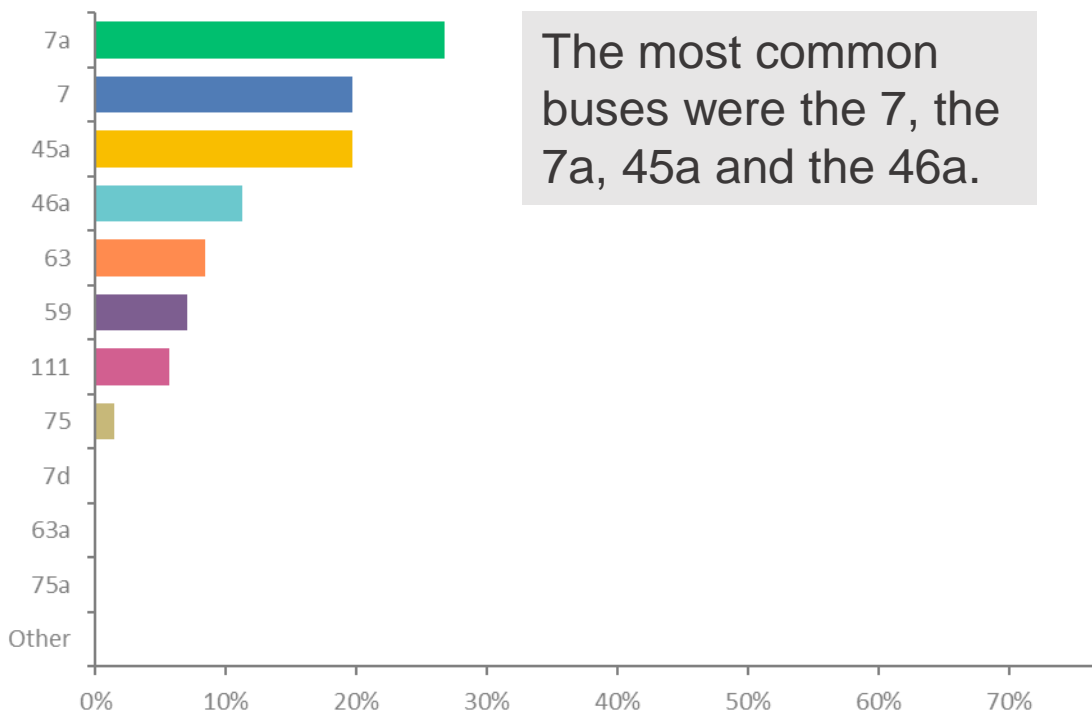
Q2: If you took the bus, Did you take one or two buses to get here?



Of the 76 people who got the bus, **most (71) took one bus to get there**

- 1 person got the DART & two buses.
- 3 people took two buses to get to the hospital.

Q3: What bus did you take?



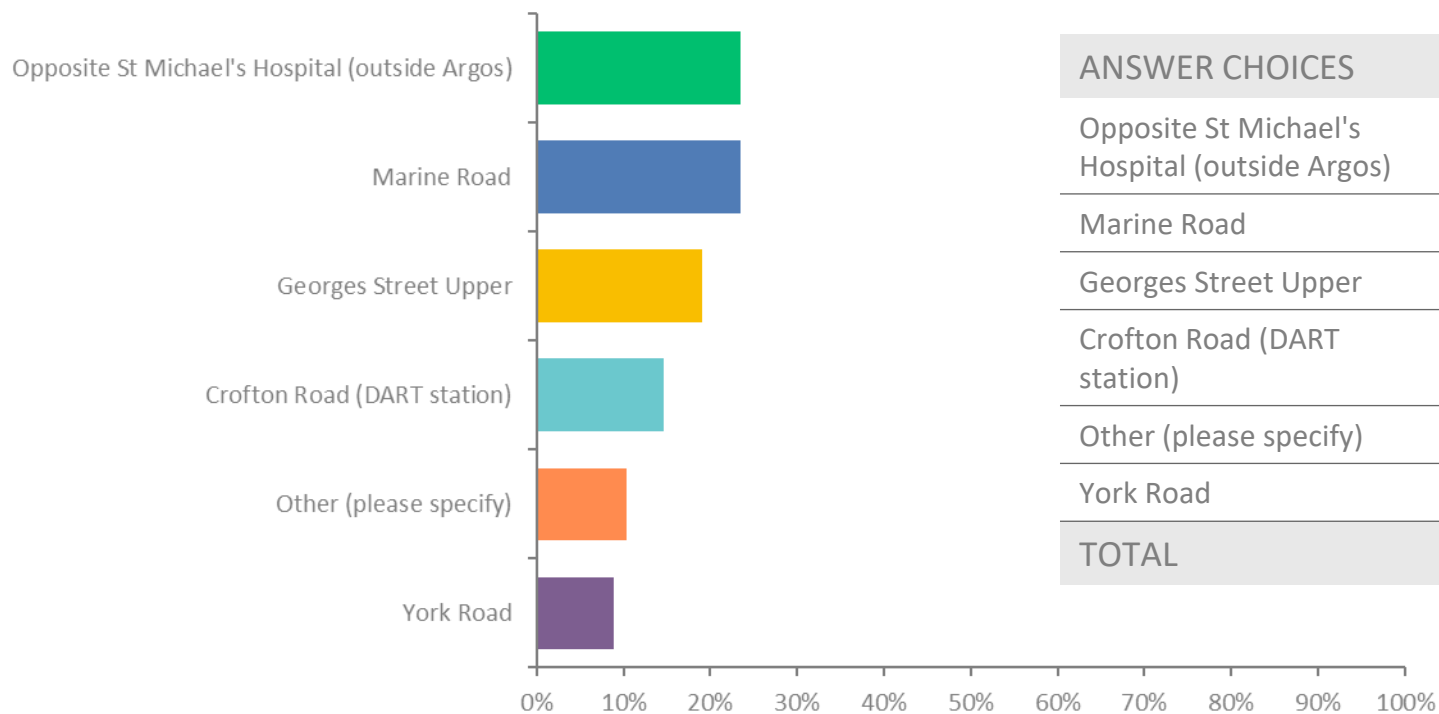
The most common buses were the 7, the 7a, 45a and the 46a.

ANSWER CHOICES	RESPONSES
▼ 7a	27% 19
▼ 7	20% 14
▼ 45a	20% 14
▼ 46a	11% 8
▼ 63	8% 6
▼ 59	7% 5
▼ 111	6% 4
▼ 75	1% 1
▼ 7d	0% 0
▼ 63a	0% 0
▼ 75a	0% 0
▼ Other	0% 0
TOTAL Respondents (Bus Users)	71

Total Sample: n= 745

Q4. What was your final stop?

16 people (24%) of 68 bus users got off opposite the hospital at Argos.



ANSWER CHOICES	RESPONSES	
Opposite St Michael's Hospital (outside Argos)	24%	16
Marine Road	24%	16
Georges Street Upper	18%	13
Crofton Road (DART station)	15%	10
Other (please specify)	10%	7
York Road	9%	6
TOTAL		68

Total Sample: n= 745

Q 5 – If the bus stop at Argos was removed, would you be willing to get off at any of the following stops?

14 people who got off at Argos answered the question on willingness to change stop.

11 of these people (or **78%**) stated they were willing to change stop to another location in Dun Laoghaire (Marine Rd, Georges St Upper, York Rd, Crofton Rd). Three stated that they would not be willing /able to change to an alternative stop from the Argos stop opposite the hospital.

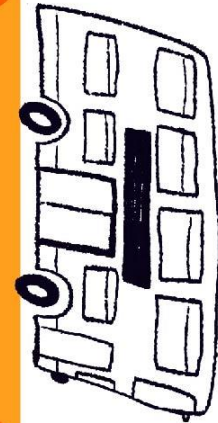
The preferred alternative stops are presented below.

Bus Stop	No. Respondents who would be willing to change
Marine Road	6
Georges Street Upper	5
York Road	2
Crofton Road	1



Bus Users – Summary of Insights

- Mode of travel was captured for 745 visitors over two days – which averages at 372 per day.
- 10% of people were found to arrive by bus daily (ave. 38 people per day).
- The most common buses taken were the 7, the 7a, 45a and the 46a.
- On average, 8 people each day (2% total daily visitors) get off at the Argos bus stop.
- Of those who get off at Argos, 78% said they were willing to change bus stop if the Argos stop was removed. Three people from our full sample said they were not willing/able to get off at an alternative stop within the town.



Thank you



APPENDIX B – GLENAGEARY ROAD LOWER TECHNICAL NOTE

Project Title:	Living Streets – Dun Laoghaire					
Document Title:	Glenageary Road Lower Options Assessment					
File Name:	22410-BTL-XX-DL-TN-CE-00157_Glenageary_Road_Lower_Technical_Note					
Issue Date	Revision Code	Suitability Code	Author(s)	Reviewer(s)	Approver(s)	Peer Reviewer(s)
	P01	S3	EP	RC	RC	

1 Introduction

1.1 Background & Purpose

During the Covid-19 pandemic, Dun Laoghaire-Rathdown County Council (DLRCC) trialed the Dun Laoghaire Summer Streets project. This project aimed at providing safe, welcoming, and people-friendly public space. DLRCC, in conjunction with the NTA, are currently working on developing permanent solutions for the area. Barry Transportation (BT) were appointed by DLRCC to develop permanent designs for a project that has been titled Living Streets: Dun Laoghaire. The purpose of this technical note is to detail the options available to improve pedestrian safety on Glenageary Road Lower.

1.2 Existing Scenario

Glenageary Road Lower is busy road with a narrow cross section. Traffic modelling showed that there approximately 400 vehicles using the road per hour in the morning peak and 600 per hour in the evening peak. Vehicle speeds are relatively low at peak times when the road is congested but are higher outside of these times. There is a 340m straight section between People’s Park and Corrig Road Junctions and vehicles can pick up speed here.

The 7, 7A and 45A buses also use Glenageary Road Lower as part of their route, and approximately 7 buses travel one-way on this road per hour. With the future BusConnects network, this road will be part of the 98, L22 and P12 routes, with approximately 6 buses travelling one-way per hour.

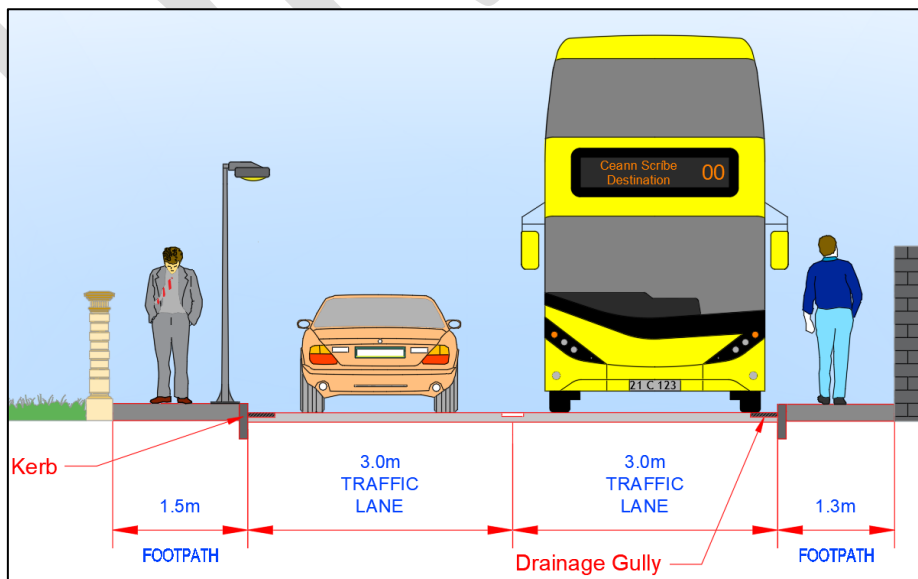


Figure 1: Typical Cross Section on Glenageary Road Lower

The combination of very narrow footpaths and high volumes and speeds of traffic makes this road difficult for pedestrians.

2 Options Considered

Option 1: Reallocation of pedestrian space

This option consists in reallocating half a meter of space from the western footpath's width to the eastern footpath. This would allow for a 1.8m footpath on the eastern side.

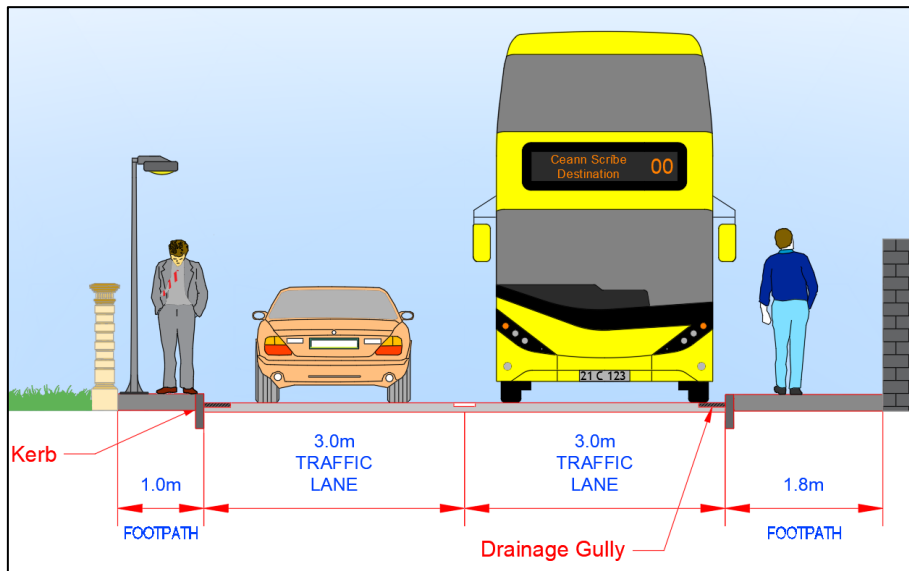


Figure 2: Typical Cross Section of Glenageary Road Lower After the Reallocation of Pedestrian Space

The construction of this option would involve demolishing the existing kerbs either side of the road and laying new kerbs. Public lighting poles are located close to the edge of the footpath and so a full reconstruction of the public lighting network would be required. The drainage gullies would need to be moved to accommodate the new kerb lines and the road levels would need to be regraded to suit the new arrangement. Any underground utilities such as gas, electricity or telecoms that are located within the western footpath would also likely need to be diverted and protected.

Because of the extent of the works involved and the limited working space available this option would be financially prohibitive and disruptive to construct. The narrowing of the path on the western side would also diminish access options for the homes on that side of the carriageway. The narrowing of the path below the recommended amount would also make it unsuitable for bus passengers exiting the bus at this location and these bus stops would likely have to be removed.

Option 2: 1-way Southbound

This option would remove the northbound traffic lane on Glenageary Road Lower, the space from the traffic lane that was removed could be reallocated to provide wider footpaths and a contra-flow cycle lane.

This option would require a traffic network re-design to allow for buses travelling into Dun Laoghaire (currently the 7, 7A and 45A and in the future the 98, L22 and P12) as well as other vehicles. Bus routes that use Glenageary Road Lower southbound are maintained and bus routes going northbound on Glenageary Road Lower would be moved to Corrig Avenue. A northbound one-way system would also likely have to be put in place on Corrig Avenue to deal with the traffic that will be diverted there and the restricted width of the road.

The challenges with this option include:

- The impact to the Garda Station on Corrig road which would impact response times
- The loss of bus service to the east side of the town
- The NTA would have to agree to the routing change. Noting the recent discussions around the 46a re-routing this is unlikely to be well received

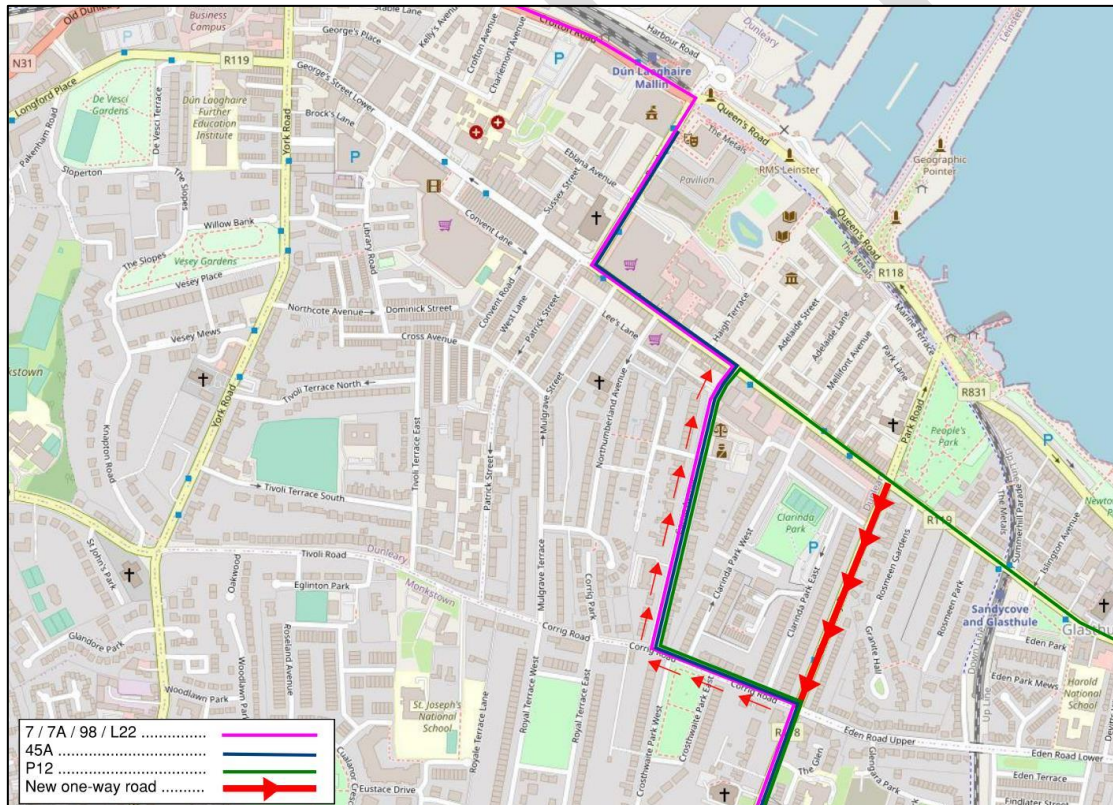


Figure 3: Proposed New Traffic Network with a Southbound 1-way on Glenageary Road Lower



Option 3: 1-way Northbound

This option would remove the southbound traffic lane on Glenageary Road Lower, the space from the traffic lane that was removed could be reallocated to provide wider footpaths and a contra-flow cycle lane.

This option would require a traffic network re-design to allow for buses travelling away from Dun Laoghaire (currently the 7, &A and 45A and in the future the 98, L22 and P12) as well as other vehicles. Bus routes that use Glenageary Road Lower northbound are maintained and bus routes going southbound on Glenageary Road Lower are moved to Corrig Avenue. A southbound one-way system will also likely have to be put in place on Corrig Avenue to deal with the traffic that will be diverted there and the restricted width of the road.

The challenges with this option include:

- The impact to the Garda Station on Corrig road which would impact response times
- The loss of bus service to the east side of the town
- The NTA would have to agree to the routing change. Noting the recent discussions around the 46a re-routing this is unlikely to be well received

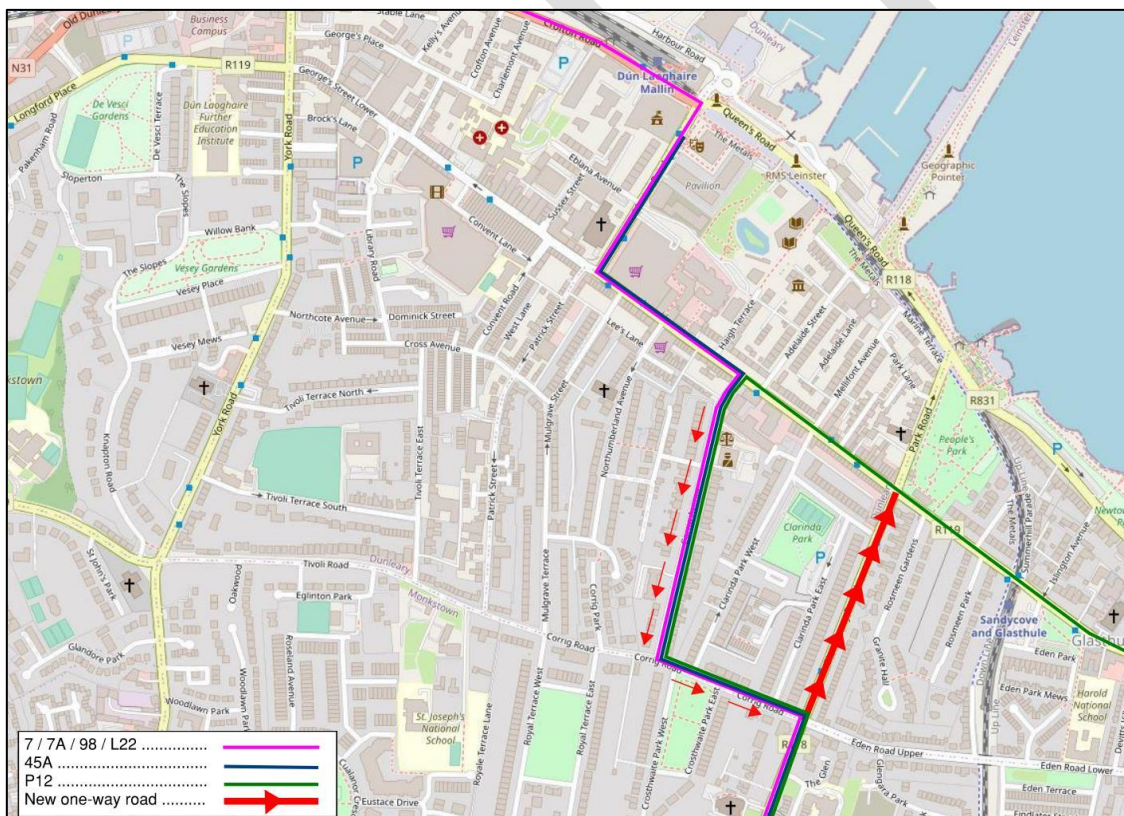


Figure 4: Proposed New Traffic Network With a Southbound 1-way on Glenageary Road Lower

Option 4: Traffic calming measures

These options retain two-way traffic on Glenageary Road and propose different types of traffic calming measures.

Option 4A: Crossing and Speed-Hump

This option includes a new pedestrian crossing near the steps to Clarinda Park and a speed hump about halfway down the road, as shown in Figure 5 below.



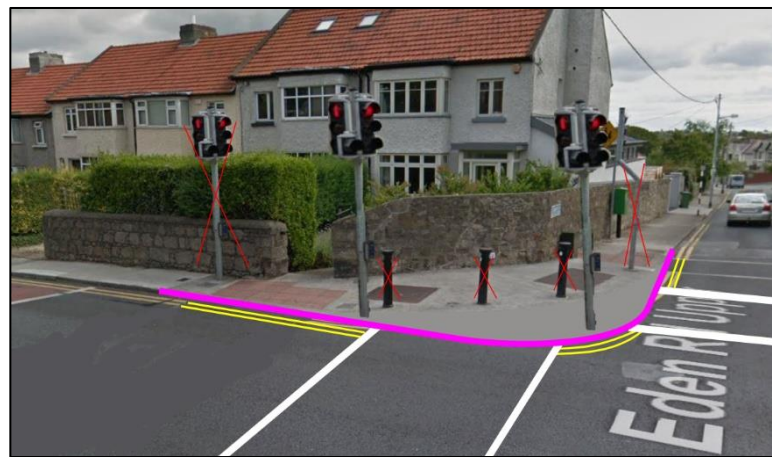
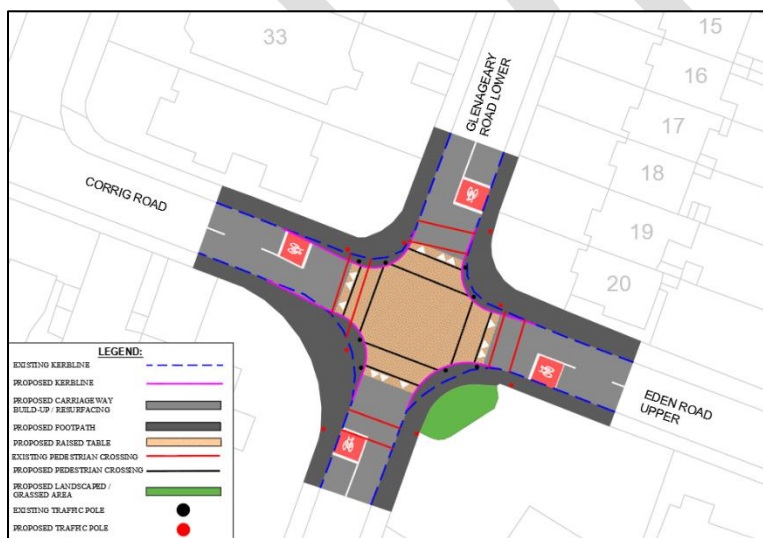
Figure 5: Proposed Locations of Traffic Calming Measures

Option 4B: Junction Tightening

This option consists of a raised table and tightened corner radii at the junction between Glenageary Road Lower and Corrig Road as well as the junction at the People's Park. The tightened junctions would allow the pedestrian crossings to be moved closer to the junctions and create more space for pedestrians.



Figure 6: Proposed Locations of Tightened Junctions



Figures 7 & 8: Proposed Layout at Glenageary Road Lower/Corrig Road Junction

Figures 7 & 8 shows the proposed layout for the junction between Glenageary Road Lower, Corrig Road and Eden Road Upper. On this option the footpaths have been extended slightly and the pedestrian crossings moved closer to the junction, this allows the waiting area for the pedestrian crossing to be moved away from the narrowest point of the road and provides more space for pedestrians to wait. The traffic light poles would also been moved away from the narrow locations where they currently are.

A raised table is also proposed for this junction to reduce vehicle speeds, an example is shown below in Figure 9.

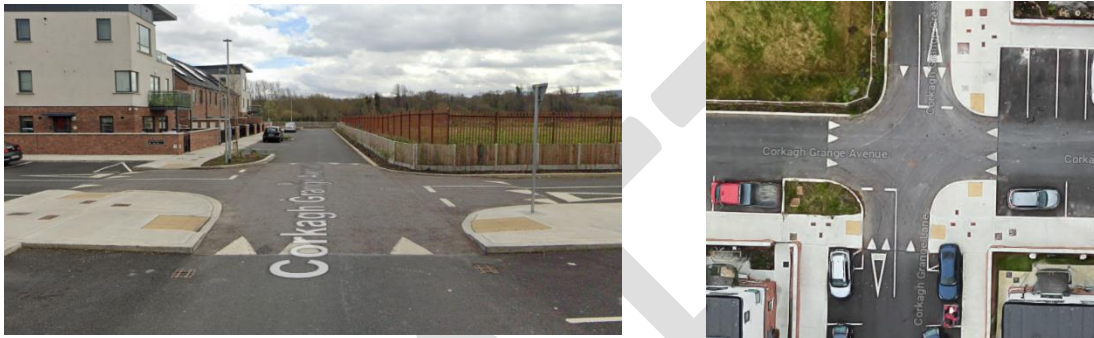


Figure 9: Example of a Raised Table

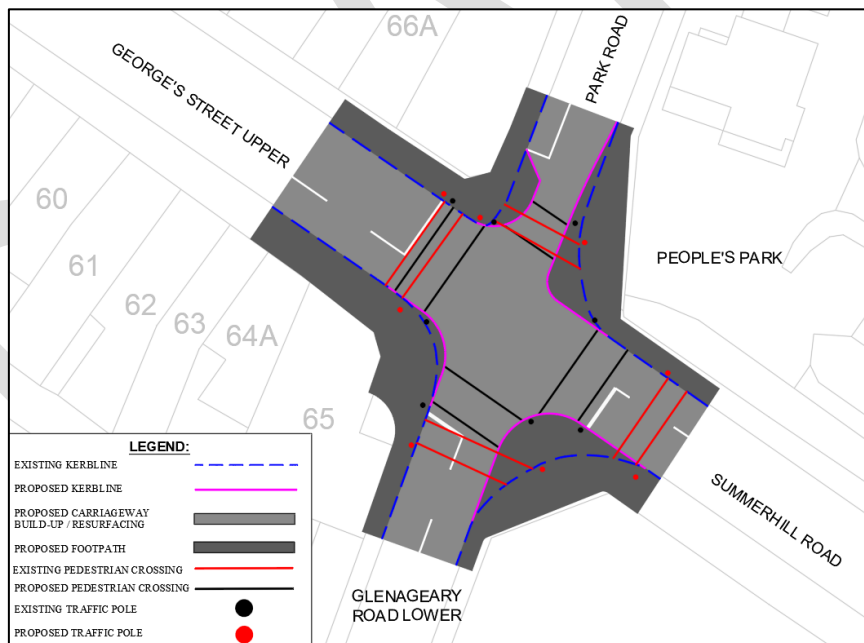


Figure 10: Proposed Layout at Glenageary Road Lower/George's Street Upper Junction

Figure 10 shows the proposed junction tightening measures at the junction at the People's Park end of the road.

Option 5: Land acquisition

This option would acquire some land from residents on the eastern side of Glenageary Road Lower. This option has two further sub-options.

Option 5A: Land acquisition from 19 Glenageary Road Lower

This option consists of acquiring a portion of land from the garden of 19 Glenageary Road Lower. This option would allow for more space on the north-eastern side of the junction.



Figure 5: Proposed Land to Acquire for Option 5A

Option 5B: Land acquisition from all gardens along Glenageary Road Lower

This option consists in acquiring 1.2 meters of land from all properties on the eastern side of Glenageary Road Lower. This would allow for both footpaths along Glenageary Road Lower to be 2 meters wide. Figure 11 is a typical cross section of what Glenageary Road Lower would look like in this option. Similar to Option 1, this option would involve reconstruction of the kerbs and drainage gullies but would not require the moving of public lighting or underground utilities.

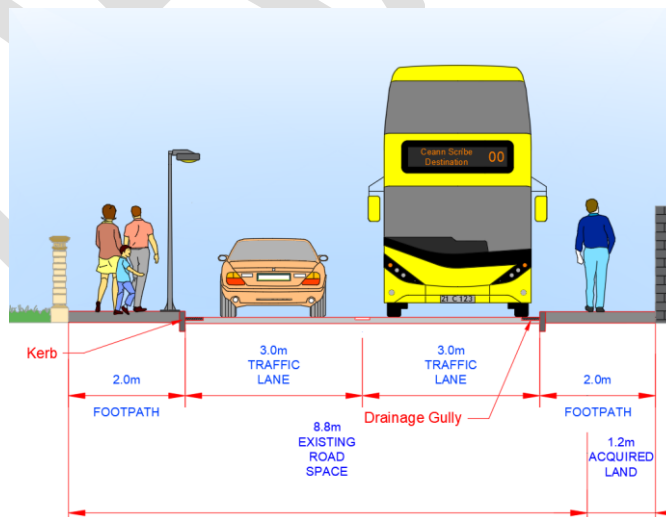


Figure 6: Typical Cross-Section of Glenageary Road Lower after Land Acquisition



3 Options Assessment

Option 1 – Reallocation of pedestrian space

Pros	Cons
<ul style="list-style-type: none"> Wider footpath on the eastern side, allowing for more pedestrian space that would comply with the minimum width set out in DMURS. 	<ul style="list-style-type: none"> The western footpath will become very narrow and would be well below standard. The cost of moving kerb lines, public lighting, underground utilities and drainage gullies would be very high. Major roadworks will be required along the road, causing severe traffic disruptions for a long period of time. Would not reduce vehicle speeds on the road Narrower footpath would impact access for residents on that side Potential loss of the bus service at this location

Option 2 – 1-way Southbound

Pros	Cons
<ul style="list-style-type: none"> Allows for both footpaths to comply with the minimum width set out in DMURS. Extra space for public realm and/or cycle facilities. Safer pedestrian facilities. 	<ul style="list-style-type: none"> A re-design of the bus network would be necessary. A re-design of junctions at either end of the section of Glenageary Road Lower would be required. Impact on routes available to An Garda Síochána Loss of bus service on east side NTA may not support

Option 3 – 1-way Northbound

Pros	Cons
<ul style="list-style-type: none"> Allows for both footpaths to comply with the minimum width set out in DMURS. Extra space for public realm and/or cycle facilities. Safer pedestrian facilities. 	<ul style="list-style-type: none"> A re-design of the bus network would be necessary. A re-design of junctions either end of the section of Glenageary Road Lower would be required. Impact on routes available to An Garda Síochána Loss of bus service on east side NTA may not support



Option 4A - Crossing and Speed-Hump

Pros	Cons
<ul style="list-style-type: none"> The extent of construction works is lower compared to the other options. Does not require a re-design of the traffic network. High speed traffic would be slowed down. 	<ul style="list-style-type: none"> Speed humps would need to be suitable for a bus route and these humps are only effective at reducing speeds that are above 50 km/h. Speed surveys on the road indicated an 85th percentile speed (speed that 85% of traffic is below) of 37.5 km/h northbound and 40.7 km/h southbound. Doesn't extend footpath widths to the minimum widths set out in DMURS and narrow sections would remain on both sides.

Option 4B - Junction Tightening

Pros	Cons
<ul style="list-style-type: none"> The extent of construction works is lower compared to the other options. Cost of this option is relatively low. Does not require a re-design of the traffic network. Pedestrian improvements made at the two junctions at either end. 	<ul style="list-style-type: none"> Doesn't extend footpath widths to the minimum widths set out in DMURS and narrow sections would remain on both sides.

Option 5A – Land acquisition from 19 Glenageary Road Lower

Pros	Cons
<ul style="list-style-type: none"> Extra space for pedestrians at this location. Does not require extensive works on the whole of Glenageary Road Lower. Does not require a traffic network re-design. 	<ul style="list-style-type: none"> Residents at 19 Glenageary Road Lower will lose land from the front garden. It requires the residents to sign up to the scheme, otherwise it would not work. Footpath is still narrow at other locations.

Option 5B – Land acquisition from all houses on the eastern side of Glenageary Road Lower

Pros	Cons
<ul style="list-style-type: none"> Allows for both footpaths to be 2 meters wide, complying with the minimum footpath widths set out in DMRS. Creates a safer environment for pedestrians. Does not require a network re-design for public transport. 	<ul style="list-style-type: none"> All residents on the eastern side of the road will lose 1.2m from their gardens. A total of 410 m² would need to be acquired. Some sheds and buildings may be affected. It requires all residents to sign up to the proposal otherwise it would not work. Cost linked to land acquisition, accommodation works, new boundary walls, moving kerbs, drainage gullies and public lighting will be high and may not be covered by the project budget. Trees and hedges would need to be cut down.



4 Conclusion

Option 1 is not considered feasible given the extent of the works required, and the fact that it would worsen the situation for pedestrians and residents on the western side of the road.

Options 2 & 3 would provide significant benefit for pedestrians, however the requirement to reroute bus services and impose restrictions on An Garda Síochána is likely to make these options unfeasible. This would require discussions with the NTA and An Garda Síochána.

Options 5A & B require land acquisition and the demolition of boundary walls and are unlikely to be feasible.

Option 4A is unlikely to significantly reduce speeds on the road. Speed surveys indicated an 85th percentile speed (speed that 85% of traffic is below) of 37.5 km/h northbound and 40.7 km/h southbound. Speed humps would need to be suitable for a bus route and these humps are only effective at reducing speeds that are above 50 km.

Option 4B is a feasible option. The pedestrian improvements at junctions would be a significant benefit, providing more space for pedestrians at dwell areas while they wait to cross the road and reducing speeds of turning vehicles.

On balance Option 4B has been recommended as the preferred option for this scheme.