National Transport Authority

BUSCONNECTS INFRASTRUCTURE CORK

North of Dublin Hill to City Centre via Blackpool (CBC4) Draft Emerging Preferred Options Report

BCICA-WSP-PDV_EI-04_XX_00-SD-ZZ-0006
APRIL 2022

National Transport Authority

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CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

The National Transport Authority (NTA) is seeking to explore route options and develop Draft Emerging Preferred Routes for thirteen Core Bus Corridors (CBCs) in the Cork Metropolitan Area. These CBCs form part of the bus network as defined in the Cork Metropolitan Area Transport Strategy (CMATS) published by the NTA in collaboration with Cork City Council, Cork County Council and TII in 2020.

WSP has been commissioned by the NTA to carry out a study to explore route options and develop Draft Preferred Routes for Project A. Project A consists of:

- CBC 2 East of Mayfield to City Centre via Montenotte;
- CBC 3 Ballyvolane to City Centre via Montenotte;
- **CBC 4 North of Dublin Hill to City Centre via Blackpool**; and
- CBC 5 Hollyhill / Apple to City Centre via Shandon area.

This report presents the outcome of the route options assessment undertaken for the CBC 4 North of Dublin Hill to City Centre via Blackpool Core Bus Corridor (CBC) scheme and makes a recommendation on an Emerging Preferred Route.

SCHEME 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.

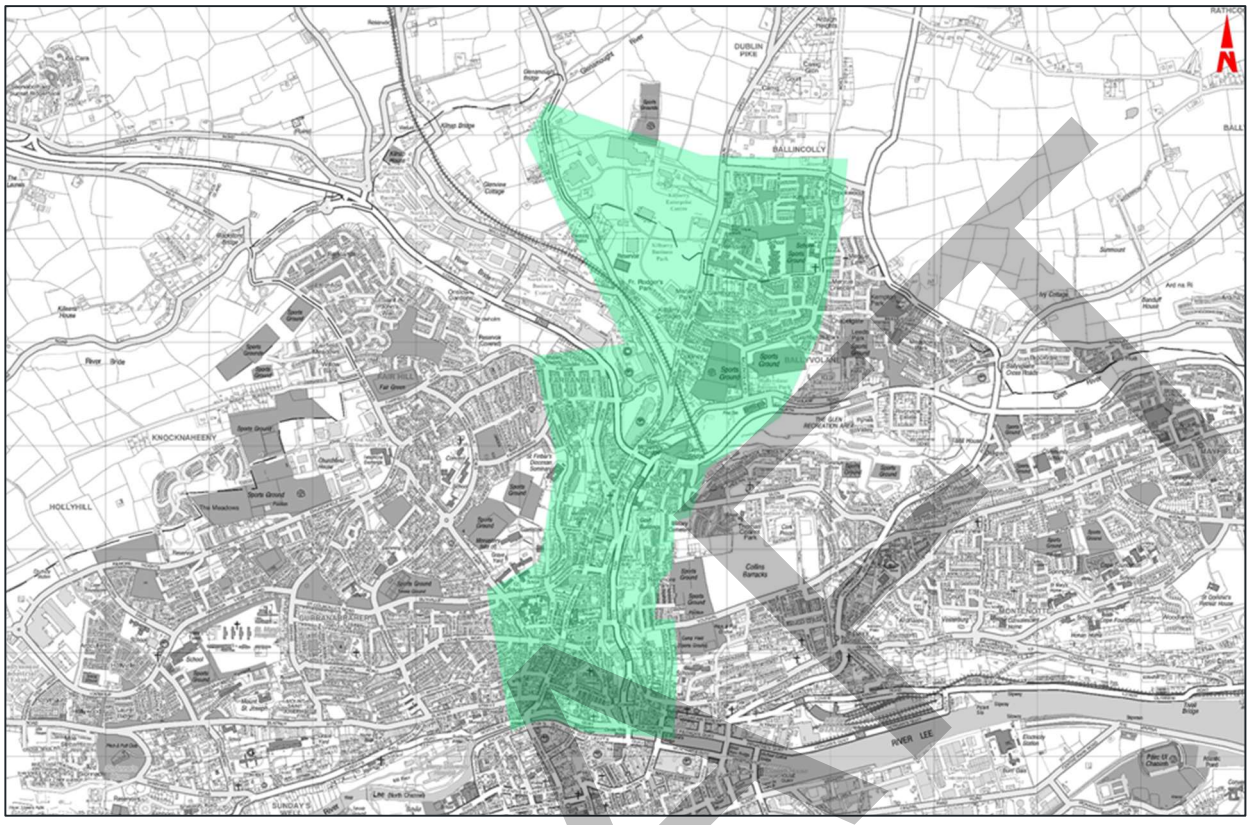
Sub Objectives

- 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.

The Study Area

The study area was taken to include the area between Camden Place in Cork City and Lower Dublin Hill Road to the North of Dublin Hill, including the districts of Ballyvolane, Blackpool, Dublin Hill, Fair Hill, Farranree, Shandon and The Glen. The extent of the study area is presented in Figure i below.

Figure i - Study Area Map



The proposed CBC4 North of Dublin Hill to City Centre via Blackpool will serve a transport corridor with several key destinations along, or close to, the route. These include;

- Blackpool Shopping Centre and Retail Park;
- Glen Rover's GAA ;
- Neptune Stadium;
- Glen River Park; and
- Numerous notable education centres.

Assessment Process

A two-stage assessment was adopted:

- An initial 'Stage 1' high-level route sections assessment or 'sifting' process.

  An initial "spider's web" of potential route sections that could possibly accommodate the proposed bus corridor between Cork City Centre and Dublin Hill, via Blackpool, was identified for the Study Area. This "spider's web" of route sections consisted of every existing through road and several offline paths in the subject Study Area. To allow for diversions onto adjacent routes each road was split into sections where two or more routes intersect.

  A high-level qualitative assessment was then undertaken based on professional engineering judgement and a general appreciation for existing physical conditions / constraints within the study area from available survey information and site visits. This assessment identified route

sections that would either not achieve the scheme objectives or would be subject to excessive cost and/or impact to achieve these objectives (e.g. the demolition of consecutive residential properties).

- A detailed 'Stage 2' Multi-Criteria Analysis Process.

  All route options that progressed to this stage were compared against one another using a detailed Multi-Criteria Analysis (MCA) in accordance with the Department of Transport Document "Common Appraisal Framework for Transport Projects and Programmes".

  Each route was comparatively assessed against the study objectives using the Key Performance Indicators (KPIs) and method of measurements identified below.

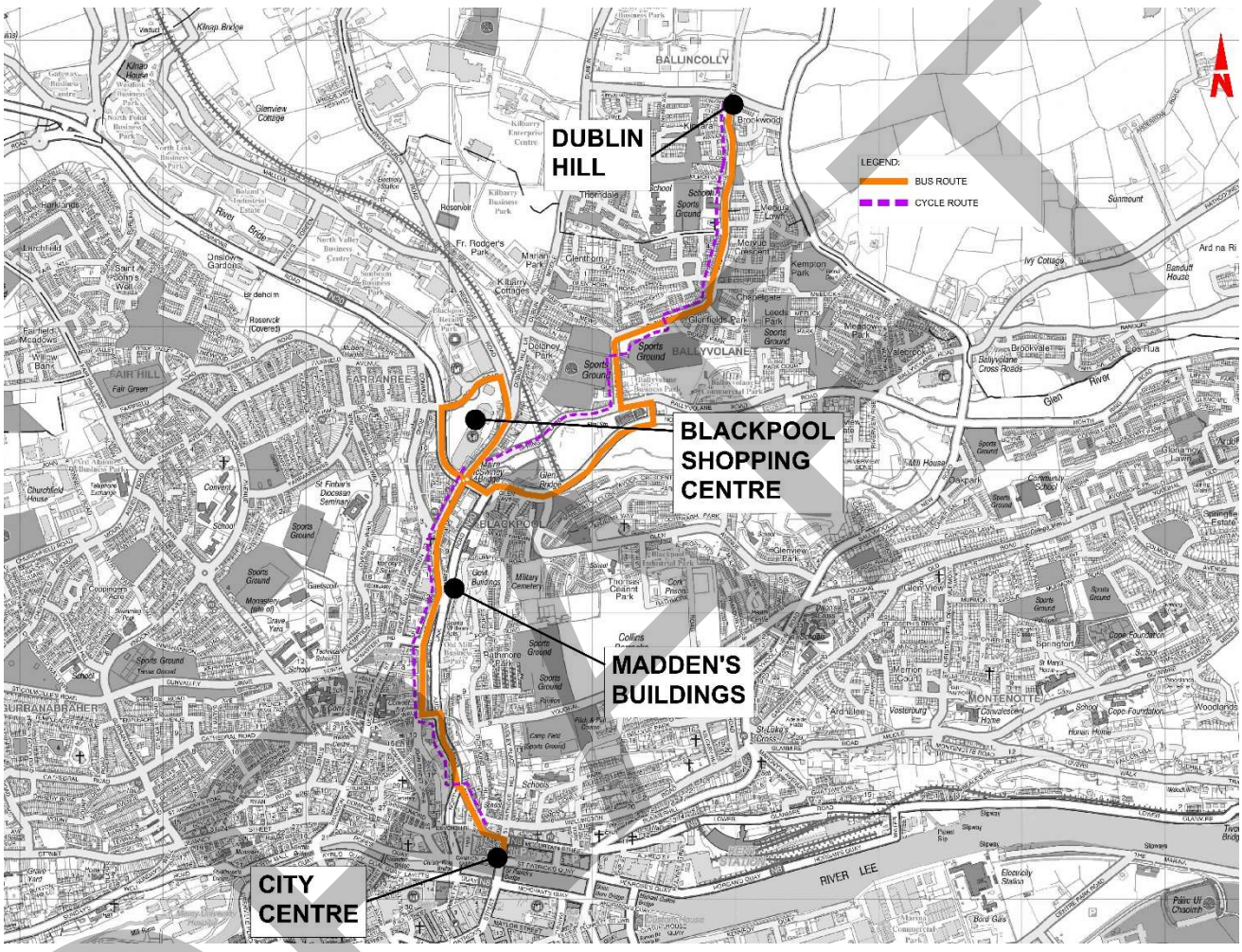
  In accordance with the Department of Transport "Guidelines on a Common Appraisal Framework for Transport Projects", the multi-criteria analysis considered Economy; Integration; Accessibility and Social Inclusion; Safety and Environment. The Physical Activity criterion has not been assessed as a standalone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

  The route options were then ranked in order of best performance against the various criteria to identify the Emerging Preferred Route Option.

Emerging Preferred Route

Based on the outcomes from the assessment process, the Emerging Preferred Route (EPR) has been identified and is presented in Figure ii

Figure ii - North of Dublin Hill to City Centre via Blackpool EPR



The emerging preferred route description below comprises of two sections and commences at the northern end of the City Centre, north of the River Lee, heading towards Blackpool Shopping Centre and finishes in Dublin Hill.

SECTION 1 CITY CENTRE TO MADDEN'S BUILDINGS

Length of Section: 1.1 km

Indicative Cost Estimate (used for comparative purposes): €11.9M

Along the Emerging Preferred Route, there is currently no existing bus lanes and no existing cycle lanes provided within Study Area Section No. 1, except from the MacCurtain Street Public Transport Improvement (PTI) Scheme which is currently under construction.

Overall, the EPR for this section requires the introduction of new public transport and active travel facilities along its length.

The emerging preferred bus route travels along the N20 (i.e. outbound on Devonshire Street but inbound on Leitrim Street), Cathedral Walk, Watercourse Road and Thomas Davis Street towards Blackpool Shopping Centre. Routing buses along Watercourse Road and Thomas Davis Street has a greater catchment in comparison to routing buses along the N20.

The associated cycle route travels along N20, Cathedral Walk. Watercourse Road and Thomas Davis Street towards Blackpool Shopping Centre.

An outbound (towards Dublin Hill) bus lane will be provided along Devonshire Street as part of the completed MacCurtain Street PTI. As part of the subject EPR an outbound bus lane is proposed on the N20 between Devonshire Street Junction and Leitrim Street Junction. This will remove the right turn lanes provided as part of the MacCurtain Street PTI. Two lanes of general traffic in each direction will be retained along this section of the N20

Inbound (towards the city) buses will use Leitrim St. Inbound and outbound cycle facilities will also be provided on Leitrim Street.

On the N20, between the Leitrim Street Junction and Cathedral Walk Junction, inbound and outbound cycle tracks are proposed for the full length of this section of the N20. An outbound bus lane will be provided on approach to the Cathedral Walk Junction and an inbound bus lane on approach to the Leitrim Street Junction. Both existing signalised junctions will be retrofitted to provide signalised priority for buses. Two lanes of general traffic will be retained in each direction along this section of the N20. Land take may be required from the section of off-street parking to the east of the N20

Land take will be required from nearby sheds along the northern verge of Cathedral Walk to facilitate the proposed outbound bus lane, inbound shared general traffic lane and an inbound and outbound cycle track. It is anticipated that the existing bridge structure at the N20 / Cathedral Walk/Park Junction will need to be widened. General traffic turning movements from the N20 to Cathedral Walk will continue to be prohibited as per the existing situation.

The existing cross-sectional width (i.e. building line to building line) of Watercourse Road from the Cathedral Walk Junction to O'Connell Street Junction is very constrained. In order to provide bus priority, an inbound and outbound bus gate (short sections of bus/cycle-only roadway) is proposed at the southern end of Watercourse Road. This will also allow Watercourse Road to be used by cyclists as a quiet streets cycle route, shared with predominately local traffic. Local access will be retained from the north of Watercourse Road at its junction with O'Connell Street. Existing parking arrangements will also be retained.

On Watercourse Road between the O'Connell Street Junction and the Madden's Building Junction the existing cross-sectional width still remains tight ranging between 15 and 17m, therefore it is not

practical to provide continuous inbound and outbound bus lanes and cycle tracks. Consequently, it is proposed to provide an outbound bus lane, which will offer signalised priority to buses and outbound cyclists. This will require the removal of some on street parking. Inbound cyclists will lane share with general traffic throughout this section.

SECTION 2 MADDEN'S BUILDINGS TO DUBLIN HILL

Length of Section: 3.7 km

Indicative Cost Estimate (used for comparative purposes): €19.2M

Along the Emerging Preferred Route, there is currently no existing bus lane and no existing cycle lanes provided within Section 2 of the Study Area.

Overall, the EPR for this section requires an introduction of new public transport and active travel facilities along its length.

From the Madden's Building Junction on Watercourse Road to the Redforge Road/Brothers Delaney Road Junction the existing cross-sectional width still remains tight, therefore it is not practical to provide continuous inbound and outbound bus lanes and cycle tracks. In order to provide bus priority, an inbound bus gate (short sections of bus/cycle-only roadway) is proposed on Thomas Davis Street, south of the Spring Lane Junction. Inbound general traffic will now use Ballincollie Road/North Ring Road or Brothers Delaney Road followed by the N20 or Commons Road to drive into Cork City Centre.

Outbound buses will share a general traffic lane from the Watercourse Road/Madden's Buildings Junction to the Thomas Davis Street/Redforge Road Junction. Bus priority will be provided through Signal Controlled Priority.

An outbound cycle track will continue along Watercourse Road and Thomas Davis Street until its junction with Spring Lane. The existing cyclist/pedestrian access to Blackpool Shopping Centre in the vicinity of the N20 Overbridge will be retained.

Inbound cyclists will have the benefit of the proposed bus gate (i.e. south of Spring Lane) until its junction with Commons Road. Inbound cyclists will share a general traffic lane on Watercourse Road from its junction with Commons Road to Madden's Buildings.

Spring Lane is currently one-way outbound for general traffic from its junction with Dublin Street to its junction with Ballincollie Road. This will be retained with outbound cyclists sharing a general traffic lane to the railway bridge and with an outbound cycle track being provided thereafter. An inbound contra-flow cycle lane will be provided for inbound cyclists. A small section of existing green space land will be acquired to facilitate the provision of on-street parking along Spring Lane.

Inbound and outbound bus lanes will be provided along Brothers Delaney Road, the N20 and the North Ring Road to their junction with Ballyvolane Road (i.e. adjacent to Ballyvolane Fire Station).

The proposed bus route will run along Spring Lane, Ballincollie Road and Glenheights Road. Buses will share with general traffic from the North Ring Road/Ballyvolane Junction to Scoil Oilibhéir. Short sections of bus lane with signalised priority will be provided adjacent to Scoil Oilibhéir. The boundary of Scoil Oilibhéir will need to be slightly set back to allow for this localised bus lane provision.

Inbound and outbound cycle tracks will be provided along Ballincollie Road and Glenheights Road to their junction with Glenthorn Park.

To facilitate this cycle provision some property boundaries, adjacent to Glen Rovers GAA Club, will need to be slightly set back. It is not expected that this setback will be significant and is expected that existing in-curtilage parking will remain. Further north, areas of greenspace will be required to provide the latter cycle facilities.

SCHEME BENEFITS

The Emerging Preferred Route is approximately 4.8 km in total length from Cork City centre to Dublin Hill. Along this EPR, there is currently no existing bus lanes and no existing cycle lanes provided, apart from the ongoing MacCurtain Street PTI works.

This lack of bus lane/priority provision results in varying overall journey time and journey time reliability.

This section of North Cork City is extremely restricted due to narrow streets and steep topography. Therefore, bus priority is provided through a series of measures including bus lanes, bus gates, signalised priority.

Based on the above, a conclusion can be drawn that by improving the provision of bus priority along the proposed route, coupled with the introduction of cashless fares, the risk of turbulence to bus journeys would be significantly reduced. Consequently, allowing buses to move along the route quicker and with more consistent journey times. The extent of these benefits will be confirmed and quantified at the next design stage.

COST ESTIMATE

A cost estimate for the EPR can be found below.

This cost estimate was developed for each route option primarily for comparative purposes, based on elemental rates from similar schemes. Therefore, this is not an absolute cost and should not be relied upon as a detailed estimate. Further cost estimate work is recommended, particularly around areas of risk such as utilities and land acquisition. It is also worth noting the current challenge of rising construction costs and the need to keep this under constant review

Study Area Section (SAS) No. 1 €11.9 M

Study Area Section (SAS) No. 2 €19.2 M

Total of SAS No. 1 & SAS No. 2 €31.1 M

NEXT STAGES OF DESIGN DEVELOPMENT

This report has identified an emerging preferred route for the bus and active travel infrastructure along this Core Bus Corridor for which a concept design has been developed.

Within this CBC, the Cork City Centre to Blackpool Shopping Centre section has the proposed highest frequency of bus service and therefore only this section will be brought forward to Public Consultation at present.

1 BACKGROUND

1 BACKGROUND

1.1 INTRODUCTION

BusConnects is the National Transport Authority's programme to greatly improve bus services in Irish cities. It is a key part of the Government's policy to improve public transport and address climate change across Ireland.

BusConnects Cork is a derivative of the following Government policy strategies:

- The National Development Plan 2021-2030 (NDP);
- The Cork Metropolitan Area Transport Strategy (CMATS) 2040;
- National Sustainable Mobility Policy;
- Connecting Ireland;
- Proposed Cork City Development Plan 2022-2028 (PCCDP); and
- Climate Action Plan 2021.

Relevant extracts from the aforementioned documents are outlined in Chapter 2 of this report and commentary on same provided as necessary.

1.2 PROJECT BRIEF

The National Transport Authority (NTA), the Authority, is seeking to explore route options and develop Draft Preferred Routes for thirteen Core Bus Corridors (CBCs) in the Cork Metropolitan Area. These CBCs form part of the bus network as defined in the Cork Metropolitan Area Transport Strategy (CMATS) published by the NTA in collaboration with Cork City Council, Cork County Council and TII in 2020.

SCHEME 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.

CORRIDORS & PROJECTS

WSP has been commissioned by the NTA to carry out a study to explore route options and develop Draft Preferred Routes for Project A. Project A consists of:

- CBC 2 East of Mayfield to City Centre via Montenotte;
- CBC 3 Ballyvolane to City Centre via Montenotte;
- **CBC 4 North of Dublin Hill to City Centre via Blackpool**; and
- CBC 5 Hollyhill / Apple to City Centre via Shandon Area.

WSP has provided a multi-disciplinary team that has contributed to the stage 1 sifting process and stage 2 multi-criteria analysis as well as development of the Draft Emerging Preferred Option.

This Assessment Report covers the CBC 4 North of Dublin Hill to City Centre via Blackpool route. This route is presented as STC C in the public consultation drawings. The infrastructure corridors were renamed from numbers to letters to avoid confusion with the bus routing naming (the routes that the individual buses follow are labelled using numbers and the infrastructure corridors are labelled using letters).

1.3 REPORT STRUCTURE

The structure of the route option assessment process and associated report are detailed below:

- Chapter 1 – Introduction, background, aims and objectives.
- Chapter 2 – The strategic policy context in relation to CBC 4 is outlined.
- Chapter 3 – The proposed study area is described and key constraints are identified.
- Chapter 4 – The assessment methodology including the stage 1 sifting process and stage 2 multi-criteria analysis.
- Chapter 5 – Sets out the stage 1 route options assessment the sifting stage including the ‘spiders web’ of the network of inks examined.
- Chapter 6 – Sets out the stage 2 route options assessment the multi-criteria analysis including the introduction of study area sections.
- Chapter 7 – The preferred route for the proposed scheme is described, its cost estimate presented and the next steps for the project are outlined in this chapter.

2

TRANSPORT PLANNING AND POLICY CONTEXT

2 TRANSPORT PLANNING AND POLICY CONTEXT

2.1 TRANSPORT CONTEXT

The National Planning Framework (NPF) envisages that Cork will become the fastest-growing city region in Ireland with a projected 50% to 60% increase of its population in the period up to 2040. [CMATS 2020]

The NDP sets out a ten-year investment plan to underpin the National Planning Framework's ten National Strategic Outcomes (NSOs). National Strategic Outcome 4 – Sustainable Mobility and 8 – Transition to a Low- Carbon and Climate Resilient Society commit to implementing BusConnects Cork and the delivery of "…sustainable travel measures, including comprehensive Cycling and Walking Networks for metropolitan areas of Ireland's cities, and expanded Greenways."

The NDP states that "An environmentally sustainable public transport system will enable growth and change, meet the significant increase in travel demand and urban congestion while also contributing to our national policy vision of a low-carbon economy."

Guiding Principle 02 of CMATS is "to prioritise sustainable and active travel and reduce car dependency within the Cork Metropolitan Area."

Bus Éireann figures presented as part of the MacCurtain Street Public Transport Improvement Scheme show that customer journeys increased on average by 13% year on year between 2016 and 2019 inclusive. The scheme's brochure also noted that approx. fifty thousand customer journeys occurred every day in the Cork area in 2019.

The NDP envisages that a significantly enhanced BusConnects service for Cork "will carry around 45 million passengers per annum and 32,000 passengers during the AM morning peak" by 2027 and CMATS recognises that buses will "... provide an increasingly important interchange service between the InterCity, suburban rail and light rail stations and the Park and Ride network."

CMATS outlines an indicative Core Radial Bus Network which would connect external corridors to Cork City Centre whilst pairing cross-city travel demand to maximise the utilisation of the bus service. Dublin Hill is identified as a core trip origin / destination.

CMATS also outlines an indicative Orbital Bus Network which is ''proposed to serve a multiple of key destinations outside the City Centre." Blackpool and the Old Whitechurch Road are identified as a key destination outside the City Centre.

The proposed increase in bus services and vehicle numbers will benefit a significant proportion of Cork's population but will not succeed if bus priority is not implemented in full as buses will be held up in general traffic."

CMATS describes existing bus priority measures through Cork City as "particularly limited" and acknowledges that "… prioritising bus services above general traffic is critical to the delivery of an efficient, frequent and reliable bus system and is a major part of the overall BusConnects programme."

CMATS recognises that the "overprovision of car parking (including the continued use of minimum standards in some cases) is undermining the viability and attractiveness of public transport."

CMATS states that "the focus should be on identification and implementation of bus priority measures through town centres and noted pinch-points. These should be considered in tandem with proposed

public realm projects and/or the realisation of distributor roads to remove through traffic from town centres."

In order to achieve the objective of end-to-end bus priority in each direction, where practicable CMATS acknowledges that "measures including the removal of some on-street car parking and the compulsory purchase of some private land will be required to facilitate bus priority lanes and footpaths to provide access to the bus network itself." Measures such as "bus gates, protected laybys and bus priority at signalised junctions" are also identified in CMATS as means of prioritising bus services above general traffic.

CMATS also advises that in cross-city services through Cork City Centre, a number of guiding principles were applied, of which minimising "…divided services on one-way sections or routes where possible" was one. The existing 203 City Centre – Farranree and 215 Cloghroe – Blarney – City Centre routes are currently split in the inbound and outbound directions between Watercourse Road and Patrick's Street.

"CMATS proposes a limited number of new road-based projects required to facilitate the sustainable movement of people, goods and services, and to complement public transport, walking, cycling and traffic management objectives. … CMATS instead prioritises the provision of reliable and efficient public transport and enhanced walking and cycling routes to minimise the need to travel by car." [CMATS]

Proposed Cork City Development Plan 2022-2028 (PCCDP) states that the City Suburbs is the largest population base (almost two thirds) within the city. The PCCDP advises that "the area remains heavily dependent on private transport, with 63% of residents using their car/van/etc to get to work or education and only 9% using public transport."

The National Sustainable Mobility Policy sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations. 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. It will make it easier for people to choose walking, cycling and use public transport daily instead of having to use a petrol or diesel car.

Connecting Ireland highlights that the transport sector is one of the largest contributors to Ireland's carbon emissions with reliance on the car to get around being the key reason for this. 7 out of every 10 trips undertaken in Ireland is by car, and to make matters worse, half of short trips under 2km in length are made by car. There is a need to change this habitual travel behaviour, leave the car at home more often and commute by alternative means. Without a change in the right direction Ireland will continue to experience traffic congestion on journeys to, from and within our towns and cities and all the associated damaging impacts on our rapidly changing climate.

The Climate Action Plan recognises that expanding sustainable mobility options to provide meaningful alternatives to everyday private car journeys is necessary to reduce transport emissions. The Climate Action Plan commits to delivering an additional 500,000 daily sustainable journeys by 2030 through the implementation of major transport projects such as BusConnects.

BusConnects in Cork (i.e. Core Bus Corridor Infrastructure Works) is specifically referenced as part of the Climate Action Plan Annex of Actions

While the National Investment Framework for Transport in Ireland (NIFTI) 'prioritises investment in decarbonisation and the most environmentally sustainable transport modes. This will include the development of cycle networks throughout the country, the delivery of major new public transport'.

2.2 CYCLING CONTEXT

CMATS advised that while there have been significant improvements in cycling infrastructure primarily within in the City Centre "… the present network is disjointed and of variable quality." The objective of the Cork Cycle Network Plan (CCNP), which formed the basis of the Cycle Network development in CMATS, "… is to provide a clear plan for the future development of the cycling network within the Metropolitan Area to encourage greater use of cycling for trips to work, school, recreation and leisure…" by recommending cycling infrastructure to create "an integrated and coherent cycling network."

Cycling connections in the north of Cork City on the N20 corridor, Watercourse Road, North Ring Road, Dublin Hill Middle and Spring Lane to connect to Blackpool are recommended in the CCNP.

Within the North of Dublin Hill to City Centre via Blackpool (i.e. CBC 4) corridor several routes are identified in the CCNP which are summarised in Table 2.1 below.

Table 2-1 – Route Descriptions (CCNP Section 07)

Route Code	Road Name	Section	Route Category
CCN-U6A	Watercourse Road and Cathedral Walk	North Monastery Road to N20	Secondary
CCN-U8	Watercourse Road and Commons Road	North Monastery Road to Railway Bridge and Commons Road	Secondary
CCN-U8B	Pophams Road, Redforge Road, Dublin Street, Thomas Davis Street	Dublin Street to Watercourse Road	Secondary
CCN-U9	Shandon St, Gerald Griffin St, Great William O'Brien St, Brocklesby St	North Monastery Rd to Commons Rd	Primary
CCN-U10	Cathedral Rd and Wolfe Tone St	Gerald Griffin St to North Monastery Rd	Primary
CCN-U11	Upper John St	Pope's Quay to Cathedral Walk	Secondary
CCN-U12	N20 North City Link Road	Pope's Quay to Assumption Rd and Commons Rd to junction with Lower Kileens Rd	Primary
CCN-U13	Dublin Hill Middle	Railway Bridge to Thorndale Estate	Primary
CCN-U14	North Ring Road	Glen Avenue to Ballyhooly Road	Primary
CCN-U16	Thorndale Estate, Glenthorne Mews and Mervue Lawn	Dublin Hill Middle to Ballyhooly Road	Secondary

Route Code	Road Name	Section	Route Category
CCN-U38	Ballincollie Road/Glenheights Road	Mervue Lawn to Spring Lane	Secondary
CCN-U39	Assumption Road	Glen Avenue to N20	Secondary
CCN-U40	Spring Lane	N20 to North Ring Road	Primary
IU-5	Redforge Road, Malow Road, Old Mallow Road	Blackpool to Monard Development Site	Interurban

Where route categorisation of Primary, Secondary, Feeder or Inter Urban was assigned using the descriptions in Table 2.2 below.

Table 2-2 – Cycle Network Categorisation (CCNP Table 5.1)

Route Category	Description
Primary	Main cycle arteries that cross the urban area and carry most cycle traffic
Secondary	Link between principal cycle routes and zones
Feeder	Cycle routes within local zones and/or connections from zones to the network levels above (i.e. primary and secondary)
Inter Urban	Links the towns and city across rural areas and includes elements of the National Cycle Network
Greenway^	A predominantly traffic free path, designated for use by pedestrians, cyclists and other non-motorised users such as wheelchair users, families with buggies etc.

CCNP Table 5.1 + ^ Sport Ireland

2.3 WALKING CONTEXT

The Cork Walking Strategy 2013-2018 "proposed the development of a walking network that connects neighbourhoods, origins and destinations, increases the permeability of the built environment, and creates an attractive, safe environment…" [CMATS 2020]. CMATS advises that walking provision should be upgraded in tandem with BusConnects corridor improvements.

The Walking Strategy identified Strategic Routes "… where investment in pedestrian infrastructure would deliver most benefits to modal shift." CMATS advises that these Strategic Routes are particularly relevant "… in the context of planned population growth and residential development on Cork's Northside." The Walking Strategy also identified a number of 'Gateways' for pedestrian upgrades of which the North City/Shandon area is included.

Within the North of Dublin Hill to City Centre via Blackpool (i.e. CBC 4) corridor several Strategic Routes, including their purpose and upgrade proposals are identified in the Walking Strategy which are summarised in Table 2.3 below.

Table 2-3 – Walking Network Improvements

Route	Purpose and Upgrade Proposal
Dublin Hill	To support the planned regeneration of Blackpool and opening of the Blackpool / Kilbarry rail station
Pophams Road	Tackling pavement parking and improving access to Blackpool shopping centre and employment;

CMATS Chapter 06 Walking

2.4 PROPOSED SCHEMES

The following planned schemes are within the Study Area for the proposed North of Dublin Hill to City Centre via Blackpool Core Bus Corridor (CBC 4) and have been considered as part of this Assessment:

- MacCurtain Street Public Transport Improvement (PTI) Scheme; and
- Knapp's Square and Lower John's Street Area Pedestrian and Cycle Measures.

3 STUDY AREA

3 STUDY AREA

3.1 INTRODUCTION

Arising from the transport planning and policy documents referenced in Chapter 2, a study area has been identified for CBC4. The study area was taken to include the area between Camden Place in Cork City Centre and Lower Dublin Hill Road to the North of Dublin Hill.

The study area includes the districts of Ballyvolane, Blackpool, Dublin Hill, Fair Hill, Farranree, Shandon and The Glen.

The extent of the Study Area is presented in Figure 3-1 below.

Figure 3-1 - Proposed Scheme Study Area

BCICA-WSP-PDV_EI-00_XX_00-DR-CR-0125

3.2 STUDY AREA

A review of the Cork City Development Plan (CCDP) 2015-2021** (see Figure 3-2 below) indicates that the land use zoning planning objective is predominantly “Residential, Local Services and Institutional” within the district centre of Blackpool and a Neighbourhood Centre along Watercourse Road. The Shandon Area consists of the Inner City Residential and City Centre Commercial Core.

The Shandon Area includes individual buildings of high heritage value and has been classified by Cork City Council as an Architectural Conservation Area.

To the east of the N20 North City Link Road the areas of Richmond Hill and Rathmore have Landscape Preservation Zones and notable areas of public open space / sports grounds include Glentrasna Park, Glen Rover’s GAA and the Glen River Park.

Notable centres for education include Hewitt College, St. Angela’s College, Bruce College, North Presentation Primary School, St. Vincent’s Convent Primary and Secondary Schools, the North Monastery Primary and Secondary Schools, St. Aiden’s Community College and Scoil Oilibhéir.

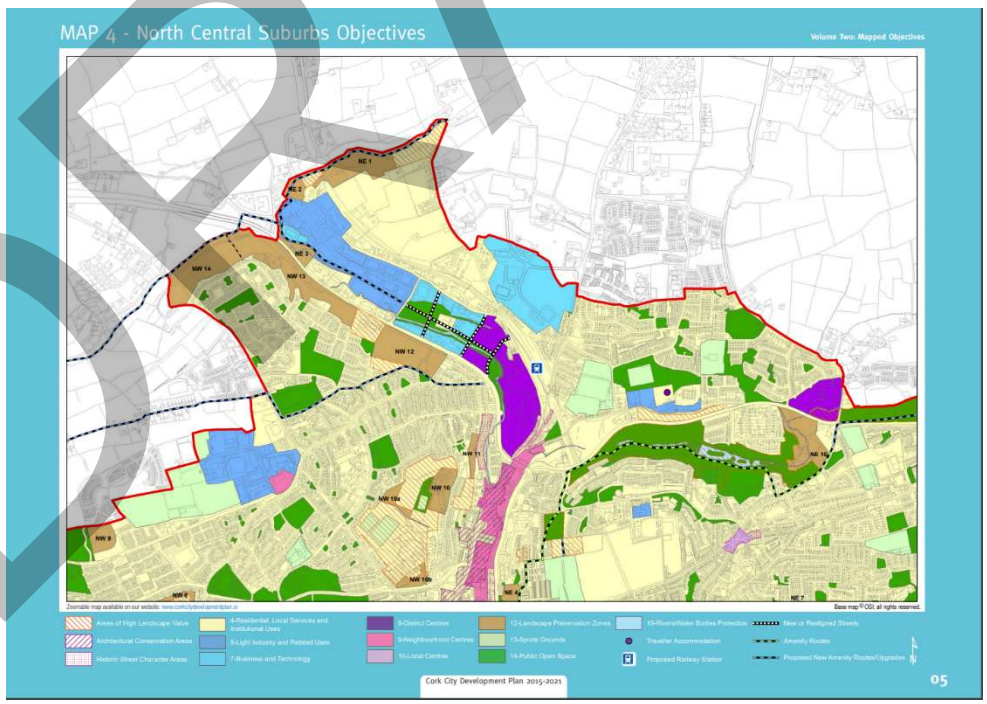
Notable areas for light industry and related use include the Ballyvolane Commercial Park and City North Business Park.

Notable trip attractors include Blackpool Shopping Centre and Retail Park.

The individual route sections identified within the Study Area are illustrated and described in Chapter 6.

** Cork City Council is due to adopt the new Cork City Development Plan 2022-2028 later this year.

Figure 3-2 – CCDP Objectives Mapping



3.3 PHYSICAL CONSTRAINTS

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

- The River Lee Quays;
- The Cork-Dublin Railway Line and associated restricted headroom structures;
- Existing and committed future development along the route, including Architectural Conservation Areas;
- Restricted carriageway cross sections between existing building lines;
- Steep (>10%) natural gradients;
- Architectural, archaeological and heritage sites and features;
- Protected structures adjacent to the route;
- Street trees and other natural features along the route;
- The replacement of on street parking;
- Existing urban and suburban road and street network;
- Limited availability of land in urban and suburban areas; and
- The need to maintain traffic flow for all modes during construction and subsequent operation of the CBC.

4 ASSESSMENT METHODOLOGY

4 ASSESSMENT METHODOLOGY

4.1 ASSESSMENT PROCESS

This section of the report presents the methodology used for the assessment of route options within the subject study area. A two-stage assessment was adopted:

- An initial 'Stage 1' high-level route sections assessment or 'sifting' process which appraised route sections in terms of their ability to achieve scheme objectives as outlined in Paragraph 1.2 and whether they could be practicably delivered; and
- Potential route options which passed this initial stage were taken forward to a more detailed 'Stage 2' Multi Criteria Analysis.

Ye might have this in already but there needs to be a sentence in the draft EPR options report to say that a multi-disciplinary team has been working on the development of the STC's. Also need to say somewhere that the options were assessed by experts/professionals in their various fields

4.2 STAGE 1: SIFTING STAGE

An initial "spider's web" of potential route sections that could possibly accommodate the bus corridor between Cork City Centre and Dublin Hill, via Blackpool was identified for the Study Area. This "spider's web" of route sections consisted of every existing through road and several offline paths in the Study Area. To allow for traffic diversions onto adjacent roads/streets each potential route was split into sections where two or more roads/streets intersect.

A high-level qualitative assessment was then undertaken based on professional engineering judgement and a general appreciation for existing physical conditions and geometrical and environmental / constraints within the study area from available survey information and site visits. This assessment identified route sections that would either not achieve the scheme objectives or would be subject to excessive cost and/or impact to achieve these objectives (e.g. the demolition of consecutive residential properties).

Due to the constrained nature of the study area and the limited number of routes with the potential to achieve all of the scheme objectives the following considerations were also applied:

- Existing bus routes were passed through to Stage 2; and
- Alternative routes suitable for upgrades to cycling and walking facilities only were passed through to Stage 2.

The resulting Study Area corridor "spider's web" of route sections identified is presented in Chapter 5 of this report.

4.3 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) in accordance with the Department of Transport Document "Common Appraisal Framework for Transport Projects and Programmes".

Each route was comparatively assessed against the study objectives using the KPIs and method of measurements identified below. The route options were then ranked in order of best performance against various criteria 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.

Table 4.1 presents a summary of the assessment criteria and sub criteria used as part of the 'Stage 2' Multi Criteria Analysis process.

Table 4-1 – 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	Environmental	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

ECONOMY (1)

Capital Cost (1.a)

The capital cost of a scheme is comprised of 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. For all other sections requiring significant road widening major works have been assumed. Moderate works have been assumed where the existing road corridor will be reconfigured to provide the bus priority measures and 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.

Table 4-2 – Link 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). Minor property boundary reinstatement works (walls, gates, landscaping etc).	€1,500,000
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.

Table 4-3 – Junction Cost Rates

Category	Construction Works	Cost Rate
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). Earthworks (embankment treatments retaining walls, slopes re-grading, etc). Pavement full depth reconstruction. Property boundary reinstatement works (walls, gates, driveways landscaping etc).	€1,400,000

Land Acquisition Costs

The land acquisition costs cover 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 (i.e. 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 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 has been applied to each option.

Average Bus Journey Time (1.b)

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

- Buses travel at an assumed speed unless they are delayed;
- Dwell time of 10-60 secs per stop depending on usage; and
- Delay of 15–120 secs per junction depending on level of priority achievable.

Further delays are anticipated 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.

Bus Journey Time Reliability (1.c)

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. 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)

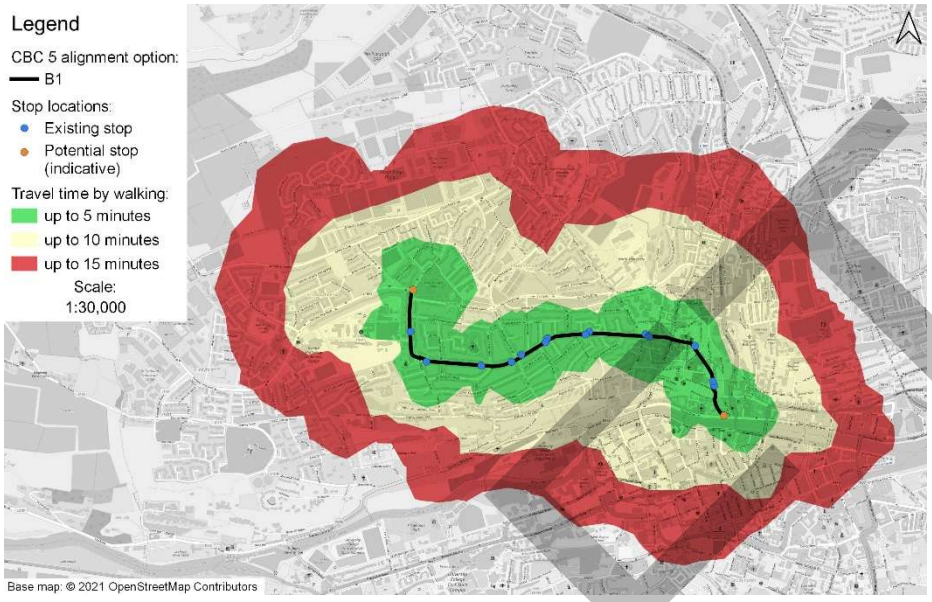
Land Use Integration (2.a)

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.

Residential Population and Employment Catchments (2.b)

The current residential and employment population within a particular walking distance for 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 15min intervals and were estimated based on an average walking speed of 5kph. The population and employment within the isochrones were then calculated based on planning data received from the NTA at CSO small area and work zone levels. 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 Figure 4-1 below.

Figure 4-1 - Sample bus stop catchment with walking isochrones at 5 minute intervals



Transport Network Integration (2.c)

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 emphasis placed on TEN-T routes.

Cyclist Integration (2.d)

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

Pedestrian Integration (2.e)

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

ACCESSIBILITY AND SOCIAL INCLUSION (3)

Key Trip Attractors (3.a)

This assessment criterion identifies key trip attractors located within appropriate walking catchments which would generate significant demand for bus services, that 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 (i.e. primary schools, secondary schools & universities etc.);
Commercial centres (i.e. shopping centres, town centres etc.);
Healthcare (i.e. primary care centres, hospitals etc.);
Leisure (i.e. sport stadiums, theatres, cinemas etc.); and
Employment (i.e. business parks, large office developments etc.).

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 which seeks to improve the lives of the residents in these 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 (4)

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. Differential 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)

Archaeological, Architectural and Cultural Heritage (5.a)

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.

Biodiversity (5.b)

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.

Soils and Geology (5.c)

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.

Water Resources (5.d)

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.

Landscape and Visual (5.e)

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, green spaces or the altering of streetscapes, character and features. Different route options are compared and negative effects considered under this criterion.

- The landscape (and visual) assessment of the route corridor options has had regard to: Land Use Zonings (i.e. amenity, open space, recreation, sport etc.);
- 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.

Noise, Vibration and Air (5.f)

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.

Land Use and the Built Environment (5.g)

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.

ROUTE OPTIONS SUMMARY TABLE

Route 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 4.4 below.

Table 4-4 - MCA comparative advantage/disadvantage colour ranking table

Colour	Description
	Significant advantages over the other options
	Some advantages over the other options
	Neutral compared to other options
	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 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 criterion 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 consideration was given to each criterion and professional engineering judgement was applied to arrive at an emerging preferred option.

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

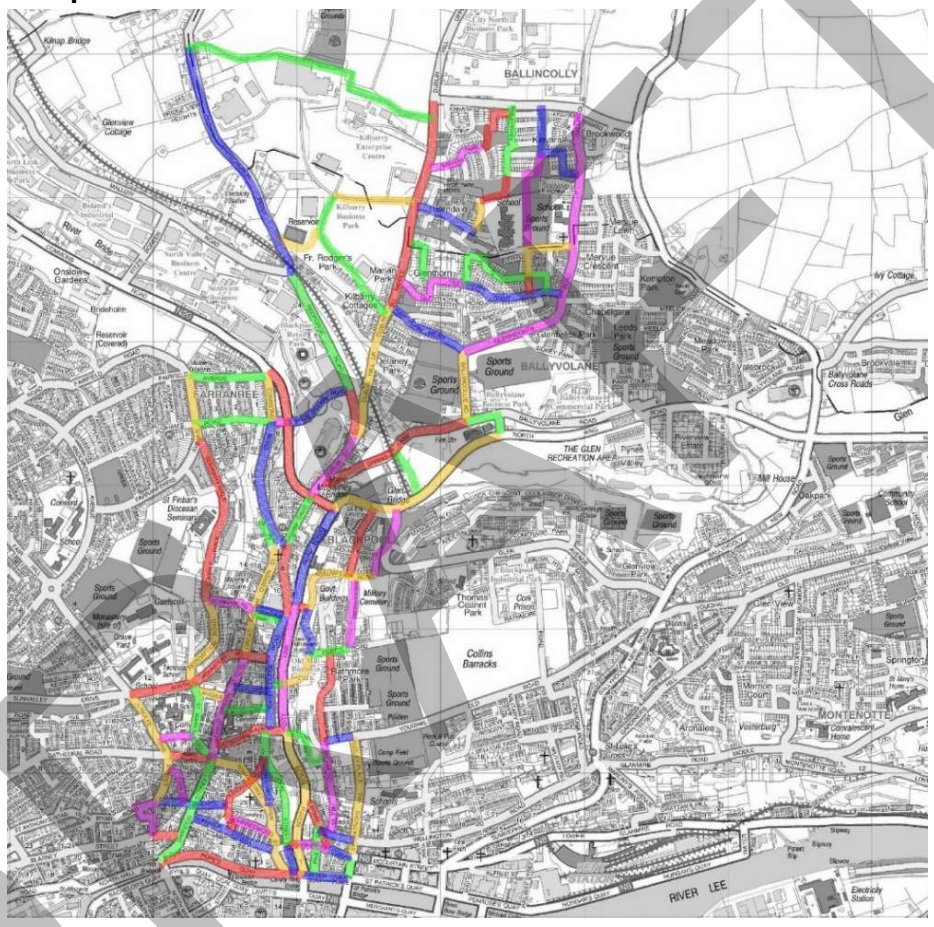
5

STAGE 1: ROUTE OPTIONS ASSESSMENT – SIFTING STAGE

5 STAGE 1: ROUTE OPTIONS ASSESSMENT – SIFTING STAGE

All roads, streets and offline paths within the study area were identified using Ordinance Survey Mapping, Open Source Mapping and Site Visits. A total of 95 no. links make up the initial "Spider's Web", as shown in Figure 5.1. Please refer to Appendix A for a larger image and description of all links.

Figure 5-1 - Initial Spider's Web



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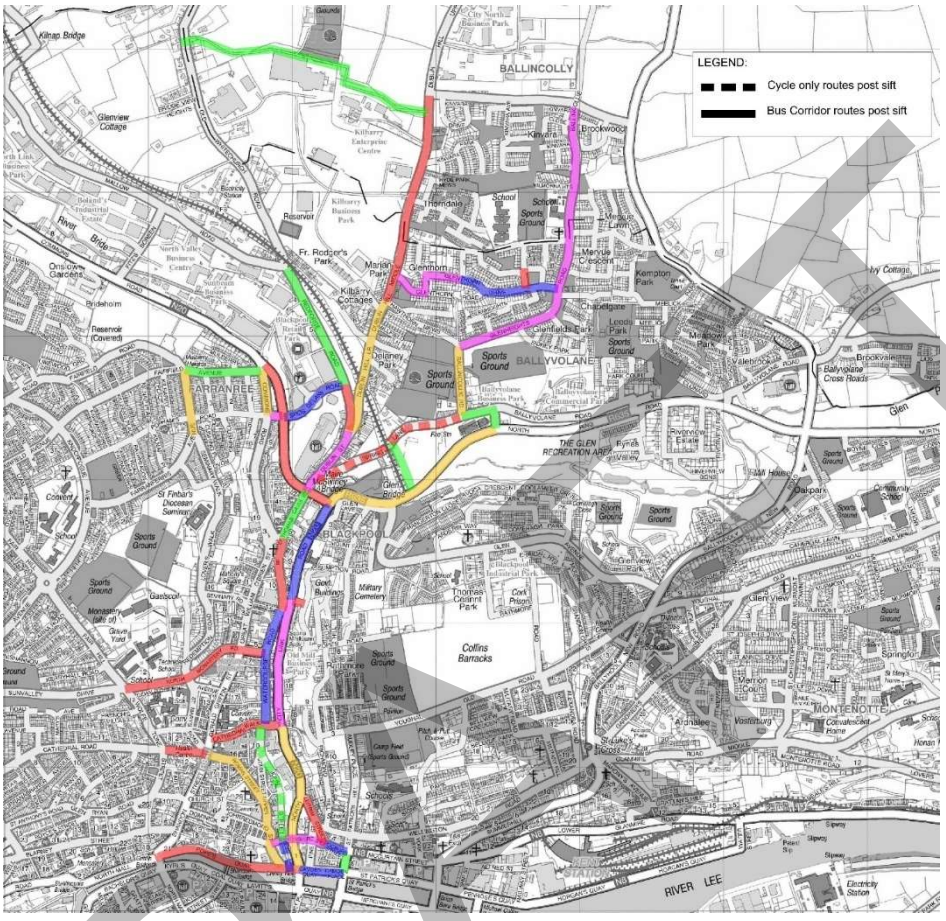
Using the Assessment Methodology outlined in Paragraph 4.2 a total of 56 no. links were identified as being unsuitable in achieving the scheme objectives. A further 3 no. links were identified as unsuitable as a through bus route but were retained as potential "cycle only" or "quiet streets" routes for Stage 2 as they have the potential to provide high quality cycling facilities. Figure 5.2 below shows the 39 no. links (i.e. 36 no. through bus route and 3 no. 'quiet street' cycle only option) which passed the initial sift.

Figure 5-2 - Routes Passing Initial Sift



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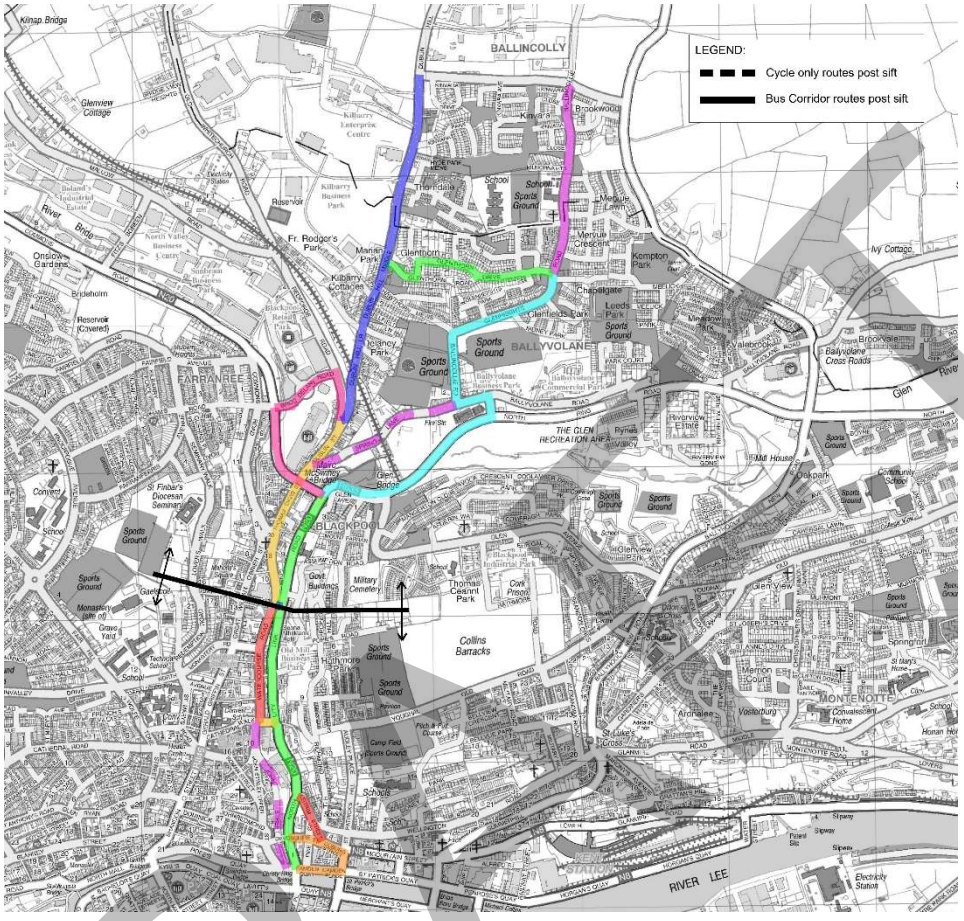
Eleven no. links (i.e. 0004_006,0004_024, 0004_031, 0004_034, 0004_036, 0004_039, 0004_051, 0004_059, 0004_070, 0004_080 and 0004_094) are disconnected and could not form part of a City Centre to Dublin Hill CBC route and therefore have been removed at this stage.

Following the Stage 1 sift and the subsequent removal of disconnected links a total of 28 no. links were identified as suitable to achieve the scheme objectives. These viable links are shown in Figure 5.3 and will be brought forward for Stage 2 Multi Criteria Analysis, please refer to Chapter 6 of this Report.

Figure 5-3 – Route Options Remaining Post Stage 1 Assessment



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Interrogation of the above links brought forward to the Stage 2 Multi Criteria Analysis (MCA) resulted in the junction of Watercourse Road and the N20 at Madden's Building as being the optimum location to split the Study Area for the Stage 2 MCA. This is further described in Chapter 6.

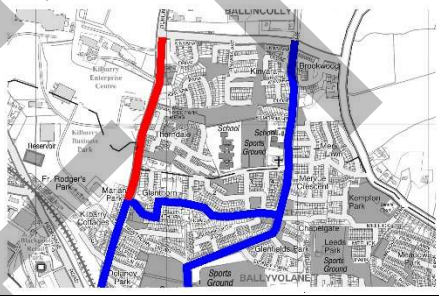
A full summary of the route option link descriptions and Stage 1 Route Options Assessment ("Sifting") results are included in Appendix A.

5.1 PRELIMINARY ROUTE ASSESSMENT

A preliminary route assessment was carried out in order to identify routes that would perform worse than adjacent routes in an MCA analysis. Routes which were identified were then removed prior to commencing the Stage 2 MCA.

A summary of this Preliminary Route Assessment is presented in Table 5.1 below.

Table 5-1 - Preliminary Route Assessment

Road Names	Comments	Map
Upper Dublin Hill, red line link in adjacent image.	There is limited catchment in Upper Dublin Hill when compared to the adjacent routes such as Ballincollie Road and Glenthorn Drive. For this reason, this route will not be carried forward for Stage 2 MCA.	

6

STAGE 2: MULTI CRITERIA ANALYSIS

6 STAGE 2: MULTI CRITERIA ANALYSIS

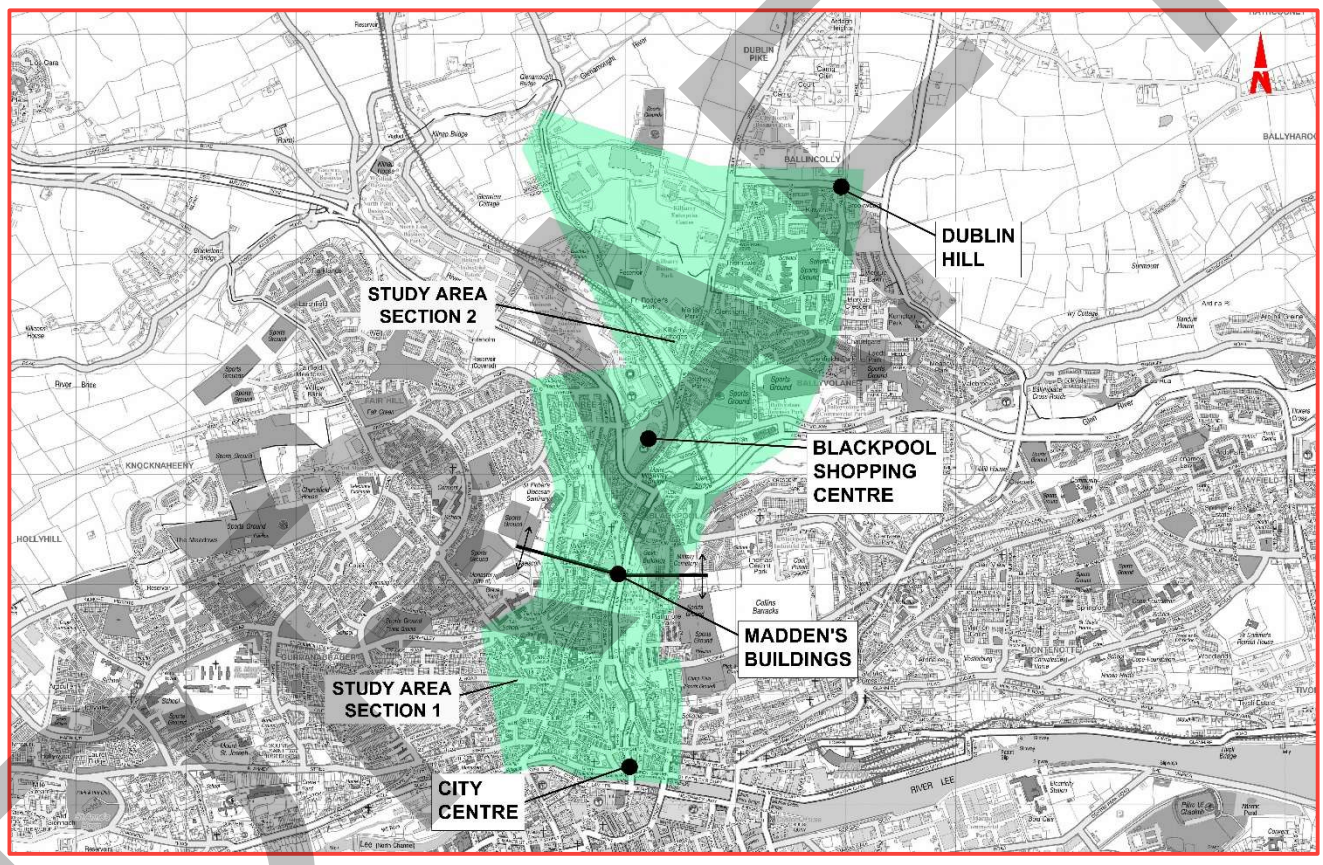
6.1 STUDY AREA SECTIONS

The study area has been divided in two sections as follows to assist with the detailed assessment of the overall study area

Study Area Section (SAS) No. 1 – Cork City Centre to Madden's Buildings; and
Study Area Section (SAS) No. 2 – Madden's Building to Dublin Hill, via Blackpool Shopping Centre.

The extent of each of these study area sections is presented in Figure 6-1 below.

Figure 6-1 - Study Area Sections



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6.2 SECTION 1: CITY CENTRE TO MADDEN'S BUILDINGS OPTIONS ASSESSMENT

Study Area Section No. 1 (SAS 1) consists of all the identified suitable links between Cork City Centre and Madden's Buildings, as identified following the Stage 1 Sifting Process. The remaining suitable links can be consolidated to form different viable public transport and active travel route options which are summarised as follows:

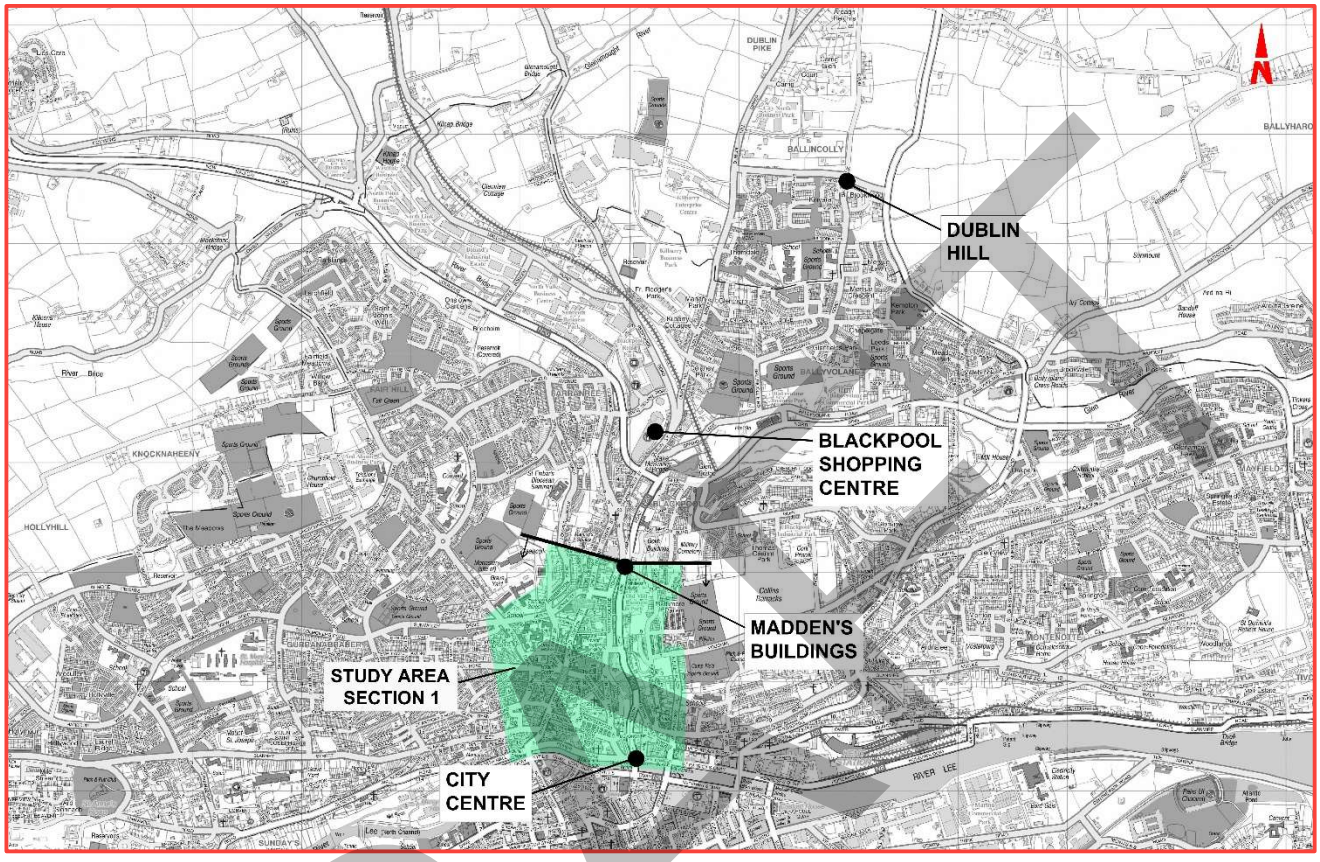
SAS 1

- Option A1, comprising of;
  - A bus and cycle route along the N20 North City Link Road.
- Option A2, comprising of;
  - A bus and cycle route along Bridge Street, Coburg Street, Devonshire Street and/or Leitrim Street, N20 North City Link Road.
- Option A3, comprising of;
  - A bus route along the N20 North City Link Road, Cathedral Walk and Watercourse Road; and
  - A cycle route along the N20 North City Link Road.
- Option A4, comprising of;
  - A bus route along Bridge Street, Coburg Street, Devonshire Street and/or Leitrim Street, N20 North City Link Road, Cathedral Walk and Watercourse Road; and
  - A cycle route along Leitrim Street and the N20 North City Link Road.
- Option A5, comprising of;
  - Option A4 bus route; and
  - A cycle route along Upper John Street and Watercourse Road.
- Option A6, comprising of;
  - Option A4 bus route; and
  - A cycle route along Leitrim Street, N20 North City Link Road, Cathedral Walk and Watercourse Road.

The route options broadly follow two routes for the bus provision: Watercourse Road and the N20. The top performing Watercourse Route Option and the top performing N20 Route Option will be carried forward to an end-to-end MCA in order to select the Emerging Preferred Corridor (see Chapter 6.4)

An overview of each of the route options (i.e. A1 to A6) assessed within SAS No.1 are further described in the subsequent pages.

Figure 6-2 - Study Area Section No. 1



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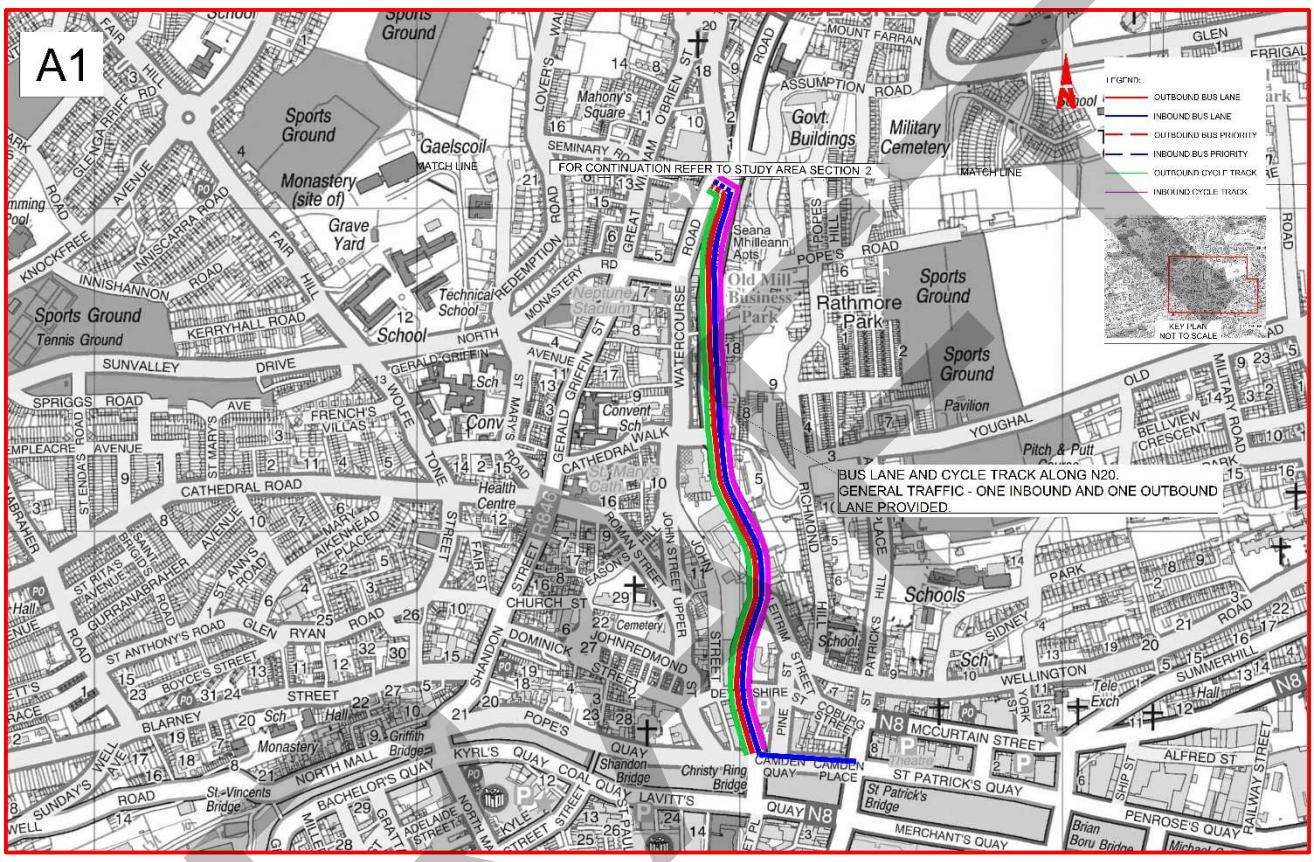
SAS 1 - OPTION A1

An outline of Option A1 is shown in *BCICA-WSP-PDV_EI-04_XX_00-DR-CR-0176* below and is then described in greater detail in the subsequent text.

Figure 6-3 - Option A1 Outline



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Outbound Bus Route

- A dedicated bus lane and a general traffic lane along the N20 from Camden Place to Madden's Buildings.

Inbound Bus Route

- A dedicated bus lane and general traffic lane along the N20 from Madden's Buildings to Camden Place; and
- A dedicated bus lane only along Camden Place.

Cycle Routes

- Provision of an inbound and outbound cycle track along the N20 from Camden Place to Madden's Buildings.

Route Constraints

There are no significant constraints on this route. However, there are a number of designated National Inventory of Architectural Heritage (NIAH) sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

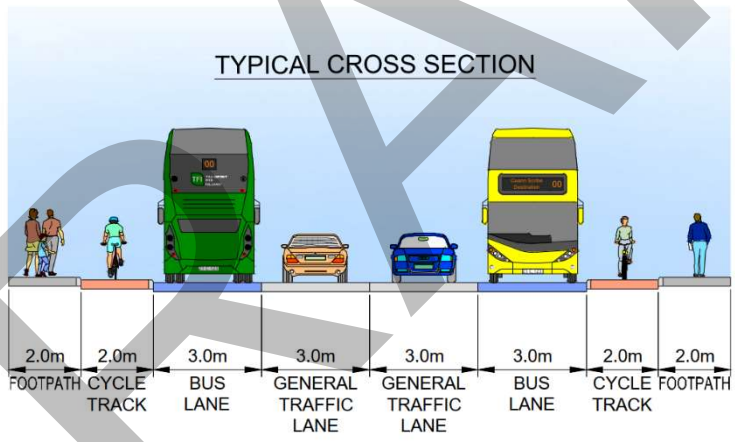
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are no individual bus stops currently along this section and it is estimated that four new bus stops would be required on the route (i.e. two in each direction) assuming a bus stop spacing of approx. 250m.

The journey time for Option A1 from Camden Place to Madden's Buildings is approx. 6-7 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with a footpath on both sides. The proposed interventions under Option A1 would reduce the general traffic capacity on the N20. Figure 6-4 shows a sample cross-section for Option A1.

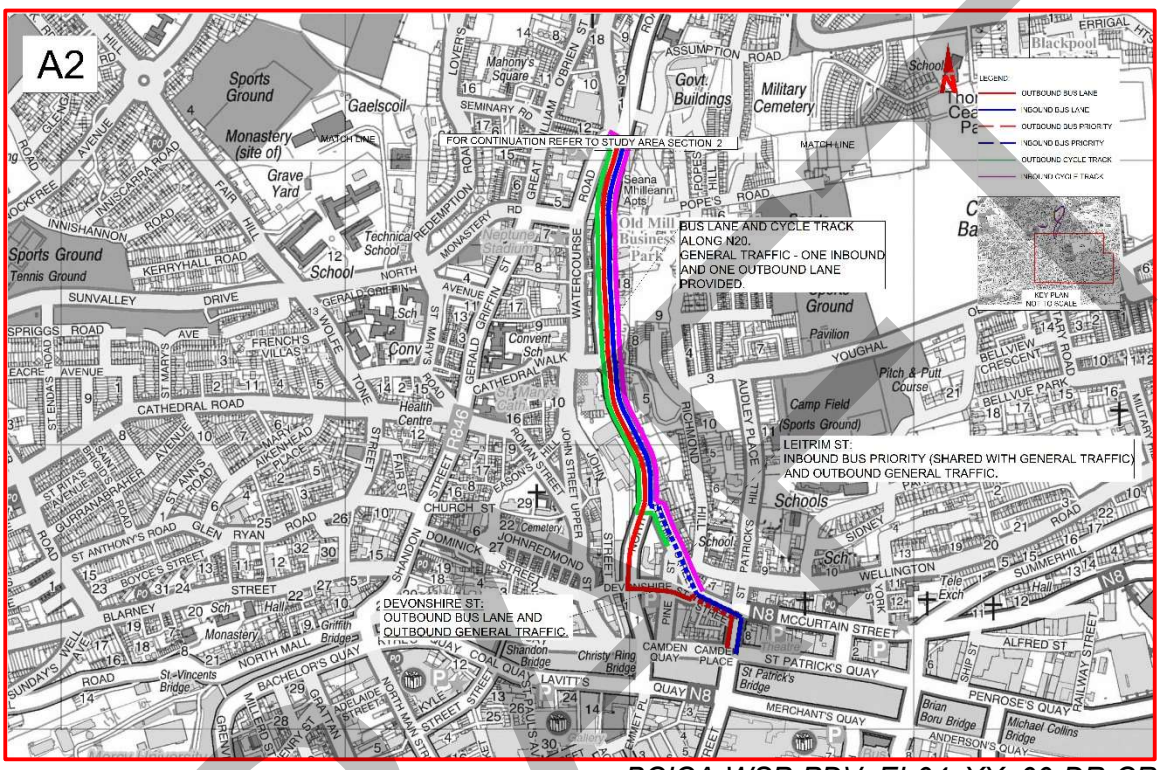
Figure 6-4 – Option A1 Typical Cross Section Along N20



SAS 1 - OPTION A2

An outline of Option A2 is shown in Figure 6-5 below and is then described in greater detail in the subsequent text.

Figure 6-5 - Option A2 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along Bridge Street to Coburg Street;
- A shared bus/general traffic lane along Coburg Street;
- A dedicated bus lane and general traffic lane along Devonshire Street; and
- A dedicated bus lane and general traffic lane along the N20 to Madden's Buildings.

Inbound Bus Route

- A dedicated bus lane and general traffic lane along the N20 from Madden's Buildings to Leitrim Street;
- A shared bus/general traffic lane along Leitrim Street to Coburg Street;
- A dedicated bus lane along Coburg Street and Bridge Street.

Cycle Routes

- Provision of both inbound and outbound cycle tracks along Leitrim Street and the N20.

Route Constraints

The route is constrained with regard to cross-sectional width with the exception of the N20 which results in the separation of bus routes along Leitrim Street and Devonshire Street and a reduced cycle track provision. Within the bus route provision, there is an inability to provide dedicated bus lanes, meaning there are sections of the proposed bus route in both directions shared with general traffic (i.e. outbound on Coburg St and inbound on Leitrim St). As such, the journey time may be increased when there are higher general traffic volumes on the route.

Cycle network integration is also impacted through a disrupted provision on Leitrim Street and an inability to provide a complete provision for the duration of the route. However, the MacCurtain Street PTI Scheme proposes to reduce the speed limit on MacCurtain St, Bridge St and Coburg St to 30kph which will make those streets more appealing to cyclists.

There are several designated National Inventory of Architectural Heritage (NIAH) sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

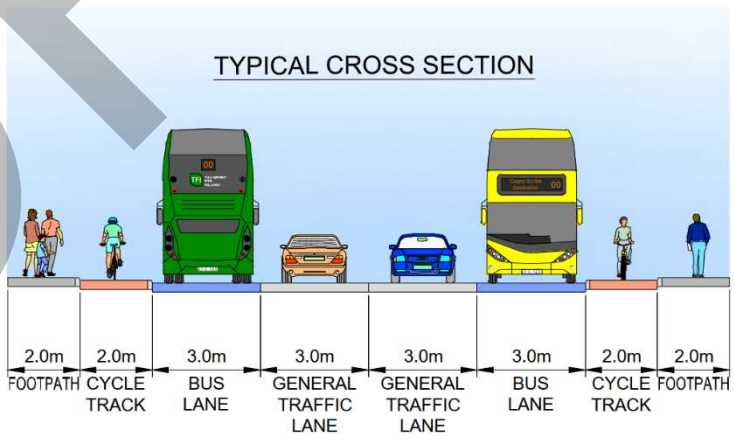
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are no individual bus stops currently along this section and it is estimated that four new bus stops will be required on the route (i.e. two in each direction) assuming a bus stop spacing of approx. 250m.

The journey time for this Option A2 from Camden Place/Bridge St to Madden's Buildings is approx. 6-7 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with a footpath on both sides. The proposed interventions under Option A2 would reduce the general traffic capacity on the N20. Figure 6-6 shows a sample cross-section for Option A2.

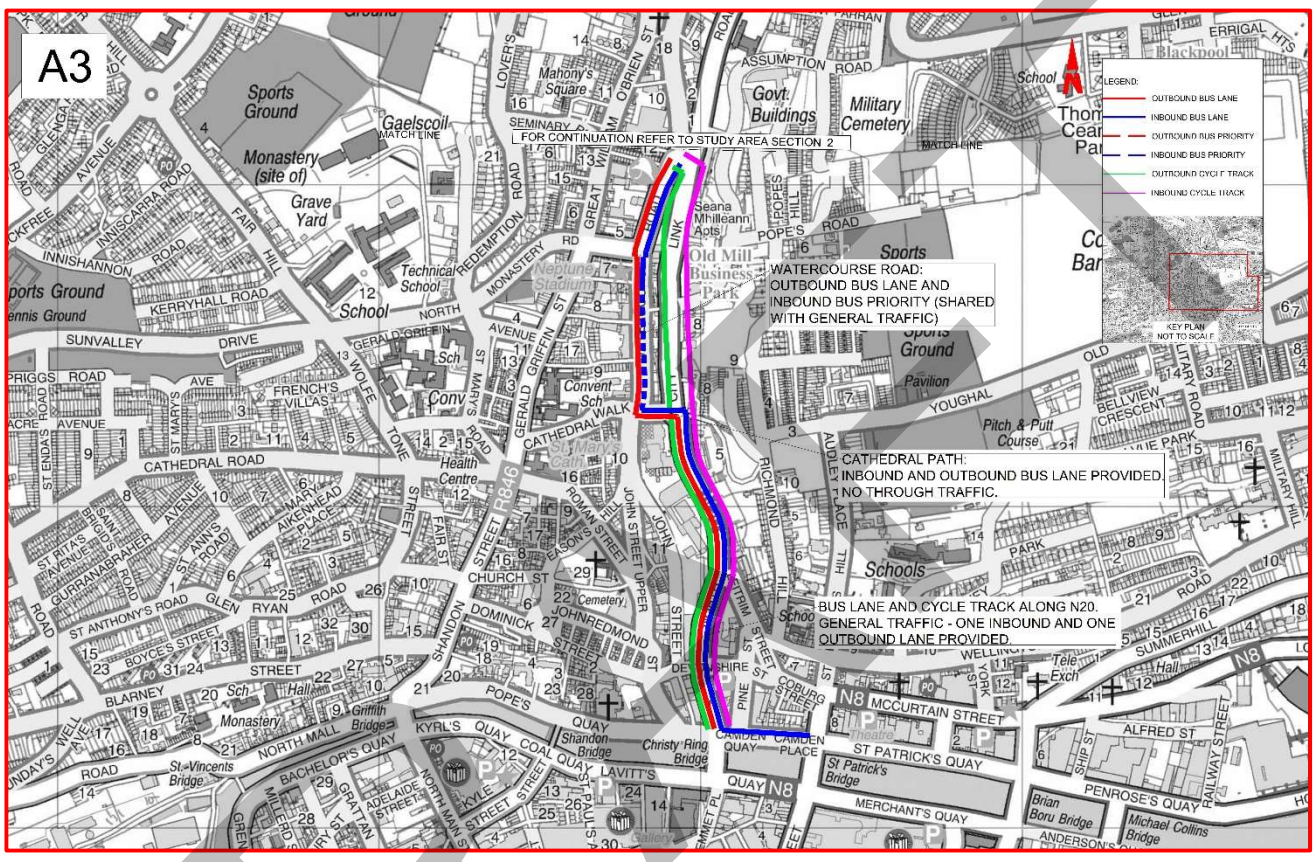
Figure 6-6 - Option A2 Typical Cross Section Along N20



SAS1 - OPTION A3

An outline of Option A3 is shown in Figure 6-7 below and is then described in greater detail in the subsequent text.

Figure 6-7 - Option A3 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along the N20 to Cathedral Walk;
- A dedicated bus lane only along Cathedral Walk; and
- A dedicated bus lane and general traffic lane along Watercourse Road to Madden's Buildings.

Inbound Bus Route

- A dedicated bus lane and general traffic lane along Watercourse Road to its junction with O'Connell Street;
- A shared bus/general traffic lane along Watercourse Road to Cathedral Walk;
- A dedicated bus lane only along Cathedral Walk to the N20;
- A dedicated bus lane and general traffic lane along the N20; and
- A dedicated bus lane only along Camden Place.

Cycle Routes

- Provision of both inbound and outbound cycle tracks along the N20 for duration of the section.

Route Constraints

The route is constrained with regard to cross-sectional width with the exception of the N20 which results in an inability to provide a designated inbound bus lane on Watercourse Road. Therefore potentially negatively impacting inbound journey time as a result of shared bus/general traffic lanes.

There are several designated NIAH sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

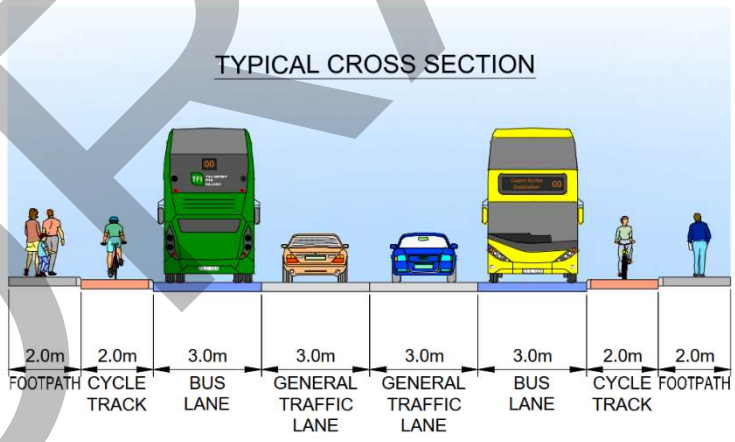
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are four individual bus stops currently along this section on Watercourse Road and it is estimated that two new bus stops will be required on the N20 section of the route (i.e. one in each direction) assuming a bus stop spacing of approx. 250m.

The journey time for Option A3 from Camden Place to Madden's Buildings is approx. 6-7 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with footpaths on both sides. The proposed interventions under Option A3 would reduce the general traffic capacity on the N20.. Figure 6-8 shows a sample cross-section for Option A3.

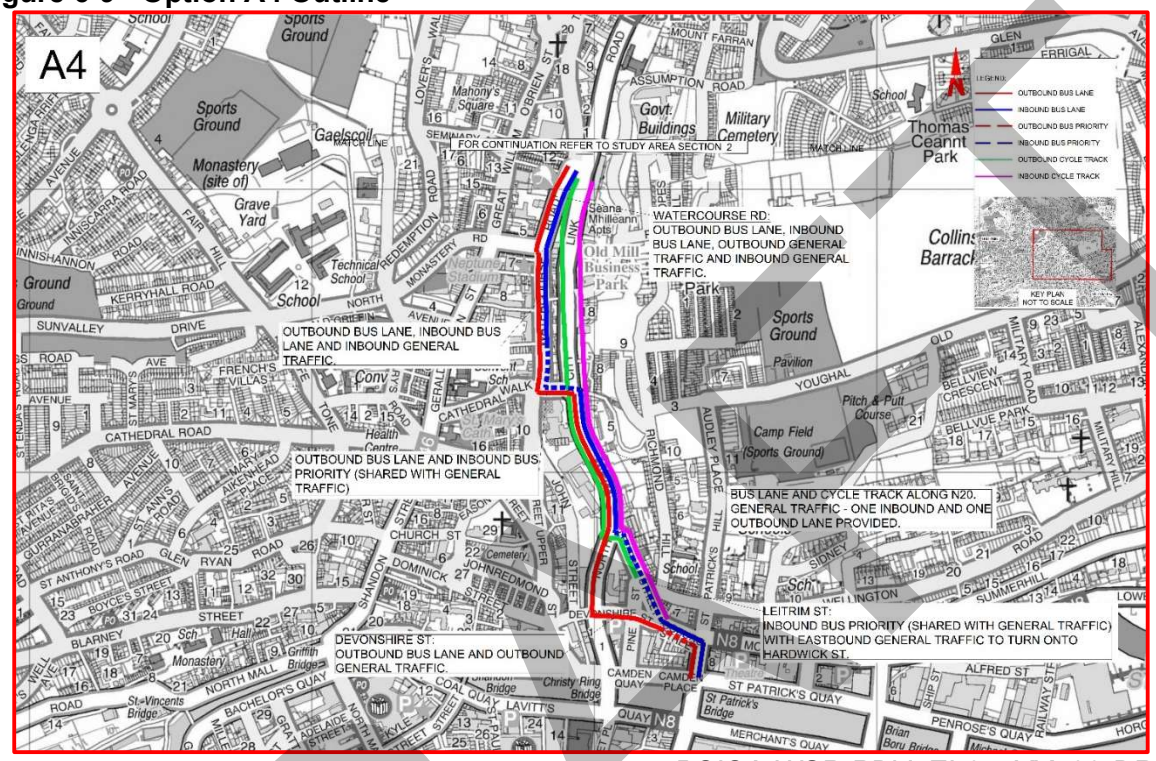
Figure 6-8 – Option A3 Typical Cross Section Along N20



SAS 1 - OPTION A4

An outline of Option A4 is shown in Figure 6-9 below and is then described in greater detail in the subsequent text.

Figure 6-9 - Option A4 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along Bridge Street to Coburg Street;
- A shared bus/general traffic lane along Coburg Street;
- A dedicated bus lane and general traffic lane along Devonshire Street;
- A dedicated bus lane and general traffic lane along the N20 to Cathedral Walk;
- A dedicated bus lane along Cathedral Walk; and
- A dedicated bus lane and general traffic lane along Watercourse Road to Madden's Buildings.

Inbound Bus Route

- A dedicated bus lane and general traffic lane along Watercourse Road to its junction with O'Connell Street;
- A dedicated bus lane along Watercourse Road to Hillgrove Lane;
- A shared bus/general traffic lane along Watercourse Road and Cathedral Walk to the N20;
- A dedicated bus lane and general traffic lane along the N20 to Leitrim Street;
- A shared bus/general traffic lane along Leitrim Street; and
- A dedicated bus lane only along Coburg Street and Bridge Street.

Cycle Routes

- Provision of both inbound and outbound cycle tracks along Leitrim Street and the N20.

Route Constraints

The route is constrained with regard to cross-sectional width with the exception of the N20 which results in the separation of bus routes along Leitrim Street and Devonshire Street and a reduced cycle track provision. Provision of a full dedicated inbound bus lane on Watercourse Road is not feasible and will potentially negatively impact on inbound journey time.

Cycle network integration is also impacted through a disrupted provision on Leitrim Street and an inability to provide a complete provision for the duration of the route. However, the MacCurtain Street PTI Scheme proposes to reduce the speed limit on MacCurtain St, Bridge St and Coburg St to 30kph which will make those street more appealing area to cyclists.

There are several designated National Inventory of Architectural Heritage (NIAH) sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

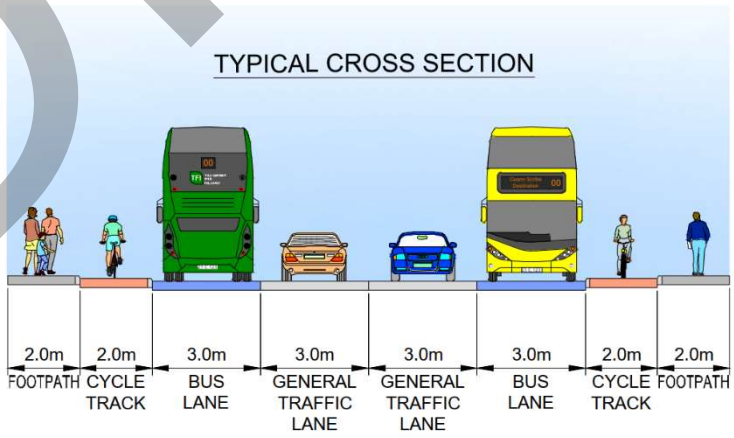
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are four individual bus stops currently along this section on Watercourse Road and it is estimated that four new bus stops will be required between the Bridge Street and Cathedral Walk section of the route (i.e. two in each direction) assuming a bus stop spacing of approx. 250m.

The journey time for this Option A4 from Camden Place to Madden's Buildings is approx. 7-8 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with footpaths on both sides. The proposed interventions under Option A4 will reduce capacity general traffic of the N20. Figure 6-10 shows a sample cross-section for Option A4

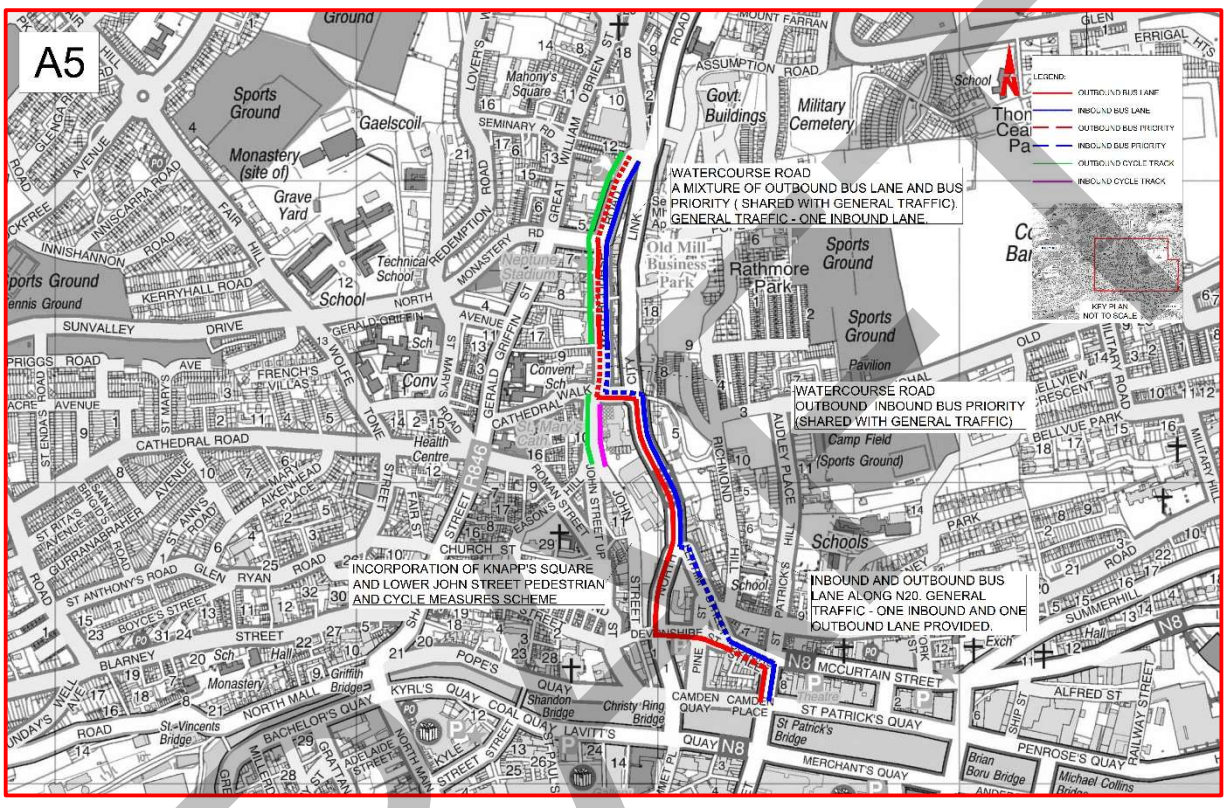
Figure 6-10 - Option A4 Typical Cross Section Along N20



SAS 1 - OPTION A5

An outline of Option A5 is shown in Figure 6-11 below and is then described in greater detail in the subsequent text.

Figure 6-11 - Option A5 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along Bridge Street to Coburg Street;
- A shared bus/general traffic lane along Coburg Street;
- A dedicated bus lane and general traffic lane along Devonshire Street;
- A dedicated bus lane and general traffic lane along the N20 to Cathedral Walk;
- A dedicated bus lane only along Cathedral Walk;
- A shared bus/general traffic lane along Watercourse Road to Hillgrove Lane;
- A dedicated bus lane and general traffic lane along Watercourse Road to Allinetts Lane;
- A shared bus/general traffic lane along Watercourse Road to Bleasby's Street;
- A dedicated bus lane and general traffic lane along Watercourse Road to O'Connell Street; and
- A shared bus/general traffic lane along Watercourse Road to Madden's Buildings.

Inbound Bus Route

- A dedicated bus lane and general traffic lane along Watercourse Road to Hillgrove Lane;

- A shared bus/general traffic lane along Watercourse Road and Cathedral Walk to the N20;
- A dedicated bus lane and general traffic lane along the N20 to Leitrim Street;
- A shared bus/general traffic lane along Leitrim Street; and
- A dedicated bus lane along Coburg Street and Bridge Street.

Cycle Routes

- An outbound cycle track to be provided along Upper John Street and Watercourse Road, with an inbound cycle track to be provided on Upper John Street only.

Route Constraints

The route is constrained with regard to cross-sectional width with the exception of the N20 which results in the separation of bus and cycle routes and an inability to provide a full dedicated inbound bus lane on Watercourse Road, Leitrim Street and Coburg Street and will potentially negatively impact on inbound journey time.

The Knapp's Square proposals are incorporated to this option. However both dedicated bus lane and cycle track provision is intermittent with no inbound lane provided on Watercourse Road. The southern end of the Knapp's Square proposals has the potential to connect with the MacCurtain Street PTI provisions along the Quays.

There are several designated National Inventory of Architectural Heritage (NIAH) sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

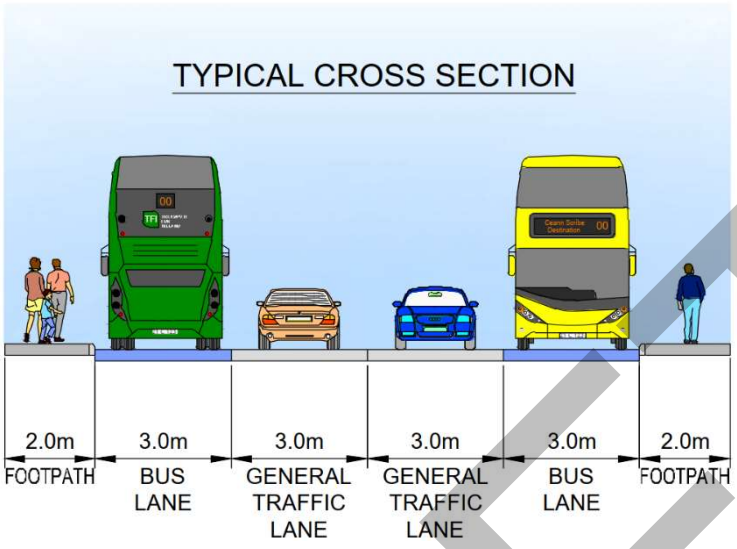
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are four individual bus stops currently along this section on Watercourse Road and it is estimated that four new additional bus stops will be required between the Bridge Street and Cathedral Walk section of the route (i.e. two in each direction) with consideration to be given to the provision of bus stops on Leitrim Street and Devonshire Street assuming a bus stop spacing of approx. 250m.

The journey time for this Option A5 from Camden Place to Madden's Buildings is approx. 7-8 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with footpaths on both sides. The proposed interventions under Option A5 would reduce general traffic capacity of the N20. Figure 6-12 shows a sample cross-section for Option A5.

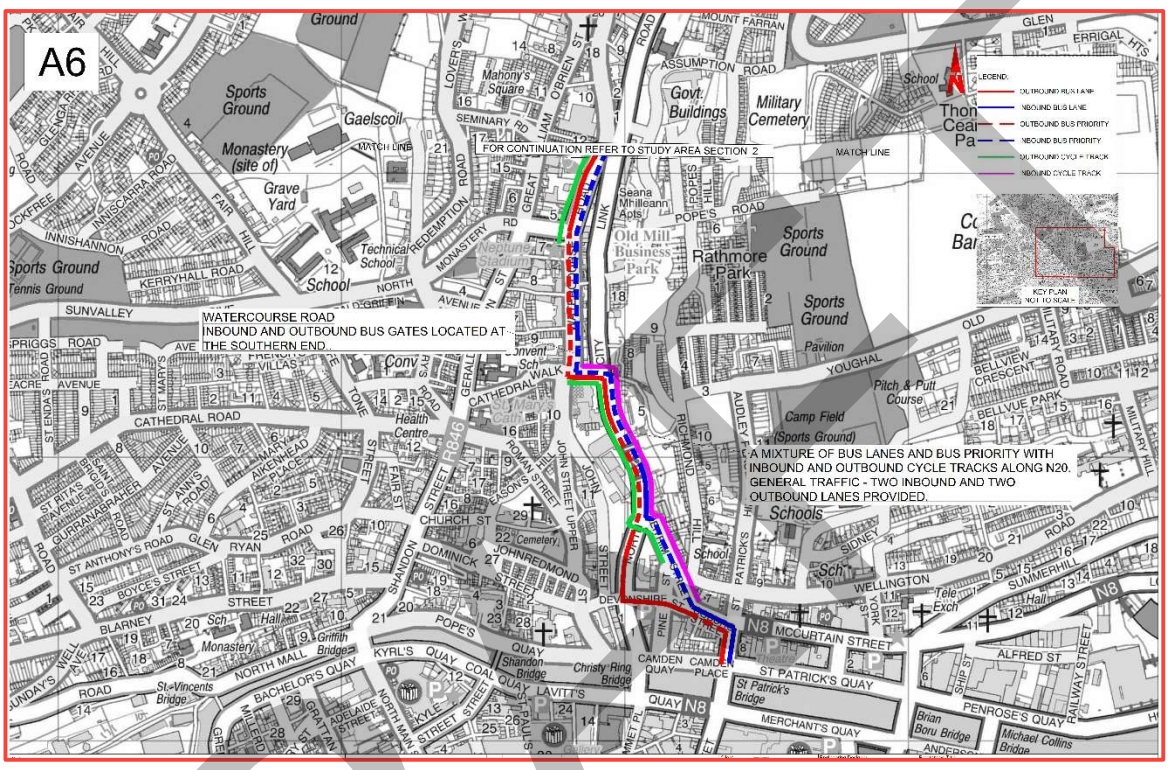
Figure 6-12 - Option A5 Typical Cross Section Along N20



SAS 1 - OPTION A6

An outline of Option A6 is shown in Figure 6-13 below and is then described in greater detail in the subsequent text.

Figure 6-13 - Option A6 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along Bridge Street to Coburg Street;
- A shared bus/general traffic lane along Coburg Street;
- A dedicated bus lane and general traffic lane along Devonshire Street;
- A dedicated bus and general traffic lanes along the N20 to junction with Leitrim Street;
- Two outbound general traffic lanes, one shared with buses, along the N20 from junction with Leitrim Street;
- A dedicated bus lane and general traffic lane along the N20 to Cathedral Walk;
- A bus gate (short sections of bus/cycle-only roadway) on Cathedral Walk and Watercourse Road;
- A shared bus/general traffic lane along Watercourse Road to O'Connell Street; and
- A dedicated bus lane and general traffic lane from junction with O'Connell Street to Madden's Buildings.

Inbound Bus Route

- A shared bus/general traffic lane along Watercourse Road, with bus gate located on southern end of Watercourse Road;
- A shared bus/general traffic lane on Cathedral Walk;
- Two inbound general traffic lanes, one shared with buses, along the N20 from its junction with Cathedral Walk, with a dedicated bus lane on approach to the Leitrim Street Junction;
- A shared bus/general traffic lane along Leitrim Street; and
- A dedicated bus lane only along Coburg Street and Bridge Street.

Cycle Routes

- An outbound cycle track to be provided on Leitrim Street from the Pine Street Junction, also along the N20, Cathedral Walk and along Watercourse Road from the O'Connell Street Junction; and
- An inbound cycle track along Cathedral Walk, the N20 and Leitrim Street.

Route Constraints

The route is constrained with regard to cross-sectional width with the exception of the N20. This proposal has maintained two lanes each way for general traffic along the N20 by only proposing bus lanes on approach to the Leitrim Street and Cathedral Walk junctions.

The proposed bus gates on Watercourse Road will allow local access from the north but through traffic will be displaced to alternative routes, mostly likely the N20.

Cycle network integration is also impacted through a disrupted provision on Leitrim Street and an inability to provide a complete facility for the duration of the route. However, the MacCurtain Street PTI Scheme proposes to reduce the speed limit on MacCurtain St, Bridge St and Coburg St to 30kph which will make those streets more appealing to cyclists.

There are several designated National Inventory of Architectural Heritage (NIAH) sites along the route which need to be considered with regard to the works that can take place in their vicinity. Pre- and post-condition surveys may be required along with vibration monitoring throughout the construction of the scheme.

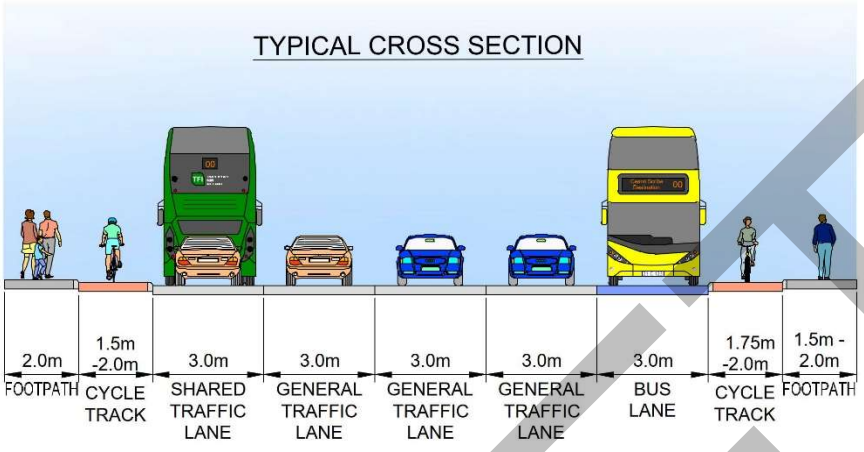
Bus Stops

Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are four individual bus stops currently along this section on Watercourse Road and it is estimated that four new additional stops would be required between the Bridge Street and Cathedral Walk section of the route (i.e. two in each direction) with consideration to be given to providing bus stops on Leitrim Street and Devonshire Street assuming a bus stop spacing of approx. 250m.

The journey time for this option from Camden Place to Madden's Buildings is approx. 7-8 mins over a distance of 1.1 km.

At present the N20 is a dual carriageway with footpaths on both sides. The proposed interventions under Option A6 would maintain general traffic capacity of the N20. Figure 6-14 shows a sample cross-section for Option A6.

Figure 6-14 - Option A6 Typical Cross Section Along N20



SAS 1 STAGE 2 OPTION MULTI CRITERIA ANALYSIS SUMMARY

The Study Area Section (SAS) 1 City Centre to Madden's Buildings Stage 2 MCA summary tables, including justification for the sub-criteria scoring, are included in Appendix B.

The relative ranking of options against the MCA sub-criteria is summarised in Table 6-1 below.

Table 6-1 -– Study Area Section 1 MCA Sub-Criteria Summary

		A1	A2	A3	A4	A5	A6
Economy	1a. Capital Cost						
	1b. Average Journey-time						
	1c. Journey-time reliability & Consistency						
Integration	2a. Land Use Integration						
	2b. Residential Population & Employment Catchments						
	2c. Transport Network Integration						
	2d. Cyclists Integration						
	2e Pedestrian Integration						
Accessibility & Social Inclusion	3a. Key Trip Attractors						
	3b. Deprived Geographic Areas						
Safety	4. Road User Safety						
Environment	5a. Archaeology & Cultural heritage						
	5b. Biodiversity						
	5c. Soils and Geology						
	5d. Water Resources						
	5e. Landscape & Visual						

	5f. Noise, Vibration & Air						
	5g. Land Use & the Built Environment						

ECONOMY

In the approach to assessing Economy, the key elements considered were capital costs and journey time. The direct routes of Options A1 to A3 on the N20 reduce the average journey time and therefore perform better than Options A4, A5 & A6.

Indicative capital costs determined that Option A1 was the least expensive option followed by Option A5 & A6. Options A2 to A4 were the most expensive options.

Therefore, Option A1 would be considered the best performing option under Economy.

INTEGRATION

In the approach to assessing integration, the key elements considered were in relation to population catchments, transport network and pedestrian & cyclists integration.

Land use did not determine significant variation across the options considered.

In terms of residential and employment catchments, Options A1 and A3 perform slightly better in terms of 5 minute residential population. All other walking catchments are the same.

In terms of transport network integration, Option A6 performed best retaining the vehicular lanes on the N20 and integrating with a number of existing bus routes for a significant portion of the route. Option A1 performed poorly having significant impact on the vehicular lanes on the N20.

In terms of cyclist integration, A1 performed best having retained cycle and bus provision on the same alignment.

The main differentiator between route options considered is the transport network integration and catchment assessments. Therefore, Option A6 would be the best performing option under Integration.

ACCESSIBILITY & SOCIAL INCLUSION

In the approach to assessing accessibility and social inclusion, the key elements considered were in relation to proximity to key trip attractors and geographically deprived areas. Option A1 scored lower than the others as it had less trip attractors as a result of being on the N20 for the entire route length.

Geographically deprived areas did not exhibit significant difference across the options considered.

With no significant differentiator between the options considered, A2 to A6 are the most preferable options for consideration under accessibility and social inclusion.

SAFETY

In the approach to assessing safety, the key elements considered were the number of junctions to negotiate.

Options A1 to A3 are preferrable in terms of safety as they have the least number of junctions.

ENVIRONMENT

In the approach to assessing environmental impact, the key elements considered were the impact on archaeology and cultural heritage, water resources, noise and vibration, landscapes & visual and land use & the built environment.

There was no significant difference in regard to biodiversity, soils and geology across all of the proposed options.

In terms of archeologically and cultural heritage Option A1 scores higher due to the fact it is the only route under consideration that does not pass through an ACA. There is no difference between the other routes.

In terms of water resources Option A1 and A2 have potential increase in impermeable areas and score higher than Options A3 to A6 due to historical flood risk potential along Watercourse Road

In terms of landscape and visual Option A1, A2 and A6 score higher due to no appreciable impacts on land take and retention of parking on Watercourse Road (i.e. Option A6) due to the proposed bus gates.

In terms of noise, vibration and air quality Option A1 and A2 are less favourable due to the increased trafficking of the road network.

Option A1 is preferable in terms of environment.

CONCLUSION

Based on the above MCA, Option A1 is the best performing N20 route and Option A6 is the best performing Watercourse Road route. These will be brought forward for the full end-to-end MCA which is further described in Chapter 6.4.

6.3 SECTION 2: MADDEN'S BUILDINGS TO DUBLIN HILL VIA BLACKPOOL SHOPPING CENTRE

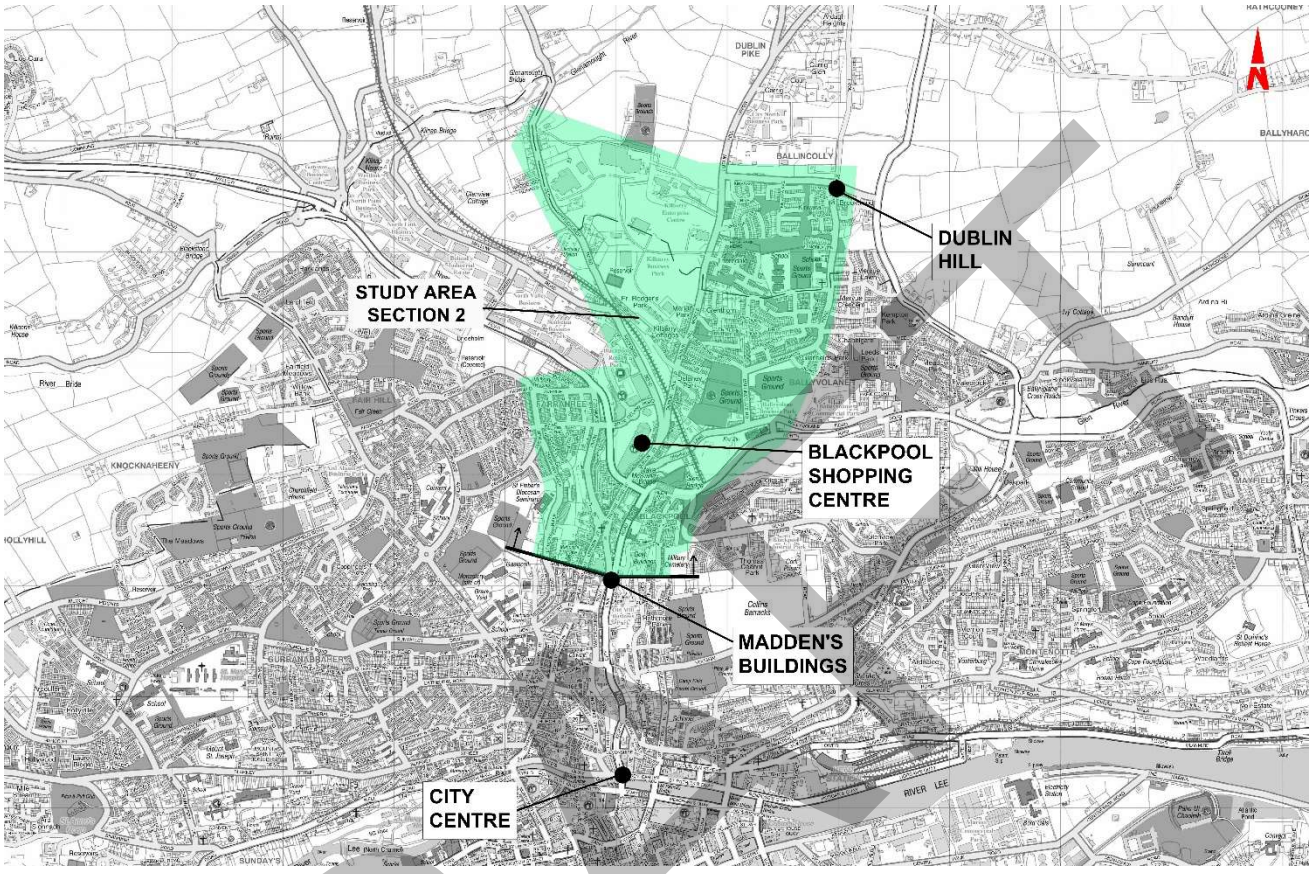
Study Area Section No. 2 (SAS 2) as shown in Figure 6-15 below consists of all the identified suitable links between Madden's Buildings and Dublin Hill via Blackpool Shopping Centre, as identified following the Stage 1 sifting process. The various options consist of routes utilising either:

- Option B1, comprising of;
  - A bus and cycle route via the N20 North City Link Road, N20 Common's Road, R635 North Ring Road, Spring Lane, Ballincollie Road and Glenheights Road; and
- Option B2, comprising of;
  - A bus route via Watercourse Road, Thomas Davies Street, Dublin Street, Dublin Hill Middle; and
  - A cycle route via the N20, North Ring Road, Spring Lane, Ballincollie Road / Glenheights Road.
- Options B3, comprising of;
  - A bus route via the N20, Common's Road, Brothers Delaney Road, Redforge Road, Dublin Hill, Glenthorn Road, Glenthorn Avenue, Glenthorn Drive, Glenthorn Mews, Glenheights Park to Ballincollie Road; and
  - A cycle route via the N20, North Ring Road, Spring Lane, Ballincollie Road/Glenheights Road and via the N20 and Brothers Delany Road to Blackpool Shopping Centre.
- Option B4, comprising of;
  - Option B2 bus route; and
  - A cycle route via Watercourse Road, Thomas Davis Street, Spring Lane and Ballincollie Road / Glenheights Road

The route options broadly follow two routes for the bus provision: Watercourse Road/Thomas Davis Street and the N20. The top performing Watercourse Road/Thomas Davis Street Route Option and the top performing N20 Route Option will be carried forward to an end-to-end MCA in order to select the Emerging Preferred Corridor (see Chapter 6.4).

An overview of each of the aforementioned route options (i.e. B1 to B4) assessed within SAS No. 2 are further described in the subsequent pages.

Figure 6-15 - Study Area Section 2



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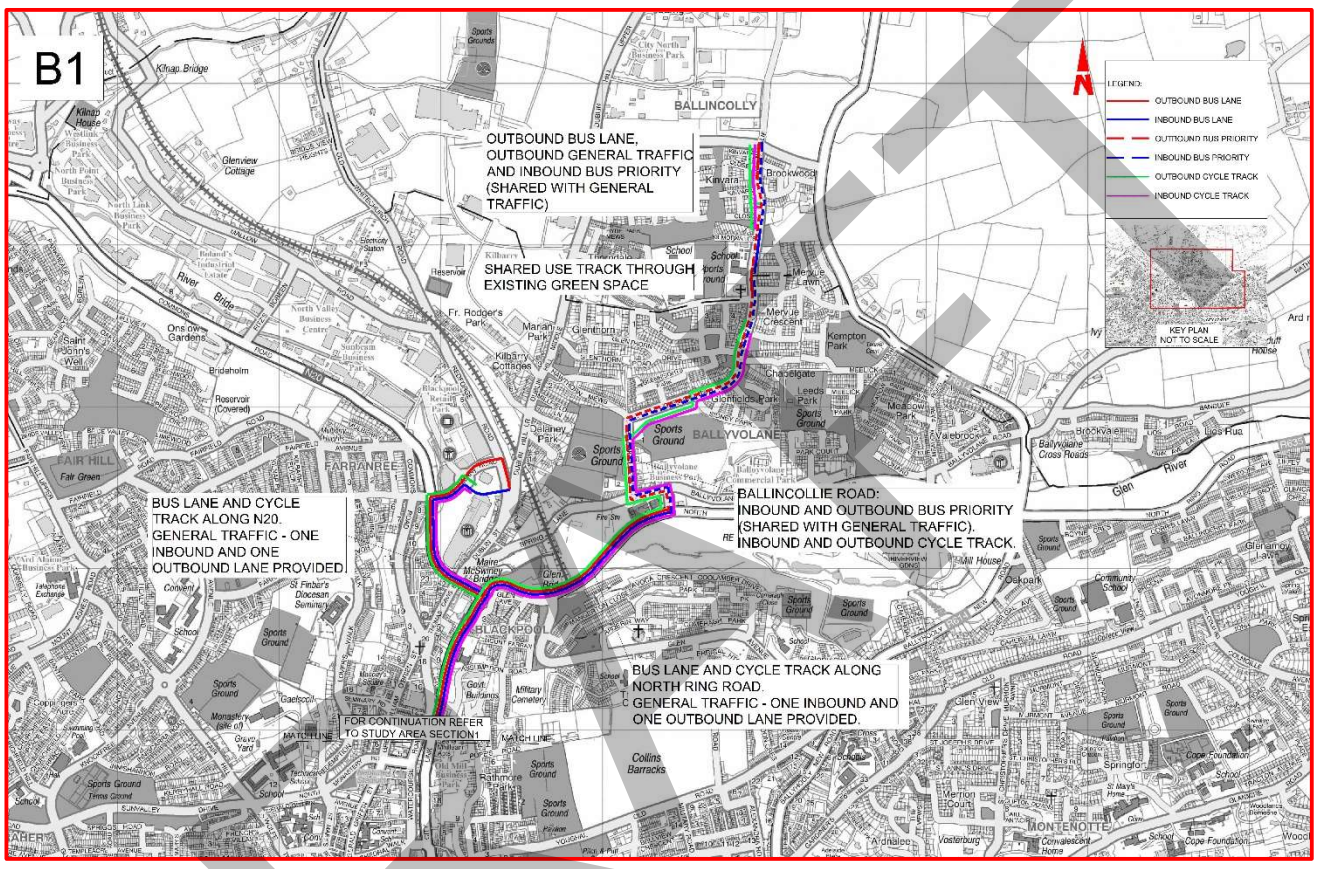
SAS 2 - OPTION B1

An outline of Option B1 is shown in Figure 6-16 below and is then described in greater detail in the subsequent text.

Figure 6-16 - Option B1 Outline



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Outbound Bus Route

- Dedicated bus and general traffic lanes along N20 from Madden's Buildings to junction with North Ring Road;
- Dedicated bus and general traffic lanes along N20 / Commons Road and Brothers Delany Road to Blackpool Shopping Centre;
- Dedicated bus and general traffic lanes along North Ring Road to junction with Ballyvolane Road / Spring Lane;
- Shared bus / general traffic lane along Spring Lane along Ballincollie Road/ Glenheights Road to Glenheights Park;
- Dedicated bus and general traffic lanes along Ballincollie Road at St. Oliver's Church;
- Shared bus / general traffic lane along Ballincollie Road to Kinvara Close; and
- Dedicated bus and general traffic lanes along Ballincollie Road from junction with Kinvara Close to terminus.

Inbound Bus Route

- Shared bus / general traffic lane along Ballincollie Road from Dublin Hill Lower to Scoil Oilibhéir;
- Dedicated bus and general traffic lanes along Scoil Oilibhéir to St. Oliver's Church;
- Shared bus and general traffic lanes along Ballincollie Road/ Glenheights Road and Ballyvolane Road / Spring Lane;
- Dedicated bus and general traffic lanes along North Ring Road and N20 to Blackpool Shopping Centre; and
- Dedicated bus and general traffic lanes along Dublin Street, Brothers Delany Road, Commons Road and N20 to Madden's Buildings.

Cycle Routes

- Provision of cycle tracks along N20 and North Ring Road;
- Provision of cycle tracks along N20 / Commons Road and Brothers Delany Road to Blackpool Shopping Centre;
- Provision of cycle tracks along Ballyvolane Road / Spring Lane, Ballincollie Road / Glenheights Road to Glen Rovers GAA Club;
- Provision of off-road cycle tracks along Glen Rovers GAA pitch (east of Ballincollie Road) to merge with road at junction with Glenfields Avenue;
- Provision of cycle tracks along Ballincollie Road to junction at Mervue Crescent where cycle tracks join main carriageway; and
- Provision of cycle tracks along Ballincollie Road from Kinvara Close to Dublin Hill.

Route Constraints

The route is constrained from the junction with Ballyvolane Road / Spring Lane to Dublin Hill due to unavailable cross-sectional width, built environment on both sides of the road and on-street residential parking. As such, a provision of shared bus and general traffic lanes is provided, thus impacting journey time.

Cycle infrastructure is negatively impact through the inability to provide a complete route to Dublin Hill. There are also significant gradients for users to negotiate travelling outbound towards Dublin Hill.

Bus Stops

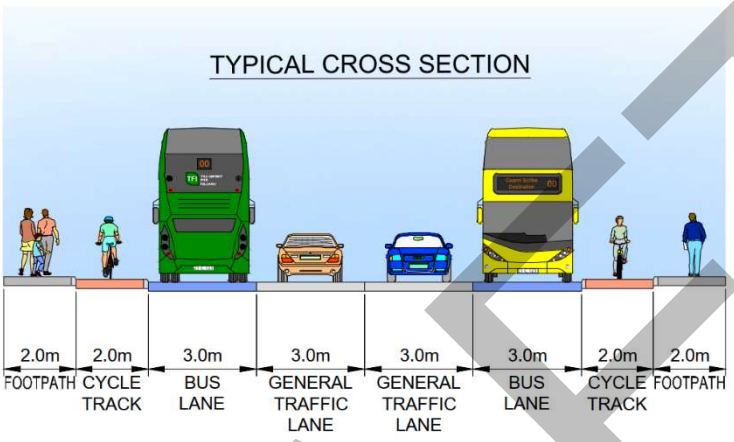
Existing bus stops and shelters will be refreshed as part of the BusConnects Cork programme. There are four individual bus stops currently along this section.

New bus stops and shelters will also be provided as part of the BusConnects Cork programme. As the majority of the section is not currently a public bus route it is assumed that 14 (12 further stops) individual bus stops will be provided along this section in each direction assuming stops every 250m indicatively.

The journey time for this option from Madden's Buildings to Dublin is 21-22 mins over a distance of 4 km.

At present the N20 and North Ring Road are typically dual carriageway. The proposed intervention under B1 would reduce capacity on the N20 and North Ring Road for general traffic. Figure 6-17 shows a sample cross-section for Option B1

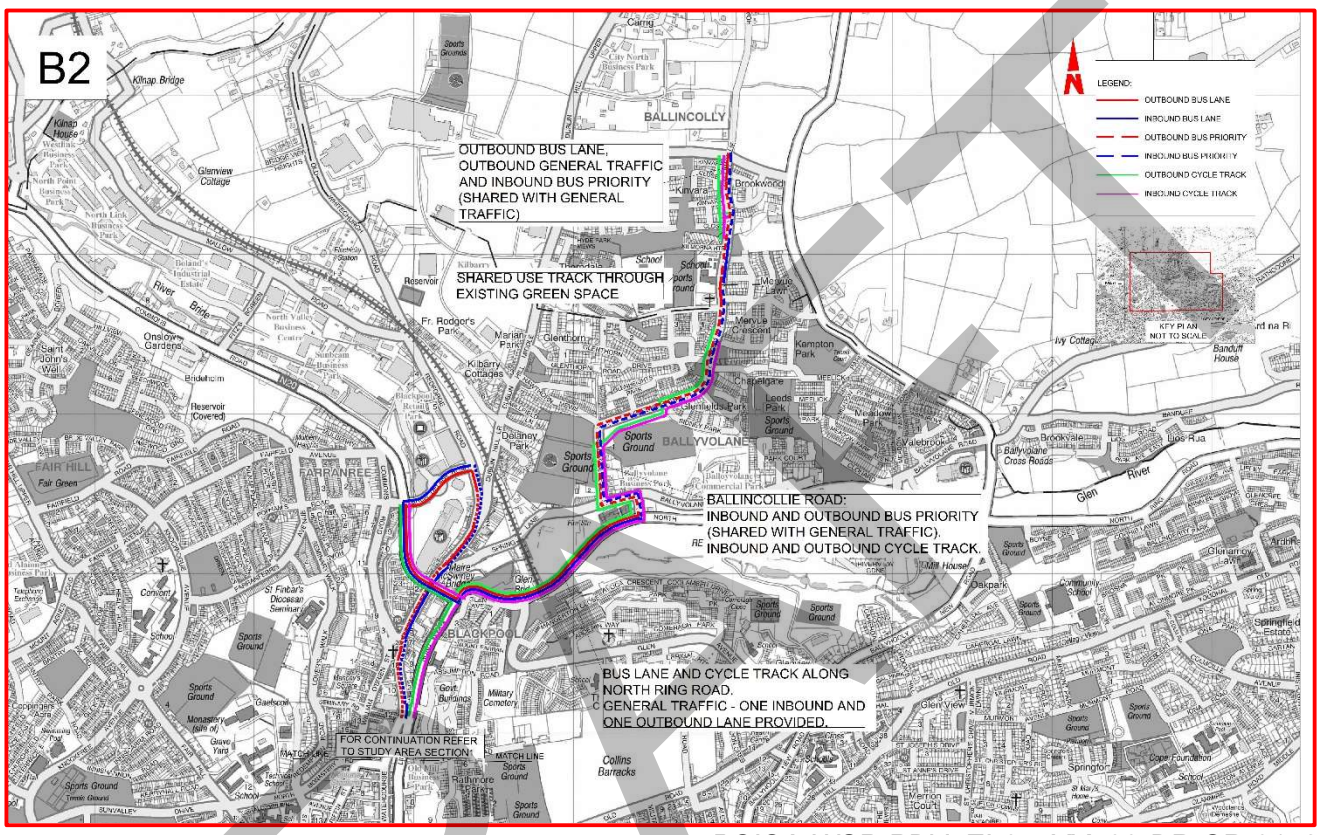
Figure 6-17 Option B1 Typical Cross Section Along North Ring Road



SAS 2 - OPTION B2

An outline of Option B2 is shown in Figure 6-18 below and is then described in greater detail in the subsequent text.

Figure 6-18 - Option B2 Outline



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Outbound Bus Route

- A shared bus/general traffic lane along Watercourse Road to its junction with Corkeran's Quay;
- A dedicated bus lane and general traffic lane along Watercourse Road from Corkeran's Quay to the Commons Road Junction;
- A shared bus/general traffic lane along Thomas Davis Street to its junction with Spring Lane;
- A dedicated bus lane only along Dublin Street to its junction with Dublin Hill Lower;
- A shared bus/general traffic lane along Redforge Road to the Blackpool Shopping Centre entrance;
- A dedicated bus lane from Blackpool Shopping Centre entrance along Redforge Road, Brothers Delaney Road and the N20 to the North Ring Road Junction;
- A dedicated bus lane and general traffic lane along the North Ring Road from the N20 to the Ballyvolane Road/Spring Lane Junction;
- A shared bus/general traffic lane along Spring Lane/Ballyvolane Road, Ballincollie Road/Glenheights Road to the Glenheights Park Junction;
- A dedicated bus lane and general traffic lane along Ballincollie Road at Scoil Oilibhéir;

- A shared bus/general traffic lane along Ballincollie Road to the Kinvara Close Junction.
- A dedicated bus lane and general traffic lane from Kinvara Close to its terminus at Dublin Hill Lower.

Inbound Bus Route

- A shared bus/general traffic lane along Ballincollie Road from Dublin Hill Lower to Kilmorna Heights;
- A dedicated bus lane and general traffic lane from Kilmorna Heights to Scoil Oilibhéir;
- A shared bus/general traffic lane along Ballincollie Road from Scoil Oilibhéir continuing to Glenheights Road and Spring Lane to the North Ring Road Junction;
- A dedicated bus lane and general traffic lane along the North Ring Road and the N20 to the Redforge Road Junction;
- A shared bus/general traffic lane along Redforge Road and Dublin Street to the Spring Lane Junction;
- A dedicated bus lane only along Dublin Street and Thomas Davis Street from its junction with Spring Lane to the Commons Road Junction; and
- A shared bus/general traffic lane along Watercourse Road from its junction with Commons Road to north of Madden's Buildings.
- A dedicated bus lane approach to the Madden's Buildings junction.

Cycle Routes

- Provision of both inbound and outbound cycle tracks along the N20 and the North Ring Road;
- Provision of both inbound and outbound cycle tracks along Ballyvolane Road / Spring Lane, Ballincollie Road / Glenheights Road to Glen Rovers GAA Club;
- Provision of both inbound and outbound off-road cycle tracks along Glen Rovers GAA pitch (i.e. east of Ballincollie Road) to merge with the carriageway at the Glenfields Avenue Junction;
- Provision of both inbound and outbound cycle tracks along Ballincollie Road to the Mervue Crescent Junction where both cycle tracks join the main carriageway; and
- Provision of both inbound and outbound off-road cycle tracks from Kinvara Close to the route terminus at Dublin Hill Lower.

Route Constraints

The route is constrained from the Ballyvolane Road/Spring Lane Junction to the Dublin Hill Junction due to unavailable cross-sectional width, built environment on both sides of the road and on-street residential parking. Consequently, shared bus/general traffic lanes is provided, thus impacting on journey time.

Proposed cycle infrastructure is negatively impacted through the inability to provide a complete route to Dublin Hill. There are also significant gradients for users to negotiate travelling outbound towards Dublin Hill.

Bus Stops

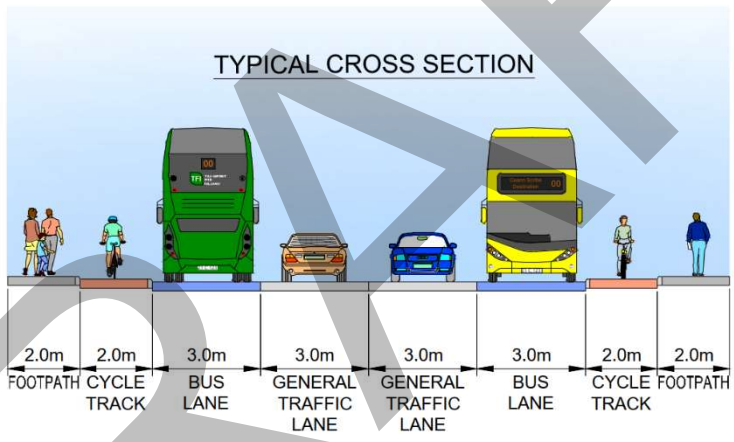
Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are two individual bus stops currently along this section.

New bus stops and shelters will also be provided as part of the BusConnects Cork programme. As the majority of the section is not currently a public bus route it is assumed that twelve new individual bus stops will be provided along this section in each direction assuming a bus stop spacing of approx. 250m.

The journey time for this Option B2 from Madden's Buildings to Dublin Hill Lower is approx. 19-20 minutes over a distance of 3.7 km.

At present the N20 and the North Ring Road have typically dual carriageway cross sections. The proposed interventions under Option B2 will reduce general traffic capacity on the N20 and the North Ring Road. Figure 6-19 shows a sample cross-section for Option B2.

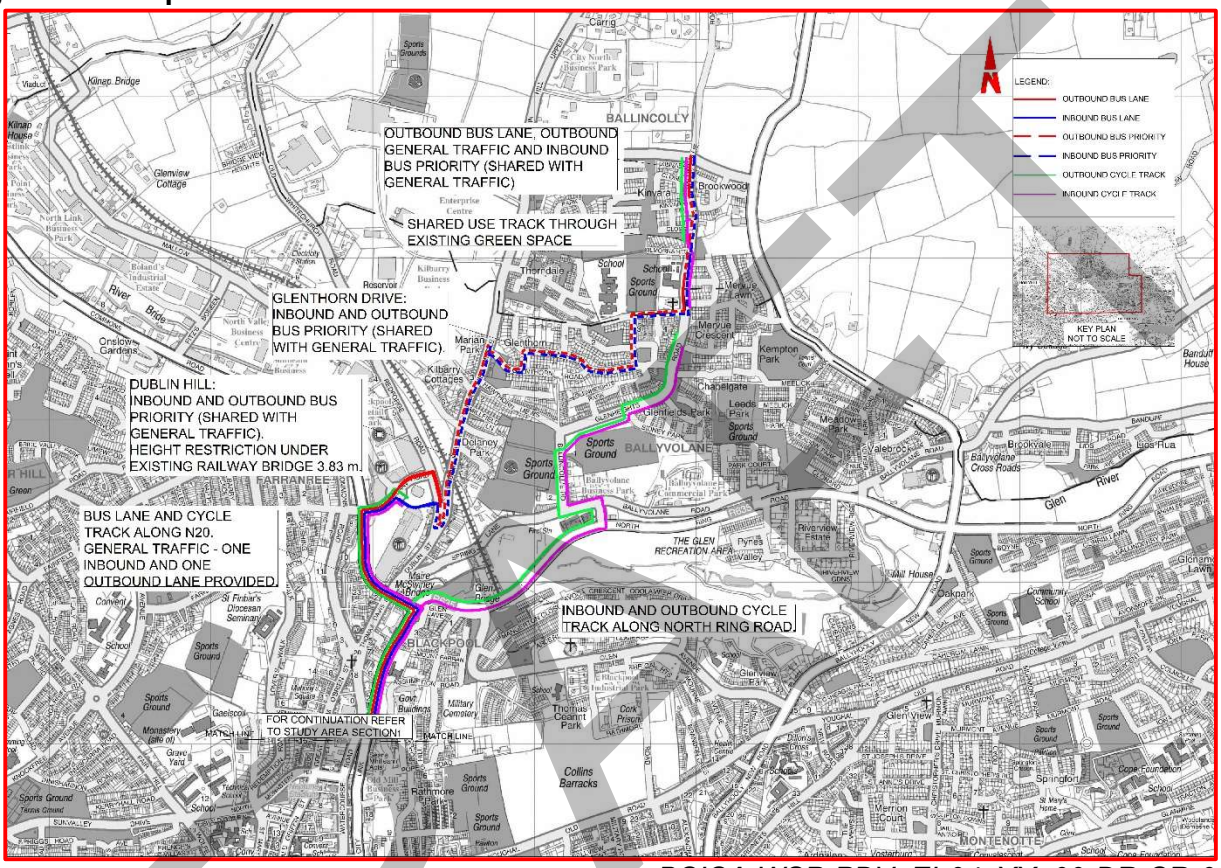
Figure 6-19 - Option B2 Typical Cross Section Along North Ring Road



SAS 2 - OPTION B3

An outline of Option B3 is shown in Figure 6-20 below and is then described in greater detail in the subsequent text.

Figure 6-20 - Option B3 Outline



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Outbound Bus Route

- A dedicated bus lane and general traffic lane along the N20, Common's Road, Brothers Delaney Road and Redforge Road to Blackpool Shopping Centre Entrance;
- A shared bus/general traffic lane along Redforge Road, Dublin Hill, Glenthorn Road, Glenthorn Avenue, Glenthorn Drive, Glenthorn Mews, Glenheights Park to Ballincollie Road;
- A dedicated bus lane and general traffic lane along Ballincollie Road to St. Oliver's Church;
- A shared bus/general traffic lane along Ballincollie Road to the Kinvara Close Junction.
- A dedicated bus lane and general traffic lane along Ballincollie Road from the Kinvara Close Junction to the route terminus.

Inbound Bus Route

- A shared bus/general traffic lane along Ballincollie Road from Dublin Hill Lower to Scoil Oilibhéir;
- A dedicated bus lane and general traffic lane along Ballincollie Road, from Scoil Oilibhéir to St. Oliver's Church;

- A shared bus/general traffic along Glenheights Park, Glenthorn Mews, Glenthorn Drive, Glenthorn Avenue, Glenthorn Road , Dublin Hill and Redforge Road to Blackpool Shopping Centre; and
- A dedicated bus lane and general traffic lane through Blackpool Shopping Centre, Brothers Delaney Road, Commons Road and the N20 to Madden's Buildings.

Cycle Routes

- Provision of both inbound and outbound cycle tracks along the N20 and the North Ring Road;
- Provision of both inbound and outbound cycle tracks along Ballyvolane Road/Spring Lane, Ballincollie Road/Glenheights Road to Glen Rovers GAA Club;
- Provision of both inbound and outbound off-road cycle tracks along Glen Rovers GAA pitch (i.e. east of Ballincollie Road) to merge with the carriageway at the Glenfields Avenue Junction;
- Provision of both inbound and outbound cycle tracks along Ballincollie Road to the Mervue Crescent Junction where cycle tracks join main carriageway;
- Provision of both inbound and outbound cycle tracks along Ballincollie Road from Kinvara Close to Dublin Hill;
- Provision of inbound cycle track from Kinvara Close to Mervue Lawn; and
- Provision of both inbound and outbound cycle tracks along the N20/Common's Road and Brothers Delaney Road to Blackpool Shopping Centre.

Route Constraints

The route is constrained north of Blackpool Shopping Centre (i.e. from the Redforge Road/Dublin Street Junction). This is due to reduced cross-sectional width of Dublin Hill Lower which results in shared bus and general traffic lanes as well as sporadic on-street parking. This can negatively impact journey time on the route. This route also encounters a height restriction of 3.83m under the existing Cork-Dublin Railway Bridge on Dublin Hill Lower.

Proposed cycle infrastructure is negatively impacted through the inability to provide a continuous cycle route to Dublin Hill. There are also significant gradients for users to negotiate travelling outbound towards Dublin Hill.

Bus Stops

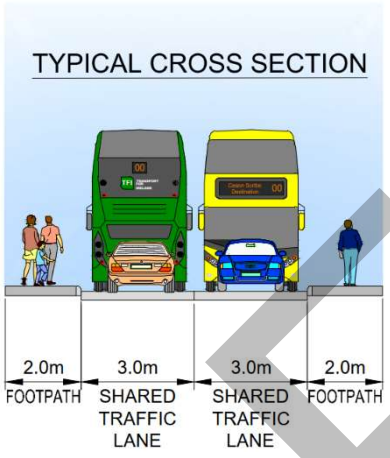
Existing bus stops and shelters will be refurbished as part of the BusConnects Cork programme. There are thirteen individual bus stops currently along this section.

New bus stops and shelters will also be provided as part of the BusConnects Cork programme. As the majority of the section is not currently a public bus route it is assumed that twenty four new individual bus stops will be provided along this section in each direction assuming a bus stop spacing of approx. 250m indicatively.

The journey time for this Option B3 from Madden's Buildings to Dublin Hill is approx. 15-16 mins over a distance of 3.1 km.

At present the N20 is typically dual carriageway with footpaths on both sides. The proposed interventions under Option B3 will reduce general traffic capacity on the N20 and the North Ring Road. Figure 6-21 shows a sample cross-section for Option B3.

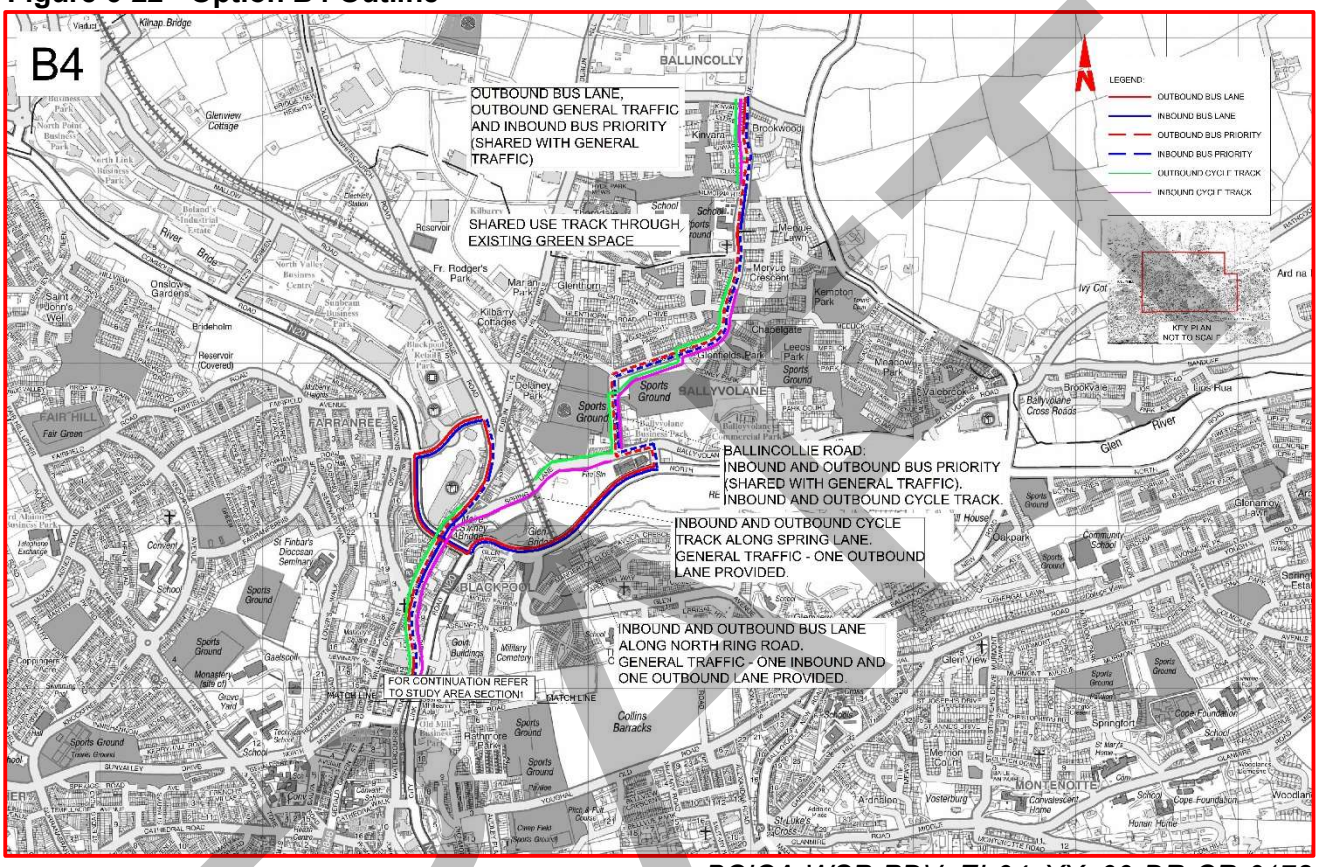
Figure 6-21 - Option B3 Typical Cross Section Along Dublin Hill



SAS 2 - OPTION B4

An outline of Option B4 is shown in Figure 6-22 below and is then described in greater detail in the subsequent text.

Figure 6-22 - Option B4 Outline



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Outbound Bus Route

- Shared bus / general traffic lane along Watercourse Road and Thomas Davis Street from Madden's Buildings to Blackpool Shopping Centre;
- Dedicated bus and general traffic lanes along Dublin Street, Brothers Delany Road, Commons Road, N20 and North Ring Road to junction with Ballyvolane Road / Spring Lane;
- Shared bus / general traffic lane along Spring Lane, Ballincollie Road / Glenheights Road to junction with Glenheights Park;
- Dedicated bus and general traffic lanes along Ballincollie Road at St. Oliver's Church
- Shared bus / general traffic lane along Ballincollie Road to junction with Kinvara Close.
- Dedicated bus and general traffic lanes along Ballincollie Road from junction with Kinvara Close to terminus.

Inbound Bus Route

- Shared bus / general traffic lane along Ballincollie Road from Dublin Hill Lower to Kilmona Heights;

- Dedicated bus and general traffic lanes along Ballincollie Road to St. Oliver's Church;
- Shared bus / general traffic lane along Ballincollie Road / Glenheights Road and Spring Lane to junction at North Ring Road;
- Dedicated bus and general traffic lanes along North Ring Road, N20 / Commons Road, Brothers Delany Road;
- Shared bus / general traffic lane along Redforge Road and Dublin Street;
- Proposed bus gate (short sections of bus/cycle-only roadway) on Thomas Davis Street, just south of Spring Lane; and
- Shared bus / general traffic lane along Watercourse Road from Commons Road to end of section at Madden's Buildings.

Cycle Routes

- Provision of outbound cycle tracks along Watercourse Road and Thomas Davis Street to Spring Lane;
- The proposed bus gate south of Spring Lane, will allow it to be used by inbound cyclists as a quiet cycle route shared with local traffic to its junction with Commons Road;
- Provision of inbound and partial outbound cycle track, mixed with general traffic (quiet streets) along Spring Lane to Ballincollie Road;
- Provision of cycle tracks along Ballincollie Road / Glenheights Road to Glen Rovers GAA Club;
- Provision of off-road cycle tracks along Glen Rovers GAA pitch (east of Ballincollie Road) to merge with road at junction with Glenfields Avenue;
- Provision of cycle tracks along Ballincollie Road to junction at Mervue Crescent where cycle tracks join main carriageway; and
- Provision of cycle tracks along Ballincollie Road from Kinvara Close to Dublin Hill.

Route Constraints

The route is constrained in a number of locations due to reduced cross-sectional width, resulting in shared bus and general traffic lanes as well as sporadic on-street parking. This can negatively impact journey time on the route.

Cycle infrastructure is negatively impacted through the inability to provide a complete route to Dublin Hill both on Spring Lane and Ballincollie Road. There are also significant gradients for users to negotiate travelling outbound towards Dublin Hill.

Bus Stops

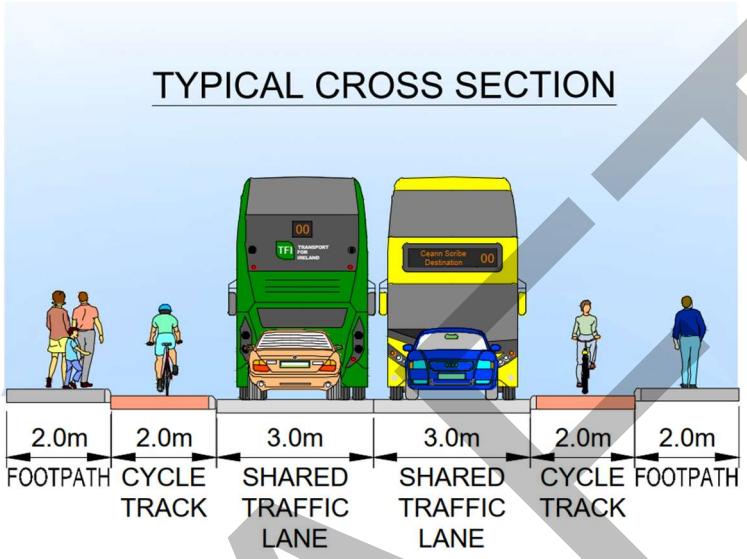
Existing bus stops and shelters will be refreshed as part of the BusConnects Cork programme. There are nine individual bus stops currently along this section.

New bus stops and shelters will also be provided as part of the programme. It is assumed that 30 (21 further stops) individual bus stops will be provided along this section in each direction (assuming stops every 250m indicatively).

The journey time for this option from Madden's Buildings to Dublin is 19-20 mins over a distance of 3.7 km.

At present the N20 and North Ring Road are typically dual carriageway. The proposed intervention under B4 would reduce capacity on the N20 and North Ring Road for general traffic. Figure 6-23 shows a sample cross-section for Option B4.

Figure 6-23 - Option B4 Typical Cross Section Along Ballincollie Road



SAS 2 STAGE 2 OPTION MULTI CRITERIA ANALYSIS SUMMARY

The Study Area Section (SAS) 2 Madden's Buildings to Dublin Hill Stage 2 MCA summary tables, including justification for the sub-criteria scoring, are included in Appendix C

The relative ranking of options against the MCA sub-criteria is summarised in Table 6-2 below

Table 6-2 **– Study Area Section 2 MCA Sub-Criteria Summary**

		B1	B2	B3	B4
Economy	1a. Capital Cost				
	1b. Average Journey-time				
	1c. Journey-time reliability and Consistency				
Integration	2a. Land Use Integration				
	2b. Residential Population and Employment Catchments				
	2c. Transport Network Integration				
	2d. Cyclists Integration				
	2e Pedestrian Integration				
Accessibility and Social Inclusion	3a. Key Trip Attractors				
	3b. Deprived Geographic Areas				
Safety	4. Road User Safety				
Environment	5a. Archaeology and Cultural heritage				
	5b. Biodiversity				
	5c. Soils and Geology				
	5d. Water Resources				
	5e. Landscape and Visual				
	5f. Noise, Vibration & Air				

	5g. Land Use and the Built Environment				

ECONOMY

In the approach to assessing Economy, the key elements considered were capital costs and journey time. Average Journey times were considered consistent across all four options with Option B1 standing out for reliability and consistency. The Average Journey time for Option B3 was marginally better than the other options but any time saving could be considered insignificant as a comparable.

The main differentiator between route options considered is the capital costs with B2 costing considerably more than others and B4 being the lowest costing, followed by B3.

Therefore, B3 followed by B4 would be considered the best performing options under Economy.

INTEGRATION

In the approach to assessing Integration, the key elements considered were in relation to Population catchments, Transport Network and Cyclists Integration. Pedestrian and Land Use Integration did not determine significant variation across the options considered.

In terms of Residential and Employment Catchments all options have very similar catchment figures. For Transport Network Integration B2, B3 and B4 scored higher. Option B1 is the least preferable as it reduced the N20 and North Ring Road to two general traffic lanes and has a lower population catchment

In terms of Cyclist Integration B4 scored lower due to inconsistent cycle track provision, a mixture of inbound and outbound only sections resulting in some mixing of cycles and General Traffic.

The main differentiator between route options considered is the lower score for cycle integration with B4 Therefore, B2 would be considered the best performing option under Integration followed by B4.

ACCESSIBILITY AND SOCIAL INCLUSION

In the approach to assessing Accessibility and Social Inclusion, the key elements considered were in relation to proximity to Key Trip Attractors and geographically deprived areas. Option B3 scored lower than the others being considered as it wasn't inclusive of bus provision for the disadvantaged region along the North Ring Road. It was also weaker in its inclusion of Key Trip attractors.

B2 and B4 scored high on both categories being assessed and would be considered the best performing option under Accessibility and Social Inclusion.

SAFETY

In the approach to assessing Safety, the key elements considered were the number of junctions to negotiate. Options B2 and B4 are preferrable in terms of safety as they have the least number of junctions and turning movements and is considered the best performing in terms of safety.

ENVIRONMENT

In the approach to assessing the Environmental impact, the key elements considered were the impact on Archaeology and Cultural Heritage, Biodiversity, Water Resources, Noise and Vibration and Land Use.

There was no significant variation in regard to Soils and Geology or Landscape and Visual across any of the options.

Option B3 scores the lowest under Archeologically and Biodiversity partially due to potential construction works adjacent to the NIAH Railway Bridge. Railway bridge has potential for bat roosts therefore potential for disturbance.

All of the options considered pass through an area of greenspace next to Kinvara Close which has potential sub-surface archaeological features, but this potential is low.

In terms of Water Resources Option B1 and B3 have potential increase in impermeable areas and score higher than options B2 and B4 due to historical flood risk potential along Watercourse Road

Option B1 scores higher across a number of factors including land use and the built Environment and as a result is the best performing under the Environment Considerations followed by Option B4.

CONCLUSION

Based on the above MCA, Option B1 is the best performing N20 route and Option B4 is the best performing Watercourse Road/Thomas Davis Street route. These will be brought forward for the full end-to-end MCA which is further described in Chapter 6.4

6.4 END TO END MCA

Detailed MCA work carried out in Chapters 6.2 and 6.3 confirmed the best performing route options within each Study Area Section.

Study Area Section 1 recommended Option A1 as the best performing N20 route and Option A6 as the best performing Watercourse Road route.

Study Area Section 2 recommended Option B1 as the best performing N20 route and Option B4 as the best performing Watercourse Road/Thomas Davis Street route.

All these Route Options (A1, A6, B1 and B4) either terminate or commence at the junction at Madden's Building and therefore can be joined together to create 4 no. end to end route options. An MCA was undertaken on these 4 options to ascertain the best performing end to end option

Figure 6-24 - A1 & B1 (N20 Route Option)

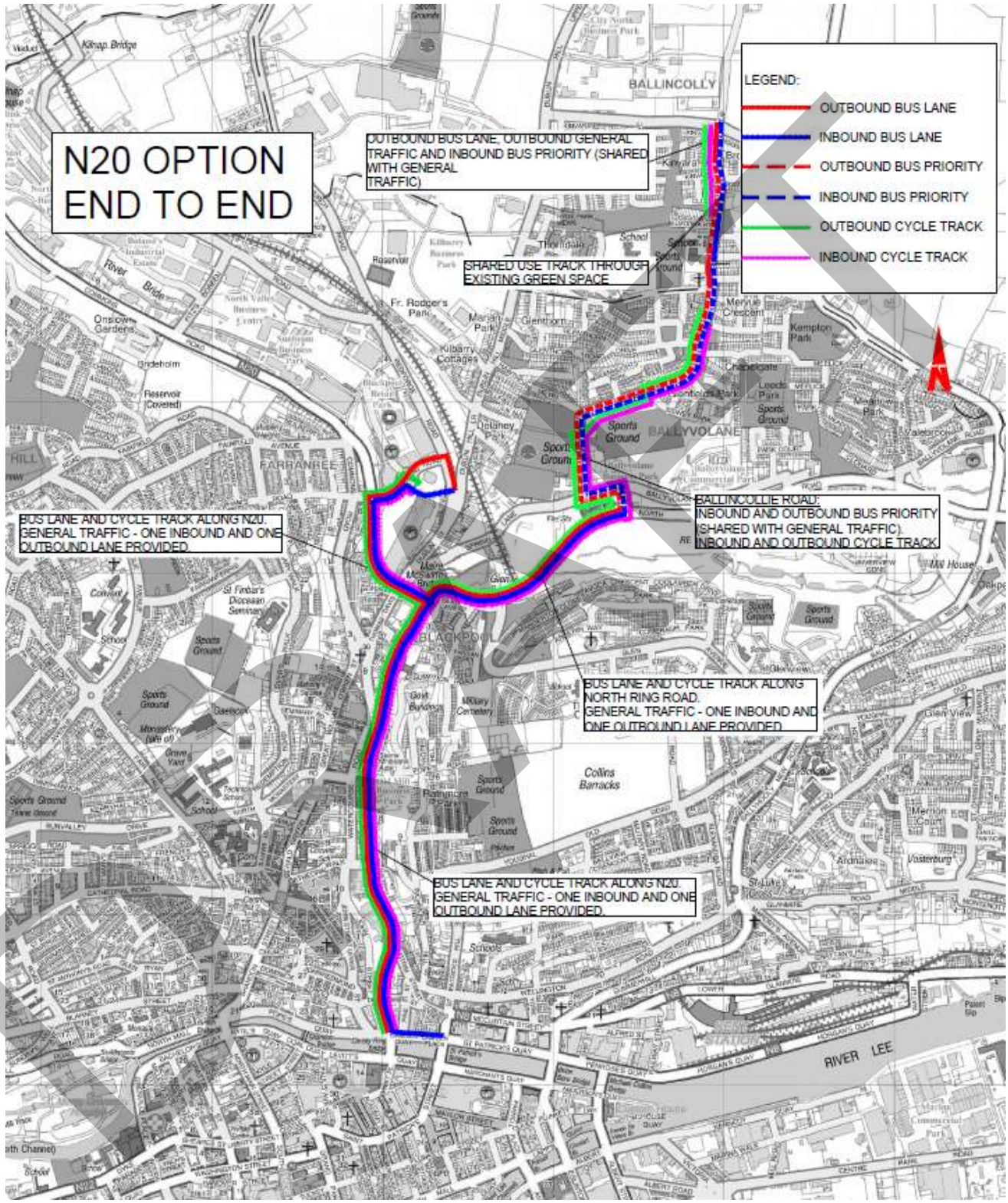


Figure 6-25 - A6 & B4 (Watercourse Road Route Option)

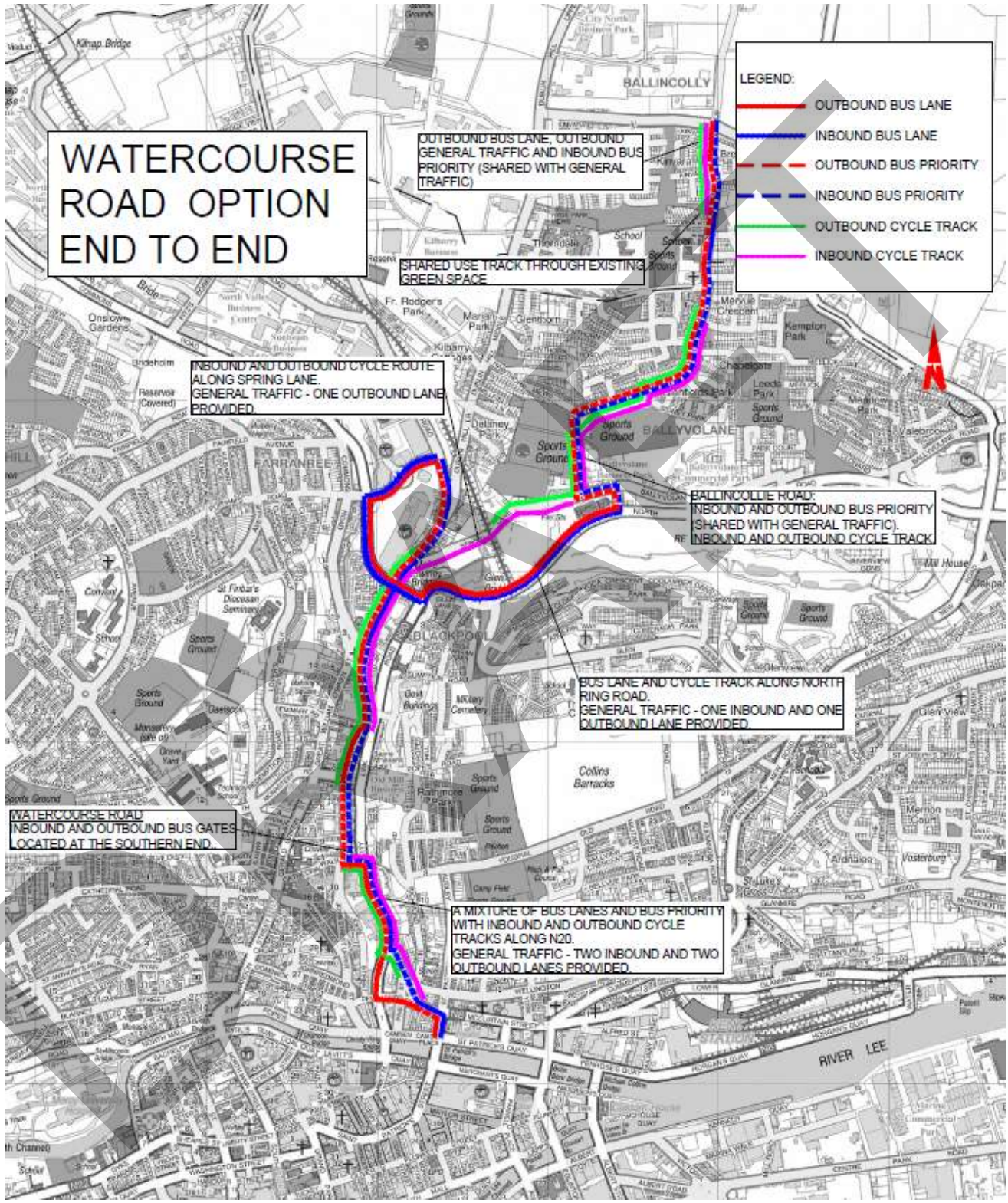


Figure 6-26 - A1 & B4 Option

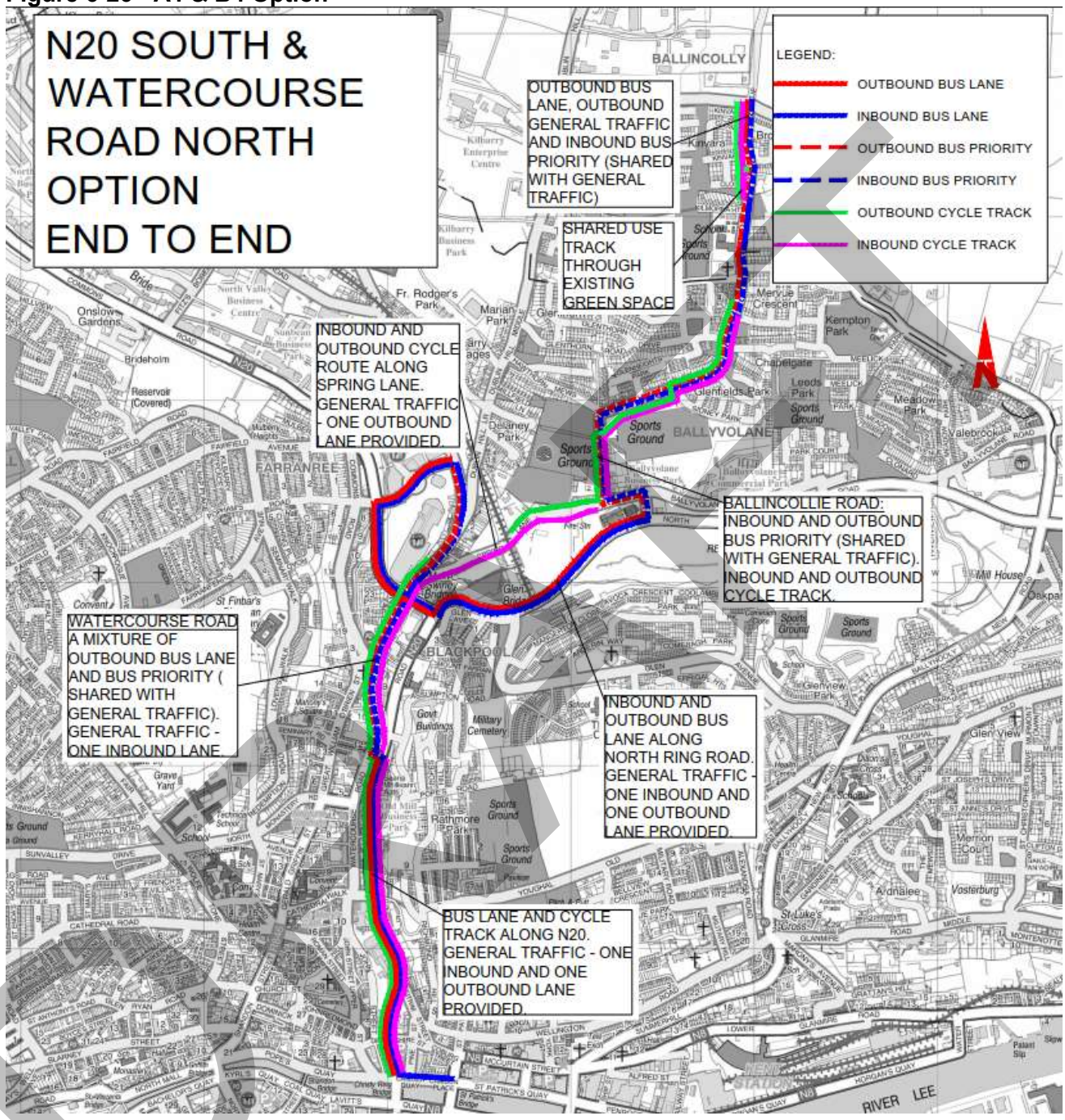
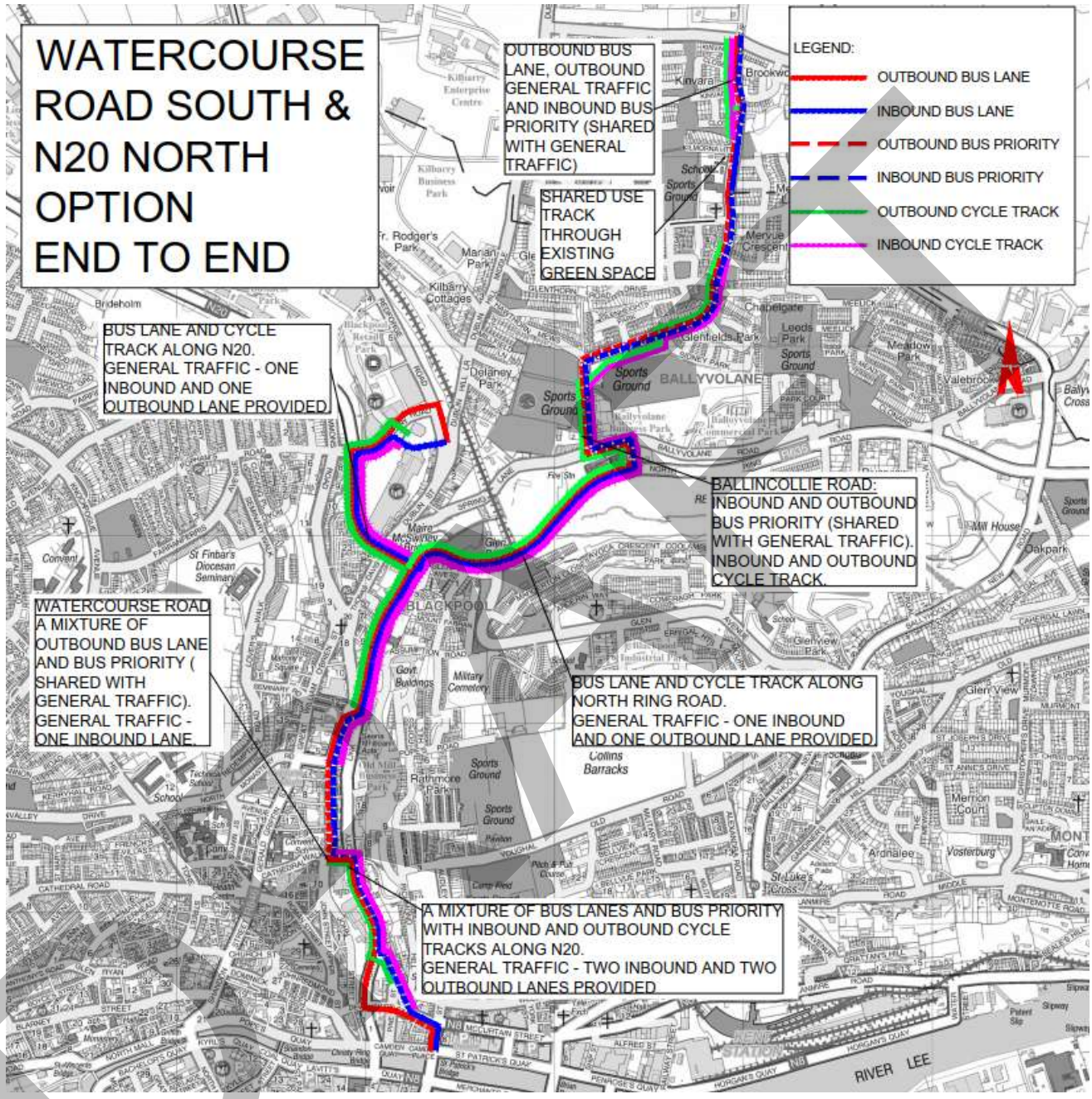


Figure 6-27 – A6 & B1 Option



END-TO-END STAGE 2 OPTION MULTI CRITERIA ANALYSIS SUMMARY

The End-To-End Stage 2 MCA summary tables, including justification for the sub-criteria scoring, are included in Appendix D

The relative ranking of options against the MCA sub-criteria is summarised in Table 6-3 below

Table 6-3 – End-to-end MCA Sub-Criteria Summary

		N20 Option (A1/B1)	Watercourse Road Option (A6/B4)	N20 South, Watercourse Road North (A1/B4)	Watercourse Road South, N20 North Option (A6/B1)
Economy	1a. Capital Cost				
	1b. Average Journey-time				
	1c. Journey-time reliability & Consistency				
Integration	2a. Land Use Integration				
	2b. Residential Population and Employment Catchments				
	2c. Transport Network Integration				
	2d. Cyclists Integration				
	2e Pedestrian Integration				
Accessibility & Social Inclusion	3a. Key Trip Attractors				
	3b. Deprived Geographic Areas				
Safety	4. Road User Safety				
Environment	5a. Archaeology & Cultural heritage				
	5b. Biodiversity				
	5c. Soils and Geology				
	5d. Water Resources				

	5e. Landscape & Visual				
	5f. Noise, Vibration & Air				
	5g. Land Use & the Built Environment				

ECONOMY

In terms of Economy, all 4 end to end options are very similar under Capital Cost and score neutral compared to each other.in terms of average journey time and journey time reliability options A1/B1 and A6/B1 score slightly better

INTEGRATION

In the approach to assessing Integration, the key elements considered were in relation to Transport Network Integration.

Land use, Pedestrian and Cyclist Integration did not determine significant variation between the four options considered.

In terms of Transport Network Integration, the Watercourse Road Option (A6/B4) performed best retaining the vehicular lanes on the N20 and North Ring Road. The other options performed poorly having significant impact on the vehicular lanes on the N20 and the North Ring Road.

ACCESSIBILITY & SOCIAL INCLUSION

In the approach to assessing Accessibility and Social Inclusion, the key elements considered were in relation to proximity to Key trip attractors. The N20 Options scored poorly as it had less trip attractors as a result of being on the N20. The Watercourse Road Options (and variety of) scoring higher as a result of its commercial trip attractors on Watercourse Road, Thomas Davis St and Dublin St.

Option A6/B4 scored strongest in this criterion.

Geographically deprived areas did not determine significant variation across the options considered.

SAFETY

In the approach to assessing Safety', the key elements considered were the number of Junctions to negotiate and turning movements. All 4 options had a similar number of junctions to negotiate, with the turning movement being the differentiating factor. Option A1/B4 scores highest followed by A6/B4

ENVIRONMENT

In the approach to assessing the Environmental impact, the key elements considered were the impact on Water Resources and Noise, Vibration and Air.

There was no significant variation between Archaeology, Biodiversity, Soils and geology, Landscapes and Visual or Land Use across any of the options.

In terms of Water Resources, the N20 Option score higher than the Watercourse Road Options due to historical flood risk potential along Watercourse Road.

In terms of Noise, Vibration and Air, Watercourse Road option (A6/B4) scores highest as bus gates on Watercourse Road and Thomas Davis Street will result in a reduction of traffic along these streets.

CONCLUSION

Based on the above end to end MCA above, Watercourse Road option (A6/B4) is the best performing end to end option, as is the best performing route in terms of Transport Network Integration, Key Trip Attractors and Noise, Vibration and Air.

7 EMERGING PREFERRED ROUTE

7 EMERGING PREFERRED ROUTE

7.1 INTRODUCTION

This Chapter of the report presents the final conclusions from the route options assessment process for the end-to-end route options considered. A description of the preferred route is given together with ancillary measures required on other roads/streets and key issues to be addressed through the scheme design development.

ROUTE OPTIONS ASSESSMENT CONCLUSIONS

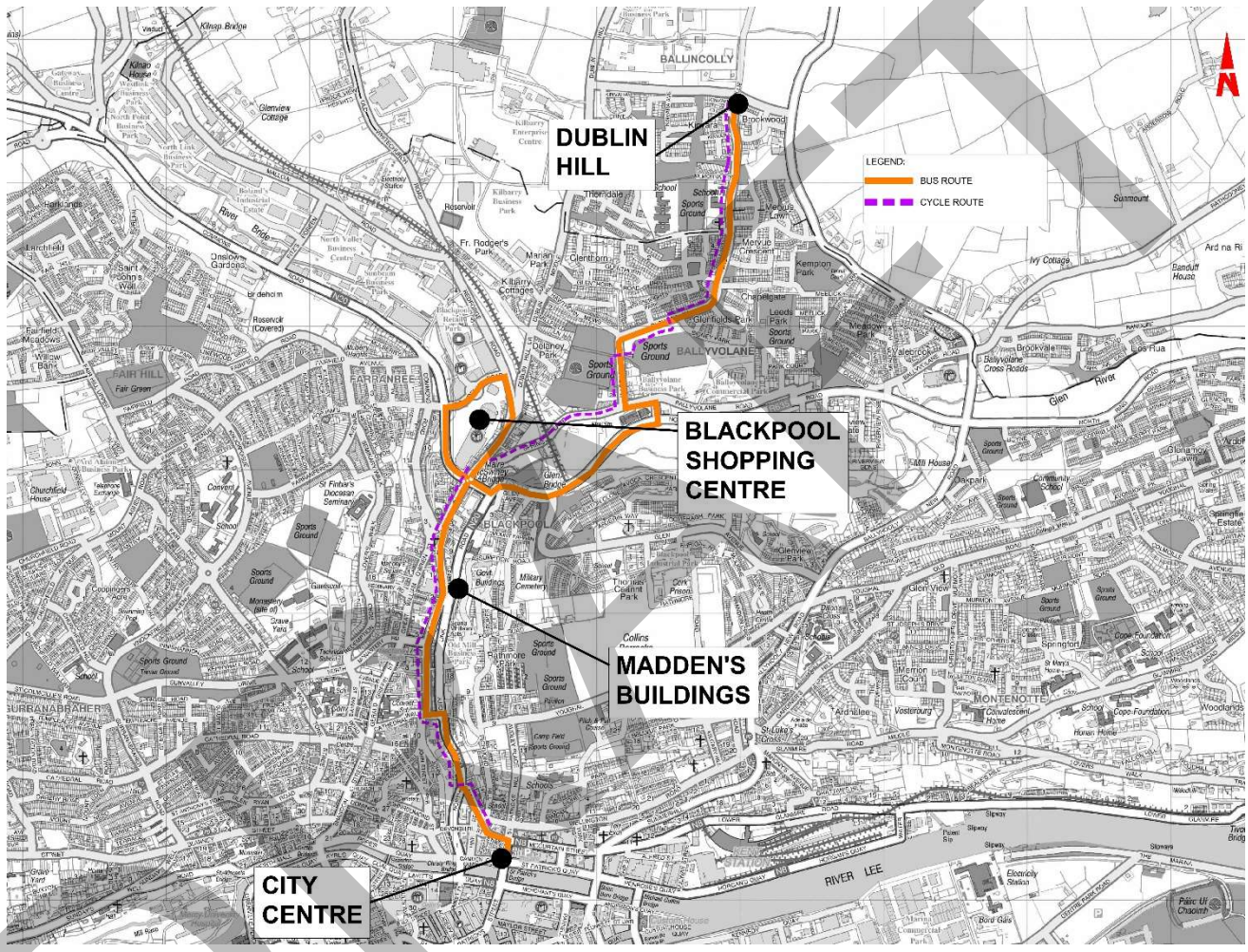
Chapter 5 of this Report presented the Stage 1 Sifting Process which helped inform the Study Area Section split, designing of options and subsequent multi-Criteria analysis. This MCA is covered in Chapter 6 and recommends:

- A6 is the preferred option for Study Area Section No. 1 – Cork City Centre to Madden's Buildings, comprising of;
  - A bus route along the N20 (i.e. outbound Devonshire Street and inbound Leitrim Street) Cathedral Walk and Watercourse Road; and
  - A cycle route along Leitrim Street, the N20, Cathedral Walk and Watercourse Road.
- B4 is the preferred option for Study Area Section No.2 – Madden's Building to Dublin Hill, via Blackpool Shopping Centre, comprising of;
  - A bus route along Watercourse Road, Thomas Davis Street, Dublin Street, Redforge Road, Brothers Delaney Road, N20, North Ring Road, Ballincollie Road and Glenheights Road
  - A cycle route along Watercourse Road, Thomas Davis Street, Spring Lane, Ballincollie Road and Glenheights Road

EMERGING PREFERRED ROUTE

The emerging preferred route is presented in Figure 7.1 below and is described in more detail in the subsequent paragraphs. The emerging preferred route description commences in the Cork City Centre, heading toward Blackpool Shopping Centre and finishing in Dublin Hill.

Figure 7-1 - Emerging Preferred Route



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SECTION 1 CITY CENTRE TO MADDEN'S BUILDINGS

Length of Section: 1.1km

Indicative Cost Estimate (used for comparative purposes): €11.9M

Along the Emerging Preferred Route, there is currently no existing bus lanes and no existing cycle lanes provided within Section 1 of the Study Area, except for the MacCurtain Street Public Transport Improvement (PTI) Scheme which is currently under construction.

Overall, the EPR for this section requires the introduction of new public transport and active travel facilities along its length.

The emerging preferred bus route travels along the N20 (i.e. outbound on Devonshire Street but inbound on Leitrim Street), Cathedral Walk, Watercourse Road and Thomas Davis Street towards Blackpool Shopping Centre. Routing buses along Watercourse Road and Thomas Davis Street has a greater catchment in comparison to routing buses along the N20.

The associated cycle route travels along the N20, Cathedral Walk. Watercourse Road and Thomas Davis Street towards Blackpool Shopping Centre.

An outbound (towards Dublin Hill) bus lane will be provided along Devonshire Street as part of the completed MacCurtain Street PTI. As part of the subject EPR an outbound bus lane is proposed on the N20 between Devonshire Street Junction and Leitrim Street Junction. This will remove the right turn lanes provided as part of the MacCurtain Street PTI. Two lanes of general traffic in each direction will be retained along this section of the N20

Inbound (towards the city) buses will use Leitrim St. Inbound and outbound cycle facilities will also be provided on Leitrim Street.

On the N20 between the Leitrim Street Junction and Cathedral Walk Junction inbound and outbound cycle tracks are proposed for the full length of this section of the N20. An outbound bus lane will be provided on approach to the Cathedral Walk Junction and an inbound bus lane on approach to the Leitrim Street Junction. Both existing signalised junctions will be retrofitted to provide signalised priority for buses. Two lanes of general traffic will be retained in each direction along this section of the N20. Land take may be required from the section of off-street parking to the east of the N20

Land take will be required from nearby sheds along the northern verge of Cathedral Walk to facilitate the proposed outbound bus lane, inbound shared general traffic lane and an inbound and outbound cycle track. It is anticipated that the existing bridge structure at the N20 / Cathedral Walk/Park Junction will need to be widened. General traffic turning movements from the N20 to Cathedral Walk will continue to be prohibited as per the existing situation.

The existing cross-sectional width (i.e. building line to building line) of Watercourse Road from the Cathedral Walk Junction to O'Connell Street Junction is very constrained. In order to provide bus priority, an inbound and outbound bus gate (short sections of bus/cycle-only roadway) is proposed at the southern end of Watercourse Road. This will also allow Watercourse Road to be used by cyclists as a "quiet streets" cycle route shared with predominately local traffic. Local access will be retained from the north of Watercourse Road at its junction with O'Connell Street. Existing parking arrangements will also be retained.

On Watercourse Road between the O'Connell Street Junction and the Madden's Building Junction the existing cross-sectional width remains tight ranging between 15 and 17m, therefore it is not practical to provide continuous inbound and outbound bus lanes and cycle tracks. Consequently, it is proposed to provide an outbound bus lane, which will offer signalised priority to buses and outbound cyclists. This will require the removal of some on street parking. Inbound cyclists will lane share with general traffic throughout this section.

SECTION 2 MADDEN'S BUILDINGS TO DUBLIN HILL

Length of Section: 3.7km

Indicative Cost Estimate (used for comparative purposes): €19.2M

Along the Emerging Preferred Route, there is currently no existing bus lanes and no existing cycle lanes provided within Section 2 of the Study Area.

Overall, the EPR for this section requires an introduction of new public transport and active travel facilities along its length.

From the Madden's Building Junction on Watercourse Road to the Redforge Road/Brothers Delaney Road Junction the existing cross-sectional width still remains tight, therefore it is not practical to provide continuous inbound and outbound bus lanes and cycle tracks. In order to provide bus priority, an inbound bus gate (short sections of bus/cycle-only roadway) is proposed on Thomas Davis Street, south of the Spring Lane Junction. Inbound general traffic will now use Ballincollie Road/North Ring Road or Brothers Delaney Road followed by the N20 or Commons Road to drive into Cork City Centre.

Outbound buses will share a general traffic lane from the Watercourse Road/Madden's Buildings Junction to the Thomas Davis Street/Redforge Road Junction. Bus priority will be provided through Signal Controlled Priority.

An outbound cycle track will continue along Watercourse Road and Thomas Davis Street until its junction with Spring Lane. The existing cyclist/pedestrian access to Blackpool Shopping Centre in the vicinity of the N20 Overbridge will be retained.

Inbound cyclists will have the benefit of the proposed bus gate (i.e. south of Spring Lane) until its junction with Commons Road. Inbound cyclists will share a general traffic lane on Watercourse Road from its junction with Commons Road to Madden's Buildings.

Spring Lane is currently one-way outbound for general traffic from its junction with Dublin Street to its junction with Ballincollie Road. This will be retained with outbound cyclists sharing a general traffic lane to the railway bridge and with an outbound cycle track being provided thereafter. An inbound contra-flow cycle lane will be provided for inbound cyclists. A small section of existing green space land will be acquired to facilitate the provision of on-street parking along Spring Lane.

Inbound and outbound bus lanes will be provided along Brothers Delaney Road, the N20 and the North Ring Road to their junction with Ballyvolane Road (i.e. adjacent to Ballyvolane Fire Station).

The proposed bus route will run along Spring Lane, Ballincollie Road and Glenheights Road. Buses will share with general traffic from the North Ring Road/Ballyvolane Junction to Scoil Oilibhéir. Short sections of bus lane with signalised priority will be provided adjacent to Scoil Oilibhéir. The boundary of Scoil Oilibhéir will need to be slightly set back to allow for this localised bus lane provision.

Inbound and outbound cycle tracks will be provided along Ballincollie Road and Glenheights Road to their junction with Glenthorn Park.

To facilitate this cycle provision some property boundaries, adjacent to Glen Rovers GAA Club, will need to be slightly set back. It is not expected that this setback will be significant and is expected that existing in-curtilage parking will remain. Further north, areas of greenspace will be required to provide the latter cycle facilities.

SCHEME BENEFITS

The Emerging Preferred Route is approximately 4.8 km in total length from Cork City centre to Dublin Hill. Along this EPR, there is currently no existing bus lanes and no existing cycle lanes provided, apart from the ongoing MacCurtain Street PTI works.

This current lack of bus lane/priority provision results in varying overall journey time and journey time reliability.

This section of North Cork City is extremely restricted due to narrow streetscapes and steep topography. Therefore, bus priority is provided through a series of measures including bus lanes, bus gates, signalised priority.

Based on the above, a conclusion can be drawn that by improving the provision of bus priority along the proposed route, coupled with the introduction of cashless fares, the risk of turbulence to bus journeys would be significantly reduced. Consequently, allowing buses to move along the route quicker and with more consistent journey times. The extent of these benefits will be confirmed and quantified at the next design stage.

COST ESTIMATE

A cost estimate for the EPR can be found below.

This cost estimate was developed for each route option primarily for comparative purposes, based on elemental rates from similar schemes. Therefore, this is not an absolute cost and should not be relied upon as a detailed estimate. Further cost estimate work is recommended, particularly around areas of risk such as utilities and land acquisition. It is also worth noting the current challenge of rising construction costs and the need to keep this under constant review.

Study Area Section (SAS) No. 1 €11.9 M

Study Area Section (SAS) No. 2 €19.2 M

Total of SAS No. 1 & SAS No. 2 €31.1 M

NEXT STAGES OF DESIGN DEVELOPMENT

This report has identified an emerging preferred route for the bus and active travel infrastructure along this Core Bus Corridor for which a concept design has been developed.

Within this CBC, the Cork City Centre to Blackpool Shopping Centre section has the proposed highest frequency of bus service and therefore only this section will be brought forward to Public Consultation at present.

Appendix A

STAGE 1: SIFTING STAGE

FOR CONTINUATION
REFER TO VIEWPORT

MATCH LINE

MATCH LINE

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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description

Client: NTA Údarás Náisiúnta Iompair / National Transport Authority	Engineering Designer: wsp	Programme Title: BUSCONNECTS INFRASTRUCTURE CORK	
		Drawing Title: CORRIDOR 4 - POTENTIAL ROUTE OPTIONS	
Date: 23/02/2022	Scale: NTS @ A1 NTS @ A3	Drawn: JS	Checked / Approved
Project Code: BCICA	Originator Code: WSP	QMS Code	
Drawing File Name: BCICA-WSP-PDV_EI-04_XX_00-DR-ZZ-0003.08	Sheet Number: 1 of 1	Status: S0	Rev: L01

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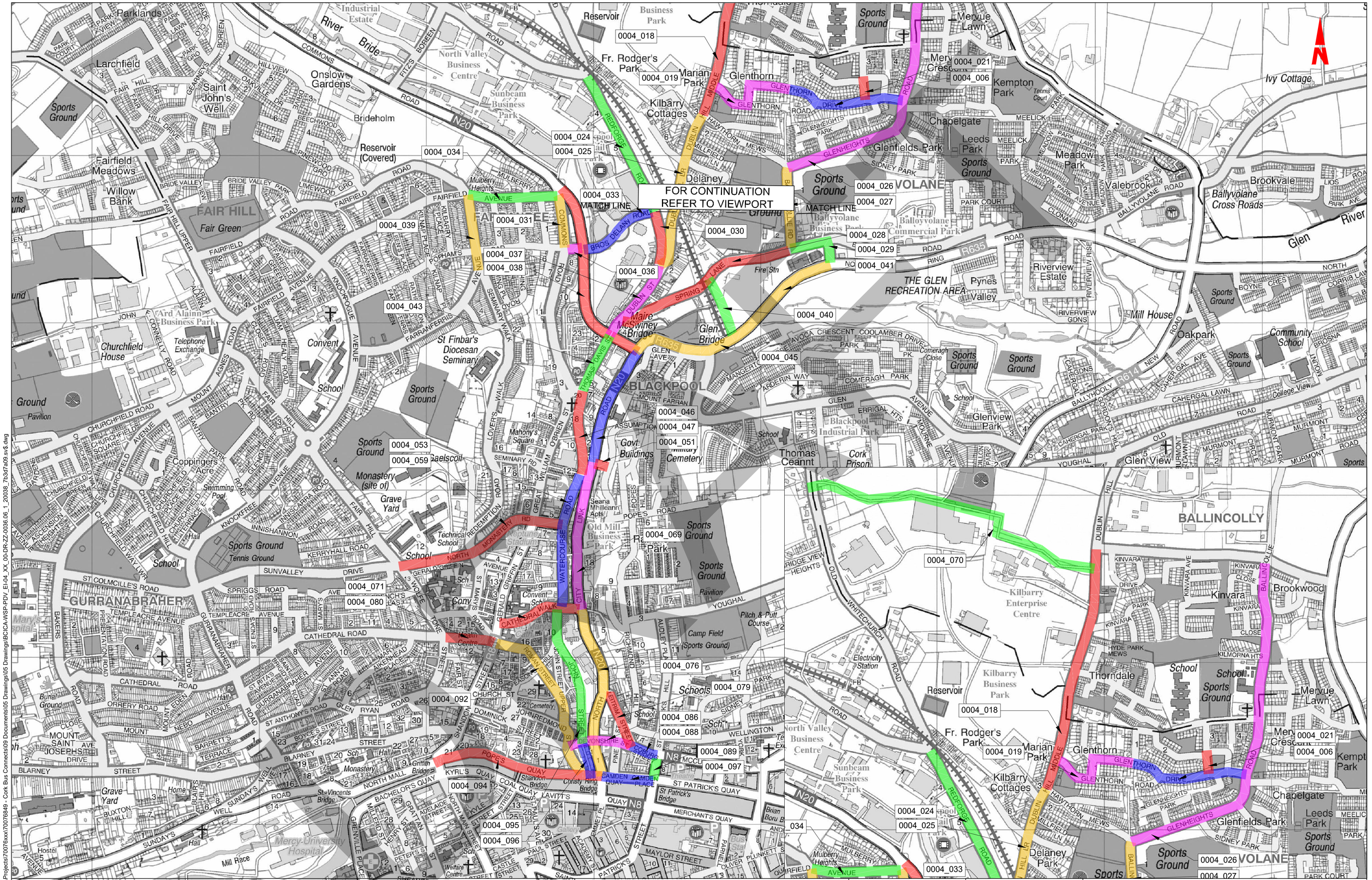

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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description

Client
Údarás Náisiúnta Iompair
National Transport Authority

Engineering Designer

Programme Title
BUSCONNECTS INFRASTRUCTURE CORK

Drawing Title
CORRIDOR 4 - ROUTES PASSING THE INITAL STAGE 1 SIFT

Date	Scale	Drawn	Checked	Approved
23/02/2022	1:5000 @ A1 1:10000 @ A3	JS		

Project Code	Originator Code	QMS Code
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Drawing File Name	Sheet Number	Status	Rev
BCICA-WSP-PDV_EI-04_XX_00-DR-ZZ-0036.07	1 of 1	S0	L01

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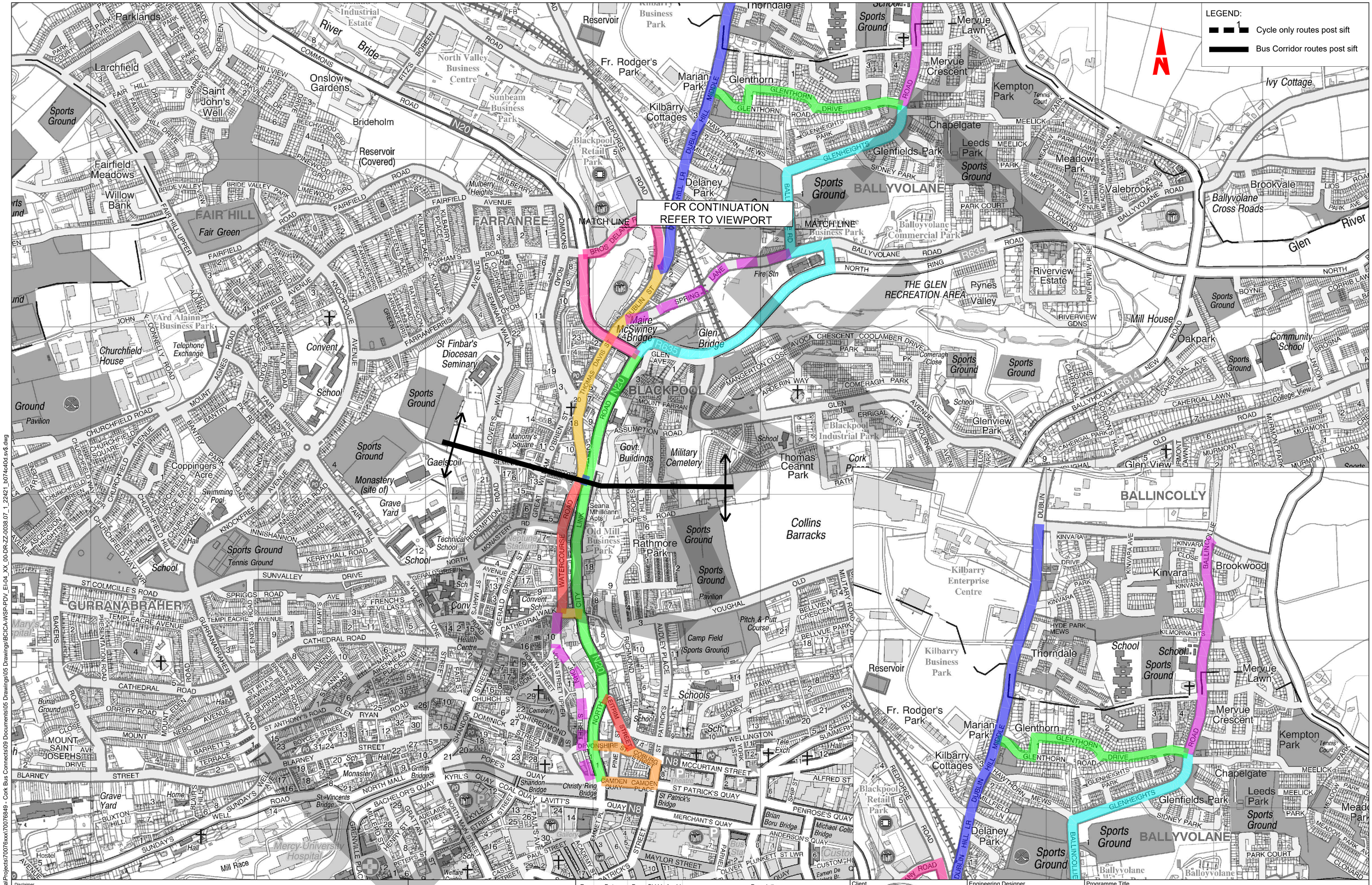

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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description

Client
Údarás Náisiúnta Iompair
National Transport Authority

Engineering Designer

Programme Title
BUSCONNECTS INFRASTRUCTURE CORK

Drawing Title
CORRIDOR 4 - ROUTE OPTIONS FOR STAGE 2 MULTI CRITERIA ANALYSIS

Date 23/02/2021	Scale 1:5000 @ A1 1:10000 @ A3	Drawn JS	Checked	Approved
Project Code BCICA	Originator Code WSP	QMS Code		

Drawing File Name	Sheet Number	Status	Rev
BCICA-WSP-PDV_EI-04_XX_00-DR-ZZ-0038.08	1 of 1	S0	L01

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KEY
Fail - Not carried forward to Stage 2 Multi Criteria Analysis
Pass* - Carried forward to Stage 2 Multi Criteria Analysis as a potential cycle link only
Pass - Carried forward to Stage 2 Multi Criteria Analysis

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_001	Number Not Used	-	-	-
0004_002	Number Not Used	-	-	-
0004_003	Number Not Used	-	-	-
0004_004	Number Not Used	-	-	-
0004_005	Number Not Used	-	-	-
0004_006	Glenheights Park from junction with Glenthorn Drive to junction with Glenthorn Mews	Single two-way carriageway bounded by residential properties and green space with footways on both sides. Cross-section approx 11-12m. Existing bus route (207a)	As this is an existing bus route and there is scope to introduce bus priority and/or segregated cycling facilities by extending the alignment into third party land or by utilising the green space this section will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_007	Kinvara Avenue from Kinvara Park to Lower Dublin Road using off road path.	Off road path between two cul-de-sacs bounded by residential properties and greenspace. Cross section approx. 8m from back of footway to back of footway. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_008	Kinvara Close from junction with Ballincollie Road connecting to Lower Dublin Hill via greenspace	Single two-way cul-de-sac bounded by residential properties and greenspace. This link would reallocate greenspace to connect to Lower Dublin Hill. Pylons within green space. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_009	Kinvara Avenue to Lower Dublin Hill	Single two-way cul-de-sac bounded by residential properties and greenspace. Cross section approx. 8m from back of footway to back of footway. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_010	Potential new link between Thorndale Estate and Kinvara Avenue	Potential new link through green space. Not currently a through route. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_011	Potential new link between Glenheights Pk and Kinvara Ave through St. Aidan's Community College	Potential new link through the grounds of St. Aidan's Community College. Not currently a through route. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_012	Thorndale Estate (N-S road running parallel to St Aidan's Community College).	Single two way carriageway with single footway on west side. Min. cross section approx. 8m at the southern junction. Not currently a through route for vehicular traffic. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_013	Kilbarry Cottages from junction with Dublin Hill Middle and junction with Kilbarry Business Park.	Single two-way carriageway with footways on both sides. Cross section approx. 14.5m from back of footway to back of footway. Currently provides access only to the business park and is not a through route. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_014	Glenthorn Mews/ Glenheights Park from the junction with Glenheights Park to the junction with Glenheights Road	Single two-way carriageway bounded by residential properties with footways on both sides of the road. Cross section approx. 11-12m. Not an existing bus route. Glenthorn Mews section identified as a future Secondary Cycle Route CCN-U16 in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing properties. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_015	Thorndale Estate link from junction with Dublin Hill Middle to eastern side of Thorndale Estate.	Single two-way cul-de-sac bounded by residential properties and green space with footways on both sides of the road. Cross section 8-10m Not an existing bus route. Identified as a future Secondary Cycle Route CCN-U16 in Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_016	Potential link between Kilbarry Business Park and Old Whitechurch Road at the Reservoir.	Existing pedestrian link from Kilbarry Business Park to Old Whitechurch Road.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_017	Glenthorn Drive from junction with Glenthorn Avenue to junction with Dublin Hill Middle.	Single two-way cul-de-sac bounded by residential properties with footways on both sides of the road. Cross section approx. 10-11m. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_018	Dublin Hill Middle from Hawthorne Estate to Lower Dublin Hill	Single two-way carriageway bounded by residential, commercial, agricultural land and greenspace. The cross section varies from approx. 10-18m. Existing bus route. (248, 207) Identified as a future Primary Cycling Route CCN-U14 in Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land this section will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_019	Glenthorn Road/ Glenthorn Avenue from junction with Dublin Hill Middle to junction with Glenthorn Drive	Single two-way carriageway bounded by residential properties and footways on both sides. Cross section approx. 11-12m. Existing bus route. (207, 207A) Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is an existing bus route and there is scope to introduce bus priority and/or segregated cycling facilities by extending the alignment into third party land this section will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_020	Glenthorn Way/ Glenheights Park/ Glenthorn Park/ Glenheights Park to its junctions with Glenthorn Drive.	Single two-way carriageway bounded by residential properties and greenspace. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Provision of bus priority and/or segregated cycling facilities along with general traffic is not viable due to the scale of works and impact to existing properties. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_021	Glenthorn Drive from its junction with Glenthorn Way to its junction with Glenheights Road	Single two-way carriageway bounded by residential properties and green space with footways on both sides of the road. Cross section Approx. 11-12m. Existing bus route. (207, 207A) Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is an existing bus route and there is scope to introduce bus priority and/or segregated cycling facilities by extending the alignment into third party land this section will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_022	Hawthorn Estate from its junction with Dublin Hill Middle to its junction with Ballincollie Road	Single two-way carriageway bounded on both sides by residential properties for a significant portion of the link. Cross section approx. 10-11m. Not an existing bus route. Identified as a "feeder" route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_023	Access road to Glavloc Building Technology from its junction with Kilbarry Cottages through a proposed non motorised users access to Killbarry Cottages lower.	Single two-way access road leading to an industrial unit with footways on both sides. Cross section of ~14.5m. Not a through route. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_024	Redforge Road from its junction with the Old Whitechurch Road to its junction with Bros. Delaney Road.	Single two-way carriageway with footway on one side. On street residential parking in sections. Cross section approx. 12m. Existing bus route. (215, 248) Identified as a future "interurban" route in the Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_025	Dublin Hill Lower from Dublin Street to Hawthorn Estate	Single two-way carriageway bounded by residential properties, greenspace. Restricted cross section (and headroom) at railway bridge. The cross section varies from approx. 8-12m. Existing bus route. (248, 207A) Identified as a future Primary Cycling Route CCN-U13 in Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_026	Glenheights Road / Ballincollie Road from its junction with Hawthorne Estate to its junction with Lower Dublin Hill.	Single two-way carriageway bounded by greenspace and residential properties. Cross section approx. 9-14m. Existing bus route. (207) Identified as a future Primary Cycling Route CCN- U38 in Cork Cycle Network Plan 2015.	Additional width would be available from existing greenspace in sections to provide bus and segregated cycling facilities. However pinch points at certain locations will remain. As this is an existing bus route it will be taken to Stage 2 Multi Criteria Analysis.	Pass

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_027	Ballincollie Road from Spring Lane to Glenheights Road	Single two-way carriageway bounded by greenspace, sports grounds and residential properties. Existing bus route with footway on both sides of the road in some sections. Cross section approx. 10-12m. Signalised pedestrian crossing. Existing bus route. (207) Identified as a future Secondary Cycling Route CCN-U38 in Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land, realigning footways and reallocating existing general traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_028	Spring lane from Dublin Street to Ballincollie Road	One-way carriageway with single footway on the north side of the road. Cross section 7.5-11m. 3.66m headroom under the rail bridge. Not an existing through route. Not an existing bus route. Identified as a future Primary Cycling Route CCN-U40 in Cork Cycle Network Plan 2015.	Provision of two way bus priority and general traffic is not viable due to the scale of works and impact to adjacent properties/structures. However, as alternative cycling routes through this section are limited this route will be carried forward to the Stage 2 Multi Criteria Analysis as a alternative NMU route only.	Pass*
0004_029	Spring Lane from Ballincollie Road to North Ring Road.	Single two-way carriageway bounded by industrial units, residential properties and a single footway in some sections. Cross section 8-11m. Existing bus route. (207) Identified as a future Secondary Cycling Route CCN- U38 in Cork Cycle Network Plan 2015.	Additional width could be achieved through extending the alignment into existing greenspace and the carpark of the industrial unit to the south of the alignment. However as this is an existing bus route it will be taken to Stage 2 Multi Criteria Analysis.	Pass
0004_030	Redforge Road between Dublin Street and Bros. Delaney Road.	Single two-way carriageway with additional ghost island turning lanes. Bounded by retail properties on both sides. The cross section varies from approx. 11-16m. Existing bus route. (203, 215) Identified as a future Secondary Cycling Route CCN- U8B in Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_031	Devonshire Street from N20 to its junction with Lower John Street.	Short two-way link between N20 and Knapp's Sq. bounded by properties. The cross section approx. 8m from back of footway to back of footway. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Limited opportunity to acquire additional land due to existing building lines. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_032	Kinvara Park from Upper Dublin Hill to Kinvara Avenue.	Single two-way cul-de-sac bounded by residential properties and greenspace. The cross section approx. 8-9m from back of footway to back of footway. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_033	Brother Delaney Road from the junction with the N20 Commons Road to Redforge Road.	Urban dual two-way carriageway with ghost island turning lanes. Cross section approx. 22m. Existing bus route. (203, 248) Identified as a future Secondary Cycling Route CCN- U8 in Cork Cycle Network Plan 2015.	As this is an existing bus route and bus priority, segregated cycling facilities and general traffic could be accommodated by reallocating existing general traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_034	Fairfield Avenue from Fairfield Road to Commons Road	Single two-way carriageway bounded by footways and residential properties. Cross section approx. 11-12m. Existing bus route (201, 203) Identified as a future primary route CCN-U8A in the Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_035	Commons Road from Popham's Road to Thomas Davies St	Single two-way carriageway bounded by residential properties. The cross section varies from approx. 11-16m. Not an existing bus route. Identified as secondaruary route CCN-U8 in the Cork Cycle Network Plan 2015.	Limited opportunity to acquire additional land due to existing building lines. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_036	Popham's Road between Commons Road junction and the N20 Commons Road junction.	Single two-way carriageway with additional turning lane onto access N20. The cross section varies from approx. 17m. Existing bus route. (201, 203) Identified as a future secondary route CCN-U8 in the Cork Cycle Network Plan 2015.	As this is an existing bus route and additional width could be achieved through extending the alignment into adjacent third party land (commercial car parking), reallocating traffic lanes, reducing the width of footways and extending the alignment into the verge this section will be taken to Stage 2 Multi Criteria Analysis.	Pass
0004_037	Dublin Street from Thomas Davis Street to the junction with Redforge Road	Single two-way carriageway bounded by properties. The cross section varies from approx. 8-14m. Existing bus route (203, 207A, 215) Identified as part of secondary route CCN-U8B in the Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_038	N20 Commons Rd from the junction with the Comercial Estate to the junction with the North Ring Road.	National primary Road. Urban dual carriageway with 2-way traffic and additional ghost island turning lanes. Discontinuous footways on both sides of the road. Cross section approx. 20-22m. Existing bus route. (201,403) Identified as primary route CCN-U12 in the Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated within the existing boundary by reassigning traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_039	Farranferris Avenue from Fairfield Avenue to Seminary Way	Single two-way carriageway bounded by residential properties. Cross section approx. 11-12m. Existing bus route. (201, 203) Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Bus priority or segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land (private gardens). As this is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_040	New link from R635 North Ring Road to Spring Lane adjacent to the Cork-Dublin railway line.	A new link through greenspace adjacent to the existing railway. Elevation difference approx. 16m over 200m. Not an existing bus route. Identified as a future Primary Cycling Route CCN-U40 in Cork Cycle Network Plan 2015.	As this is not currently a route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_041	North Ring Road from its junction with Spring Lane to the railway bridge.	Urban ring road with sections of dual two-way carriageway with no central reservation, wide single carriageway with overtaking lanes and ghost island junctions. Bounded by greenspace and some commercial uses. Cross section 18-25m. Identified as a future Primary Cycling Route CCN-U14 in Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land and reallocating existing general traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_042	Mount Farran Place from its junction with Assumption Road to the R635 North Ring Road.	Single two-way carriageway with on street parking on narrow footways. Cross section approx. 6-8m. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Limited opportunity to provide bus priority due to scope of the works and existing building line. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_043	Thomas Davis Street from its junction with Bothar an Choimin to Dublin Street.	Single two-way carriageway bounded by residential properties and commercial premises. Cross section approx. 10-12m cross section. Existing bus route (203, 207A, 215) Identified as secondary route CCN-U8 in the Cork Cycle Network Plan 2015.	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_044	Mount Farran from Assumption Road through a green area onto Glen Avenue to its junction with the R635 North Ring Road.	Single two-way carriageway with on street parking on narrow footways. Cross section approx. 6-8m. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Limited opportunity to provide bus priority due to scope of the works and existing building line. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_045	North Ring Road from Mairew McSwiney bridge to its junction with Spring Lane	Urban ring road with sections of dual two-way carriageway with no central reservation, wide single carriageway with overtaking lanes and ghost island junctions. Bounded by greenspace and some commercial uses. Cross section 18-25m. Existing bus route. (201, 207) Identified as a future Primary Cycling Route CCN-U14 in Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land and reallocating existing general traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_046	Watercourse Road from its junction with Madden's Buildings to its junction with Commons Road.	Single two-way carriageway with additional turning lane to access N20. Bounded by residential properties and commercial premises. The cross section varies from approx. 11-17m. Existing bus route. (203, 215) Signalised pedestrian crossings at both junctions. Identified as secondary route CCN-U8 in CCNP. .	Limited opportunity to gain additional width, however as this is an existing bus route it will be taken forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_047	N20 North City Link from junction with Assumption Road to junction with North Ring Road	National primary Road. Urban dual carriageway with 2-way traffic and additional ghost island turning lanes. Cross section approx. 22-28m. Existing bus route. (207) Identified as primary route CCN-U12 in the Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated within the existing boundary by reassigning traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_048	Assumption Road from its Link with N20 North City Link Road to its junction with Mount Farran.	Single two-way carriageway bounded by retaining walls, Residential Neighbourhood and commercial property. Single sided footway provision for the most part with no on-street parking. Moderate to steep gradient depending on the section. Cross section 8-11m. Not an existing bus route. Identified as a future Secondary Cycling Route CCN-U39 in Cork Cycle Network Plan 2015.	Limited opportunity to acquire additional land due to level difference and retaining walls in adjacent sites. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_049	Popham's Road between Farranferris Avenue and Commons Road.	Single two-way carriageway with bounded by residential properties and retaining structures. Steep gradient. Cross section approx. 12m. Not an existing bus route. Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works, the level difference to adjacent properties and in places the existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_050	Brocklesby Street from Great William O'Brien Street to its junction Commons Road	Single two-way carriageway bounded by residential properties. The cross section varies from approx. 4-7m and requires general traffice to shuttle through pinch points. The footway is discontinuous on one side of the carriageway but is continuous on the other. Not an existing bus route. Identified as primary route CCN-U9 in the Cork Cycle Network Plan 2015.	No opportunity to acquire additional land due to existing building lines. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_051	Assumptions Link Road from the N20 to Assumption Road.	Three lane two-way carriageway with footways on both sides of the road. Cross section approx. 13m. Not an existing bus route. Identified as secondary route CCN-U39 in the Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land and reallocating existing general traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_052	Maddens Buildings from the junction with Watercourse Road to the junction with Great William O'Brien Street.	One way (west to east) single carriageway bounded by residential properties and narrow footways on both sides of the road. Not an existing bus route. Not identified in the Cork Cycle Network Plan 2015 and not an existing bus route.	No opportunity to acquire additional land due to existing building lines. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_053	Watercourse Road from its junction with Cathedral Walk to its junction with Madden's Buildings.	Single two-way carriageway with 2 general traffic lanes, approx. 9-15m including footways. Existing bus routes. (203 + 215) Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U6A)	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and extents of land take required. However, as this section is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_054	Redemption Road / Lovers Walk / Seminary Walk from Seminary Road to the junction with Farranferris Avenue.	Residential two-way road. The cross section varies from approx. 9-15m. Not an existing bus route. Not identified in the Cork Cycle Network Plan 2015 and not an existing bus route.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing property lines at pinch points. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_055	Old Whitechurch Road from its junction with the Old Mallow Road to unnamed Road to the North of Kilbarry Business Park	Single two-way carriageway with a footway on one side of the carraigeway. There are several pinchpoints along this link including a railway underbridge and retaining walls. The cross section varies from 9-13m. Not identified in the Cork Cycle Network Plan 2015. Not an existing bus route.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing structures at southern end of the link. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_056	Great William O'Brien Street from its junction with North Monastery Road to its junction with Brocklesby Street.	Single two-way carriageway with footways and on street parking. The cross section varies from approx. 10-22m. Not an existing bus route. Identified as primary route CCN-U9 in the Cork Cycle Network Plan 2015. Bounded by buildings.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the existing property lines along the section between Seminary Rd and N. Monestary Rd. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_057	Maddens Buildings from its junction with Watercourse Road to its junction with Great William O'Brien Street.	One way single carriageway bounded by residential properties and narrow footways. Not an existing bus route. Not identified in the Cork Cycle Network Plan 2015 and not an existing bus route.	No opportunity to acquire additional land due to existing building lines. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_058	Seminary Road from its junction with Great William O'Brien Street to its junction with Redemption Road.	Single two-way carriageway with narrow stepped footways in sections. Not a through route for vehicles. Steep gradient and not identified in the Cork Cycle Network Plan 2015. Not an existing bus route.	Limited scope to gain further width. Not suitable for bus priority and gradient may make it less accessible for cyclists. Therefore, it will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_059	North Monestary Road from the junction with Wolfe Tone Street / Sunvalley Drive / Fairhill to the junction with Watercourse Road	Single two-way carriageway with 2 general traffic lanes, approx. 15-18m including footways. Not an existing bus route. Identified in the Cork Cycle Network Plan 2015 as a Primary Cycle Route (CCN-U6)	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_060	Allinett's Lane from its junction with Watercourse Road to its junction with Gerald Griffin Street	Pedestrian lane way, the existing arrangement has an approx. cross section of 3-5m. Not currently a through route for vehicular traffic. Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_061	Assumption Road from its junction with Popes Hill to its junction with N20 North City Link Road.	Single two-way carriageway bounded by retaining walls, Residential Neighbourhood and commercial property. Single sided footway provision for the most part with no on-street parking. Moderate to steep gradient depending on the section. One zebra crossing. Cross section 8-11m. Not an existing bus route. Identified as a future Secondary Cycling Route CCN-U39 in Cork Cycle Network Plan 2015.	Limited opportunity to acquire additional land due to level difference and retaining walls in adjacent sites. This will not be taken to Stage 2 Multi Criteria Analysis.	Fail
0004_062	Popes Hill / The Cl adjoinging to Popes Road to its junction with Assumption Road	Two-way single carriageways. Currently two back to back cul de sacs. Significant level difference between the two streets (approx. 7m) Not currently a through route. Not an existing bus route. Not identified in Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_063	Popes Road from its junction with Assumption Road to its junction with Pope's Hill.	Two-way single carriageways. Currently two back to back cul de sacs. Significant level difference between the two streets (approx. 7m) Not currently a through route. Not an existing bus route. Not identified in Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_064	Goldsmith's Avenue / Rathmore Park from the junction with Old Youghal Road to the junction with Popes Road	Single two-way carriageway with parking and footways bounded by properties and greenspace. Pinch points present. Cross section approx. 4-9m. Not an existing bus route. Not identified as a future cycling route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_065	Redemption Road from its junction with North Monastery Road to its junction with Seminary Road	Residential two-way road. The cross section increases from approx. 9m to approx. 15m at the jucntion with North Monestry Road. Not an existing bus route. Not identified in the Cork Cycle Network Plan 2015 and not an existing bus route.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing property lines. In some sections properties to the east are at a significantly lower (up to 2m). As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_066	St Marys Road from junction with North Monastery Road to Gerald Griffin Street.	Single two-way carriageway with two general traffic lanes and an existing cross section of approximately 9m. Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Bus priority would not be viable due to the scale of works and impact to adjacent buildings. This route is not considered appropriate for bus priority, segregated cycling facilities and general traffic and will not be carried forward to the Stage 2 Assessment	Fail
0004_067	Gerald Griffin Avenue from junction with St Marys Rd to junction with Gerald Griffin St	Single one-way carriageway with one general traffic lane, the existing arrangement has an approx. cross section of 3-6m. Not currently a through route for vehicular traffic. (Leads to the Neptune Stadium carpark) Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_068	Hillgrove Lane from the junction with Gerald Griffin Street to the junction with Watercourse Road	Pedestrian lane way, the existing arrangement has an approx. cross section of 3-5m. Not currently a through route for vehicular traffic. Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	As this is not currently a through route or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_069	N20 North City Link from its junction with Assumption Road to the junction with Cathedral Walk	National primary Road. Urban dual carriageway with 2-way traffic and additional ghost island turning lanes. Cross section approx. 20-22m. Not an existing bus route. Identified as primary route CCN-U12 in the Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated within the existing boundary by reassigning traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_070	Unnamed side road / access to the North of Kilbarry Business Park from Old White Church Road to its junction with Dublin Hill Upper	Private road. Not an existing bus route. Not identified in the Cork Cycle Network Plan 2015.	As bus priority, segregated cycling facilities and general traffic could be accommodated by extending the alignment into third party land this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_071	Cathedral Walk from the junction with Gerald Griffin Street to the junction with the N20	One-way 2-lane carriageway, approx. 7-11m cross section including footways. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to convert this section from two eastbound traffic lanes to one east bound traffic lane and one westbound bus lane. A new signalised junction at the intersection of Watercourse Road, Cathedral Walk and Upper John Street and bus priority at the junction of Cathedral Walk and North Link Road (N20) will also be provided. Existing bus route. (203 + 215) Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U11)	A one-way bus priority lane could be achieved by reallocating a general traffic and amending the signals. Provision of 2-way bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and extents of land take required. However, as this section is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_072	Old Youghal Road from Richmond Hill to Audley Place	Single two way carriageway with footways on both sides of the road, bounded by residential properties, a sports field(s) and Collins Barracks. The cross section is approx. 6m. Existing bus route. (209) (Eastern portion) Identified as a future Secondary Cycle Route CCN-U35 in Cork Cycle Network Plan 2015.	As there is limited opportunity to provide bus priority due to the constrained space and existing building line this link will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_073	Pedestrian link from Richmond Hill to N20	Stepped pedestrian link from Richmond Hill to N20. Not identified in the Cork Cycle Network Plan 2015.	As this is not currently a through route for vehicular traffic, the gradient is particularly steep (approx. 20%) or an existing bus route and alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_074	Gerald Griffin Street from junction with North Monastery Road / O'Connell Street to junction with Cathedral Rd / Roman St	Single two-way carriageway with two general traffic lanes, approx. 11-16m including footways. Properties are typically located at the back of footway Not an existing bus route. Identified as a Cycle Route in Cork Cycle Network Plan 2015 as a Primary Cycle Route (CCN-U9)	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_075	Vincent's Avenue from junction with Wolfe Tone Street to junction with Saint Mary's Road	One-way single carriageway with one general traffic lane, the existing cross section varies from 4.5m from the back of footway to the boundary line on the opposite side of the carriageway. Not an existing through route for vehicular traffic. Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to adjacent houses. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_076	N20 North City Link from junction with Cathedral Walk to junction with Camden Quay	National primary Road. Urban dual carriageway with 2-way traffic and additional ghost island turning lanes. Cross section approx. 24m. Existing bus routes. (203 + 215) Identified in the Cork Cycle Network Plan 2015 as a Primary Cycle Route (CCN-U12)	As bus priority, segregated cycling facilities and general traffic could be accommodated by reallocating traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_077	Richmond Hill from the junction with Hardwick Street to the junction with Old Youghal Road.	Single two-way carriageway with on street parking and narrow footways. Cross section 4-7.5m. Steep gradient. Not an existing bus route. Identified as a Secondary route CCN-U35 in Cork Cycle Network Plan 2015.	Limited opportunity to provide bus priority due to scope of the works, steep gradient and existing building line. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_078	St Patrick' Hill/Audrey Place from the junction with MacCurtain Street to the junction with Old Youghal Road	Single lane one-way (southbound) carriageway bounded by buildings on both sides of the road. There is a steep slope with a cross section of 6-14m. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to reverse this section from southbound to northbound traffic flow and to relocate the existing on-street parking from the western side of the street to the eastern side. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Due to the width constraints and steep slope, this link would not be appropriate for public transport or cycling infrastructure and will not be taken to Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_079	Leitrim Street from the junction with Coburg Street to the junction with the N20.	One-way carriageway with 2 inbound general traffic lanes and on-street parking on the south side of the carriageway. Footways on both sides with building coming to the back of the footways. Cross section approx. 11-12m. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to provide an inbound cycle lane, an outbound cycle track (partial) and reduce the number of general traffic lanes. Not an existing bus route. Identified as a Secondary route CCN-U34 in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the existing building lines. However, as this section is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_080	Cathedral Road from its junction with Wolfe Tone Street to its junction with Shandon Street	Single two-way carriageway with 2 general traffic lanes, approx. 12m in cross section including footways. Existing Bus route. (202 + 202a) Identified as a primary Cycle Route in Cork Cycle Network Plan 2015 (CCN-U31)	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and extents of land take required. However, as this section is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_081	Popes Hill from its junction with the N20 to its junction with Assumption Road.	Single one-way carriageway bounded by a mixture of residential and commercial properties. Single footway and on street parking. The cross section varies from approx. 5-8m on a steep gradient. Not an existing bus route Not identified as a future cycling route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works, steep gradient and impact to existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_082	Fair Street from the junction with Wolfe Tone Street to the junction with Cattle Market Avenue.	Two-way single carriageway with 2 general traffic lanes with approx. 10m cross section including footways. Residential area with on-street residential parking and properties on both sides of carriageway. Not an existing bus route. Not Identified as a Cycle Route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to adjacent houses. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_083	Eason's Hill/ Exchange Street from its junction with Upper John Street to its junction with Dominick Street	Two-way pedestrianised street with 2 general traffic lanes within an approx. cross section of 5.8-11.1m including footways. Not an existing bus route. Not Identified as a Cycle Route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable along the full length of this section due to the scale of works and existing building line. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_084	Old Market Place/ Glen Ryan Road from its junction with Blarney Street to its junction with Wolfe Tone Street.	Two-way single carriageway with 2 general traffic lanes, approx. 11-23m including footways. Residential area with on-street residential parking and properties on both sides of carriageway. Not an existing bus route. Not Identified as a Cycle Route in Cork Cycle Network Plan 2015	Provision of bus priority, segregated cycling facilities and general traffic is not viable along the full length of this section due to the scale of works and existing building line at the northern end of the link. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_085	Blarney Street from its junction with Old Market Place to its junction with Shandon Street	Single two-way carriageway with 2 general traffic lanes, approx.7-8m including footways Not an existing bus route Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U1)	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to adjacent houses. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_086	Devonshire Street from N20 to its junction with Leitrim Street.	One way (Coburg St to Pine St) and two way (Pine St to N20) sections. Footways throughout and bounded by buildings up to the back of the footways. Cross section ~10m with on street parking on the one-way section. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to replace the existing eastbound lane with a westbound general traffic lane and provide a westbound bus lane. There will also be a new signalised junction at the intersection of N20 North Link Road and Devonshire Street. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Limited opportunity to acquire additional width but potential to accommodate one-way bus priority and/or segregated two-way cycling facilities. This will be taken to Stage 2 Multi Criteria Analysis.	Pass
0004_087	Hardwick Street from its junction with St Patricks Hill to its junction with Leitrim Street	Single two-way carriageway bounded by buildings with narrow footways. Cross section 7-8m from back of footway to back of footway. Not an existing bus route. Identified as Secondary cycle route CCN-U34 in Cork Cycle Network Plan 2015.	Limited opportunity to provide bus priority due to scope of the works, the gradient and existing building line. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_088	Coburg Street from its junction with Leitrim to its junction with Street MacCurtain	One-way two lane street with on-street echelon parking on the south side bounded by commercial properties on both sides. There are footways on both sides of the road and signalised pedestrian crossing at the junction with MacCurtain Street. Cross section 16-18m. There is a public bike share point at the junction with MacCurtain Street. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to convert Coburg Street from two eastbound general traffic lanes to one new westbound general traffic lane and one eastbound bus lane (24 hour), to provide two new bus stops, upgrade footways, provide set down spaces and loading bay and introduce a bus priority signalised junction at the junction of Bridge Street with Coburg Street. Not an existing bus route. Not identified as a future cycling route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the existing building lines. However, as this section will become a bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_089	Bridge Street from its junction with Coburg Street/ MacCurtain Street to its junction with Camden Place.	One-way (South to North) carriageway with 2 general traffic lanes, a bus lane and parallel on street parking. Cross section of approx. 18.5m. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed to convert Bridge Street from one way eastbound to two-way traffic, to provide enhanced public realm, a paved shared surface area, two new bus stops and upgrades existing traffic signals and public lighting. Existing bus route (200, 214, 600, 205, 241, 207, 209, 208, 212) Identified as Primary Routes CCC-U12 and CCN-U19 in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the existing building lines. However, as this section will become a bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_090	Cattle Market Avenue from its junction with Glen Ryan Avenue/ Wolfe Tone Street to its junction with Shandon Street	Two-way single carriageway with 2 general traffic lanes, approx. 12m including footways. Not an existing bus route. Not Identified as a Cycle Route in Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to adjacent houses. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_091	Shandon Street from its junction Popes Quay to its junction with Cathedral Road	Two-way single carriageway with 2 general traffic lanes, approx. 13-16m including footways. Not an existing bus route. Identified in the Cork Cycle Network Plan 2015 as a Primary Cycle Route (CCN-U9)	Provision of bus priority, segregated cycling facilities and general traffic is not viable along the full length of this section due to the scale of works and existing building line at the northern end of the link. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_092	Mulgrave Street/ John Redmond Street/ Upper John Street/ Roman Street from its junction with Shandon Street/ Gerald Griffin Street to its junction with Pope's Quay	Single two-way carriageway with 2 general traffic lanes, approx. 10-11m including footways. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 new pedestrian gateway at the junction of Popes Quay and Mulgrave Road and new bus stops along Mulgrave Street are planned. Existing bus routes. (202,202a,248 and 203,215 for the eastern end only) Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U11)	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and extents of land take required. However, as this section is an existing bus route it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_093	John Street Upper from its junction with Roman Street to its junction with Eason's Hill.	One-way carriageway with on street parking. The existing cross section varies from 9m including footways. Existing outbound bus route. (203, 215) Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U11)	A one-way bus priority lane could be achieved by reallocating a general traffic lane and amending the signals. Provision of a 2-way bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and extents of land tale required. This is an existing bus route. However, it will not be carried forward to the Stage 2 Assessment as it would only provide a one-way bus route with restricted pedestrian connectivity and permeability options. This also has other more viable options available	Fail
0004_094	Farren's Quay/ Pope's Quay from its junction with Shandon Street to its junction with Camden Quay	One-way single carriageway with up to 2 general traffic lanes, approx. 11-18m from the quay wall to the building line. Existing bus routes. (226, 600, 225, 214, 212, 205, 200, 241 + 214 at the eastern end of this section) Identified in the Cork Cycle Network Plan 2015 as a Primary Cycle Route (CCN-U26)	As bus priority, segregated cycling facilities and general traffic could be accommodated by reallocating traffic lanes this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_095	Lower John Street from its junction with Cathedral Street to its junction with Knapp's Square	One-way carriageway with on street parking. The existing cross section varies from 9m including footways. Existing outbound bus route. (203, 215) Identified in the Cork Cycle Network Plan 2015 as a Secondary Cycle Route (CCN-U11)	Provision of segregated cycling facilities and 2-way general traffic is not viable due to the existing building line. As this route is being proposed as a "quiet streets" cycling route by Cork City Council it will be carried forward to the Stage 2 Multi Criteria Analysis as a alternative NMU route only.	Pass*

Line Code_Space Code_ID Code	Location (From - To)	Description	Comment	Pass / fail
0004_096	Knapp's Square from junction with Devonshire Street to junction with Camden Quay.	One-way single carriageway with one general traffic lane and parallel on street parking. The existing cross section varies from 4-7m with limited scope to extend. Not an existing bus route. Not identified as a future cycling route in the Cork Cycle Network Plan 2015. Cork City Council have proposed traffic management measures at Knapp's Square and Lower John's Street to enhance the area for cyclists and pedestrians.	Access via Camden Quay is not suitable for buses. Provision of segregated cycling facilities and 2-way general traffic is not viable due to the existing building line. As this route is being proposed as a "quiet streets" cycling route by Cork City Council it will be carried forward to the Stage 2 Multi Criteria Analysis as a alternative NMU route only.	Pass*
0004_097	Camden Quay/Place from its junction with Carroll's Quay to its junction with Bridge Street	One-way two lane street with additional contraflow bus lane connecting to Bridge Street. Footways on both sides of the road with building line to the back of the footway and the River Lee on the other side. Advance stop line for cyclists at the junction with Carroll's Quay. Signalised pedestrian crossings at both junctions. Cross section approx. 14m. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 it is proposed "*to provide a new footpath and a new two-way cycle track to replace the existing southern footpath* ", to "*remove the eastbound contra flow bus lane .. .", "... upgrade the junction of Camden Quay/Christy Ring Bridge to ... include for the provision of CCTV and new traffic signals and bus priority measures"* and a new bus stop on Camden Quay. Existing bus route. (202, 203, 215, 742) Identified as Primary Route CCC-U11 in Cork Cycle Network Plan 2015.	As bus priority is planned at each of the junctions and segregated cycling facilities will be provided this section it will be carried forward to the Stage 2 Multi Criteria Analysis.	Pass
0004_098	Pine Street from its junction with Leitrim Street along Pine street to its junction with Camden Place	One-way northbound single carriageway which is bounded on both sides by footways to the back of which is the building line. The cross section approx. 8m. As part of the MacCurtain Street Public Transport Improvement Scheme, where construction is due to commence in the Autumn of 2021 additional on street parking and loading bay will be provided and existing footpaths and public lighting will be upgraded. Not an existing bus route. Not Identified as a future cycling route in the Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the existing property lines. As alternative routes are available this section will not be carried forward to the Stage 2 Multi Criteria Analysis.	Fail
0004_099	Dominick Street from its junction with Shandon Street to its junction with John Redmond Street	One-way single carriageway with one general traffic lane, the existing cross section varies from 4.5m-8m and includes a pedestrianised zone. Not an existing bus route. Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Provision of bus priority, segregated cycling facilities and general traffic is not viable due to the scale of works and impact to adjacent houses. As alternative routes are available this section will not be carried forward to the Stage 2 Assessment.	Fail
0004_100	John Redmond Street from its junction with Eason's Hill to its junction with Upper John Street	Single two-way carriageway to the east which changes to a pedestrianised zone with traffic bollards marking the footways in the vicinity of the Exchange St. The existing cross section varies from 10-12m. Not an existing bus route Not identified as a future cycling route in the Cork Cycle Network Plan 2015.	Bus priority would not be viable due to the scale of works and impact to adjacent buildings. This route is not considered appropriate for bus priority, segregated cycling facilities and general traffic and will not be carried forward to the Stage 2 Assessment	Fail

Appendix B

SAS 1 (CITY CENTRE TO MADDEN'S BUILDINGS)

CBC4 - SAS1 (CITY CENTRE TO MADDEN'S BUILDINGS) MULTI CRITERIA ANALYSIS

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
Economy	1a.Capital Costs	€10,510,00	€12,700,000	€12,880,000	€12,940,000	€11,740,000	€11,930,000
	1a.Rank						
	1b.Average Journey Time (min)	6.8	6.6	7.3	8.0	8.0	8.0
	1b.Rank						
	1c.Journey Time Reliability and Consistency	85% bus priority	85% bus priority	78% bus priority	81% bus priority	68% bus priority	64% bus priority
	1c.Rank						
Integration	2a.Land Use Integration	No difference	No difference	No difference	No difference	No difference	No difference
	2a.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
	2b.Residential Population and Employment Catchments	**Residential Population Catchments** • 5 minute walk catchment of approximately 5,033 • 10 minute walk catchment of approximately 11,845 • 15 minute walk catchment of approximately 22,956 **Employment Catchment** • 15 minute walk catchment of approximately 24,651.	**Residential Population Catchments** • 5 minute walk catchment of approximately 4,637 • 10 minute walk catchment of approximately 11,105 • 15 minute walk catchment of approximately 22,598 **Employment Catchment** • 15 minute walk catchment of approximately 24,478.	**Residential Population Catchments** • 5 minute walk catchment of approximately 5,121 • 10 minute walk catchment of approximately 11,942 • 15 minute walk catchment of approximately 23,180 **Employment Catchment** • 15 minute walk catchment of approximately 24,704.	**Residential Population Catchments** • 5 minute walk catchment of approximately 4,730 • 10 minute walk catchment of approximately 11,243 • 15 minute walk catchment of approximately 22,822 **Employment Catchment** • 15 minute walk catchment of approximately 24,531.	**Residential Population Catchments** • 5 minute walk catchment of approximately 4,730 • 10 minute walk catchment of approximately 11,243 • 15 minute walk catchment of approximately 22,822 **Employment Catchment** • 15 minute walk catchment of approximately 24,531.	**Residential Population Catchments** • 5 minute walk catchment of approximately 4,730 • 10 minute walk catchment of approximately 11,243 • 15 minute walk catchment of approximately 22,822 **Employment Catchment** • 15 minute walk catchment of approximately 24,531.
	2b.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
	2c.Transport Network Integration	215, 203 existing bus routes for approximately 60% of the route. Reducing full section of N20 to two single general traffic lanes. Biggest impact on the N20 for general traffic.	215, 203 and partially on 200 on Bridge Street. Reducing the majority of this section of N20 to two single general traffic lanes.	Duplicates existing bus route for entire option 215, 203. Reducing N20 to two single general traffic lanes approximately 500m. Reducing Watercourse Road to one way/one lane for general traffic.	Duplicates existing bus route for entire option 215, 203 for the majority of the route. Reducing N20 to two single general traffic lanes approximately 400m. Reducing Watercourse Road to one way/one lane for general traffic.	Duplicates existing bus route for entire option 215, 203 for the majority of the route. Reducing N20 to two single general traffic lanes approximately 400m. Reducing Watercourse Road to one way/one lane for general traffic.	Duplicates existing bus route for entire option 215, 203 for the majority of the route. Existing lanes for general traffic in N20 have been retained. No through traffic in Watercourse Road due to the use of bus gates.
	2c.Rank						
	2d.Cyclist Integration	Primary Route CCN-U12 2m cycle tracks with two pinch points – 1.5m and 1.75m	Primary Route CCN-U12 & Secondary Route CCN-U34	Similar provision to Option A1	Similar provision to Option A2 at southern end. Secondary route CCN-U6A along Watercourse Road	Southern half of the section is not featured in the Cork Cycle Network Plan, however. Cycle Street approach and protected cycle tracks in places. Outbound cycle track and inbound shared with bus lane Watercourse Road along watercourse Road	Primary Route CCN-U12 & Secondary Route CCN-U34. Secondary route CCN-U6A along Watercourse Road ‘Quiet streets’ cycle route along Watercourse Road as through traffic would be removed due to the use of bus gates.
	2d.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
	2e.Pedestrian Integration	All options considered to provide a similar level of service for pedestrians.					
	2e.Rank						
Accessibility and Social Inclusion	3a.Key Trip Attractors	Option A1 is on the N20 for its entire length, which arguably has less trip attractors than other options which provide better access commercial attractors.					
	3a.Rank						
	3b.Deprived Geographic Areas	All options serve similar areas in terms of deprivation.					
	3b.Rank						
Safety	4.Road Safety	No. of Junctions: 6 1 turning movement required inbound (1 Left Turn). 1 turning movement required outbound (1 Right Turn).	No. of Junctions: 7. 3 turning movements required inbound (2 Right Turn / 1 Left Turn). 3 turning movements required outbound (1 Right Turn / 2 Left Turn).	No. of Junctions: 7. 3 turning movements required inbound (1 Right Turn / 2 Left Turn). 3 turning movements required outbound (2 Right Turn / 1 Left Turn).	No. of Junctions: 8 4 turning movements required inbound (2 Right Turn / 2 Left Turn) 4 turning movements required outbound (2 Right Turn / 2 Left Turn).	No. of Junctions: 8 4 turning movements required inbound (2 Right Turn / 2 Left Turn) 4 turning movements required outbound (2 Right Turn / 2 Left Turn).	No. of Junctions: 8 4 turning movements required inbound (2 Right Turn / 2 Left Turn) 4 turning movements required outbound (2 Right Turn / 2 Left Turn).
	4.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
Environment	5a.Archaeological, Architectural and Cultural Heritage	The route does not pass through any Architectural Conservation Areas (ACA). There are three protected structures and 13 NIAH structures adjacent to the route.	The route passes through the Coburg Street ACA. There are numerous protected structures along Coburn Street, Bridge Street and Camden Place. Structures recorded on the NIAH are located along the route.	The majority of the route is not within the Blackpool ACA except O'Connell Street which is within the ACA. There are three protected structures and 14 NIAH structures adjacent to the route.	The route passes through the Coburg Street ACA and is partially in Blackpool ACA (O'Connell Street). There is one protected structure and structures recorded on the NIAH along the route.	The route passes through the Coburg Street ACA and is adjacent to the eastern edge of the Blackpool ACA. There are numerous protected structures and structures recorded on the NIAH in the southern half of the route.	The route passes through the Coburg Street ACA and is adjacent to the eastern edge of the Blackpool ACA. There are numerous protected structures and structures recorded on the NIAH in the southern half of the route.
	5a.Rank						
	5b.Biodiversity	No land take and an urban setting unlikely to be of high value for biodiversity.	No land take and an urban setting unlikely to be of high value for biodiversity.	Very minor land take in an urban setting unlikely to be of high value for biodiversity.	Very minor land take in an urban setting unlikely to be of high value for biodiversity.	No land take and an urban setting unlikely to be of high value for biodiversity.	No land take and an urban setting unlikely to be of high value for biodiversity.
	5b.Rank						
	5c.Soils and Geology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	5c.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
	5d.Water Resources	Potential Risk of Fluvial and Tidal flooding from River Lee. If carriageway is widened potential risk of fluvial flood from River Bride.	Potential Risk of Fluvial and Tidal flooding from River Lee. If carriageway is widened potential risk of fluvial flood from River Bride.	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location).	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location).	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location).	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location).
	5d.Rank						
	5e.Landscape and Visual	No appreciable impacts.	No appreciable impacts.	Minor encroachment onto third party land for relocation of parking. No vegetation loss. Minimal impacts.	Minor encroachment onto third party land for relocation of parking. No vegetation loss. Minimal impacts.	Minor impacts resulting from reduction in on street parking. No vegetation loss or encroachment.	Street parking in Watercourse Road maintained as bus gates provide bus priority.
	5e.Rank						

	Analysis Sub-Criteria	Route Option A1	Route Option A2	Route Option A3	Route Option A4	Route Option A5	Route Option A6
	5f.Noise, Vibration and Air	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Increased traffic between junction at Madden's Buildings / N20 and O'Reilly's Filling Station on Watercourse Road.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed Shared bus / general traffic on Leitrim Street. Increased traffic between junction at Madden's Buildings / N20 and O'Reilly's Filling Station on Watercourse Road.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduced through traffic on Watercourse Road.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduced through traffic on Watercourse Road. Shared bus / general traffic on Leitrim Street.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed John Street Upper and Cathedral Walk will remain one way only (Increase inbound traffic on N20)	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed John Street Upper and Cathedral Walk will remain one way only (Increase inbound traffic on N20) Reduced through traffic along Watercourse Road
	5f.Rank						
	5g.Land Use and the Built Environment	No likely change to land use character. The existing cross section can accommodate the full cross section.	No likely change to land use character. Parking spaces provided along Bridge Street, Coburg Street and Leitrim Street.	Parking spaces relocated. No likely change to the land use character.	Parking spaces relocated. No likely change to the land use character.	Parking spaces relocated. No likely change to the land use character.	No likely change to the land use character. Street parking in Watercourse Road maintained as bus gates provide bus priority.
	5g.Rank						

Appendix C

SAS 2 (MADDEN'S BUILDINGS TO DUBLIN HILL)

CBC 4 - SAS2 (MADDEN'S BUILDINGS TO DUBLIN HILL) MULTI CRITERIA ANALYSIS

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
Economy	1a.Capital Cost	€21,380,000	€23,530,000	€19,840,000	€19,220,000
	Rank				
	1b.Average Journey Time (min)	19.8	21.9	16.0	21.9
	Rank				
	1c.Journey Time Reliability and Consistency	65% bus priority	46% bus priority	40% bus priority	46% bus priority
	Rank				
Integration	2a.Land Use Integration	No difference	No difference	No difference	No difference
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
	2b.Residential Population and Employment Catchments	***Residential Population Catchments*** • 5 minute walk catchment of approximately 3,470 • 10 minute walk catchment of approximately 9,664 • 15 minute walk catchment of approximately 18,417 ***Employment Catchment*** • 15 minute walk catchment of approximately 9,306.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 3,598 • 10 minute walk catchment of approximately 9,635 • 15 minute walk catchment of approximately 18,327 ***Employment Catchment*** • 15 minute walk catchment of approximately 8,951.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 3,320 • 10 minute walk catchment of approximately 9,804 • 15 minute walk catchment of approximately 17,697 ***Employment Catchment*** • 15 minute walk catchment of approximately 9,231.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 3,598 • 10 minute walk catchment of approximately 9,635 • 15 minute walk catchment of approximately 18,327 ***Employment Catchment*** • 15 minute walk catchment of approximately 8,951.
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
	2c.Transport Network Integration	Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 207A, 201, 203, 207. Reduces majority N20 and North Ring Road to two general traffic lanes	Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 201, 203. Some restrictions to general traffic on Thomas Davis Street and Dublin Street. North Ring Road reduced to two traffic lanes. Reduces N20 and North Ring Road to two general traffic lanes	Duplicates existing bus routes from Madden's Buildings to Glenheights Park 201, 203, 207, 207A. Reduces N20, Brothers Delaney Road to two general traffic lanes	Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 203, 201, 207. Some restrictions to general traffic on Thomas Davis Street and Dublin Street. North Ring Road reduced to two traffic lanes.
	Rank				
	2d.Cyclist Integration	Mixture of Primary and Secondary Routes with sections not identified in the CCNP (North Ring Road) Consistent cycle infrastructure for the most part.	Similar to Option B1	Similar to Option B1	Mixture of Primary and Secondary Routes. Inconsistent cycle track provision throughout. Mixture of inbound or outbound only in sections. Cycles with general traffic.
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
	2e.Pedestrian Integration	All options considered to provide a similar level of service for pedestrians.			
	Rank				
Accessibility and Social Inclusion	3a.Key Trip Attractors	Blackpool Shopping Centre. GAA clubs and sport grounds.	Blackpool Shopping Centre. Commercial trip attractors on Watercourse Road, Thomas Davis Street and Dublin Street. GAA clubs and sports grounds.	Blackpool Shopping Centre.	Blackpool Shopping Centre. Commercial trip attractors on Watercourse Road, Thomas Davis Street and Dublin Street. GAA clubs and sports grounds.
	Rank				
	3b.Deprived Geographic Areas	Option B3 doesn't provide a bus that serves the very disadvantaged area along North Ring Road, whereas all other options do. Therefore, options B1, B2 and B4 have some advantages over Option B3.			
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
Safety	4.Road Safety	No. of Junctions: 16 11 turning movements required inbound (7 Right Turn / 4 Left Turn) 11 turning movements required outbound (5 Right Turn / 6 Left Turn)	No. of Junctions: 14 6 turning movements required inbound (5 Right Turn / 1 Left Turn) 6 turning movements required outbound (1 Right Turn / 5 Left Turn)	No. of Junctions: 13 10 turning movements required inbound (5 Right Turn / 5 Left Turn) 10 turning movements required outbound (5 Right Turn / 5 Left Turn)	No. of Junctions: 14 6 turning movements required inbound (5 Right Turn / 1 Left Turn) 6 turning movements required outbound (1 Right Turn / 5 Left Turn)
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
Environment	5a.Archaeological, Architectural and Cultural Heritage	The route is at the edge of the Blackpool ACA. Land currently surrounding St. Oliver's Church is to be used for the cycle routes to the north and the greenspace next to Kinvara Close has potential for containing sub-surface archaeological features, but this potential is low.	The route passes through the Blackpool ACA and is adjacent to the Protected Structure of the Church of the Annunciation (PS1139) as well as four other NIAH sites. Land currently surrounding St. Oliver's Church is to be used for the cycle routes to the north and the greenspace next to Kinvara Close has potential for containing sub-surface archaeological features, but this potential is low.	The route is at the edge of the Blackpool ACA. Potential works adjacent to Railway Bridge listed within NIAH (Ref: 20 858 008). Land currently surrounding St. Oliver's Church is to be used for the cycle routes to the north and the greenspace next to Kinvara Close has potential for containing sub-surface archaeological features, but this potential is low.	The route passes through the Blackpool ACA and is adjacent to the Protected Structure of the Church of the Annunciation (PS1139) as well as five other NIAH sites Land currently surrounding St. Oliver's Church is to be used for the cycle routes to the north and the greenspace next to Kinvara Close has potential for containing sub-surface archaeological features, but this potential is low.
	Rank				
	5b.Biodiversity	Minor land take at several locations but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees.	Minor land take at several locations but none likely to be of high value for biodiversity e.g. roadside verges, immature trees	Railway bridge has potential for bat roosts therefore potential for disturbance. Would require further assessment.	Minor land take at several locations but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
	5c.Soils and Geology	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.
	Rank				
	5d.Water Resources	Potential Risk of Fluvial Flood from Glen River and River Briar.	Potential Risk of Fluvial Flood from Glen River and River Briar. Potential Risk of Fluvial Flooding on Watercourse Road.	Potential Risk of Fluvial Flood from Glen River and River Briar.	Potential Risk of Fluvial Flood from Glen River and River Briar. Potential risk of Fluvial Flood on Watercourse Road.
	Rank				
	5e.Landscape and Visual	Adverse impacts resulting from encroachment into existing green space, and third party land (front gardens and grass verges) with potential tree/vegetation removal required.	Adverse impacts resulting from encroachment into grass verges and to third party gardens on Glenheights and Ballincollie Road. Loss of vegetation and restructuring of street scene.	Adverse impacts resulting from the restructuring of railway bridge at Dublin Hill. Additional loss of green space and encroachment into third party land (front gardens and verges) required for route widening and new footpath provision.	Adverse impacts resulting from encroachment into third party land (front gardens and grass verges) for route widening. Restructuring of the street scene to accommodate widening.
	Rank				

	Analysis Sub-Criteria	Route Option B1	Route Option B2	Route Option B3	Route Option B4
	5f.Noise, Vibration and Air	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduced traffic along Thomas Davies Street / Dublin Street due to bus gate	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduced traffic along Thomas Davies Street / Dublin Street due to bus gate
	Rank				
	5g.Land Use and the Built Environment	Additional land required along North Ring Road, Spring Lane, Glenheights Road from St Oliver's National School and along front gardens at Ballincollie Road.	Additional land required along North Ring Road, Spring Lane, Glenheights Road from St Oliver's National School and along front gardens at Ballincollie Road.	Additional land required along Glenheights Road from St Oliver's National School along front gardens at Ballincollie Road.	Additional land required along Spring Lane, Glenheights Road from St Oliver's National School and along front gardens at Ballincollie Road.
	Rank				

Appendix D

END TO END OPTIONS

CBC 4 - END-TO-END OPTIONS MULTI CRITERIA ANALYSIS

		N20 Option	Watercourse Road Option	Watercourse Road North / N20 South	Watercourse Road South / N20 North
Economy	1a.Capital Cost				
	1b. Average Journey-time				
	1c. Journey-time reliability and Consistency				
Integration	2a.Land Use Integration				
	2b.Residential Population and Employment Catchments				
	2c.Transport Network Integration				
	2d. Cyclists Integration				
	2e Pedestrian Integration				
Accessibility and Social Inclusion	3a.Key Trip Attractors (Education/ Health/ Commercial)				
	3b.Deprived Geographic Areas				
Safety	4. Road User Safety				
Environment	5a.Archaeology and Cultural heritage				
	5b.Biodiversity				
	5c.Soils and Geology				
	5d.Water Resources				
	5e. Landscape and Visual				
	5f.Noise, Vibration & Air				
	5g. Land Use and the Built Environment				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
Economy	1a.Capital Costs	€30,490,000	€29,750,000	€28,330,000	€31,910,000
	1a.Rank				
	1b.Average Journey Time (min)	26.6	29.9	28.7	27.8
	1b.Rank				
	1c.Journey Time Reliability and Consistency	68% bus priority	52% bus priority	65% bus priority	64% bus priority
	1c.Rank				
Integration	2a.Land Use Integration	No difference	No difference	No difference	No difference
	2a.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
	2b.Residential Population and Employment Catchments	***Residential Population Catchments*** • 5 minute walk catchment of approximately 7,102 • 10 minute walk catchment of approximately 16,686 • 15 minute walk catchment of approximately 29,862 ***Employment Catchment*** • 15 minute walk catchment of approximately 26,143.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 6,984 • 10 minute walk catchment of approximately 16,084 • 15 minute walk catchment of approximately 29,730 ***Employment Catchment*** • 15 minute walk catchment of approximately 26,009.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 6,876 • 10 minute walk catchment of approximately 16,077 • 15 minute walk catchment of approximately 29,277 ***Employment Catchment*** • 15 minute walk catchment of approximately 25,629.	***Residential Population Catchments*** • 5 minute walk catchment of approximately 6,833 • 10 minute walk catchment of approximately 16,084 • 15 minute walk catchment of approximately 29,730 ***Employment Catchment*** • 15 minute walk catchment of approximately 26,009.
	2b.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
	2c.Transport Network Integration	215, 203 Existing bus routes for approximately 60% of the route in 1st Half. Reducing full section of N20 to two single general traffic lanes. Biggest impact on the N20 for general traffic. Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 207A, 201, 203, 207. North Ring Road reduced to two traffic lanes.	Duplicates existing bus route for entire option 215, 203 for the majority of the route in 1st Half. Existing lanes for general traffic in N20 have been retained. No through traffic in Watercourse Road due to the use of bus gates. Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 203, 201, 207. Some restrictions to general traffic on Thomas Davis Street and Dublin Street. North Ring Road reduced to two traffic lanes.	215, 203 Existing bus routes for approximately 60% of the route in 1st Half. Reducing full section of N20 to two single general traffic lanes Biggest impact on the N20 for general traffic Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 203 (madden's Buildings to shopping centre), 201 (Shopping Centre to North Ring Road), 207 (Ballincollie Road from North Ring Road to Glenthorn Drive).	Duplicates existing bus route for entire option 215, 203 for the majority of the route in 1st Half. N20 Impacted in the Northern half. No through traffic in Watercourse Road due to the use of bus gates. North Ring Road reduced to two traffic lanes. Duplicates existing bus routes from Madden's Buildings to Glenthorn Drive 207A, 201, 203, 207.
	2c.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
	2d.Cyclist Integration	Primary Route CCN-U12 Mixture of Primary and Secondary Routes in SAS 2. Consistent cycle infrastructure for the most part.	Primary Route CCN-U12 & Secondary Route CCN-U34. Secondary route CCN-U6A along Watercourse Road Mixture of Primary and Secondary Routes in 2nd Half. Where segregated facilities cannot be provided, safety for cyclists is promoted by reducing traffic (through the use of bus gates) or adopting a ´Quiet Street´treatment.	Primary Route CCN-U12 In the southern half of this option. Secondary routes CCN-U8 and U8B along Watercourse Road Mixture of Primary and Secondary Routes in 2nd Half. Where segregated facilities cannot be provided, safety for cyclists is promoted by reducing traffic (through the use of bus gates) or adopting a ´Quiet Street´treatment.	Primary Route CCN-U12 Along the N20 and secondary routes CCN-U6A and U8 along Watercourse Road Mixture of Primary and Secondary Routes in 2nd Half. Where segregated facilities cannot be provided, safety for cyclists is promoted by reducing traffic (through the use of bus gates) or adopting a ´Quiet Street´treatment.
	2d.Rank				
	2e.Pedestrian Integration	All options considered to provide a similar level of service for pedestrians.	All options considered to provide a similar level of service for pedestrians.	All options considered to provide a similar level of service for pedestrians.	All options considered to provide a similar level of service for pedestrians.
	2e.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
Accessibility and Social Inclusion	3a.Key Trip Attractors	Blackpool Shopping centre. Being on the N20 for almost half of its length, has less trip attractors than the other option. GAA clubs and sports grounds.	Blackpool Shopping Centre. Commercial trip attractors on Watercourse Road, Thomas Davis Street and Dublin Street. GAA clubs and sports grounds	Blackpool Shopping centre. Commercial trip attractors on Thomas Davis street and Dublin Street with some commercial trip attractors along Watercourse Road, GAA clubs and sports grounds.	Blackpool Shopping centre. Some commercial trip attractors along Watercourse Road. GAA clubs and sports grounds.
	3a.Rank				
	3b.Deprived Geographic Areas	No appreciable difference	No appreciable difference	No appreciable difference	No appreciable difference
	3b.Rank				
Safety	4.Road Safety	No. of Junctions: 22 11 turning movements required outbound (4 Right Turn / 6 Left Turn) 12 turning movements required inbound (7 Right Turn / 5 Left Turn)	No. of Junctions: 22 9 turning movements required inbound (6 Right Turn / 3 Left Turn) 10 turning movements required outbound (6 Right Turn / 4 Left Turn)	No. of Junctions: 23 7 turning movements Outbound (1 Left Turn / 6 Right Turn) 8 Turning Movements Inbound (3 Left Turn, 5 Right Turn)	No. of Junctions: 23 14 turning movements Outbound (8 Left Turn / 6 Right Turn) 16 Turning Movements Inbound (7 Left Turn, 9 Right Turn)
	4.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
Environment	5a.Archaeological, Architectural and Cultural Heritage	The route passes through the Coburg Street ACA. There are some protected structures and numerous NIAH structures adjacent to the route none of which are deemed effected by the proposals	The route passes through the Coburg Street and Blackpool ACA. There are some protected structures and numerous NIAH structures adjacent to the route none of which are deemed effected by the proposals	The route passes through the Coburg Street and Blackpool ACA. There are some protected structures and numerous NIAH structures adjacent to the route none of which are deemed effected by the proposals	The route passes through the Coburg Street and Blackpool ACA. There are some protected structures and numerous NIAH structures adjacent to the route none of which are deemed effected by the proposals
	5a,Rank				
	5b.Biodiversity	Minor land take at several locations but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees No Appreciable Difference	Minor land take at several locations but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees No Appreciable Difference	Minor land take at several location but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees No Appreciable Difference	Minor land take at several location but none are likely to be of high value for biodiversity e.g. roadside verges, immature trees No Appreciable Difference
	5b.Rank				
	5c.Soils and Geology	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.
	5c.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
	5d.Water Resources	Potential Risk of Fluvial and Tidal flooding from River Lee.	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location)	Potential Risk of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road and Redforge Road (historic flooding locations)	Potential Ri of Fluvial and Tidal flooding from River Lee. Potential risk of Fluvial Flooding on Watercourse Road (historic flooding location)
	5d.Rank				
	5e.Landscape and Visual	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.
	5e.Rank				

	Analysis Sub-Criteria	N20 OPTION A1 / B1	WATERCOURSE ROAD OPTION A6 / B4	N20 SOUTH WATERCOURSE ROAD NORTH A1 / B4	WATERCOURSE ROAD SOUTH N20 NORTH A6/B1
	5f.Noise, Vibration and Air	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Increased traffic between junction at Madden's Buildings / N20 and O'Reilly's Filling Station on Watercourse Road.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduces through traffic on Watercourse road and inbound on Thomas Davis Street. Shared bus / general traffic on Leitrim Street.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduces through traffic on Thomas Davis Street.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Reduces through traffic on Watercourse road. Shared bus / general traffic on Leitrim Street
	5f.Rank				
	5g.Land Use and the Built Environment	Parking spaces relocated. No likely change to the land use character.	Parking spaces relocated. No likely change to the land use character.	Parking spaces relocated. No likely change to the land use character.	Parking spaces relocated. No likely change to the land use character.
	5g.Rank				

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