

National Transport Authority

# BusConnects Cork

Core Bus Corridor 6 – Ballincollig to City Centre

Feasibility and Options Assessment Report

Reference: REP/006

D1 | 28 June 2022



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 279960-00

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# 1. Introduction

## 1.1 Background

BusConnects Cork is the National Transport Authority's plan to improve Bus Services throughout the city and suburbs. It is a programme of nine measures to fundamentally transform Cork's bus system, so that bus commuting will become a viable and attractive choice for employees, students, shoppers and visitors. BusConnects Cork aims to overhaul the current bus system in the Cork region through:

- Redesigning the bus network;
- Building a new network of bus corridors and cycle lanes;
- Implementing a state-of-the-art ticketing system;
- Implementing a cashless payment system;
- A simpler fare structure;
- New bus livery
- New bus stops and shelters, with better signage and information;
- New Park and Ride sites in key locations; and
- Transitioning to a new zero emissions bus fleet.

As part of BusConnects Cork, it is necessary to develop concept engineering solutions for the core bus corridors that will support the efficient running of bus services in the city, and to include for the provision of both bus priority and safe cycle and pedestrian facilities.

Arup has been appointed by the National Transport Authority to undertake a route options assessment for four radial core bus corridor (CBC) approaches to the city (packaged together as 'Project B' of the overall city and suburban area). These four corridors are as follows:

- CBC 6 – West of Ballincollig to City Centre via Mardyke;
- CBC 7 – West of Bishopstown to City Centre;
- CBC 8 – Wilton to City Centre; and
- CBC 9 – Cork Airport to City Centre via Turners Cross area.

This report presents the findings of the route options assessment undertaken for CBC 6 of BusConnects Infrastructure Cork (BCIC) (Ballincollig to City Centre via Mardyke) and makes a recommendation on a preferred route. The report also details the initial concept design developed for the bus priority and cycle infrastructure provision along the CBC 6 corridor.

## 1.2 Report Structure

The report structure is set out as following:

- **Section 2** – The strategic transport policy context which has identified the need for the delivery of bus priority infrastructure on this corridor is discussed in this section;
- **Section 3** – The objectives for the BusConnects Infrastructure Cork scheme are set out in this section;
- **Section 4** – The extent of the BusConnects Infrastructure Cork study area assessed, effectively defining the proposed scheme, is described in this section. Key constraints and opportunities are identified and the integration of the corridor with the wider public transport network, and the compatibility with other road users is presented;



- **Section 5** – The methodology for identifying and assessing the feasibility of the various potential route options available within the study area is discussed in this section including:
  - the selection and determination of initial criteria for screening and assessing technically feasible route options, based on distinct, project-specific objectives;
  - the definition of assessment criteria; and
  - the identification of study area sections where practical route options have been considered, and presentation of an initial network ('spider's web') of options examined.
- **Section 6** – presents the Stage 1 assessment of potential route options within each of the sub-sections of the overall study area;
- **Section 7** – details the route options assessment undertaken for each of the study area sections and a comparison of potential 'end-to-end' route options;
- **Section 8** – In this section, the Emerging Preferred Route identified is described; and
- **Section 9** – makes recommendations regarding how the emerging preferred route should be progressed through the next step (public consultation).

## 2. Transport Planning and Policy Context

### 2.1 Project Ireland 2040 National Planning Framework (NPF)

The National Planning Framework (NPF) is a statutory document, published in 2018 which supersedes the National Spatial Strategy (NSS). It sets out the long-term direction for Ireland's physical development, and is established on supporting policies and actions at a sectoral, regional and local level. The NPF outlines the strategic planning and development for the country in the period to 2040.

The NPF outlines some key transport growth enablers relevant to the projected population growth Cork will experience by 2040. Some of the key enablers outlined which are applicable to the development of the BCIC include:

- Intensification of development within inner-city and suburban areas, and utilisation of brownfield lands where possible;
- Large-scale regeneration projects within the Cork City Docklands;
- Development of an enhanced city-wide public transport system to incorporate proposals for an east-west corridor from Mahon, through the City Centre to Ballincollig and a north-south corridor with a link to the Airport; and
- Improved traffic flow around the city, which could include upgrades of the N40, and/or alternatives which may include enhanced public transport.

The NPF also outlines 10 National Strategic Outcomes (NSO's) relevant to transportation and the improvement of the quality of public space. **NSO 4** is the most relevant to BCIC and it identifies the need for high-quality public transport services to promote sustainable mobility. NSO 4 calls for the expansion of public transport alternatives to car transport in order to reduce congestion, the delivery of key bus-based projects in cities and towns and the development of a comprehensive network of safe cycling routes in metropolitan areas.

- **NSO 4:** Sustainable Mobility by continuing to enhance Ireland's public transport and environmental sustainability of our mobility systems.

### 2.2 National Development Plan (NDP) 2018 – 2027

The National Development Plan (NDP) is a spatial planning guide setting out the investment priorities from the NPF and will drive its implementation over the next ten years. This plan is currently under review and will set the vision for the next decade, beyond 2027.

The NDP will guide national, regional and local planning and investment decisions in Ireland to cater for any future population increase. The current plan recognises that there is a need to address the issues of lengthy commute times and slow progress, acknowledging that a new approach is required.

While the National Strategic Outcomes (NSOs) represent the overarching priorities which the NPF is designed to achieve, the purpose of the NPF is to set out the new configuration for public capital investment to secure realisation of each of the NSOs. This is being achieved by the identification of Strategic Investment Priorities for 2018 to 2027.

In relation to BCIC, the core priority NSO 4: Sustainable Mobility aims to create an environmentally-sustainable public transport system to enable growth and change and to meet the significant increase in travel demand and urban congestion while also contributing to the national policy vision of a low-carbon economy.

NSO 4 also states the NDP will deliver a public transport network that will provide high-quality passenger interchange points, so as to facilitate convenient transfer between efficient and integrated public transport services.

In order to achieve this NSO, an increase in the public capital investment is required which sets out the road for BCIC.

## 2.3 Climate Action Plan 2021

Published in November 2021, the Climate Action Plan (2021) sets out the pathway to halving Ireland's emissions by 2030 and reaching net zero by 2050. Emissions relating to the transport sector account for approximately 20% of Ireland's greenhouse gas emissions and the transport sector is a particular focus of the Climate Action Plan.

Key Objectives referenced in the plan include:

- An additional 500,000 daily journeys using public transport and active travel modes; and
- Increased numbers of electric vehicles and low emission vehicles.

Key Action Items referenced in the plan include:

- Continue the improvement and expansion of the Active Travel and Greenway Network;
- Construct an additional 1,000km of cycling and walking infrastructure;
- Commence delivery of BusConnects Network redesigns in Cork, Galway, Limerick and Waterford;
- Commence delivery of BusConnects Core Bus Corridor Infrastructure Works;
- Examine the role of demand management measures in Irish cities, including low emission zones and parking pricing policies;
- Balance better movement priorities within urban areas to transition the built environment and public domain from one that is "vehicle centred" to being "people centred";
- Advance demand management measures;
- Increase provision of Park & Ride at transport interchanges;
- Deliver sustainable bus priority measures on the National Road Network; and
- Transition Cork, Galway, Limerick and Waterford metropolitan area Public Service Obligation (PSO) bus services to low/zero emission bus fleet.

## 2.4 National Sustainable Mobility Policy (2022)

The National Sustainable Mobility Policy, published on April 7<sup>th</sup>, 2022 sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations (achieving a 51% reduction in carbon emissions by the end of the decade). It is accompanied by an action plan to 2025 which contains actions to improve and expand sustainable mobility options across the country by providing safe, green, accessible and efficient alternatives to car journeys. It also includes demand management and behavioural change measures to manage daily travel demand more efficiently and to reduce the journeys taken by private car.

The policy aims to deliver at least 500,000 additional daily active travel and public transport journeys by 2030 and a 10% reduction in the number of kilometres driven by fossil fuelled cars by 2030.

The NSMP builds on and replaces existing active travel and public transport policy set out in 'Smarter Travel: A Sustainable Transport Future' and the National Cycle Policy Framework (both published in 2009).

The Vision of the NSMP is 'To connect people and places with sustainable mobility that is safe, green, accessible and efficient'. The policy is guided by three key principles, underpinned by 10 high-level goals

PRINCIPLES	GOALS
Safe and Green Mobility	<ol style="list-style-type: none"> <li>1. Improve mobility safety.</li> <li>2. Decarbonise public transport.</li> <li>3. Expand availability of sustainable mobility in metropolitan areas.</li> <li>4. Expand availability of sustainable mobility in regional and rural areas.</li> <li>5. Encourage people to choose sustainable mobility over the private car.</li> </ol>
People Focused Mobility	<ol style="list-style-type: none"> <li>6. Take a whole of journey approach to mobility, promoting inclusive access for all.</li> <li>7. Design infrastructure according to Universal Design Principles and the Hierarchy of Road Users model.</li> <li>8. Promote sustainable mobility through research and citizen engagement.</li> </ol>
Better Integrated Mobility	<ol style="list-style-type: none"> <li>9. Better integrate land use and transport planning at all levels.</li> <li>10. Promote smart and integrated mobility through innovative technologies and development of appropriate regulation.</li> </ol>

**Figure 1: Principles and Goals (Source: National Sustainable Mobility Policy 2022)**

Goal 3 above ('Expand availability of sustainable mobility in metropolitan areas') foresees the implementation of improved walking, cycling, bus and rail infrastructure in the five cities. This is fundamental to achieving the policy target of 500,000 additional daily active travel and public transport journeys by 2030. The expansion of public transport in the five cities will be delivered through the BusConnects programmes.

Goal 5 ('Encourage people to choose sustainable mobility over the private car') outlines potential measures to encourage modal shift to sustainable travel options, including reference to measures to improve the attractiveness of these sustainable modes whilst also exploring measures to reduce the attractiveness of private car movements where there are sustainable alternatives – these measures can include demand management. The Five Cities Demand Management Study referenced in this section of the NSMP refers to measures such as reallocation of road space from cars to prioritise walking, cycling and public transport, reducing parking provision and supporting the concept of the 15-minute neighbourhood.

## 2.5 National Investment Framework for Transport in Ireland (NIFTI)

The National Investment Framework for Transport in Ireland (NIFTI) is the long-term sectoral strategy for investment in land transport and replaces the 2015 Strategic Investment Framework for Land Transport. Its purpose is to establish the high-level direction and parameters for future investment and ensure that investment is consistent with Government policy.

NIFTI is a high-level tool through which project sponsors can align capital transport projects with the NPF. It will guide transport investment to support the delivery of the NPF, enable the Climate Action Plan and promote positive social, environmental and economic outcomes throughout Ireland.

The framework establishes four high-level strategic investment priorities:

- Decarbonisation;
- Protection and Renewal;
- Mobility of People and Goods in Urban Areas; and
- Enhanced Regional and Rural Connectivity.

These priorities are not an either/or scenario. Investment is required in all these areas to support the NPF and Climate Action Plan objectives. The priorities represent the key objectives of transport investment that new projects should align with. NIFTI also establishes a process to help decide the best solution to an identified need or problem through modal and interventional hierarchies.



The framework encourages the use of active travel and public transport ahead of solutions reliant on private transport. To make best use of our existing assets, protecting and renewing the existing land transport network should, where possible, be the first solution considered. This is followed by maximising the value of the network through optimising its use. Infrastructural investment will then be considered after these two categories have been assessed as inappropriate for the identified problem, with upgrades to existing infrastructure to be considered before outright new infrastructure.

## **2.6 Regional Spatial and Economic Strategy (RSES)**

The Regional Spatial and Economic Strategy (RSES) is a link between the NPF, the City and County Development Plans and the Local Economic and Community Plans. The RSES is prepared alongside the NPF through three new Regional Assemblies which will be utilised to inform the NPF and are centrally involved in the formulation of policies geared towards achieving a greater dispersal of economic growth and development throughout their respective regions.

These Regional Assemblies are the Eastern and Midland, Northern and Western, and Southern Regional Assemblies. In turn these Regional Assemblies will be informed by smaller Strategic Planning Areas (SPAs), which envelop key economic catchments, due to the geographical extent of the assemblies. Cork is situated within the South-West SPA of the Southern Regional Assembly.

The Strategy for the Southern Region, as set out in the RSES report is to build a strong, resilient, sustainable region, through 11 individual actions, including the following relevant actions:

- Strengthening and growing our cities and metropolitan areas, harnessing the combined strength of the three regional cities as a counterbalance to the Greater Dublin Area through quality development, regeneration and compact growth, building on the strong network of towns and supporting our villages and rural areas;
- Enhancing regional accessibility through upgraded transport infrastructure and digital connectivity allied to transformed settlement hierarchy; and
- Transforming our transport systems towards well-functioning, sustainable integrated public transport, walking and cycling and electric vehicles.

A Metropolitan Area Strategic Plan (MASP) for Cork is set out within the RSES report, and this MASP places significant emphasis on the implementation of the CMATS recommendations.

Section 2 of the RSES report deals with the Regional Transport Strategy, with transport investment priorities set out, with Sustainable Mobility a key investment priority, including the delivery of BusConnects programmed within the regional cities. Transport priorities for the Cork Metropolitan Area include the following:

- A high-capacity public transport corridor (potentially a Light Rail corridor);
- Infrastructure to serve Cork Docklands and Tivoli;
- Prioritisation of buses over car traffic through delivery of several high-quality bus corridors;
- Targeted improvement of arterial routes within the city and environs to enable the delivery of higher bus service frequencies and improved journey time reliability; and
- The development of a metropolitan area-wide cycle network.

## **2.7 Cork Metropolitan Area Transport Strategy (CMATS)**

### **2.7.1 Introduction**

The NPF 2040 envisages that Cork will become the fastest growing county in Ireland with a projected increase of its population of 105,000 – 125,000 people. within the Cork City and Suburbs area up to 2040. The projected population and associated economic growth will result in a significant increase in the demand for travel, which needs to be managed and planned for carefully to safeguard Cork's attractiveness to live, work, visit and invest in.

The current metropolitan area transport network contains limited capacity to cater for this projected additional growth, with a need to allocate remaining capacity efficiently. The result being that land-use and transport planning will need to be far more closely aligned to reduce the need to travel by car and support the functioning of a sustainable, integrated transport system.

CMATS is a co-ordinated land use and transport strategy for the Cork Metropolitan area which will provide a coherent transport planning policy framework and implementation plan. It is around this plan that other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing and water can align their investment priorities.

### 2.7.2 Vision and Principles

It is the vision of CMATS to deliver an integrated transport network that addresses the needs of all modes of transport, offering better transport choices, resulting in better overall network performance and providing capacity to meet travel demand and support economic growth.

The vision is based on guiding principles including the following:

- **Principle 1:** To support the future growth of the CMA through the provision of an efficient and safe transport network;
- **Principle 2:** To prioritise sustainable transport and reduce car dependency;
- **Principle 3:** To provide a high level of public transport connectivity;
- **Principle 4:** To identify and protect key strategic routes for the movement of freight and services;
- **Principle 5:** To enhance the public realm through traffic management and transport interventions; and
- **Principle 6:** To increase public transport capacity and frequencies where needed to achieve the strategy outcomes.

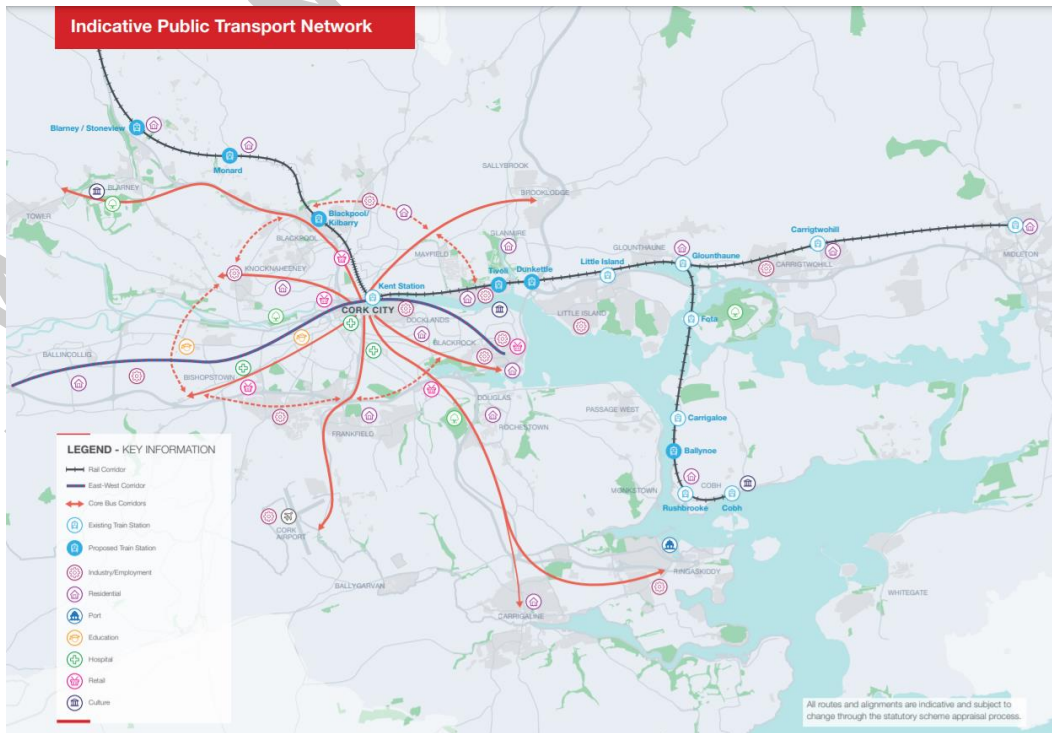
It is evident that the majority of these principles are relevant to BCIC and set out the approach for this project.

CMATS also recognises the opportunities afforded to the CMA, arising from high level spatial planning objectives and associated population growth projections outlined in the NPF 2040 and proposed capital investment in the NDP 2018-2027, to consolidate future projected growth in the CMA within established urban centres and along its identified high quality, high-capacity public transport corridors as illustrated in **Figure 2**.

### 2.7.3 Public Transport

The CMATS Strategy was prepared by firstly developing a high-level public transport network which provides a context for the overarching transport options and proposals. The public transport network is based on the six core principles outlined above. Following the development of the public transport network, the cycling and walking networks were subsequently developed. The public transport network formed the indicative framework before more detailed network development was carried out. This more detailed network included the scale and type of public transport requirement on the strategic corridors, the route alignment, the level of priority required, the frequency of service, as well as the level of coverage provided by the strategy public transport proposals.

**Figure 2** shows the indicative public transport network that was developed as part of CMATS. It shows the proposed rapid transit corridor to be the central spine of the public transport network, which is complemented by core bus corridors which emanate radially out of Cork City in all directions.



**Figure 2: Indicative Public Transport Network [Source: CMATS]**

The Strategy recognises and identifies buses as an extremely efficient mode of transport which will serve the majority of the Cork Metropolitan area. It makes reference to a BusConnects network which will comprise a *Core Radial Bus Network*, an *Orbital Bus Network*, a *Cross-City Network* as well as *Supporting Radial Bus Services* to ensure comprehensive network coverage.

The indicative Core Radial Bus Network connects the external corridors to the city centre and has been refined to pair with cross-city travel demand to maximise the utilisation of the bus services on these corridors. Supplementary to this is the proposal to significantly improve frequency of bus services along these radial routes, the majority of which are intended to operate at a frequency of 15 minutes or better.

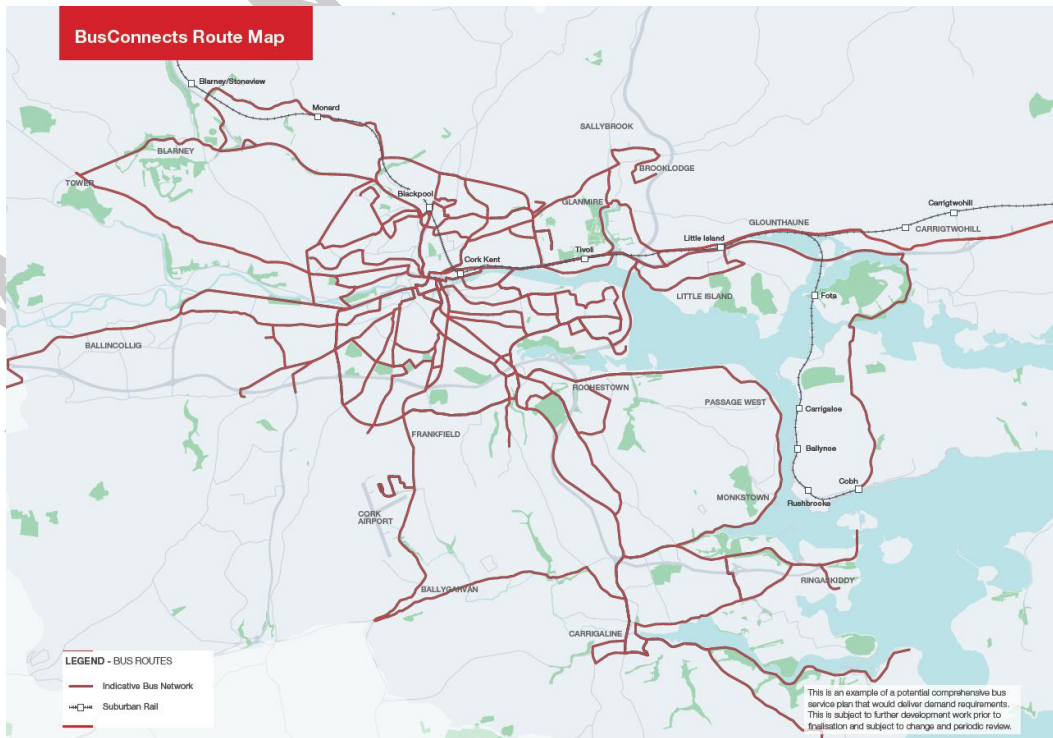
The indicative Orbital Bus Network comprises four orbital services which are proposed to serve a multitude of key destinations outside of the city centre. The upgraded orbital network will provide additional connectivity, support urban expansion areas and interchange with radial bus services.

The Cross-City Network is a 200km Core Radial Bus network, which has been refined to pair with cross-city travel demand to maximise the utilisation of the core bus services for effective and efficient travel to and through Cork City Centre.

There were a number of guiding principles applied such as alignment with CCMS, the targeting of key interchange locations and the minimisation of divided services on one-way sections or routes.

Key interchange locations were chosen due to their ability to accommodate large numbers of public transport services either through bus lanes or full bus priority. These key interchange locations are identified as St. Patrick's Street, MacCurtain Street, Grande Parade/South Mall and the Parnell Place Bus Station.

Supporting Radial Bus Services will also be developed in order to ensure comprehensive network coverage. These supporting services will typically have lower frequencies than the Core Radial Bus Network but will cater for a wider catchment across the Metropolitan area. The radial bus services will provide further opportunities for interchange to future provisions of Suburban Rail, Light Rail and other bus services on the Core Bus Network.



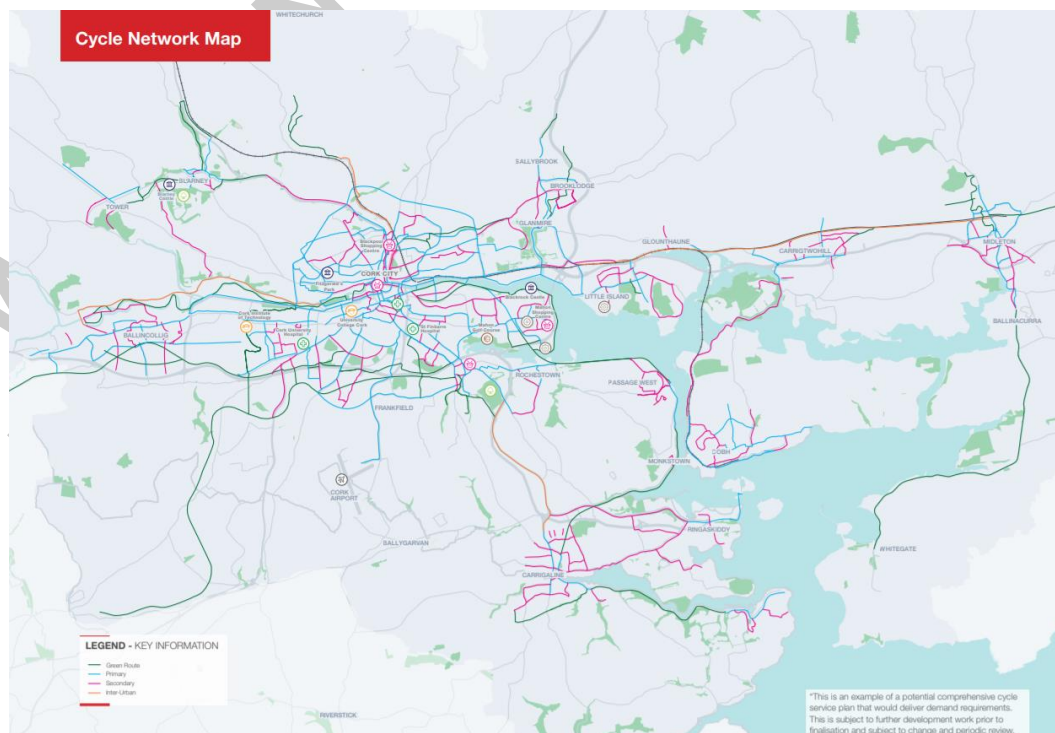
**Figure 3: BusConnects Route Map [Source: CMATS]**

#### 2.7.4 Cycling

CMATS proposes a vision for the Cork Metropolitan area that has a coherent, safe and attractive cycle network that will support a shift from private car to cycling. High-quality cycle links are proposed to connect with public transport and will be designed to National Cycle Manual standards and, where possible, segregated from other modes of transport.

The key priorities for the development of the Cycle Network Plan include the designation of a coherent network providing access to all major trip generators, prioritising employment areas and third level education and schools. These priorities have been established to support proposed modal shift targets. The network will provide the highest possible level of service on identified high demand corridors, as well as the identification and maximisation of opportunities for high quality greenways and quietways. **Figure 4** shows an extract of the CMATS Cycle Route Network.





The network comprises a number of different route types: Primary, Secondary, Green Route, Inter-Urban, and Feeder Cycle networks. Each route type is identified and designated based on experienced demand and proximity and connectivity to employment, residential area or educational facilities.

## 2.8 Cork City Bus Network Review

A review of the existing Cork City bus network has been recently complete. The outcome of this review was the determination of an optimal new city bus network which will support the planned future growth of the city and suburbs.

The work carried out in preparing this new bus network for Cork emphasised that the network review was an opportunity to redesign the Cork network around today's needs rather than continue with the network inherited from the past. The report identifies that the projected growth forecasted for Cork's population and economy will lead to congestion and degradation of the area's attractiveness without new investment in the city's public transport network. The study also identifies that a well-connected public transport network is key to high patronage, with easy and reliable interchange a key factor.

An initial round of public consultation was undertaken in June/July of 2021 for the network review, which focused on a ‘Choices Report’ outlining initial decisions and key considerations to inform the redesign of the bus network. The general public were invited to comment on this initial consultation, with the input gathered utilised to inform the design of the draft bus network. This draft network was subsequently released to the public in October/November 2021 and was the subject to a further round of consultation. A final revised network has now been completed and is available to view at <https://busconnects.ie/cork>.

## 2.9 Cork City Development Plan 2015 - 2021

The Cork City Development Plan is Cork City Council's main strategic planning policy document, which guided the development of the city between 2015 and 2021. The document is set to be superseded in mid-2022 with the adoption of the new Cork City Development Plan 2022-2028. A draft of this new City Development Plan is currently being finalised with adoption expected towards the end of the summer 2022.

The plan provides a vision for the development and improvement of the city and sets out the priorities for investment in infrastructure over the plan period. In addition, the plan is the main reference point in determining planning applications for new developments.

The Plan also emphasises the need for balance and integrated public transport system along with complementary land use policies to drive a broader range of transport options.

The Plan contains a number of transport objectives related to BCIC, as set out in Chapter 5: Transportation, including the following strategic objectives:

- **Objective 5.5 - Strategic Transport Corridors:** Cork City Council prepared studies to determine how to best optimise transport provision along strategic corridors within the city to reduce trip length and increase demand in order to provide more frequent bus services. Upon completion, land use transport plans for each corridor will be prepared.
- **Objective 5.7 – Cycling Strategy:** Cork City Council will develop a Cycling Strategy during the lifetime of the Development Plan to address supporting measures required to increase cycling uptake.
- **Objective 5.12 - Support Bus Network Improvement:** Cork City Council and other stakeholder will make sure to facilitate the delivery of a legible and reliable network of bus services.
- **Objective 5.13 - Bus Rapid Transit:** Cork City Council will identify the preferred route for Bus Rapid Transit in conjunction with Cork County Council and the National Transport Authority.

## 2.10 Cork City Development Plan 2022-2028

The Cork City Development Plan 2022-2028 will supersede the Cork City Development Plan 2015-2021 upon its adoption in early 2022. The Plan is currently in Draft format and is being finalised with adoption expected towards the end of the summer 2022.

The Draft Plan contains some specific commentary in relation to BCIC in Chapter 4: Transport and Mobility under 'Public Transport', in which emphasis is put on the primary objective of CMATS to significantly increase the modal share of public transport from its current level of 9.1% to over 26% by the year 2040. The plan highlights the important role investment in the BusConnects project will take in underpinning this modal share increase, emphasising that the BusConnects programme represents an opportunity to overhaul the public bus service across Cork. The Draft Plan also stresses that the delivery of an efficient and reliable bus system is contingent on prioritising bus services above general traffic.

The Draft Plan contains 9 overarching Strategic Objectives which align with the UN Sustainable Development Goals (UNSDGs) as well as the National Strategic Outcomes of the NPF.

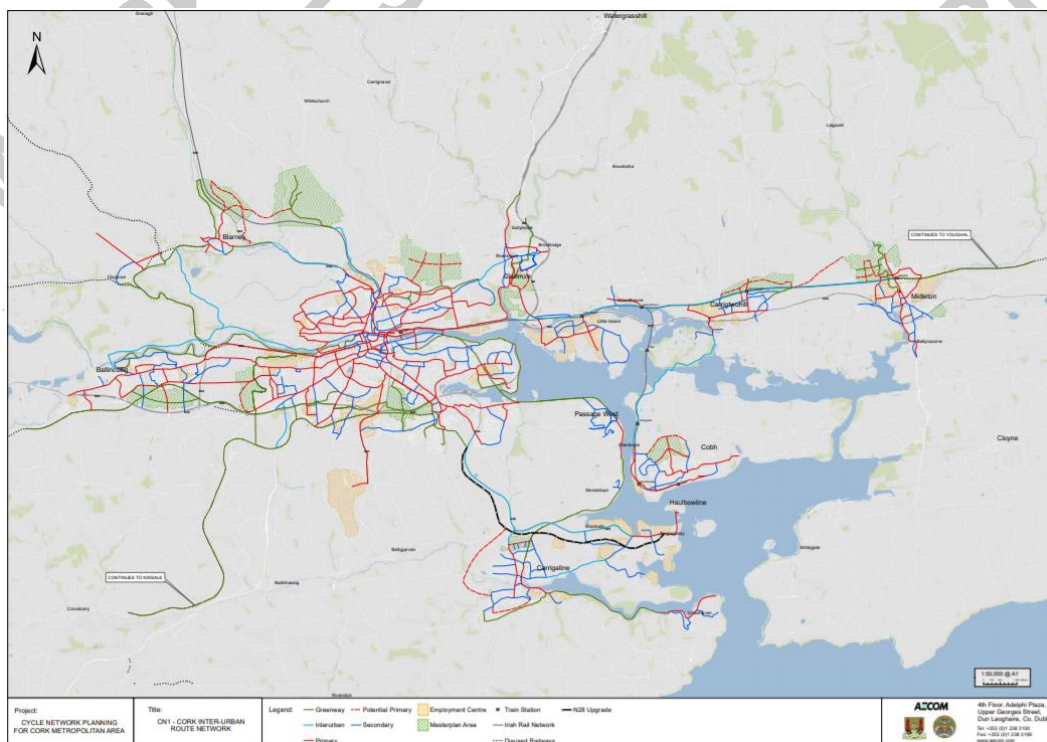
There are a number of transport objectives related to BCIC, as set out under Strategic Objective 3: Transport and Mobility, including the following:

- **Objective 4.1 – CMATS:** Cork City Council will work in cooperation with the NTA, TII and Cork County Council to fully implement the Cork Metropolitan Area Transport Strategy subject to detailed engineering design and environmental considerations, including the projects and programmes in relation to walking, cycling, public transport, BusConnects, suburban rail, light rail, park and rides and roads infrastructure;
- **Objective 4.4 – Active Travel:** To actively promote walking and cycling as efficient, healthy, and environmentally friendly modes of transport by securing the development of a network of direct, comfortable, convenient, and safe cycle routes and footpaths across the city; and
- **Objective 4.6 – Corridor & Route Selection Processes, Policies and Objectives** relating to new roads and other transport infrastructure projects (including greenways, walkways, cycleways and blueways) that are not already provided for by existing plans/programmes or are not already permitted, are subject to the undertaking of feasibility assessment having regard to normal planning considerations and environmental sensitivities as identified in the SEA Environmental Report and the objectives of the Plan relating to sustainable mobility.

## 2.11 Cork Cycle Network Plan 2017

The Cork Cycle Network Plan was developed to provide a plan for the future cycling network within the Cork Metropolitan Area. The aim of this Plan was to promote cycling as mode of transport for trips to work,

school, recreation and leisure. The Plan suggested a coherent, safe and attractive cycle network that will support a modal shift from the private car to cycling. Figure 5 below illustrates the proposed Cork City network.



**Figure 5: Cycle Network Map [Source: Cork Cycle Network Plan 2017]**

The network consists of:

- Primary Cycle Networks designed to cater for high demand on radial routes to key destinations;
- Secondary routes provide connection from residential areas and employment to Primary Network;
- Interurban routes indicate possible connections from the Metropolitan Towns to Cork City; and
- Greenways, representing traffic-free cycling routes

The Cork Cycle Network Plan proposals have been incorporated into the CMATS cycle network proposals as identified above in Section 2.7. Some amendments were made to the 2017 network in order to ensure consistency with the CMATS overall proposals.

## 2.12 Cork Walking Strategy (2013-2018)

The Cork Walking Strategy sets out a clear vision for increasing the modal share of walking for commuting within the city suburbs. The strategy proposed the development of walking networks that connect neighbourhoods, origins and destinations, with increased permeability and attractive, safe environments that encourage more people to choose to walk.

A number of key strategic walking routes were identified, including the following:

- Dublin Hill;
- Ballyhooly Road;
- Old Youghal Road and Colmcille Avenue;
- Lower Glanmire Road;
- Blackrock Road;

- Ringmahon Road;
- Skehard Road;
- Douglas Road;
- South Douglas Road
- Pouladuff Road;
- Togher Road;
- Curraheen Road;
- Model Farm Road;
- Carrigrohane Road;
- Western Road;
- Strawberry Hill;
- Blarney Street;
- Pophams Road;
- Harbour View Road/Kilmore Road; and
- Fair Hill.

Footpath widening works on these strategic routes would improve pedestrian connectivity and provide the priority to pedestrians over private car traffic to assist deliver on our modal share targets. Within the city centre, the strategy outlines numerous interventions intended to enhance pedestrian comfort throughout, including raised tables, build-outs, additional crossings, wider footpaths, etc.



### 3. Project Objectives

Having regard to the findings of the transport context, the following key objective and sub-objectives have been established for BCIC:

**Objective:**

To provide enhanced walking, cycling and bus infrastructure on key access corridors in the Cork Metropolitan Area, which will enable and deliver efficient, safe and integrated sustainable transport movement along these corridors.

**Sub-Objectives:**

- Enhance the capacity and potential of the public transport system by improving bus speeds, reliability and punctuality through the provision of bus lanes and other measures to provide priority to bus movement over general traffic movements;
- Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable;
- Support the delivery of an efficient, low carbon and climate resilient public transport service, which supports the achievement of Ireland's emission reduction targets;
- Enable compact growth, regeneration opportunities and more effective use of land in the Cork Metropolitan Area, for present and future generations, through the provision of safe and efficient sustainable transport networks;
- Improve accessibility to jobs, education and other social and economic opportunities through the provision of improved sustainable connectivity and integration with other public transport services; and
- Ensure that the public realm is carefully considered in the design and development of the transport infrastructure and seek to enhance key urban focal points where appropriate and feasible.

## 4. Core Bus Corridor 6 Study Area

The extent of the Core Bus Corridor 6 study area as set out in the project brief is presented in Figure 6.

Initially, the adjacent roads and streets along the corridor route were identified and included within the study area, and a further ‘buffer’ was applied to this initial area to allow for areas outside of the primary road and street network to be included as potentially feasible route options.

A notional starting point was identified as the junction of Grange Terrace/Grange Hill, to the southwest of the R608/N22 interchange at Ovens, west of Ballincollig Town Centre. Potential route options were developed from this notional starting point. The notional end point of the CBC 6 corridor was identified as the junction of Washington Street and Grand Parade in the centre of Cork City.

The study area was also divided into a number of discrete sub-sections to allow for local optioneering between route options on a section-by-section basis. The individual sections were determined based on points where a logical transition between sections and route choices would occur.

In some instances, where very local route options were available, these were analysed as part of a localised option assessment process.

At the western end of CBC 6, the study area was developed to include all streets and roads between the primary routes serving the western approach to Ballincollig, including the R618, R608 and N22 routes to the north/west/south of Ballincollig Town Centre, respectively. Continuing eastwards, Model Farm Road and the N22 Carrigrohane Road were included, before progressing further east to include Victoria Cross Road, Western Road, Dyke Parade, College Road, Magazine Road, Donovan’s Road and Lancaster Quay/Washington Street.

The study area also considers the proximity and potential overlap of other existing or proposed corridors as identified in the Cork Metropolitan Area Transport Strategy and the BusConnects Infrastructure Project, including CBC 7 (Bishopstown to City Centre) and CBC 8 (Wilton to City Centre).

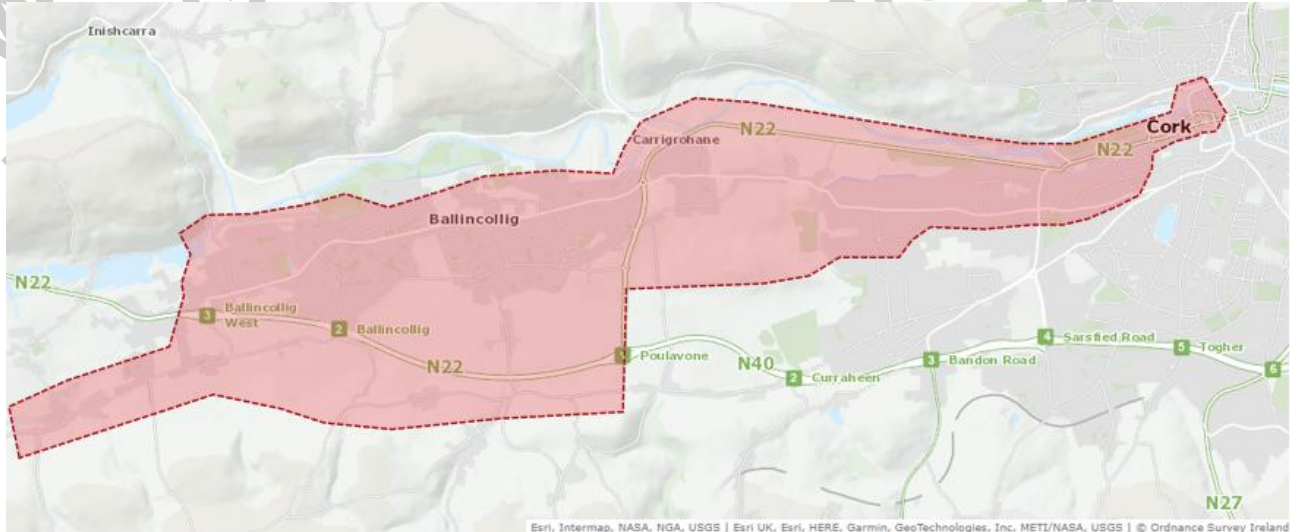


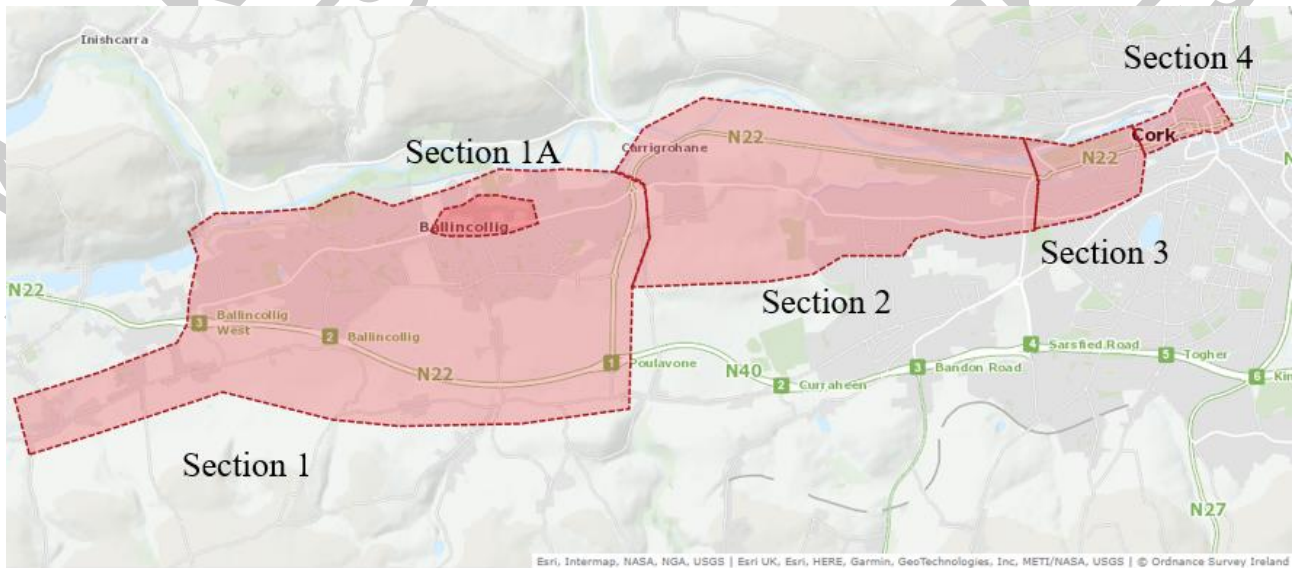
Figure 6: Core Bus Corridor 6 Study Area

### 4.1 Study Area Sub-Sections

As outlined above, the study area for CBC 6 was subsequently divided up into numerous smaller sub-sections, to allow for localised optioneering to be undertaken within individual sections of the overall route, as shown in Figure 7. These sections are:

- Section 1A – Localised options assessment – Ballincollig Town Centre;
- Section 1 – R608 west of Ballincollig to Poulavone Roundabout;
- Section 2 – Poulavone Roundabout to Dennehy’s Cross;

- Section 3 – Dennehy’s Cross to Bandfield; and
- Section 4 – Bandfield to City Centre.



**Figure 7: Individual Study Area Sections**

## 4.2 Physical Constraints and Opportunities

There are a number of constraints and opportunities, both natural (i.e., the existing natural environment) and physical (the built environment), which constrain route options for the proposed scheme within the defined study area. These include, *inter alia*:

- The National Road network, including the N40 South Ring Road, N22 Ballincollig Bypass/N22 Carrigrohane Road, the N22 Western Road/Dyke Parade/Lancaster Quay/Washington Street, etc. and the major junctions on these routes;
- The R641 Wilton Road/Victoria Cross Road, a key traffic route linking the N40 South Ring Road to the N22 Western Road/Carrigrohane Road;
- The River Lee (including north and south channels) and Curraheen River;
- Public park areas including Ballincollig Regional Park, the Lee Fields, Fitzgerald’s Park, etc.;
- Numerous NIAH-designated and protected structures/monuments along the route;
- The existing urban and suburban roads and street networks;
- Numerous river crossings and their designations (protected structures, etc.);
- Existing and committed future developments along the route;
- Limited availability of land within urban and suburban areas, and the proximity of the built environment to the existing road and street network; and
- Significant numbers of street trees and other natural features along the potential route options within the study area.

## 4.3 Integration with existing and proposed public transport network

A key requirement of the proposed scheme will be to enhance interchange between the various modes of public transport operating in the city and wider metropolitan area, both now and in the future.

Route options within the study area have therefore been developed with this in mind and, in so far as possible, seek to provide for improved existing or new interchange opportunities with other transport services, including:

- The planned BRT/LRT system for Cork, linking Ballincollig to Mahon via the City Centre (currently at route selection stage, with an indicative route set out within CMATS);
- The BusConnects Cork City Network Route Map, outlined in the Cork Metropolitan Area Transport Strategy (CMATS);
- Other proposed BusConnects Cork CBC routes, including both radial corridor routes to/from the city and the planned Orbital route;
- Existing Cork City bus services at numerous locations along the route; and
- Where feasible, interchange opportunities with regional bus and coach services and rail services at Parnell Place Bus Station and Kent Rail Station.

#### **4.4 Compatibility with other users**

A key objective of the proposed scheme is to improve pedestrian and cyclist facilities along the route. In general, segregated facilities (i.e., off-road) should be proposed for these modes. Where it is considered impractical to construct pedestrian or cycle facilities along a particular section of the route, such facilities will need to be provided along a suitable alternative route.

There may be locations where segregated cycle facilities cannot be provided along the route and there is no suitable routing alternative. In such instances, it may be possible for cyclists to share the bus or general traffic lane with other vehicles. However, such proposals need careful consideration and design to ensure the safety of cyclists, with additional mitigation measures, such as speed restrictions for vehicles in bus lanes being applied.

General traffic flow and local access will typically be maintained along the corridor although it is inevitable that there will be impacts on traffic capacity along the route associated with the reallocation of road space to bus priority and cycle facilities and the introduction of turning movement restrictions or through-traffic restrictions. However, reductions in the traffic carrying capacity of the road network need to be considered in the context of the overall planned significant increase in quality and level of public transport service (including increased capacity provision) on the bus route once implemented.



## 5. Assessment Methodology

### 5.1 Assessment Process

This section of the report presents the methodology used for the assessment of potentially viable route options identified within the study area. A two-stage assessment process was adopted as follows:

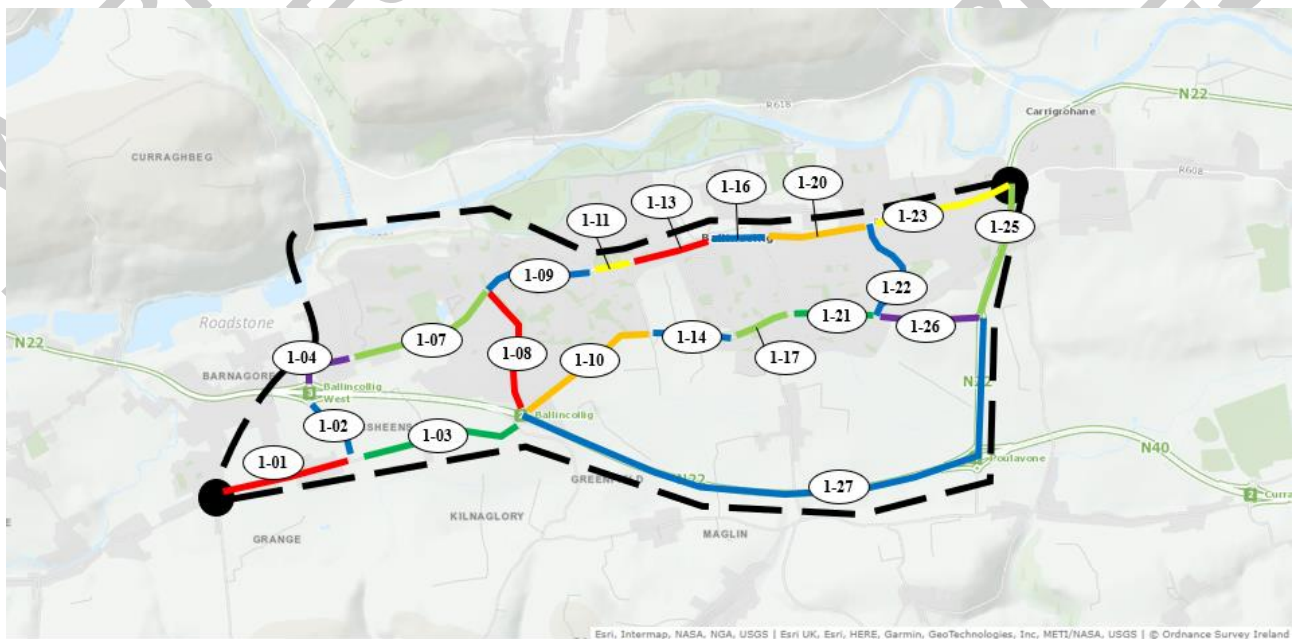
- An initial Stage 1 high-level route options assessment or ‘sifting’ process, which appraised potentially viable route options in terms of ability to achieve scheme objectives and whether they could be practically delivered, and
- Routes which passed this initial stage were taken forward to a more detailed Stage 2 assessment.

### 5.2 Stage 1: Route Options Assessment – Sifting Stage

An initial ‘spider’s web’ of potential route options that could accommodate a CBC was identified for each study area section. This ‘spider’s web’ of route options was developed with reference to the CBC characteristics and specifically the potential to meet the scheme objectives as set out in Section 3 of this report.

Initial route options identified also took cognisance of the physical constraints and opportunities present (Section 4.2), and the ability to integrate with other public transport modes and routes (Section 4.3). Of particular relevance in developing the ‘spider’s web’ was the potential for the road or route sections to facilitate fast and reliable journey times, and thereby have the potential to practically accommodate bus lane priority.

A typical ‘spider’s web’ of route options for a corridor section is presented in Figure 8.



**Figure 8: Sample ‘Spiders Web’ of Route Options**

As part of the Stage 1 ‘sifting’, the initial ‘spider’s web’ of route options (sample of which is presented in Figure 8) was narrowed down using a high-level qualitative method based on professional judgement and a general appreciation for existing physical conditions/constraints within the study area from available survey information and site visits.

This exercise screened and assessed technically feasible route options, based on distinct, project-specific objectives. In addition to being assessed on their individual merits, routes were also screened relative to each other allowing some routes to be ruled out if more suitable alternatives existed.

This assessment stage focused on engineering constraints together with a desktop study, identifying high level environmental constraints and population catchment analysis.



## 5.3

### 5.3 Stage 2: Multi Criteria Analysis

All route options that progressed to this stage were compared against one another using a detailed multi-criteria analysis (MCA) approach in accordance with the Department of Transport Document “Common Appraisal Framework for Transport Projects and Programmes”.

Each scheme was comparatively assessed against the study objectives using the method of measurements identified below. The scheme options were then ranked accordingly in order to identify the Emerging Preferred Route Option.

In accordance with the Department of Transport “Guidelines on a Common Appraisal Framework for Transport Projects”, the multi-criteria analysis considered Economy; Integration; Accessibility and Social Inclusion; Safety and Environment. The ‘Physical Activity’ criterion has not been assessed as a standalone criterion as the impacts on Physical Activity have been captured under the Pedestrian and Cyclist Integration criteria.

The assessment criteria are detailed in Table 1 below:

**Table 1: Assessment Criteria**

Assessment Criteria		Sub-Criteria
1	Economy	1.a. Capital Cost
		1.b. Average Journey-time
		1.c. Journey-time Reliability and Consistency
2	Integration	2.a. Land Use Integration
		2.b. Residential Population and Employment Catchments
		2.c. Transport Network Integration
		2.d. Cyclists Integration
		2.e. Pedestrian Integration
3	Accessibility and Social Inclusion	3.a. Key Trip Attractors
		3.b. Deprived Geographic Areas
4	Safety	4. Road Safety
5	Environment	5.a. Archaeological, Architectural and Cultural Heritage
		5.b. Biodiversity
		5.c. Soils and Geology
		5.d. Water Resources
		5.e. Landscape and visual
		5.f. Noise, Vibration and Air
		5.g. Land Use and the Built Environment

These criteria are presented in greater detail in the following sections.

## Economy

### 1.a. Capital Cost

The capital cost of a scheme includes both the estimated infrastructure costs and the required land acquisition costs. These costs are normalised to per-kilometre rates for the purpose of comparison of one scheme with another.

Construction cost estimates for corridor sections (between junctions) have been categorised as minor, moderate or major. Minor works have been assumed where significant road widening is not anticipated, for example along sections of a route where bus and cycle infrastructure is already provided, or along sections where significant widening is geometrically constrained. Moderate works have been assumed where the existing road corridor will be reconfigured to provide the bus priority measures and some minor road widening. Major works have been assumed where significant road widening, and land take is required.

For each route option, the length of the route requiring either the minor, moderate or major works category has been calculated and multiplied by the relevant cost rate to derive the cost estimate for the route.

Additional costs will be added to the project for significant items relevant to each scheme i.e., significant structures, etc.

**Table 2: Cost Rates per km**

Category	Construction Works	Cost Rate per km
Minor	Local improvements to bus lanes. New sections of paths where necessary. New sections of cycle paths where necessary. New or upgraded bus stops where necessary, including provision of Real Time Passenger Information (RTPI) and bus shelters. Kerb improvement locally (removal and replacement). Footpath improvement locally (breaking out/additional concrete) including tactile paving and dished kerbs. Road resurfacing locally (milling/reinstatement or overlay). Road markings (removal of existing road markings). Signage (removal/relocation/replacement of existing and/or installation of new).	€800,000
Moderate (Widening excluding boundary walls)	General site clearance (street furniture removal/relocation, etc). Services protect in place predominately. Drainage works (removal of and installation of new drainage systems). New or upgraded bus stops where necessary, including provision of Real Time Passenger Information (RTPI) and bus shelters. Earthworks (embankment treatments, retaining walls, slopes regrading, etc). Pavement (milling/reinstatement or overlay). Kerbs footways and paved areas (removal and new). Road markings (non-destructive removal of existing road markings, new road markings). Signage (removal /relocation /replacement of existing and/or installation of new). Road lighting (replacement, cabling, ducting). Landscaping works (top soiling, fence, trees relocation, hedges, road margins re-grading etc).	€1,500,000

Category	Construction Works	Cost Rate per km
	Minor property boundary reinstatement works (walls, gates, landscaping etc).	
Major (Widening including boundary walls)	General site clearance Services relocation/ diversion. Drainage works (installation of new drainage systems). New bus stops where necessary, including provision of Real Time Passenger Information (RTPI) and bus shelters. Earthworks (embankment treatments, retaining walls, slopes regrading, etc). Significant pavement full depth construction. Kerbs footways and paved areas. Road markings. Signage. Road lighting. Accommodation Works, bespoke design solution for each driveway to accommodate new levels. Landscaping works (top soiling, fence, trees relocation, hedges, road margins re-grading etc). Property boundary reinstatement works (walls, gates, driveways landscaping etc).	€3,000,000

The length of the route requiring either the minor, moderate or major works category is calculated and multiplied by the relevant cost rate to derive the cost estimate for the route. In addition, the construction costs associated with the junctions along the route have been included for based on the rates presented in Table 3.

**Table 3: Junction Cost Rates**

Category	Construction Works	Cost
Minor	Road markings. Road resurfacing locally (milling/reinstatement or overlay). Additional signal heads, poles and loops. Dished kerbs and tactile paving. New signal controllers and associated traffic signal works.	€300,000
Moderate Works (Upgrade existing junctions to signal control junctions, without significant alteration to their existing geometry and layout. Excludes significant accommodation works)	Works outlined above in minor works – road marking, traffic signals, kerbs and tactile paving. Services protection predominately. Limited earthworks. Localised pavement reconstruction. Localised public lighting improvements (relocation, cabling, and ducting). Localised kerb and footpath improvement.	€800,000
Major Works (to existing signal-controlled junctions including upgrading of roundabouts to signal controlled junctions. Includes accommodation works)	Works outlined above in moderates works. Services relocation/diversion (power supply, communications cables, water, gas). Drainage works (removal of and installation of new drainage systems).	€1,400,000

Category	Construction Works	Cost
	Earthworks (embankment treatments retaining walls, slopes re-grading, etc).	
	Pavement full depth reconstruction.	
	Property boundary reinstatement works (walls, gates, driveways landscaping etc).	

### 1.a. Land Acquisition Costs

The land acquisition costs concern the cost of acquiring lands necessary for the scheme and the costs of boundary / accommodation work associated with each scheme. It considers the likely number of properties required (commercial, public, residential, and industrial) and the extent of land required.

In this assessment, land is defined as either public or private. Public land is the space between road boundaries and any also any public open space. For this analysis, it is assumed that there is no cost associated with the acquisition of public land. The identification of land acquisition is based on available Ordnance Survey mapping only and as such is approximate.

For the purposes of this high-level cost assessment, private land is assumed to have a standardised cost of €1,500 per square metre, which is applied to each option.

### 1.b. Average Bus Journey Time

Typically, shorter bus journey times supports higher patronage as people can get to their destination quicker. 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 based on the following assumptions:

- Buses travel at the posted speed limit 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.
- Delays where no bus priority is provided. Buses are delayed when they are required to share congested lanes with general traffic. The length of delays is based on distance where there is no priority and the level of congestion expected.

### 1.c. Bus Journey Time Reliability

Reliable bus journey times provides certainty around departure and arrival time for passengers. The level of bus priority proposed in each route option determines the reliability of journey time for this criterion. Dedicated bus lane provision provides the best conditions, followed by traffic management measures, with no bus priority measures providing the least favourable conditions for reliability.

## Integration

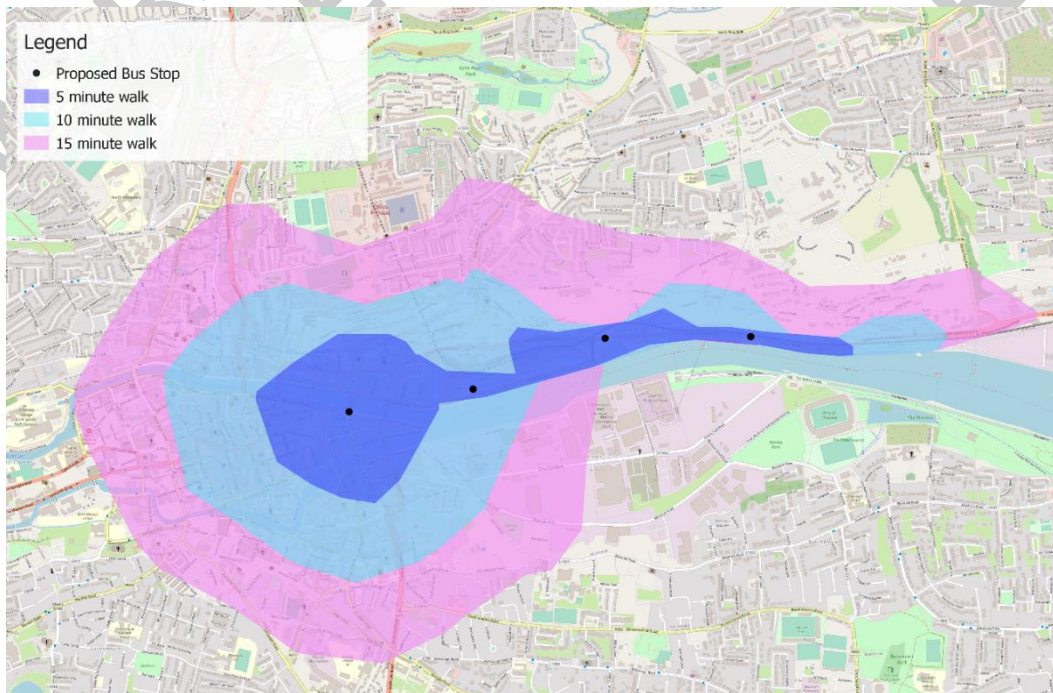
### 2.a. Land Use Integration

This criterion assesses how a scheme would integrate with any future planned developments in the catchment area and how it might enhance the economic opportunities of an area. This criterion includes how a scheme fits into local area plans or any other objectives in area / county policies.

### 2.b. Residential Population and Employment Catchments

The current residential and employment population within a particular walking route distance of each of the CBC stops is calculated in order to determine the number of potential users for each scheme option. To assess the potential population and employment catchments 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 15-minute intervals and were estimated based on an average walking speed of 5kph. The population and employment within the

isochrones was 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. See sample catchment map below.



**Figure 9: Sample bus stop catchment map with walking isochrones shown at 5/10/15 minute intervals**

### **2.c. Transport Network Integration**

Under this criterion, integration with the wider transport network is assessed and compared for each scheme. This includes transport modes such as railway, coaches, public bike schemes, and public and private bus operators. The potential for interchange facilities such as safe walking areas, cycle parking areas, etc. are also assessed under this criterion. Where a potential CBC route duplicates a route with another public transport route over a significant distance this was seen as a negative under this criterion.

The anticipated traffic impact expected to be incurred by motorists using private vehicles as a result of the different route options will also be factored in. The disadvantages experienced by motorists in respect of reduced junction capacity and restricted movements will be considered, with particular emphasis placed on TEN-T routes.

### **2.d. Cyclist Integration**

The compatibility of a scheme with the Cork City Cycle Network Plan is examined and the level of service of deliverable cycle facilities is assessed. In some cases, it is necessary to provide an alternative cycle route on different streets to the CBC and these alternative routes are considered under this criterion.

### **2.e. Pedestrian Integration**

The compatibility of a scheme with the objectives of the Walking Strategy in CMATS is examined and the level of service of deliverable pedestrian facilities is assessed under this criterion.

## **Accessibility and Social Inclusion**

### **3.a. Key Trip Attractors**

This assessment criterion identifies key trip attractors located within appropriate walking catchments which would generate significant demand for bus services but would not otherwise be picked up by either the employment or residential catchment analysis. For the purposes of this assessment, the following land-uses have been considered as key trip attractors:



- Education (secondary schools and universities);
- Commercial centres (shopping centres, town centres etc.);
- Healthcare (hospitals);
- Leisure (sport stadiums, theatres, cinemas etc.); and
- Employment (business parks, large office developments etc.).

### **3.b. Deprived Geographic Areas (3.b.)**

The possible impact of the route options on deprived geographic areas including RAPID (Revitalising Areas by Planning, Investment and Development) areas and the HP Deprivation Index are investigated.

RAPID is a focused Government initiative to target the most disadvantaged urban areas and provincial towns in the country and sought to improve the lives of the residents of its communities through among other things, improving the delivery of public services through integration and coordination. There are four defined RAPID areas in Cork.

The Pobal HP Deprivation Index is a method of measuring the relative affluence or disadvantage of a particular geographical area using various datasets from the 2016 census. For the purpose of this assessment, the HP Deprivation Index was examined by small area to determine which routes better served deprived areas.

## **Safety**

Under this criterion, the number of junctions along each scheme, as an approximate measure for the potential for collisions, are compared. In addition, the number of turning movements are compared, as these can also potentially lead to lower safety conditions along the scheme. Differentials in traffic speeds along a route are also assessed under this criterion as a high relative speed difference between transport modes may result in an increased road safety risk.

## **Environment**

### **5.a. Archaeological, Architectural and Cultural 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) along each route 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.

The impacts on all of the above are comparatively assessed for each route option under this criterion.

### **5.b. Biodiversity**

The provision of the CBC may have negative impacts on biodiversity, for example, through construction of new infrastructure through green field sites or removal of trees/hedges. These impacts are compared for each scheme under this criterion. The potential for planting replacement trees along each route option is also assessed under this criterion.

### **5.c. Soils and Geology**

Construction of infrastructure necessary for the provision of the CBC has the potential to negatively 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.

#### 5.d. Water Resources

The provision of CBC infrastructure may include aspects (for example structures) with the potential to impact on hydrology or water resources. Any such structures and potential impacts are considered for each scheme under this criterion.

#### 5.e. Landscape and Visual

Provision of CBC infrastructure has the potential to negatively 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 negative effects considered under this criterion.

The landscape (and visual) assessment of the route corridor options has had regard to:

- Land Use Zonings (amenity, open space, recreation, sport);
- Landscape & Visual Objectives within Cork City Development Plan;
- Landscape Preservation Zones;
- Areas of High Landscape Value;
- Recreation Access Routes / Designated Walkways; and
- Tree Preservation/Protection Objectives.

#### 5.f. Noise, Vibration and Air

Provision of CBC infrastructure has the potential to negatively impact on noise, vibration and air quality along a scheme. These effects are compared for each scheme option under this criterion. The impact is quantified on whether the source of noise, vibration or air pollution (road) is moving closer to sensitive receptors, for example through road widening or a new road alignment.

#### 5.g. Land Use and the Built Environment

This criterion assesses the impact of each scheme option on land use character, and measures impacts which prevent land from achieving its intended use, for example through land acquisition, reallocation of road space, severance of land, removal of parking or loading spaces, or changes to access arrangements.

### 5.4 Scheme Options Summary Table

Scheme options were assessed for each assessment criterion and compared relative to each other on a five-point scale, from having significant advantages, some advantages, some disadvantages to significant disadvantages over other route options. Schemes could also be considered neutral when no apparent advantages or disadvantages were identified across all scheme options.

Each route is given a comparative score (advantage/disadvantage) on a 5-point scale for each of the criteria listed in Table 4: below.

**Table 4: Multi Criteria Assessment - Colour ranking table**

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

Colour	Description
	Some disadvantages compared to the other options
	Significant disadvantages compared to the other options

**NOTE: Where all options assessed are considered comparatively equal in terms of advantage/disadvantage they are all ranked as neutral**

In applying the assessment criteria to the route selection process, it is recognised that for different sections of the study area corridor, greater emphasis may need to be applied to some criteria over others in terms of their significance and influence on the route selection process. In drawing a conclusion as to which route represents the best option considering all of the criteria put together, judgement was applied to arrive at the preferred option.

## 5.5 Conclusion

The outcome and the findings of the multi-criteria assessment are then finally considered in a holistic manner to derive a preferred end-to-end route for the proposed CBC scheme.

## 6. Stage 1 Assessment

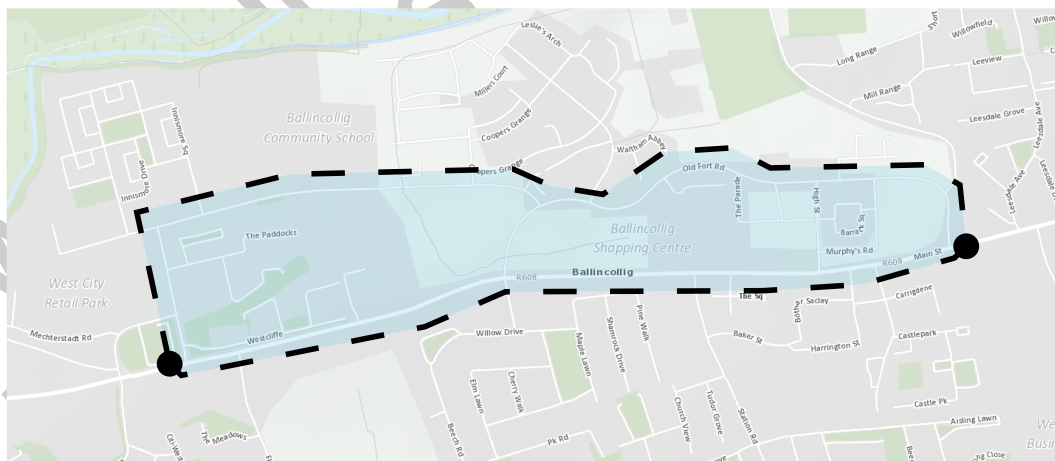
As outlined earlier in this report, an initial ‘spider’s web’ of potential route options that could accommodate a CBC was identified for each study area section. This ‘spider’s web’ of route options was chosen with reference to the CBC characteristics and specifically the potential to meet the scheme objectives as set out in Section 4 of this report.

Initial route options identified also took cognisance of the physical constraints and opportunities present (Section 4.2), and the ability to integrate with other public transport modes and routes (Section 4.3). Of particular relevance in developing the ‘spider’s web’ was the potential for the road or route sections to facilitate fast and reliable journey times, and thereby have the potential to practically accommodate bus lane priority.

The Stage 1 assessment therefore includes for the sifting of all possible through links within the study area and these are presented in the following sections (based on the individual sub-sections identified in Section 4.1).

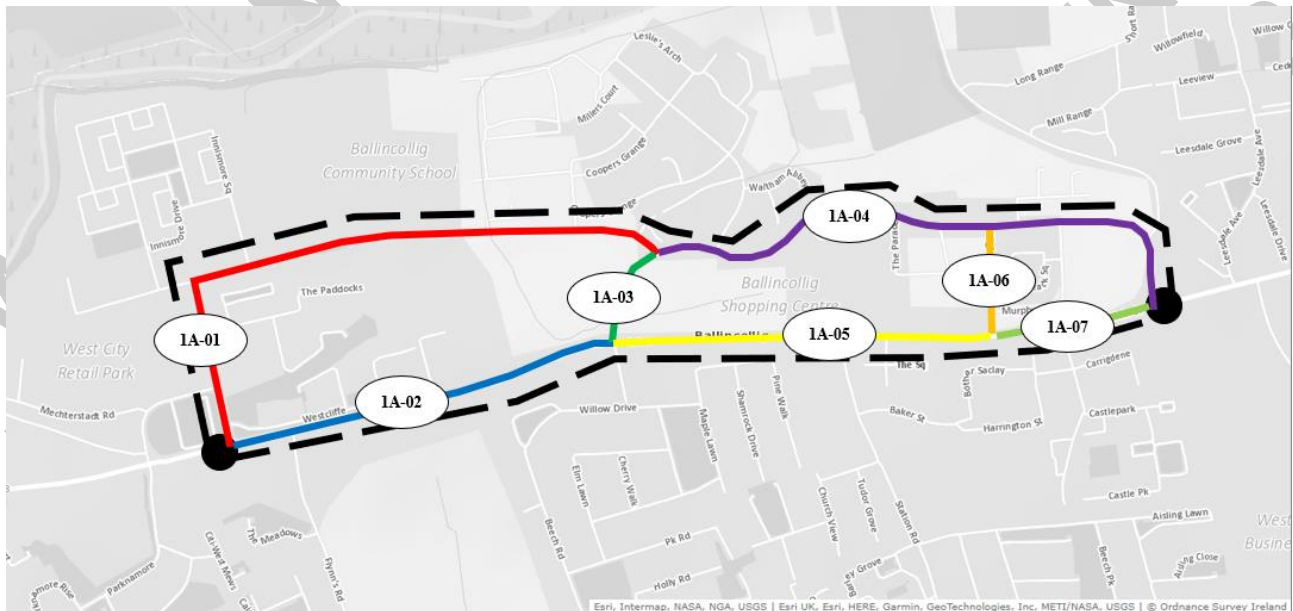
### 6.1 Study Area Section 1A – Localised Option Assessment – Ballincollig Town Centre

Section 1A of CBC 6 comprises potential options that are available between the junction of Innishmore Lawn to the west of Ballincollig Town Centre and the junction with the Old Fort Road to the east.



**Figure 10: Section 1A – Extent of Study Area**

The Stage 1 Assessment includes for the sifting of all possible through links within the study area and Figure 11 presents the links within the study area that have been initially identified.



**Figure 11: Section 1A – Stage 1 Assessment Links**

A summary of the Stage 1 route options sifting process is presented in Table 5.

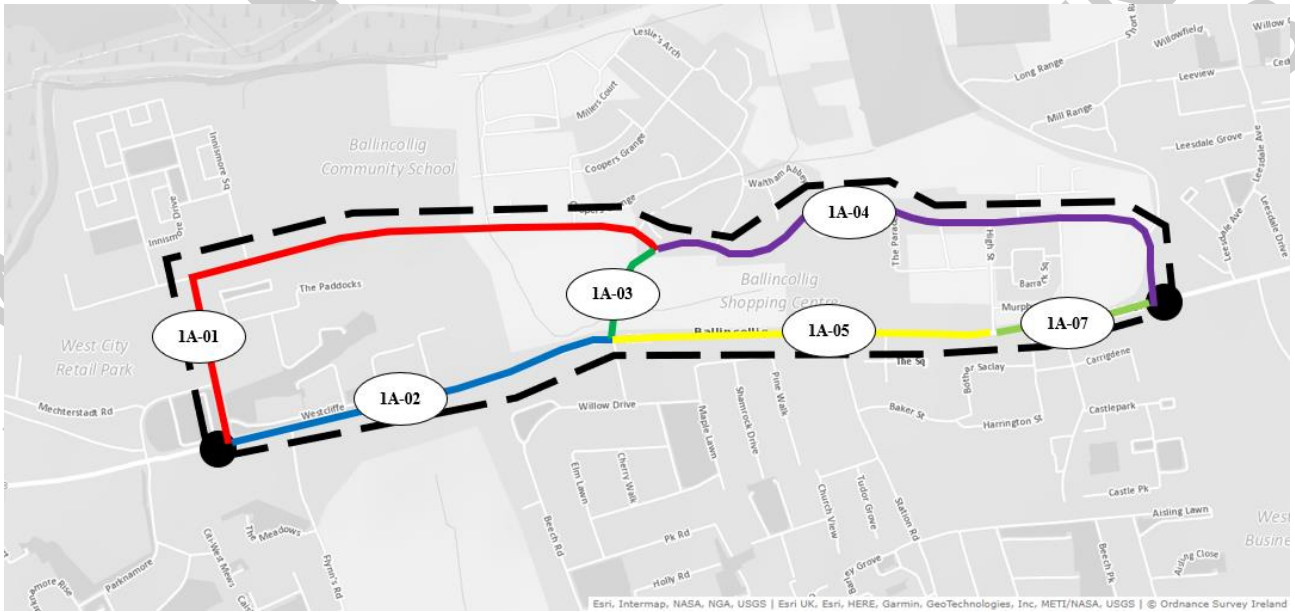
**Table 5: Section 1A – Route Option Sifting (Stage 1) Summary**

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
<b>1A-01</b>	Innishmore Lawn, from R608 Main Street to Old Fort Road	Primary Network	Innishmore Lawn from the junction with the R608 Main Street to the junction with Old Fort Road is largely a standard two-lane carriageway which flares to a three-lane carriageway with a central median on the approach to the junction with the R608. There are footpaths and grass verges along both sides of the carriageway for the majority of the route with a number of trees planted in these verges. There are a number of properties on both sides of the route with direct access to the route, as well as a Church and Ballincollig Community School. Typical width along the route is 14-18m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and potentially minor land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
<b>1A-02</b>	R608 Main Street, from Innishmore Lawn to Old Fort Road (west)	Primary Network	The R608 from junction with Innishmore Lawn to the junction with Old Fort Road (west) is a two-lane carriageway with additional bus lanes on one or both sides of the route as far as the entrance to the WestGate Foundation, after which the road narrows and the bus lanes become cycle lanes on either side of the route. The bus lane to the north reappears as the road flares before the junction with Old Fort Road. There are footpaths on both sides of the route and occasional grass verges. The route is characterised by a number of properties and businesses on both sides of the route with direct access, as well as a boundary walls and trees. Typical width along the route is 15-18m, with a pinch point of 12m by Oriol House, and a flare to 25m on the approach to the junction with Old Fort Road. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, widening to 20m would require more significant land acquisition and potential property acquisition. This link is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
<b>1A-03</b>	Old Fort Road, from R608 Main Street to Innishmore Lawn	Secondary Network	Old Fort Road, from the western junction with R608 to the junction with Innishmore Lawn is a two-lane carriageway with large grass verges on both sides of the route, a footpath to the east and a shared footpath and cycle path to the west. The route is characterised by dense vegetation and trees on both sides for the most part. Access to the Tesco car park and delivery area is facilitated from the route. Typical width along the route is 25-30m, with a pinch point between Tesco and Westfield offices of	Pass



Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
			14m width. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, widening to 20m would require more significant land acquisition between Tesco and Westfield. The route is therefore considered viable and is carried forward to the Stage 2 assessment.	
1A-04	Old Fort Road, from to Innishmore Lawn to R608 Main Street (east)	Secondary Network	<p>Old Fort Road, from the junction with Innishmore Lawn to the junction with the R608 Main Street is a two-lane carriageway, which widens to three lanes and a central median at the junction with the R608 with footpaths on either side of the route and a section of shared footpath and cycle lane; footpaths are separated from the route for the most part by grass verges.</p> <p>The route is characterised by a number of residential properties with direct access to the route, CastleWest car park, trees and grass verges and property/boundary walls. Typical width along this route ranges from 11-16m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and minor land acquisition, whereas widening to 20m would require more significant land acquisition. The route is therefore considered feasible and is carried forward to the Stage 2 assessment.</p>	Pass
1A-05	R608 Main Street, from Old Fort Road (west) to High Street	Primary Network	<p>The R608, from junction with Old Fort Road (west) to the junction with Station Road is a two lane carriageway which flares to four lanes at the junction with Old Fort Road, and to three lanes at the junction with Station Road, and from Station Road to High Street is a two-lane carriageway route with footpaths on both sides.</p> <p>There is a bus lane from the junction with Old Fort Road to the entrance at Tesco. There are footpaths along both sides of the route with on street parking on both sides of the route in various areas. The route is characterised by business and retail offerings on both aspects of the route as it is the main street through the town. Typical width along the route varies between 15-25m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, primarily involving removal of on-street parking and reduction in the existing generous footpath widths, whereas widening to 20m would require potential land acquisition in areas. The route is therefore deemed feasible and is carried forward to the Stage 2 assessment.</p>	Pass
1A-06	High Street, from Old Fort Road to R608 Main Street	N/A	High Street, from the junction with the R608 Main Street to the junction with Old Fort Road is a two-lane carriageway route with footpaths on both sides of the route. There is on-street parking on one or both sides of the route throughout. The route is characterised by street front properties throughout as well as a number of trees and planting. Typical width along this section of the route is 15m. Localised widening of the route to 16m or 20m would require significant property acquisition. This route is therefore not considered feasible and is not carried forward to the Stage 2 assessment.	Fail
1A-07	R608 Main Street, from High Street to Old Fort Road (east)	Primary Network	<p>The R608 Main Street from the junction with High Street to the junction with Old Fort Road (east) is a three-lane carriageway route that subsequently narrows to become a two-lane route with a cycle lane.</p> <p>There are footpaths along both sides of the route as well as some localised on-street parking. The route is characterised by business/retail offerings, as well as boundary walls/fences and a filling station. There is a notable level change in the footpath outside Aldi on the north, which rises above ground level and is segregated from the main route, with an on-road cycle lane adjacent. Typical width along this section of the route is 11-14m. Localised widening of the route to 16m or 20m would require significant land and property acquisition. The route is however considered feasible as it is required for onward connectivity and is carried forward to the Stage 2 assessment.</p>	Pass

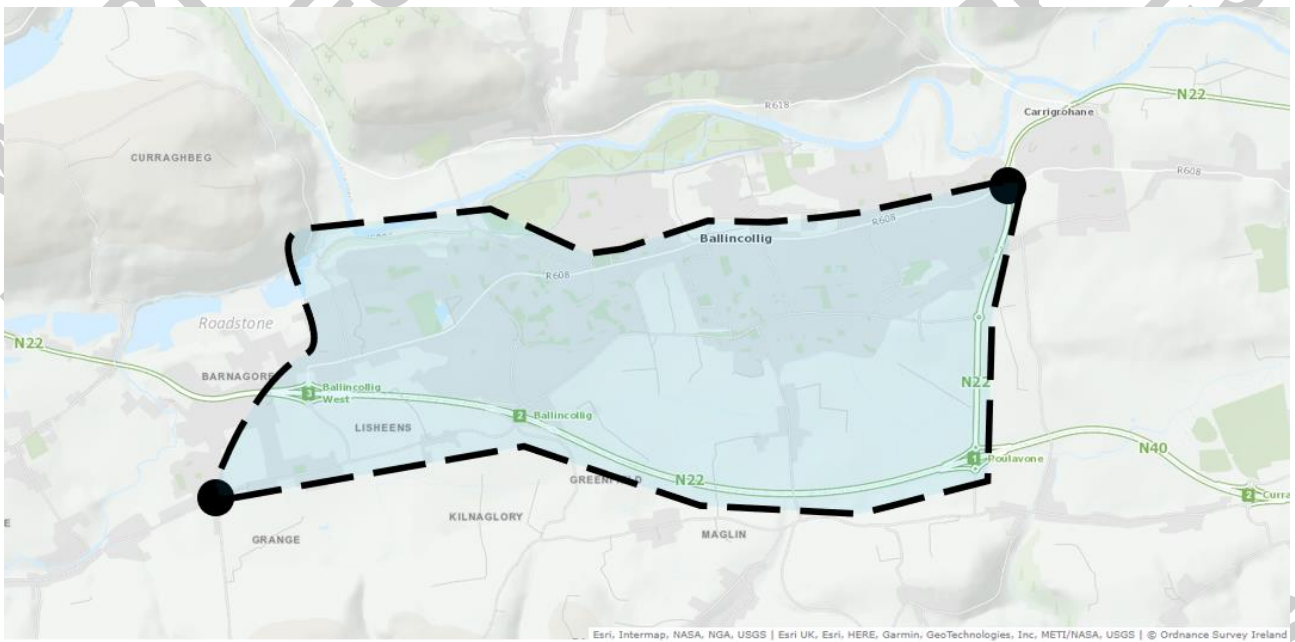
Following the Stage 1 sifting exercise, 6 of the 7 links assessed passed the initial sifting stage and were progressed to the next assessment stage. These links are presented in Figure 12.



**Figure 12: Section 1A – Route Options remaining after Stage 1 Sift**

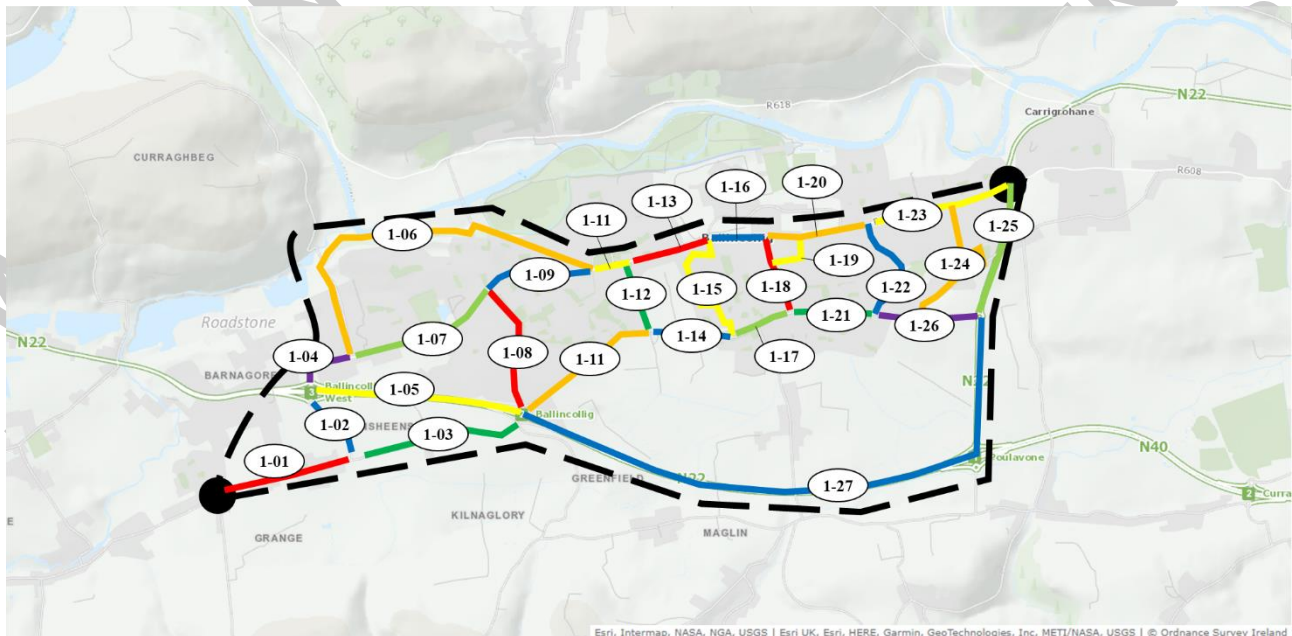
## 6.2 Study Area Section 1 – R608 (west of Ballincollig) to Poulavone Roundabout

For Section 1, the notional start point of the section is the junction of Grange Hill/Grange Terrace, west of Ballincollig and to the south of the N22 Ballincollig Bypass. The end point for Section 1 is the Poulavone Roundabout to the east of Ballincollig Town Centre.



**Figure 13: Section 1 start and end locations and overall study area**

The Stage 1 Assessment includes the sifting of all possible through links within the study area and Figure 14 presents the links within the study area that have been initially identified.



**Figure 14: Section 1 Stage 1 Assessment Links**

A summary of the Stage 1 route options sifting process is presented in Table 6.

**Table 6: Section 1 – Route Option Sifting (Stage 1) Summary**

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
1-01	Grange Terrace, from Grange Road junction to L2260 Killumney Road	No	Grange Terrace, from the junction with Grange Road to L2260 Killumney Road is a two-lane carriageway with little to no footpaths present along its length. There are a number of properties on either side of the route with direct access to the route. The route is characterised by dense vegetation and trees adjacent to the carriageway, and boundary or property walls/fences. Typical width along this section of the route is approximately 6-8m. Widening to 16m would require very significant land acquisition and property acquisition; However as it is an important link to the section terminus, this route is carried forward to the Stage 2 Assessment.	Pass
1-02	L2260 Killumney Road, from N22 Interchange to Grange Terrace	Primary	The L2260 Killumney Road is a standard two-lane carriageway with a footpath present on the eastern side of the route. There is agricultural land uses present along both sides of the route with vegetation adjacent to the carriageway, and a number of these fields have direct access to the route. Typical width along this section of the route is 9-11m. Localised widening of the route to 16m would be possible with minor land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore deemed to be feasible and is carried forward to the Stage 2 assessment.	Pass
1-03	Grange Terrace, from L2260 Killumney Road to Curraheen Interchange	No	Grange Terrace is a rural two-way traffic route, with a typical width of 8-10m with no hard shoulders and little to no footpaths present along its length. There are a number of properties on either side of the route with direct accesses onto the route. Localised widening of the route to 16m would require land acquisition (walls and gardens), whereas widening to 20m would require more significant land acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-04	R608 Ovens Road, from N22 Interchange (Junction 3) to Wood Road	Primary	The R608 Ovens Road, from the N22 Interchange is a standard two-lane carriageway route with hard shoulders and footpaths present on both sides of the route. There are a number of properties either side of the route with direct accesses onto the route. Typical width along this section of the route is 13-15m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would require more significant land and potentially	Pass



Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
			property acquisition; as such, this route is deemed to be feasible and is carried forward to the Stage 2 assessment.	
1-05	N22 – from Killumney Interchange (Junction 3) to Curraheen Interchange (Junction 2)	No	The N22 from the Killumney Interchange to the Curraheen Interchange is a four-lane dual carriageway national primary road with hard shoulders on both sides of the route and a central grass verge of up to 9m width. The route is characterised by dense vegetation and trees adjacent to the carriageway. The surrounds of this route are largely open fields, with a number of houses to the north of the road at the Curraheen Interchange which do not have direct access to the route. Provision of dedicated bus priority along this link would be possible through re-designation of traffic lanes or through widening or use of the central median where appropriate. Although this route is not deemed to be suitable for cycling, it is feasible as a bus priority route and could therefore be carried forward to the Stage 2 assessment. However, this link would involve an indirect route for buses from the south-west compared to using link 1-03 to access the N22, and as such it is not carried forward to the Stage 2 assessment.	Fail
1-06	Wood Road and Coolroe, from junction with R608 (near N22 junction) to junction with R608/City West Mews	No	Wood Road, along the route between the R608 Ovens Road and the Coolroe Road is a rural two-way traffic route, approximately 4-5m wide with no hard shoulders and little to no footpaths present along its length. Two-way vehicular traffic flow is possible, albeit barely. There are a limited number of properties along the route, including the K Landscapes supply store site to the west of the route and an ESB substation to the west of the route, with the remainder of the route characterised by dense vegetation and trees adjacent to the carriageway, and boundary or property walls. An advisory notice is also present on the route advising of its unsuitability for Heavy Vehicle use. To the north, the route passes alongside the River Lee, where there is a drop in level from the carriageway to the water surface level. Coolroe from the junction with R608 to the junction with Wood Road is a standard two-lane carriageway with a footpath on one side of the route. There are a number of properties along the route with direct access onto the route. For the most part the route is bound by either dense vegetation and trees or stone walls. Typical width along this section of the route is 7-10m.  Localised widening of the route to 16m would require land acquisition (walls & gardens), whereas widening to 20m would require more significant land and property acquisition. Provision of bus priority along this route would require very significant land acquisition and would represent an indirect route with very limited catchment; as such, this route is not carried forward to the Stage 2 assessment.	Fail
1-07	R608 Ovens Road, from Wood Road to Coolroe Meadows junction	Primary	The R608 Ovens Road from Wood Road to Lisheen Woods is a standard two-lane carriageway route with hard shoulders and footpaths present on one side of route. The R608 from Lisheen Woods to Coolroe Meadows Junction is a two-lane carriageway route with a central median strip, single 1.5m cycle lanes and footpaths on both sides of the route. There are a number of properties either side of the route with direct accesses onto the route. Typical width along this section of the route is 12-15m with one flared section to include bus stops being 20m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would require more significant land and potentially property acquisition. This route is deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-08	Coolroe Meadows/Greenfields, from N22 Junction 3 to R608	Primary	The Coolroe Meadows/Greenfield route from N22 Junction 3 to R608 is a two-lane carriage way route with a central median, grass verges and footpaths on both sides of the route. There is a four-arm roundabout at the centre of the route. Typical width along this section of the route is 15-20m. Widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, widening to 20m would require more significant land and potential property acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
1-09	R608, from Coolroe Meadows Junction to Inniscara Road junction	Primary	The R608 from Coolroe Meadows Junction to Inniscara Road Junction is a two-lane carriageway with a central median, a bus lane on the northern side of the road, single cycle lane on the southern side, and footpaths on both sides of the route. There are a number of properties along the route with direct access to the route, the rest of the character of the route consists of trees, vegetation and stone boundary walls. There is also a Lime Kiln on the southern bounds of the route. Typical width along this section of the route is 16-17m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would require more significant land and potentially property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-10	L2216 Greenfields Road, from N22 Interchange (Junction 3) to junction with Flynn's Road	Primary	The L2216 Greenfields Road from the N22 Interchange to junction with Flynn's Road is a standard two-lane carriageway route with a footpath and occasional grass verge to one side of the route. There are a number of properties along both sides of the route (although predominantly on the northern side) with direct access to the route, the remainder of the route is characterised by dense vegetation and trees adjacent to the carriageway and boundary or property walls. The lands to the south are largely undeveloped. Typical width along this section of the route is 10-17m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and minor land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-11	R608, from junction with Coolroe to junction with Flynn's Road	Primary	The R608 from junction with Coolroe to junction with Flynn's Road is a four lane carriageway with a bus lane on the southern side of the road. There are footpaths on both sides of the route. The route is characterised by dense vegetation and trees to the south, as well as a boundary wall and trees to the north. There are properties on either side of the route, one of which, to the south, has direct access to the route. Typical width along the route is 19-20m. Achieving continuous 16m would be possible, whereas widening to 20m would be possible with a moderate degree of intervention and potentially require minor land acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-12	Flynn's Road, from junction with Greenfields Road to junction with R608	Secondary	Flynn's Road from the junction with Greenfields Road to the junction with R608 is a standard two-lane carriageway route with no hard shoulders and a footpath present on one side of the route. There are a number of properties predominantly on the western side of the route with direct access onto the route, the eastern boundary of the route is largely made up of dense vegetation, trees and boundary walls with limited number of properties accessing the route towards the R608. Typical width along this section of the route is 8-11m. Localised widening of the route to 16m would require significant land acquisition and potential property acquisition. This route is therefore considered unfeasible and is not carried forward to the Stage 2 assessment.	Fail
1-13	R608, from junction with Flynn's Road to junction with Old Fort Road	Primary	The R608 from junction with Flynn's Road to junction with Old Fort Road is a two-lane carriageway with a bus lane on either side of the route as far as the entrance to the WestGate Foundation, after which the road narrows and the bus lanes become cycle lanes on either side of the route. The bus lane to the north reappears as the road flares before the junction with Old Fort Road. There are footpaths on both sides of the route and occasional grass verges. The route is characterised by a number of properties and businesses on both sides of the route with direct access, as well as a boundary walls and trees. Typical width along the route is 15-18m, with a pinch point of 12m by Oriel House, and a flare to 25m on the approach to the junction with Old Fort Road. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, widening to 20m would require more significant land acquisition and potential property acquisition. This link	Pass

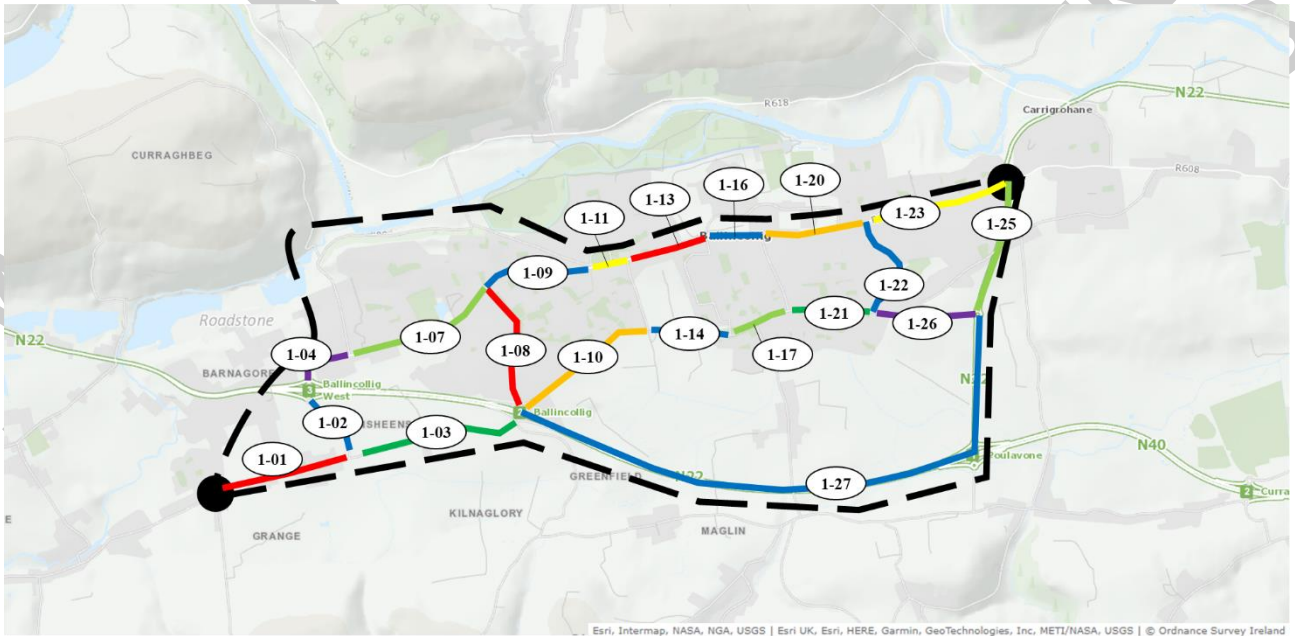


Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
			is therefore deemed feasible and is carried forward to the Stage 2 assessment.	
1-14	Castle Road from junction Flynn's Road to junction Meadows Estate	Primary	Castle Road from junction Flynn's Road to junction Meadows Estate is a two-lane carriageway route with little to no footpaths. There are a small number of properties to the south of the route with direct access to the route. The route is characterised by dense vegetation and trees for the most part as well as property/boundary walls. Typical width along this section of the route is 7-10m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-15	Meadows Estate, from junction with Old Fort Road/R608 to junction with Castle Road	Secondary	Meadows Estate is a residential development, with a typical internal road layout of approximately 7m carriageway with footpaths on either side, on-street parking throughout and residential properties directly fronting on to the route. Provision of dedicated bus priority would require extensive land and property acquisition, and this is not deemed to be suitable for a bus route. Consequently, the route is not deemed feasible and is not carried forward to the Stage 2 assessment.	Fail
1-16	R608 Main Street, from junction with Old Fort Road to junction with Station Road	Primary	R608, from junction with Old Fort Road to junction with Station Road is a two-lane carriageway which flares to four lanes at the junction with Old Fort Road, and to three lanes at the junction with Station Road. There is a bus lane from the junction with Old Fort Road to the entrance at Tesco. There are footpaths along both sides of the route with on street parking on both sides of the route in various areas. The route is characterised by business and retail offerings on both aspects of the route as it is the main street through the town.  Typical width along the route is 18-20m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, primarily involving removal of on-street parking and reduction in the existing generous footpath widths, whereas widening to 20m would require potential land acquisition in areas. The route is therefore deemed feasible and is carried forward to the Stage 2 assessment.	Pass
1-17	Castle Road from junction Meadows Estate to junction Station Road	Primary	Castle Road, from the junction with Meadows Estate to the junction with Station Road is a two-lane carriageway route with footpaths and grass verges on one or both sides of the route. There are a small number of properties along the route with no direct access to the route. The route is characterised by property/boundary walls and fences, as well as vegetation, trees and grasslands. Typical width along this section of the route is 10-17m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and minor land acquisition, whereas widening to 20m would require more significant land acquisition. The route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-18	Station Road from junction R608 Main Street to junction Carriganarra Road	Primary	Station Road, from the junction with R608 Main Street to the junction with Carriganarra Road is a two-lane carriageway route with footpaths on one or both sides of the route. There are a number of properties along the route with direct access to the route as well as the Ballincollig Community Hall, Scoil Eoin, St Mary & St Johns Church. The route is characterised by property/boundary walls and vegetation. Typical width along this section of the route is 7-12m. Localised widening of the route to 16m would require significant land and property acquisition, similarly widening to 20m would require significant land and property acquisition. This route is therefore not considered feasible and is not carried forward to the Stage 2 assessment.	Fail
1-19	Baker Street, from junction	No	Baker Street is a local access route that provides local access to a number of businesses and car parking areas to the south of Main Street. The route is a two-lane carriageway with footpaths on both sides for the	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	with Station Road to junction with R608		majority, with some sections with one or no footpath present. Typical width is approximately 9-12m. Widening to 16m would involve significant land and property acquisition. This route is therefore not deemed feasible and is not carried forward to the Stage 2 assessment.	
1-20	R608 Main Street from junction Station Road to junction Leo Murphy Road	Primary	The R608, from the junction with Station Road to the junction with Leo Murphy Road is a two/three-lane carriageway route with footpaths on both sides of the route; there is also extensive on-street parking on both sides of the route. The route is characterised by business and retail offerings on both aspects of the route as it is the main street through the town. There is a notable level change in the footpath outside Aldi on the north, which rises above ground level and is segregated from the main route, with an on-road cycle lane adjacent. Typical width along this section of the route is 11-25m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, namely removal of on-street parking and reduction in existing footpaths, whereas widening to 20m would require more significant land and property acquisition. The route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-21	Castle Road/Sunningdale, from junction with Station Road to junction with Leo Murphy Road	Primary	Castle Road/Sunningdale, from the junction with Station Road to the junction with Leo Murphy Road is a two-lane carriageway which flares to three lanes at either junction. There is a footpath to the south of the route and a shared footpath and cycle path and grass verge to the north of the route. The route is characterised by a number of properties to the south with direct access to the route and vegetation and trees to the north of the route, as well as property/boundary walls. Typical width along the route is 16-20m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would potentially require minor land acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-22	Leo Murphy Road from junction R608 Main Street to junction Carriganarra Road	Primary	Leo Murphy Road from the junction with the R608 Main Street to the junction with Carriganarra Road is a two-lane carriageway route with cycle lanes on both sides of the route, as well as grass verges, trees and footpaths also on both sides of the route. There are a number of properties along the route with direct access to the route such as Ballincollig Fire Station. The route is otherwise characterised by property/boundary walls and fences. Typical width along this section of the route is 14- 17m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require significant land acquisition. The route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-23	R608 Carrigrohane Road from junction Leo Murphy Road to Poulavone Roundabout	Primary	The R608 from the junction with Leo Murphy Road to the Poulavone Roundabout two-lane carriageway route with cycle lanes and footpaths along both sides of the route. There are a large number of properties along both sides of the route with direct access to the route. The route is characterised by property/boundary walls and fences as well as some trees. There is an NIAH building to the north of the route (Ard na Laoi). Typical width is 12m initially, but the route widens as it approaches the Poulavone Roundabout, to widths in excess of 20m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require significant land and property acquisition. The route is however considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-24	Carriganarra Road/Whitethorn Drive from the junction with Link	No	The Carriganarra Road from the junction with the Link Road to the junction with Whitethorn Drive is a two to three-lane route, with footpaths provided on one side for the majority (with some localised areas with footpaths on both sides). Typical width is 8-12m. Localised widening to 16m would require significant land acquisition, whereas widening to 20m would require property acquisition. Whitethorn Drive, between the R608 to the north and the Carriganarra Road to the south is a residential estate road, with two-lane carriageway throughout, footpaths	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	Road to the junction with Carrigrohane Rd		on both sides and residential properties fronting directly on to the route. There is also on-street parking throughout, on both sides. Typical width is 10-12m. Widening to 16m or 20m would involve land and property acquisition. This is an indirect route through a residential estate and is not considered feasible, and is therefore not carried forward to the Stage 2 assessment.	
1-25	N22 Link, from Killumney Link East Roundabout R608 Poulavone Roundabout	No	N22 Link, from Killumney Link East Roundabout R608 Poulavone Roundabout is a four lane carriageway route with small hard shoulders on both sides of the route and a central median. The route is characterised by dense vegetation. The route also travels under the bridge of Carriganarra Road. Typical width along this section of the route is 27-30m. Localised widening of the route to 16m or 20m would be possible with a moderate degree of intervention.	Pass
1-26	Link Road from junction Leo Murphy Road to Killumney Link East Roundabout (N22)	Primary	Link Road from the junction with Leo Murphy Road to the Killumney Link East Roundabout (N22) a two-lane carriageway with a long median that facilitates turning facilities along the route. West of the junction with Carriganarra Road there are footpaths present on both sides of the road with none present to the east of the junction. Typical width varies from 10m to 17m throughout. There is limited direct frontage onto the route, with most adjacent developments on parallel routes with a setback. Gaelscoil Uí Ríordáin is also accessed on the southern side of the route. Widening to 16m can be achieved by localised interventions, whereas widening to 20m would require more extensive land acquisition. The route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
1-27	N22 from Curraheen Interchange (Junction 2) to Killumney Link East Roundabout	No	The N22 from Junction 2 to Curraheen Interchange (Junction 1) is a four lane national primary road with a central median. There are no footpaths along the route, there are small 1.5m hard shoulders on both sides of the route. The route is characterised by dense vegetation and trees adjacent to the carriageway. Typical width along the route is 26m. Localised widening would not be required. Provision of dedicated bus priority along this link would be possible through re-designation of traffic lanes or through widening or use of the central median where appropriate. Although this route is not deemed to be suitable for cycling, it is feasible as a bus priority route and is therefore carried forward to the Stage 2 assessment.	Pass

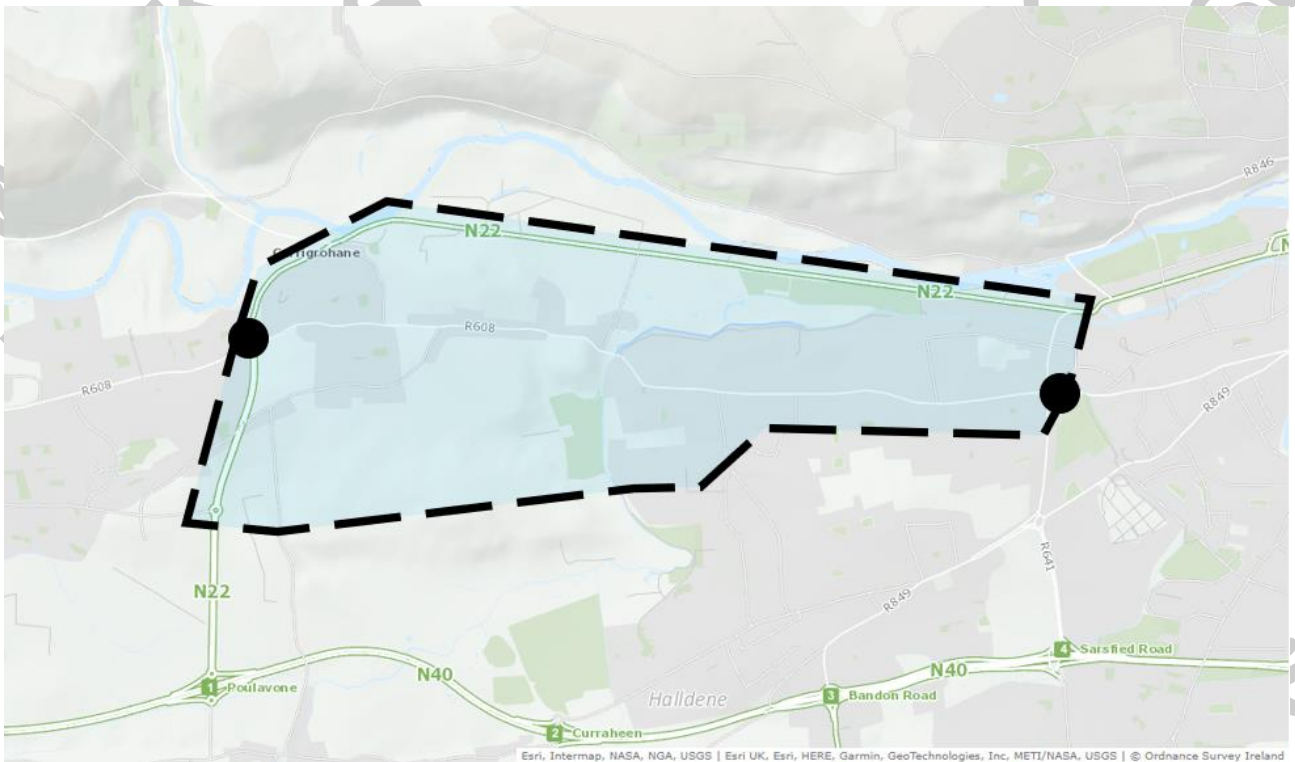
Following the Stage 1 sifting exercise, 20 of the 27 links assessed passed the initial sifting stage and were progressed to the next assessment stage. These links are presented in Figure 15.



**Figure 15 Section 1 – Route Options remaining after Stage 1 Sift**

### 6.3 Study Area Section 2 – Poulavone Roundabout to Dennehy's Cross

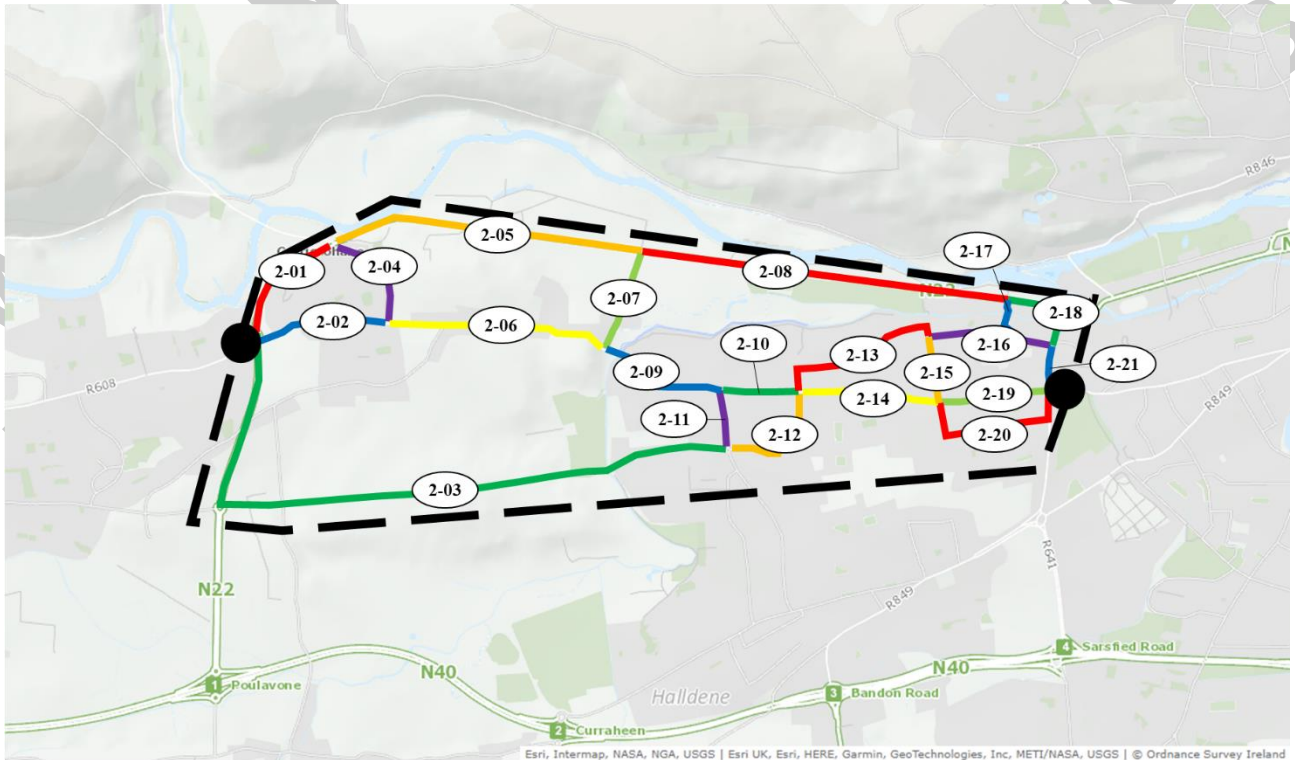
For Section 2, the start point is the Poulavone Roundabout to the east of Ballincollig Town Centre and the end point is the junction at Dennehy's Cross to the east.



**Figure 16 Section 2 start and end locations and overall study area**

The Stage 1 Assessment includes for the sifting of all possible through links within the study area and Figure 17 presents the links within the study area that have been initially identified.





**Figure 17 Section 2 Stage 1 Assessment Links**

A summary of the Stage 1 route options sifting process is presented in Table 7.



Table 7 Section 2 – Route Option Sifting (Stage 1) Summary

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
2-01	N22 Carrigrohane Road from Poulavone Roundabout to Church Hill	Primary	The N22 Carrigrohane Road from the Poulavone to the junction with Church Hill is a two-lane carriageway route with cycle lanes and footpaths along both sides of the route. There are two properties along the route with direct access to the route. The route is characterised by dense vegetation and trees on both sides of the route throughout. Typical width along this section of the route is 14-17m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and some minor land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-02	R608 Model Farm Road from junction with N22 to junction with Church Hill	Primary	R608 Model Farm Road from junction with N22 to junction with Church Hill is a two lane carriageway route with footpaths along both sides of the route for the most part. The route is characterised by a number of properties along both aspects of the route with direct access to the route as well as property/boundary walls and trees. Typical width along this section of the route is 9-12m. Localised widening of the route to 16m would be possible with minor land acquisition, whereas widening to 20m would require more significant land and potential property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-03	N22 Link, (New Road Link), and Institute Road from Poulavone Roundabout to Roundabout Rossa Avenue	No	<p>The N22 Link, from Poulavone Roundabout to Killumney Link East Roundabout R608 is a four lane carriageway route with small hard shoulders on both sides of the route and a central median. The route is characterised by dense vegetation. The route also travels under the bridge of Carriganarra Road. Typical width along this section of the route is 27-30m. Localised widening of the route to 16m or 20m would be possible with a moderate degree of intervention.</p> <p>The link from the Killumney Link East Roundabout through to Rossa Avenue would be a newly built road, connecting the N22/Link Road roundabout to O'Shea's Lane, routing through what are currently green fields. This would require land acquisition and the construction of a new route through greenfield/agricultural lands.</p> <p>The portion of the route along Institute Road connecting O'Shea's Lane to Rossa Avenue would require land acquisition and construction of a new route to connect O'Shea's lane to the carpark access route of MTU (formerly CIT). The land to be acquired is partially agricultural land and the rest is MTU surface carparking. The new route would also need to traverse the Curragheen River.</p> <p>The existing segment of the proposed route runs from MTU carpark to the roundabout at Rossa Avenue with a footpath on one or both sides of the route as well as sections of segregated cycle lanes. The route is characterised by trees and areas of steep level changes on both aspects of the route, and the MTU campus to the south. Typical width along this section of the route is 9-16m. Localised widening of the existing route segment to 16m would require minor intervention land acquisition, whereas widening to 20m would require more significant land and potential property acquisition.</p>	Pass
2-04	Church Hill from junction N22 Carrigrohane Road to junction R608 Model Farm Road	No	Church Hill from junction N22 Carrigrohane Road to junction R608 Model Farm Road is a two way traffic route with sections of footpath on one or both sides of the route. There are a large number of properties along both sides of the route with direct access to the route. The route is otherwise characterised by property/boundary walls, dense vegetation, and trees. Typical width along this section of the route is 6-10m. Localised widening of the route to 16m or 20m would require significant land and property acquisition. The route is therefore not deemed feasible and is not carried forward to the Stage 2 assessment.	Fail
2-05	N22 Carrigrohane Road from junction R618	Primary	N22 Carrigrohane Road from junction R618 to junction The Orchards is a two-lane carriageway route with a footpath along the northern aspect of the	Pass

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	to junction The Orchards		<p>route. There are a small number of properties on both sides of the route with direct access to the route.</p> <p>The route is characterised by dense vegetation and trees and a retaining wall and drop in level to the north of the route by the River Lee. Typical width along this section of the route is 11-14m. there is an NIAH building to the south of the route (Rockrohan House). Localised widening of the route to 16m would require a moderate degree of land acquisition, whereas widening to 20m would require more significant land acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.</p>	
2-06	R608 Model Farm Road from junction Carriganarra Road to junction Inchigaggin Lane	Primary	R608 Model Farm Road from junction Carriganarra Road to junction Inchigaggin Lane is a two-lane carriageway route with footpaths on both or one side of the route for the most part. There are a number of properties along the route with direct access to the route. The route is characterised by property/boundary walls for the most part as well as dense vegetation and trees. Typical width along this section of the route is 8-10m. Localised widening of the route to 16m would require a moderate degree of land acquisition, whereas widening to 20m would require more significant land and property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-07	Inchigaggin Lane from junction N22 Carrigrohane Road to junction R608 Model Farm Road	No	Inchigaggin Lane from junction N22 Carrigrohane Road to junction R608 Model Farm Road is a two way traffic route with little to no footpaths. There are a small number of properties along the route with direct access to the route. The route is characterised by dense vegetation and trees as well as property/boundary walls. Typical width along this section of the route is 6-8m. Localised widening of the route to 16m or 20m would require a significant degree of land acquisition. The route is not deemed feasible and is not carried forward to the Stage 2 assessment.	Fail
2-08	N22 Carrigrohane Road from junction Inchigaggin Lane to junction Victoria Cross	Primary	N22 Carrigrohane Road from junction Inchigaggin Lane to junction Victoria Cross is a two-way carriageway route with footpaths and cycle lanes along both sides of the route, the cycle lane on the north of the route widens to become a bus lane for the majority of the route. There are a small number of properties to the south of the route with direct access to the route, as well as Lough Rovers GAA club. The route is characterised by dense vegetation and trees, open fields and boundary walls/fences. Typical width along this section of the route is 13-15m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land and potential property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-09	R608 Model Farm Road from junction Inchigaggin Lane to junction Rossa Avenue	Primary	R608 Model Farm Road from junction Inchigaggin Lane to junction Rossa Avenue is a two lane carriageway route with footpaths on both sides of the route for the most part. There are also cycle lanes on both sides of the route from Rossbrook to junction Rossa Avenue. There are a number of properties on both sides of the route with direct access to the route as well as a filling station. a section of the route transverses the Carragheen River at width 8m which could represent a pinch point. The route is characterised by property/boundary walls for the most part. Typical width along this section of the route is 8-13m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition but would not be possible at the bridge. Whereas widening to 20m would require more significant land acquisition and also experience a pinch point at the bridge. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-10	R608 Model Farm Road from junction with Rossa Avenue to junction with	Primary	R608 Model Farm Road from junction with Rossa Avenue to junction with IDA Cork Business & Technology Park is a two-lane carriageway route with a shared footpath and cycle path surface along one side of the route. There are a small number of properties along the route with direct access to the route. The route is otherwise characterised by property/boundary walls	Pass

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	IDA Cork Business & Technology Park		and fences, dense vegetation and trees. Typical width along this section of the route is 11-15m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land and potential property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	
2-11	Rossa Avenue from junction with R608 Model Farm Road to junction with Institute Road	Primary	Rossa Avenue from junction with R608 Model Farm Road to junction with Institute Road (access to MTU) is a standard two-lane carriageway route with large grass verges and footpaths along both sides of the route. There are a small number of properties along this section of the route with direct access to the route. the route is otherwise characterised by grasslands, trees and property/boundary walls and fences. Typical width along this section of the route is 20-22m. Localised widening of this section of the route to 16 or 20m would be possible with a moderate degree of intervention. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-12	Leesdale/Parkway Drive from roundabout with Rossa Avenue to junction with R608 Model Farm Road	Secondary	Leesdale/Parkway Drive from roundabout with Rossa Avenue to junction with R608 Model Farm Road is a local access route to a number of residential estates. It is a two-lane carriageway route with footpaths on one or both sides throughout, scattered on street parking, green areas and residential properties on one or both sides of the route throughout with direct access to the route. Typical width along this section of the route is 8-12m. Localised widening of the route to 16m or 20m would require extensive land and property acquisition. The route is not deemed feasible and is not carried forward to the Stage 2 assessment.	Fail
2-13	IDA Cork Business & Technology Park/Farranlea Park from junction R608 Model Farm Road/Parkway Drive to junction Farranlea Road	No	IDA Cork Business & Technology Park/Farranlea Park from junction R608 Model Farm Road/Parkway Drive to junction Farranlea Road is not currently a connected route and would require land and potential acquisition behind HSE community equipment service building to connect the Business Park to Farranlea Park. Typical width of the route through the business park is 8-10m. Typical width at Farranlea Park is 6-9m. Localised widening of the existing sections of the route to 16m or 20m would require significant land and potential property acquisition. The route is therefore not deemed feasible and is not carried forward to the Stage 2 assessment.	Fail
2-14	R608 Model Farm Road from junction with IDA Cork Business & Technology Park to junction with Farranlea Park	Primary	R608 Model Farm Road from junction with IDA Cork Business & Technology Park to junction with Farranlea Park is a two-lane carriageway route with footpaths on one or both sides of the route throughout. There is a section of cycle lane/shared surface to the north of the route. There are a moderate number of properties along both sides of the route with direct access to the route. There is a small section of on street parking on one side of the route on the approach to the junction with Farranlea Park. There is an NIAH Building (Boston Scientific - Gate Lodge) to the north of the route at the entrance to the Business Park. The route is otherwise characterised by property/boundary walls, vegetation and trees. Typical width along this section of the route is 9-14m. Widening of the route to 16m would require a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land and property acquisition. The route is however considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-15	Farranlea Park from junction Farranlea Road to junction R608 Model Farm Road	No	Farranlea Park from Farranlea Road to R608 Model Farm Road is a two-way traffic route with footpaths on either side of the route and some on street parking along the west of the route. The route is characterised as a residential street with properties along both sides of the route with direct access to the route, property walls, trees and hedges. Typical width along this section of the route is 8-10m. Localised widening of the route to 16m would require significant land acquisition (front gardens, driveways, walls), whereas widening to 20m would require significant land and potential property acquisition. This is an indirect route through a	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
			residential estate and is not considered feasible and is therefore not carried forward to the Stage 2 assessment.	
2-16	Farranlea Road from junction Farranlea Park to junction R641 Victoria Cross Road	No	Farranlea Road from junction Farranlea Park to junction R641 Victoria Cross Road is a two way traffic route with a footpath on the northern side of the road, and a section of on street parking to the south. The route is characterised by a number of properties with direct access to the route, as well as property/boundary walls and dense vegetation/trees. Typical width along this section of the route is 6-11m. Localised widening of the route to 16m or 20m would both require significant land and property acquisition. This is an indirect route through a residential estate and is not considered feasible and is therefore not carried forward to the Stage 2 assessment.	Fail
2-17	Cork County Council Private Car Park Access Road	No	The private car park in the grounds of Cork County Hall is a standard two-lane route, with areas of adjacent parking on both sides (some of which are at higher levels), a large multi-storey car park to the west and a crossing of the Curragheen River to the south of the County Library building. Typical width along this section is 7-10m. Widening of this route to 16 or 20m would require extensive land acquisition or changes to structures or properties within the County Hall site. This is also an indirect route and is not considered feasible and therefore it is not carried forward to the Stage 2 assessment.	Fail
2-18	N22 Carrigrohane Road/ R641 Victoria Cross Road from junction Inchigaggin Lane to Farranlea Rd	Primary	<p>N22 Carrigrohane Road from junction Inchigaggin Lane to junction with Victoria Cross is a two way carriageway route with footpaths and cycle lanes along both sides of the route, the cycle lane on the north of the route widens to become a bus lane for the majority of the route. There are a small number of properties to the south of the route with direct access to the route, as well as Lough Rovers GAA club. The route is characterised by dense vegetation and trees, open fields and boundary walls/fences. Typical width along this section of the route is 13-15m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land and potential property acquisition. This route is therefore considered feasible and is carried forward to the Stage 2 assessment.</p> <p>R641 Victoria Cross, from Carrigrohane Road to Orchard Road is a 4-lane carriageway with two lanes for regular traffic on each side. There are footpaths on both sides of the route throughout. There are a number of properties/businesses along the route with direct access onto the route. Typical width along this section of the route is 10-16m. Localised widening of the route to 16m would require land acquisition (properties, walls &amp; gardens). However, this route is deemed to be feasible and is carried forward to the Stage 2 assessment.</p>	Pass
2-19	R608 Model Farm Road, College Road and Bishopstown Avenue	Primary	This section is a two-lane carriageway route with footpaths on one or both sides of the route throughout. There is a section of cycle lane/shared surface to the south of the route. There are a moderate number of properties along both sides of the route with direct access to the route. Typical width along this section of the route is 9-14m. Widening of the route to 16m would require a moderate degree of intervention and land acquisition, whereas widening to 20m would require more significant land and property acquisition. The route is however considered feasible and is carried forward to the Stage 2 assessment.	Pass
2-20	Bishopstown Avenue/ The Ridgeway/ Laburnum Lawn/Wilton Gardens/ R641 Wilton Road from junction with R608 Model Farm	Partially Secondary	Bishopstown Avenue from junction with R608 Model Farm Road to junction with The Ridgeway is a two-way traffic route with footpaths on both sides of the route and on street parking along the west of the route. The route is characterised as a residential street with properties along both sides of the route with direct access to the route, property walls, trees and hedges. Typical width along this section of the route is 8-10m. Localised widening of the route to 16m or 20m would require significant land acquisition (front gardens, driveways, walls).	Fail



Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	Road/Farranlea Rd to junction with R608 Model Farm Road/Victoria Cross Rd		<p>The Ridgeway/Bishopstown Avenue/Laburnum Lawn /Wilton Gardens is a residential street with a footpath on both sides and on street parking on one side throughout. There are a number of properties along the route with direct access onto the route. Typical width along this section of the route is 6m. Localised widening of the route to 16m would require land acquisition (walls &amp; gardens), whereas widening to 20m would require more significant land acquisition.</p> <p>R641 Wilton Road, from Wilton Gardens to the Model Farm Road is a two to three lane carriageway with a section of northbound bus lane. There are footpaths throughout on both sides. The route is characterised by properties throughout with direct access onto the route, as well as access and carparking for the Church of the Descent of the Holy Spirit which is setback from the route. Typical width along this section of the route is 13m. Localised widening of the route to 16m or 20m would require land acquisition (walls &amp; gardens).</p> <p>This is an indirect route through a residential street and is not considered feasible and is therefore not carried forward to the Stage 2 assessment.</p>	
2-21	R641 Victoria Cross Road, from Wilton Road to Farranlea Road	Primary	<p>Victoria Cross, from Wilton Road to Farranlea Road is a three-lane carriageway route with 2 lanes southbound. There is a footpath throughout on both sides of the route. The route is characterised by apartment buildings on both sides of the route for the most part, as well as a boundary wall to the west. Typical width along this section of the route is 13-17m. Localised widening of the route to 16m would be possible with a moderate degree of land acquisition, whereas widening to 20m would require more significant land and property acquisition. As such, this route is deemed to be feasible and is carried forward to the Stage 2 assessment.</p>	Pass

Following the Stage 1 sifting exercise, 13 of the 21 links assessed passed the initial sifting stage and were progressed to the next assessment stage. These links are presented in Figure 18.

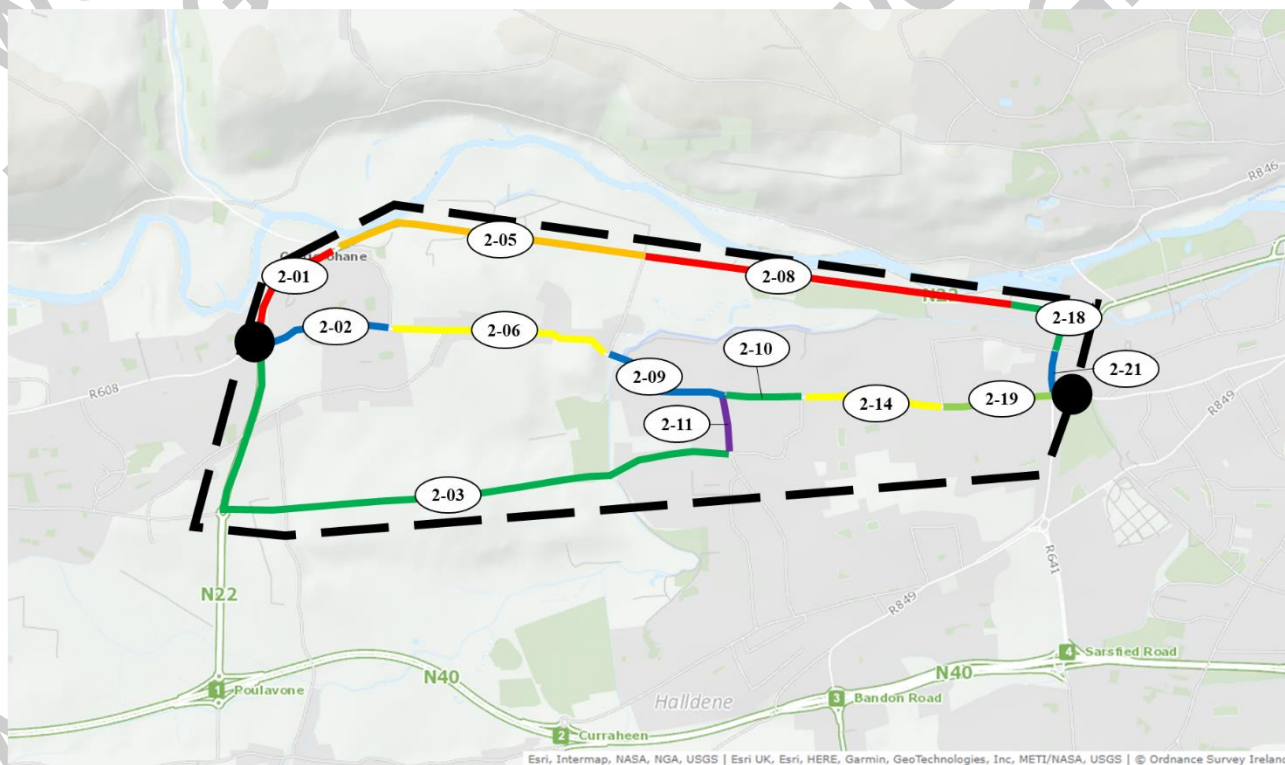


Figure 18 Section 2 – Route Options remaining after Stage 1 Sift



## 6.4 Study Area Section 3 – Dennehy's Cross to Bandfield

For Section 3, the start point is the junction at Dennehy's Cross to the west and the end point is the junction of Donovan's Road/Lancaster Quay (at the Bandfield).



Figure 19 Section 3 start and end locations and overall study area

The Stage 1 Assessment includes for the sifting of all possible through links within the study area and Figure 17 presents the links within the study area that have been initially identified.

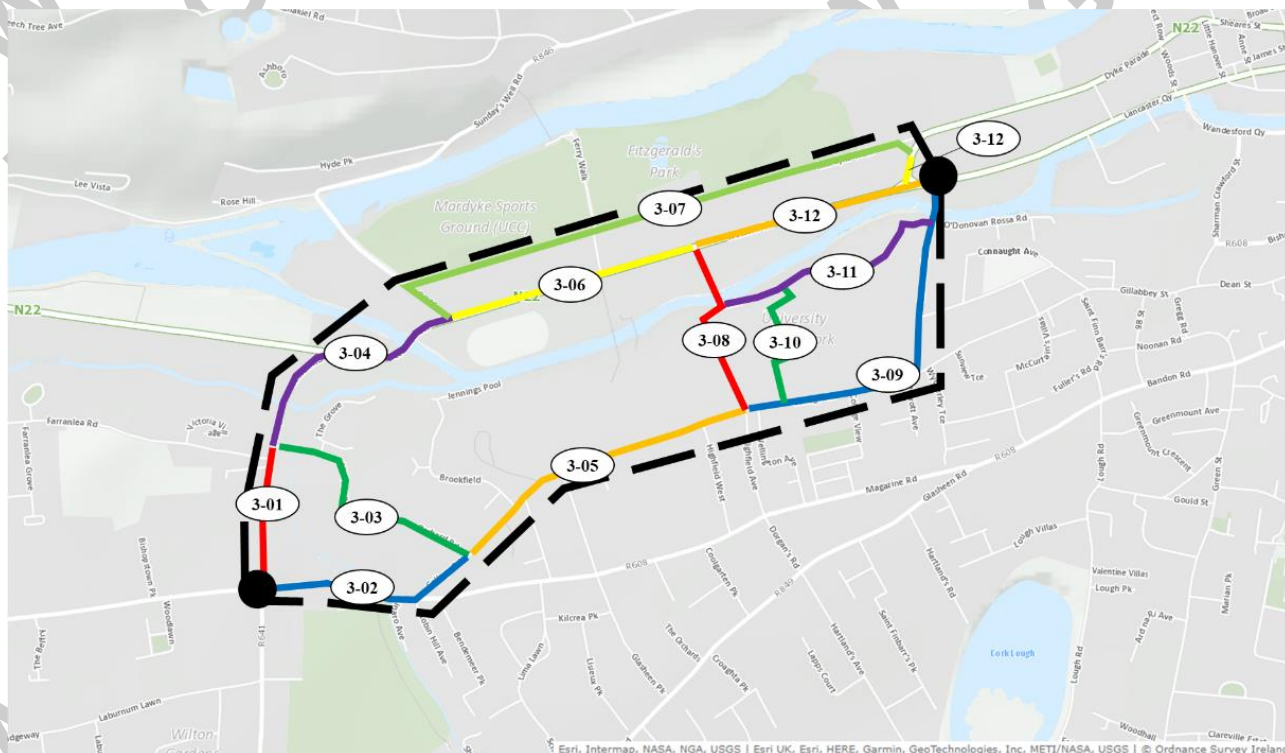


Figure 20 Section 3 Stage 1 Assessment Links

A summary of the Stage 1 route options sifting process is presented in Table 8.

**Table 8 Section 3 – Route Option Sifting (Stage 1) Summary**

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
3-01	R641 Victoria Cross Road, from Wilton Road to Farranlea Road	Primary	Victoria Cross, from Wilton Road to Farranlea Road is a three -lane carriageway route with 2 lanes southbound. There is a footpath throughout on both sides of the route. The route is characterised by apartment buildings on both sides of the route for the most part, as well as a boundary wall to the west. Typical width along this section of the route is 13-17m. Localised widening of the route to 16m would be possible with a moderate degree of land acquisition, whereas widening to 20m would require more significant land and property acquisition. As such, this route is deemed to be feasible and is carried forward to the Stage 2 assessment.	Pass
3-02	R608 College Road, from Wilton Road to Linaro Avenue	Primary	R608 College Road, from Wilton Road to Linaro Avenue is a two-lane carriageway route with footpaths mostly on the northern side and section on the south. There is on street parking on the northern side. the route is characterised by and apartment complex and green area to the north of the route and a number of business properties to the south of the route. Typical width along this section of the route is 8-10m. Localised widening of the route would require land and property acquisition in places. However, this route is deemed to be feasible and is carried forward to the Stage 2 assessment.	Pass
3-03	Orchard road, from Victoria Cross Road and College Road	No	Orchard road, from Victoria Cross Road and College Road is a winding residential estate road with footpaths on both sides throughout and sections of on street parking on one side. The route is characterised by residential properties throughout with access onto this route. Typical width along this section of the route is 8-10m. Localised widening of the route to 16m would be possible with significant land take of front gardens, walls etc. whereas widening to 20m would require property acquisition. This is an indirect route through a residential estate and is not considered feasible and is therefore not carried forward to the Stage 2 assessment.	Fail
3-04	R641 Victoria Cross Road, from Orchard Road to Western Road	Primary	R641 Victoria Cross, from Orchard Road to Western Road is a 4-lane carriageway with two lanes for regular traffic on each side. There are footpaths on both sides of the route throughout. There are a number of properties/businesses along the route with direct access onto the route. The route also transverses the River Lee at a bridge width of 15-17m. Typical width along this section of the route is 10-16m. Localised widening of the route to 16m would require land acquisition (properties, walls & gardens). This route is deemed to be feasible and is carried forward to the Stage 2 assessment.	Pass
3-05	College road, Orchard Road to Highfield Avenue	Primary	College road, Orchard Road to Highfield Avenue is a two-lane carriageway with footpaths on both sides, reducing to one footpath the northern side at the western end of the link. There are a number of properties along the route with direct access onto the route, with Brookfield Student Accommodation, UCC and the Bons Secours Hospital to the north of the route. Typical width along this section of the route is 7-13m. Localised widening of the route to 16m would require land acquisition (properties, walls, gardens & UCC green area). Alternatively, it may be possible to introduce traffic restrictions to provide the required bus priority as there are a number of alternative parallel routes available and this link has been retained for the Stage 2 assessment.	Pass
3-06	N22 Western Road, Western Road to Gaol Walk	Primary	N22 Western Road, Western Road to Gaol Walk is a three to four lane carriageway. There are footpaths on both sides, with short lengths of bus lanes and bus stops. There are a number of properties along the north of the route with direct access onto the route, and UCC Western Gateway Building and carpark to the south. Typical width along this section of the route is 13-20m. Localised widening of the route to 16m or 20m would be possible with a moderate degree of land acquisition (walls & gardens). This route is deemed feasible and is carried forward to stage 2 assessment.	Pass
3-07	R846 Western Road/Mardyke Walk/Dyke Parade, N22	Primary	R846 Western Road, Western Road to Mardyke Walk is a three-lane carriageway with two lanes heading southeast and one lane heading northwest. There are footpaths on both sides of the route throughout. The route is characterised by green area and surface carparking to the west and properties to the east. Typical width along this section of the route is 15m.	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	(Near River Lee) to N22 (near Donovan Rd)		<p>localised widening of the route to 16m is possible with minor land acquisition of greenspace and more moderate acquisition to get to 20m.</p> <p>Mardyke Walk, Western Road to Dyke Parade is a single lane carriageway with footpaths on both sides. There are a number of properties along the south of the route which is characterised by property/boundary walls and the Mardyke Sports Complex to the north of the route. Typical width along this section of the route is 8m. Localised widening of the route to 16m or 20m would require significant property acquisition. Therefore, this route is not considered feasible, and is not carried forward to Stage 2 assessment.</p> <p>The route is characterised by residential properties to the south, and Fitzgerald's Park/Cork Cricket Club to the north for the most part. Some NIAH-designated railings are also present along the route. Typical width along this section of the route is 7-8m. Localised widening of the route to 16m or 20m would require land and property acquisition. Therefore, this route is not considered feasible, and is not carried forward to Stage 2 assessment.</p>	
3-08	Gaol Walk, College Road to Western Road	Primary	<p>Gaol Walk, College Road to Western Road is a two-way, two lane and one lane carriageway with footpaths on both sides to the North of the River Lee, and one side to the south. There are a number of properties throughout on both sides along with UCC buildings on either side of the route with access to the route. The route also transverses the River Lee at a bridge width of 9m. Typical width along this section of the route is 7-11m. Localised widening of the route to 16m or 20m would require significant land and property acquisition and experience a pinch point at the bridge. Therefore, this route is not considered feasible and is not carried forward to stage 2 assessment.</p>	Fail
3-09	College road/Donovan Rd, Gaol Walk to Western Road	Primary	<p>College road, Gaol Walk to Donovan Rd is a two-lane carriageway with footpaths on both sides. There are a number of properties and a surface car park along the south of the route with direct access onto the route, as well as UCC boundary fences and buildings to the north of the route. Typical width along this section of the route is 7-14m. Localised widening of the route to 16m would require land acquisition (properties, walls &amp; gardens). Alternatively, it may be possible to introduce traffic restrictions to provide the required bus priority as there are a number of alternative parallel routes available and this link has been retained for the Stage 2 assessment.</p> <p>Donovan Road, College Road to N22 Western Road is a two-lane carriageway with footpaths on both sides and some parking on the eastern side. There are a number of properties along the east of the route, and UCC boundary walls and buildings to the west of the route. The route passes over the Reiver Lee across an 8m bridge. Typical width along this section of the route is 7-12m. Localised widening of the route to 16m would require land acquisition (properties, walls &amp; gardens). This route is however deemed feasible and is carried forward to Stage 2 assessment.</p>	Pass
3-10	University College Cork Internal Road	No	This route segment is an internal access road to UCC, which provides access to private carparking for staff. Due to the nature of this route and the extents of work related it is not deemed feasible and is therefore not carried forward to stage 2 assessment.	Fail
3-11	University College Cork Internal Road	No	This route segment is an internal access road to UCC, which provides access to private carparking for staff. Due to the nature of this route and the extents of work related it is not deemed feasible and is therefore not carried forward to stage 2 assessment.	Fail
3-12	N22 Western Road, Gaol Walk to Mardyke Walk Link	Primary	N22 Western Road, Gaol Walk to Mardyke Walk Link is a two-lane carriageway with an eastbound bus lane, footpaths on both sides. There are properties along the north of the route throughout, a small number of properties to the south, and UCC campus grounds to the south, characterised by walls, fences, dense vegetation & trees. Typical width along this section of the route is 15m. Localised widening of the route to 16m or 20m would require acquisition (walls, gardens). This route is considered feasible and is therefore carried forward to stage 2 assessment.	Pass



Following the Stage 1 sifting exercise, 7 of the 12 links assessed passed the initial sifting stage and were progressed to the next assessment stage. These links are presented in Figure 21.

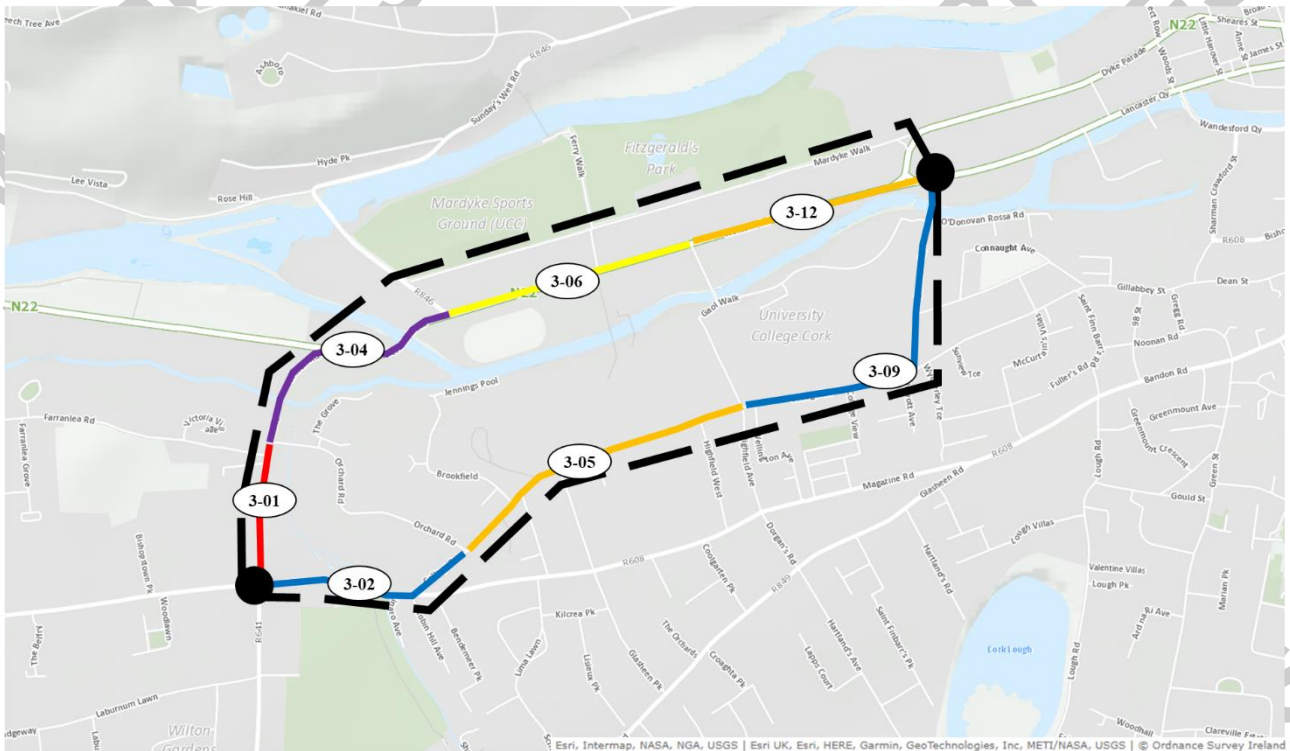


Figure 21 Section 3 – Route Options remaining after Stage 1 Sift

## 6.5 Study Area Section 4 – Bandfield to City Centre

For Section 4, route options are considered between the junction of Donovan's Road/Lancaster Quay (at the Bandfield) and the city centre (at Washington Street/Grand Parade).

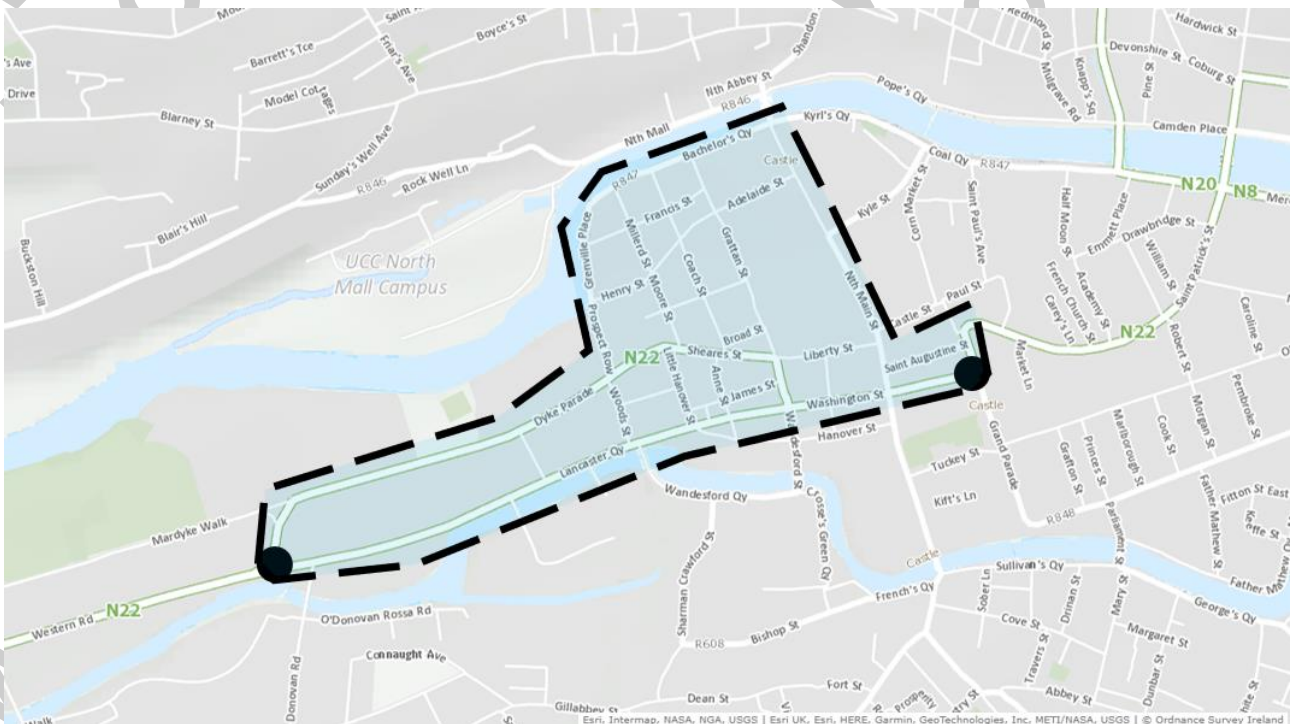
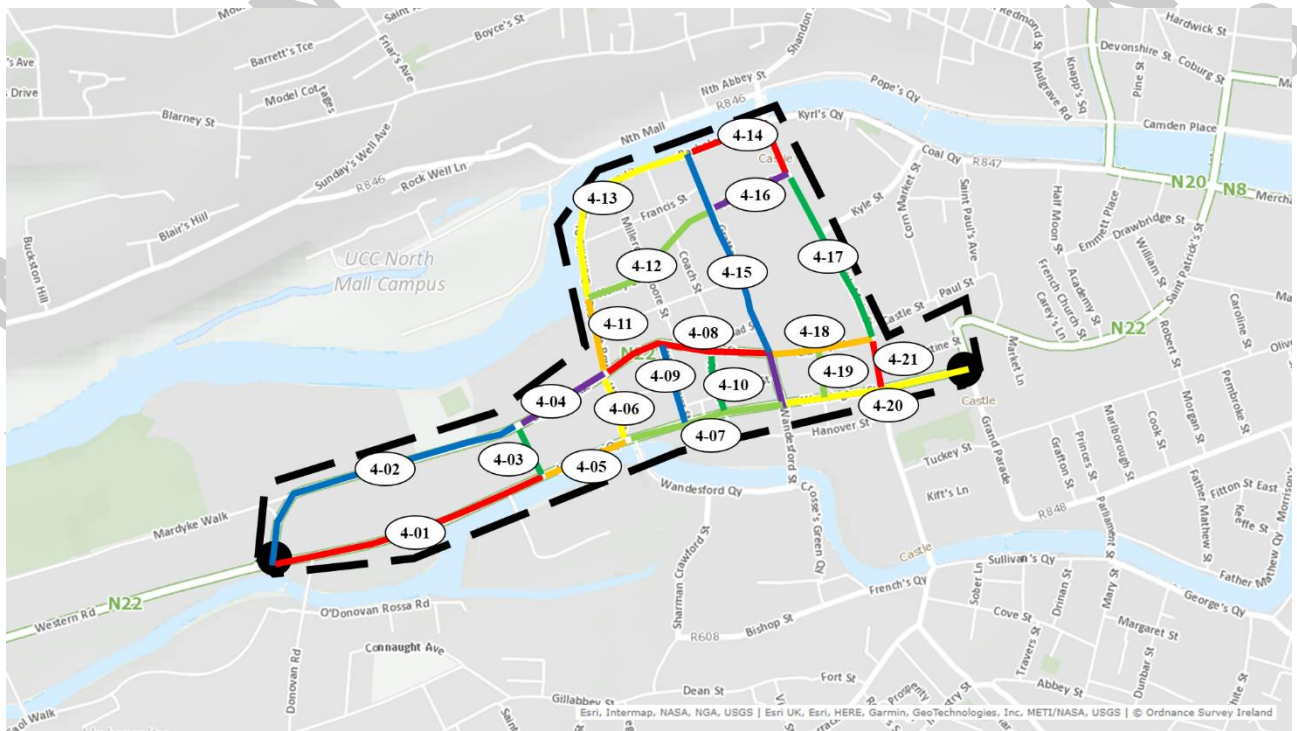


Figure 22 Section 4 start and end locations and overall study area

The Stage 1 Assessment includes for the sifting of all possible through links within the study area and Figure 36 presents the links within the study area that have been initially identified.





**Figure 23 Section 4 Stage 1 Assessment Links**

A summary of the Stage 1 route options sifting process is presented in Table 9.

**Table 9 Section 4 – Route Option Sifting (Stage 1) Summary**

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
4-01	N22 Western Road, Donovan's Road to Mardyke Street	Primary	N22 Western Road, Donovan's Road to Mardyke Street is a single lane carriageway route, with a bus lane, segregated contraflow cycle lane and section of on street parking on one side. There are footpaths on both sides of the route. The route is characterised by properties on one or both sides of the route throughout, and by the River Lee south channel to the south of the route. Typical width along this section of the route is 15-16m. Localised widening of the route to 16m would be possible with a moderate degree of intervention and potentially minor land acquisition, whereas widening to 20m would involve more significant land and potential property acquisition. This route is therefore deemed feasible and is carried forward to stage 2 assessment.	Pass
4-02	N22 Mardyke Walk, N22 Link to Mardyke Street	Secondary	N22 Mardyke Walk, N22 Link to Mardyke Street is a single lane, one way carriageway route, with footpaths on both sides throughout and an eastbound bus lane. There is on street parking throughout on both sides. The route is characterised by properties throughout on one side the most part, with St. Josephs NS and Presentation Brothers College to the north of the route. Typical width along this section of the route is 17-18m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would require some minor acquisition. This route is deemed feasible and is therefore carried forward to stage 2 assessment.	Pass
4-03	Mardyke Street, N22 Mardyke Walk to N22 Lancaster Quay	No	Mardyke Street, N22 Mardyke Walk to N22 Lancaster Quay is a two-lane carriageway route with footpaths on both sides of the route throughout. The route is characterised by street front properties on both sides (some NIAH) and NIAH post-box. Typical width along this section of the route is 10m. Widening to 16m or 20m would involve extensive works and property acquisition throughout. Therefore, this route is not considered feasible, and is not carried forward to Stage 2 assessment.	Fail
4-04	N22 Dyke Parade,	Secondary	N22 Dyke Parade, Mardyke Street to Woods Street is a two-lane, one-way carriageway route with footpaths on both sides of the route and	Pass

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	Mardyke Street to Woods Street		on street parking throughout on one side of the route, and a small set down area on the other side of the route. The route is characterised by properties to the south of the route with Presentation Brothers College and Tyndall National Institute to the north of the route. Typical width along this section of the route is 16-25m. Widening of the route to 16m would be possible with a moderate degree of intervention whereas widening to 20m would require property acquisition. (all properties to the south are NIAH). This route is considered feasible and is carried forward to stage 2 assessment.	
4-05	N22 Lancaster Quay, Mardyke Street to Woods Street	Primary	N22 Lancaster Quay, Mardyke Street to Woods Street is a single lane carriageway route, with a bus lane, segregated contraflow cycle lane and sections of on street parking on one side. There are footpaths on both sides of the route. The route is characterised by properties on one side of the route throughout, and by the River Lee south channel to the south of the route. Typical width along this section of the route is 13-18m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is deemed feasible and is carried forward to stage 2 assessment.	Pass
4-06	Woods Street, Dyke Parade to Lancaster Quay	Secondary	Woods Street, Dyke Parade to Lancaster Quay is a single lane carriageway route with footpaths on one or both sides. Street front properties (1 NIAH) on both sides throughout. Typical width 4-5m. Widening to 16m or 20m would involve extensive works and property acquisition throughout. Therefore, this route is not considered feasible, and is not carried forward to Stage 2 assessment.	Fail
4-07	N22 Washington Street, St. Finbarr's Bridge to Hanover Place	Primary	N22 Washington Street, St. Finbarr's Bridge to Hanover Place is a single lane carriageway route, with a bus lane, segregated contraflow cycle lane and sections of on street parking on one side. There are footpaths on both sides of the route. There is a Bike Share station to the north of the route. The route is characterised by properties on both sides of the route throughout. Typical width along this section of the route is 16-18m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would involve significant property acquisition. This route is therefore deemed feasible and is carried forward to stage 2 assessment.	Pass
4-08	N22 Sheare's Street, Prospect Row to Courthouse Street	Secondary	N22 Sheare's Street, Prospect Row to Courthouse Street is a two-lane, one-way carriageway route with a bus lane. There are footpaths on both sides of the route, and on street parking throughout on one side. The route is characterised by properties on both sides of the route throughout (many of which have NIAH-designation). Typical width along this section of the route is 14-18m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is however deemed feasible and is carried forward to stage 2 assessment.	Pass
4-09	Little Hanover Street, Washington St to Sheare's Street	No	Little Hanover Street is a narrow one lane one-way street with footpaths on both sides, and parking along the eastern side. The route is characterised by close buildings fronts on both sides, with some doorways opening onto the street. Typical width along this section of the route is 6-7m. Localised widening of the route to 16m or 20m would require demolishing of buildings. This route is therefore deemed unfeasible and is not carried forward to stage 2 assessment.	Fail
4-10	Anne Street, Washington St to Sheare's Street	No	Anne Street is a narrow one lane one-way street with footpaths on both sides, and parking along the eastern side. The route is characterised by close buildings fronts on both sides, with some doorways opening onto the street. Typical width along this section of the route is 5-6m. Localised widening of the route to 16m or 20m would require demolishing of buildings. This route is therefore deemed unfeasible and is not carried forward to stage 2 assessment.	Fail
4-11	R847 Prospect Row, Henry	No	R847 Prospect Row, Henry Street to Sheare's Street is a single lane carriageway route with on street parking throughout, on both sides. There are footpaths on both sides of the route. The route is	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
	Street to Sheare's Street		characterised by properties on both sides (some NIAH) and the Mercy University Hospital to the east. Typical width along this section of the route is 7-13m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is not considered feasible and is therefore not carried forward to stage 2 assessment.	
4-12	Henry Street, Grattan Street to Grenville Place	No	Henry Street, Grattan Street to Grenville Place is a two-way two-lane carriageway with footpaths and lots of on street parking on both sides. The route is characterised by properties on both sides throughout including the Mercy University Hospital to the south of the route. The typical width along this section of the route is 12-17m and expansion to a further 16m would require significant land acquisition. There is a skybridge connecting two buildings of Mercy university hospital that with an unknown height that starts on the 2nd floor. This route is not considered feasible and is therefore not carried forward to stage 2 assessment.	
4-13	Grenville Place, Henry Street to Grattan Street	Partially Secondary	Grenville Place, Henry Street to Grattan Street is a single lane carriageway with one-way eastbound traffic. There is a footpath on both sides and there is on-street parking dispersed throughout. The route is characterised by properties throughout on one side (a number of which designated buildings), with the River Lee to the other side of the route. The typical width of the segment is 7-9m. Localised widening of the route to 16m would require significant land acquisition. This route is therefore not considered feasible and is not carried forward to stage 2 assessment.	Fail
4-14	R847 Bachelor's Quay / North Main Street, Grattan Street to Adelaide Street	Secondary/Primary	R847 Bachelor's Quay, Grattan Street to North Main Street is a 4-lane dual carriageway with footpaths on both sides and on street parking on the southern side. There is a small median in the middle, with properties to the south and the river Lee to the north. The typical road width is 16m and expansion to 20m would require significant land acquisition.  North Main Street, Kyril's Quay to Adelaide Street is a one lane, one way road heading northbound. There are properties and shops on both sides of this street throughout (many designated to the east), with footpaths on both sides. The typical width of this route is 6-9m. Localised widening of the route to 16m would require very significant land acquisition.  This route is not considered feasible and is therefore not carried forward to stage 2 assessment.	Fail
4-15	Grattan Street, Bachelor's Quay to Liberty Street	Primary	Grattan Street, Bachelor's Quay to Liberty Street is a two-lane carriageway route. There are footpaths on both sides of the route and on street parking on one or both sides. The route is characterised by properties on both sides of the route throughout, and a small surface carpark to the north of the route. Typical width along this section of the route is 10-12m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is not considered feasible and is therefore not carried forward to stage 2 assessment.  There are footpaths on both sides of the route, The route is characterised by properties on both sides of the route throughout, and a small surface carpark to the north of the route. Typical width along this section of the route is 12-13m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is not considered feasible and is therefore not carried forward to stage 2 assessment.	Fail
4-16	Adelaide Street, Grattan Street to North Main Street	No	Adelaide Street, Grattan Street to North Main Street is a one lane, one way street with a footpath on either side and some on street parking on either side. The route is characterised by street front properties throughout on both sides of the route (many designated).  The typical width of this route segment is 8-10m. Localised widening of the route to 16m or 20m would require very significant land	Fail

Route Option Number	Description	Part of CMATS Cycle Network	Comments	Pass/Fail
			acquisition. This route is not considered feasible and is therefore not carried forward to stage 2 assessment.	
4-17	R847 North Main Street, Adelaide Street to Liberty Street	Primary	R847 North Main Street, Adelaide Street to Liberty Street is a single lane carriageway route with footpaths on both sides. There is on street parking throughout on one or both sides. The route is characterised by street front properties and retail throughout all of which NIAH Corks historic main street. Typical width along this section of the route is 8-12m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is therefore not considered feasible and is not carried forward to stage 2 assessment.	Fail
4-18	Liberty Street, Courthouse Street to South Main Street	Secondary	Liberty Street, Courthouse Street to South Main Street is a single lane carriageway route with on street parking/loading throughout, on both sides. There are footpaths on both sides of the route and a contraflow cycle lane. The route is characterised by properties on both sides (some NIAH) The Courthouse to the south and St. Francis Church to the north. Typical width along this section of the route is 12-14m. Localised widening of the route to 16m or 20m would involve significant property acquisition. This route is not deemed feasible and is not carried forward to stage 2 assessment.	Fail
4-19	N22 Courthouse Street, Sheare's Street to Washington Street	No	N22 Courthouse Street, Sheare's Street to Washington Street is a two-lane, one-way carriageway route with footpaths on both sides of the route. The route is characterised by the Courthouse to the east and business properties to the west (some NIAH). Typical width along this section of the route is 8-10m. Widening of the route to 16m or 20m would require extensive property acquisition. This route is however retained for stage 2 assessment.	Pass
4-20	Cross St, Liberty Street to Washington Street	No	Cross St, from Liberty Street to Washington Street is a one lane, one-way carriageway with footpaths on both sides, and parking along the western side. The route is characterised by the Courthouse to the west and business properties to the east. Typical width along this section of the route is 8-12m. Widening of the route to 16m or 20m would require extensive property acquisition. This route is not deemed feasible and is not carried forward to stage 2 assessment.	Fail
4-21	N22 Washington Street, Courthouse Street to Grand Parade	Primary	N22 Washington Street, Courthouse Street to Grand Parade is a two-lane carriageway route, with a bus lane. There are footpaths and cycles lanes on both sides of the route. The route is characterised by properties on both sides of the route throughout (all NIAH) Key to note being the Courthouse and St. Augustine's Roman Catholic Church to the north of the route. Typical width along this section of the route is 17-19m. Localised widening of the route to 16m would be possible with a moderate degree of intervention, whereas widening to 20m would involve property acquisition. This route is considered feasible and is carried forward to stage 2 assessment.	Pass
4-22	R608 South Main Street, Liberty Street to Washington Street	Primary	South Main Street, Liberty Street to Washington Street is a two-lane, one-way carriageway route with footpaths on both sides. The route is characterised by street front properties/business throughout (all NIAH). Typical width along this section of the route is 8-9m. Widening of the route to 16m or 20m would require extensive property acquisition. This route is not considered feasible and is therefore not carried forward to the Stage 2 assessment.	Fail

Following the Stage 1 sifting exercise, 8 of the 22 links assessed passed the initial sifting stage and were progressed to the next assessment stage. These links are presented in Figure 24.



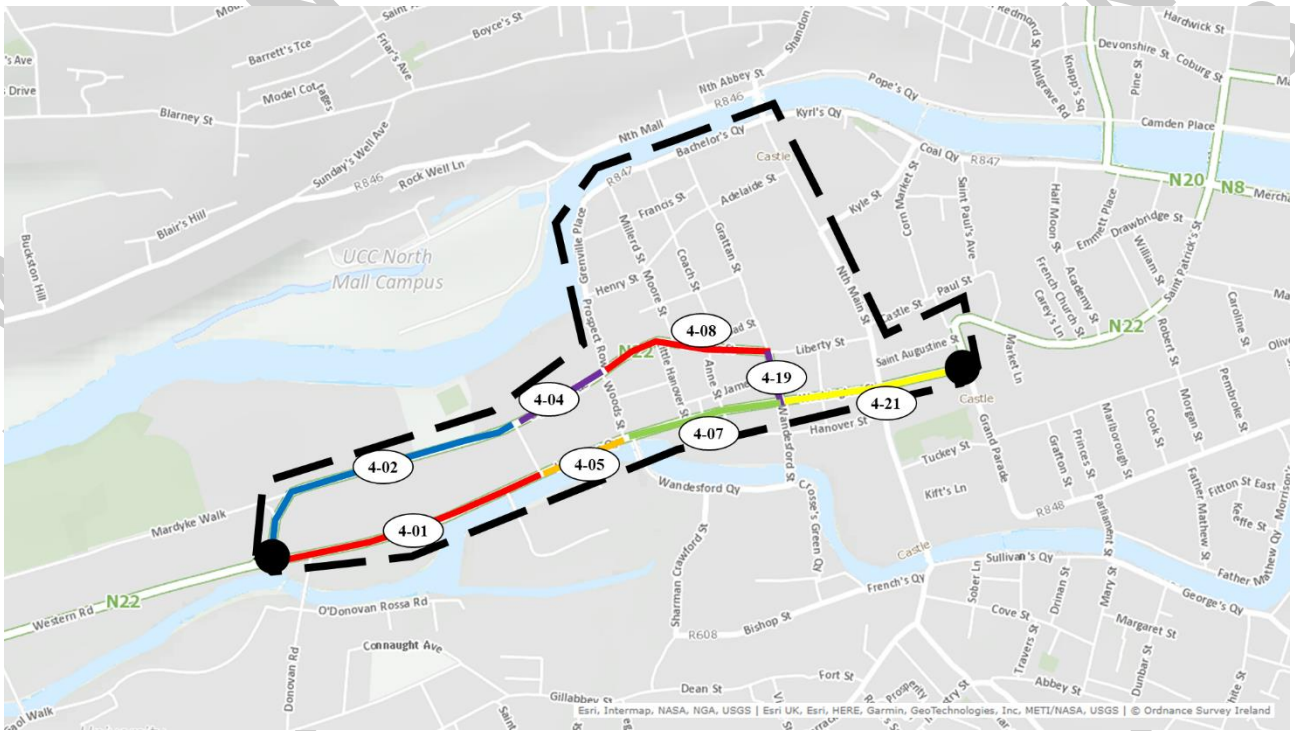


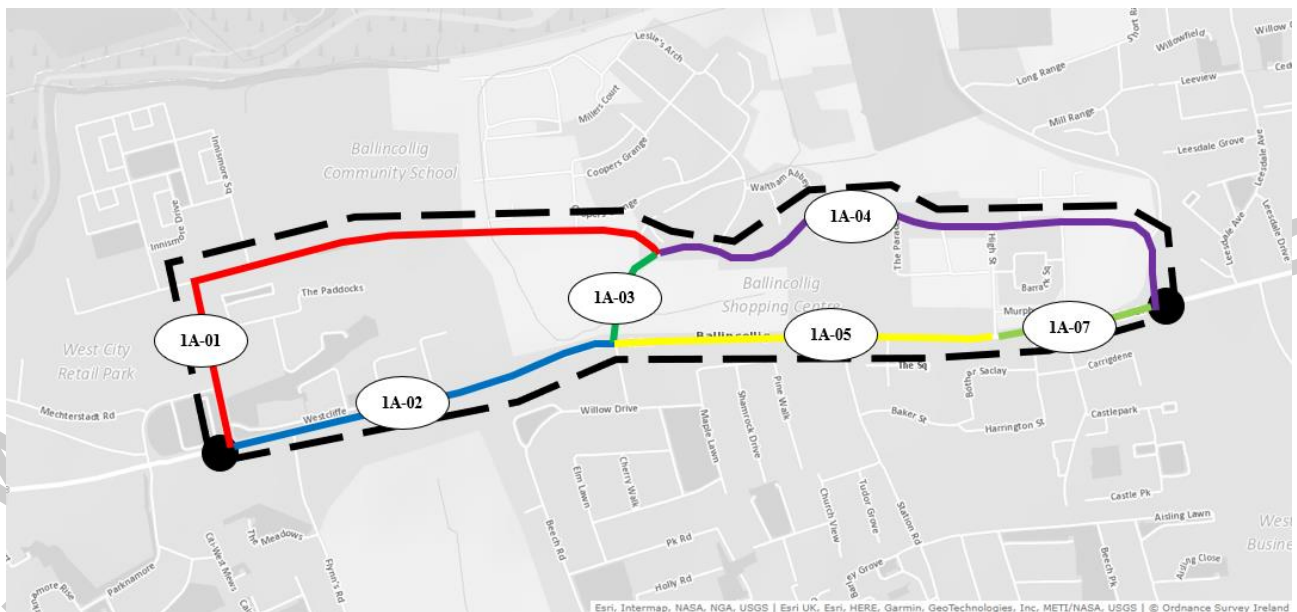
Figure 24 Section 4 – Route Options remaining after Stage 1 Sift

## 7. Stage 2 Assessments

Following the Stage 1 assessment for each individual subsection, the remaining links have been combined into potential route options. Initially, this is undertaken on a section-by-section basis, with route options that are then considered preferable brought forward for consideration as part of full 'end-to-end' option assessments.

### 7.1 Study Area Section 1A – Localised Option Assessment – Ballincollig Town Centre

For potential route options at the western extent of CBC 6 that will pass through Ballincollig Town Centre, a number of potential localised route options are available between the junction of Innishmore Lawn to the west and the junction with the Old Fort Road to the east. These local options are assessed as part of Section 1A of CBC 6. The preferred option will then be considered as part of the wider options to be assessed in Section 1 of CBC 6 (which encompasses the wider Ballincollig area).



**Figure 25 Section 1A – Route Options remaining after Stage 1 Sift**

Following the Stage 1 sift, four possible route options have been identified for Section 1A as follows:

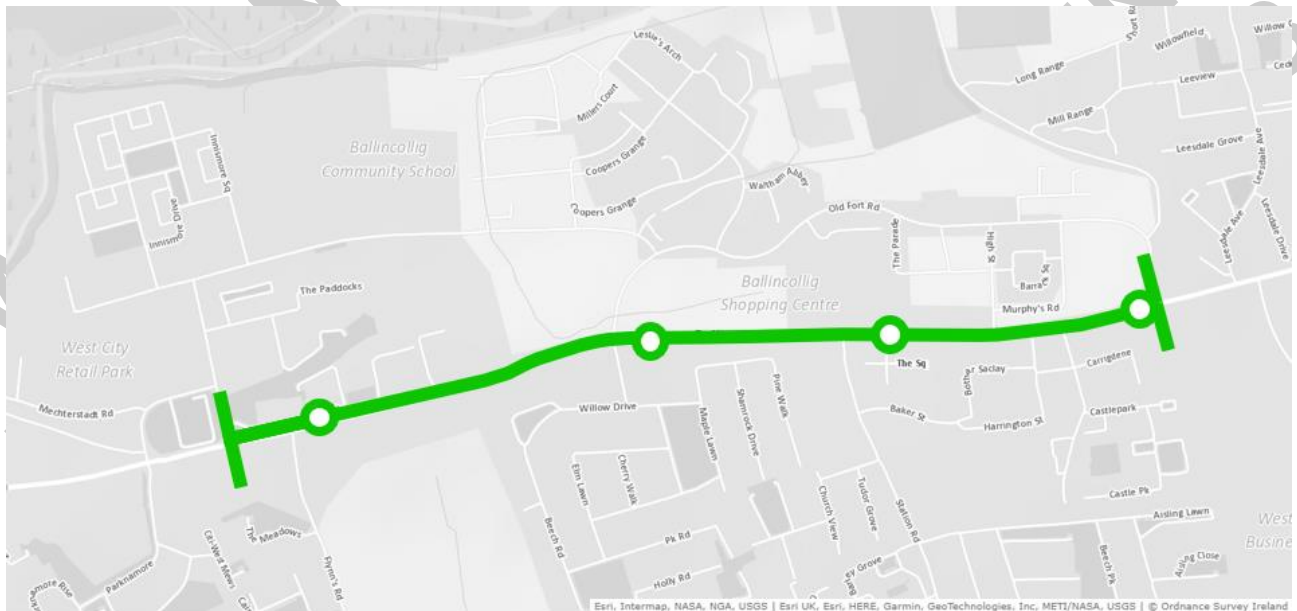
- Option 1 – buses and cyclists are routed via Ballincollig Town Centre;
- Option 2 – buses are diverted from the R608 and routed via Old Fort Road, with cyclists remaining on Main Street and routed through Ballincollig Town Centre;
- Option 3 – buses are diverted from the R608 and routed via Innishmore Lawn and Old Fort Road, with cyclists remaining on Main Street and routed through Ballincollig Town Centre; and
- Option 4 – buses are diverted from the R608 and routed via Innishmore Lawn, before re-joining Main Street and routing through Ballincollig Town Centre, with cyclists remaining on Main Street and routed through Ballincollig Town Centre.

These options are described in greater detail below.

#### 7.1.1 Option 1 – Routing via Ballincollig Town Centre

##### 7.1.1.1 Route Description

Route Option 1 is presented in **Figure 26** and described in the following text.



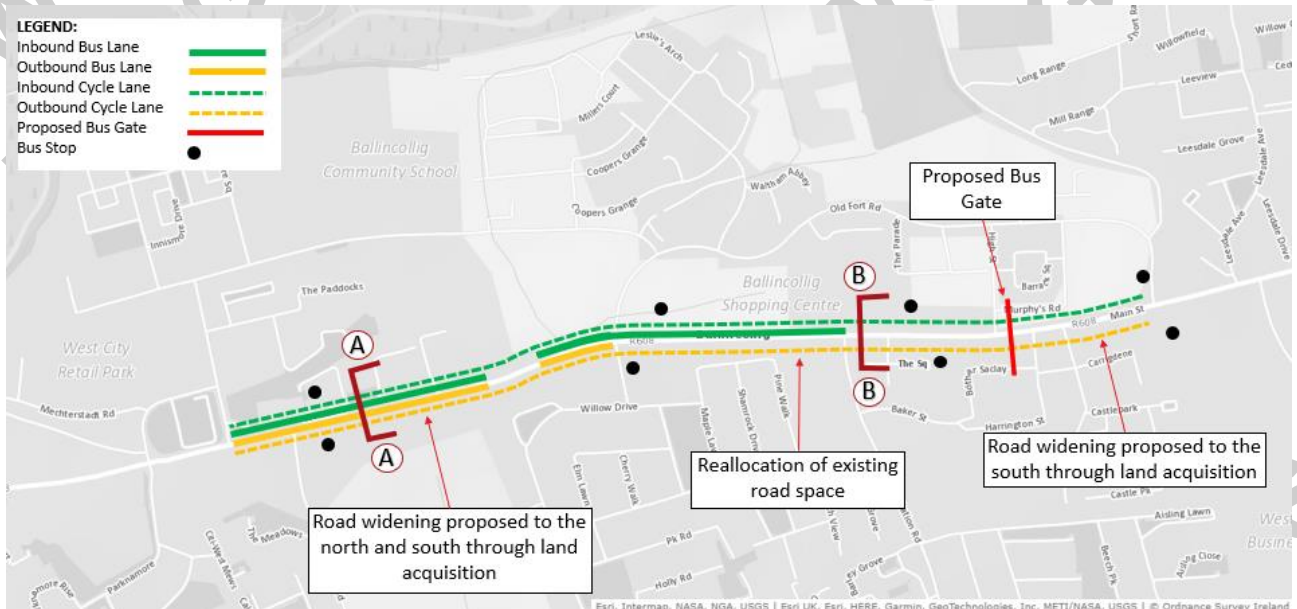
**Figure 26 Section 1A, Proposed Option 1 – Route Overview**

Option 1 commences at the junction of the R608/Innishmore Lawn to the west of Ballincollig Town Centre. The route continues east, through the junction with the Old Fort Road, through Ballincollig Town Centre and terminating at the R608/Old Fort Road east junction. Option 1 would therefore see both buses and cyclists routed through Ballincollig Town Centre along the entirety of the route.

It is envisaged that this option would likely accommodate a total of 4 bus stops in each direction.

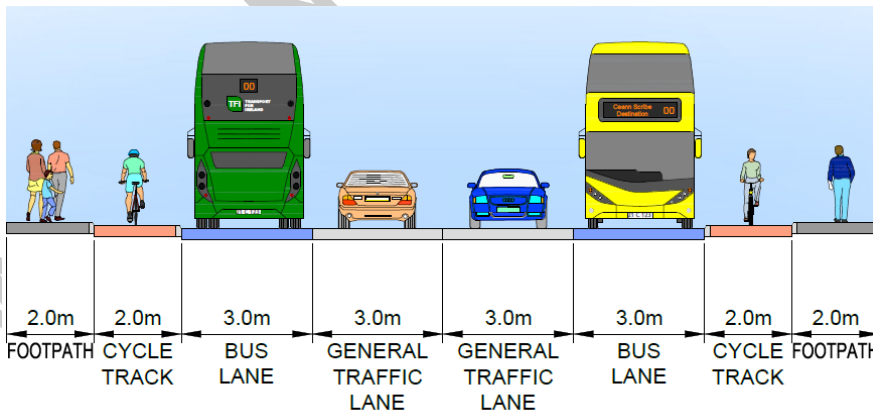
#### 7.1.1.2 Indicative Scheme Design

**Figure 27** illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 27 Section 1A, Proposed Option 1 – Indicative Scheme Design**

Along the R608 approach from the west it is possible to provide dedicated bus lanes on the majority of the approach to the town centre through redesignation of the existing carriageway and localised widening, with land acquisition also required on both sides of the road.



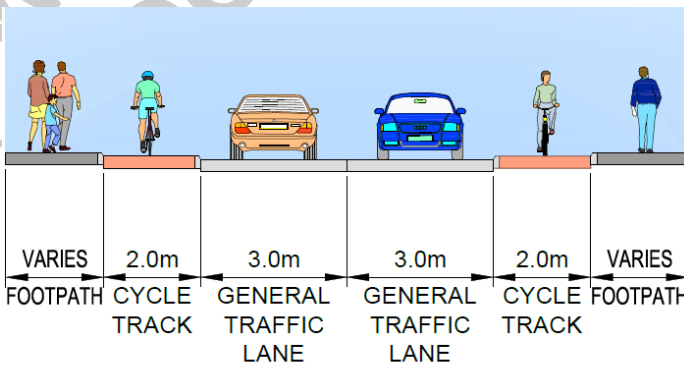
**Figure 28 Section 1A, Proposed Option 1 – Cross Section A-A**

There is a pinch point on the approach to the Old Fort Road from the west where the presence of properties directly adjacent to the carriageway restrict the potential for delivering bus lanes.

Within Ballincollig Town Centre on Main Street, it is not possible to provide dedicated bus lanes and cycle facilities in both directions whilst also facilitating two-way traffic flow; therefore, it is proposed to implement feasible sections of priority measures complemented by traffic management proposals within the town centre in order to restrict non-essential through traffic flows from the town centre and to encourage this traffic to use alternative routes to pass through the town centre itself.

An inbound bus lane would therefore be provided between Old Fort Road (west) and Station Road. Signal-controlled bus priority is proposed on Main Street, to the east of the junction with High Street. The R608 between High Street and Harrington Street would therefore be designated as bus-only, with through-traffic not permitted.

Raised adjacent cycle lanes are provided throughout the entirety of Route Option 1, in both directions through the town centre. Existing footpaths within the town centre would also be widened where feasible to provide opportunities to enhance the urban realm within the town centre.



**Figure 29 Section 1A, Proposed Option 1 – Cross Section B-B**

Local traffic access to Station Road, The Square and High Street would be retained from the west, as would access to the junctions with Harrington Street and Carrigdena from the east.

This option would also involve the removal of a portion of the existing on-street parking within the town centre along Main Street, with a limited number of spaces retained for local loading and delivery requirements, etc.

In summary, this option (subject to confirmation at scheme design stage) would result in the following:

- Bus lanes on both sides of the R608 between Innishmore Lawn and Old Fort Road (with a pinch point to the west of Old Fort Road where no bus lanes are provided);
- An inbound bus lane on the R608 between Old Fort Road and Station Road;
- A bus-only section of the R608 between High Street and Harrington Street;

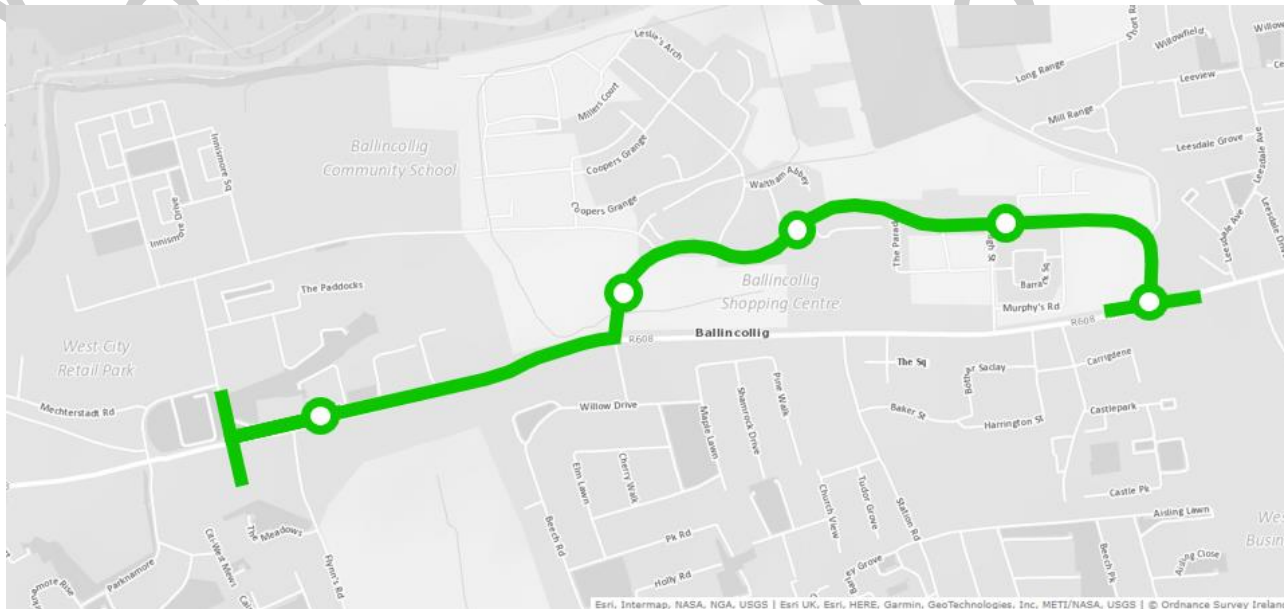


- Raised adjacent cycle lanes along the entirety of the route; and
- Land acquisition estimated from 23 properties.

## 7.1.2 Option 2 – Routing via Old Fort Road

### 7.1.2.1 Route Description

Route Option 2 is presented in **Figure 30** and described in the following text.



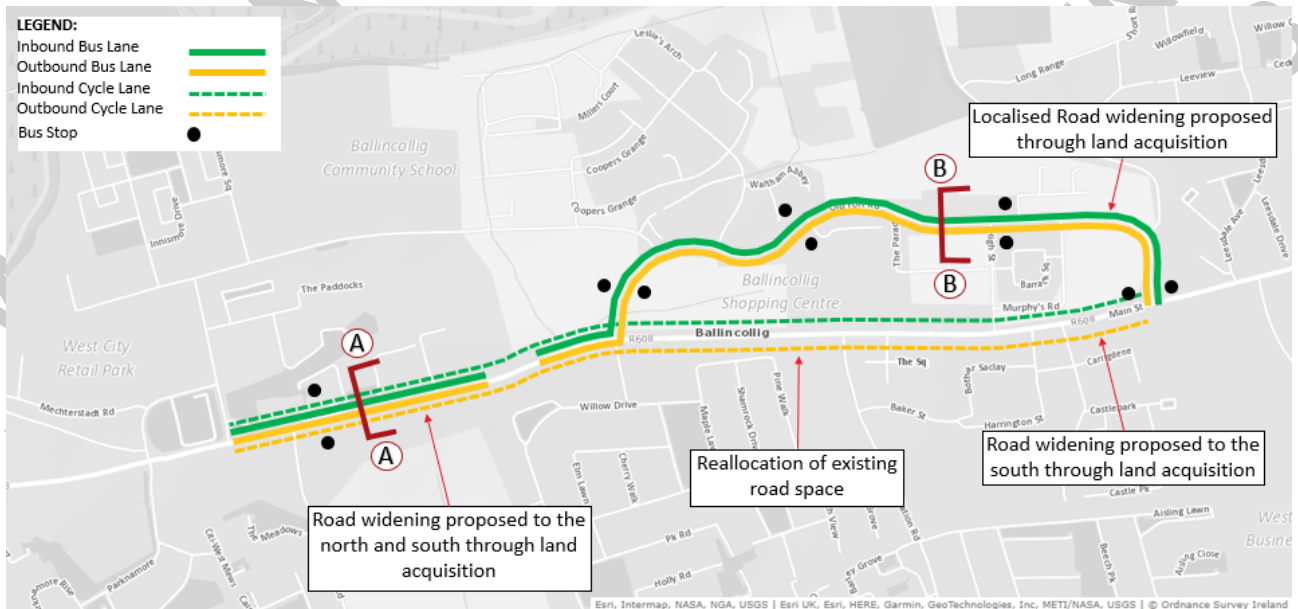
**Figure 30 Section 1A, Proposed Option 2 – Route Overview**

Option 2 commences at the junction of the R608/Innishmore Lawn to the west of Ballincollig Town Centre. The bus route continues east to the junction with the Old Fort Road before turning left on to the Old Fort Road and continuing eastwards, north of Ballincollig Town Centre and rejoining the R608 at the Old Fort Road (east) junction. Cyclists remain on the R608 throughout the route.

It is envisaged that this option would accommodate a total of 5 bus stops in each direction.

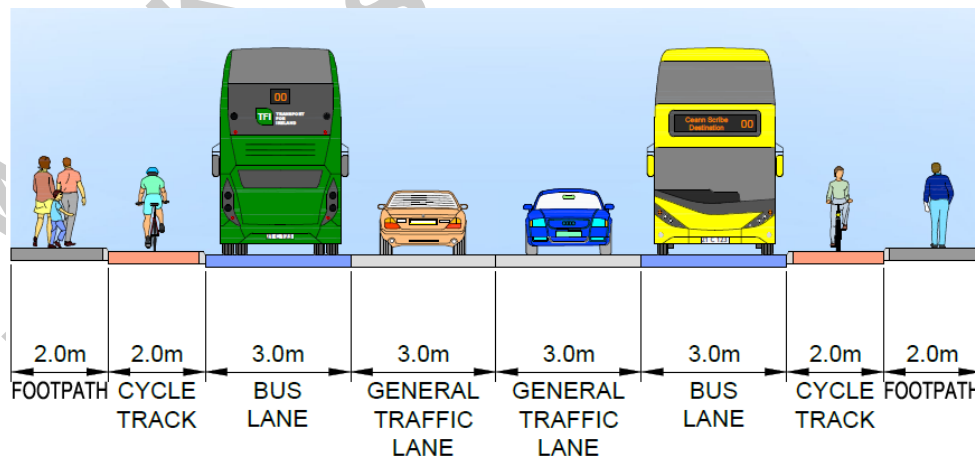
### 7.1.2.2 Indicative Scheme Design

**Figure 31** illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



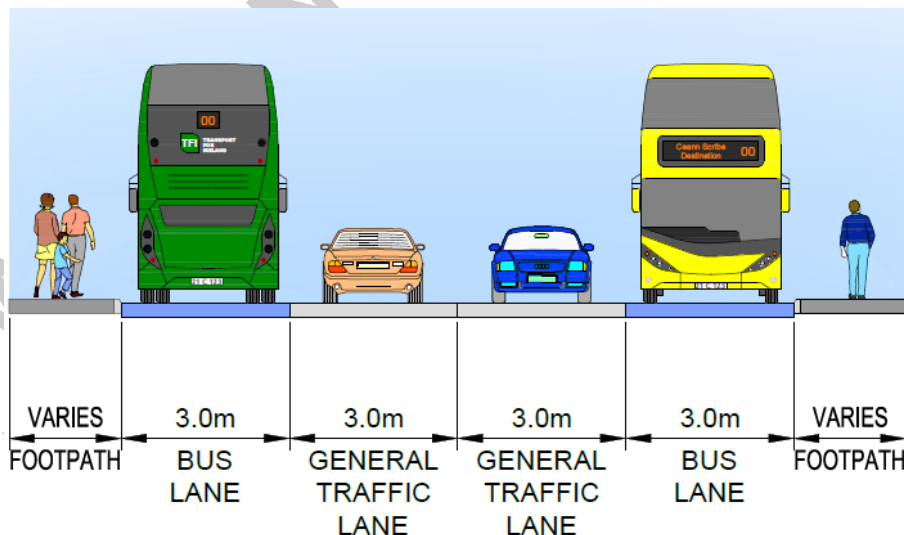
**Figure 31 Section 1A, Proposed Option 2 – Indicative Scheme Design**

As with Option 1 along the R608 approach from the west it is possible to provide dedicated bus priority measures on the majority of the approach to the town centre through redesignation of the existing carriageway width and localised widening works, with land acquisition also required on both sides of the road. There is a pinch point to the west of the Old Fort Road where bus lanes cannot be provided due to the proximity of adjacent properties.



**Figure 32 Section 1A, Proposed Option 2 – Cross Section A-A**

Buses are then diverted onto the Old Fort Road and it is possible to provide bus lanes in both directions along the Old Fort Road between both of its' junctions with the R608, through widening and localised land acquisition towards the eastern end of Old Fort Road.



**Figure 33 Section 1A, Proposed Option 2 – Cross Section B-B**

Raised adjacent cycle lanes are provided throughout the entirety of Route Option 2, remaining on the R608 through Ballincollig Town Centre – this would be facilitated through re-designation of the existing road space and some localised land acquisition at the western end of this section. Existing footpaths within the town centre would also be widened where feasible to provide opportunities to enhance the urban realm within the town centre.

Within Ballincollig Town Centre on Main Street two-way traffic flow would be retained. This option would also involve the removal of a portion of the existing on-street parking within the town centre along Main Street, with a number of spaces retained for local loading and delivery requirements, etc.

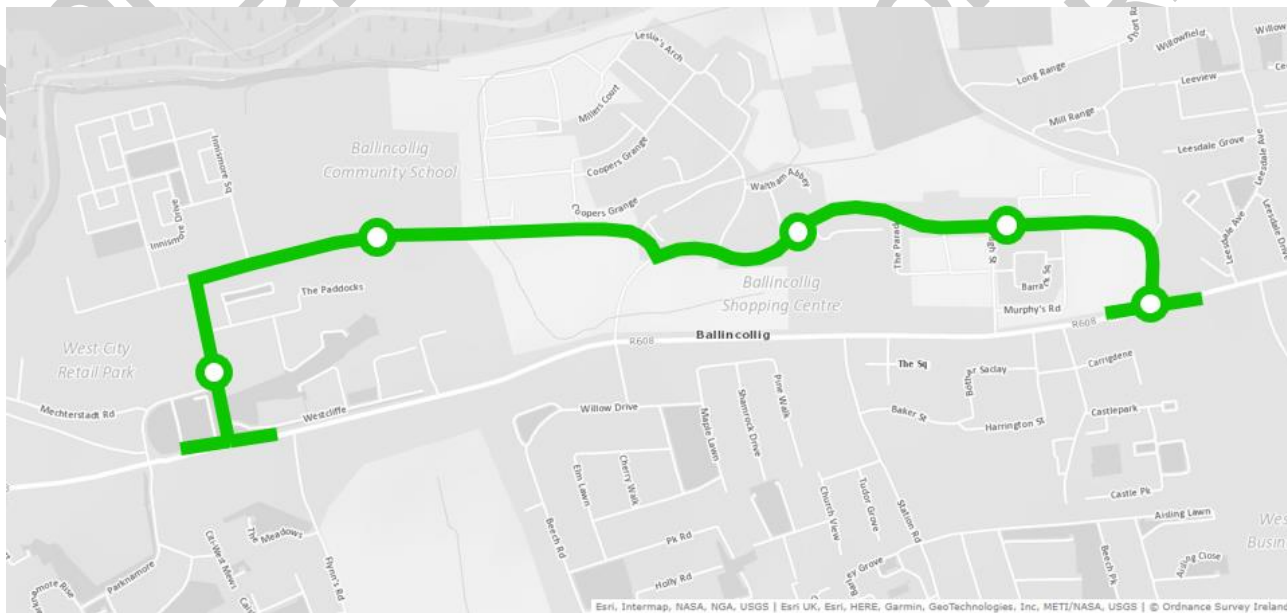
In summary, this option (subject to confirmation at scheme design stage) would result in the following:

- Bus lanes on both sides of the R608 between Innishmore Lawn and Old Fort Road (with a pinch point to the west of Old Fort Road where no bus lanes are provided);
- Bus lanes on both sides of the Old Fort Road between the western and eastern junctions with the R608;
- Raised adjacent cycle lanes along the entirety of the route; and
- Land acquisition estimated from 26 properties.

## 7.1.3 Option 3 – Routing via Innishmore Lawn/Old Fort Road

### 7.1.3.1 Route Description

Route Option 3 is presented in **Figure 34** and described in the following text.



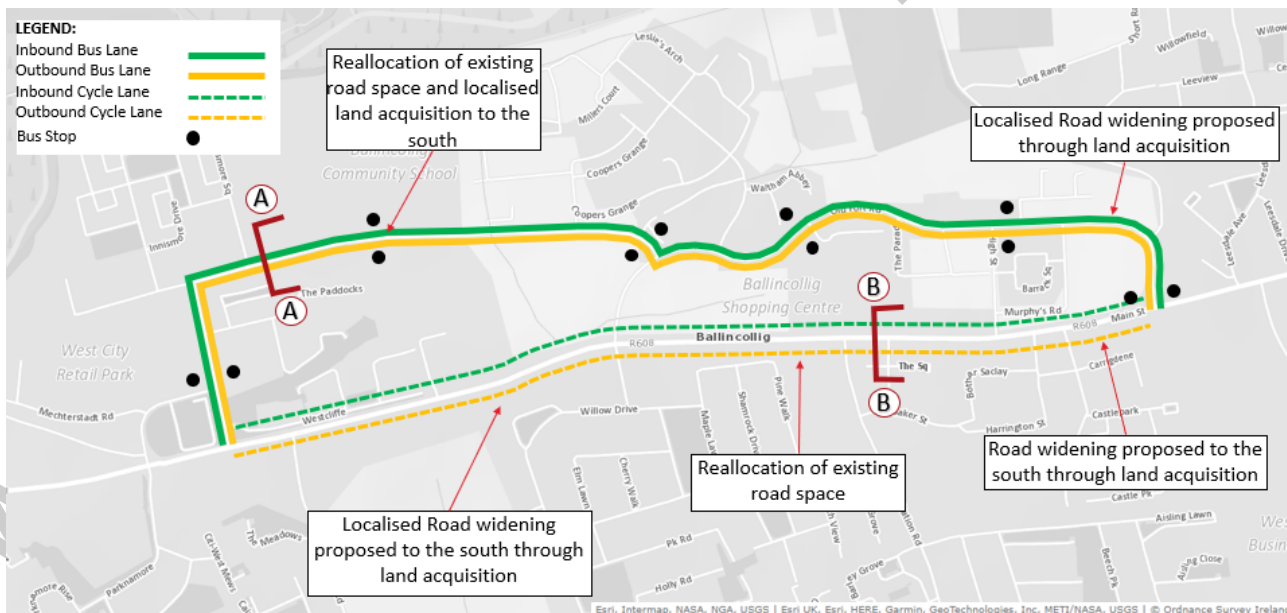
**Figure 34 Section 1A, Proposed Option 3 – Route Overview**

Option 3 commences at the junction of the R608/Innishmore Lawn to the west of Ballincollig Town Centre. The bus route continues north via Innishmore Lawn, before routing east on Innishmore Lawn to the junction with the Old Fort Road, turning left continuing eastwards on Old Fort Road north of Ballincollig Town Centre and re-joining the R608 at the Old Fort Road (east) junction. Cyclists remain on the R608 throughout the route.

It is envisaged that this option would accommodate a total of 6 bus stops in each direction.

### 7.1.3.2 Indicative Scheme Design

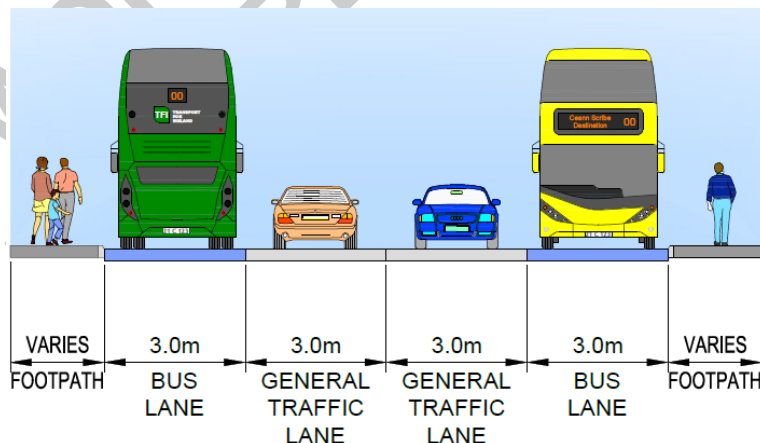
**Figure 35** illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 35 Section 1A, Proposed Option 3 – Indicative Scheme Design**

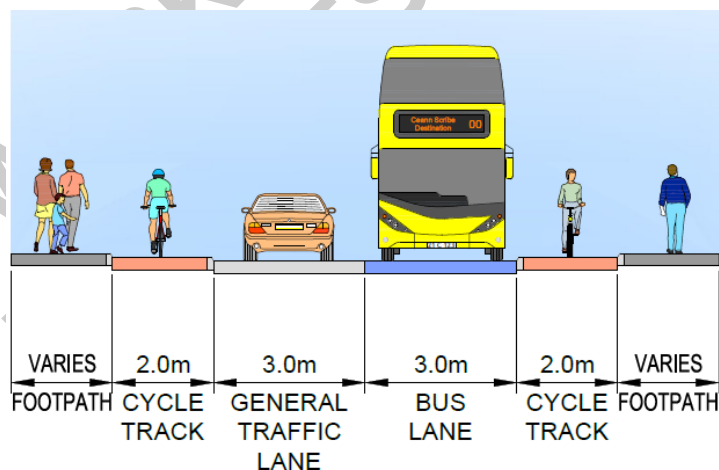


Buses are routed north of the R608 via Innishmore Lawn to the Old Fort Road and it is possible to provide bus lanes in both directions along Innishmore Lawn through widening of the existing carriageway and some limited land acquisition. As with Option 2, it is possible to provide bus lanes along the Old Fort Road between Innishmore Lawn and the R608 through widening and some localised land acquisition at the eastern end of Old Fort Road.



**Figure 36 Section 1A, Proposed Option 3 – Cross Section A-A**

Raised adjacent cycling facilities would be provided on both sides of the road for the entirety of Option 3, routing through Ballincollig Town Centre, through redesignation of the existing road space. Existing footpaths within the town centre would also be widened where feasible to provide opportunities to enhance the urban realm within the town centre.



**Figure 37 Section 1A, Proposed Option 3 – Cross Section B-B**

Within Ballincollig Town Centre on Main Street two-way traffic flow would be retained. This option would also involve the removal of a portion of the existing on-street parking within the town centre along Main Street, with a number of spaces retained for local loading and delivery requirements, etc.

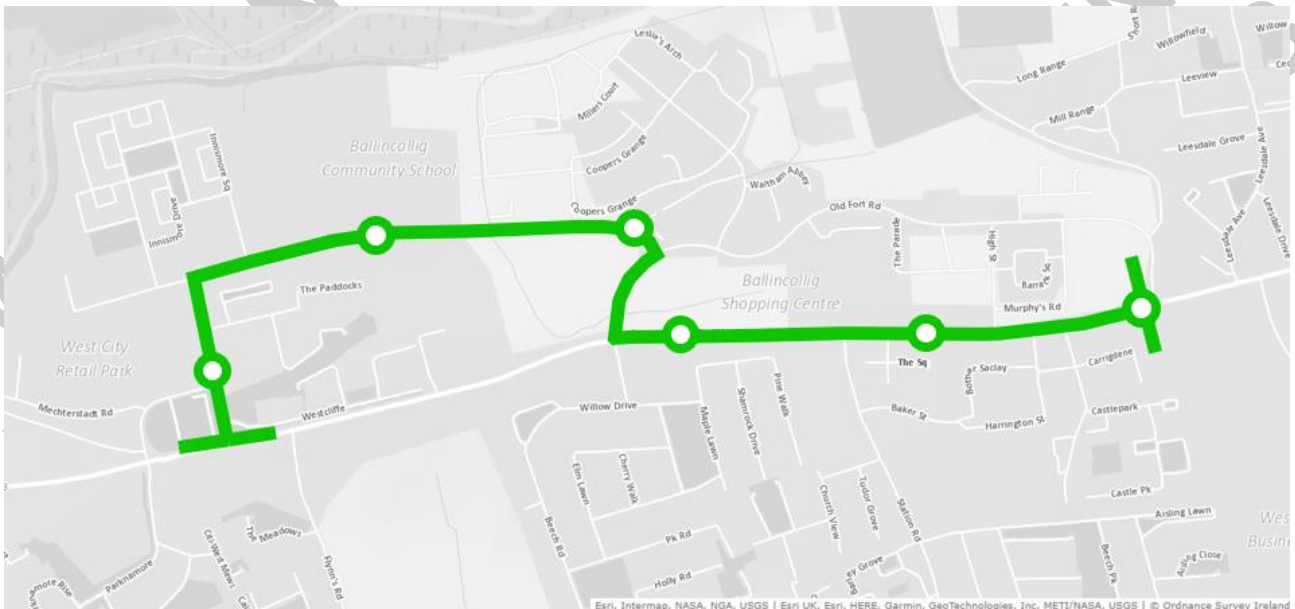
In summary, this option (subject to confirmation at scheme design stage) would result in the following:

- Bus lanes on both sides of Innishmore Lawn and Old Fort Road; and
- Raised adjacent cycle lanes along the entirety of the route; and
- Land acquisition estimated from 9 properties.

## **7.1.4 Option 4 – Routing via Innishmore Lawn/Old Fort Road/Ballincollig Town Centre**

### **7.1.4.1 Route Description**

Route Option 4 is presented in **Figure 38** and described in the following text.



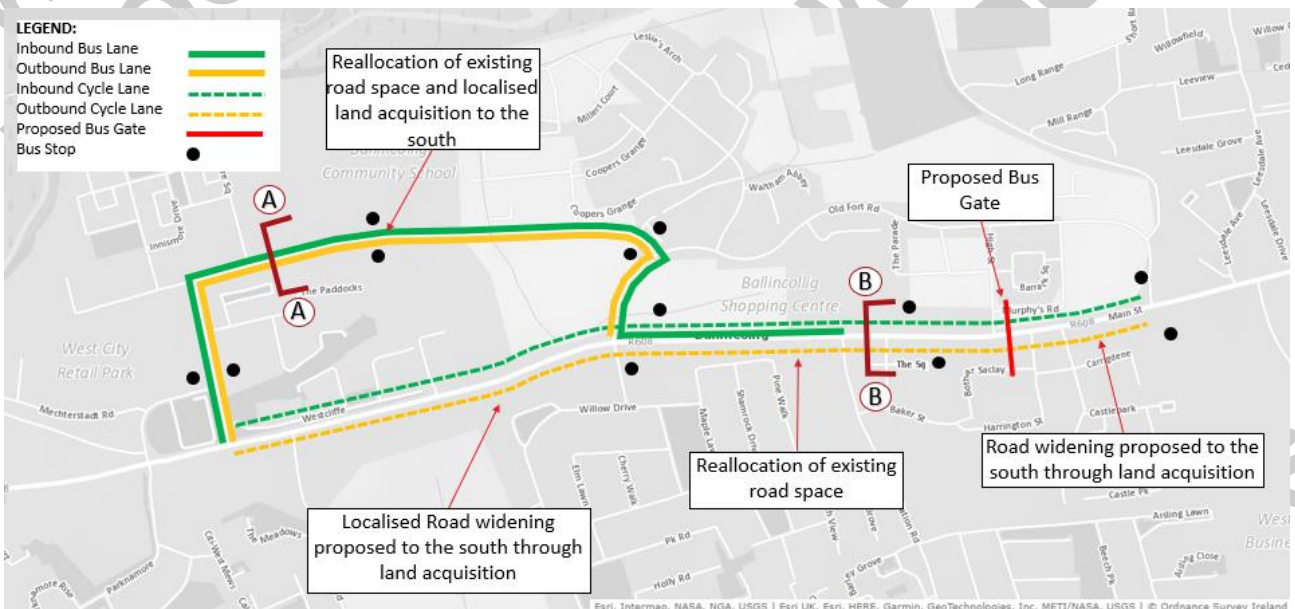
**Figure 38 Section 1A, Proposed Option 4 – Route Overview**

Option 4 commences at the junction of the R608/Innishmore Lawn to the west of Ballincollig Town Centre. The bus route continues north via Innishmore Lawn, before routing east on Innishmore Lawn to the junction with the Old Fort Road, and subsequently turning right on to Old Fort Road and continuing south to re-join the R608 at the Old Fort Road (west) junction. From here, buses continue through Ballincollig Town Centre. Cyclists remain on the R608 throughout the route.

It is envisaged that this option would accommodate a total of 6 bus stops in each direction.

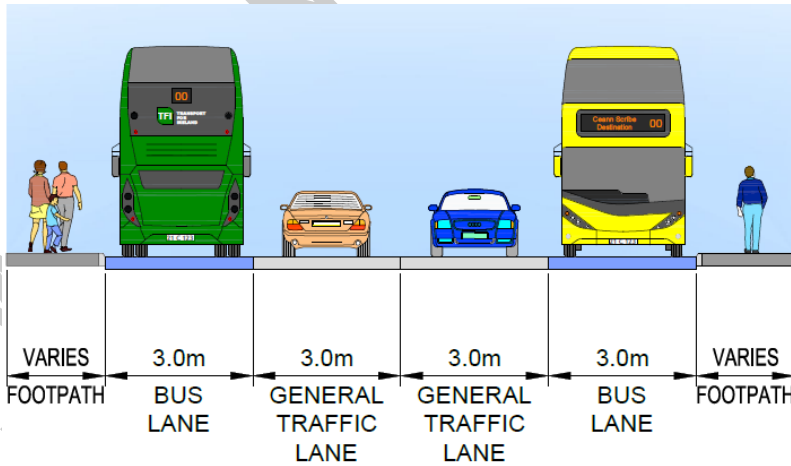
#### 7.1.4.2 Indicative Scheme Design

**Figure 39** illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 39 Section 1A, Proposed Option 4 – Indicative Scheme Design**

Buses are routed north of the R608 via Innishmore Lawn to the Old Fort Road and it is possible to provide bus lanes in both directions along Innishmore Lawn through widening and some localised land acquisition. As with Option 2, it is also possible to provide bus lanes along the Old Fort Road between Innishmore Lawn and the R608 through widening.

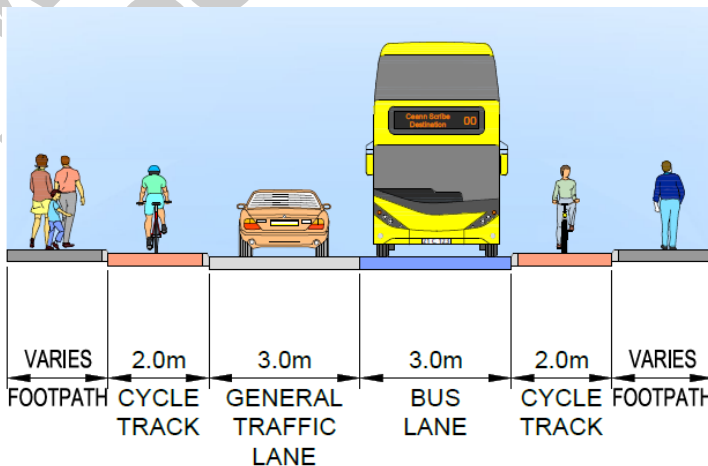


**Figure 40 Section 1A, Proposed Option 4 – Cross Section A-A**

East of the R608/Old Fort Road (west) junction, similar to Option 1 within Ballincollig Town Centre on Main Street it is not possible to provide dedicated bus lanes and cycle facilities in both directions whilst also facilitating two-way traffic flow; therefore, it is proposed to implement feasible sections of priority measures complemented by traffic management proposals within the town centre in order to restrict non-essential through traffic flows from the town centre and to encourage this traffic to use alternative routes to pass through the town centre itself.

As with proposals outline in Option 1, an inbound bus lane would be provided between Old Fort Road (west) and Station Road. Signal-controlled bus priority is proposed on Main Street, to the east of the junction with High Street. The R608 between High Street and Harrington Street would therefore be designated as bus-only, with through traffic not permitted.

Raised adjacent cycle lanes are provided throughout the entirety of Route Option 4, in both directions through the town centre. Existing footpaths within the town centre would also be widened where feasible to provide opportunities to enhance the urban realm within the town centre.



**Figure 41 Section 1A, Proposed Option 4 – Cross Section B-B**

Local traffic access to Station Road, The Square and High Street would be retained from the west, as would access to the junctions with Harrington Street and Carrigdena from the east.

This option would also involve the removal of a portion of the existing on-street parking within the town centre along Main Street, with a number of spaces retained for local loading and delivery requirements, etc.

In summary, this option (subject to confirmation at scheme design stage) would result in the following:

- Bus lanes on both sides of Innishmore Lawn and Old Fort Road (heading south to the junction with the R608);
- An inbound bus lane on the R608 between Old Fort Road and Station Road;

- A bus-only section of the R608 between High Street and Harrington Street;
- Raised adjacent cycle lanes along the entirety of the route; and
- Land acquisition estimated from 6 properties.

### 7.1.5 Route Options Assessment

Details of the Stage 2 route options assessment undertaken for the options outlined above for Section 1A are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 10.

**Table 10 Section 1A, Ballincollig Town Centre Options Assessment Summary (Sub-Criteria)**

Assessment Criteria	Assessment Sub-Criteria	Option 1	Option 2	Option 3	Option 4
<b>Economy</b>	<b>Capital Cost</b>				
	<b>Transport Reliability</b>				
<b>Integration</b>	<b>Land Use Integration</b>				
	<b>Catchments</b>				
	<b>Transport Network Integration</b>				
	<b>Cycling Integration</b>				
	<b>Pedestrian Network Integration</b>				
<b>Accessibility &amp; Social Inclusion</b>	<b>Key Trip Attractors</b>				
	<b>Deprived Geographic Areas</b>				
<b>Safety</b>	<b>Road Safety</b>				
	<b>Archaeology Architectural and Cultural Heritage</b>				
	<b>Biodiversity</b>				
	<b>Soils and Geology</b>				
	<b>Hydrology</b>				
	<b>Landscape and Visual</b>				
	<b>Air Quality</b>				



Assessment Criteria	Assessment Sub-Criteria	Option 1	Option 2	Option 3	Option 4
	Land Use Character				

From an **Economy** perspective, there are little anticipated differences between each of the options with the longer distances along Old Fort Road mitigated with the potential for higher public realm costs associated with an upgrade to Ballincollig Main Street. Option 1 is the shortest of all options and has a high level of bus priority measures thereby providing the best return in terms of journey times and reliability.

In terms of **Integration**, Options 1 and 4 which are directed along Main Street provide excellent integration with the town centre functions which have the highest trip generation in Ballincollig, in addition the routing of bus services along Main Street provides the greatest opportunity to interchange with other bus services (both local and regional). Options 1, 3 and 4 offer a slightly enhanced catchment compared to Option 2 with all options performing equally well in terms of cycling and pedestrian connectivity.

From an **Accessibility and Social Inclusion** perspective, Option 4 is deemed the most favourable as it serves Main Street and the school complex on Innishmore Lawn, Option 1 is also considered favourable.

In terms of **Safety**, Option 1 is considered the safest as it follows a direct route through the study area while Option 4 is considered the least safe as it travels through more junctions and has to take numerous turns resulting in potentially more conflicts.

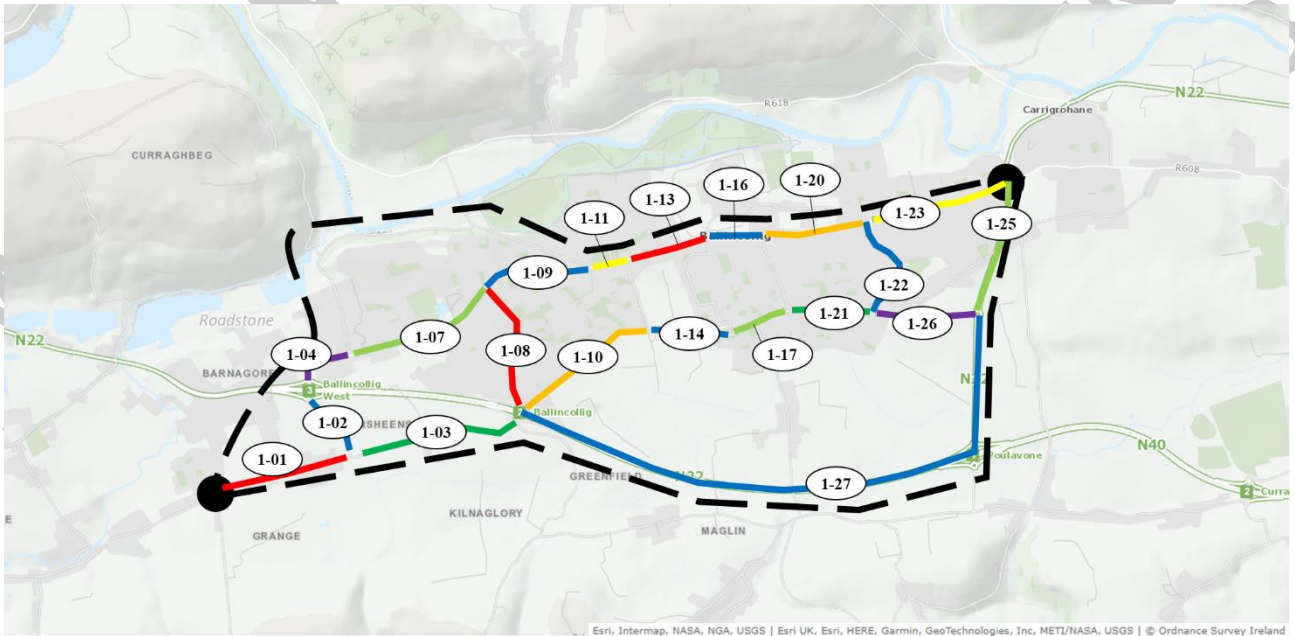
For **Environment**, Option 1 is considered the most favourable in that it is the route located the greatest distance from the River Lee pNHA and, ultimately, the least likely to give rise to potential impacts on water quality and aquatic ecology. Option 1 will also give rise to the least amount of tree loss during construction which will have a favourable result on biodiversity and the landscape and visual setting, when compared to the other options. There are also the least number of residential receptors associated with this option which may be impacted by the scheme, and the smallest amount of land-take required for construction.

From the above assessment it has been identified that **Option 1** is the preferred option, as it provides a good level of bus priority directly to the centre of Ballincollig where the greatest passenger demands are expected. The delivery of Option 1 is expected to have limited impact on the natural and built environment. It is therefore recommended that Option 1 be considered as the preferred option for Section 1A and is brought forward for inclusion within potential end-to-end options.

## 7.2 Study Area Section 1 – R608 (west of Ballincollig) to Poulavone Roundabout

This section of CBC 6 has been evaluated following the determination of a preferred option for Section 1A (localised route options through Ballincollig Town Centre) in order for the preferred option for Section 1A to be included within potential options for Section 1 where relevant (as Section 1A lies within the extent of Section 1). Options presented below therefore include elements from Section 1A (for example, number of bus stops, land acquisition, etc.).

For Section 1, the notional start point of the section is the junction of Grange Hill/Grange Terrace, west of Ballincollig and to the south of the N22 Ballincollig Bypass. The end point for Section 1 is the Poulavone Roundabout to the east of Ballincollig Town Centre.



**Figure 42 Section 1 – Route Options remaining after Stage 1 Sift**

Following the Stage 1 sift, a number of route options have been identified within this section:

- Option 1 – Routing via Ballincollig Town Centre;
- Option 2 – Routing via the Grange Road/Coolroe Meadows, and Ballincollig Town Centre/R608;
- Option 3 – Routing via the Grange Road/Leo Murphy Road and the R608;
- Option 4 – Routing via the Grange Road/Killumney Link Roundabout and Killumney Link Road; and
- Option 5 – Routing via the Grange Road/N22 Ballincollig Bypass.

These options are described in greater detail below.

## 7.2.1 Option 1 – Routing via Ballincollig Town Centre

### 7.2.1.1 Route Description

Route Option 1 is presented in Figure 43 and described in the following text.

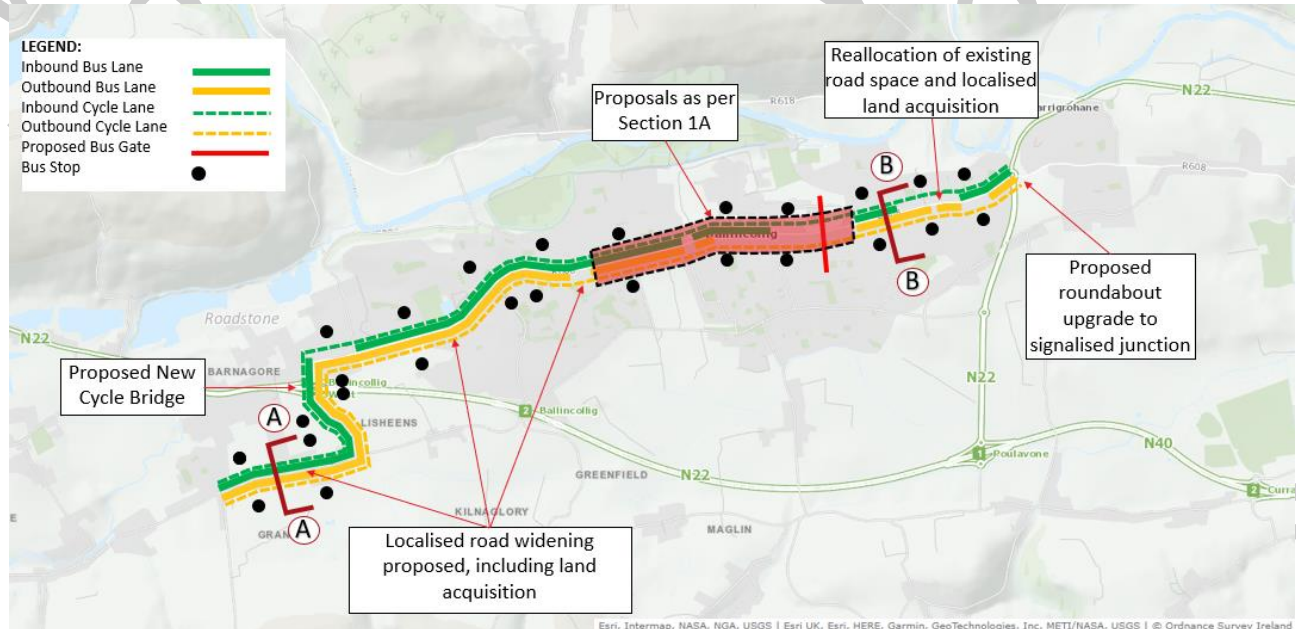


**Figure 43 Section 1, Proposed Option 1 – Route Option Overview**

Option 1 would see buses and cyclists routed from the Grange Hill/Grange Terrace to cross over the N22 at the Ovens Interchange and continue via the R608 through Ballincollig Town Centre along the entirety of the route and eastwards to the Poulavone Roundabout. It is envisaged that this option would accommodate a total of 13 bus stops.

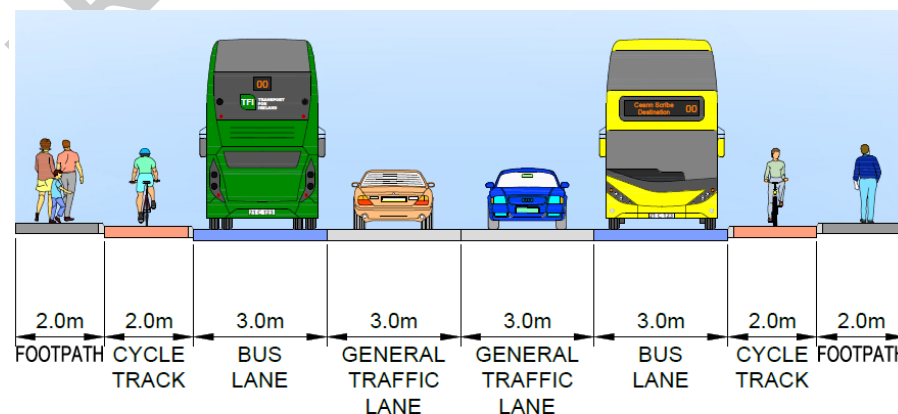
### 7.2.1.2 Indicative Scheme Design

Figure 44 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 44 Section 1, Proposed Option 1 – Indicative Scheme Design**

From the Grange Hill/Grange Terrace junction to the N22 Ovens Interchange it is possible to provide bus lanes and raised adjacent cycle lanes on both sides of the route through widening and land acquisition. The bus lanes would terminate at the Ovens Interchange, with buses crossing the interchange with general traffic. Cyclists would cross the interchange via a new, separate cycle crossing adjacent to the interchange.



**Figure 45 Section 1, Proposed Option 1 – Cross Section A-A**

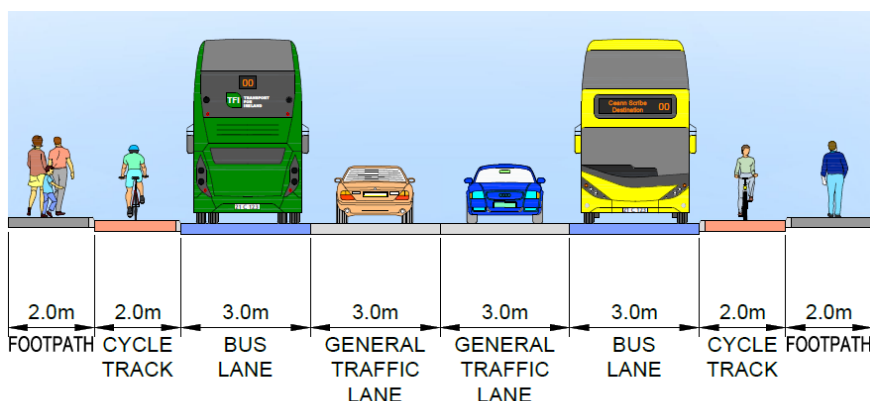
From here, again it is possible to provide bus lanes along the majority of the R608 to the junction with Innishmore Lawn (the start of Section 1A) through widening. The exception is the approach to the junction with the Coolroe Road where the proximity of properties restricts the available width and as such an inbound bus lane is provided only (through localised widening). Raised adjacent cycle lanes can also be provided along this entire section.



East of Innishmore Lawn, the route proposals are as per the preferred Option in Section 1A, which comprises the diversion of non-essential traffic flow from the R608 to the Old Fort Road and the implementation of a bus-only section of the R608 in Ballincollig Town Centre. Raised adjacent cycle facilities are proposed through this section (through some localised widening).

Between the R608/Old Fort Road (east) junction and the Poulavone Roundabout, it is possible to provide bus lanes on both sides of the route for approximately 200m through widening. Thereafter, an outbound bus lane (i.e., a bus lane towards Ballincollig Town Centre) is proposed west of Hawthorn Drive, and an inbound bus lane (i.e., a bus lane towards Cork) is proposed east of Hawthorn Drive (both facilitated through widening). There is a pinch point in the vicinity of the entrance to Rosewood Estate where bus lanes are not proposed in either direction due to the proximity of properties. Finally, at the immediate approach to Poulavone Roundabout it is proposed to provide bus lanes in both directions.

Along this section, raised adjacent cycle facilities are proposed in both directions between the R608/Old Fort Road (east) and the Poulavone Roundabout.



**Figure 46 Section 1, Proposed Option 1 – Cross Section B-B**

It is also proposed to upgrade the Poulavone Roundabout to a signalised crossroad junction, with the Bridgewater local access junction relocated north of the signalised junction.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the Grange Road from the junction with Grange Hill and the N22 Ovens Interchange, and on the R608 from the Ovens Interchange to Innishmore Lawn (with a short section approaching the junction with Coolroe Road where no outbound bus lane is provided);
- Bus lanes on both sides of the R608 between Innishmore Lawn and Old Fort Road (with a pinch point to the west of Old Fort Road where no bus lanes are provided);
- An inbound bus lane on the R608 between Old Fort Road and Station Road;
- A bus-only section of the R608 between High Street and Harrington Street;
- Bus lanes on both sides of the R608 between Old Fort Road (east) and the Ballincollig Medical Centre;
- Bus lanes on one side of the road (varies) from the Ballincollig Medical Centre to approximately 100m west of the Poulavone Roundabout (with one localised pinch point where no bus lanes are proposed);
- Raised adjacent cycle lanes along the entirety of the route;
- Upgrade of the Poulavone Roundabout to a signalised crossroad junction; and
- Land acquisition estimated from 109 properties.



## 7.2.2 Option 2 – Routing via Grange Road/Castle Road/Coolroe Meadows

### 7.2.2.1 Route Description

Route Option 2 is presented in Figure 47 and described in the following text.

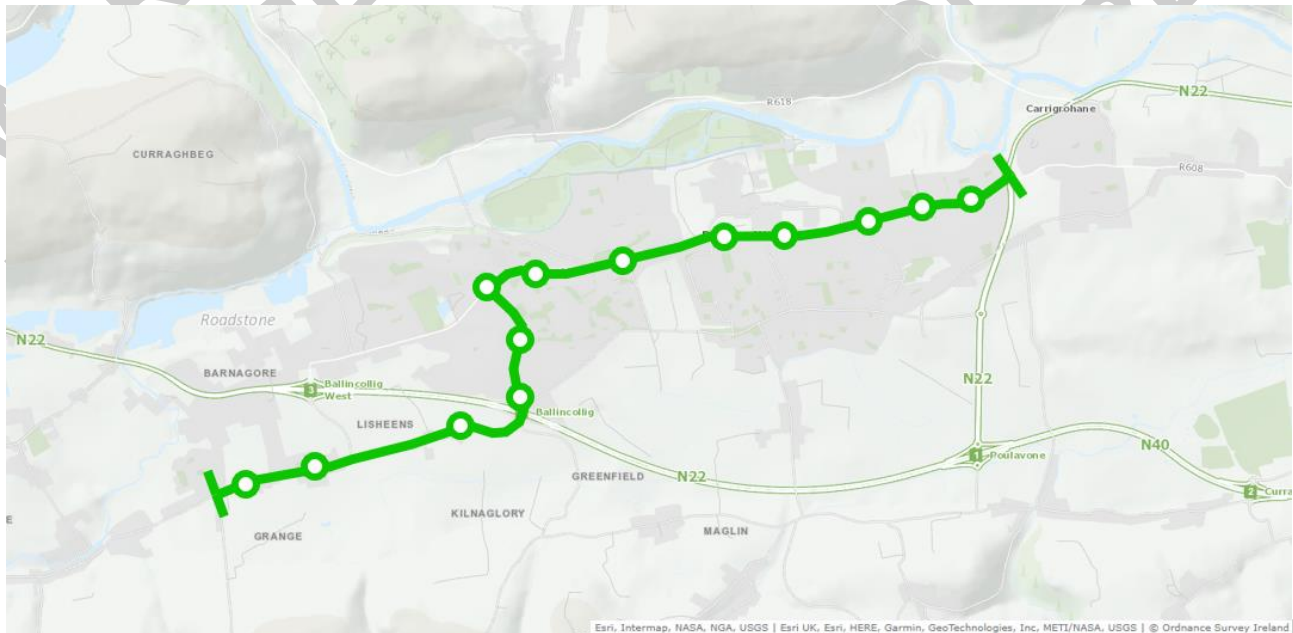


Figure 47 Section 1, Proposed Option 2 – Route Option Overview

Option 2 would see both buses and cyclists route from the Grange Terrace/Grange Hill junction to the south of the N22 Ballincollig Bypass, crossing over the N22 at the Killumney Interchange and continuing on to Coolroe Meadows. At this point, both buses and cyclists would be routed up Coolroe Meadows to the junction with the R608. At this point buses and cyclists would continue through Main Street and eastwards to the Poulavone Roundabout, as per the route of Option 1.

It is envisaged that this option would accommodate a total of 13 bus stops.

### 7.2.2.2 Indicative Scheme Design

Figure 48 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

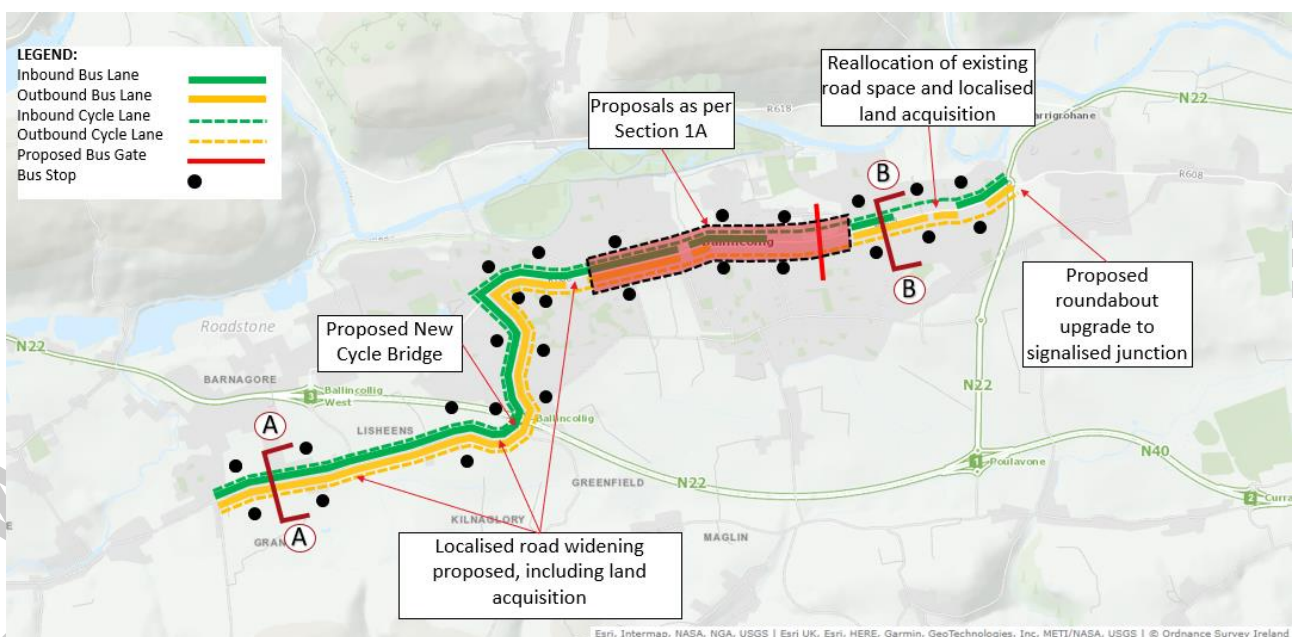
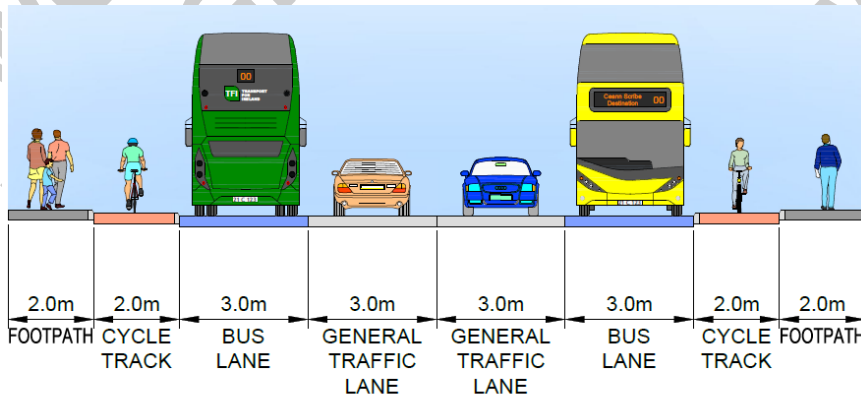


Figure 48 Section 1, Proposed Option 2 – Indicative Scheme Design

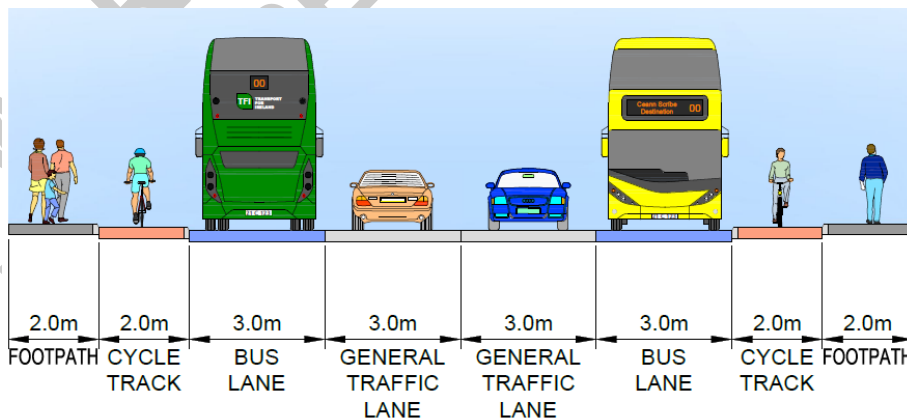
For this option, between the Grange Terrace/Grange Hill junction and Coolroe Meadows it is possible to provide bus lanes in both directions through widening. Buses would share with general traffic at the Killumney Interchange; however, it is also possible to provide bus lanes on both sides of Coolroe Meadows through widening.

Raised adjacent cycle lanes would also be provided along this section, and cyclists would be provided with an alternative crossing at the Killumney Interchange.



**Figure 49 Section 1, Proposed Option 2 – Cross Section A-A**

The remainder of this option, between Coolroe Meadows and the Poulavone Roundabout would be consistent with Option 1 (with a combination of bus lanes in one or both directions where possible, buses and cyclists routing through Ballincollig Town Centre, and localised traffic management through the implementation of a shared access zone within the town centre itself). As with Option 1, the Poulavone Roundabout will also be upgraded to a signalised crossroad junction.



**Figure 50 Section 1, Proposed Option 2 – Cross Section B-B**

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

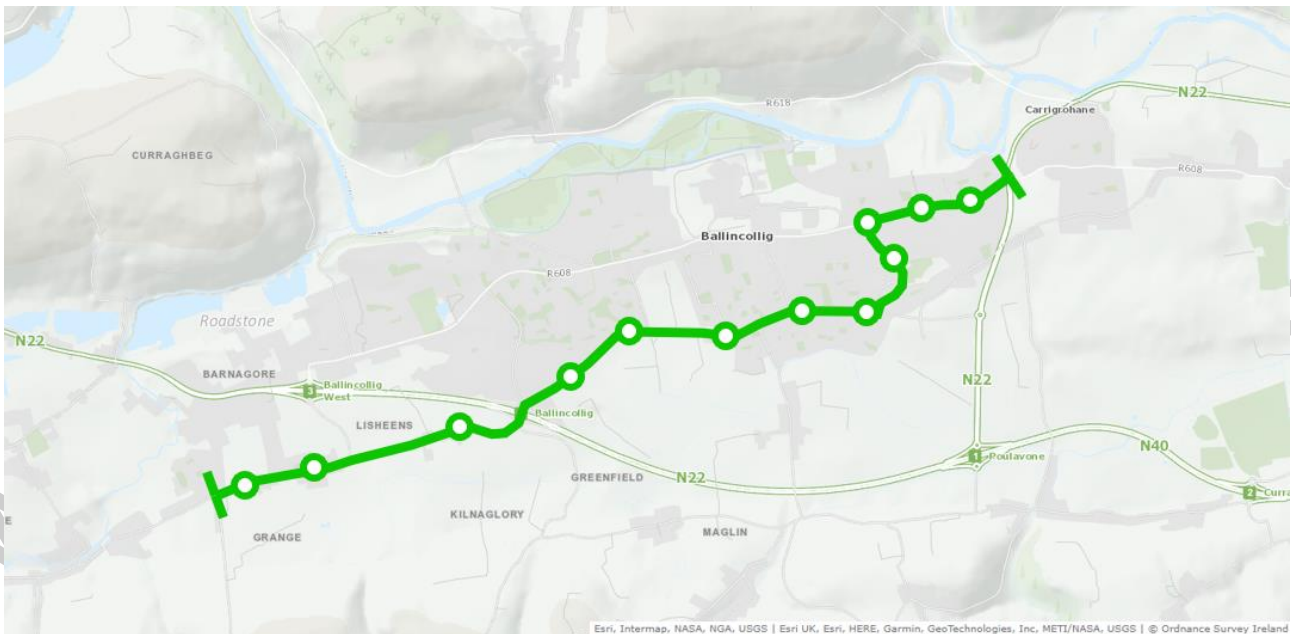
- Bus lanes on both sides of the Grange Road from the junction with Grange Hill and the N22 Killumney Interchange (with no bus lanes through the interchange itself) and on both sides of Coolroe Meadows to the junction with the R608;
- Bus lanes on both sides of the R608 from Coolroe Meadows to Innishmore Lawn (with a short section approaching the junction with Coolroe Road where no outbound bus lane is provided);
- Bus lanes on both sides of the R608 between Innishmore Lawn and Old Fort Road (with a pinch point to the west of Old Fort Road where no bus lanes are provided);
- An inbound bus lane on the R608 between Old Fort Road and Station Road;
- A bus-only section of the R608 between High Street and Harrington Street;

- Bus lanes on both sides of the R608 between Old Fort Road (east) and the Ballincollig Medical Centre;
- Bus lanes on one side of the road (varies) from the Ballincollig Medical Centre to approximately 100m west of the Poulavone Roundabout (with one localised pinch point where no bus lanes are proposed);
- Raised adjacent cycle lanes along the entirety of the route;
- Upgrade of the Poulavone Roundabout to a signalised crossroad junction; and
- Land acquisition estimated from 109 properties.

## 7.2.3 Option 3 – Routing via Grange Road/Castle Road/Leo Murphy Road

### 7.2.3.1 Route Description

Route Option 3 is presented in Figure 51 and described in the following text.



**Figure 51 Section 1, Proposed Option 3 – Route Option Overview**

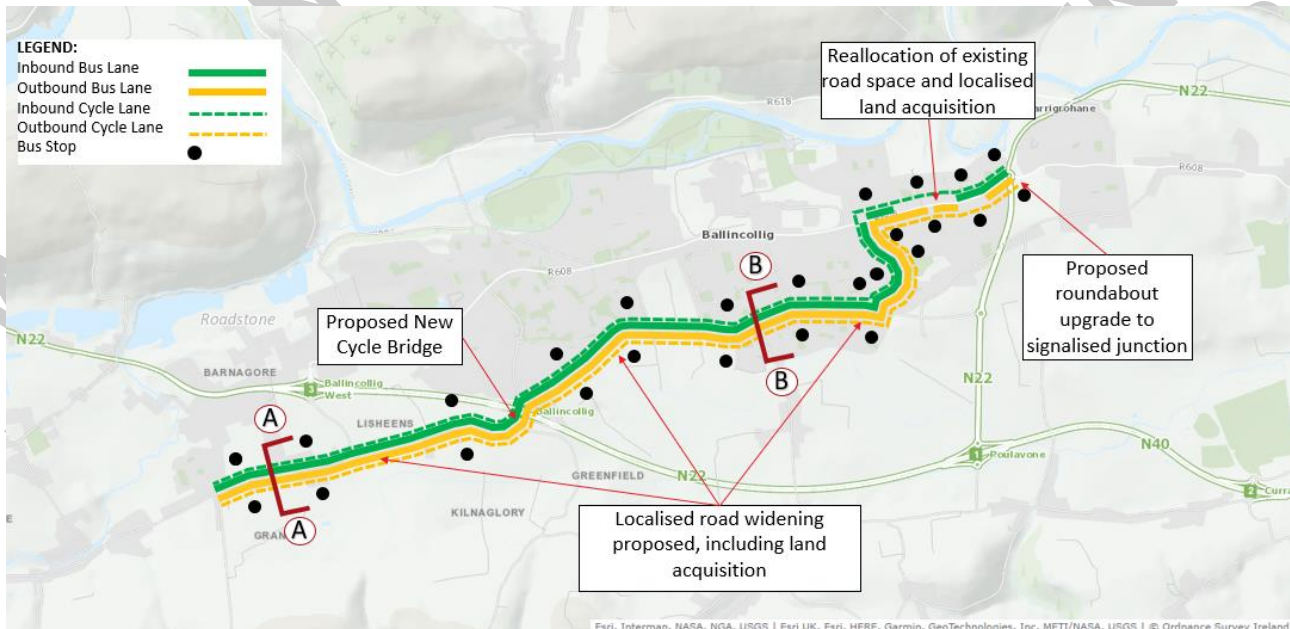
Option 3 would see both buses and cyclists route from the Grange Terrace/Grange Hill junction to the south of the N22 Ballincollig Bypass, crossing over the N22 at the Killumney Interchange and continuing on to the Greenfields Road/Castle Road until the junction with Leo Murphy Road. At this point, both buses and cyclists would be routed via the Leo Murphy Road to the R608 and would then continue to the Poulavone Roundabout as per Options 1 and 2.

It is envisaged that this option would accommodate a total of 12 bus stops.

### 7.2.3.2 Indicative Scheme Design

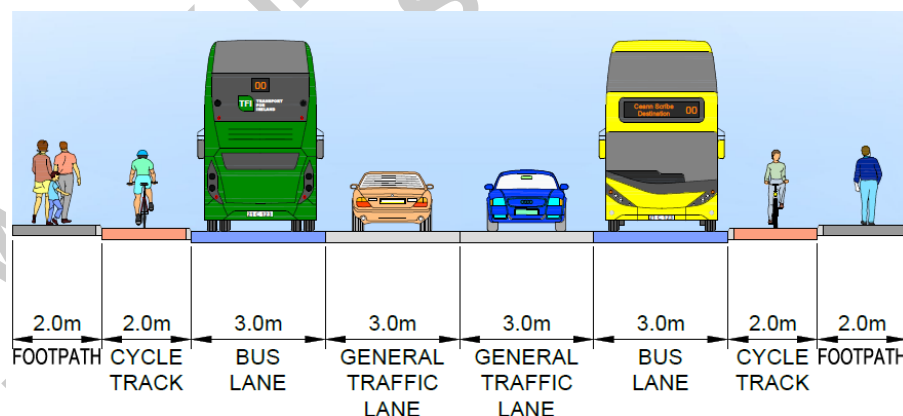
Figure 52 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.





**Figure 52 Section 1, Proposed Option 3 – Indicative Scheme Design**

For this option, between the Grange Terrace/Grange Hill junction and Leo Murphy Road it is possible to provide bus lanes in both directions through widening. Buses would share with general traffic at the Killumney Interchange.



**Figure 53 Section 1, Proposed Option 3 – Cross Section A-A/B-B**

Raised adjacent cycle lanes would also be provided along this section, and cyclists would be provided with an alternative crossing at the Killumney Interchange.

Between the Leo Murphy Road and the R608, it is possible to provide bus lanes in both directions through widening of the route. Raised adjacent cycle lanes are also proposed.

The remainder of this option, between Leo Murphy Road and the Poulavone Roundabout would be consistent with Option 1 (with a combination of bus lanes in one or both directions where possible and raised adjacent cycle facilities throughout).

As with Options 1 and 2, the Poulavone Roundabout will also be upgraded to a signalised crossroad junction.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the Grange Road from the junction with Grange Hill and the N22 Killumney Interchange (with no bus lanes through the interchange itself) and on to the junction with Leo Murphy Road;
- Bus lanes on both sides of the Leo Murphy Road between the Castle Road to the south and the R608 to the north;



- Bus lanes on both sides of the R608 between Leo Murphy Road and the Ballincollig Medical Centre;
- Bus lanes on one side of the road (varies) from the Ballincollig Medical Centre to approximately 100m west of the Poulavone Roundabout (with one localised pinch point where no bus lanes are proposed);
- Raised adjacent cycle lanes along the entirety of the route;
- Upgrade of the Poulavone Roundabout to a signalised crossroad junction; and
- Land acquisition estimated from 111 properties.

## 7.2.4 Option 4 – Routing via Grange Road/Castle Road/Link Road

### 7.2.4.1 Route Description

Route Option 4 is presented in Figure 54 and described in the following text.



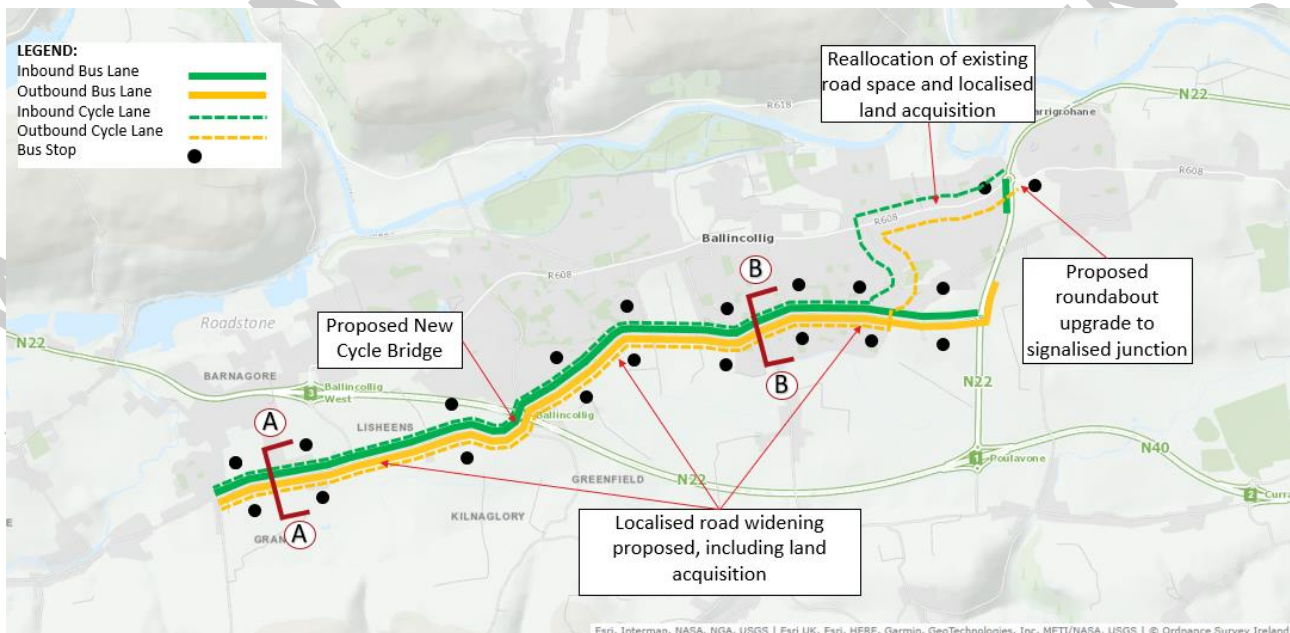
Figure 54 Section 1, Proposed Option 4 – Route Option Overview

Option 4 is similar to Option 3 and would see both buses and cyclists route from the Grange Terrace/Grange Hill junction to the south of the N22 Ballincollig Bypass, crossing over the N22 at the Killumney Interchange and continuing on to the Greenfields Road/Castle Road until the junction with Leo Murphy Road. However, at this point, buses would continue along the Link Road to the Killumney Link East Roundabout and then route north on the N22 Killumney Link Road to the Poulavone Roundabout. Cyclists would be routed via the Leo Murphy Road to the R608 and would then continue to the Poulavone Roundabout as per Options 1 and 2.

It is envisaged that this option would accommodate a total of 10 bus stops.

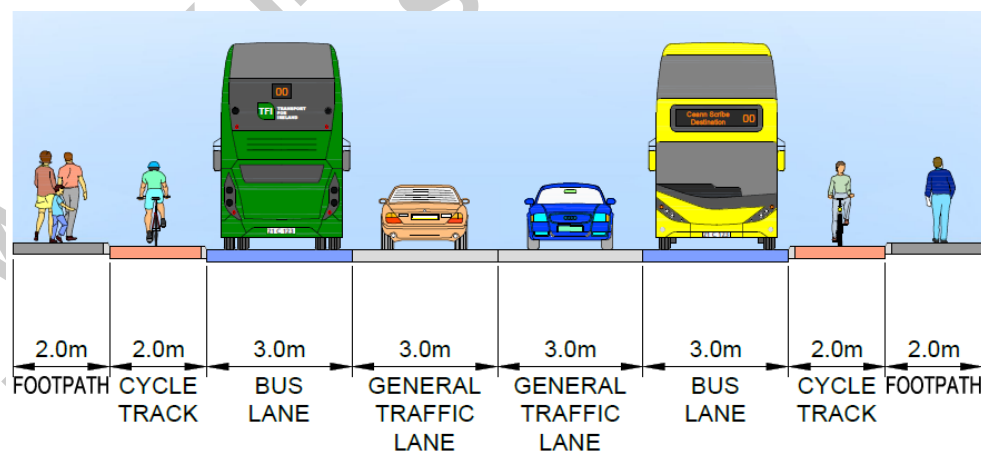
### 7.2.4.2 Indicative Scheme Design

Figure 55 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 55 Section 1, Proposed Option 4 – Indicative Scheme Design**

For this option, between the Grange Terrace/Grange Hill junction and the N22 Killumney Link Road it is possible to provide bus lanes in both directions through widening and land acquisition. Buses would share with general traffic at the Killumney Interchange.



**Figure 56 Section 1, Proposed Option 4 – Cross Section A-A/B-B**

Raised adjacent cycle lanes would also be provided along this section, and cyclists would be provided with an alternative crossing at the Killumney Interchange.

Between the N22 Killumney Link East junction and the Poulavone Roundabout, it is proposed to provide an additional short section of southbound bus lane approaching the Killumney Link East roundabout junction and an additional short section of northbound bus lane approaching the Poulavone Roundabout, through localised works (no widening is required). The N22 Killumney Link East roundabout junction and the Poulavone Roundabout would both be converted to signalised junctions to enable the bus priority to be continued through to the junction and provide onward bus priority through the signalling stages.

Raised adjacent cycle lanes would also be provided along this entire section as far as the Leo Murphy Road, from where cyclists would be routed via the Leo Murphy Road to the R608, with raised adjacent cycle lanes proposed on the Leo Murphy Road. Finally, between Leo Murphy Road and the Poulavone Roundabout raised adjacent cycle facilities are provided through widening and land acquisition.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the Grange Road from the junction with Grange Hill and the N22 Killumney Interchange (with no bus lanes through the interchange itself) and on to the junction with the N22 Killumney Link East Roundabout;
- A short section of southbound bus lane on the N22 Link Road approaching the Killumney Link East roundabout, and a short section of northbound bus lane approaching the Poulavone Roundabout
- Raised adjacent cycle lanes along the entirety of the route, diverting from the bus route via Leo Murphy Road and the R608 to the Poulavone Roundabout; and
- Upgrade of the Poulavone Roundabout and Killumney Link East Roundabout to signalised junctions; and
- Land acquisition estimated from 82 properties.

## 7.2.5 Option 5 – Routing via Grange Road/N22 Ballincollig Bypass/Killumney Link Road

### 7.2.5.1 Route Description

Route Option 5 is presented in Figure 57 and described in the following text.

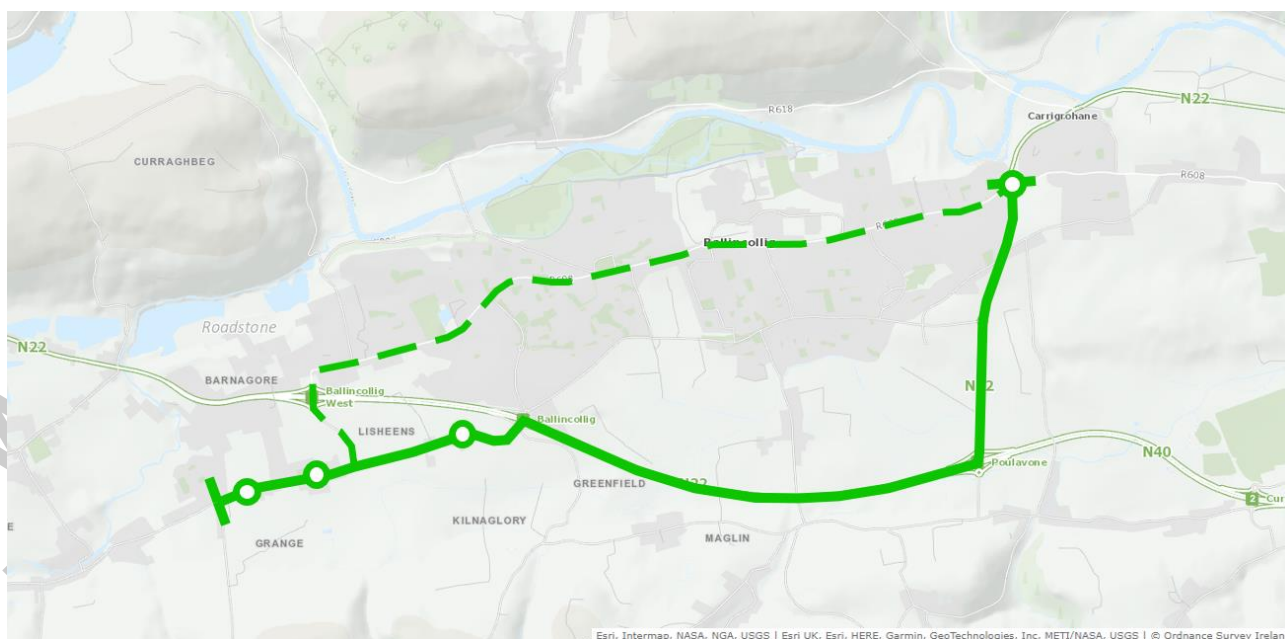


Figure 57 Section 1, Proposed Option 5 – Route Option Overview

Option 5 would see both buses and cyclists route from the Grange Terrace/Grange Hill junction to the south of the N22 Ballincollig Bypass, as far as the Killumney Interchange. From this location, buses would join the N22 via the Killumney Interchange and route along the N22 to the Curraheen Interchange (Junction 1 of the N40). From here, buses would travel north along the N22 Killumney Link Road to the Poulavone Roundabout.

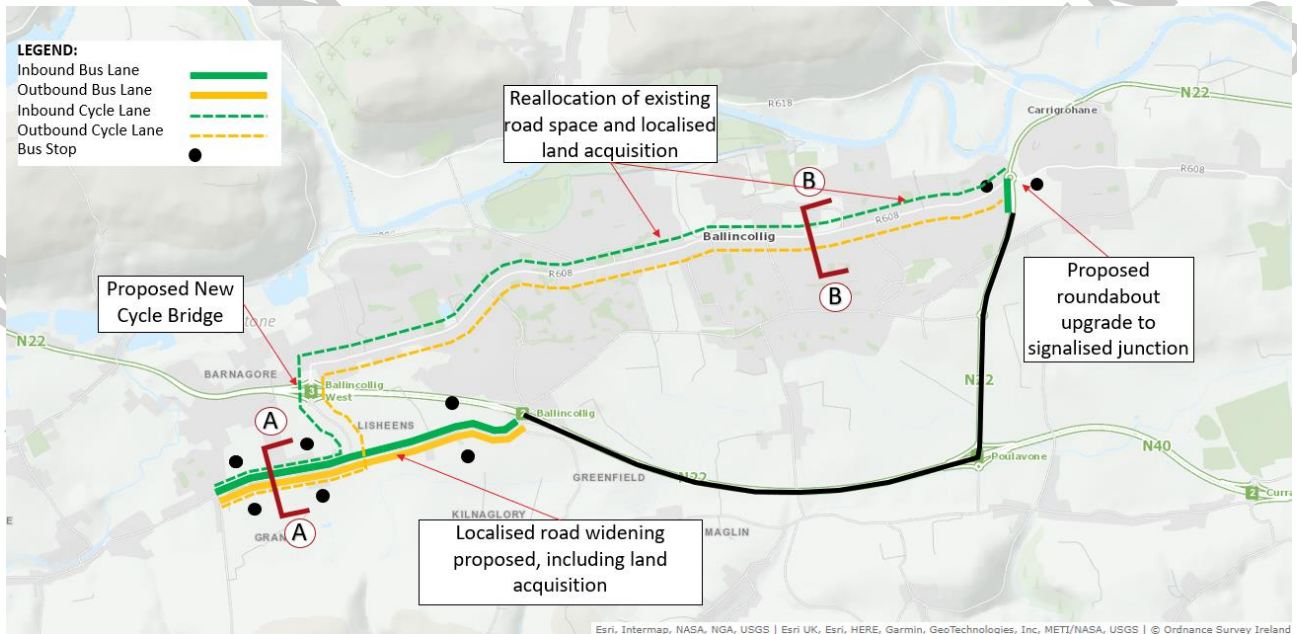
As the N22 is not a suitable route for cycling, cyclists would divert from buses and route via the link road to the N22 Ovens Interchange, crossing over the N22 and then route via the R608, through Ballincollig Town Centre and continue east to the Poulavone Roundabout.

It is envisaged that this option would accommodate a total of 4 bus stops. The provision of bus stops is significantly less for Option 5 due to the route utilising the N22 for a significant portion of the route, with a much smaller residential catchment and limited locations where accessible stops can be provided.

### 7.2.5.2 Indicative Scheme Design

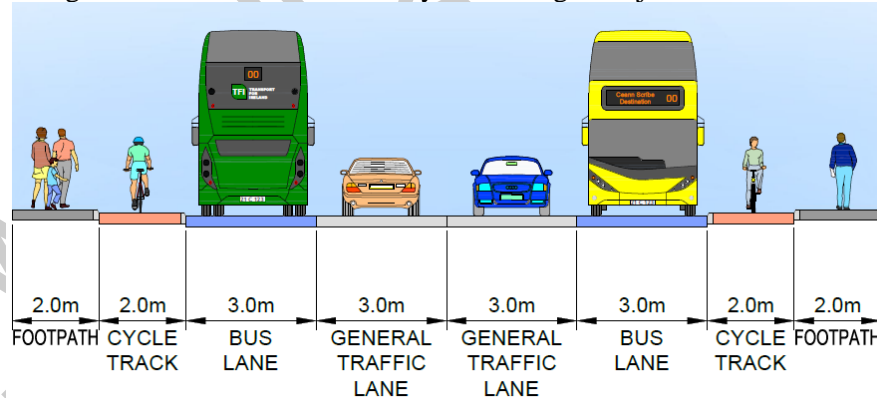
Figure 58 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.





**Figure 58 Section 1, Proposed Option 5 – Indicative Scheme Design**

For this option, between the Grange Terrace/Grange Hill junction and the N22 Killumney Interchange it is possible to provide bus lanes in both directions through widening and land acquisition. Buses would share with general traffic at the Killumney Interchange and join the N22 mainline.



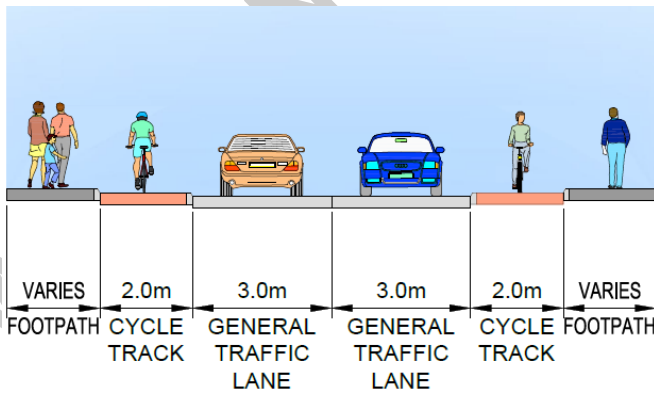
**Figure 59 Section 1, Proposed Option 5 – Cross Section A-A**

Along the N22 mainline bus lanes would not be provided; instead, buses would use the existing dual carriageway and share with general traffic. At the N22/N40 interchange (Junction 1 of the N40) buses would continue on to the N22 link road and north to the Poulavone Roundabout, within the existing dual carriageway (i.e., no additional lanes proposed), with the exception of the immediate approach to the Poulavone Roundabout from the south, where a short section of northbound bus lane is proposed.

The Poulavone Roundabout would be converted to a signalised junction to enable the bus priority to be continued through to the junction and provide onward bus priority through the signalling stages.

Raised adjacent cycle lanes would also be provided along the entire route, with cyclists diverting from the bus route to cross the N22 at the Killumney Interchange via a new cycle bridge and then routing along the R608 through Ballincollig Town Centre and continuing to the Poulavone Roundabout. This is facilitated through reallocation of existing road space and localised widening and land acquisition.





**Figure 60 Section 1, Proposed Option 5 – Cross Section B-B**

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the Grange Road from the junction with Grange Hill and the N22 Killumney Interchange (with no bus lanes through the interchange itself) and on to the junction with the N22 Killumney Link East Roundabout;
- A short section of northbound bus lane on the N22 Link Road approaching the Poulavone Roundabout
- Raised adjacent cycle lanes along the entirety of the route, diverting from the bus route via the Ovens Interchange and the R608 to the Poulavone Roundabout;
- A new cycle crossing of the N22 at the Ovens Interchange;
- Upgrade of the Poulavone Roundabout to a signalised junction; and
- Land acquisition estimated from 57 properties.

## 7.2.6 Route Options Assessment

Details of the Stage 2 route options assessment undertaken for the options outlined above for Section 1 are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 11.

**Table 11 Section 1, R608 West of Ballincollig to Poulavone Roundabout Options Assessment Summary (Sub-Criteria)**

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3	RO 4	RO 5
Economy	Capital Cost	Green	Light Green	Red	Red	Green
	Transport Reliability	Green	Green	Green	Green	Light Red
Integration	Land Use Integration	Light Green	Light Green	Light Green	Light Green	Red
	Catchments	Green	Green	Light Green	Light Red	Red
	Transport Network Integration	Light Red	Light Red	Light Green	Light Green	Red
	Cycling Integration	Yellow	Yellow	Yellow	Yellow	Yellow
	Pedestrian Network Integration	Green	Green	Green	Green	Light Red

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3	RO 4	RO 5
Accessibility & Social Inclusion	Key Trip Attractors					
	Deprived Geographic Areas					
Safety	Road Safety					
Environment	Archaeology and Cultural Heritage					
	Biodiversity					
	Soils and Geology					
	Hydrology					
	Landscape and Visual					
	Air Quality					
	Land Use Character					

From the **Economy** perspective, Route Options 1 and 5 are considered the most favourable as they can be delivered with a reduced amount of land take and have good journey time reliability however Option 5 is considered unfavourable as it involves the mixing of buses with general traffic on the N22 National Road which may be subject to future congestion.

In terms of **Integration**, all options with the exception of Option 5 are considered favourable with respect to land use, however both Option 1 and 2 provide an alignment which has a higher residential catchment potential. Route Options 3 and 4 have the potential to integrate with the future delivery of the Light Rail System planned for Ballincollig as outlined in CMATS, while Option 1 and 2 are likely to impact on traffic movements along the busiest corridor in Ballincollig (Main Street/Cork Road). Option 5 due to its routing onto the N22 National Road offers limited opportunities in terms of integration with other modes.

All Options perform well with respect to cycling connectivity while only Option 5 is considered to perform poorly with respect to pedestrian integration.

From an **Accessibility and Social Inclusion** perspective, Options 1 and 2 provide greater connectivity to key attractors located along Main Street/Cork Road (i.e. schools, retail and commercial premises), Options 3 and 4 have reduced level of connectivity and Option 5 is considered to perform poorly in this regard. There is a similar trend with respect to access to Deprived Geographic Areas with Option 5 also having a poor rating.

In terms of **Safety**, Option 5 is considered to perform best as it has the least amount of conflicts while Option 4 is also considered to perform better than the other options due to the reduced number of junctions it needs to travel through and the directness of its route.

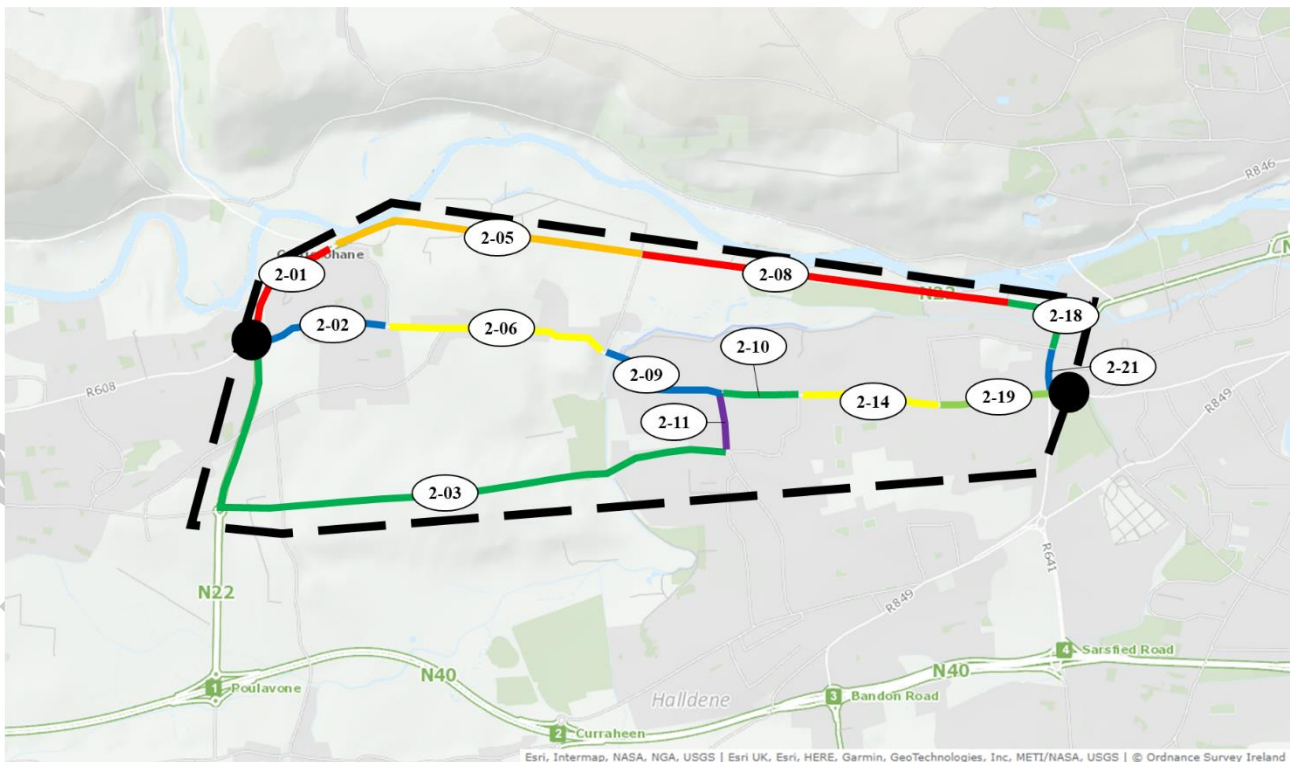
Under **Environment**, Option 5 is the most favourable in that it would require a significantly reduced number of trees to be felled, when compared to the other options. This would result in favourable impacts on biodiversity and on the landscape and visual setting. Option 5 would also require the least amount of land-take. Option 5 would otherwise result in similar impacts on the natural environment as Options 1 and 2.

Options 1 and 2 would otherwise be considered acceptable in that they are seen to perform better than Options 3 and 4.

From the above assessment, **Option 1** has been identified as the preferred route as it provides good bus priority in the central part of Ballincollig serving a wide catchment and many key trip attractors with a reduced cost compared to other options. The delivery of the proposed infrastructure as identified along Route Option 1 will have similar impacts on the receiving built and natural environment as many of the other options, although it is acknowledged that Option 5 would have a reduced impact on the natural environment as its alignment follows the existing national road network, however this option has been excluded because of its poor catchment and lack of integration with the built-up environment around Ballincollig. It is therefore recommended that Option 1 be considered the preferred option for this section of the study area and is carried forward for consideration as part of end-to-end option assessments.

### 7.3 Study Area Section 2 – Poulavone Roundabout to Dennehy's Cross

For Section 2 of CBC 6, this assessment considers route options between the Poulavone Roundabout to the west (the end of Section 1) and the junction at Dennehy's Cross to the east.



**Figure 61 Section 2 – Route Options Remaining after Stage 1 Sift**

Following the Stage 1 sift, three primary route options with a number of sub options have been identified for Section 1 and include the following:

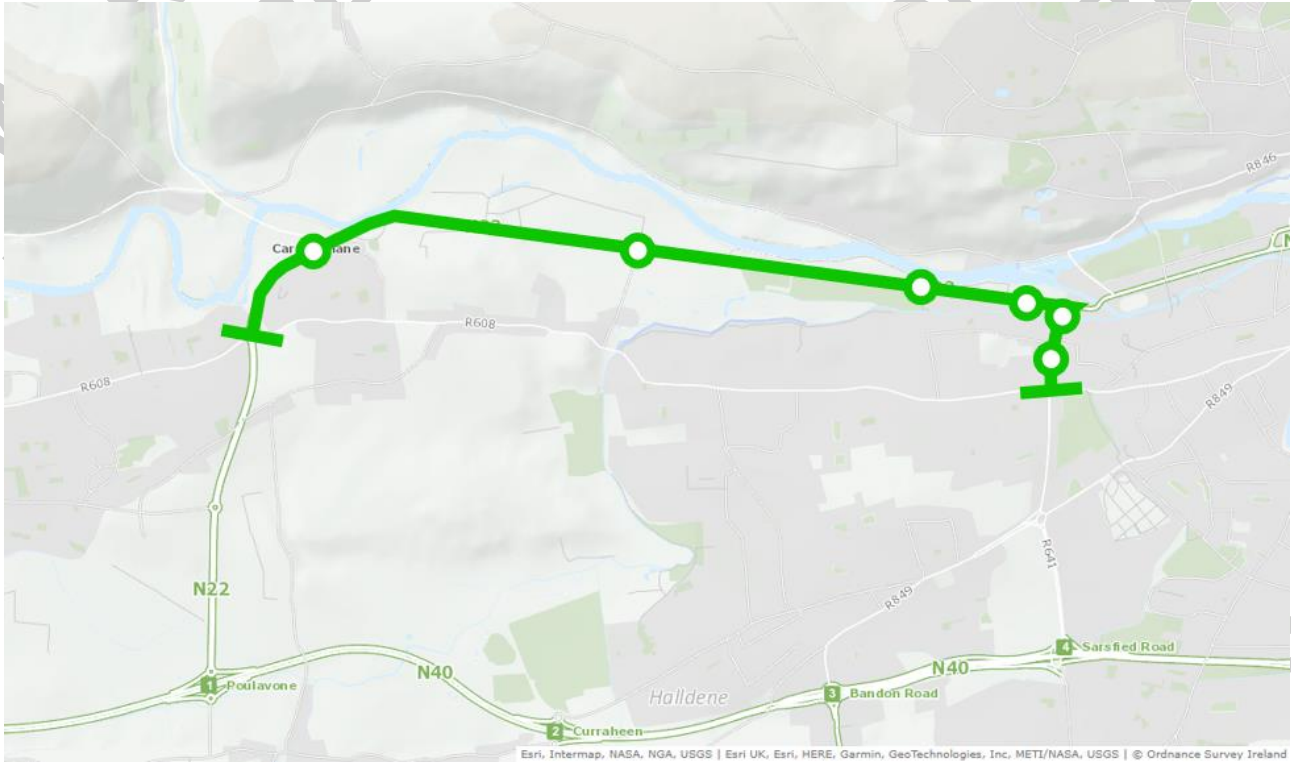
- Option 1 – routing via the N22 Carrigrohane Road;
- Option 2 – routing via Model Farm Road;
- Option 3 – routing via a new link road between the N22 link road and the western boundary of Munster Technological University, and continuing through the campus, out on to Rossa Avenue and north to Model Farm Road, and onwards to Dennehy's Cross; and
- Option 4 – routing as per Option 2 (with buses and cyclists routing on Model Farm Road), with an emphasis on traffic management along the section as opposed to dedicated infrastructure provision.

These options are presented in greater detail below.

### 7.3.1 Option 1 – Routing via N22 Carrigrohane Road

#### 7.3.1.1 Route Description

Route Option 1 is presented in Figure 62 and described in the following text.



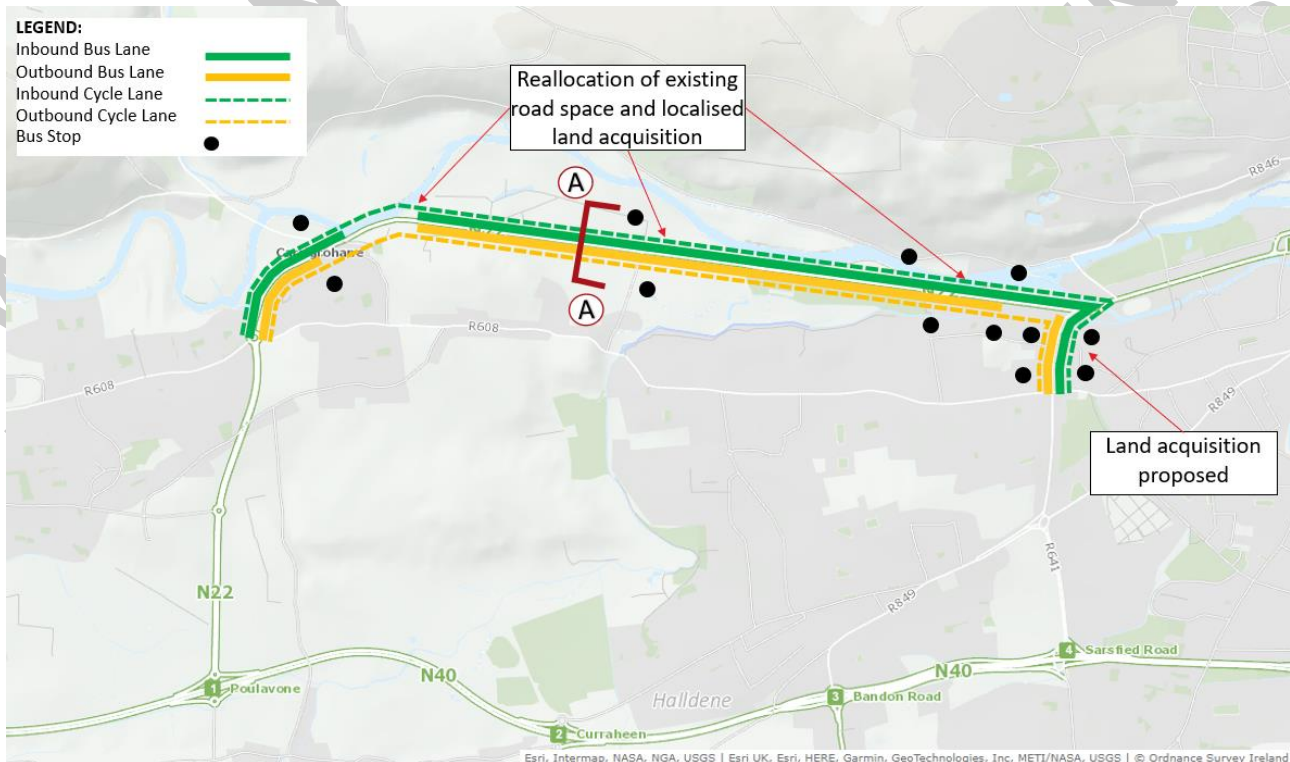
**Figure 62 Section 2, Proposed Option 1 – Route Option Overview**

Option 1 would see buses and cyclists route along the N22 from the Poulavone Roundabout to the west to Victoria Cross to the east and then south to Dennehy's Cross. It is envisaged that this option would accommodate a total of 6 bus stops.

#### 7.3.1.2 Indicative Scheme Design

Figure 63 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

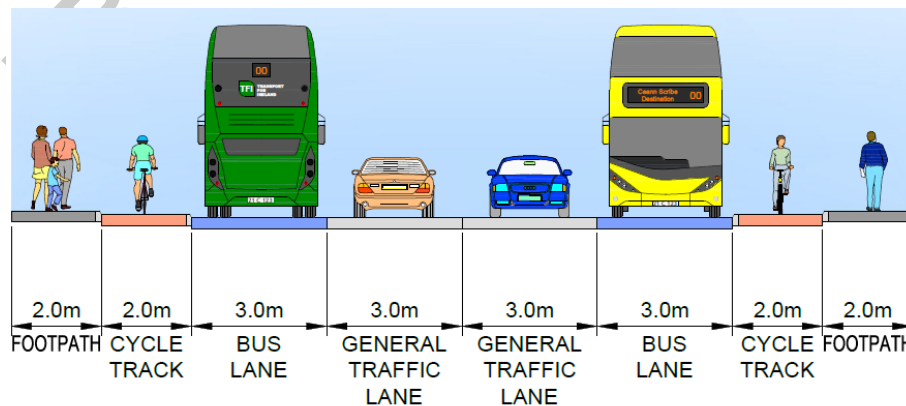




**Figure 63 Section 2, Proposed Option 1 – Indicative Scheme Design**

For this option, between the Poulavone Roundabout to the west and Dennehy's Cross to the east it is possible to provide bus lanes in both directions along the majority of the route through widening and localised land acquisition.

At a number of locations along the route it would be necessary to remove portions of the proposed bus priority in one or both directions – specifically on the eastbound and westbound approaches to the junction with the R618 Inniscarra Road (at the Angler's Rest) and on the approach to Victoria Cross. Between Victoria Cross and Dennehy's Cross, the provision of bus lanes in both directions requires road widening and the upgrade of Victoria Bridge. Raised adjacent cycle lanes are proposed throughout.



**Figure 64 Section 2, Proposed Option 1 – Cross Section A-A**

A substantial amount of widening would need to occur along the length of the route to achieve the required cross-section, and it is noted that portions of the lands on both sides of the existing road are part of flood zones.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

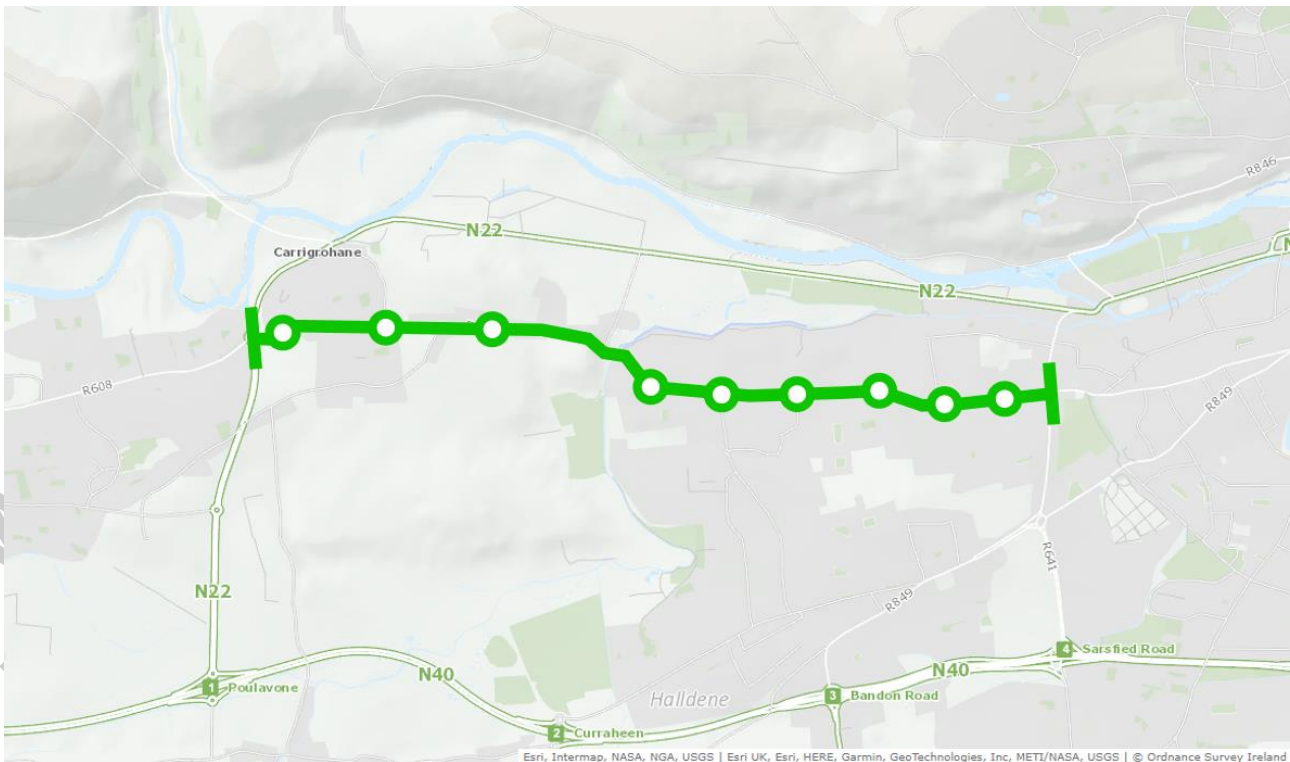
- Bus lanes on both sides of the N22 from the Poulavone Roundabout, reducing to an inbound bus lane only approaching the R618 junction from the west, and a short section to the east of the R618 with no bus lanes;

- Bus lanes on both sides of the N22 therein, reducing to an inbound bus lane only on the eastbound approach to Victoria Cross;
- Bus lanes on both sides of the R641 between Victoria Cross and Dennehy's Cross;
- Raised adjacent cycle lanes along the entirety of the route;
- Upgrade of Victoria Bridge to facilitate bus lane and cycle lane provision across the bridge; and
- Land acquisition estimated from 49 properties.

### 7.3.2 Option 2 – Routing via Model Farm Road

#### 7.3.2.1 Route Description

Route Option 2 is presented in Figure 65 and described in the following text.



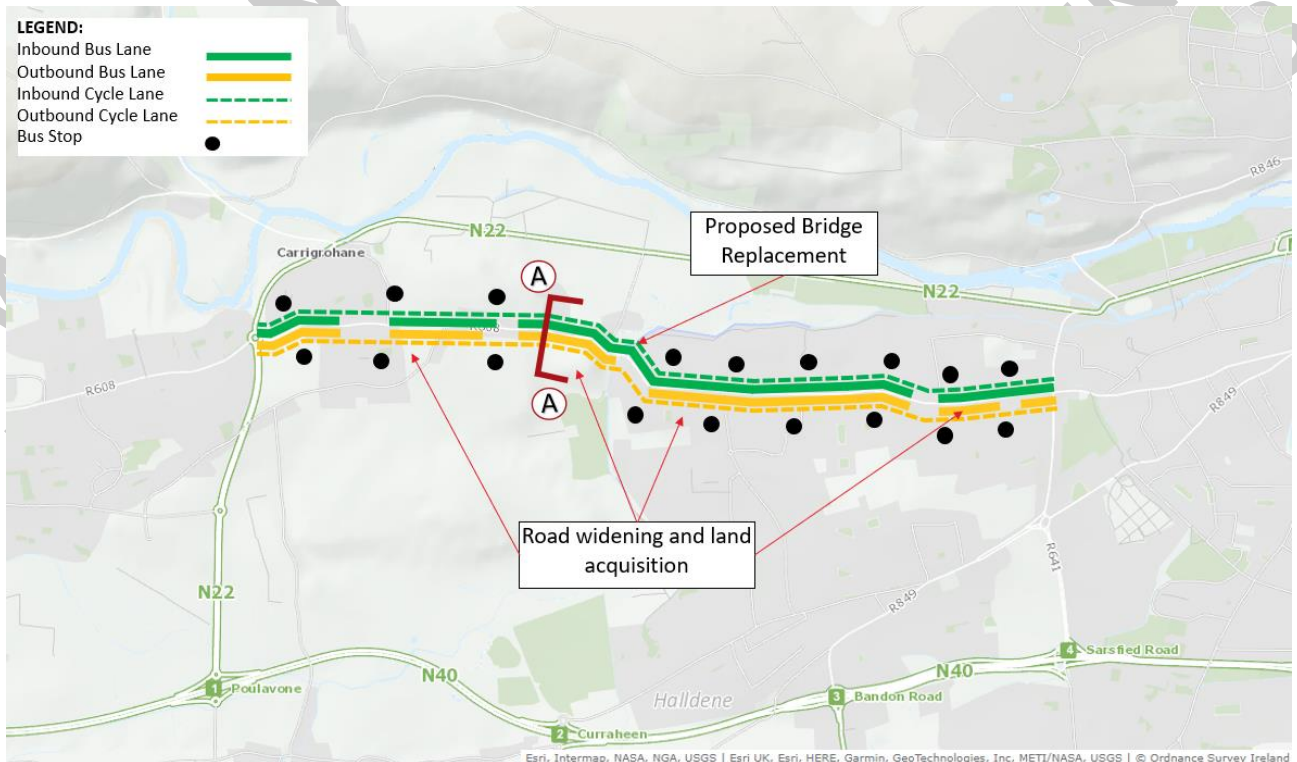
**Figure 65 Section 2, Proposed Option 2 – Route Option Overview**

Option 2 would see both buses and cyclists route from the Poulavone Roundabout to the west along Model Farm Road in its entirety, to the junction at Dennehy's Cross to the east.

It is envisaged that this option would accommodate a total of 9 bus stops.

#### 7.3.2.2 Indicative Scheme Design

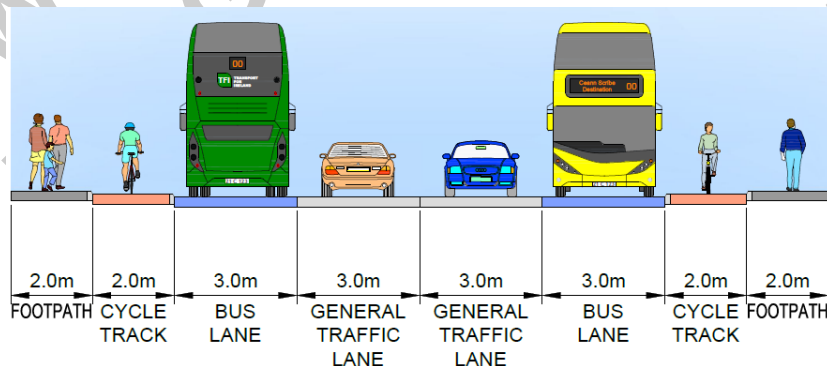
Figure 66 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 66 Section 2, Proposed Option 2 – Indicative Scheme Design**

For this option, between the Poulavone Roundabout to the west and Dennehy's Cross to the east it is possible to provide bus lanes in both directions along the majority of the route through widening and land acquisition.

At a number of locations along the route it would be necessary to remove portions of the proposed bus priority in one or both directions – specifically in the vicinity of the junctions with Church Hill and Carriganara Road, to the east of Carrigrohane Bridge, in the vicinity of Laurel Bank and Woodlawn.



**Figure 67 Section 2, Proposed Option 2 – Cross Section A-A**

Carrigrohane Bridge would be replaced with a new bridge as part of this option, and the junctions at Church Hill and Inchigaggin Lane would also be significantly upgraded to become signalised junctions. The road alignment is also proposed to be amended in the vicinity of Inchigaggin Lane. Raised adjacent cycle lanes are proposed throughout.

A substantial amount of widening through land acquisition would need to occur along the length of the route to achieve the required cross-section.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the majority of Model Farm Road from the Poulavone Roundabout to Dennehy's Cross (with some localised pinch points where one or both bus lanes are temporarily removed);
- Raised adjacent cycle lanes along the entirety of the route;

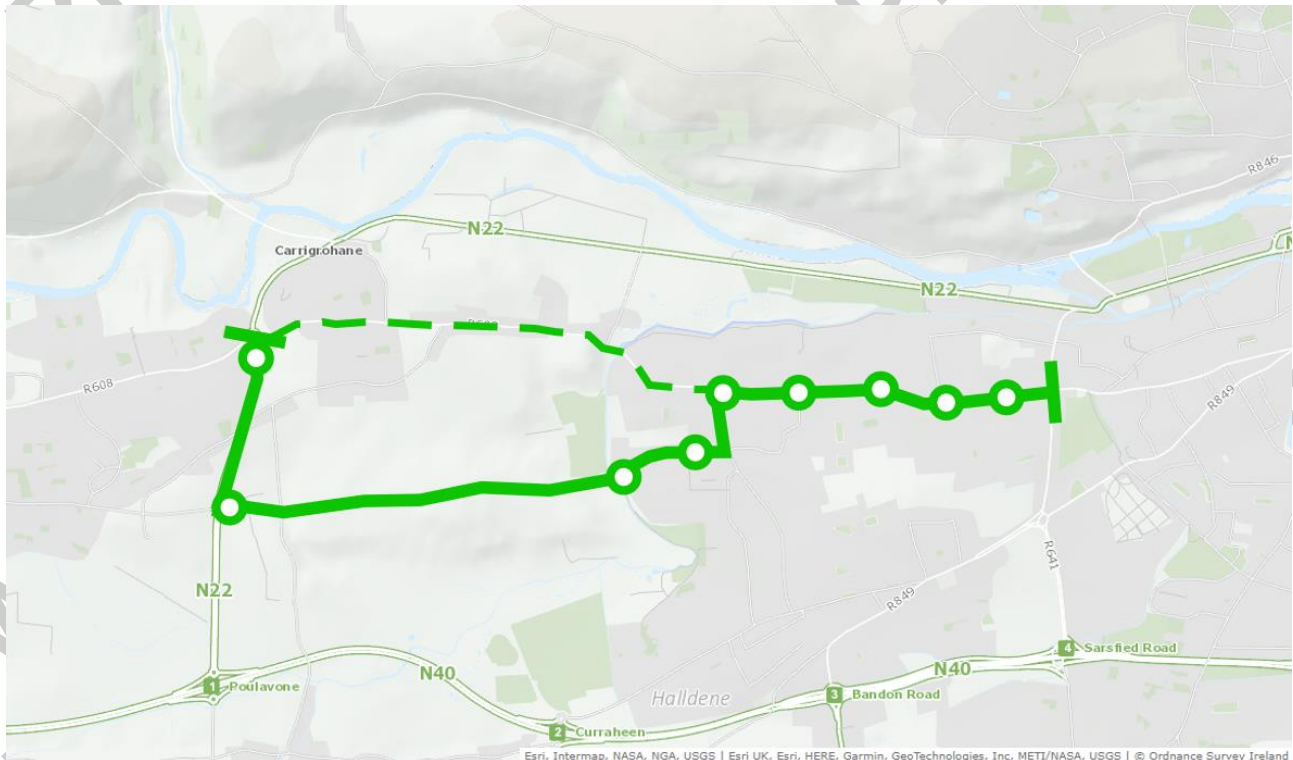


- Realignment of Model Farm Road in the vicinity of Inchigaggin Lane;
- Replacement of Carrigrohane Bridge;
- Upgrade of junctions at Church Hill and Inchigaggin Lane to convert to signalised junctions; and
- Land acquisition estimated from 156 properties.

### 7.3.3 Option 3 – Routing via new link road to Munster Technological University (MTU)

#### 7.3.3.1 Route Description

Route Option 3 is presented in Figure 68 and described in the following text.



**Figure 68 Section 2, Proposed Option 3 – Route Option Overview**

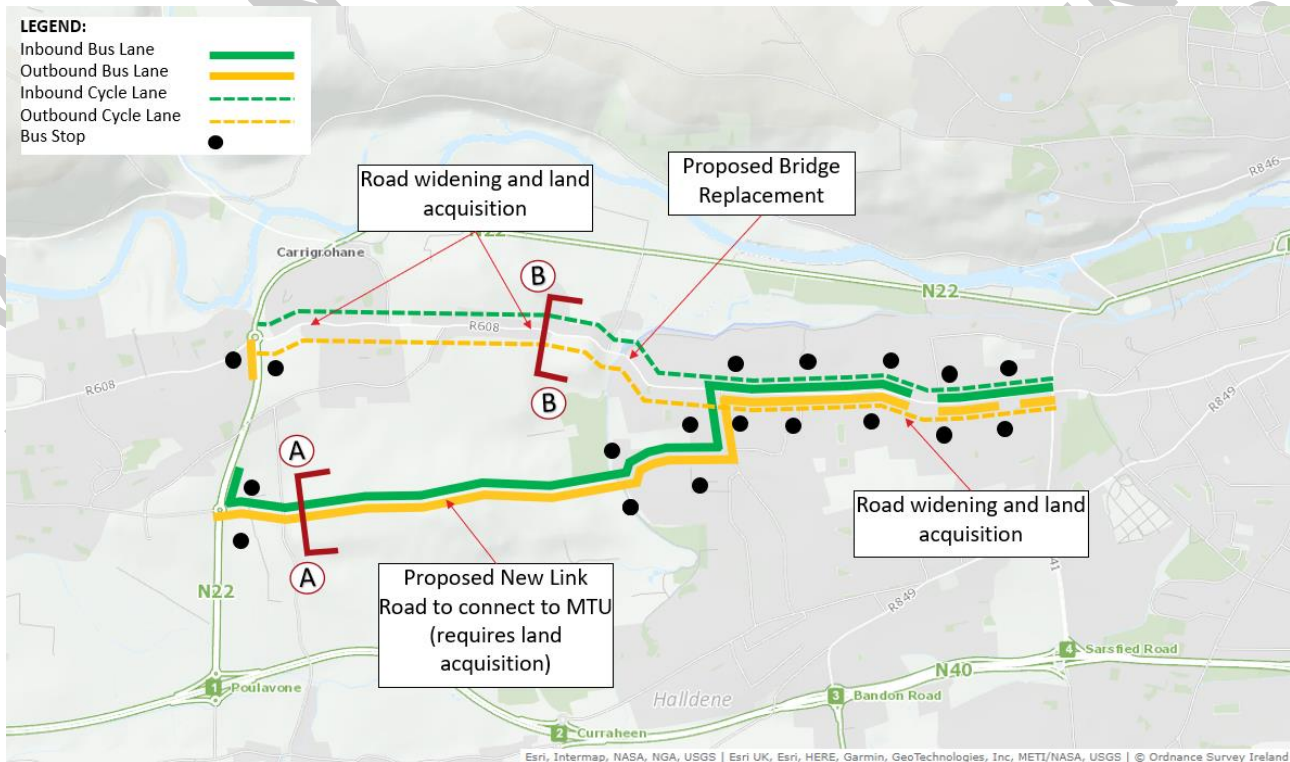
Option 3 would see buses route from the Poulavone Roundabout, south along the N22 Killumney Link Road to the Killumney Link East Roundabout, before then routing east along a new road to be constructed between the Killumney Link East Roundabout and the grounds of Munster Technological University (MTU). Buses would then route through the MTU campus and exit on to Rossa Avenue, continuing north to the junction with Model Farm Road and then heading east to Dennehy's Cross (as per Option 2). In this option, cyclists remain on the Model Farm Road from Poulavone Roundabout to Dennehy's Cross.

It is envisaged that this option would accommodate a total of 9 bus stops.

#### 7.3.3.2 Indicative Scheme Design

Figure 69 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

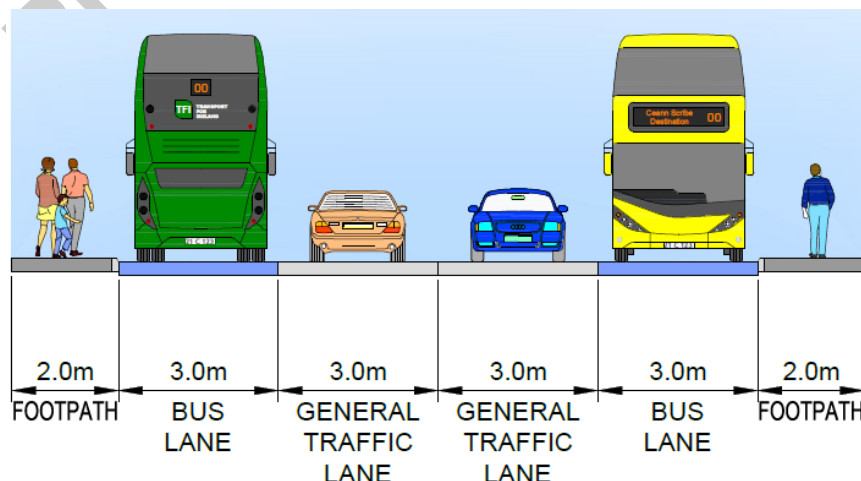




**Figure 69 Section 2, Proposed Option 3 – Indicative Scheme Design**

Initially, in this option buses would route south from the Poulavone Roundabout to the Killumney Link East roundabout, before heading east towards MTU through greenfield lands on a new link road. Localised sections of dedicated bus priority would be provided along this portion of the route (on the existing N22 north towards Poulavone Roundabout, and south approaching the Killumney Link East Roundabout).

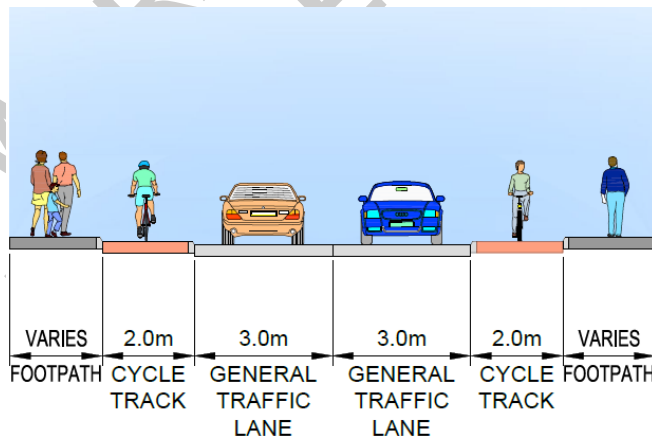
This option would then provide a new link road through the existing greenfield lands, to be facilitated through land acquisition. This link road would be 16m wide (accommodating both general traffic and bus lanes) and would be on an alignment similar to that indicated for the east-west Rapid Transit Corridor outlined in the Cork Area Transit System (CATS) study from 2009/2010, and the potential LRT corridor route outlined in the Cork Metropolitan Area Transport Strategy (CMATS) 2020.



**Figure 70 Section 2, Proposed Option 3 – Cross Section A-A**

The 16m cross-section width would be provided from the N22 Killumney Link East Roundabout to MTU (with dedicated bus lanes in both directions), continuing east providing bus priority through the campus and to the entrance roundabout on Rossa Avenue. Between this entrance junction and the Model Farm Road to the north, bus lanes are proposed in both directions.

Cyclists would remain on Model Farm Road from the Poulavone Roundabout to the junction with Rossa Avenue, with raised adjacent facilities proposed, to be facilitated through road widening and land acquisition. Carrigrohane Bridge would be replaced in this option (as per Option 2), to accommodate improved pedestrian and cycle facilities through the bridge.



**Figure 71 Section 2, Proposed Option 3 – Cross Section B-B**

Along Model Farm Road between Rossa Avenue and Dennehy's Cross, the route proposals are as per Option 2, with proposed bus and cycle priority with a number of locations where bus priority is removed, but cycle facilities maintained.

Although extensive land acquisition would be required to facilitate the construction of the new link road, the extent of impacted properties along the western portion of the route is reduced due to routing via the greenfield environs.

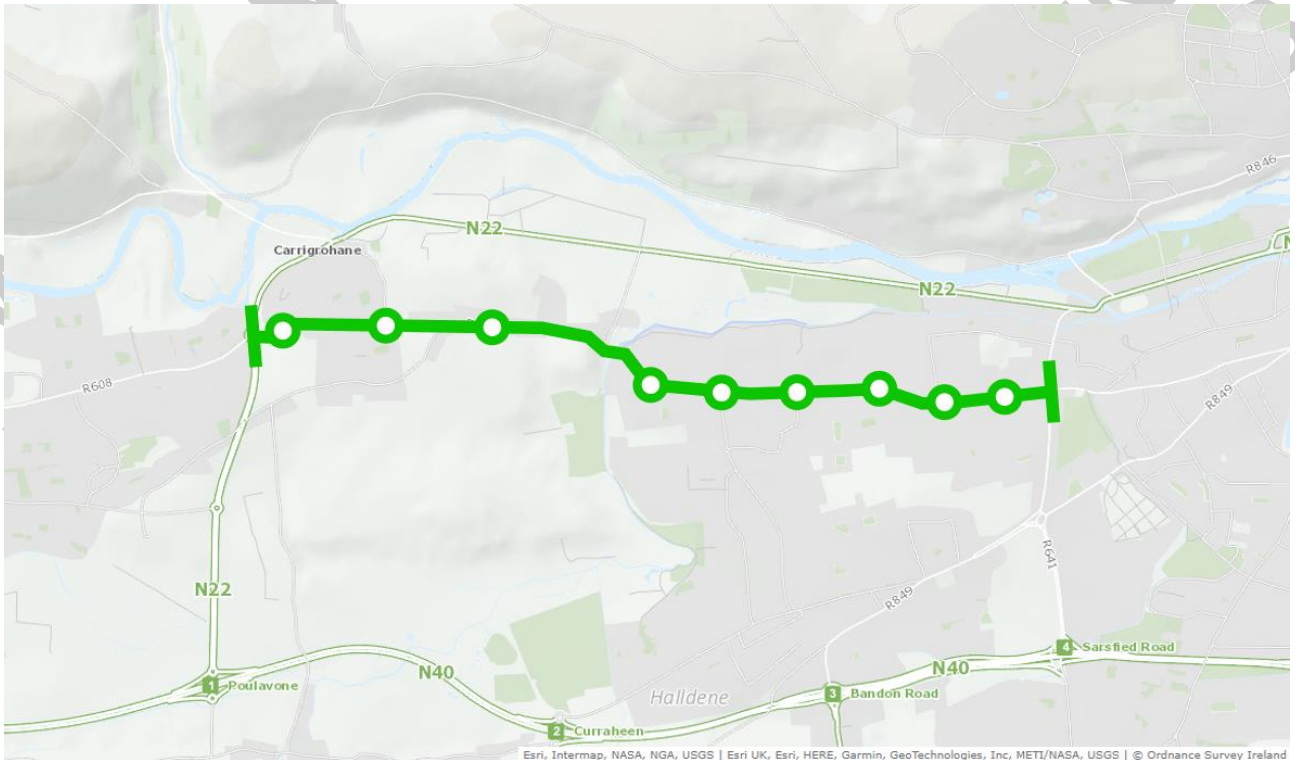
In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Short sections of bus lane on the N22 Killumney Link Road (northbound approaching Poulavone Roundabout and southbound approaching the N22 Killumney Link East Roundabout);
- A new link road between the N22 Killumney Link East Roundabout and the grounds of MTU, with bus lanes on both sides of the road (and general traffic lanes);
- Bus lanes through the MTU campus, on to Rossa Avenue and north to the junction with Model Farm Road;
- Bus lanes on both sides of the majority of Model Farm Road from the junction with Rossa Avenue to Dennehy's Cross (with some localised pinch points where one or both bus lanes are temporarily removed);
- Raised adjacent cycle lanes along the entirety of the route;
- Replacement of Carrigrohane Bridge; and
- Land acquisition estimated from 125 properties.

### **7.3.4 Option 4 – Routing via Model Farm Road**

#### **7.3.4.1 Route Description**

Route Option 4 is presented in Figure 72 and described in the following text.



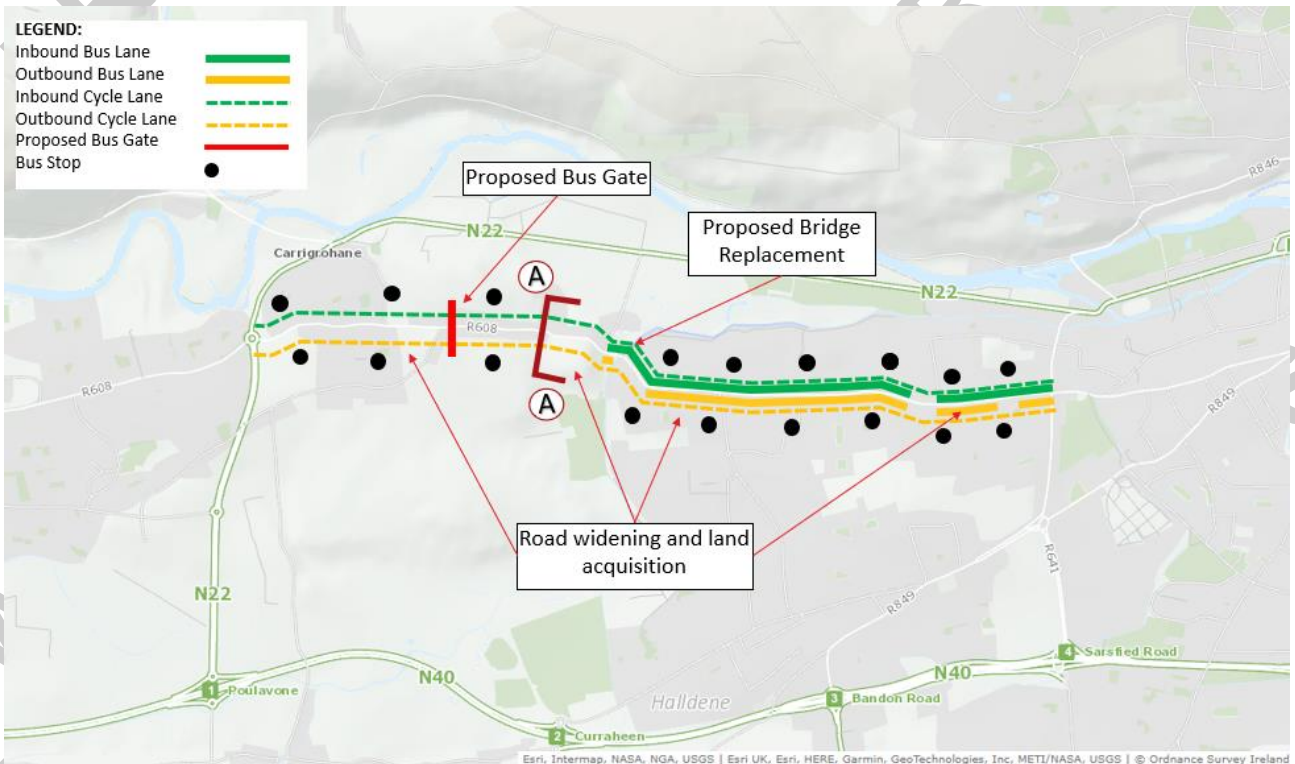
**Figure 72 Section 2, Proposed Option 4 – Route Option Overview**

The route alignment of Option 4 is similar to Option 2 and would see both buses and cyclists route from the Poulavone Roundabout to the west along Model Farm Road in its' entirety, to the junction at Dennehy's Cross to the east.

It is envisaged that this option would accommodate a total of 9 bus stops.

#### 7.3.4.2 Indicative Scheme Design

Figure 73 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

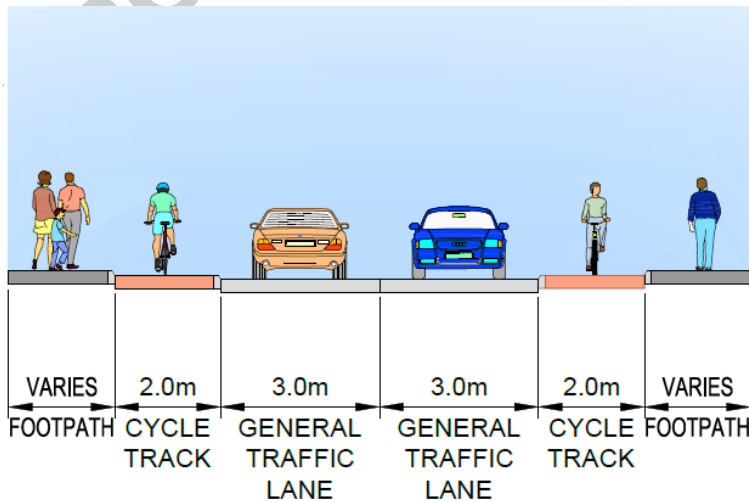


**Figure 73 Section 2, Proposed Option 4 – Indicative Scheme Design**



The scheme design for Option 4 is largely similar to that proposed in Option 2. However, along the western portion of Model Farm Road for Option 4 it is proposed to implement additional traffic management measures on the route in lieu of the provision of dedicated bus lanes through road widening works.

Therefore, between the Poulavone Roundabout and Carrigrohane Bridge no dedicated bus lanes are proposed. However, to the west of the junction with the Carriganarra Road, it is proposed to implement a short section with a restriction on through traffic flow on Model Farm Road to only permit buses to use this section of the route. Local access to the various properties along the route would be permitted from the appropriate approach (i.e., via Church Hill, Carriganarra Road and Poulavone Roundabout from the west, and from Model Farm Road/Inchigaggin Lane to the east).



**Figure 74 Section 2, Proposed Option 4 – Cross Section A-A**

From Inchigaggin Lane, heading east the route proposals are as per Option 2, with bus lanes proposed along the majority of the route to Dennehy's Cross. At a number of locations along the route it would be necessary to remove portions of the proposed bus priority in one or both directions – specifically to the east of Carrigrohane Bridge and in the vicinity of Laurel Bank and Woodlawn.

As with Option 2, Carrigrohane Bridge would be replaced with a new bridge as part of this option, and the junctions at Church Hill and Inchigaggin Lane would also be significantly upgraded to become signalised junctions. Raised adjacent cycle lanes are proposed throughout.

As with Option 2, a substantial amount of widening through land acquisition would need to occur along the length of the route to achieve the required cross-section.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of the majority of Model Farm Road from the Inchigaggin Lane to Dennehy's Cross (with some localised pinch points where one or both bus lanes are temporarily removed);
- A bus-only section of Model Farm Road to the east of Carriganarra Road;
- Raised adjacent cycle lanes along the entirety of the route;
- Replacement of Carrigrohane Bridge;
- Upgrade of junctions at Church Hill and Inchigaggin Lane to convert to signalised junctions; and
- Land acquisition estimated from 119 properties.

### **7.3.5 Route Options Assessment**

Details of the Stage 2 route options assessment undertaken for the options outlined above for Section 2 are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 12.



Table 12 Section 2, Poulavone Roundabout to Dennehy's Cross Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3	RO 4
Economy	Capital Cost				
	Transport Reliability				
Integration	Land Use Integration				
	Catchments				
	Transport Network Integration				
	Cycling Integration				
	Pedestrian Network Integration				
Accessibility & Social Inclusion	Key Trip Attractors				
	Deprived Geographic Areas				
Safety	Road Safety				
Environment	Archaeology and Cultural Heritage				
	Biodiversity				
	Soils and Geology				
	Hydrology				
	Landscape and Visual				
	Air Quality				
	Land Use Character				

From the **Economy** perspective, Route Option 4 is considered the most favourable in terms of cost while Option 3 is expected to be the most expensive due to the provision of entirely new road infrastructure along part of the route. Options 1, 2 and 3 all provide a good level of bus priority; however Option 4 has the potential to be less reliable due to the reliance on a long section of traffic restrictions in a semi-rural area.

In terms of **Integration**, Option 1 performs poorly as it is routed primarily along agricultural lands which have no development potential and limited existing catchment, while all other options perform equally well.

Option 4 performs poorly with respect transport integration as existing traffic will need to divert off the Model Farm Road, potentially impacting the operation of other transport corridors. All corridors perform well with respect to cycling infrastructure, with only Option 1 performing poorly with respect to pedestrian connectivity.

From an **Accessibility and Social Inclusion** perspective, Option 3 provides direct access to the Munster Technological University and other key attractors along the route, with Options 2 and 4 providing a less direct connection. Due to the routing on the Carrigrohane Road only Option 1 is considered to perform poorly under this criterion. All options performed similarly with respect to access to Deprived Geographic Areas.

In terms of **Safety**, Option 3 is considered to perform poorly compared to the other options as its route is less direct than the others and needs to travel through more junctions and make more turns resulting in the potential for greater conflict.

Under **Environment**, Option 3 is least preferred, and Option 1 and Option 4 perform favourably. Option 1 has the least number of residential receptors located along its route, and thus would likely result in the least air quality and noise impacts. However, notably, Option 1 runs very close to the River Lee pNHA (approximately 80m) and thus is flagged as having the greatest potential to result in negative effects on aquatic ecology and water quality. Nevertheless, Option 1 only has one river crossing while the other options each have two. Option 4 has the least land-take requirements associated with the same and would result in the least requirement for tree felling when compared with Option 1, or indeed the other options.

From the above assessment it can be seen that both **Option 2** and **Option 4** perform similarly well with Option 2 providing greater certainty with respect to bus journey times and reliability and having less impact on traffic flows in the area while Option 4, which includes the provision of traffic restrictions on Model Farm Road results in less land take and correspondingly less capital costs and impacts on the natural environment. It is however recommended that Option 2 is brought forward as the preferred option as it provides greater bus priority and therefore greater certainty of journey time reliability and has a reduced impact on wider traffic movements (due to the absence of traffic management measures on Model Farm Road) and it is therefore considered preferable to Option 4. It is also recommended that **Option 3** (which provides a dedicated direct connection through MTU and follows an alignment similar to the proposed LRT route identified in CMATS) be considered as part of potential end-to-end route option assessments.

## 7.4 Study Area Section 3 – Dennehy's Cross to Bandfield

This Section of CBC 6 comprises an examination of potential options between the junction at Dennehy's Cross (the end of Section 2) and the junction of Donovan's Road/Lancaster Quay (at the Bandfield).

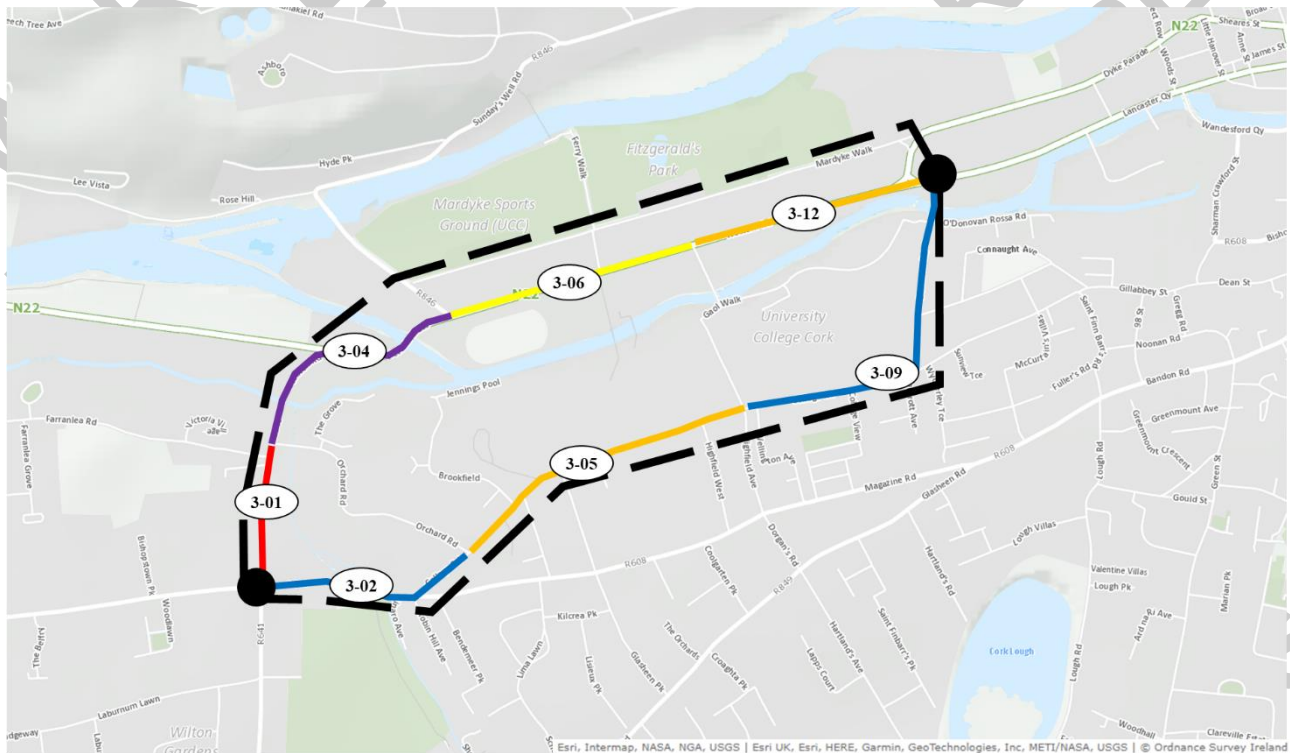


Figure 75 Section 3 – Route Options remaining after Stage 1 Sift

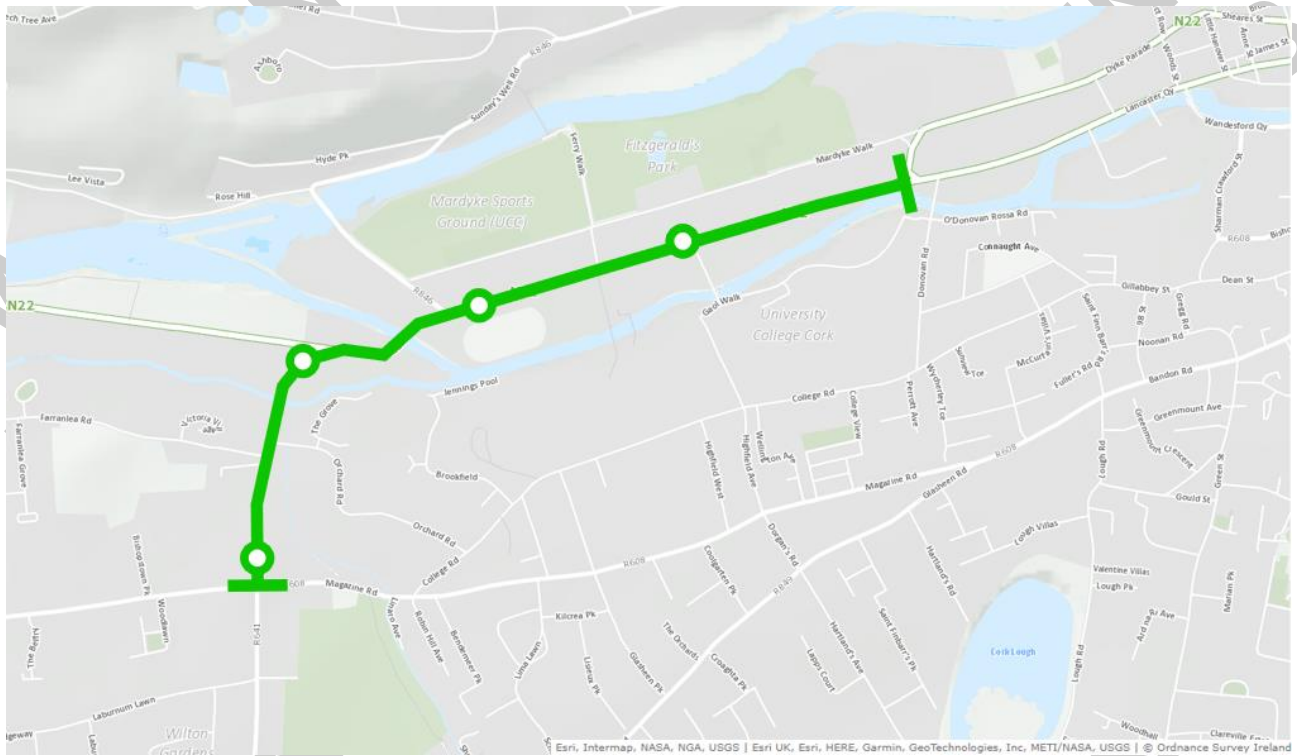
Following the Stage 1 sift, a total of 3 options have been developed for consideration for Section 3, as follows:

- Option 1 – buses and cyclists routed via Victoria Cross Road and Western Road;
- Option 2 – buses and cyclists routed via Victoria Cross Road and Western Road, with cyclists diverted onto Mardyke Walk; and
- Option 3 – Buses routed via Magazine Road/College Road/Donovan's Road, with cyclists remaining on Victoria Cross Road and Western Road; and

### 7.4.1 Option 1 – Routing via Victoria Cross Road/Western Road

#### 7.4.1.1 Route Description

Route Option 1 is presented in Figure 76 and described in the following text.

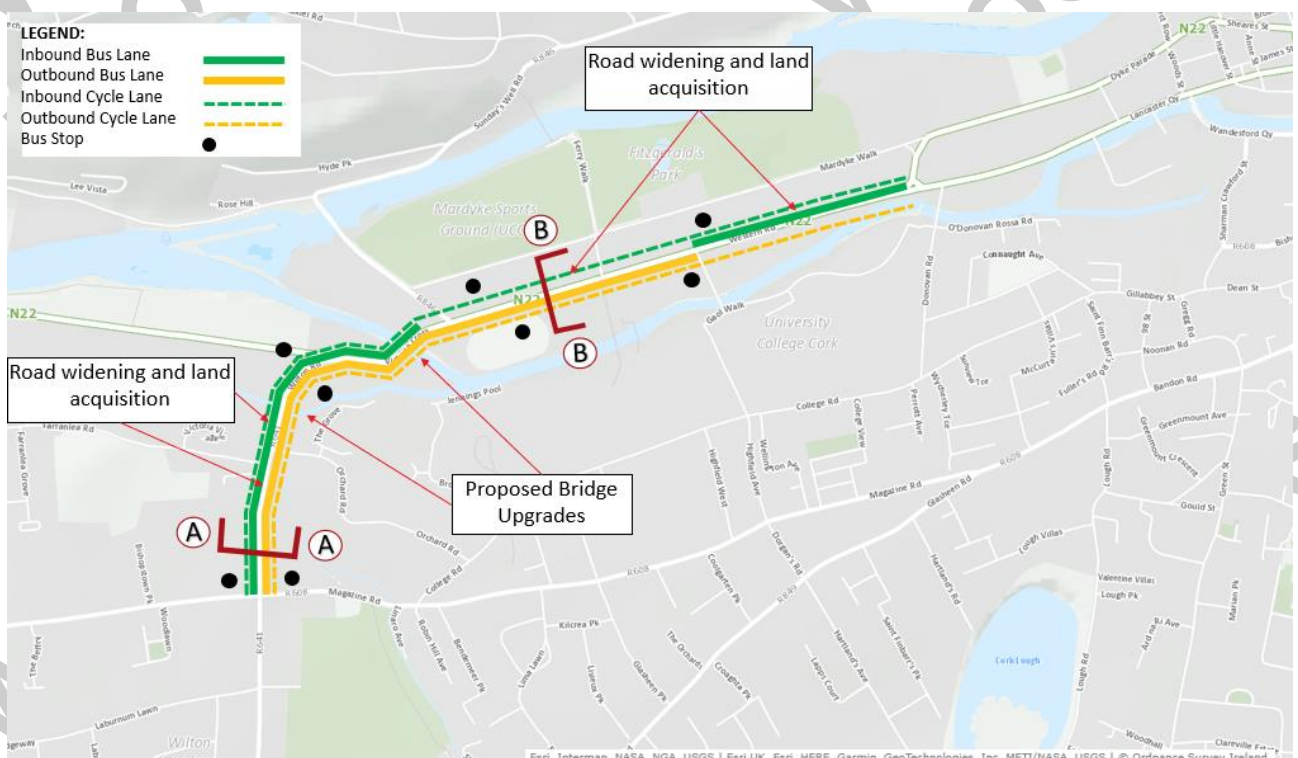


**Figure 76 Section 3, Proposed Option 1 – Route Option Overview**

Option 1 would see both buses and cyclists route from Dennehy's Cross north along Victoria Cross Road and on to Western Road, continuing east to the junction at Bandfield. It is envisaged that this option would accommodate a total of 4 bus stops.

#### 7.4.1.2 Indicative Scheme Design

Figure 77 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

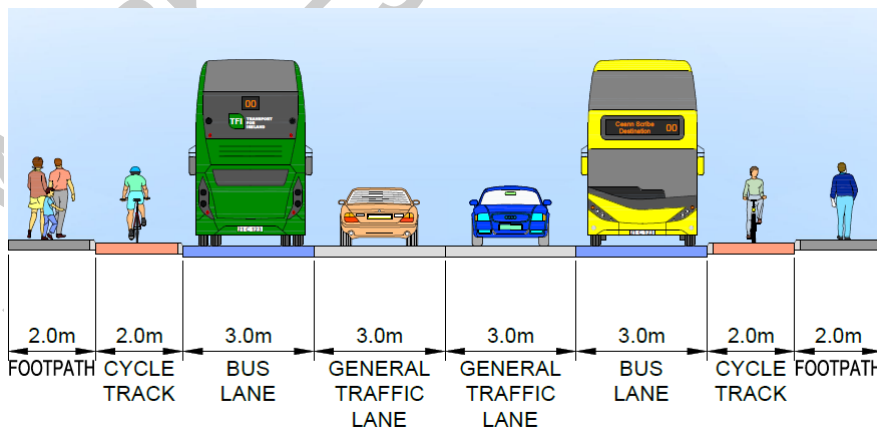


**Figure 77 Section 3, Proposed Option 1 – Indicative Scheme Design**

For this option, between Dennehy's Cross to the south and Victoria Cross to the north it is possible to provide bus lanes in both directions along the majority of the route through widening and land acquisition.

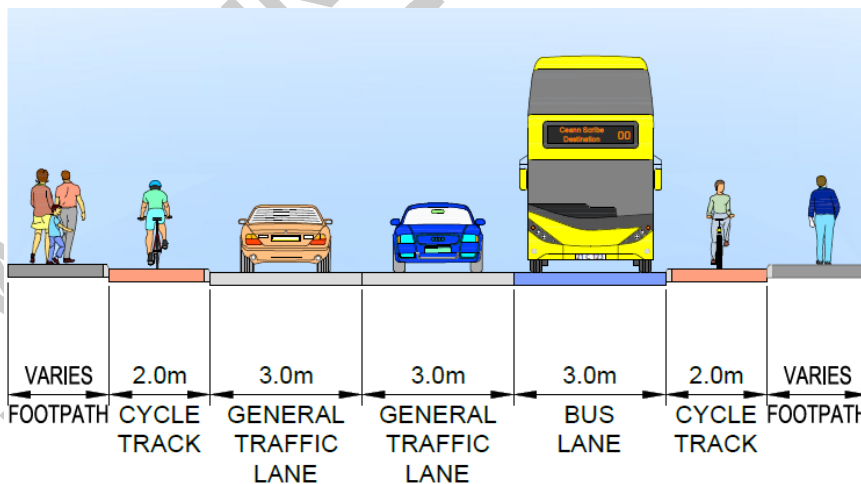


The area between Victoria Cross and Bandfield is more constrained due to the proximity of property boundary walls, and as such along this section it is not possible to provide bus lanes and cycle lanes in both directions whilst maintaining two-way traffic flow.



**Figure 78 Section 3, Proposed Option 1 – Cross Section A-A**

East of Victoria Cross therefore due to the existing width constraints on Western Road it is proposed to provide an outbound bus lane from Gaol Walk approaching Victoria Cross and an inbound bus lane from Gaol Walk approaching the Bandfield. Raised adjacent cycle facilities are maintained throughout. This also requires road widening and land acquisition.



**Figure 79 Section 3, Proposed Option 1 – Cross Section B-B**

In order to provide bus and cycle facilities along this route it is proposed to carry out improvement works at Victoria Bridge and O'Neill Crowley Bridge (to facilitate bus and cycle facilities to be incorporated into these bridges) and at the junction at Victoria Cross/Carrigrohane Road.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on both sides of Victoria Cross Road, from Dennehy's Cross to Western Road (east of O'Neill Crowley Bridge);
- An outbound bus lane between Gaol Walk and Victoria Cross Road;
- An inbound bus lane between Gaol Walk and the Bandfield;
- Raised adjacent cycle lanes along the entirety of the route;
- Upgrades of Victoria Bridge and O'Neill Crowley Bridge;
- Upgrade of the junction at Victoria Cross/Carrigrohane Road; and
- Land acquisition estimated from 87 properties.

## 7.4.2 Option 2 – Routing via Victoria Cross Road/Western Road/Mardyke Walk

### 7.4.2.1 Route Description

Route Option 2 is presented in Figure 80 and described in the following text.

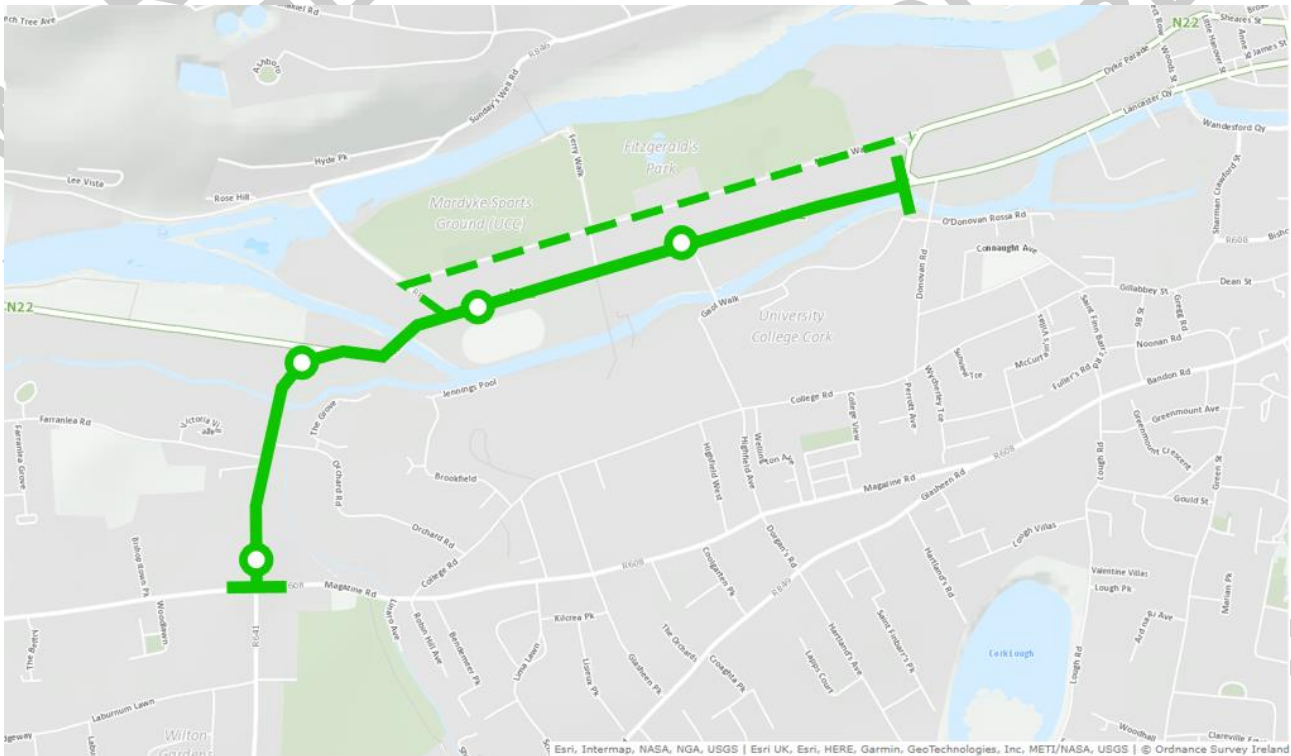
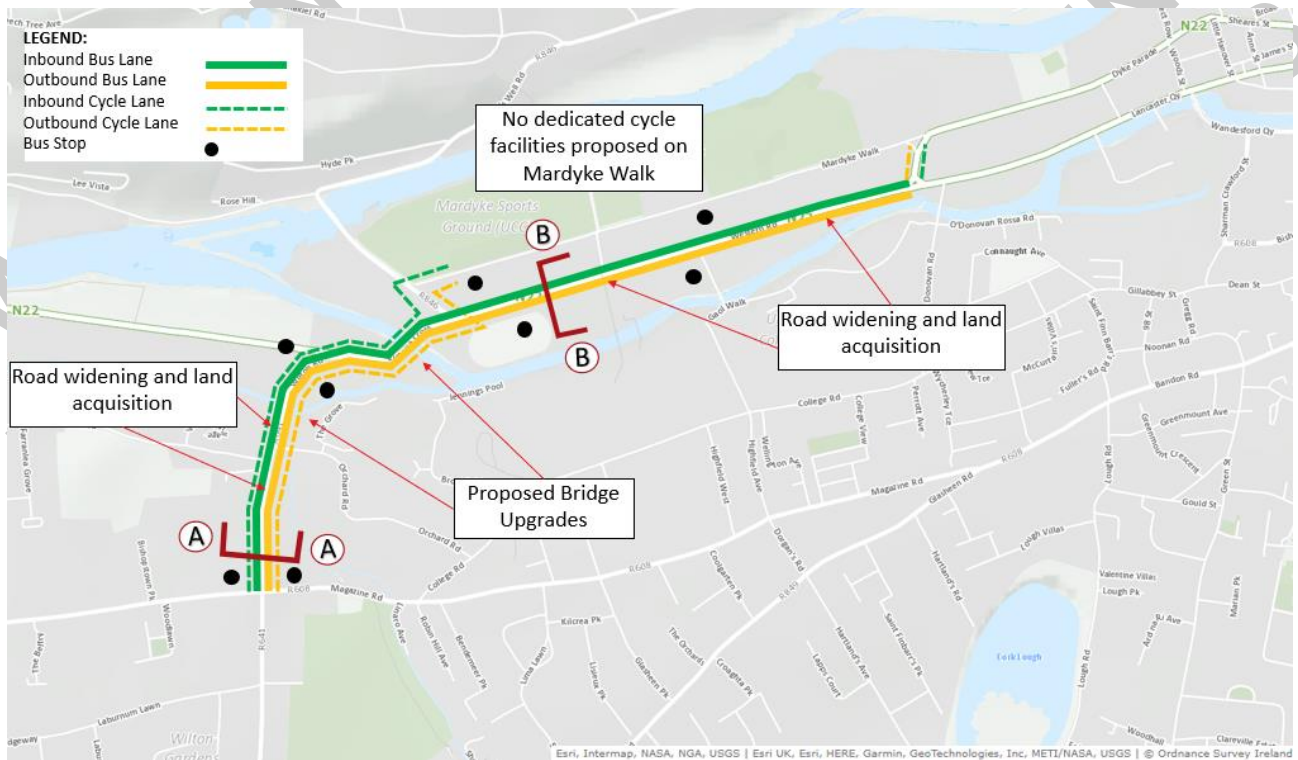


Figure 80 Section 3, Proposed Option 2 – Route Option Overview

Option 2 would see both buses and cyclists route from Dennehy's Cross north along Victoria Cross Road and on to Western Road, with buses continuing east to the junction at Bandfield. However, in this option, cyclists would divert from Western Road to Mardyke Walk and continue east to the junction at Bandfield. It is envisaged that this option would accommodate a total of 4 bus stops.

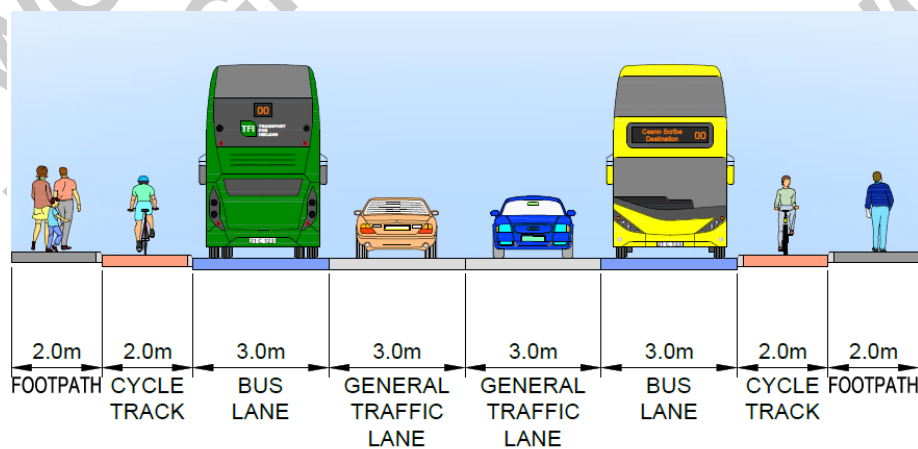
### 7.4.2.2 Indicative Scheme Design

Figure 81 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



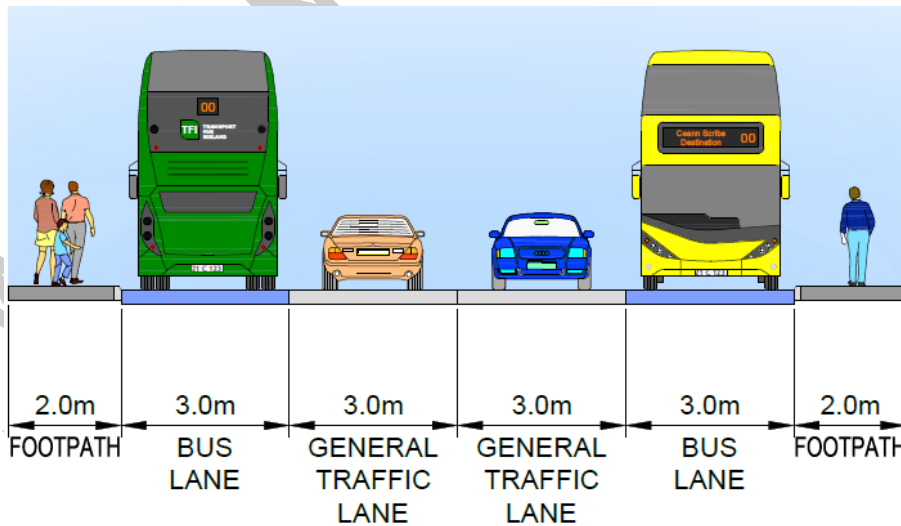
**Figure 81 Section 3, Proposed Option 2 – Indicative Scheme Design**

For this option, as per Option 1 between Dennehy's Cross to the south and Victoria Cross to the north it is possible to provide bus lanes in both directions along the majority of the route through widening and land acquisition. The area between Victoria Cross and Bandfield is more constrained due to the proximity of property boundary walls, and as such along this section it is not possible to provide bus lanes and cycle lanes in both directions whilst maintaining two-way traffic flow.



**Figure 82 Section 3, Proposed Option 2 – Cross Section A-A**

Routing cyclists via Mardyke Walk facilitates the provision of inbound and outbound bus lanes along the entirety of Western Road through localised widening and land acquisition.



**Figure 83 Section 3, Proposed Option 2 – Cross Section B-B**

As with Option 1 it is proposed to carry out improvement works at Victoria Bridge and O'Neill Crowley Bridge (to facilitate bus and cycle facilities to be incorporated into these bridges) and at the junction at Victoria Cross/Carrigrohane Road.

Raised adjacent cycle facilities are proposed throughout, with the exception of the cycle route along Mardyke Walk. As Mardyke Walk is a local access route only and is a cul-de-sac at the western end, it is not proposed to provide dedicated cycle facilities on this portion of the route, which will instead function as a quietway. A short section of a two-way cycle facility is proposed at the eastern end of Mardyke Walk to connect to the junction at the Bandfield.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

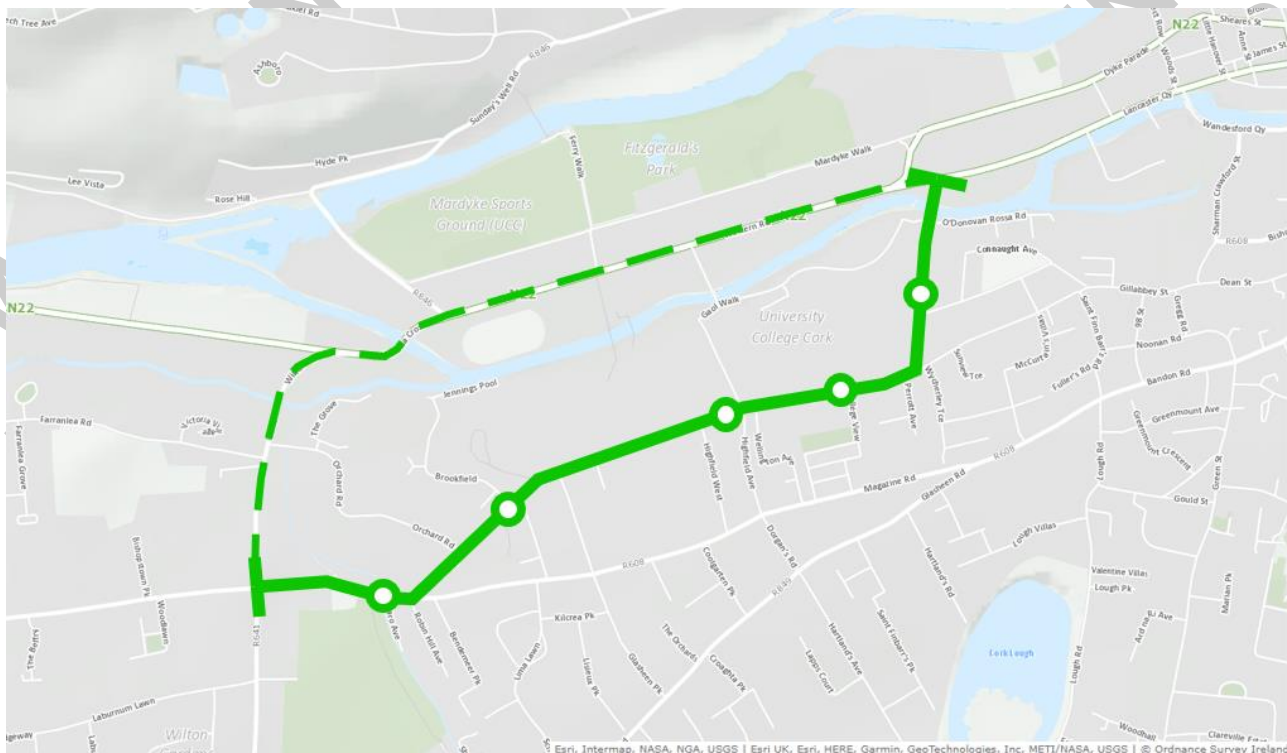
- Bus lanes on both sides of Victoria Cross Road and Western Road, from Dennehy's Cross to the Bandfield;
- Raised adjacent cycle lanes along the entirety of the route, with the exception of Mardyke Walk;
- Upgrades of Victoria Bridge and O'Neill Crowley Bridge;
- Upgrade of the junction at Victoria Cross/Carrigrohane Road; and
- Land acquisition estimated from 53 properties.

### **7.4.3 Option 3 – Routing via College Road/Donovan's Road**

#### **7.4.3.1 Route Description**

Route Option 3 is presented in Figure 84 and described in the following text.





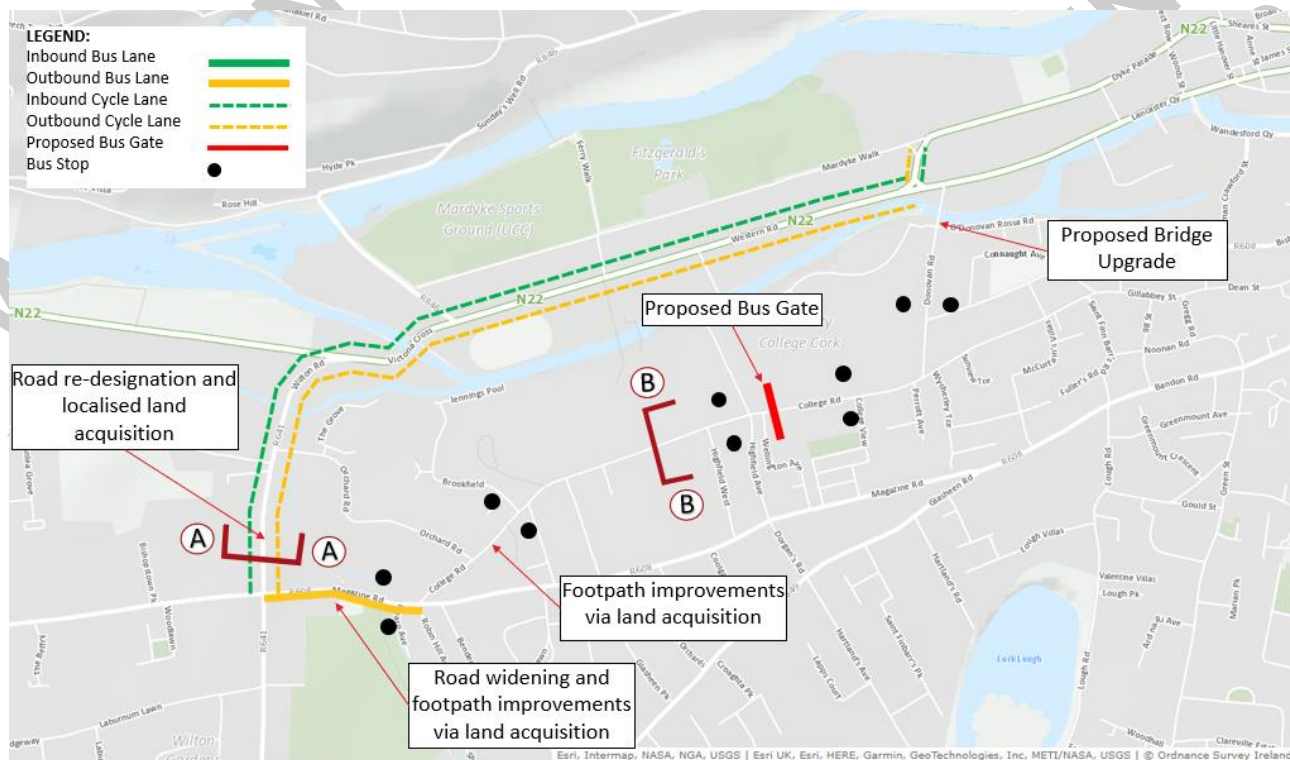
**Figure 84 Section 3, Proposed Option 3 – Route Option Overview**

Option 3 would see buses route from Dennehy's Cross through to Magazine Road, on to College Road and then north along Donovan's Road to the junction at Bandfield. In this option, although cyclists can route via the same route as buses, due to the constraints present on College Road and the limited potential for widening it is proposed to also provide dedicated cycle facilities along the route via Victoria Cross Road/Western Road, continuing east to the junction at Bandfield (as per Option 1).

It is envisaged that this option would accommodate a total of 5 bus stops.

#### **7.4.3.2 Indicative Scheme Design**

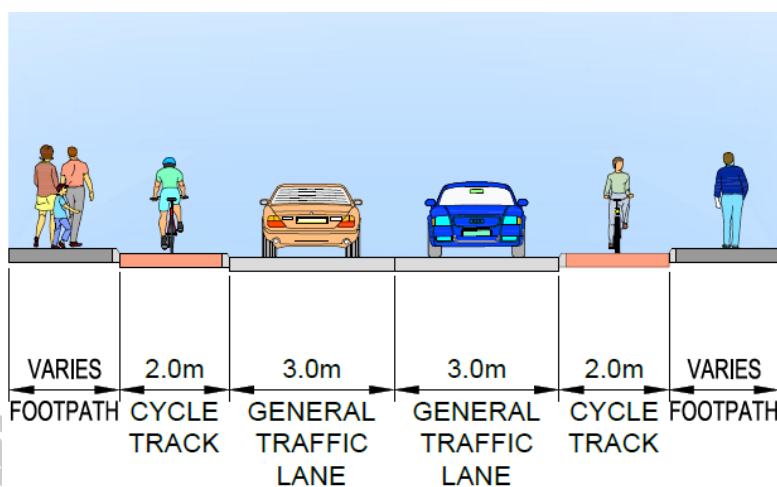
Figure 85 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 85 Section 3, Proposed Option 3 – Indicative Scheme Design**

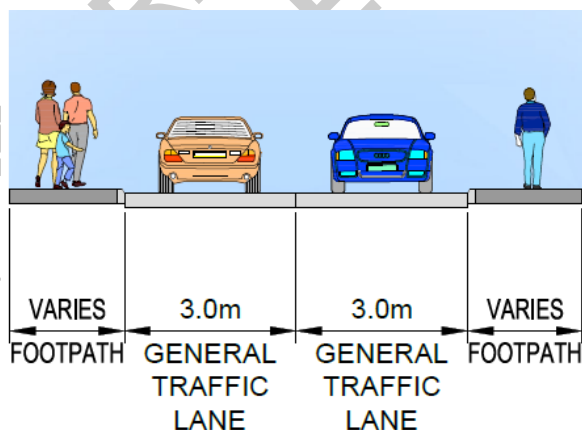
For this option, from Dennehy's Cross through to Magazine Road and its junction with College Road, it is proposed to provide an outbound bus lane (approaching Dennehy's Cross from Magazine Road) through localised widening and land acquisition. However, from the junction of Magazine Road, along College Road it is not possible to provide dedicated bus lanes due to the constraints present on this portion of the route whilst also facilitating vehicular access along the route. Therefore, localised improvement works on College Road and Donovan's Road are proposed with a view to improving footpath facilities and to implement footpaths where there are none at present (in particular at the western end of College Road).

Whilst the introduction of restrictions on through traffic along College Road will not prohibit cyclists and is expected to improve the environment for cyclists to use this route, in order to provide dedicated cycle facilities for this option, it is proposed to implement raised adjacent cycle facilities along the route from Dennehy's Cross through Victoria Cross and on to Western Road (as per Option 1 above). This is possible through reallocation of the existing road space and removal of existing traffic lanes (two-way traffic would still be facilitated). It is also proposed to carry out improvement works at Donovan's Bridge in order to upgrade pedestrian facilities across the bridge.



**Figure 86 Section 3, Proposed Option 3 – Cross Section A-A**

Although dedicated bus lanes are not proposed, in order to ensure a sufficient degree of bus priority along College Road, it is also proposed to implement a through-traffic restriction by providing a bus only section to the east of Gaol Walk along College Road. Local traffic access will be maintained along College Road (with access from either end of the route), but through-traffic flow will not be permitted.



**Figure 87 Section 3, Proposed Option 3 – Cross Section B-B**

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- An outbound bus lane between the College Road/Magazine Road junction and Dennehy's Cross;
- Footpath improvement works on College Road, Donovan's Road, and on Magazine Road (approaching Dennehy's Cross);
- A proposed bus-only section on College Road, east of the junction with Gaol Walk;
- Upgrade of the College Road/Magazine Road junction to convert to a signalised junction;
- Raised adjacent cycle facilities on both sides of the route from Dennehy's Cross through Victoria Cross and Western Road to the junction at Bandfield;
- Upgrade of Donovan's Bridge to provide improved pedestrian facilities; and
- Land acquisition estimated from 24 properties.

#### 7.4.4 Route Options Assessment

Details of the Stage 2 route options assessment undertaken for the options outlined above for Section 3 are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 13.

**Table 13 Section 3, Dennehy's Cross to Bandfield Options Assessment Summary (Sub-Criteria)**

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3
Economy	Capital Cost			
	Transport Reliability			
Integration	Land Use Integration			
	Catchments			

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3
	Transport Network Integration			
	Cycling Integration			
	Pedestrian Network Integration			
Accessibility & Social Inclusion	Key Trip Attractors			
	Deprived Geographic Areas			
Safety	Road Safety			
Environment	Archaeology and Cultural Heritage			
	Biodiversity			
	Soils and Geology			
	Hydrology			
	Landscape and Visual			
	Air Quality			
	Land Use Character			

From the **Economy** perspective, Route Option 3, utilising College Road, is considered the most favourable in terms of cost as less road widening is required to deliver the bus priority measures. In terms of bus journey time reliability Option 2 outperforms to other two options as it has more continuous dedicated infrastructure for buses.

In terms of **Integration**, the catchment of Option 3 is preferable to Options 1 and 2, however in terms of transport integration Option 3 performs poorly as the traffic restrictions proposed are likely to impact the transport networks on other routes and there is less opportunity to integrate with regional bus services entering the city from the west. The cycling provision along Option 1 and 3 is considered good while the offer under Option 2 performs slightly worse as cyclists need to divert of their natural desire line at Western Road and use Mardyke Walk (which is a primary cycle route as per CMATS but is a less direct route) to access the city.

From an **Accessibility and Social Inclusion** perspective there was no material difference between the options. In terms of **Safety**, again there was no material difference between the options.

Under **Environment**, Option 1 and Option 2 are equally favourable, when compared to Option 3. Option 3 has a significantly greater number of structures which are listed on the NIAH along the route than the other options however Options 1 and 2 involve a greater extent of widening works at these properties, as well as a

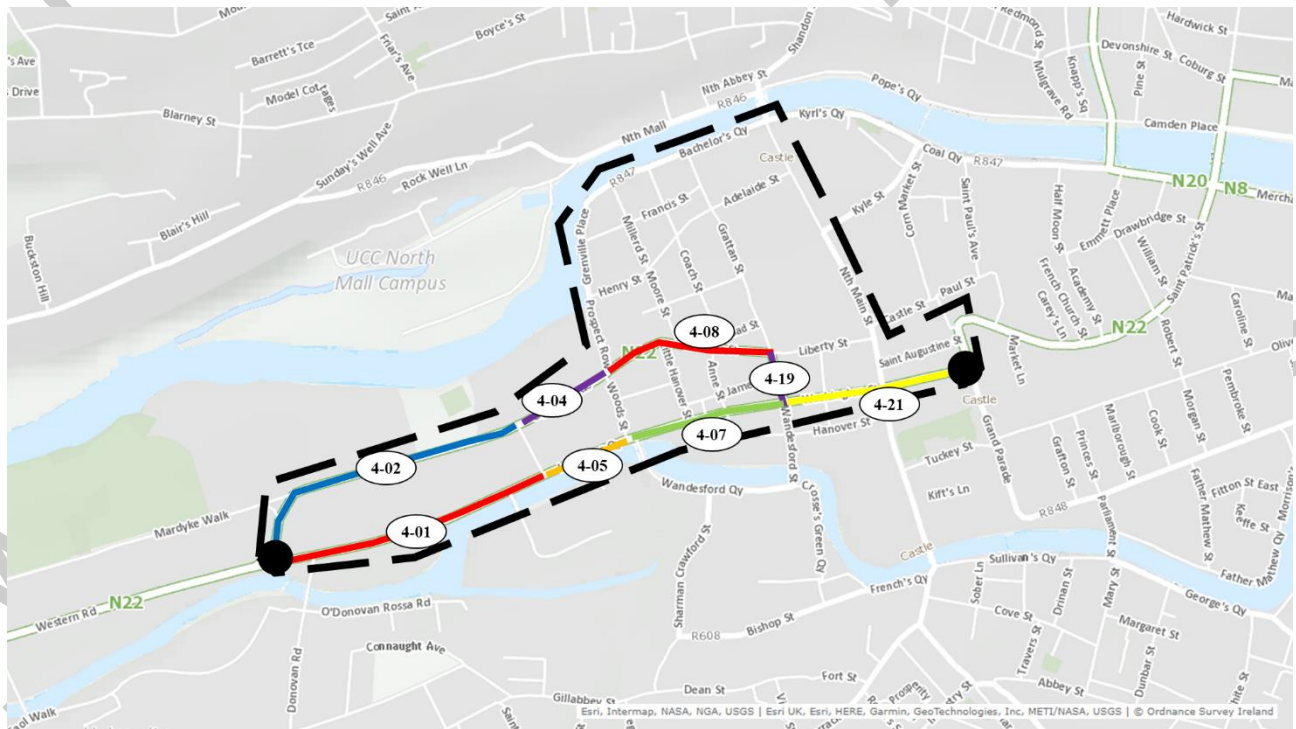


significantly greater number of residential receptors. Option 3 also has three river crossings, compared to the two crossings associated with each of the other options.

The above assessment has identified **Option 2** as the preferred option as it provides a more comprehensive and reliable set of bus priority measures compared to both Option 1 and 3 and is better integrated in terms of servicing other regional bus services which would naturally route along Western Road. It is therefore recommended that Option 2 be considered the preferred option for this section. However, Option 3 (routing via College Road) is also recommended to be brought forward for consideration as part of end-to-end option assessments as it represents a route option with a good catchment and with key trip attractors.

## 7.5 Study Area Section 4 – Bandfield to City Centre

For Section 4 of CBC 6, this assessment considers route options between the junction of Donovan's Road/Lancaster Quay (at the Bandfield) and the city centre.



**Figure 88 Section 4 – Route Options remaining after Stage 1 Sift**

Following the Stage 1 sift, a total of 5 options have been developed for consideration for Section 4, as follows:

- Option 1a/1b – Buses and cyclists route via Lancaster Quay/Washington Street;
- Option 2 – Buses route via Lancaster Quay/Washington Street, whilst cyclists route via Dyke Parade/Sheare's Street/Liberty Street;
- Option 3 – Inbound buses and cyclists route via Dyke Parade/Sheare's Street, with outbound buses and cyclists remaining on Washington Street/Lancaster Quay;
- Option 4 – As per Option 3, but two-way cycling is provided on Dyke Parade (in addition to outbound cycling on Washington Street/Lancaster Quay); and
- Option 5 – Inbound buses route via Dyke Parade, outbound buses route via Washington Street/Lancaster Quay, and both inbound and outbound cyclists route via Washington Street/Lancaster Quay.

These options are presented in greater detail below.

## 7.5.1 Option 1a/1b – Routing via Lancaster Quay/Washington Street (buses and cyclists)

### 7.5.1.1 Route Description

Route Option 1a/1b is presented in Figure 89 and described in the following text.

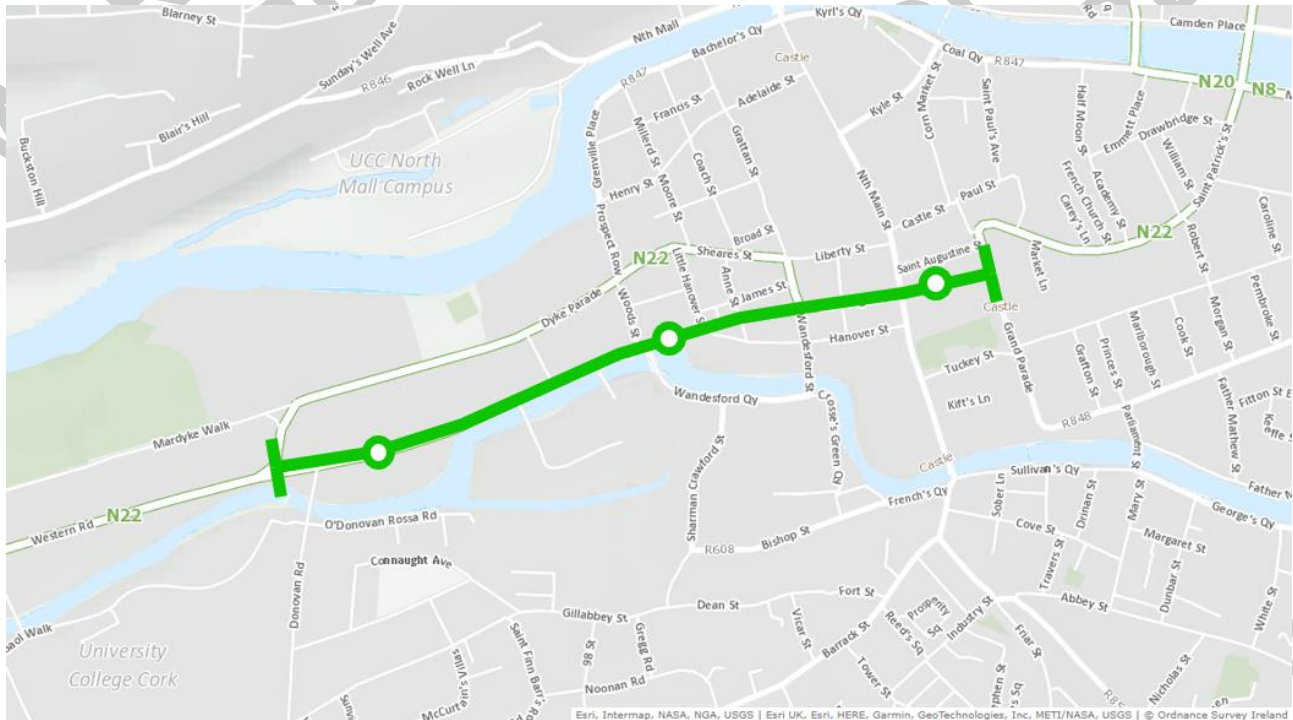


Figure 89 Section 4, Proposed Option 1 – Route Option Overview

Option 1a/1b would see both buses and cyclists route from the junction at Bandfield along Lancaster Quay and Washington Street to the junction at Grand Parade. It is envisaged that this option would accommodate a total of 3 bus stops.

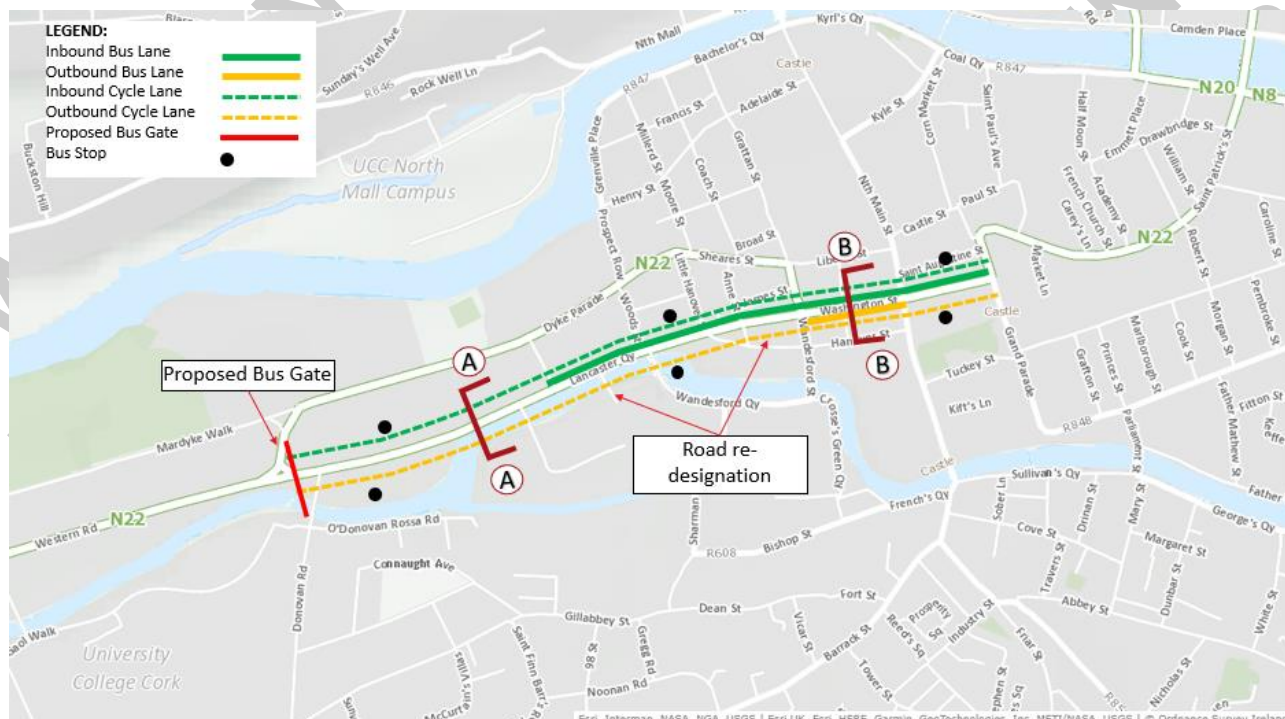
### 7.5.1.2 Indicative Scheme Design

Figure 90 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



Figure 90 Section 4, Proposed Option 1a – Indicative Scheme Design

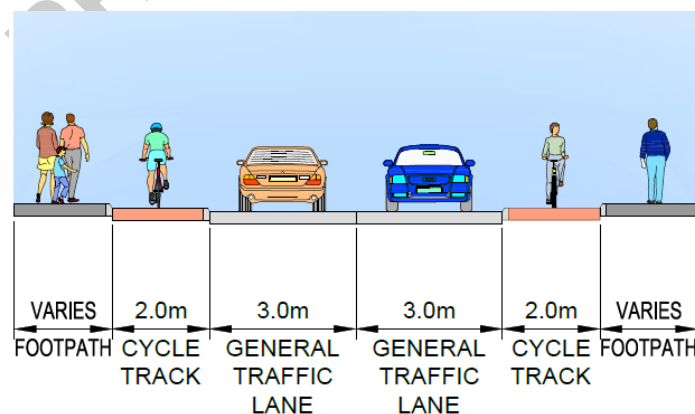




**Figure 91 Section 4, Proposed Option 1b – Indicative Scheme Design**

For both Options 1a and 1b, it is proposed to route both buses and cyclists in both directions along Lancaster Quay and Washington Street. Due to the requirement to maintain local access along this portion of the route, it is not possible to provide bus lanes in both directions along the entirety of this section. The only difference between both options is the introduction of additional traffic restrictions at the junction of Donovan's Road/Western Road (the Bandfield), where Option 1b proposes an additional bus gate to prevent any through traffic flow between Lancaster Quay and Western Road, in order to improve bus journey time reliability.

Currently, inbound buses and general traffic route from the Bandfield junction via Dyke Parade/Sheare's Street and Courthouse Street to Washington Street, and outbound buses and general traffic route via Washington Street and Lancaster Quay (i.e., a one-way gyratory system for the majority of the route, with a short two-way section on Washington Street between Courthouse Street and the city centre).



**Figure 92 Section 4, Proposed Option 1a/1b – Cross Section A-A**

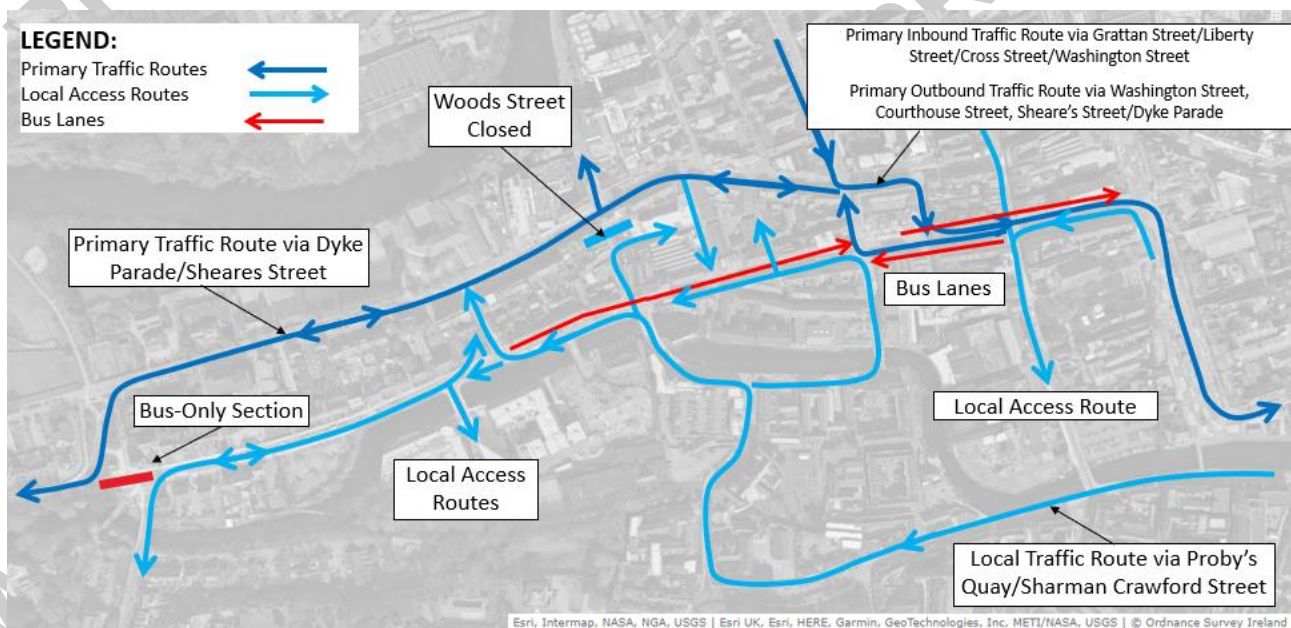
Therefore, to ensure a sufficient degree of bus journey time reliability along this portion of the route, a revised approach to traffic management and traffic flow is proposed for both Option 1a/1b that would result in the following changes to traffic flow:

- Inbound and outbound general traffic flow from Western Road would be permitted to use Dyke Parade, which would become a two-way traffic route;
- Sheare's Street would also become a two-way traffic route to the junction with Grattan Street/Courthouse Street;

- From this junction, inbound general traffic will continue through to Liberty Street, turning right to Cross Street (which will be converted to a one-way southbound route) and then turning left to Washington Street;
- Outbound general traffic on Washington Street seeking to route west will be diverted onto Courthouse Street (which will be converted to a single-lane, one-way northbound traffic route) and then will turn left to Sheare's Street and travel west along Dyke Parade; No through traffic will be permitted along Washington Street at its junction with Courthouse Street;
- Outbound general traffic on Washington Street will also be diverted via South Main Street/Proby's Quay/Bishop Street/Sharman Crawford Street/Wandesford Quay before routing back on to Washington Street in order to then continue west to access Donovan's Road;
- Woods Street, north of the junction with Lynch's Street would be closed to general traffic (which would instead be diverted to Mardyke Street) in order to facilitate improved pedestrian linkage through from Washington Street to Prospect Row at this location;
- Local access to Hanover Place and Hanover Street will be facilitated via Little Cross Street; and
- Traffic approaching from the north (via Grattan Street) seeking to travel east will be permitted to turn left to Liberty Street and right on to Cross Street, and traffic seeking to travel west would be permitted to turn right on to Sheares Street (which will be converted to a two-way traffic route).

In addition to the above the following additional changes in traffic management have been proposed for Option 1b.

- The connection from Lancaster Quay through to Western Road (at the junction with Donovan's Road) would become a bus-only section, with a proposed bus gate to permit two-way bus flow but to prohibit through-traffic flow;
- Inbound and outbound general traffic flow from Donovan's Road will route onto Lancaster Quay/Washington Street as far as the junction with Mardyke Street, at which point this traffic will be diverted to Dyke Parade, and outbound traffic on Lancaster Quay will only be permitted to turn left to Donovan's Road (i.e., general westbound traffic from the city will not be permitted to access Western Road via Lancaster Quay, but will access it via either Courthouse Street/Sheare's Street/Dyke Parade or Mardyke Street/Dyke Parade);

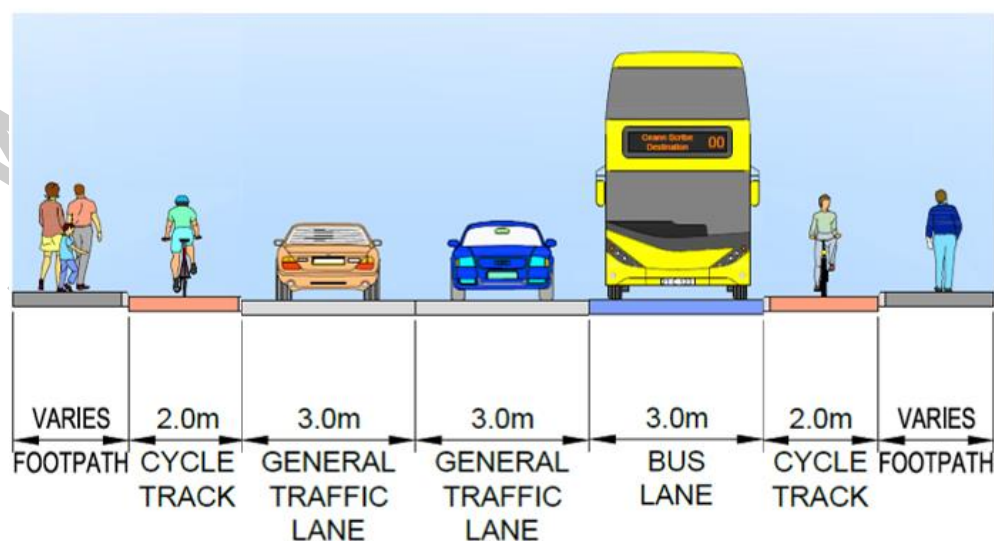


**Figure 93 Section 4, Proposed Option 1b – Traffic Management Measures Proposed**

The above changes to traffic flow would facilitate the implementation of an inbound bus lane between Mardyke Street and Grand Parade, and an outbound bus lane between South Main Street and Courthouse Street. The existing inbound bus lane on Sheare's Street would also be retained to facilitate local bus turning



movements (e.g., for local bus turning movements from Washington Street back to Dyke Parade via Mardyke Street and then back towards Liberty Street). The existing bus gate on Sheare's Street would be retained to facilitate this movement.



**Figure 94 Section 4, Proposed Option 1a/1b – Cross Section B-B**

As it would no longer be fed by two traffic lanes from either Washington Street, Courthouse Street would also be reduced to a single traffic lane in order to facilitate improvements to the existing narrow footpaths present here.

This option would require the removal of a portion of on-street parking present on Lancaster Quay/Washington Street between Mardyke Street and Grand Parade, with some loading spaces proposed between Hanover Place and Hanover Street. On-street parking would also be retained on both sides of the majority of Dyke Parade, and on one side of Sheare's Street

Raised adjacent cycle facilities would also be provided along both sides of Lancaster Quay/Washington Street in this option.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- An inbound bus lane on Washington Street between the junction at Mardyke Street and Grand Parade;
- An outbound bus lane on Washington Street between the junction of South Main Street and Courthouse Street;
- A bus-only section of Lancaster Quay, between Donovan's Road and Western Road (Option 1b only);
- Raised adjacent cycle lanes along the entirety of the route;
- Closure of the northern end of Woods Street, including its' junction with Dyke Parade;
- Footpath improvement works on Courthouse Street;
- Changes to the existing traffic circulation system in place for general traffic; and
- Land acquisition of one property.

## **7.5.2 Option 2 – Routing via Lancaster Quay/Washington Street (buses only)**

### **7.5.2.1 Route Description**

Route Option 2 is presented in Figure 95 and described in the following text.



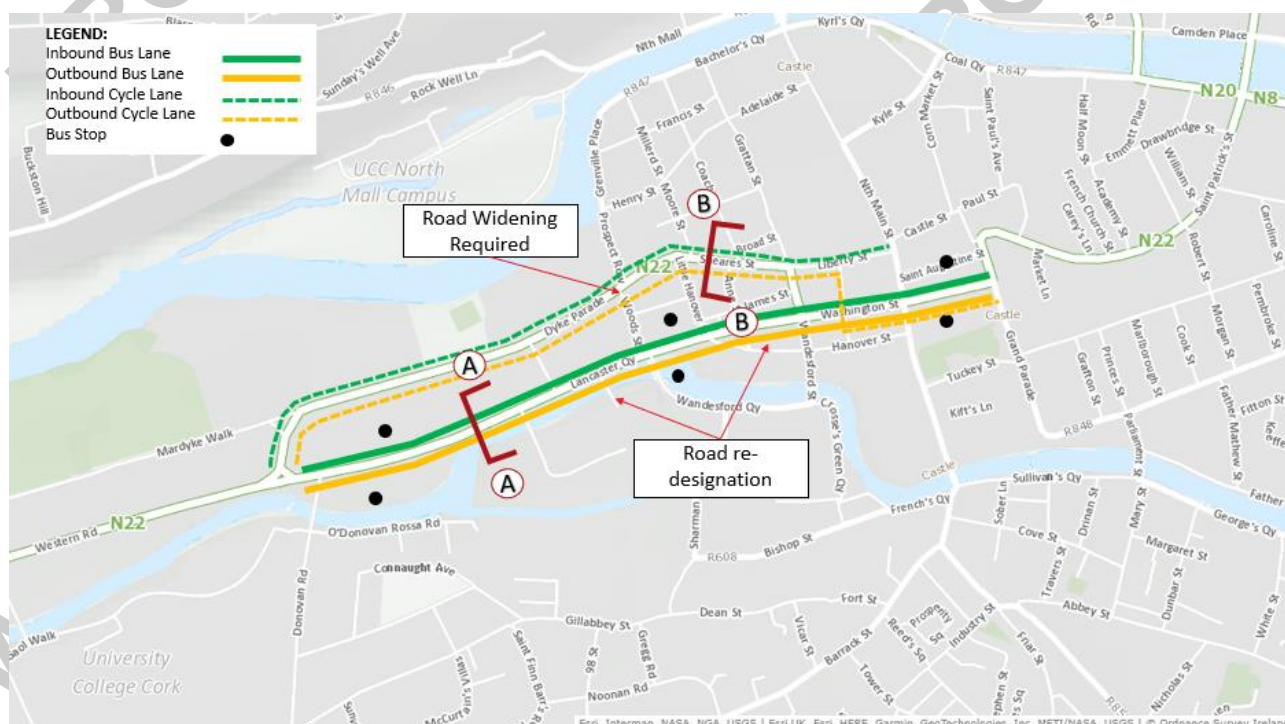
**Figure 95 Section 4, Proposed Option 2 – Route Option Overview**

Option 2 would see buses route from the junction at Bandfield along Lancaster Quay and Washington Street to the junction at Grand Parade. Cyclists would route via Dyke Parade/Sheare's Street and Liberty Street to the junction with South Main Street. From this location, inbound cyclists can route via Castle Street or via South Main Street/Washington Street, and outbound cyclists would share with buses on Washington Street as far as Cross Street, from which point they would route north via a raised adjacent cycle facility on Cross Street to connect to the proposed outbound cycle lane on Liberty Street.

It is envisaged that this option would accommodate a total of 3 bus stops.

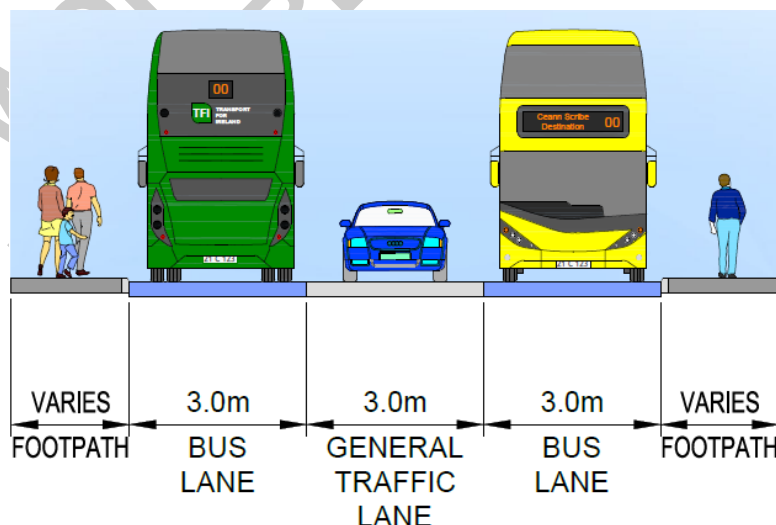
### 7.5.2.2 Indicative Scheme Design

Figure 96 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



**Figure 96 Section 4, Proposed Option 2 – Indicative Scheme Design**

For this option, two-way bus flow would be facilitated along Lancaster Quay and Washington Street, between the junction at Donovan's Road and the junction with Grand Parade. It is possible to provide bus lanes in both directions along this entire section through redesignation of the existing road space; however, this would require removal of the existing inbound contra-flow cycle lane and removal of a substantial amount of the existing on-street parking present on the route.

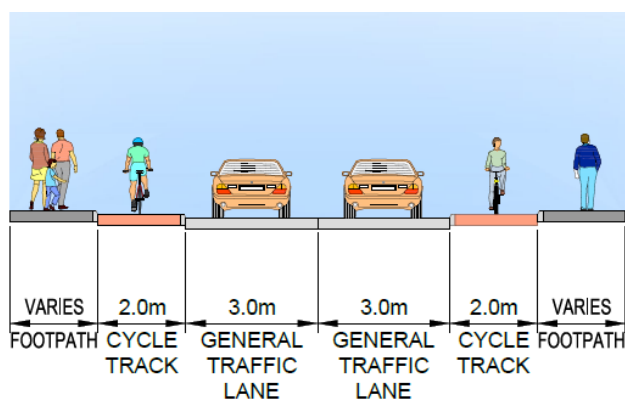


**Figure 97 Section 4, Proposed Option 2 – Cross Section A-A**

Cyclists would be routed via Dyke Parade/Sheare's Street/Liberty Street in this option, with raised adjacent cycle facilities proposed on both sides of the route along these streets, to be facilitated by reallocation of the road space (the existing inbound bus lane on Dyke Parade would no longer be required) and removal of on-street parking. Liberty Street, east of the junction with Cross Street would also become a one-way westbound traffic route to facilitate the implementation of raised adjacent cycle facilities on this street.

At the junction of Dyke Parade/Prospect Row/Sheare's Street some minor land acquisition would be necessary to facilitate the continuation of the proposed cycle facilities and an inbound traffic lane through the pinch point.

General traffic routing would remain similar to the existing situation, with inbound traffic routing via Dyke Parade/Sheare's Street/Courthouse Street/Washington Street, and outbound traffic remaining on Washington Street. The removal of inbound buses from Dyke Parade would facilitate the implementation of the proposed raised adjacent cycle facilities, and on-street parking would be retained along the southern side of Dyke Parade.



**Figure 98 Section 4, Proposed Option 2 – Cross Section B-B**

As with Option 1, it is proposed to close the northern end of Woods Street to facilitate an improvement to the pedestrian environment at this location. Courthouse Street would remain unchanged in this option as it would be fed by two traffic lanes from Sheare's Street and Grattan Street.



In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- Bus lanes on Lancaster Quay/Washington Street between the junction at Bandfield and Grand Parade;
- Raised adjacent cycle lanes along the entirety of the route;
- Closure of the northern end of Woods Street, including its' junction with Dyke Parade and associated footpath improvements; and
- Land acquisition estimated from one property.

### 7.5.3 Option 3 – Routing inbound via Dyke Parade/Sheare's Street/Courthouse Street/Washington Street and outbound via Washington Street/Lancaster Quay

#### 7.5.3.1 Route Description

Route Option 3 is presented in Figure 99 and described in the following text.

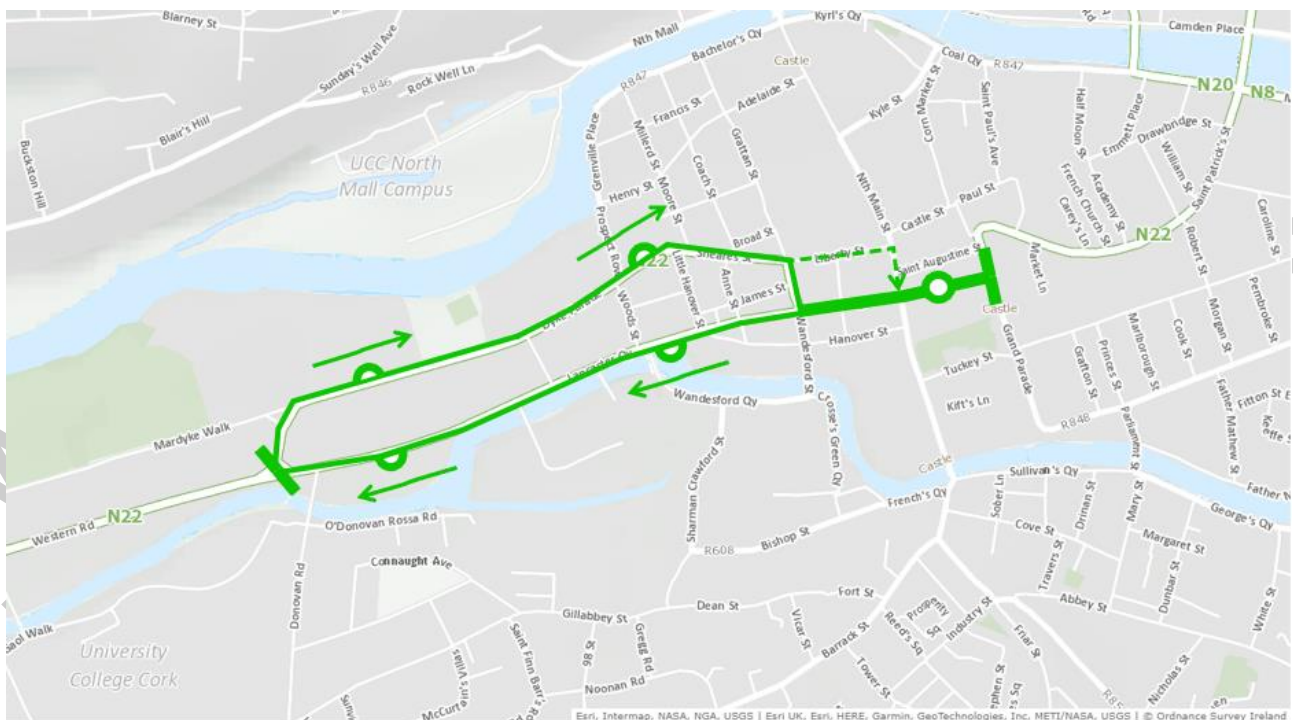


Figure 99 Section 4, Proposed Option 3 – Route Option Overview

Option 3 would see inbound buses route from the junction at Bandfield via Dyke Parade, Sheare's Street and Courthouse Street and on to Washington Street, with outbound buses routing via Washington Street and Lancaster Quay. This option therefore represents a continuation of the existing bus routing in place in this section.

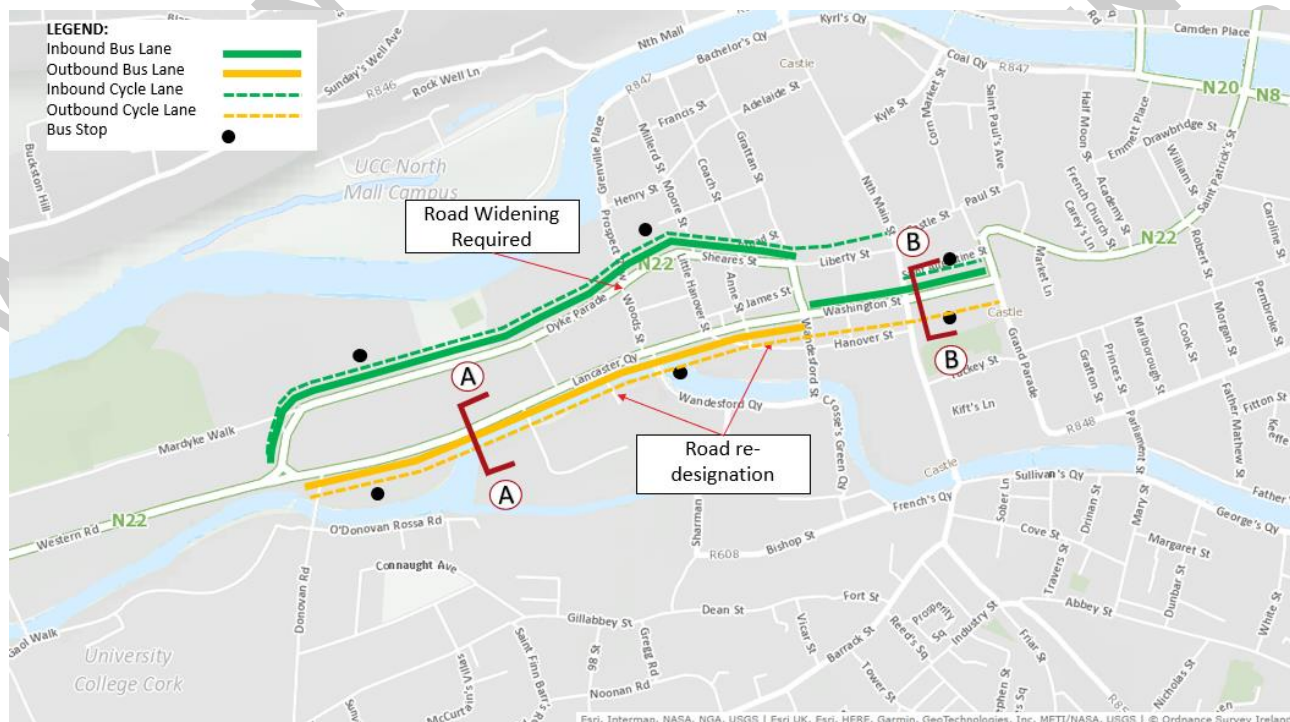
In this option, inbound cyclists would follow the same route as inbound buses as far as the junction with Courthouse Street, at which point cyclists would continue to Liberty Street and on to the junction with South Main Street. From here, inbound cyclists can route via Castle Street, or via South Main Street/Washington Street. Outbound cyclists would route via Washington Street/Lancaster Quay.

It is envisaged that this option would accommodate a total of 3 bus stops in each direction.

#### 7.5.3.2 Indicative Scheme Design

Figure 100 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

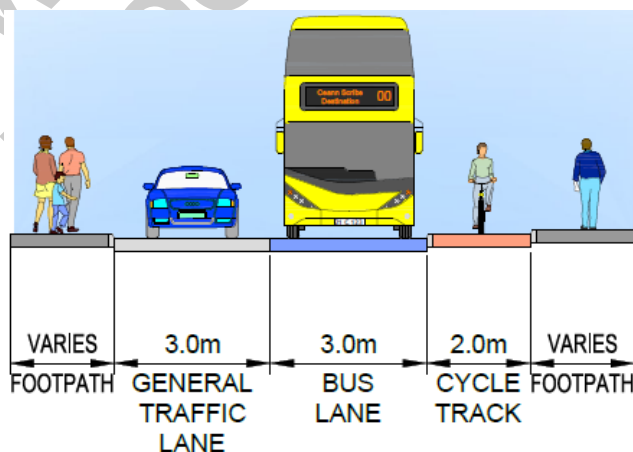




**Figure 100 Section 4, Proposed Option 3 – Indicative Scheme Design**

For this option, an inbound bus lane would be provided along Dyke Parade and through to Sheare's Street using the existing bus lane and the removal of an existing inbound traffic lane on Dyke Parade between Mardyke Street and Sheare's Street. The existing bus gate from Sheare's Street to Courthouse Street would be retained, and inbound buses would share with general traffic on Courthouse Street, before turning on to Washington Street and using the existing inbound bus lane at this location.

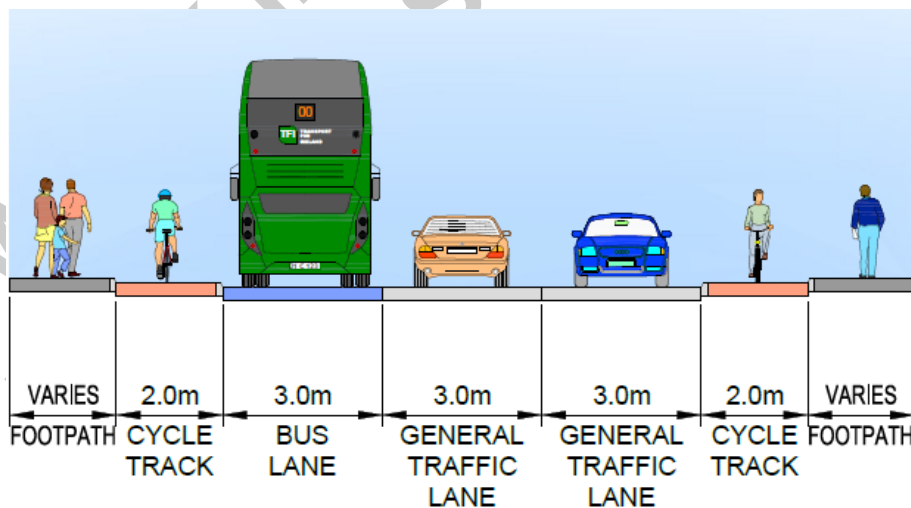
An outbound bus lane would be provided west of the junction with Wandesford Street through to the Bandfield (i.e., as per the existing scenario).



**Figure 101 Section 4, Proposed Option 3 – Cross Section A-A**

Inbound cyclists would route via Dyke Parade/Sheare's Street and through to Liberty Street, with a raised adjacent cycle lane proposed. This would require widening works and removal of a portion of the on-street parking on Dyke Parade and Sheare's Street, and localised widening works at the junction with Prospect Row/Sheare's Street. A portion of the on-street parking on Liberty Street would also be removed. From Liberty Street, cyclists would have to share with general traffic on South Main Street, before turning on to Washington Street and using a raised adjacent cycle lane between South Main Street and Grand Parade. A raised adjacent cycle lane would be provided along the entirety of the outbound route.

As with Options 1 and 2, it is proposed to close the northern end of Woods Street to facilitate an improvement to the pedestrian environment at this location. Courthouse Street would remain unchanged in this option as it would continue to be fed by two traffic lanes from Sheare's Street and Grattan Street.



**Figure 102 Section 4, Proposed Option 3 – Cross Section B-B**

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- An inbound bus lane on Dyke Parade/Sheare's Street and on Washington Street from the junction with Courthouse Street;
- An outbound bus lane on Washington Street/Lancaster Quay from Courthouse Street to the Bandfield;
- A raised adjacent inbound cycle lane along the entirety of the route, with the exception of on South Main Street between Liberty Street and Washington Street;
- An outbound raised adjacent cycle lane along the entirety of the route;
- Closure of the northern end of Woods Street, including its' junction with Dyke Parade and associated footpath improvements; and
- Land acquisition estimated from 1 property.

#### **7.5.4 Option 4 – Routing inbound via Dyke Parade/Sheare's Street/Courthouse Street/Washington Street and outbound via Washington Street/Lancaster Quay**

##### **7.5.4.1 Route Description**

Route Option 4 is presented in Figure 103 and described in the following text.



**Figure 103 Section 4, Proposed Option 4 – Route Option Overview**

Option 4 is largely similar to Option 3 and would see inbound buses route from the junction at Bandfield via Dyke Parade, Sheare's Street and Courthouse Street and on to Washington Street, with outbound buses routing via Washington Street and Lancaster Quay. This option therefore represents a continuation of the existing bus routing in place in this section.

However, in this option, it is proposed to provide a two-way cycle route alongside the inbound bus route on Dyke Parade and Sheare's Street, where cyclists would follow the same route as inbound buses as far as the junction with Courthouse Street, at which point cyclists would continue to Liberty Street, and inbound cyclists through to South Main Street, and outbound cyclists routing from Washington Street to Liberty Street via Cross Street.

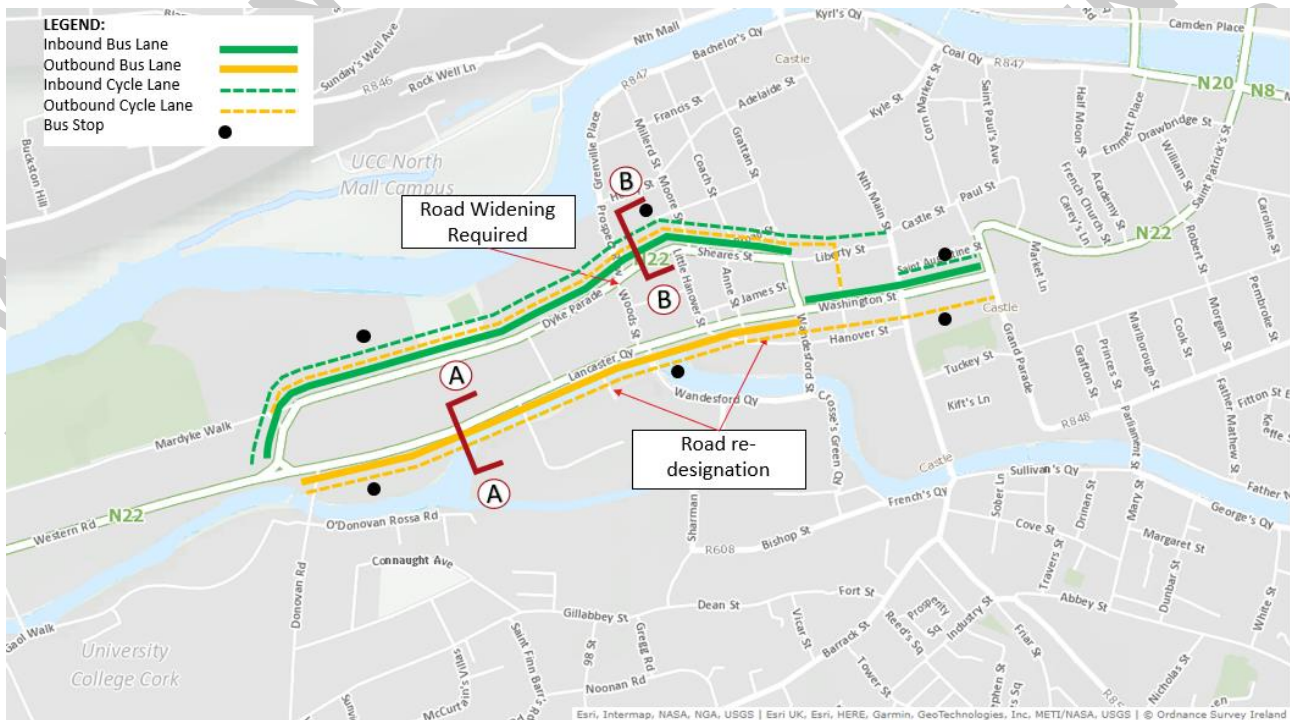
In addition, outbound cyclists would also be facilitated directly on the route via Washington Street/Lancaster Quay as this represents a heavily-used existing cycle route. A two-way cycle route is proposed in this option so as to integrate better with the use of Mardyke Walk as a cycling route (as is proposed as part of options in Section 3 of CBC 6).

It is envisaged that this option would accommodate a total of 3 bus stops in each direction.

#### **7.5.4.2 Indicative Scheme Design**

Figure 104 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.

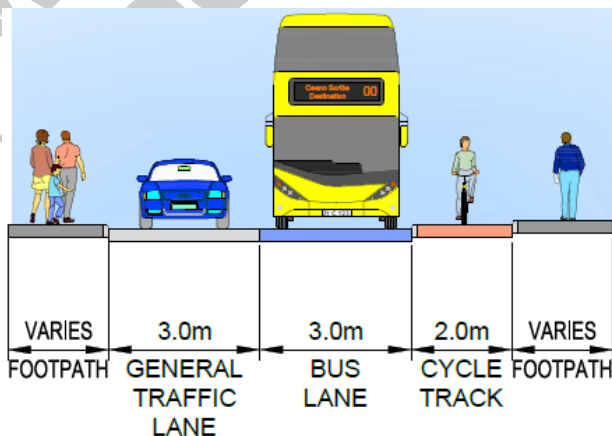




**Figure 104 Section 4, Proposed Option 4 – Indicative Scheme Design**

For this option, similar to Option 3 an inbound bus lane would be provided along Dyke Parade and through to Sheare's Street using the existing bus lane and the removal of an existing inbound traffic lane on Dyke Parade between Mardyke Street and Sheare's Street. The existing bus gate from Sheare's Street to Courthouse Street would be retained, and inbound buses would share with general traffic on Courthouse Street, before turning on to Washington Street and using the existing inbound bus lane at this location.

An outbound bus lane would be provided west of the junction with Wandersford Street through to the Bandfield (i.e., as per the existing scenario).



**Figure 105 Section 4, Proposed Option 4 – Cross Section A-A**

Inbound and outbound cyclists would route via Dyke Parade/Sheare's Street and through to Liberty Street, with a two-way raised adjacent cycle lane proposed. This would require widening works and removal of a substantial portion of the on-street parking on Dyke Parade and Sheare's Street, and localised widening works at the junction with Prospect Row/Sheare's Street. The proposed inbound bus lane would also have to terminate for a short section approaching Prospect Row to facilitate the two-way cycle facility (recommencing thereafter). A portion of the on-street parking on Liberty Street would also be removed.

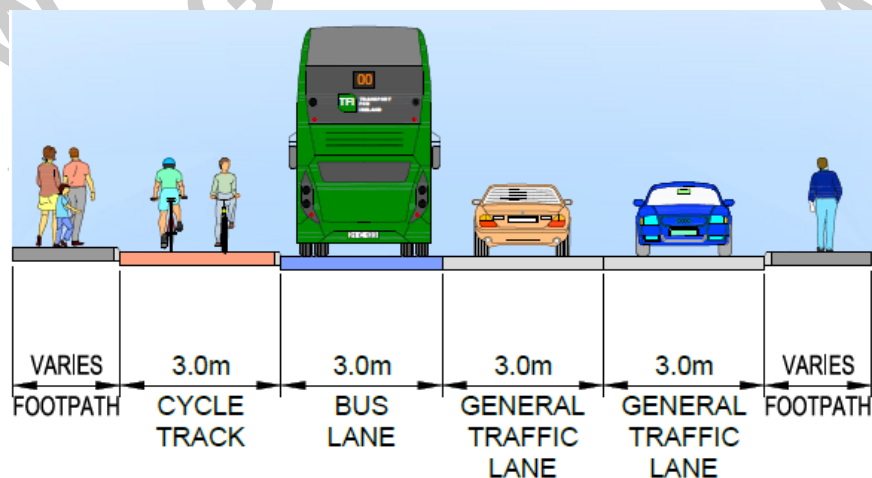
From Liberty Street, inbound cyclists would have to share with general traffic on South Main Street, before turning on to Washington Street and using a raised adjacent cycle lane between South Main Street and Grand Parade.

For outbound cyclists, a raised adjacent cycle lane would be provided along the entirety of the outbound route between Grand Parade and the Bandfield (remaining on Washington Street/Lancaster Quay) and an



additional raised adjacent cycle facility would be provided on the western side of Cross Street to connect from Washington Street to the proposed two-way cycle facility on Liberty Street.

As with Options 1-3, it is proposed to close the northern end of Woods Street to facilitate an improvement to the pedestrian environment at this location. Courthouse Street would remain unchanged in this option as it would continue to be fed by two traffic lanes from Sheare's Street and Grattan Street.



**Figure 106 Section 4, Proposed Option 4 – Cross Section B-B**

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- An inbound bus lane on Dyke Parade/Sheare's Street and on Washington Street from the junction with Courthouse Street;
- An outbound bus lane on Washington Street/Lancaster Quay from Courthouse Street to the Bandfield;
- A raised adjacent two-way cycle lane along the entirety of the inbound bus route between Bandfield and Liberty Street, with inbound cyclists continuing through to Liberty Street (east) and on to South Main Street on a raised adjacent cycle lane, and sharing with general traffic on South Main Street before connecting to a raised adjacent inbound cycle lane between Liberty Street and Washington Street;
- An outbound raised adjacent cycle lane along the entirety of the route between Grand Parade and Bandfield, and on the western side of Cross Street to connect to the two-way cycle facility on Liberty Street;
- Closure of the northern end of Woods Street, including its' junction with Dyke Parade and associated footpath improvements; and
- Land acquisition estimated from one property.

## **7.5.5 Option 5 – Routing inbound via Dyke Parade/Sheare's Street/Courthouse Street/Washington Street and outbound via Washington Street/Lancaster Quay**

### **7.5.5.1 Route Description**

Route Option 5 is presented in Figure 107 and described in the following text.



**Figure 107 Section 4, Proposed Option 5 – Route Option Overview**

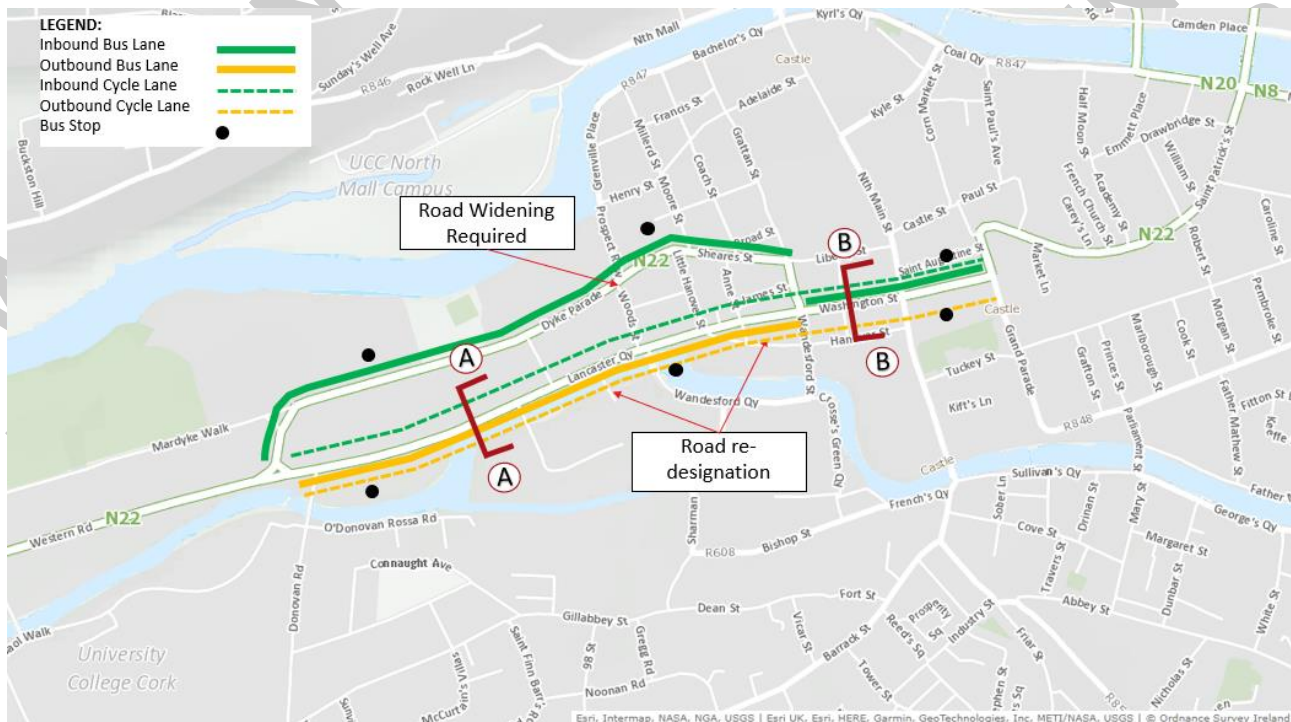
Option 5 is largely similar to Options 3 and 4 and would see inbound buses route from the junction at Bandfield via Dyke Parade, Sheare's Street and Courthouse Street and on to Washington Street, with outbound buses routing via Washington Street and Lancaster Quay. This option therefore represents a continuation of the existing bus routing in place in this section.

However, in this option it is proposed to route inbound and outbound cyclists via Lancaster Quay and Washington Street only.

It is envisaged that this option would accommodate a total of 3 bus stops in each direction.

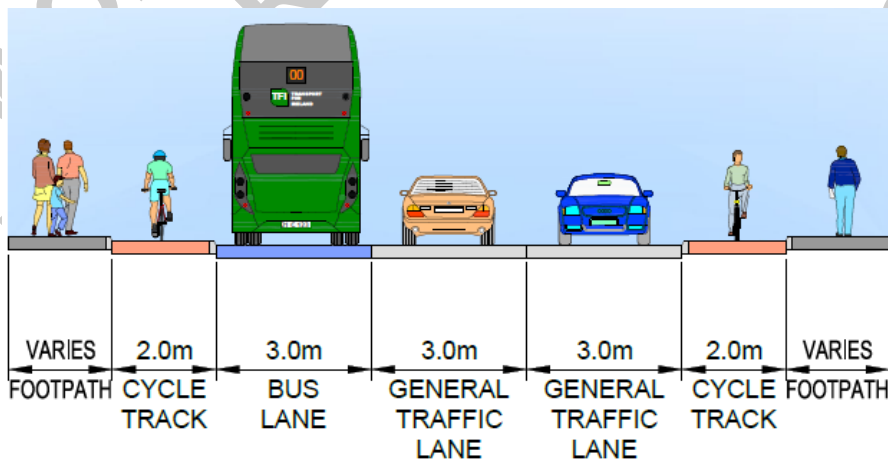
#### **7.5.5.2 Indicative Scheme Design**

Figure 108 illustrates the indicative scheme design for this route option along with the location of cross sections and junctions referenced in subsequent sections.



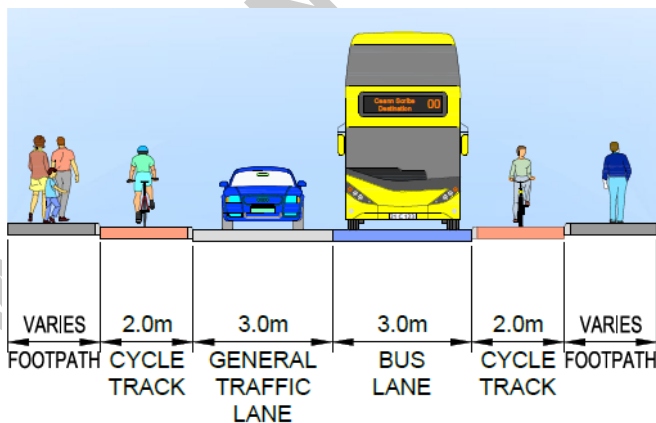
**Figure 108 Section 4, Proposed Option 5 – Indicative Scheme Design**

For this option, similar to Option 3 and Option 4 an inbound bus lane would be provided along Dyke Parade and through to Sheare's Street using the existing bus lane and the removal of an existing inbound traffic lane on Dyke Parade between Mardyke Street and Sheare's Street. The existing bus gate from Sheare's Street to Courthouse Street would be retained, and inbound buses would share with general traffic on Courthouse Street, before turning on to Washington Street and using the existing inbound bus lane at this location.



**Figure 109 Section 4, Proposed Option 5 – Cross Section A-A**

An outbound bus lane would be provided west of the junction with Wandesford Street through to the Bandfield (i.e., as per the existing scenario).



**Figure 110 Section 4, Proposed Option 5 – Cross Section A-A**

Inbound and outbound cyclists would route via Lancaster Quay/Washington Street, with raised adjacent cycle lanes proposed on both sides of the route. This would require removal of a substantial portion of the on-street parking on Lancaster Quay/Washington Street and a slight narrowing of the footpaths on Washington Street between South Main Street and Grand Parade.

As with Options 1-4, it is proposed to close the northern end of Woods Street to facilitate an improvement to the pedestrian environment at this location. Courthouse Street would remain unchanged in this option as it would continue to be fed by two traffic lanes from Sheare's Street and Grattan Street.

In summary this route option, subject to confirmation at the scheme design stage, would result in the following characteristics:

- An inbound bus lane on Dyke Parade/Sheare's Street and on Washington Street from the junction with Courthouse Street;
- An outbound bus lane on Washington Street/Lancaster Quay from Courthouse Street to the Bandfield;
- Raised adjacent cycle lanes on both sides of the route between Grand Parade and Bandfield;
- Closure of the northern end of Woods Street, including its' junction with Dyke Parade and associated footpath improvements; and
- Land acquisition estimated from one property.

### 7.5.6 Route Options Assessment

Details of the Stage 2 route options assessment undertaken for the options outlined above for Section 4 are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 14.

**Table 14 Section 4, Bandfield to City Centre Options Assessment Summary (Sub-Criteria)**

Assessment Criteria	Assessment Sub-Criteria	RO 1a	RO 1b	RO 2	RO 3	RO 4	RO 5
Economy	Capital Cost						
	Transport Reliability						
Integration	Land Use Integration						
	Catchments						



Assessment Criteria	Assessment Sub-Criteria	RO 1a	RO 1b	RO 2	RO 3	RO 4	RO 5
	Transport Network Integration						
	Cycling Integration						
	Pedestrian Network Integration						
Accessibility & Social Inclusion	Key Trip Attractors						
	Deprived Geographic Areas						
Safety	Road Safety						
Environment	Archaeology and Cultural Heritage						
	Biodiversity						
	Soils and Geology						
	Hydrology						
	Landscape and Visual						
	Air Quality						
	Land Use Character						

From the **Economy** perspective, all options have similar capital costs with Option 1a/1b having a slightly greater overall capital cost in addition Option 1a has less dedicated bus priority measures compared to the other options.

In terms of **Integration**, all options perform similarly under land use integration, catchment and pedestrian integration due the central location of the route options in the city centre. In terms of transport integration Option 1a is expected to perform slightly better than the other options as less traffic management is proposed compared to all the other options. Finally in terms of cyclists, Option 3 is considered to perform less favourable than the other options as cyclists are split between two different routes although it should be noted that Option 3 does provide dedicated safe facilities for cyclists on both routes.

From an **Accessibility and Social Inclusion** perspective there was no material difference between the options.

In terms of **Safety**, Options 1a, 1b and 2 are considered to perform slightly better than the other options by routing buses directly along Lancaster Quay and Washington Street, rather than splitting the bus routes and routing inbound buses down Sheare's Street as these options offer direct access to the city centre and have less junctions to negotiate.

Under **Environment**, Options 1a and 1b are equally favourable in that these routes have significantly less features of historical significance and residential receptors located along the routes and would require less tree loss when compared with the other options. Route Options 2, 3, 4 and 5 are broadly similar.

From the above assessment it can be seen that **Option 1b** is the preferred option as it provides good bus priority along Western Road in both directions, avoiding the requirement to split inbound and outbound bus services onto two separate streets and aiding the overall passenger legibility of the bus network. In addition, Option 1b provides direct cycle connection along the corridor focusing on the key desire line between the city centre and University College Cork. Option 1b is therefore recommended as the preferred option for this section of the route.

## 7.6 End-to-End Option Assessments

Following the analyses conducted in the previous sections of this assessment, which sought to identify a recommended preferred option within each individual sub-section of the overall CBC 6 study area, a further analysis is now carried out in this section which examines a number of favourable combinations of options within the individual sections as potentially viable ‘end-to-end’ route options covering the entire study area of CBC 6.

A limited number of combinations of options are evaluated within this assessment process, with indirect or unfavourable combinations of options not carried forward.

### 7.6.1 Sub-options carried forward for end-to-end assessment

The following options within the individual study area sections have been carried forward for consideration as part of end-to-end route options:

- Section 1A – **Option 1** (routing through Ballincollig Town Centre) is considered the preferred option and is carried forward for assessment;
- Section 1 – **Option 1** (routing via the R608, through Ballincollig Town Centre and continuing along the R608 to the Poulavone Roundabout) is considered the preferred option and is carried forward for assessment;
- Section 2 – **Option 1** (routing via the N22 Carrigrohane Road) **Option 2** (routing via Model Farm Road), and **Option 3** (routing via new link road, through MTU and on to Model Farm Road) are all considered worthy of consideration as part of end-to-end assessments;
- Section 3 – **Option 2** (routing via Victoria Cross Road/Western Road) and **Option 3** (routing via College Road) are considered worthy of consideration as part of end-to-end assessments; and
- Section 4 – **Option 1b** (routing along Lancaster Quay/Washington Street) is considered the preferred option.

From the above, three potential end-to-end route options have been developed from the sub-section options recommended for further assessment –

- **Option 1** – From Grange Road, through Ballincollig Town Centre, along Model Farm Road, through to Victoria Cross/Western Road and on to Lancaster Quay/Washington Street;
- **Option 2** – From Grange Road, through Ballincollig Town Centre, then south along the N22 Killumney Link Road, east on the proposed new road through MTU, connecting back to Model Farm Road, continuing straight through to College Road, Donovan’s Road and turning on to Lancaster Quay/Washington Street; and
- **Option 3** – From Grange Road, through Ballincollig Town Centre, north via the N22 Carrigrohane Road, through to Victoria Cross/Western Road and on to Lancaster Quay/Washington Street.

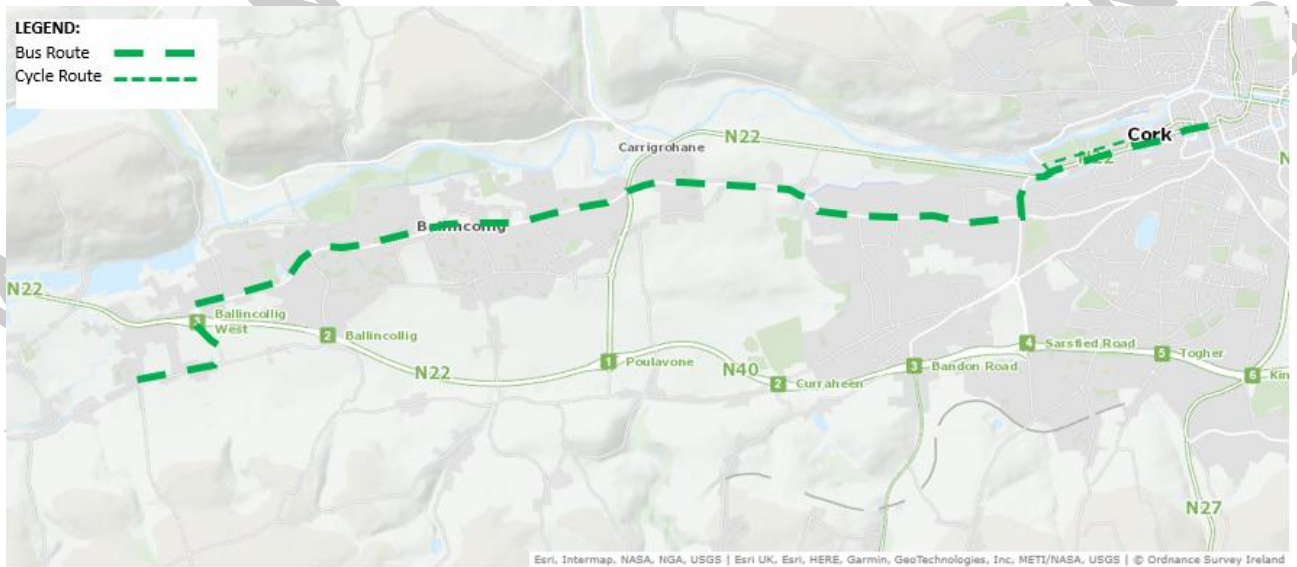


Figure 111 Potential End-to-End Route Option Assessment – Option 1



Figure 112 Potential End-to-End Route Option Assessment – Option 2

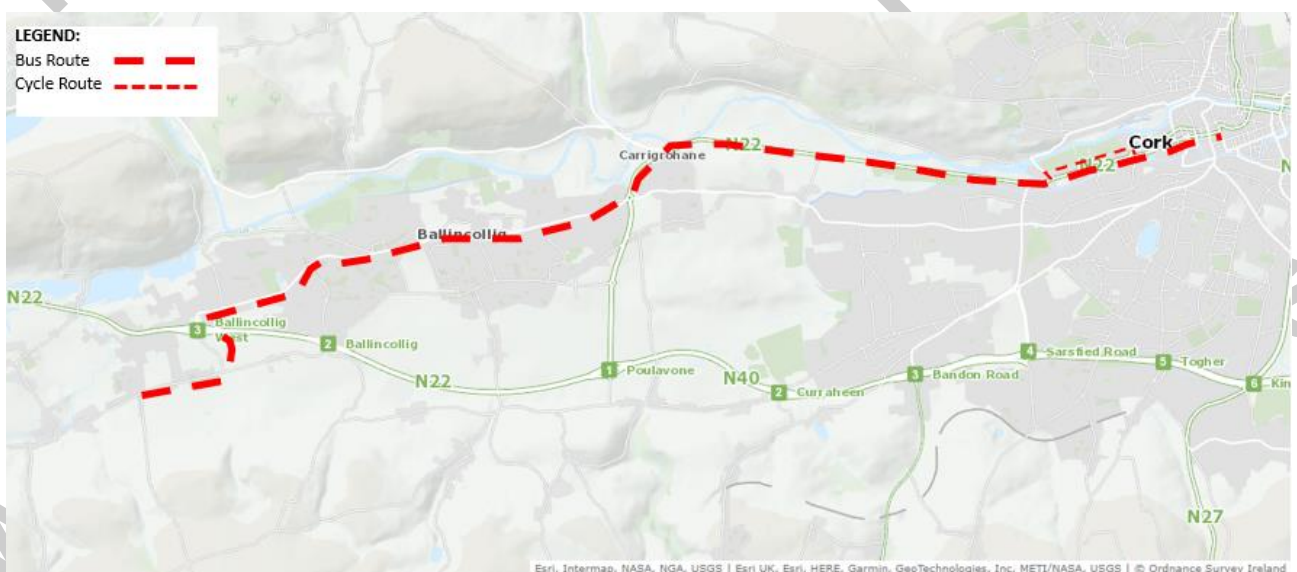


Figure 113 Potential End-to-End Route Option Assessment – Option 3

In addition to the above options, following a review a fourth option was identified and developed which is similar to Option 2 above but proposes to route both buses and cyclists through the new link road and through the grounds of MTU (as opposed to Option 2 above, which routes buses via the new link road but retains cyclists on Model Farm Road). Due to the N22 Killumney Link Road being unsuitable for cycling, for this option it is therefore proposed to route both buses and cyclists south from the R608 to the Killumney Link Road via Leo Murphy Road and then to continue east to the Killumney Link East Roundabout. This fourth option is therefore described as follows:

**Option 4** – From Grange Road, through Ballincollig Town Centre, then south on Leo Murphy Road and east on the Killumney Road to the Killumney Link East Roundabout, east on the proposed new road through MTU, connecting back to Model Farm Road, continuing straight through College Road, Donovan's Road and turning on to Lancaster Quay/Washington Street.

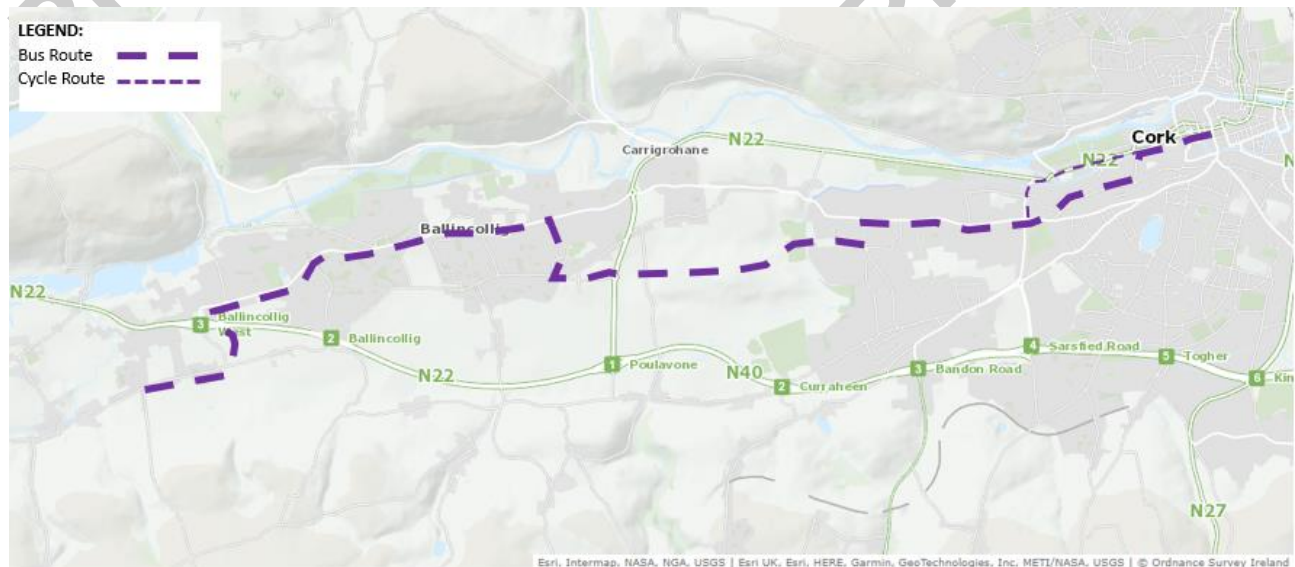


Figure 114 Potential End-to-End Route Option Assessment – Option 4

### 7.6.2 Route Options Assessment

Details of the route options assessment undertaken for the options outlined above for end-to-end routes are presented in Appendix A and the relative ranking of route options against the scheme assessment sub-criteria is summarised in Table 15.

Table 15 CBC 6, End-to-End Route Options Assessment Summary

Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3	RO 4
Economy	Capital Cost	Green	Red	Green	Green
	Transport Reliability	Green	Red	Green	Red
Integration	Land Use Integration	Red	Green	Red	Green
	Catchments	Green	Green	Red	Green
	Transport Network Integration	Yellow	Yellow	Yellow	Yellow
	Cycling Integration	Yellow	Yellow	Yellow	Yellow



Assessment Criteria	Assessment Sub-Criteria	RO 1	RO 2	RO 3	RO 4
	<b>Pedestrian Network Integration</b>				
<b>Accessibility &amp; Social Inclusion</b>	<b>Key Trip Attractors</b>				
	<b>Deprived Geographic Areas</b>				
<b>Safety</b>	<b>Road Safety</b>				
<b>Environment</b>	<b>Archaeology and Cultural Heritage</b>				
	<b>Biodiversity</b>				
	<b>Soils and Geology</b>				
	<b>Hydrology</b>				
	<b>Landscape and Visual</b>				
	<b>Air Quality</b>				
	<b>Land Use Character</b>				

From the **Economy** perspective, Route Options 1, 3, 4 are deemed to have a similar capital cost while Option 2 is deemed to be more expensive as this option includes both the widening of Model Farm Road and the delivery of the new road to the west of Munster Technological University. In terms of bus priority and journey time reliability, Option 1 and Option 3 are deemed the most favourable as both Option 2 and Option 4 require buses to divert away from the most direct route and also share the internal road network at Munster Technical University with general traffic which could potentially lead to traffic delays.

In terms of **Integration**, Option 2 and Option 4 perform best as they have the potential to serve new development areas to the east of Bishopstown at a higher density than is currently available in the area increasing the potential demand for public transport services in the area. In terms of catchments only Option 3 performs poorly as it routes along the Carrigrohane Road where there is little existing development or potential for development.

From an **Accessibility and Social Inclusion** perspective there was no material difference between the options.

In terms of **Safety**, Options 1 and 3 are considered to perform slightly better than the other options by routing buses more directly along higher order roads in the western sector of Cork City.

Under **Environment**, Option 1 performs best overall although it is recognised that the loss of trees and the widening of the roads and streets along the corridor are likely to give rise to local impacts on the receiving environment. Option 2 and 4 are likely to have a greater impact on the receiving environment as both options include the construction of a new roadway through greenfield lands, Finally, Option 3 is likely to have an impact on the existing River Lee Flood Zone, although this route has potentially less impact on the local residents as there are less houses located along this route.

From the above assessment it can be seen that **Option 1** is the preferred option as it provides a high level of dedicated bus priority and cycle priority along the entire route, serves key trip attractors and the most extensive residential and employment catchments and does not require the construction of new road infrastructure through greenfield lands. It is therefore recommended that **Option 1** is the emerging preferred route for CBC 6. The specifics of the emerging preferred route for CBC 6 are discussed in greater detail in Section 8 below.

## 8. Emerging Preferred Route

### 8.1 Introduction

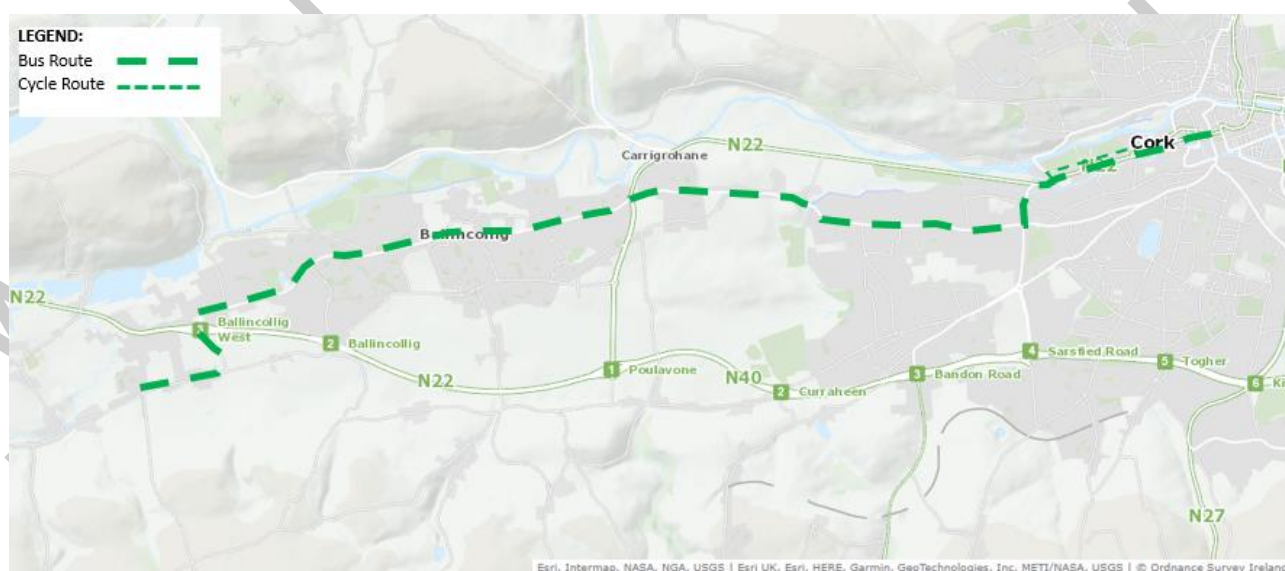
The earlier sections of this report presented an appraisal of each of the potential route options for the individual study area sections identified. Within each study area section, where potential route options were considered to be available, they have been assessed in accordance with the methodology set out under a 'Multi-Criteria Analysis' under the headings of Economy, Integration, Accessibility and Social Inclusion, Safety and Environment.

Following this appraisal, emerging preferred route sections were combined to create a number of potentially viable end-to-end emerging routes, which have been subject to a further multi-criteria analysis to identify an overall emerging preferred end-to-end route option.

This section of the report presents and describes the emerging preferred route identified and the concept scheme design developed.

### 8.2 Recommended Preferred Route

The emerging preferred route is presented in Figure 115 and described in this section in the Ballincollig to city centre direction. Unless specified, both buses and cyclists will follow the same route.



**Figure 115 Emerging Preferred Route – CBC 6**

The proposed route starts on Grange Road, to the south-east of the N22 Ballincollig Bypass (south of the Ovens interchange) and travels over the N22 and along the R608 towards Ballincollig. The proposed bus/cycle route continues through the town centre and heads east to the Poulavone Roundabout. From here the route continues along Model Farm Road to the junction at Dennehy's Cross. At this location, the proposed bus/cycle route turns left on to Victoria Cross Road and continues north through Victoria Cross and on to the Western Road. At this location, the proposed cycle route diverts on to Mardyke Walk, with buses remaining on Western Road. Both buses and cyclists continue east, with buses continuing to the junction of Donovan's Road/Lancaster Quay (at the Bandfield) and cyclists continuing east to the junction of Mardyke Walk/Dyke Parade, before routing south and re-joining the proposed bus route at the Bandfield.

From here, buses and cyclists continue east along Lancaster Quay/Washington Street to the junction of Washington Street and Grand Parade.

The following lists the proposed interventions along CBC 6 serving both active and sustainable travel modes:

#### **Walking/Cycling:**

- Additional footpaths implemented along Grange Road, between the Grange Terrace and the N22 Ovens Interchange;

- Additional footpaths implemented along portions of the R608, west of Ballincollig Town Centre;
- Additional footpaths implemented along Model Farm Road, between the Poulavone Roundabout and Carrigrohane Bridge;
- Improved pedestrian facilities at Carrigrohane Bridge;
- Raised adjacent cycle lanes in each direction along the entire length of Section 1 of CBC 6, commencing to the south of the N22 Ballincollig Bypass on Grange Road and continuing through Ballincollig Town Centre and connecting to the Poulavone Roundabout;
- An additional parallel cycle crossing of the N22 at the Ovens Interchange;
- Raised adjacent cycle lanes in each direction along the entire length of Section 2 of CBC 6, between the Poulavone Roundabout and Dennehy's Cross;
- An upgrade of Carrigrohane Bridge to incorporate dedicated raised adjacent cycle facilities in both directions;
- Raised adjacent cycle lanes in both directions along the majority of Section 3 of CBC 6 (between Dennehy's Cross and the Bandfield), with a short section where cyclists are diverted from Western Road to Mardyke Walk (along this section on Mardyke Walk, no dedicated cycle facilities are proposed as this portion of the route is intended to function as a Quietway); and
- Raised adjacent cycle lanes in both directions along the entire length of Section 4 of CBC 6 (Lancaster Quay and Washington Street), between the Bandfield junction and the junction of Washington Street and Grand Parade.

#### **Public Transport:**

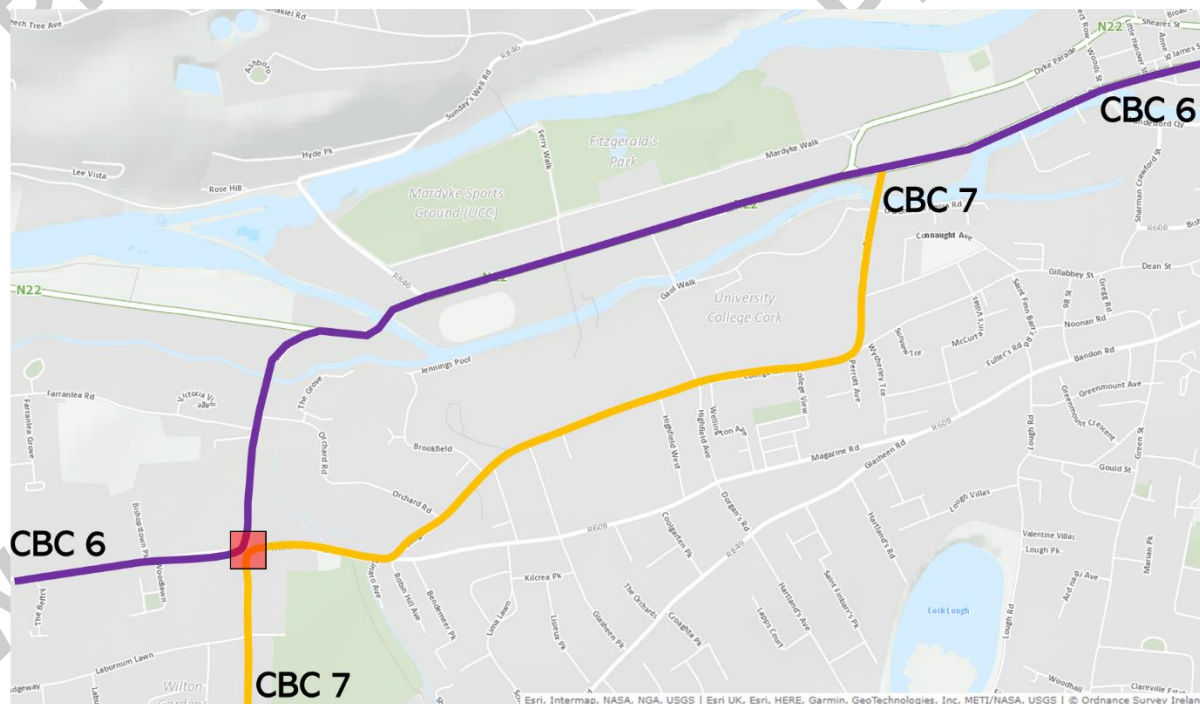
- Proposed inbound and outbound bus lanes on the Grange Road,
- A proposed inbound bus lane commencing in Section 1 of CBC 6 on the R608, west of the junction with The Stables, continuing eastwards and terminating to the west of the Westgate Foundation premises, and recommencing to the east of Oriel Court, continuing through the Old Fort Road (west) junction and through to the junction at Harrington Street on Main Street in Ballincollig Town Centre, and recommencing east of the junction with Old Fort Road (east) and continuing eastwards to the Poulavone Roundabout.
- Sections of inbound and outbound bus lane provision on the R608 from the west of The Stables, through Ballincollig Town Centre and eastwards to the Poulavone Roundabout;
- Implementation of bus priority measures within Ballincollig Town Centre;
- Upgrade of the Poulavone Roundabout to a signalised junction;
- Sections of inbound and outbound bus lane provision on Model Farm Road, from the Poulavone Roundabout through to Dennehy's Cross;
- Replacement of Carrigrohane Bridge;
- Sections of inbound and outbound bus lane along Victoria Cross Road, from Dennehy's Cross to the Western Road/Donovan's Road junction; and
- Sections of inbound and outbound bus lane on Lancaster Quay/Washington Street, from the Western Road/Donovan's Road junction to the Washington Street/Grand Parade junction.



## 9. Recommendations for progression to consultation

### 9.1 Overlap with CBC 7/CBC 8

Following the determination of the emerging preferred route for CBC 6, a further check has been undertaken to investigate the relationship between CBC 6 and CBC 7 (Bishopstown to City) and CBC 8 (Togher to City Centre). It is noted that the emerging preferred route for CBC 6 proposes to route buses along Model Farm Road before the corridor then turns north on to Victoria Cross Road at Dennehy's Cross, whereas the emerging preferred route for CBC 7 proposes to route buses along Victoria Cross Road before this corridor then turns east on to Magazine Road/College Road, again at Dennehy's Cross. Figure 116 shows the overlap between Route Option 7 and Route Option 6.



**Figure 116 Overlap between CBC 6 and CBC 7**

Both routes therefore interact at Dennehy's Cross. However, the required turning movements for the two routes at Dennehy's Cross would introduce inefficiencies to the operation of the bus services and a more appropriate solution would be to continue both CBC 6 and CBC 7 straight through the junction at Dennehy's Cross on their respective approaches without having to turn.

Therefore, it is recommended that the CBC 6 corridor should continue directly eastwards through the junction at Dennehy's Cross and route along Magazine Road, College Road and Donovan's Road, to the junction of Western Road/Lancaster Quay (at the Bandfield). It is recommended that CBC 7 should continue directly northbound through the junction at Dennehy's Cross, before continuing to Victoria Cross Road, Western Road and onwards through the Bandfield junction and continue to the city centre. Where the two routes meet (at the Bandfield), it is recommended that CBC 6 would terminate and CBC 7 be continued to the city centre.

It is also recommended that the proposed cycle facilities in CBC 6 at this location (routing via Victoria Cross Road, Western Road, Mardyke Walk, Lancaster Quay and Washington Street) would be retained, as dedicated cycling facilities are not proposed on College Road as part of CBC 7. Therefore, cyclists on CBC 6 and CBC 7 would both avail of the dedicated cycle infrastructure proposed as part of CBC 6. College Road and Donovan's Road would also be available for cyclist use; however, this would be in a low-flow, low-speed environment, with cyclists sharing with general traffic and buses.

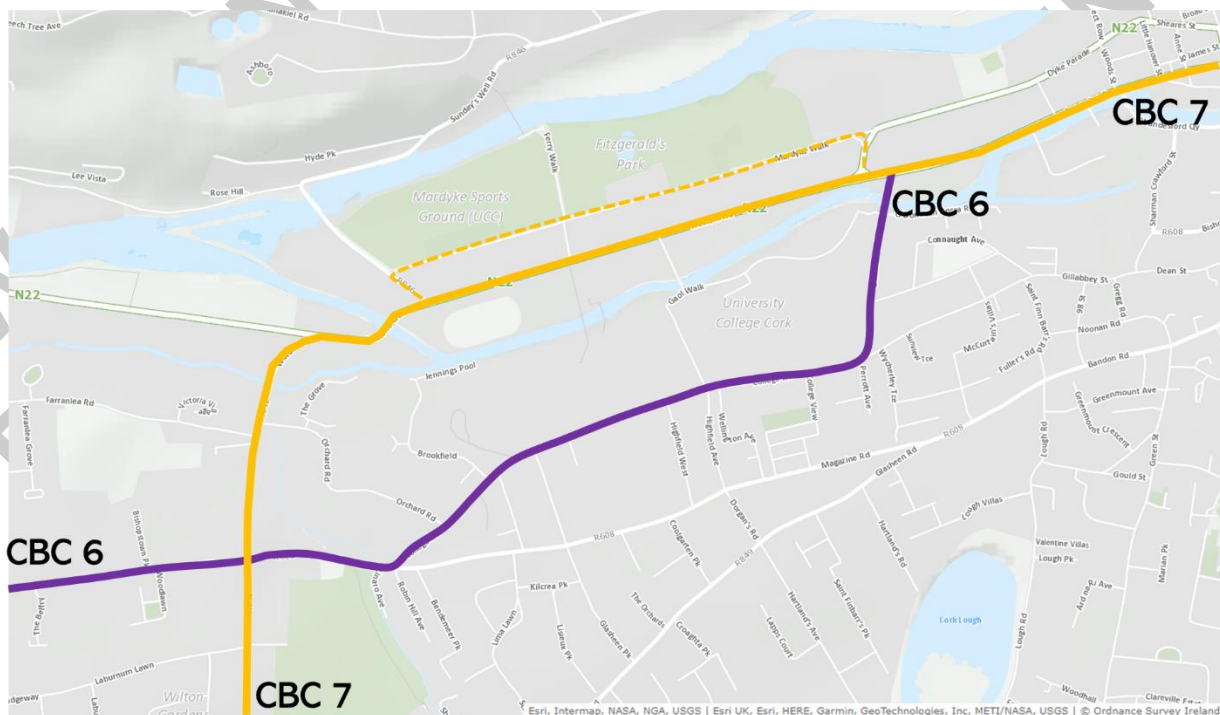


Figure 117 Revised CBC 6 and CBC 7 routing between Dennehy's Cross and City Centre

## 9.2 Recommended amendments to Emerging Preferred Route

The following additional changes to the emerging preferred route outlined above are recommended for inclusion within the scheme concept design to be progressed to public consultation:

- In line with the renaming of the Core Bus Corridor schemes for BusConnects Cork as 'Sustainable Transport Corridor' schemes, and the re-titling of the individual routes, CBC 6 will be progressed to consultation as '**Sustainable Transport Corridor E – Ballincollig to City**';
- It is recommended that the proposed cycle route would commence on the northern side of the N22 Ovens Interchange and the proposed pedestrian/cycle bridge crossing be omitted, as there is an existing facility available to cross the N22 from the Ovens Road;
- It is recommended that the proposed bus priority facilities to the south-west of Ballincollig would commence to the south-west of Coolroe Meadows, in the vicinity of Ballincollig Rugby Football Club, as opposed to continuing over the N22 Ovens Interchange and on to the Grange Road. It is not considered that dedicated bus priority is warranted further south-west than this location due to prevailing traffic conditions;
- As outlined above, to minimise delays for both CBC routes 6 and 7 it is recommended that both routes would interchange their infrastructure proposals at the junction at Dennehy's Cross, with the CBC 6 bus route proposed to continue on to College Road and Donovan's Road and terminate at the Lancaster Quay/Donovan's Road junction (Bandfield). The CBC 7 proposals for bus routing are proposed to continue straight to Victoria Cross Road and to continue onwards through Bandfield and terminate in city centre. This proposal is to eliminate the need for an additional bus turning movement for both CBC's at Dennehy's Cross and optimise the efficiency of both corridors as a result;
- The cycle facilities proposed in Sections 3 and 4 of CBC 6 (with cyclists using dedicated infrastructure on Victoria Cross Road/Mardyke Walk/Washington Street) will be retained for CBC 6 and will also be used for CBC 7.

# Appendix A

## Route Option Assessment Tables

## A.1 Section 1A: Localised Option Assessment – Ballincollig Town Centre

Assessment Criterion	Assessment Sub-Criterion	Mini-MCA Option 1	Mini-MCA Option 2	Mini-MCA Option 3	Mini-MCA Option 4
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<p><b>Total Capital Cost</b> (€11.18m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€9.78m)</p> <p><b>Land Acquisition Cost</b> (€1.4m)</p> <p>This section of the route requires the acquisition of 1,554 m<sup>2</sup> of land, 935 m<sup>2</sup> of which are private lands and 619 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 23 properties.</p>	<p><b>Total Capital Cost</b> (€11.84m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€9.63m)</p> <p><b>Land Acquisition Cost</b> (€2.21m)</p> <p>This section of the route requires the acquisition of 2,310 m<sup>2</sup> of land, 1,472 m<sup>2</sup> of which are private lands and 838 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 26 properties.</p>	<p><b>Total Capital Cost</b> (€10.77m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€9.09m)</p> <p><b>Land Acquisition Cost</b> (€1.68m)</p> <p>This section of the route requires the acquisition of 2,096 m<sup>2</sup> of land, 1,121 m<sup>2</sup> of which are private lands and 975 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 9 properties.</p>	<p><b>Total Capital Cost</b> (€10.39m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€9.51m)</p> <p><b>Land Acquisition Cost</b> (€0.88m)</p> <p>This section of the route requires the acquisition of 1,340 m<sup>2</sup> of land, 584 m<sup>2</sup> of which are private lands and 756 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 6 properties.</p>
	Rank				
	Transport Reliability and Quality of Service	<p>Journey Time: 10.4 mins</p> <p>The length of the cycle route is 1,555m and the length of the bus route is 1,555m.</p> <p>No. of Major/ Signalised Junctions: 4</p>	<p>Journey Time: 10.1 mins</p> <p>The length of the cycle route is 1,555m and the length of the bus route is 1,805m.</p> <p>No. of Major/ Signalised Junctions: 3</p>	<p>Journey Time: 8.8 mins</p> <p>The length of the cycle route is 1,555m and the length of the bus route is 2,035m.</p> <p>No. of Major/ Signalised Junctions: 2</p>	<p>Journey Time: 13.1 mins</p> <p>The length of the cycle route is 1,555m and the length of the bus route is 2,125m.</p> <p>No. of Major/ Signalised Junctions: 4</p>



		Outbound bus lanes are provided along 35% of this route option, and inbound bus lanes are provided along 60% of this route option, however a proposed bus gate along this section removes any through traffic resulting in very good journey time reliability of bus services.	Outbound bus lanes are provided along 92% of this route option, and inbound bus lanes are provided along 92% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 98% of this route option, and inbound bus lanes are provided along 98% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 56% of this route option, and inbound bus lanes are provided along 74% of this route option, resulting in good journey time reliability of bus services.
	<i>Rank</i>				
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use. The route runs along the entire length of the Ballincollig commercial area.	This route serves an area which is largely developed, it has potential to encourage the re-development of underused plots along the northern side of Old Fort Road	This route serves an area which is largely developed, it has potential to encourage the re-development of underused plots along Innishmore Lawn and the northern side of Old Fort Road	This route serves an area which is largely developed, it has potential to encourage the re-development of underused plots along Innishmore Lawn
	<i>Rank</i>				
	Residential Population and Employment Catchments	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 2,400 10 minute walking catchment of approximately 7,100 15 minute walking catchment of approximately 10,700 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,700	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 2,000 10 minute walking catchment of approximately 6,400 15 minute walking catchment of approximately 10,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,400	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 2,400 10 minute walking catchment of approximately 7,000 15 minute walking catchment of approximately 10,900 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,700	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 600 10 minute walking catchment of approximately 2,400 15 minute walking catchment of approximately 5,100 <b>Employment catchments</b> 5 minute walking catchment of approximately 400

		10 minute walking catchment of approximately 4,200 15 minute walking catchment of approximately 4,800	10 minute walking catchment of approximately 4,100 15 minute walking catchment of approximately 4,800	10 minute walking catchment of approximately 4,300 15 minute walking catchment of approximately 4,900	10 minute walking catchment of approximately 2,000 15 minute walking catchment of approximately 3,200
	<i>Rank</i>				
	Transport Network Integration	All of this route coincides with portions of existing bus routes 220 and 220X and all regional transport services This option offers potential for interchange with 0. There would be moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. This option offers potential for interchange with 0. There would be minimal impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. This option offers potential for interchange with 0. There would be minimal impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X and all regional transport services This option offers potential for interchange with 0. There would be moderate impact on general traffic.
	<i>Rank</i>				
	Cycling integration	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U9, unnamed primary routes, secondary routes BC-U2, BC-U2A, BC-U8, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U2, BC-U9, unnamed primary routes, secondary routes BC-U2A, BC-U4, BC-U8, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U2, BC-U9, unnamed primary routes, secondary routes BC-U2, BC-U2A, BC-U4, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 99% of this route, and are proposed in the inbound for 99% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U2, BC-U9, unnamed primary routes, secondary routes BC-U2, BC-U2A, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route
	<i>Rank</i>				
	Pedestrian Integration	This option is well integrated into the existing footpath network	This option is well integrated into the existing footpath network	This option is well integrated into the existing footpath network	This option is well integrated into the existing footpath network
	<i>Rank</i>				
Accessibility and Social Inclusion	Key Trip Attractors (Education/ Health	The following attractors are located within a 5-min walking distance of the route: 2 primary schools, 1 post-primary school,	The following attractors are located within a 5-min walking distance of the route: 1 post-primary school, 5 offices, 38	The following attractors are located within a 5-min walking distance of the route: 2 primary schools, 2 post-primary schools,	The following attractors are located within a 5-min walking distance of the route: 12 shops, 3

	/Commercial /Employment)	5 offices, 49 shops, 10 restaurants/bars/pubs and 7 tourist facilities/attractions.	shops, 9 restaurants/bars/pubs and 5 tourist facilities/attractions.	1 special primary school, 6 offices, 39 shops, 9 restaurants/bars/pubs and 5 tourist facilities/attractions.	restaurants/bars/pubs and 1 tourist facility/attraction.
	Rank				
	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 20% marginally below average, 60% marginally above average, 20% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 20% marginally below average, 50% marginally above average, 20% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 20% marginally below average, 50% marginally above average, 20% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% disadvantaged, 20% marginally below average, 50% marginally above average, 30% affluent and 10% very affluent. The route does not serve any RAPID area.
	Rank				
Safety	Road Safety	No. of Junctions: 12 0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	No. of Junctions: 13 2 turning movements are required in each direction (1 left and 1 right in both inbound and outbound directions).	No. of Junctions: 21 4 turning movements are required in each direction (3 left and 1 right in both inbound and outbound directions).	No. of Junctions: 22 4 turning movements are required in each direction (2 left and 2 right in both inbound and outbound directions).
	Rank				
Environment	Archaeology Architectural and Cultural Heritage	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.

		<p>There are 7 No. structures listed on the NIAH along this option (7 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route.</p>	<p>There are 7 No. structures listed on the NIAH along this option (7 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There is 1 No. protected structure along this option, of which none have the potential to be impacted by the proposed project.</p>	<p>There are 5 No. structures listed on the NIAH along this option (5 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There is 1 No. protected structure along this option, of which none have the potential to be impacted by the proposed project.</p>	<p>There are 5 No. structures listed on the NIAH along this option (5 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route.</p>
		There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.
	<i>Rank</i>				
	<b>Biodiversity</b>	<p>This option has the potential to result in the loss of 64 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 139 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 412m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 146 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 301m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 112 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 301m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p>



					with this section of the proposed route is located within 500m of a SAC.
	<i>Rank</i>				
	Soils and Geology	The underlying soil along this option is Urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this option is Urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this option is Urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this option is Urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	<i>Rank</i>				

Hydrology	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 446m of this option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 412m of this option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 300m of this option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 300m of this option.
Rank				
Landscape and Visual	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 64 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 139 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 146 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 112 trees as well as grass verges which may be of ecological value.
Rank				
Air Quality, Noise & Vibration	Of the 106 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased	Of the 161 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased	Of the 216 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased	Of the 164 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to

		use of public and active travel which the proposed project will facilitate.	use of public and active travel which the proposed project will facilitate.	use of public and active travel which the proposed project will facilitate.	be counteracted by the increased use of public and active travel which the proposed project will facilitate.
	<i>Rank</i>				
	Land Use Character	This section of the route requires the acquisition of 2,527m2 of public/private land.	This section of the route requires the acquisition of 4,806m2 of public/private land.	This section of the route requires the acquisition of 3,587m2 of public/private land.	This section of the route requires the acquisition of 2,730m2 of public/private land.
	<i>Rank</i>				

## A.2 Section 1: R608 (West of Ballincollig) to Poulavone Roundabout

Assessment Criterion	Assessment Sub-Criterion	Section 1 Option 1	Section 1 Option 2	Section 1 Option 3	Section 1 Option 4	Section 1 Option 5
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<p><b>Total Capital Cost</b> (€29.69m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€11.88m)</p> <p><b>Land Acquisition Cost</b> (€17.81m)</p> <p>This section of the route requires the acquisition of 16,776 m<sup>2</sup> of land, 11,872 m<sup>2</sup> of which are private lands and 4,904 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 109 properties.</p>	<p><b>Total Capital Cost</b> (€36.21m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€11.13m)</p> <p><b>Land Acquisition Cost</b> (€25.08m)</p> <p>This section of the route requires the acquisition of 27,292 m<sup>2</sup> of land, 16,719 m<sup>2</sup> of which are private lands and 10,573 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 109 properties.</p>	<p><b>Total Capital Cost</b> (€51.26m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€10.46m)</p> <p><b>Land Acquisition Cost</b> (€40.8m)</p> <p>This section of the route requires the acquisition of 43,449 m<sup>2</sup> of land, 27,198 m<sup>2</sup> of which are private lands and 16,251 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 111 properties.</p>	<p><b>Total Capital Cost</b> (€44.27m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€9.23m)</p> <p><b>Land Acquisition Cost</b> (€35.04m)</p> <p>This section of the route requires the acquisition of 38,498 m<sup>2</sup> of land, 23,360 m<sup>2</sup> of which are private lands and 15,138 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 82 properties.</p>	<p><b>Total Capital Cost</b> (€19.7m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€5.06m)</p> <p><b>Land Acquisition Cost</b> (€14.64m)</p> <p>This section of the route requires the acquisition of 14,415 m<sup>2</sup> of land, 9,760 m<sup>2</sup> of which are private lands and 4,655 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 57 properties.</p>
	Rank					
	Transport Reliability and Quality of Service	<p>Journey Time: 12.4 mins</p> <p>The length of the cycle route is 6,650m and the length of the bus route is 6,650m.</p> <p>No. of Major/Signalised Junctions: 11</p>	<p>Journey Time: 11.6 mins</p> <p>The length of the cycle route is 6,770m and the length of the bus route is 6,770m.</p> <p>No. of Major/Signalised Junctions: 8</p>	<p>Journey Time: 10.7 mins</p> <p>The length of the cycle route is 6,585m and the length of the bus route is 6,585m.</p> <p>No. of Major/Signalised Junctions: 5</p>	<p>Journey Time: 11.3 mins</p> <p>The length of the cycle route is 6,585m and the length of the bus route is 6,443m.</p> <p>No. of Major/Signalised Junctions: 5</p>	<p>Journey Time: 13.4 mins</p> <p>The length of the cycle route is 6,650m and the length of the bus route is 7,253m.</p> <p>No. of Major/Signalised Junctions: 6</p>



		Outbound bus lanes are provided along 72% of this route option, and inbound bus lanes are provided along 74% of this route option, however the proposed bus gate provides bus priority along the majority of the remainder of the route resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 74% of this route option, and inbound bus lanes are provided along 79% of this route option, however the proposed bus gate provides bus priority along the majority of the remainder of the route resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 92% of this route option, and inbound bus lanes are provided along 89% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 84% of this route option, and inbound bus lanes are provided along 84% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 28% of this route option, and inbound bus lanes are provided along 31% of this route option, however the remainder of the route runs along the N22 resulting in good journey time reliability of bus services.
	Rank					
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is mostly developed, however there is some opportunity for development, with vacant land that is zoned for residential adjacent to the route.	This route serves an area which is mostly developed, however there is some opportunity for development, with vacant land that is zoned for residential adjacent to the route.	This route passes through an area which is largely undeveloped, however this land is not zoned for development so offers little potential for development.
	Rank					
	Residential Population and Employment Catchments	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 6,300 10 minute walking catchment of approximately 13,400 15 minute walking catchment of approximately 16,500 <b>Employment catchments</b>	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 6,700 10 minute walking catchment of approximately 13,100 15 minute walking catchment of approximately 15,800 <b>Employment catchments</b>	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 4,900 10 minute walking catchment of approximately 9,500 15 minute walking catchment of approximately 12,600 <b>Employment catchments</b>	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,300 10 minute walking catchment of approximately 6,900 15 minute walking catchment of approximately 10,400 <b>Employment catchments</b>	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 300 10 minute walking catchment of approximately 800 15 minute walking catchment of approximately 2,000 <b>Employment catchments</b>

	5 minute walking catchment of approximately 3,300 10 minute walking catchment of approximately 4,900 15 minute walking catchment of approximately 5,600	5 minute walking catchment of approximately 3,300 10 minute walking catchment of approximately 4,800 15 minute walking catchment of approximately 5,500	5 minute walking catchment of approximately 1,900 10 minute walking catchment of approximately 3,900 15 minute walking catchment of approximately 5,000	5 minute walking catchment of approximately 900 10 minute walking catchment of approximately 2,500 15 minute walking catchment of approximately 4,500	5 minute walking catchment of approximately 100 10 minute walking catchment of approximately 200 15 minute walking catchment of approximately 400
Rank					
Transport Network Integration	All of this route coincides with portions of existing bus routes 220 and 220X. Potential for increased integration with additional services in Ballincollig There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. Potential for increased integration with additional services in Ballincollig There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. Potential for future integration with the Light Rail System There would be Minimal impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. Potential for future integration with the Light Rail System There would be No impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. Very limited potential for future integration There would be No impact on general traffic.
Rank					
Cycling integration	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U16, BC-U2, BC-U7, BC-U9, unnamed primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U6, BC-U8, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 54% of this route, and are proposed in the	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U2, BC-U7, BC-U9, unnamed primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U8, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 96% of this route, and are proposed in the	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U13, BC-U3, BC-U9, secondary routes BC-U10, BC-U12A, BC-U2, BC-U8, greenway route BC-GW4, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 96% of this route, and are proposed in the	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U13, BC-U3, BC-U9, secondary routes BC-U10, BC-U11, BC-U12, BC-U12A, BC-U2, BC-U8, greenway route BC-GW4, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 96% of this route, and are proposed in the	This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U16, BC-U2, BC-U9, unnamed primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U5, BC-U6, unnamed feeder routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 95% of this route, and are proposed in the

		inbound for 95% of this route	inbound for 96% of this route	inbound for 96% of this route	inbound for 96% of this route	inbound for 95% of this route
	Rank					
	Pedestrian Integration	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Limited Pedestrian connectivity to the N22
	Rank					
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/Commercial/Employment)	The following attractors are located within a 5-min walking distance of the route: 4 primary schools, 1 post-primary school, 1 special primary school, 6 offices, 57 shops, 10 restaurants/bars/pubs and 7 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 3 primary schools, 1 post-primary school, 1 special primary school, 6 offices, 55 shops, 10 restaurants/bars/pubs and 7 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 1 primary school, 1 post-primary school, 16 offices, 33 shops and 1 restaurant/bar/pub.	The following attractors are located within a 5-min walking distance of the route: 1 primary school, 14 offices and 16 shops.	The following attractors are located within a 5-min walking distance of the route: 2 shops.
	Rank					
	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 10% marginally below average, 50% marginally above average, 40% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% disadvantaged, 10% marginally below average, 50% marginally above average, 30% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% disadvantaged, 20% marginally below average, 40% marginally above average, 30% affluent and less than 5% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% marginally above average, 80% affluent and 10% very affluent. The route does not serve any RAPID area.
	Rank					
Safety	Road Safety	No. of Junctions: 28	No. of Junctions: 25	No. of Junctions: 25	No. of Junctions: 16	No. of Junctions: 10

		2 turning movements are required in each direction (1 left and 1 right in both inbound and outbound directions).	1 turning movements are required in each direction (1 left and 0 right in both inbound and outbound directions).	2 turning movements are required in each direction (1 left and 1 right in both inbound and outbound directions).	0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	2 turning movements are required in each direction (1 left and 1 right in both inbound and outbound directions).
	<i>Rank</i>					
Environment	Archaeology Architectural and Cultural Heritage Rank	<p>This section of the proposed route does not cross any Architectural Conservation Areas. There are 10 No. structures listed on the NIAH along this option (10 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route. There are 2 No. recorded monuments located along this section of the proposed route, of which 1 (1 No. Souterrain) has the potential to be either directly or indirectly affected by the proposed project, in the absence of intervention.</p>	<p>This section of the proposed route does not cross any Architectural Conservation Areas. There are 10 No. structures listed on the NIAH along this option (10 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route. There are no recorded monuments to be potentially impacted by the proposed route.</p>	<p>This section of the proposed route does not cross any Architectural Conservation Areas. There is 1 No. structure listed on the NIAH along this option (1 of regional significance), which does not have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route. There is 1 No. recorded monument located along this section of the proposed route, which does not have the potential to be either directly or indirectly affected by the proposed project.</p>	<p>This section of the proposed route does not cross any Architectural Conservation Areas. There is 1 No. structure listed on the NIAH along this option (1 of regional significance), which does not have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route. There are 3 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.</p>	<p>This section of the proposed route does not cross any Architectural Conservation Areas. There are 10 No. structures listed on the NIAH along this option (10 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are no protected structures located along the proposed route. There are 2 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.</p>



Biodiversity	<p>This option has the potential to result in the loss of 177 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 246m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 147 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 246m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 305 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 244m of the Ballincollig Cave PNHA and within 382m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 302 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 244m of the Ballincollig Cave PNHA and within 385m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 35 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 249m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>
	Rank				

	Soils and Geology	The underlying soil type at this option is Urban (made ground) and Acidic Brown Earths. There are no geological heritage sites located along this option. Assuming best practise construction methodologies are implemented, there is no potential for impacts to soils and geology. There is no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil type at this option is Urban (made ground) and Acidic Brown Earths. There are no geological heritage sites located along this option. Assuming best practise construction methodologies are implemented, there is no potential for impacts to soils and geology. There is no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil type at this option is Urban (made ground) and Acidic Brown Earths. There are no geological heritage sites located along this option. Assuming best practise construction methodologies are implemented, there is no potential for impacts to soils and geology. There is no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil type at this option is Urban (made ground) and Acidic Brown Earths. There are no geological heritage sites located along this option. Assuming best practise construction methodologies are implemented, there is no potential for impacts to soils and geology. There is no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil type at this option is Urban (made ground) and Acidic Brown Earths. There are no geological heritage sites located along this option. Assuming best practise construction methodologies are implemented, there is no potential for impacts to soils and geology. There is no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank					
	Hydrology	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 246m of this route option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 246m of this route option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 382m of this route option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 385m of this route option.	This section of the proposed route does not traverse any streams or rivers so diversion works or construction of bridges or culverts is not required. The River Lee is located within 249m of this route option.
	Rank					
	Landscape and Visual	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 177 trees as well as grass	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 147 trees as well as grass	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 305 trees as well as grass	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 302 trees as well as grass	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 35 trees as well as grass

	verges which may be of ecological value.	verges which may be of ecological value.	verges which may be of ecological value.	verges which may be of ecological value.	verges which may be of ecological value.
<i>Rank</i>					
Air Quality, Noise & Vibration	Of the 352 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 370 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 336 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 376 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 355 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.
<i>Rank</i>					
Land Use Character	This section of the route requires the acquisition of	This section of the route requires the acquisition of	This section of the route requires the acquisition of	This section of the route requires the acquisition of	This section of the route requires the acquisition of

		22,015m2 of public/private land.	35,596m2 of public/private land.	56,809m2 of public/private land.	49,143m2 of public/private land.	11,389m2 of public/private land.
	<i>Rank</i>					



## A.3 Section 2: Poulavone Roundabout to Dennehy's Cross

Assessment Criterion	Assessment Sub-Criterion	Section 2 Option 1	Section 2 Option 2	Section 2 Option 3	Section 2 Option 4
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<p><b>Total Capital Cost</b> (€41.71m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€7.87m)</p> <p><b>Land Acquisition Cost</b> (€33.84m)</p> <p>This section of the route requires the acquisition of 23,911 m2 of land, 22,561 m2 of which are private lands and 1,350 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 49 properties.</p>	<p><b>Total Capital Cost</b> (€44.83m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€6.88m)</p> <p><b>Land Acquisition Cost</b> (€37.95m)</p> <p>This section of the route requires the acquisition of 27,017 m2 of land, 25,300 m2 of which are private lands and 1,717 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 153 properties.</p>	<p><b>Total Capital Cost</b> (€88.86m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€8.24m)</p> <p><b>Land Acquisition Cost</b> (€80.62m)</p> <p>This section of the route requires the acquisition of 55,283 m2 of land, 53,745 m2 of which are private lands and 1,538 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 123 properties.</p>	<p><b>Total Capital Cost</b> (€32.52m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€5.43m)</p> <p><b>Land Acquisition Cost</b> (€27.09m)</p> <p>This section of the route requires the acquisition of 19,438 m2 of land, 18,062 m2 of which are private lands and 1,376 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 117 properties.</p>
	Rank				
	Transport Reliability and Quality of Service	<p>Journey Time: 8.8 mins</p> <p>The length of the cycle route is 5,167m and the length of the bus route is 5,167m.</p> <p>No. of Major/ Signalised Junctions: 4</p>	<p>Journey Time: 7.7 mins</p> <p>The length of the cycle route is 4,405m and the length of the bus route is 4,405m.</p> <p>No. of Major/ Signalised Junctions: 4</p>	<p>Journey Time: 10.8 mins</p> <p>The length of the cycle route is 4,405m and the length of the bus route is 5,860m.</p> <p>No. of Major/ Signalised Junctions: 5</p>	<p>Journey Time: 8.6 mins</p> <p>The length of the cycle route is 4,405m and the length of the bus route is 4,405m.</p> <p>No. of Major/ Signalised Junctions: 4</p>

		Outbound bus lanes are provided along 80% of this route option, and inbound bus lanes are provided along 92% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 82% of this route option, and inbound bus lanes are provided along 90% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 77% of this route option, and inbound bus lanes are provided along 84% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 46% of this route option, and inbound bus lanes are provided along 54% of this route option, however the proposed bus gate provides bus priority along the remainder of the route resulting in good journey time reliability of bus services.
	Rank				
Integration	Land Use Integration	This route passes through an area which is largely undeveloped, however this land is not zoned for development so offers little potential for development.	This route passes through a mostly built up area, with some potential for development along the route.	The western portion of this route comprises of a new road passing through a greenfield area, which has the potential to enable development in this area. The eastern portion is largely built up with little potential for development	This route passes through a mostly built up area, with some potential for development along the route.
	Rank				
	Residential Population and Employment Catchments	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 2,300 10 minute walking catchment of approximately 5,200 15 minute walking catchment of approximately 10,300 <b>Employment catchments</b> 5 minute walking catchment of approximately 1,800	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,000 10 minute walking catchment of approximately 7,400 15 minute walking catchment of approximately 12,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,700	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 2,900 10 minute walking catchment of approximately 7,200 15 minute walking catchment of approximately 13,000 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,300	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,000 10 minute walking catchment of approximately 7,400 15 minute walking catchment of approximately 12,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 2,700

	10 minute walking catchment of approximately 4,600 15 minute walking catchment of approximately 9,200	10 minute walking catchment of approximately 6,300 15 minute walking catchment of approximately 10,400	10 minute walking catchment of approximately 6,600 15 minute walking catchment of approximately 10,800	10 minute walking catchment of approximately 6,300 15 minute walking catchment of approximately 10,400
Rank				
Transport Network Integration	All of this route coincides with portions of existing bus routes 220 and 220X.  There would be No impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be No impact on general traffic.	This route does not coincide with any existing bus routes.  There would be No impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X. There is potential impact on wider bus services associated with displaced traffic from Model Farm Road There would be Moderate impact on general traffic.
Rank				
Cycling integration	This route option is identified in CMATS as forming parts of primary routes BC-U1A, CCC-U1, unnamed primary routes, greenway routes BC-GW5, unnamed greenway routes, unnamed feeder routes.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 980% of this route, and are proposed in the inbound for 98% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U15, CSW-U14A, CSW-U21, secondary routes CSW-U26, CSW-U28, unnamed greenway routes.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U14, BC-U15, CSW-U13A, CSW-U14A, CSW-U21, unnamed possible primary routes, secondary routes CSW-U26, CSW-U28, greenway routes CU-GW1, unnamed greenway routes. Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route	This route option is identified in CMATS as forming parts of primary routes BC-U15, CSW-U14A, CSW-U21, secondary routes CSW-U26, CSW-U28, unnamed greenway routes.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 98% of this route, and are proposed in the inbound for 98% of this route
Rank				
Pedestrian Integration	There is a lack of a good pedestrian network	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity

		connecting the built up areas with Carrigrohane Road			
	Rank				
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/Commercial/Employment)	The following attractors are located within a 5-min walking distance of the route: 1 office, 6 shops, 3 restaurants/bars/pubs and 4 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 1 primary school, 1 post-primary school, 3 offices, 5 shops and 2 restaurants/bars/pubs.	The following attractors are located within a 5-min walking distance of the route: 1 primary school, 1 post-primary school, 5 offices, 4 shops and 2 restaurants/bars/pubs. Direct access to MTU	The following attractors are located within a 5-min walking distance of the route: 1 primary school, 1 post-primary school, 3 offices, 5 shops and 2 restaurants/bars/pubs.
	Rank				
	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% marginally below average, 20% marginally above average, 50% affluent and 20% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 10% marginally below average, 20% marginally above average, 50% affluent and 10% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 10% marginally below average, 20% marginally above average, 50% affluent and 10% very affluent. The route does not serve any RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are 10% disadvantaged, 10% marginally below average, 20% marginally above average, 50% affluent and 10% very affluent. The route does not serve any RAPID area.
	Rank				
Safety	Road Safety	No. of Junctions: 11 1 turning movements are required in each direction (0 left and 1 right in both inbound and outbound directions).	No. of Junctions: 11 0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	No. of Junctions: 16 2 turning movements are required in each direction (1 left and 1 right in both inbound and outbound directions).	No. of Junctions: 16 0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).
	Rank				
Environment	Archaeology Architectural and Cultural Heritage	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.	This section of the proposed route does not cross any Architectural Conservation Areas.



	<p>There are 3 No. structures listed on the NIAH along this option (3 of regional significance) which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p> <p>There are 3 No. protected structures along this option, which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p>	<p>There are 2 No. structures listed on the NIAH along this option (2 of regional significance) which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p> <p>There are 2 No. protected structures along this option, of which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p>	<p>There are 2 No. structures listed on the NIAH along this option (2 of regional significance) which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p> <p>There are 2 No. protected structures along this option, of which 1 has the potential to be impacted by the proposed project, in the absence of intervention.</p>	<p>There are 2 No. structures listed on the NIAH along this option (2 of regional significance) which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p> <p>There are 2 No. protected structures along this option, which, in the absence of mitigation, has the potential to be impacted by the proposed project.</p>
	<p>There are 3 No. recorded monuments located along this section of the proposed route which, in the absence of mitigation, have the potential to be either directly or indirectly affected by the proposed project.</p>	<p>There are no recorded monuments to be potentially impacted by the proposed route.</p>	<p>There is 1 No. recorded monument located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by the proposed project.</p>	<p>There are no recorded monuments to be potentially impacted by the proposed route.</p>
<i>Rank</i>				

	Biodiversity	<p>This option has the potential to result in the loss of 282 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 77m of the Lee Valley PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 323 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 364 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 254 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>
	Rank				

Soils and Geology	The underlying soil along this route is largely Alluvium soil. There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this route is largely Acid Brown Earths and Made Ground. There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this route is largely Acid Brown Earths and Made Ground. There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this route is largely Acid Brown Earths and Made Ground. There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
Rank				
Hydrology	This section of the proposed route traverses 1 River (Maglin River) and is located within a meter of the River Lee at parts and as such, there is potential for either direct or indirect effects on the water source as a result of pollution events, in the absence of intervention.	This section of the proposed route traverses 2 Rivers (Curragheen River and Maglin River), and as such, there is potential for either direct or indirect effects on these water sources as a result of pollution events, in the absence of intervention. This route is located approximately 489m from the River Lee.	This section of the proposed route traverses 2 Rivers (Curragheen River and Maglin River), and as such, there is potential for either direct or indirect effects on these water sources as a result of pollution events, in the absence of intervention. This route is located approximately 489m from the River Lee.	This section of the proposed route traverses 2 Rivers (Curragheen River and Maglin River), and as such, there is potential for either direct or indirect effects on these water sources as a result of pollution events, in the absence of intervention. This route is located approximately 489m from the River Lee.
Rank				
Landscape and Visual	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 282 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 323 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 364 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 254 trees as well as grass verges which may be of ecological value.
Rank				

	Air Quality, Noise & Vibration	Of the 66 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 213 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 221 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 210 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.
	Rank				
	Land Use Character	This section of the route requires the acquisition of 22,028m2 of public/private land.	This section of the route requires the acquisition of 20,049m2 of public/private land.	This section of the route requires the acquisition of 47,971m2 of public/private land.	This section of the route requires the acquisition of 13,271m2 of public/private land.
	Rank				



## A.4 Section 3: Dennehy's Cross to Bandfield

Assessment Criterion	Assessment Sub-Criterion	Section 3 Option 1	Section 3 Option 2	Section 3 Option 3
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<p><b>Total Capital Cost</b> (€8.5m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€3.54m)</p> <p><b>Land Acquisition Cost</b> (€4.96m)</p> <p>This section of the route requires the acquisition of 3,534 m2 of land, 3,309 m2 of which are private lands and 225 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 87 properties.</p>	<p><b>Total Capital Cost</b> (€7.64m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€3.54m)</p> <p><b>Land Acquisition Cost</b> (€4.1m)</p> <p>This section of the route requires the acquisition of 3,153 m2 of land, 2,731 m2 of which are private lands and 422 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 53 properties.</p>	<p><b>Total Capital Cost</b> (€3.72m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€2.82m)</p> <p><b>Land Acquisition Cost</b> (€0.9m)</p> <p>This section of the route requires the acquisition of 613 m2 of land, 598 m2 of which are private lands and 15 m2 are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 24 properties.</p>
	Rank			
	Transport Reliability and Quality of Service	<p>Journey Time: 4.4 mins</p> <p>The length of the cycle route is 1,585m and the length of the bus route is 1,585m.</p> <p>No. of Major/ Signalised Junctions: 5</p> <p>Outbound bus lanes are provided along 71% of this route option, and inbound bus lanes are provided along 68% of this route option, resulting in good journey time reliability of bus services.</p>	<p>Journey Time: 3.7 mins</p> <p>The length of the cycle route is 1,830m and the length of the bus route is 1,585m.</p> <p>No. of Major/ Signalised Junctions: 5</p> <p>Outbound bus lanes are provided along 96% of this route option, and inbound bus lanes are provided along 96% of this route option, resulting in good journey time reliability of bus services.</p>	<p>Journey Time: 5.8 mins</p> <p>The length of the cycle route is 1,585m and the length of the bus route is 1,670m.</p> <p>No. of Major/ Signalised Junctions: 3</p> <p>Outbound Bus Lanes are provided along 16% of this route option, and inbound bus lanes are provided along 0% of this route option, resulting in poor journey time reliability of bus services.</p>

	<i>Rank</i>			
Integration	Land Use Integration	This route passes through a mostly built up area, with some potential for development along the route.	This route passes through a mostly built up area, with some potential for development along the route.	This route passes through a mostly built up area, with some potential for development along the route.
	<i>Rank</i>			
	Residential Population and Employment Catchments	<b><i>Residential Population Catchments</i></b> 5 minute walking catchment of approximately 3,000 10 minute walking catchment of approximately 7,800 15 minute walking catchment of approximately 13,900 <b><i>Employment catchments</i></b> 5 minute walking catchment of approximately 4,100 10 minute walking catchment of approximately 7,700 15 minute walking catchment of approximately 12,100	<b><i>Residential Population Catchments</i></b> 5 minute walking catchment of approximately 3,000 10 minute walking catchment of approximately 7,800 15 minute walking catchment of approximately 13,900 <b><i>Employment catchments</i></b> 5 minute walking catchment of approximately 4,100 10 minute walking catchment of approximately 7,700 15 minute walking catchment of approximately 12,100	<b><i>Residential Population Catchments</i></b> 5 minute walking catchment of approximately 4,800 10 minute walking catchment of approximately 10,600 15 minute walking catchment of approximately 19,000 <b><i>Employment catchments</i></b> 5 minute walking catchment of approximately 4,200 10 minute walking catchment of approximately 7,300 15 minute walking catchment of approximately 13,200
	<i>Rank</i>			
	Transport Network Integration	All of this route coincides with portions of existing bus routes 220 and 220X.  There would be No impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be No impact on general traffic.	This route does not coincide with any existing bus routes.  Potential for diverted traffic to impact other routes There would be Moderate impact on general traffic.
	<i>Rank</i>			

	Cycling integration	<p>This route option is identified in CMATS as forming parts of primary routes CCC-U1, CCC-U25, unnamed primary routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 95% of this route, and are proposed in the inbound for 95% of this route</p>	<p>This route option is identified in CMATS as forming parts of primary routes CCC-U1, CCC-U25, CCC-U42, unnamed primary routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 45% of this route, and are proposed in the inbound for 45% of this route</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 45% of this route, and are proposed in the inbound for 45% of this route, with the remainder of the route is made up of a shared route along Mardyke Walk</p>	<p>This route option is identified in CMATS as forming parts of primary routes CCC-U1, CCC-U23, CCC-U25, CCC-U26, CSW-U21, unnamed primary routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 97% of this route, and are proposed in the inbound for 97% of this route</p>
	Rank			
	Pedestrian Integration	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/Commercial/Employment)	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 offices, 8 shops, 5 restaurants/bars/pubs and 17 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 offices, 8 shops, 5 restaurants/bars/pubs and 17 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 1 primary school, 13 offices, 11 shops, 7 restaurants/bars/pubs and 16 tourist facilities/attractions.
	Rank			

	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, 10% marginally below average, 30% marginally above average, 50% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, 10% marginally below average, 30% marginally above average, 50% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area.
	Rank			
Safety	Road Safety	No. of Junctions: 7 1 turning movements are required in each direction (0 left and 1 right in both inbound and outbound directions).	No. of Junctions: 7 1 turning movements are required in each direction (0 left and 1 right in both inbound and outbound directions).	No. of Junctions: 7 2 turning movements are required in each direction (2 left and 0 right in both inbound and outbound directions).
	Rank			
Environment	Archaeology Architectural and Cultural Heritage	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: Mardyke Architectural Conservation Area Proposal; College Road, UCC Architectural Area Proposal. There are 18 No. structures listed on the NIAH along this option (18 of regional significance). Of these, 7 structures of regional significance (7 No. house) have the potential to be impacted by the proposed project, in the absence of intervention.  There are 6 No. protected structures along this option, of which 2 have the potential to be impacted by the	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: Mardyke Architectural Conservation Area Proposal; College Road, UCC Architectural Area Proposal. There are 20 No. structures listed on the NIAH along this option (20 of regional significance). Of these, 1 structure of regional significance (1 No. house) has the potential to be impacted by the proposed project, in the absence of intervention.  There are 6 No. protected structures along this option, of which none have the potential to	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: Mardyke Architectural Conservation Area Proposal; College Road, UCC Architectural Area Proposal. There are 43 No. structures listed on the NIAH along this option (1 of national significance, 42 of regional significance). Of these, none have the potential to be impacted by the proposed project.  There are 7 No. protected structures along this option, of which none have the potential to be impacted by the proposed project.



	proposed project, in the absence of intervention. There are no recorded monuments to be potentially impacted by the proposed route.	be impacted by the proposed project. There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.
	There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.	There are no recorded monuments to be potentially impacted by the proposed route.
<i>Rank</i>			
Biodiversity	<p>This option has the potential to result in the loss of 37 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 42 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This option has the potential to result in the loss of 42 trees as well as grass verges which may be of ecological value.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p> <p>Road widening associated with this section of the proposed route occurs within 397m of the Cork Lough PNHA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>
<i>Rank</i>			

Soils and Geology	The underlying soil along this route option is urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this route option is urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	The underlying soil along this route option is urban (made ground). There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
Rank			
Hydrology	This section of the proposed route traverses 2 Rivers (River Lee, Maglin River), and located approximately 220m from the River Lee as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention.	This section of the proposed route traverses 2 Rivers (River Lee, Maglin River), and located approximately 220m from the River Lee as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention.	This section of the proposed route traverses 2 Rivers (River Lee, Maglin River) and 1 tidal river (the River Lee) as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention.
Rank			
Landscape and Visual	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 37 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 42 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 42 trees as well as grass verges which may be of ecological value.
Rank			

Air Quality, Noise & Vibration	Of the 178 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 184 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 319 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.
Rank			
Land Use Character	This section of the route requires the acquisition of 3,501m2 of public/private land.	This section of the route requires the acquisition of 3,129m2 of public/private land.	This section of the route requires the acquisition of 989m2 of public/private land.
Rank			

## A.5 Section 4: Bandfield to City Centre

Assessment Criterion	Assessment Sub-Criterion	Section 4 Option 1A	Section 4 Option 1B	Section 4 Option 2	Section 4 Option 3	Section 4 Option 4	Section 4 Option 5
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<b>Total Capital Cost</b> (€2.81m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€2.81m)  <b>Land Acquisition Cost</b> (€0m) This section of the route requires the acquisition of 0 m2 of land, 0 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.	<b>Total Capital Cost</b> (€2.67m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€2.67m)  <b>Land Acquisition Cost</b> (€0m) This section of the route requires the acquisition of 0 m2 of land, 0 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.	<b>Total Capital Cost</b> (€2.49m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€2.47m)  <b>Land Acquisition Cost</b> (€0.02m) This section of the route requires the acquisition of 11 m2 of land, 11 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.	<b>Total Capital Cost</b> (€1.53m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€1.5m)  <b>Land Acquisition Cost</b> (€0.03m) This section of the route requires the acquisition of 11 m2 of land, 11 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.	<b>Total Capital Cost</b> (€1.51m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€1.5m)  <b>Land Acquisition Cost</b> (€0.01m) This section of the route requires the acquisition of 4 m2 of land, 4 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.	<b>Total Capital Cost</b> (€1.51m)  <b>Indicative Scheme Infrastructure Works Cost</b> (€1.5m)  <b>Land Acquisition Cost</b> (€0.01m) This section of the route requires the acquisition of 4 m2 of land, 4 m2 of which are private lands and 0 m2 are public lands. This section of the proposed route has the potential to partially or fully impact 01 properties.
	Rank						
	Transport Reliability and Quality of Service	Journey Time: 3.4 mins The length of the cycle route is 1,015m and the length of the bus route is 1,015m.	Journey Time: 3.6 mins The length of the cycle route is 1,015m and the length of the bus route is 1,015m.	Journey Time: 3 mins The length of the cycle route is 1,155m and the length of the bus route is 1,015m.	Journey Time: 1.7 mins The length of the inbound cycle section is 1,155m and the outbound cycle section is 1,015m;	Journey Time: 1.7 mins The length of the inbound cycle section is 1,155m and the outbound cycle section is 1,015m;	Journey Time: 1.7 mins The length of the inbound cycle section is 1,015m and the outbound cycle section is 1,015m;



		No. of Major/ Signalised Junctions: 5	No. of Major/ Signalised Junctions: 5	No. of Major/ Signalised Junctions: 5	and the length of the inbound bus section is 1,150m and the outbound bus section is 1,015m.  No. of Major/ Signalised Junctions: 5	and the length of the inbound bus section is 1,150m and the outbound bus section is 1,015m.  No. of Major/ Signalised Junctions: 5	and the length of the inbound bus section is 1,150m and the outbound bus section is 1,015m.  No. of Major/ Signalised Junctions: 5
		Outbound bus lanes are provided along 12% of this route option, however the majority of the remainder is bus priority. Inbound bus lanes are provided along 94% of this route option, resulting in good journey time reliability of bus services. There is no bus gate at the Bandfield	Outbound bus lanes are provided along 16% of this route option, however the majority of the remainder is bus priority. Inbound bus lanes are provided along 60% of this route option, however the majority of the remainder is bus priority, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 94% of this route option, and inbound bus lanes are provided along 94% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 100% of this route option, and inbound bus lanes are provided along 100% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 100% of this route option, and inbound bus lanes are provided along 100% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 100% of this route option, and inbound bus lanes are provided along 100% of this route option, resulting in good journey time reliability of bus services.
	Rank						
	Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.
	Rank						

Residential Population and Employment Catchments	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 4,100 10 minute walking catchment of approximately 13,000 15 minute walking catchment of approximately 23,000 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,500 10 minute walking catchment of approximately 17,900 15 minute walking catchment of approximately 25,800	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 4,100 10 minute walking catchment of approximately 13,000 15 minute walking catchment of approximately 23,000 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,500 10 minute walking catchment of approximately 17,900 15 minute walking catchment of approximately 25,800	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 4,100 10 minute walking catchment of approximately 13,000 15 minute walking catchment of approximately 23,000 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,500 10 minute walking catchment of approximately 17,900 15 minute walking catchment of approximately 25,800	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,700 10 minute walking catchment of approximately 12,400 15 minute walking catchment of approximately 22,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,100 10 minute walking catchment of approximately 17,600 15 minute walking catchment of approximately 25,600	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,700 10 minute walking catchment of approximately 12,400 15 minute walking catchment of approximately 22,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,100 10 minute walking catchment of approximately 17,600 15 minute walking catchment of approximately 25,600	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 3,700 10 minute walking catchment of approximately 12,400 15 minute walking catchment of approximately 22,500 <b>Employment catchments</b> 5 minute walking catchment of approximately 8,100 10 minute walking catchment of approximately 17,600 15 minute walking catchment of approximately 25,600
Rank						
Transport Network Integration	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be Minor Impact on general traffic.	This route does not coincide with any existing bus routes.  There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be Moderate impact on general traffic.	Parts of this route coincide with portions of existing bus routes 220 and 220X.  There would be Moderate impact on general traffic.
Rank						
Cycling integration	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,	This route option is identified in CMATS as forming parts of primary routes CCC-U2, CCC-U5,

		unnamed primary routes, secondary route CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route	unnamed primary routes, secondary route CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route	unnamed primary routes, secondary routes CCC-U3, CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 78% of this route, and are proposed in the inbound for 79% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 78% of this route, and are proposed in the inbound for 79% of this route. However cyclists are diverted along Dyke parade which may not be optimal.	unnamed primary routes, secondary routes CCC-U3, CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 100% of this route, and are proposed in the inbound for 100% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 100% of this route, and are proposed in the inbound for 100% of this route. However cyclists are diverted along Dyke parade which may not be optimal.	unnamed primary routes, secondary routes CCC-U3, CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 100% of this route, and are proposed in the inbound for 100% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 100% of this route, and are proposed in the inbound for 100% of this route. However cyclists are diverted along Dyke parade which may not be optimal.	unnamed primary routes, secondary routes CCC-U3, CCC-U4.  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route  Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 94% of this route, and are proposed in the inbound for 94% of this route
	Rank						
	Pedestrian Integration	Excellent Pedestrian Connectivity	Excellent Pedestrian Connectivity	Excellent Pedestrian Connectivity	Excellent Pedestrian Connectivity	Excellent Pedestrian Connectivity	Excellent Pedestrian Connectivity
	Rank						
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/Commercial/Employment)	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 2 post-primary schools, 19 offices, 164 shops, 51 restaurants/bars/pubs	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 2 post-primary schools, 19 offices, 164 shops, 51 restaurants/bars/pubs	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 2 post-primary schools, 19 offices, 164 shops, 51 restaurants/bars/pubs	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 1 post-primary school, 17 offices, 162 shops, 51 restaurants/bars/pubs	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 1 post-primary school, 17 offices, 162 shops, 51 restaurants/bars/pubs	The following attractors are located within a 5-min walking distance of the route: 1 hospital, 2 primary schools, 1 post-primary school, 17 offices, 162 shops, 51 restaurants/bars/pubs

		and 26 tourist facilities/attractions.	and 26 tourist facilities/attractions.	and 26 tourist facilities/attractions.	and 26 tourist facilities/attractions.	and 26 tourist facilities/attractions.	and 26 tourist facilities/attractions.
	<i>Rank</i>						
	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area, the fringes of the Fairhill/Gurranabraher/Farranree RAPID area, the fringes of the Knocknaheeny/Holly hill/Churchfield RAPID area.
	<i>Rank</i>						
Safety	Road Safety	No. of Junctions: 10	No. of Junctions: 10	No. of Junctions: 10	No. of Junctions: 10	No. of Junctions: 10	No. of Junctions: 10



		0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	0 turning movements are required in each direction (0 left and 0 right in both inbound and outbound directions).	2 turning movements are required in each direction (2 left and 2 right in both inbound and outbound directions).	2 turning movements are required in each direction (2 left and 2 right in both inbound and outbound directions).	2 turning movements are required in each direction (2 left and 2 right in both inbound and outbound directions).
	<i>Rank</i>						
Environment	Archaeology Architectural and Cultural Heritage	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 85 No. structures listed on the NIAH along this option (1 of national significance, 84 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 59 No. protected structures along this option, of which none have the potential to be</p>	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 85 No. structures listed on the NIAH along this option (1 of national significance, 84 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 59 No. protected structures along this option, of which none have the potential to be</p>	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 155 No. structures listed on the NIAH along this option (6 of national significance, 149 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 112 No. protected structures along this option, of which none have the potential to be</p>	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 155 No. structures listed on the NIAH along this option (6 of national significance, 149 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 110 No. protected structures along this option, of which none have the potential to be</p>	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 156 No. structures listed on the NIAH along this option (6 of national significance, 150 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 111 No. protected structures along this option, of which none have the potential to be</p>	<p>This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.</p> <p>There are 154 No. structures listed on the NIAH along this option (6 of national significance, 148 of regional significance). Of these, none have the potential to be impacted by the proposed project.</p> <p>There are 110 No. protected structures along this option, of which none have the potential to be</p>

	impacted by the proposed project.	impacted by the proposed project.	impacted by the proposed project.	impacted by the proposed project.	impacted by the proposed project.	impacted by the proposed project.
	There are 3 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.	There are 3 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.	There are 7 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.	There are 7 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.	There are 7 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.	There are 7 No. recorded monuments located along this section of the proposed route, of which none have the potential to be either directly or indirectly affected by the proposed project.
	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal.
	There are 74 No. structures listed on the NIAH along this option (1 of national significance, 73 of	There are 74 No. structures listed on the NIAH along this option (1 of national significance, 73 of	There are 155 No. structures listed on the NIAH along this option (6 of national significance, 149 of	There are 155 No. structures listed on the NIAH along this option (6 of national significance, 149 of	There are 156 No. structures listed on the NIAH along this option (6 of national significance, 150 of	There are 154 No. structures listed on the NIAH along this option (6 of national significance, 148 of

	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 57 No. protected structures along this option, of which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 2 No. recorded monuments located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by this proposed route.	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 57 No. protected structures along this option, of which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 2 No. recorded monuments located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by this proposed route.	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 112 No. protected structures along this option which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 7 No. recorded monuments located along this section of the proposed route which, in the absence of mitigation, have the potential to be impacted by this proposed route.	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 110 No. protected structures along this option, which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 7 No. recorded monuments located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by this proposed route.	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 111 No. protected structures along this option which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 7 No. recorded monuments located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by this proposed route.	regional significance) which, in the absence of mitigation, have the potential to be impacted by this proposed route.  There are 110 No. protected structures along this option, which, in the absence of mitigation, have the potential to be impacted by this proposed route. There are 7 No. recorded monuments located along this section of the proposed route, which, in the absence of mitigation, have the potential to be impacted by this proposed route.
Rank						
Biodiversity	This option has the potential to result in the loss of 2 trees as well as grass verges which may be of ecological value.	This option has the potential to result in the loss of 2 trees as well as grass verges which may be of ecological value.	This option has the potential to result in the loss of 21 trees as well as grass verges which may be of ecological value.	This option has the potential to result in the loss of 18 trees as well as grass verges which may be of ecological value.	This option has the potential to result in the loss of 22 trees as well as grass verges which may be of ecological value.	This option has the potential to result in the loss of 11 trees as well as grass verges which may be of ecological value.
	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.	No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.

	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p> <p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>
Rank						
Soils and Geology	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>
Rank						
Hydrology	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>	<p>This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect</p>



	effects on the water sources as a result of pollution events, in the absence of intervention.	effects on the water sources as a result of pollution events, in the absence of intervention.	effects on the water sources as a result of pollution events, in the absence of intervention.	effects on the water sources as a result of pollution events, in the absence of intervention.	effects on the water sources as a result of pollution events, in the absence of intervention.	effects on the water sources as a result of pollution events, in the absence of intervention.
<i>Rank</i>						
Landscape and Visual	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 2 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 2 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 21 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 18 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 22 trees as well as grass verges which may be of ecological value.	This section of the proposed route does not infringe on areas of High Landscape Sensitivity. This option has the potential to result in the loss of 11 trees as well as grass verges which may be of ecological value.
<i>Rank</i>						
Air Quality, Noise & Vibration	Of the 324 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at	Of the 324 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at	Of the 325 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at	Of the 321 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at	Of the 323 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at	Of the 321 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at

	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.
Rank						
Land Use Character	This section of the route requires the acquisition of 35m2 of public/private land.	This section of the route requires the acquisition of 35m2 of public/private land.	This section of the route requires the acquisition of 73m2 of public/private land.	This section of the route requires the acquisition of 47m2 of public/private land.	This section of the route requires the acquisition of 44m2 of public/private land.	This section of the route requires the acquisition of 73m2 of public/private land.
Rank						

## A.6 Section 5: End to End Assessment

Assessment Criterion	Assessment Sub-Criterion	End to End Option 1	End to End Option 2	End to End Option 3	End to End Option 4
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	<p><b>Total Capital Cost</b> (€84.49m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€24.64m)</p> <p><b>Land Acquisition Cost</b> (€59.85m)</p> <p>This section of the route requires the acquisition of 46,946 m<sup>2</sup> of land, 39,903 m<sup>2</sup> of which are private lands and 7,043 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 315 properties.</p>	<p><b>Total Capital Cost</b> (€130.07m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€30.75m)</p> <p><b>Land Acquisition Cost</b> (€99.32m)</p> <p>This section of the route requires the acquisition of 72,672 m<sup>2</sup> of land, 66,215 m<sup>2</sup> of which are private lands and 6,457 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 256 properties.</p>	<p><b>Total Capital Cost</b> (€79.73m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€23.98m)</p> <p><b>Land Acquisition Cost</b> (€55.75m)</p> <p>This section of the route requires the acquisition of 43,840 m<sup>2</sup> of land, 37,164 m<sup>2</sup> of which are private lands and 6,676 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 161 properties.</p>	<p><b>Total Capital Cost</b> (€87.11m)</p> <p><b>Indicative Scheme Infrastructure Works Cost</b> (€30.45m)</p> <p><b>Land Acquisition Cost</b> (€56.66m)</p> <p>This section of the route requires the acquisition of 44,406 m<sup>2</sup> of land, 37,770 m<sup>2</sup> of which are private lands and 6,636 m<sup>2</sup> are public lands.</p> <p>This section of the proposed route has the potential to partially or fully impact 256 properties.</p>
	Rank				
	Transport Reliability and Quality of Service	<p>Journey Time: 30.2 mins</p> <p>The length of the cycle section is 13900m and the length of the bus section is 13655m.</p> <p>No. of Major/ Signalised Junctions: 25</p>	<p>Journey Time: 35.4 mins</p> <p>The length of the cycle section is 13655m and the length of the bus section is 15195m.</p> <p>No. of Major/ Signalised Junctions: 24</p>	<p>Journey Time: 30.3 mins</p> <p>The length of the cycle section is 13505m and the length of the bus section is 13505m.</p> <p>No. of Major/ Signalised Junctions: 25</p>	<p>Journey Time: 35.1 mins</p> <p>The length of the cycle section is 13655m and the length of the bus section is 15195m.</p> <p>No. of Major/ Signalised Junctions: 23</p>

		Outbound bus lanes are provided along 74% of this route option, and inbound bus lanes are provided along 81% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 64% of this route option, and inbound bus lanes are provided along 69% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 72% of this route option, and inbound bus lanes are provided along 81% of this route option, resulting in good journey time reliability of bus services.	Outbound bus lanes are provided along 64% of this route option, and inbound bus lanes are provided along 69% of this route option, resulting in good journey time reliability of bus services.
	<i>Rank</i>				
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is generally high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use. A portion of this route comprises of a new road passing through a greenfield area, which has the potential to enable development in this area.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is generally high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use. A portion of this route comprises of a new road passing through a greenfield area, which has the potential to enable development in this area.
	<i>Rank</i>				
	Residential Population and Employment Catchments	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 15,600 10 minute walking catchment of approximately 36,000 15 minute walking catchment of approximately 51,200 <b>Employment catchments</b> 5 minute walking catchment of approximately 18,200	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 16,900 10 minute walking catchment of approximately 37,700 15 minute walking catchment of approximately 53,100 <b>Employment catchments</b> 5 minute walking catchment of approximately 18,100	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 12,700 10 minute walking catchment of approximately 31,000 15 minute walking catchment of approximately 45,800 <b>Employment catchments</b> 5 minute walking catchment of approximately 15,700	<b>Residential Population Catchments</b> 5 minute walking catchment of approximately 16,400 10 minute walking catchment of approximately 37,100 15 minute walking catchment of approximately 53,200 <b>Employment catchments</b> 5 minute walking catchment of approximately 18,900



	10 minute walking catchment of approximately 32,600 15 minute walking catchment of approximately 42,200	10 minute walking catchment of approximately 32,000 15 minute walking catchment of approximately 41,800	10 minute walking catchment of approximately 27,200 15 minute walking catchment of approximately 35,700	10 minute walking catchment of approximately 32,200 15 minute walking catchment of approximately 41,800
Rank				
Transport Network Integration	This route coincides with portions of existing bus routes 201, 205, 208, 214, 216, 220, 220X and 226X.	This route coincides with portions of existing bus routes 201, 205, 208, 214, 216, 220, 220X and 226X.	This route coincides with portions of existing bus routes 201, 205, 208, 214, 216, 220, 220X and 226X.	This route coincides with portions of existing bus routes 201, 205, 208, 214, 216, 220, 220X and 226X.
	There would be Moderate impact on general traffic.	There would be Moderate impact on general traffic.	There would be Moderate impact on general traffic.	There would be Moderate impact on general traffic.
Rank				
Cycling integration	<p>This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U15, BC-U16, BC-U2, BC-U7, BC-U9, CCC-U1, CCC-U2, CCC-U25, CCC-U42, CCC-U5, CSW-U14A, CSW-U21, unnamed primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U6, BC-U8, CCC-U4, CSW-U26, CSW-U28, unnamed greenway routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 89% of this route, and are</p>	<p>This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U14, BC-U15, BC-U16, BC-U2, BC-U7, BC-U9, CCC-U1, CCC-U2, CCC-U23, CCC-U25, CCC-U26, CCC-U5, CSW-U13A, CSW-U14A, CSW-U21, unnamed primary routes, unnamed possible primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U6, BC-U8, CCC-U4, CSW-U26, CSW-U28, greenway routes CU-GW1, unnamed greenway routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 96% of this route, and are</p>	<p>This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U16, BC-U1A, BC-U2, BC-U7, BC-U9, CCC-U1, CCC-U2, CCC-U25, CCC-U42, CCC-U5, unnamed primary routes, secondary routes BC-U10, BC-U12A, BC-U2, BC-U2A, BC-U6, BC-U8, CCC-U4, greenway routes BC-GW5, unnamed greenway routes, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 91% of this route, and are</p>	<p>This route option is identified in CMATS as forming parts of primary routes BC-U1, BC-U14, BC-U16, BC-U2, BC-U3, BC-U7, BC-U9, CCC-U1, CCC-U2, CCC-U23, CCC-U25, CCC-U26, CCC-U5, CSW-U13A, CSW-U14A, CSW-U21, unnamed primary routes, unnamed possible primary routes, secondary routes BC-U10, BC-U11, BC-U12, BC-U2, BC-U2A, BC-U6, BC-U8, CCC-U4, CSW-U26, CSW-U28, unnamed secondary routes, greenway route CU-GW1, unnamed feeder routes.</p> <p>Dedicated raised adjacent cycle lanes are proposed in the outbound direction for 96% of this route, and are</p>

Accessibility and Social Inclusion		proposed in the inbound for 89% of this route	proposed in the inbound for 96% of this route	proposed in the inbound for 91% of this route	proposed in the inbound for 96% of this route
	Rank				
	Pedestrian Integration	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity	Good Pedestrian Connectivity
	Rank				
	Key Trip Attractors (Education/Health/Commercial/Employment)	The following attractors are located within a 5-min walking distance of the route: 2 hospitals, 7 primary schools, 4 post-primary schools, 1 special primary school, 30 offices, 232 shops, 66 restaurants/bars/pubs and 46 tourist facilities/attractions.	The following attractors are located within a 5-min walking distance of the route: 2 hospitals, 8 primary schools, 4 post-primary schools, 1 special primary school, 39 offices, 232 shops, 67 restaurants/bars/pubs and 39 tourist facilities/attractions.	The following attractors are located within a 10-min walking distance of the route: 2 hospitals, 10 primary schools, 5 post-primary schools, 1 special primary school, 73 offices, 399 shops, 104 restaurants/bars/pubs, 77 tourist facilities/attractions and 1 bus/rail stations.	The following attractors are located within a 10-min walking distance of the route: 3 hospitals, 14 primary schools, 6 post-primary schools, 1 special primary school, 82 offices, 408 shops, 104 restaurants/bars/pubs, 64 tourist facilities/attractions and 1 bus/rail stations.
	Rank				
	Deprived Geographic Areas	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area and the fringes of the	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area and the fringes of the Fairhill/Gurranabraher/Farranree RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area and the fringes of the Fairhill/Gurranabraher/Farranree RAPID area.	In terms of the Pobal Deprivation Index, the areas within the catchment of the proposed route option are less than 5% very disadvantaged, less than 5% disadvantaged, 10% marginally below average, 40% marginally above average, 40% affluent and 10% very affluent. The 10-min walking catchment of the route includes the fringes of the Knocknaheeny/Hollyhill/Churchfield RAPID area and the fringes of the

		Fairhill/Gurranabraher/Farranree RAPID area.			Fairhill/Gurranabraher/Farranree RAPID area.
	<i>Rank</i>				
Safety	Road Safety	No. of Junctions: 56 3 turning movements are required in each direction (1 left and 2 right in both inbound and outbound directions).	No. of Junctions: 70 6 turning movements are required in each direction (4 left and 2 right in both inbound and outbound directions).	No. of Junctions: 56 4 turning movements are required in each direction (1 left and 3 right in both inbound and outbound directions).	No. of Junctions: 65 4 turning movements are required in each direction (3 left and 1 right in both inbound and outbound directions).
	<i>Rank</i>				
Environment	Archaeology Architectural and Cultural Heritage	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal. There are 115 No. structures listed on the NIAH along this option (1 of national significance, 114 of regional significance). Of these, 1 structure of regional significance (1 No. house) has the potential to be impacted by the proposed project, in the absence of intervention.  There are 67 No. protected structures along this option, of which 1 has the potential to be impacted by	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal. There are 138 No. structures listed on the NIAH along this option (2 of national significance, 136 of regional significance). Of these, none have the potential to be impacted by the proposed project.  There are 68 No. protected structures along this option, of which 1 has the potential to be impacted by the proposed project, in the absence of intervention.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal. There are 114 No. structures listed on the NIAH along this option (1 of national significance, 113 of regional significance). Of these, 1 structure of regional significance (1 No. house) has the potential to be impacted by the proposed project, in the absence of intervention.  There are 64 No. protected structures along this option, of which none have the potential to be impacted by the proposed project.	This section of the proposed route infringes or runs close to the following Architectural Conservation Areas: North Main Street ACA; Mardyke Architectural Conservation Area Proposal; North Mall - Marsh Architectural Area Proposal; College Road, UCC Architectural Area Proposal. There are 137 No. structures listed on the NIAH along this option (2 of national significance, 135 of regional significance). Of these, none have the potential to be impacted by the proposed project.  There are 68 No. protected structures along this option, of which 1 has the potential to be impacted by the proposed project, in the absence of intervention.

		the proposed project, in the absence of intervention.			
		There are 5 No. recorded monuments located along this section of the proposed route, of which 1 (1 No. Souterrain) has the potential to be either directly or indirectly affected by the proposed project, in the absence of intervention.	There are 6 No. recorded monuments located along this section of the proposed route, of which 1 (1 No. Souterrain) has the potential to be either directly or indirectly affected by the proposed project, in the absence of intervention.	There are 8 No. recorded monuments located along this section of the proposed route, of which 1 (1 No. Souterrain) has the potential to be either directly or indirectly affected by the proposed project, in the absence of intervention.	There are 6 No. recorded monuments located along this section of the proposed route, of which 1 (1 No. Souterrain) has the potential to be either directly or indirectly affected by the proposed project, in the absence of intervention.
	Rank				



Biodiversity	<p>This option has the potential to result in the loss of 544 trees as well as grass verges which may be of ecological value.</p>	<p>This option has the potential to result in the loss of 585 trees as well as grass verges which may be of ecological value.</p>	<p>This option has the potential to result in the loss of 485 trees as well as grass verges which may be of ecological value.</p>	<p>This option has the potential to result in the loss of 616 trees as well as grass verges which may be of ecological value.</p>
	<p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a Natural Heritage Area.</p>
	<p>This section of the proposed route does not cross any Proposed Natural Heritage Area.</p>	<p>Road widening associated with this section of the proposed route occurs within 246m of the Lee Valley PNHA and within 397m of the Cork Lough PNHA.</p>	<p>Road widening associated with this section of the proposed route occurs within 77m of the Lee Valley PNHA.</p>	<p>Road widening associated with this section of the proposed route occurs within 246m of the Lee Valley PNHA and within 397m of the Cork Lough PNHA.</p>
	<p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SPA.</p>
	<p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>	<p>No road widening associated with this section of the proposed route is located within 500m of a SAC.</p>
Rank				
Soils and Geology	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>	<p>There are no geological heritage sites located along this option. There is no potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.</p>

<i>Rank</i>				
Hydrology	This section of the proposed route traverses 2 Rivers (Curragheen River, Maglin River), 1 Tidal River (River Lee) and as such, there is potential for either direct or indirect effects on the water source as a result of pollution events, in the absence of intervention.	This section of the proposed route traverses 3 Rivers (Glasheen River, Curragheen River, Maglin River), 1 Tidal River (River Lee) and as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention.	This section of the proposed route traverses 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention. The Routes through an existing flood plain and road widening will have an impact on available flood storage	This section of the proposed route traverses 3 Rivers (Glasheen River, Curragheen River, Maglin River), 1 Tidal River (River Lee), and as such, there is potential for either direct or indirect effects on the water sources as a result of pollution events, in the absence of intervention.
<i>Rank</i>				
Landscape and Visual	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 544 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 585 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 485 trees as well as grass verges which may be of ecological value.	This section of the proposed route infringes on an area of High Landscape Sensitivity. This option has the potential to result in the loss of 616 trees as well as grass verges which may be of ecological value.
<i>Rank</i>				

	Air Quality, Noise & Vibration	Of the 931 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 1071 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 720 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.	Of the 949 residential receptors along this section of the proposed route, there is potential that road widening/road works along this section of the proposed route could bring traffic closer to residential receptors. This has potential to increase pollutant and noise concentrations at these receptors. However, any potential increase in proximity is expected to be marginal. Further, any decrease in air quality at residential receptors as a result of increased proximity to traffic is likely to be counteracted by the increased use of public and active travel which the proposed project will facilitate.
	Rank				
	Land Use Character	This section of the route requires the acquisition of 53,045m2 of land, 31,405 of which are private lands and 21,640 are public lands.	This section of the route requires the acquisition of 79,269m2 of land, 56,041 of which are private lands and 23,228 are public lands.	This section of the route requires the acquisition of 46,156m2 of land, 27,492 of which are private lands and 18,664 are public lands.	This section of the route requires the acquisition of 86,361m2 of land, 60,767 of which are private lands and 25,594 are public lands.
	Rank				

# Appendix B

## Traffic Management Drawings

### B.1 Ballincollig Town Centre

### B.2 Washington Street/Dyke Parade