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UCD Ballsbridge to City Centre

Draft Preferred Route Options Report

November 2020

BUS CONNECTS

SUSTAINABLE TRANSPORT FOR A BETTER CITY.

Project Ireland 2040
Building Ireland's Future

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Glossary of Technical Terms

Signal Controlled Bus Priority - refers to where traffic signals are used to give buses priority over general traffic where both buses and general traffic will utilise the same traffic lanes. These signals can be located at a junction or to enforce queue relocation. Queue relocation refers to a system whereby general traffic queues are held upstream with traffic signals when a downstream queue (within a defined length of road) has been maximised ahead of a shared traffic lane at a pinch point on the route. This enables the shared stretch of road to remain 'queue free' and available for any buses that arrive.

Bus Gate – refers to stretches of roads which restrict access to private cars at one or both ends. Bus Gates may be controlled by signage only (i.e. no traffic signals) or may have signals.

Cycle Lane – refers to an on-road lane, with a painted white line acting as the only segregation between the cycle lane and the general traffic lane or bus lane. Generally applicable to one-way cycle movement. Examples are with-flow cycle lanes sharing the carriageway (with vehicles) adjacent to the kerb and cycle lanes crossing through a junction at grade.

Cycle Track – refers to a segregated track which is physically segregated from the adjacent general traffic lane and/or bus lane horizontally and/or vertically. This can apply to one or two-way cycle movement. Examples are raised-adjacent cycle tracks (vertical segregation) or two-way cycle tracks at grade (horizontal segregation) – e.g. Grand Canal Cycleway.

Virtual Bus Priority – this refers to cases where physical bus priority (i.e. bus lanes) is not provided, and instead, bus priority is provided within the general traffic lane through the use of signal-controlled priority or bus gates to control the movements of general traffic.

Protected Junctions - Refers to junctions which provide physical kerb buildouts to protect cyclists through the junction. Due to the inherently complex nature of mixed mode movements at junctions, the provision for cyclists at junctions is a critical factor in managing conflict and providing safe junctions for all road users. As such, this is the preferred layout for signalised junctions within the CBC Infrastructure Works.

Executive Summary

Introduction

The purpose of this report is to present an overview of the Draft Preferred Option for the 'UCD Ballsbridge to City Centre' Core Bus Corridor (CBC) as well as describing the options assessed, and changes made to the scheme since the public consultation in early 2019.

The aim of delivering the UCD Ballsbridge to City Centre CBC is to provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor.

The objectives are to:

- 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 Dublin, 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.

Scheme Overview & Assessment Process

The UCD Ballsbridge to City Centre Core Bus Corridor (CBC) commences on Fitzwilliam Street at the junction with Mount Street Upper/Merrion Square South / Merrion Square East. It routes along Fitzwilliam Street, turning onto R816 Baggot Street Lower at its junction with Fitzwilliam Street Lower and is then routed along Baggot Street Lower, Baggot Street Upper, Pembroke Road, through its junction with Lansdowne Road. It continues onto Pembroke Road, through Ballsbridge village and Merrion Road to its junction with Nutley Lane. It travels along Nutley Lane from Merrion Road to the Stillorgan Road where it meets the Bray to City Centre CBC.

The UCD to City Centre CBC connects to the route of the Blackrock to Merrion CBC at the junction of Merrion Road and Nutley Lane, providing a continuous route from Blackrock to the City Centre.

Where substantial revisions have been made, options have been assessed using a Multi-Criteria Assessment (MCA) to determine the preferred option. The methodology used is consistent with that carried out during the initial route optioneering work which informed the Emerging Preferred Route. This additional assessment does not supersede work done during earlier stages but rather complements it and is a direct response to issues raised by the public during the public consultation process.

The following list highlights the material scheme changes between the published Emerging Preferred Route (EPR) Option and the draft Preferred Route Option (PRO) proposals:

- The proposed scheme has been extended to include Fitzwilliam Street between Baggot Street to Merrion Square.
- The existing central median along Baggot Street Lower is proposed to be retained and a new signalised pedestrian crossing is proposed south of James Street East.
- The cross-section of Baggot Street Upper is proposed to be adjusted to reduce the carriageway width and improve the urban realm.
- A bus gate is proposed on Pembroke Road at the Baggot Street end, permitting the removal of bus lanes along Pembroke Road. Land acquisition along Pembroke Road would no longer be required.
- A large proportion of trees are to be retained between Northumberland Road and Ballsbridge by revising the alignment of the road.
- A left turn entry only to Elgin Road from Ballsbridge is proposed.
- At the Ballsbridge Junction, the Herbert Park arm has been realigned in order to minimise the impact on adjacent properties and to retain a number of existing trees to the east of the junction.
- At the Anglesea Road / Merrion Road junction, the access into the City of Dublin Educational and Training Board (CDETB) premises has been relocated with the removal of the left turn slip, and had be positioned to minimise the impact on historic railings.
- A revised access to Ballsbridge Avenue with and entry and exit from Ballsbridge Park is proposed.
- Land acquisition from the Clayton Hotel Ballsbridge, Merrion Road, is proposed.
- Revisions to the road layout on Merrion Road between Shrewsbury Road and Sandymount Avenue to reduce impacts on trees.
- A three-lane option with back-to-back bus lanes and signal controlled priority is proposed on Merrion Road between Shrewsbury Road and Ailesbury Road.

- A two-way cycle track and removal of footpath is proposed along Nutley Lane in front of Elm Park. The two-way cycle track continues on Nutley Lane crossing via a toucan crossing continuing in front of RTE.
- Bus stop locations have been modified in this revised proposal – with some bus stops relocated or removed to achieve a better spacing between stops, while also ensuring that each stop is sited in the best location to serve surrounding neighbourhoods. These proposals will also ensure a more efficient bus network operation.

1. Introduction and Background

1.1 Introduction

The BusConnects Dublin - Core Bus Corridors Infrastructure Works (herein after called **the CBC Infrastructure Works**) involves the development of continuous bus priority infrastructure and improved pedestrian & cycling facilities on sixteen radial core corridors in the Greater Dublin Area, across the local authority jurisdictions of Dublin City Council, South Dublin County Council, Dún Laoghaire-Rathdown County Council, Fingal County Council, and Wicklow County Council. Overall the CBC Infrastructure Works encompasses the delivery of approximately 230km of dedicated bus lanes and 200kms of cycle tracks along 16 of the busiest corridors in Dublin.

The Transport Strategy for the Greater Dublin Area 2016 – 2035 sets out a network of the bus corridors forming the "Core Bus Network" for the Dublin region. Sixteen indicative radial core bus corridors were initially identified for redevelopment. This is shown in **Figure 1.1** below (extract from Transport Strategy for the Greater Dublin Area 2016-2035).

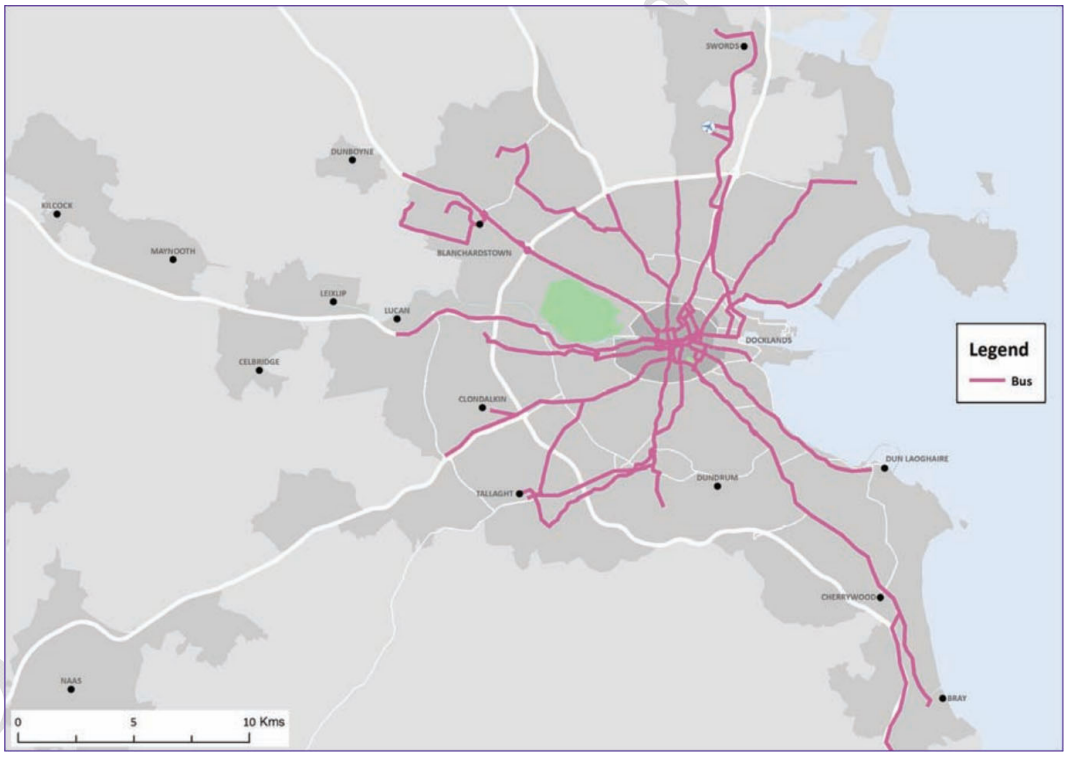


Figure 1.1: 2035 Core Bus Network – Radial Corridors

These corridors had dedicated bus lanes along only less than one third of their lengths which meant that for most of the journey, buses and cyclists were competing for space with general traffic and were negatively affected by the increasing levels of congestion. This resulted in delayed buses and unreliable journey times for passengers. Following the completion of feasibility and options

studies, the sixteen radial corridors are being progressed, as the following 16 Core Bus Corridors:

- Clongriffin to City Centre Core Bus Corridor;
- Swords to City Centre Core Bus Corridor;
- Ballymun to City Centre Core Bus Corridor;
- Finglas to Phibsborough Core Bus Corridor;
- Blanchardstown to City Centre Core Bus Corridor;
- Lucan to City Centre Core Bus Corridor;
- Liffey Valley to City Centre Core Bus Corridor;
- Clondalkin to Drimnagh Core Bus Corridor;
- Greenhills to City Centre Core Bus Corridor;
- Tallaght to Terenure Core Bus Corridor;
- Kimmage to City Centre Core Bus Corridor;
- Rathfarnham to City Centre Core Bus Corridor;
- Bray to City Centre Core Bus Corridor;
- UCD Ballsbridge to City Centre Core Bus Corridor;
- Blackrock to Merrion Core Bus Corridor; and
- Ringsend to City Centre Core Bus Corridor

1.2 Background

The aim of the CBC Infrastructure Works is to provide enhanced walking, cycling and bus infrastructure on key access corridors in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along these corridors.

The objectives are to:

- 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 Dublin, 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.

In June 2018 the National Transport Authority (NTA) published the Core Bus Corridors Project Report. The report was a discussion document outlining proposals for the delivery of a CBC network across Dublin. The 'UCD Ballsbridge to City Centre Core Bus Corridor' is identified in this document as forming part of the radial Core Bus Network, designated as 'Route 14'. The BusConnects radial CBC network is shown in **Figure 1.2**.

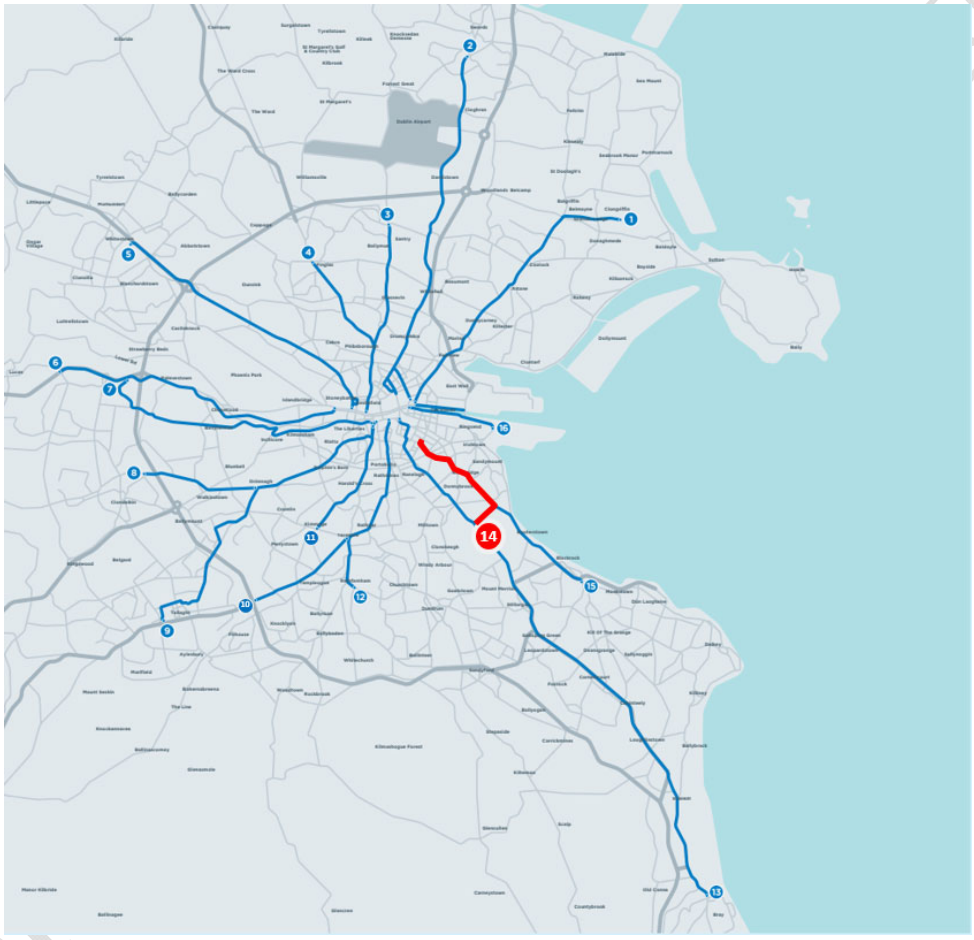


Figure 1.2: BusConnects Radial CBC Network (the CBC highlighted in red)

Following this, a public consultation for the sixteen radial core bus corridors took place on a phased basis from November 2018 until May 2019. As part of this process the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' were published, which identified feasible options along the corridor, assessed these options and arrived at an Emerging Preferred Route (EPR) Option. Submissions were invited from the public to provide comment on the EPR proposals and to inform subsequent design stages.

From May 2019, a comprehensive review of feedback received during the public consultation for the EPR Option has been undertaken. Based on this review, as well as availability of new information (e.g. topographical survey, traffic modelling, etc.), alternative options have been considered in a number of areas along the UCD Ballsbridge to City Centre CBC which seek to address issues of concern to the public, as well as general refinements to the scheme to reduce the overall impact of the proposals, while still achieving the objectives of the scheme. This report presents a summary of the issues raised in the public consultation and details the alternative options considered, and assessment of same, in order to identify a draft Preferred Route Option (PRO).

1.3 Approach for this Report

This 'Draft Preferred Route Option Report' has been prepared for the UCD Ballsbridge to City Centre Core Bus Corridor (the CBC), which will build on the following two reports:

- 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' (December 2017).
- 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' (February 2018).

These reports, along with their associated appendices as published, are included in Appendix F, respectively.

The Study Area Analysis and Multi Criteria Assessment (MCA) for the previously proposed feasible route options are considered to still be valid unless otherwise detailed and updated in this Draft PRO Report. Any additional design work or optioneering has been assessed against the previously identified EPR Option in order to determine the draft PRO. Additional design development and the resulting draft PRO referenced in this report have been based on:

- Updated topographical survey information;
- Output from engagement and consultation activities on the EPR Option and draft Preferred Route Option Proposals;
- Clarifications to the previous assessment in the EPR Feasibility Study and Options Assessment Report;
- Further design development and options assessment; and
- Change in the extent of the scheme.

1.4 Report Structure

The structure for the remainder of this report is set out as follows:

- Chapter 2: Planning and Policy Context – This chapter outlines the general background information to the CBC Infrastructure Works. It also outlines the policy context in which the CBC was developed and presents the concept of the CBC network as outlined in the Transport Strategy for the Greater Dublin Area 2016-2035 (NTA 2015) and the CBC Infrastructure Works.
- Chapter 3: Background and Public Consultation – This chapter outlines the summary of the non-statutory public consultation process.
- Chapter 4: Study Area and Route Options – In this chapter, the study area for the UCD Ballsbridge to City Centre CBC is detailed. Scheme specific constraints and opportunities are discussed. The integration of the scheme with existing and planned transport networks is considered, along with considerations of the scheme for other road users.
- Chapter 5: Review of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' – This chapter is a summary of the options assessment that was previously carried out in each section of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment'. An assessment has been made on the previous options assessment and the emerging preferred route and outlines the issues and material changes in each section resulting from the design development as explained in section 1.2.
- Chapter 6: Option Assessment – This chapter subsequently updates the previous options assessment work undertaken in light of the additional considerations set out in Chapter 5.
- Chapter 7: Draft Preferred Route Option – This chapter gives the overall conclusions of the options assessment process and describes the draft PRO proposal.
- Chapter 8: Next Steps – This chapter details the "next steps" in the delivery of the CBC.

2. Planning and Policy Context

This chapter summarises a review of transport and planning policy which is relevant to the route selection process for the CBC.

2.1 Transport Strategy for the Greater Dublin Area, 2016-2035

The CBC Infrastructure Works has evolved from and is a key component of the 'Transport Strategy for the Greater Dublin Area 2016-2035' (the 'GDA Transport Strategy'), the purpose of which is *"to contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods"*.

The strategy identifies a "Core Bus Network", representing the most important bus routes within the Greater Dublin Area, generally characterised by high passenger volumes, frequent services and significant trip attractors along the routes. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors and six regional bus corridors. This core bus network is shown in **Figure 2.1**.

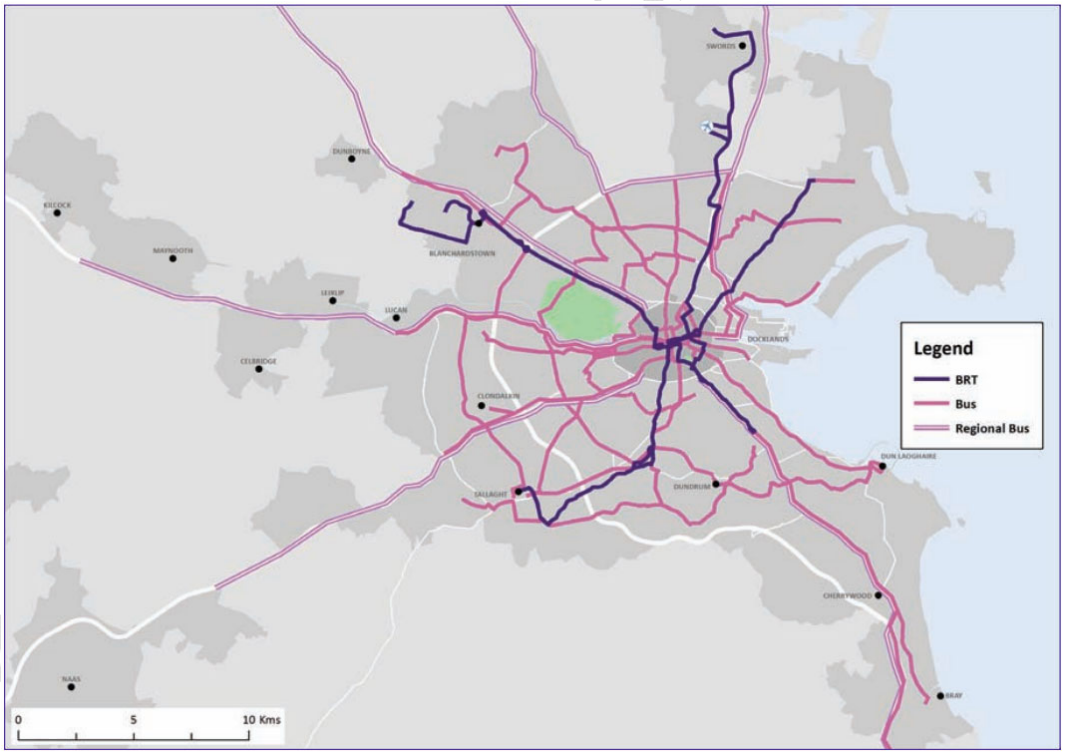


Figure 2.1: GDA Transport Strategy Overall Core Bus Network

The GDA Transport Strategy states that it is intended to provide continuous bus priority, as far as is practicable, along the CBCs.

This will result in a more efficient and reliable bus service with lower journey times, increasing the attractiveness of public transport in these areas and facilitating a shift to more sustainable modes of transport.

The UCD Ballsbridge to City Centre CBC (the CBC) is identified as an enabling project as part of the CBC Infrastructure Works.

2.2 Greater Dublin Area Cycle Network Plan

The GDA Cycle Network Plan was adopted by the NTA in early 2014 following a period of consultation with the public and various stakeholders. This plan forms the strategy for the implementation of a high quality, integrated cycle network for the GDA.

There are two primary cycle routes identified running along the majority of the CBC (Cycle Route 13 and Cycle Route 13A), while there are two secondary cycle routes along the Nutley Lane and Fitzwilliam Street sections of the route.

In addition, the CBC also intersects with two other primary cycle routes, namely SO1 and SO3 (the Grand Canal Greenway and the Dodder Greenway respectively). The route also intersects with a secondary cycle route SO2 and a number of feeder routes.

During the earlier assessment process which identified the EPR Option, the provision of these cycle routes was considered at all stages.

Therefore, as part of the options assessment process, any upgrading of infrastructure to provide bus priority also needs to consider and provide for the required cycling infrastructure, where practicable, to the appropriate level and quality of service (as defined by the NTA National Cycle Manual) required for primary and secondary cycle routes.

2.3 Development Plan, Local Area Plans and Strategic Development Zones

Dublin City Council Development Plan (2016 – 2022)

The current Development Plan for Dublin City Council (DCC) came into effect on 21st October 2016. The DCC Development Plan recognises the challenge that Transport has in making an important contribution to make towards achieving a sustainable city. These key challenges for the City are outlined as follows:

- *Effective integration of land-use and transportation, and the management of access and mobility.*
- *Pro-active engagement and collaboration with communities to bring about further modal shift and effective mobility management.*
- *The expansion of the strategic cycle network along all major water bodies including the River Liffey and the canals.*
- *Improving the city centre environment for pedestrians through public realm enhancements and through improvement of the strategic pedestrian network.*
- *Ensuring maximum benefits are achieved from public transport improvements including Luas cross-city and the anticipated Bus Rapid Transit network.*
- *Managing city centre road-space to best address the competing needs of public transport, pedestrians, cyclists, and the private car.*

- *Increasing significantly the existing mode share for active modes, i.e. walking and cycling, and supporting the forthcoming National Policy Framework for Alternative Fuels Infrastructure.*

Therefore, sustainable forms of transport such as public transport, walking, and cycling are strongly promoted in this plan, which takes a pro-active approach to influencing travel behaviour and effective traffic management. Relevant policies are outlined in **Table 2.1** and **Table 2.2**.

Table 2.1: DCC Development Plan Policies for Modal Change and Active Travel aligned with the proposed development

Movement and Transport: Promoting Modal Change and Active Travel	
MT2	Whilst having regard to the necessity for private car usage and the economic benefit to the city centre retail core as well as the city and national economy, to continue to promote modal shift from private car use towards increased use of more sustainable forms of transport such as cycling, walking and public transport, and to co-operate with the NTA, Transport Infrastructure Ireland (TII) and other transport agencies in progressing an integrated set of transport objectives. Initiatives contained in the government's 'Smarter Travel' document and in the NTA's draft transport strategy are key elements of this approach.

Table 2.2: DCC Development Plan Policies for Public Transport aligned with the proposed development

Movement and Transport: Public Transport	
MT3	To support and facilitate the development of an integrated public transport network with efficient interchange between transport modes, serving the existing and future needs of the city in association with relevant transport providers, agencies and stakeholders.
MT4	To promote and facilitate the provision of Metro, all heavy elements of the DART Expansion Programme including DART Underground (rail interconnector), the electrification of existing lines, the expansion of Luas, and improvements to the bus network in order to achieve strategic transport objectives.
MT5	To work with the relevant transport providers, agencies and stakeholders to facilitate the integration of active travel (walking, cycling etc.) with public transport, thereby making it easier for people to access and use the public transport system.
MT6 (i)	To work with Iarnród Eireann, the NTA, Transport Infrastructure Ireland (TII) and other operators to progress a coordinated approach to improving the rail network, integrated with other public transport modes to ensure maximum public benefit and promoting sustainable transport and improved connectivity.

2.4 The Aim of the Bus Connects Core Bus Corridor Infrastructure Works

The aim of the CBC Infrastructure Works is to provide enhanced walking, cycling and bus infrastructure on key access corridors in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along these corridors.

This project is fundamental to addressing the congestion issues in the Dublin region with the population due to grow by 25% by 2040, bringing it to almost 1.55 million people.

Across Dublin, 67% of public transport journeys each day are made by bus, carrying three and four times the number of passengers that travel on the Luas or DART and commuter rail. The popularity of cycling to work has also increased in popularity, up by 43% since 2011. Through the development of continuous bus priority and segregated cycle tracks we can meet the growing demand for fast, reliable, punctual and convenient bus journeys in and out of the city centre, and safe cycling facilities for this growing numbers of cyclists.

2.5 The Core Bus Corridor Objectives

The objectives are to:

- 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 Dublin, 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.

3. Background and Public Consultation

3.1 Feasibility and Options Report and Emerging Preferred Route

In early 2016, the NTA initiated plans to develop the network of CBCs identified in the GDA Transport Strategy. As part of this body of work, the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' were prepared, which identified feasible options along the corridors, assessed these options and arrived at an EPR Option. These proposals formed the basis for the first Non-Statutory Public Consultation on the CBC.

3.2 First Non-Statutory Public Consultation – Emerging Preferred Route

The first non-statutory public consultation on the BusConnects CBCs took place on a phased basis. The first phase of consultation occurred from 14th November 2018 to 29th March 2019. The second phase ran from 23rd January 2019 to the 30th April 2019 and the final phase ran from 26th February 2019 until the 31st May 2019. The UCD Ballsbridge to City Centre CBC EPR Option formed part of the final phase of consultation, which closed on the 31st of May 2019. The Information Brochure published as part of this consultation is included in Appendix G.

There were 773 submissions received for the UCD Ballsbridge to City Centre CBC. These submissions ranged from personal submissions sent in by residents, commuters and local representatives, to detailed proposals from public bodies, various associations and private sector businesses.

A brief summary of the feedback received on the UCD Ballsbridge to City Centre CBC during the public consultation is presented in this section of the report.

While a variety of matters were raised in the submissions, the key issues emerging from the consultation were as follows:

1. Need for Scheme;
2. Extension/Alternate Route Required;
3. Pedestrian Safety;
4. Insufficient Consultation of Scheme;
5. Loss of Bus Services;
6. Loss of Residential/Amenity Access;
7. Loss of Parking;
8. Removal of Trees;
9. Potential Land Acquisition/Boundary Treatments;

10. Safety relating to Conflicting Modes; and

11. Devaluation of Property.

Further detail on these issues can be found in the UCD Ballsbridge to City Centre Core Bus Corridor Emerging Preferred Route First Non-Statutory Public Consultation Report (March 2020).

3.3 Draft Preferred Route Option

Following the first non-statutory public consultation, a review was undertaken of the scheme proposals along the route based on the following new information which was available for consideration:

- Detailed topographical survey along the route corridor;
- Submissions received during the first non-statutory public consultation; and
- Issues raised during meetings with community fora, resident groups and one-on-one meetings with directly impacted landowners.

As part of this review, several new options were developed for consideration in specific areas where issues were identified. These new options were subject to further options assessment (as detailed in Chapter 6 of this report) to identify the draft PRO. The selected draft PRO identified formed the basis for the second non-statutory public consultation in March/April 2020.

3.4 Second Non-Statutory Public Consultation – Draft Preferred Route Option

The draft PRO was published in March 2020 and a second round of public consultation commenced on 4th March 2020 to the 17th of April 2020.

Due to Covid 19 restrictions being imposed by Government in mid-March the planned Public Information Events were impacted. Consequently, there were 34 submissions received relating to the UCD Ballsbridge to City Centre CBC (compared to 773 submissions following the First Public Consultation). These submissions ranged from individual submissions by residents, commuters and local representatives, to detailed proposals from various associations and private sector businesses.

A brief summary of the feedback received on the UCD Ballsbridge to City Centre CBC during the public consultation is presented in this section of the report.

While a variety of matters were raised in the submissions, the key issues emerging from the consultation were as follows:

1. Cyclist Safety;
2. Pedestrian Safety;
3. Loss of Residential/Amenity Access;
4. Supportive of the Scheme;
5. Additional Traffic;

6. Removal of Trees;
7. Loss of Parking;
8. Increased Air & Noise Pollution;
9. Nutley Lane;
    a. Option A; and
    b. Option B.
10. Insufficient Consultation of Scheme;
11. Merrion View Avenue Access;
12. Need for the Scheme; and
13. Devaluation of Property.

The issues raised during the 2nd public consultation have been considered in the development of the draft PRO.

Subsequently it was determined by NTA that a third non-statutory public consultation would be conducted prior to finalising the PRO.

4. Study Area

4.1 Introduction

The overall study area for the CBC within this assessment is shown in **Figure 4.1**. It is noted that the CBC was not previously assessed within one single report as the two Sections within the Study Area each formed part of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment', respectively.

Section 1, the portion from the City Centre to Nutley Lane reflects Study Area Section (SAS) 1 assessed within the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' (December 2017). Section 2, the Nutley Lane portion reflects the study area within the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' (February 2018). These sections were combined and designated as the 'UCD Ballsbridge to City Centre CBC'.

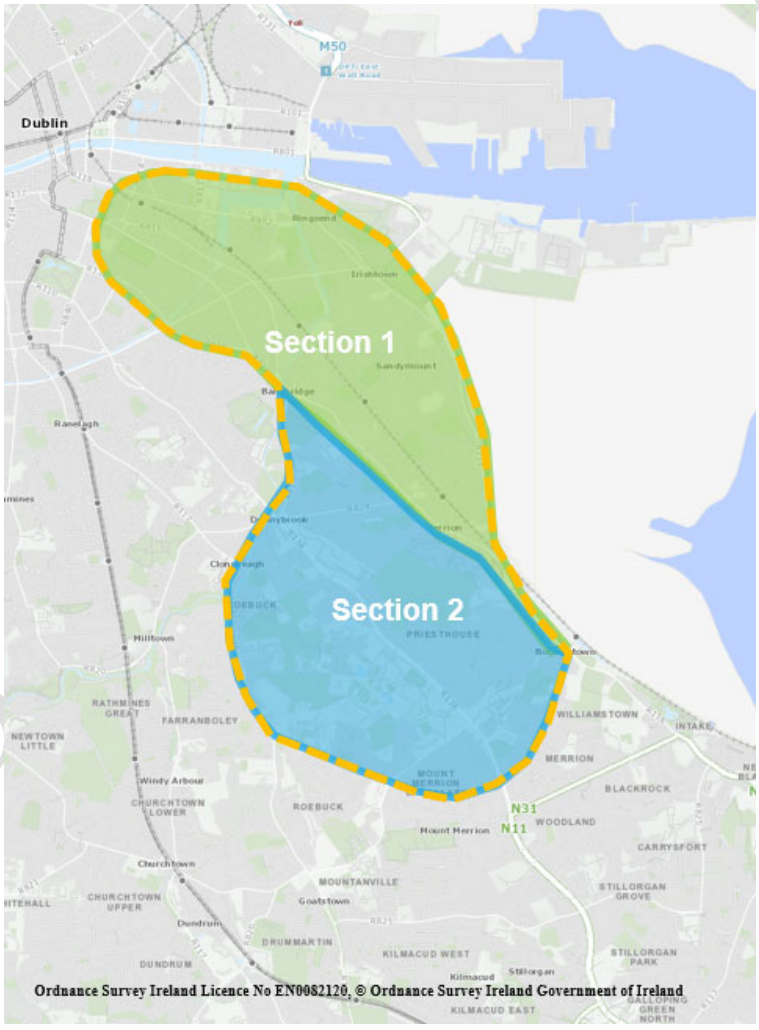


Figure 4.1: Study Area and Section Breakdown

(*Section 1 herein refers to SAS 1 described within the* 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment', *while Section 2 refers to approximately the Study Area described within the* 'Ballsbridge to UCD Bus Corridor – Route Options Assessment'*, both combined and updated*.)

Arising from the transport policy context and scheme objectives set for both the Dun Laoghaire to City Centre CBC and Ballsbridge to UCD Bus Corridor, the study area includes road network in the vicinity of the existing bus routes and extends to include additional potentially feasible route options.

The Study Area is generally bounded to the north by the City Centre and to the south by University College Dublin (UCD).

4.2 Study Area Sections

4.2.1 Section 1

Section 1 consists primarily of the areas around Merrion Road (between Booterstown and Ballsbridge), Pembroke Road, Baggot Street Upper and Lower, Fitzwilliam Street, and Northumberland Road. This section of the study area also includes sections of the Strand Road and Beach Road, as well as the Sandymount, Ringsend and Grand Canal Dock areas.

It is noted that although Fitzwilliam Street fell within the Study Area of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment', it did not form part of the route sections assessed in the development of the EPR Option.

The CBC has since been extended onto Fitzwilliam Street for reasons including the following:

- To improve the integration with new and existing sustainable transport facilities on the street itself and on Merrion Square;
- To provide cycle facilities on the Secondary Route of the GDA Cycle Network Plan; and
- To increase the catchment of the CBC in terms of Combined Activity Density, refer to **Figure 4.2**. In particular this relates to the significant new and existing commercial properties in this area.

Figure 4.2: Combined Activity Density Map

(Source: Dublin Area Bus Network Redesign Revised Proposal (October 2019) – the CBC highlighted green)

Fitzwilliam Street has therefore been assessed herein as part of the CBC (refer to Section 6.1.1.2).

4.2.2 Section 2

Section 2 consists primarily of the areas around the R138 Stillorgan Road between Mount Merrion Avenue and Donnybrook, and Nutley Lane. This section of the study area includes Ballsbridge Village and the UCD Campus, as well as numerous roads connecting the R138 Stillorgan Road to the R118 Merrion Road, sections of the R825 and is bounded to the east by Booterstown Avenue.

4.3 Physical Constraints and Opportunities

A number of potential constraints were identified, both natural (i.e. the existing natural environment) and physical (the built environment), which could potentially constrain route options for the proposed scheme within the defined study area, including:

- Street trees and other natural features along the route;
- The existing urban and sub-urban roads and street network;
- Bridges at identified natural constraints (e.g. across the River Dodder and across the Grand Canal);
- The existing DART railway;
- Availability of land in urban and suburban areas;

- Ballsbridge Village and Balls Bridge;
- Numerous properties listed on the Record of Protected Structures along Merrion Road, Pembroke Road, Baggot Street Upper and Lower, and Fitzwilliam Street with boundaries in close proximity to the carriageway; and
- The available width along Merrion Road and Nutley Lane.

A number of potentially opportunities were also identified, which could potentially enhance the proposed scheme within the defined study area, including:

- The opportunity to enhance connectivity to, from, and between two major hospitals – namely St. Vincent's University Hospital and the National Maternity Hospital (Holles Street) – through sustainable transport modes.
- The opportunity to enhance connectively to educational centre such as St. Michael's College through sustainable transport modes.
- The natural amenity of the River Dodder, and the opportunity for integration with the proposed Dodder Greenway Scheme.
- The natural amenity of the Grand Canal, and the opportunity for integration with the Grand Canal Cycleway.
- The opportunity for the provision of enhanced public realm within the various villages and urban centres within the study area including Ballsbridge Village, Baggot Village and within the city centre north of the Grand Canal along Baggot Street Lower.

4.4 Integration with Existing and Proposed Public Transport Network

One of the key objectives of the proposed CBC scheme is to enhance interchange between the various modes of public transport operating in the city and wider metropolitan area, both now and in the future. Route options within the study area have therefore been developed with this in mind and, in so far as possible, seek to provide for improved interchange opportunities with existing transport services, including:

- Potential for interchange with existing 39a, 145, and 155 routes at the R138 Stillorgan Road;
- Potential for interchange with existing 47 route along Nutley Lane;
- Potential for interchange with existing 4, 7, and 7a routes along Merrion Road;
- Potential for interchange with existing 18 route at Ballsbridge;
- Potential for interchange with existing 18, 38, 38a, 39, 39a, and 70 routes at Baggot Village (Baggot Street Upper);
- Potential for interchange with existing 37 route at Baggot Street Lower;
- Potential for interchange with multiple city centre services at Merrion Square;
- Potential for interchange with the existing DART service at the Sydney Parade and Sandymount DART Stations.

Figure 4.3 highlights the potential for interchange with existing public transport services along the CBC.

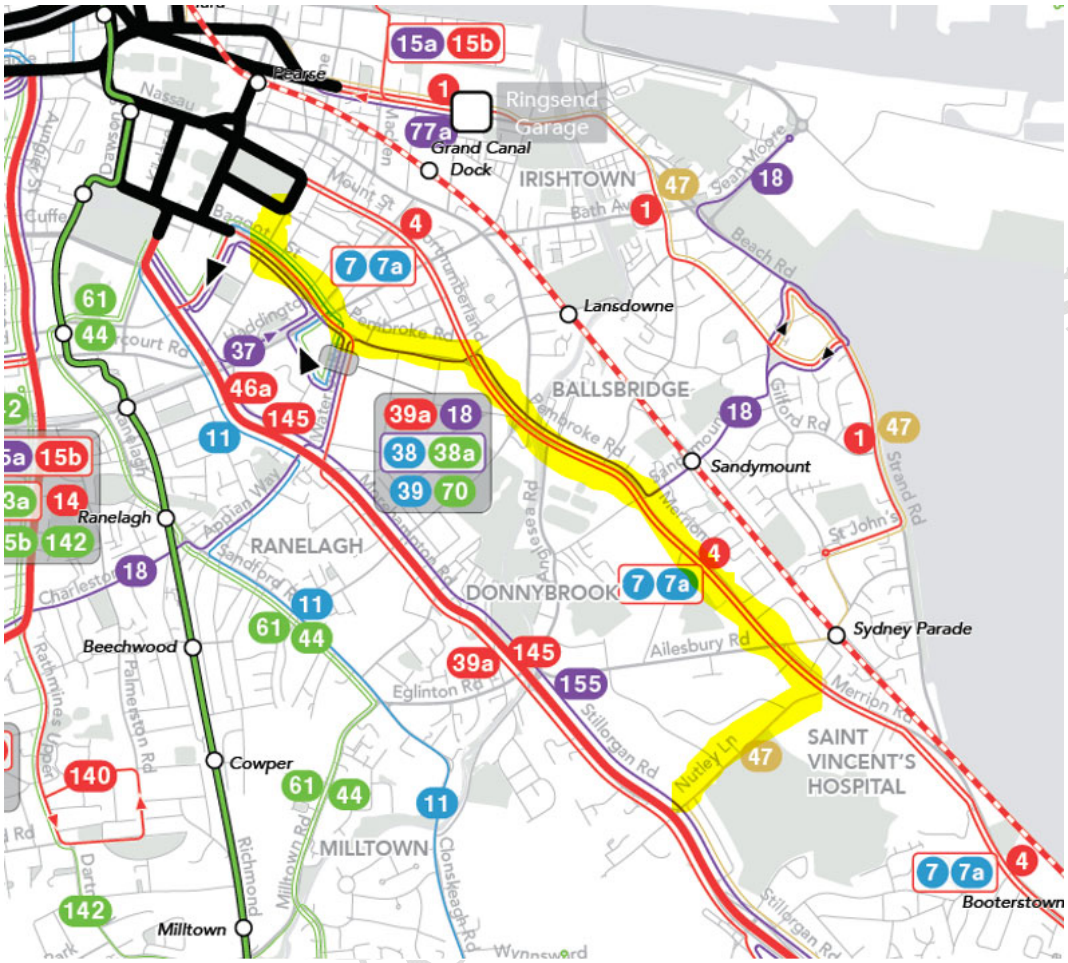


Figure 4.3: Existing Public Transport Services

(the CBC highlighted yellow)

The route options also seeks to provide for interchange opportunities with new transport services proposed within the New Dublin Area Bus Network, including:

- Potential for interchange with the proposed E Spine routes at the Stillorgan Road end of Nutley Lane;
- Potential for interchange with the proposed B3 and B4 spine routes at the Merrion Road end of Nutley Lane;
- Potential for interchange with the proposed S2 orbital route and No. 36 feeder route at Ballsbridge;
- Potential for interchange with the proposed O orbital route at the Grand Canal;
- Potential for interchange with the proposed 34, 35 and 37 feeder routes at Baggot Street Upper; and
- Potential for interchange with the proposed 22, 23, and 24 feeder routes at Merrion Square.

Figure 4.4 extracted from the New Dublin Area Bus Network maps, highlights the potential for interchange with other proposed bus routes along the CBC.

Figure 4.4: Extract from New Dublin Area Bus Network Maps

(the CBC highlighted yellow)

4.5 Integration with Other Road Users

A key objective of the proposed scheme is to improve pedestrian and cyclist facilities along the route. For cyclists, segregated facilities should be provided where practicable to do so. The GDA Cycle Network Plan proposes a network of cycle links throughout the Greater Dublin Area, categorised as follows:

- **Primary Routes:** Main cycle arteries that cross the urban area and carry most cycle traffic.
- **Secondary Routes:** Link between principal cycle routes and local zones.
- **Feeder Routes:** Cycle routes within local zones and/or connections from zones to the network levels above.
- **Inter Urban Routes:** Links the towns and city across rural areas and includes the elements of the National Cycle Network within the GDA.
- **Green Route Network:** Cycle routes developed predominately for tourist, recreational and leisure purposes but may also carry elements of the utility

cycle route network above. Many National Cycle Routes will be of this type.

Specifically, Primary Cycle Routes 13 and 13A and Secondary Route 13E from the GDA Cycle Network Plan run along or are intercepted by the UCD Ballsbridge to City Centre CBC, with their provision considered at all stages of the options assessment process.

The interaction of the CBC with other schemes progressing through the planning and design process has also been considered, specifically the ongoing development of the East Coast Trail, the Dodder Greenway Scheme and the Fitzwilliam Cycle Route.

An extract for the GDA Cycle Network Plan is shown in

Figure 4.5, which highlights the CBC in the context of the planned cycle network.

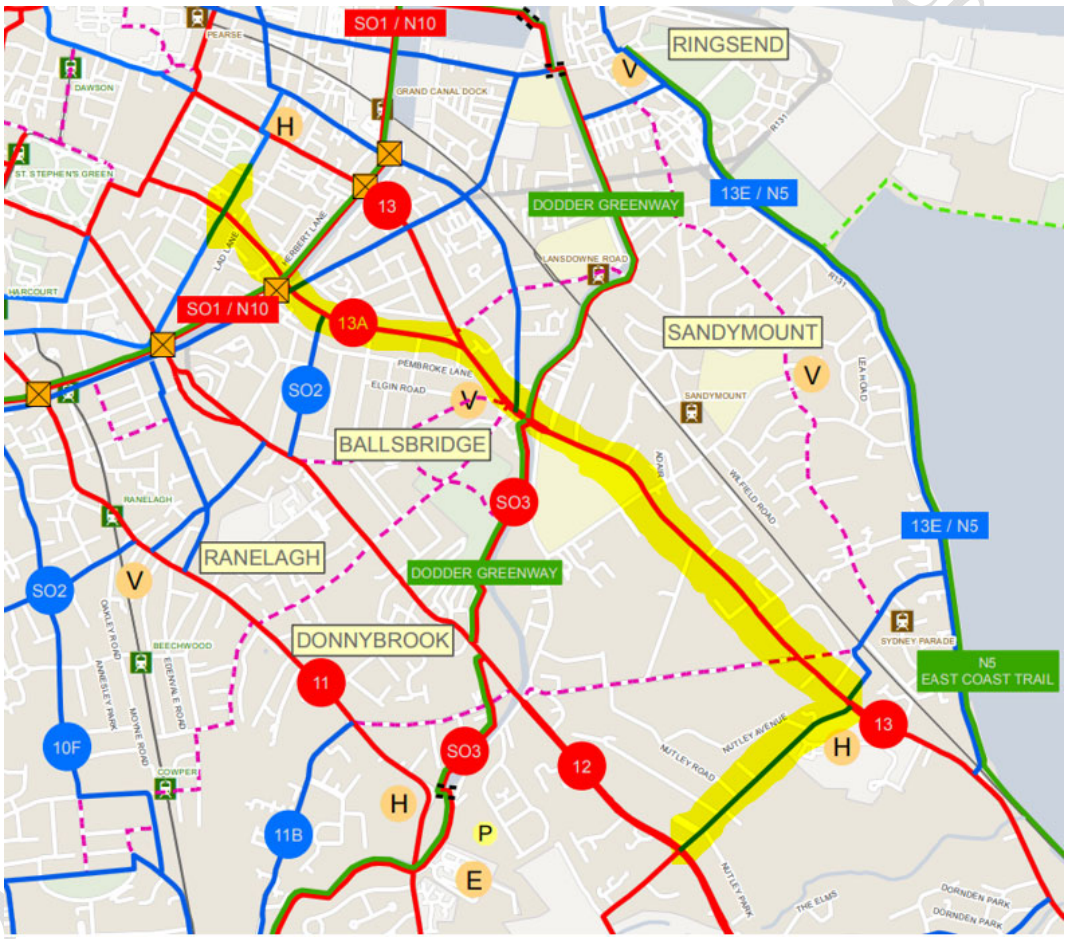


Figure 4.5: Extract from GDA Cycle Network Plan

(the CBC highlighted yellow)

5. Review of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment'

5.1 Introduction

From a review of submissions received as part of the public consultation process, as well as a review of the topographical survey carried out since the EPR Option's publication, a review of potential options which had the potential to overcome concerns through the implementation of alternative design solutions was undertaken. These issues are described in the following sections.

5.2 Assessment Methodology

The first step in the assessment process was to review the EPR Feasibility Study and Options Assessment Reports.

Each of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' utilised a two-stage assessment process to determine the EPR Option, comprising:

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

At the start of the Stage 1 assessment, an initial 'spiders web' of potential route options that could accommodate a CBC was identified for each study area section.

Figure 5.1 and **Figure 5.2** are extracts from the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment', respectively, illustrating the 'spiders web' of potential routes considered in the Stage 1 assessment of each.

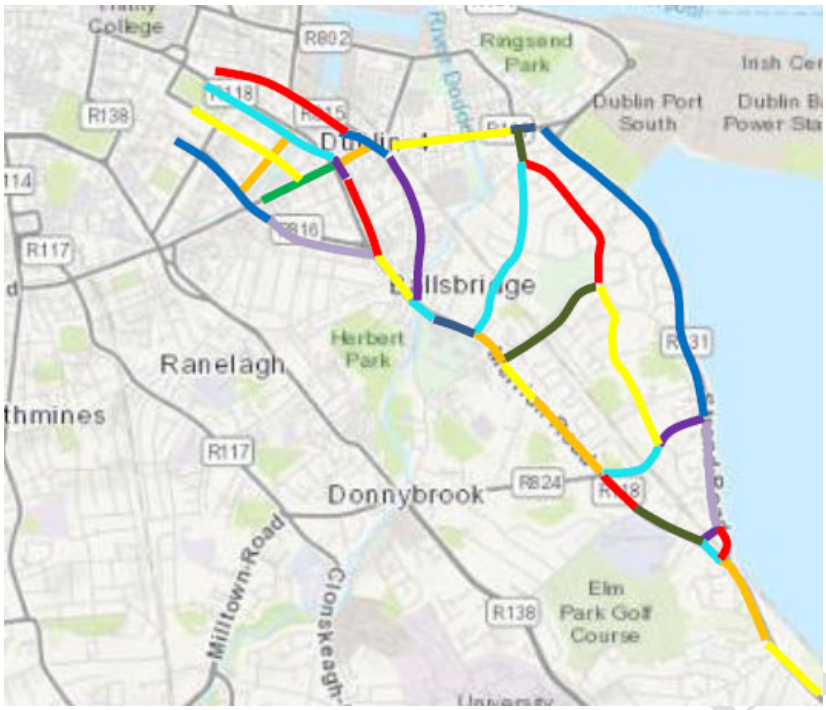


Figure 5.1: Spiders Web of Route Options extracted from 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' [Section 1 herein]

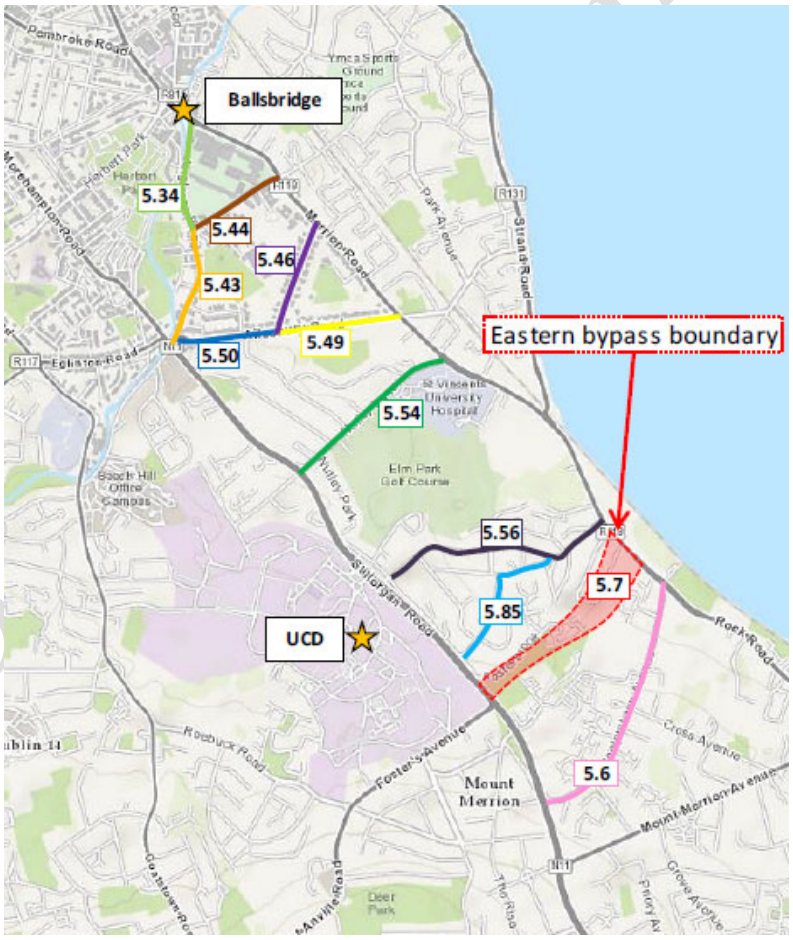


Figure 5.2: Spiders Web of Route Options extracted from 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' [Section 2 herein]

The following extract from both the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' describes the two-stage process used to determine the EPR Option:

"*At the Stage 1, i.e. sifting stage, the initial "spider's web" of route sections was narrowed down using a high level qualitative method based on professional judgement and a general appreciation for existing physical conditions / constraints within the Study Area from available survey information and site visits.*

This exercise identified route sections that would either not achieve the scheme objectives or would be subject to significant cost and/or impact to achieve these objectives (e.g. excessive land-take)." ….

…. "*Following completion of the 'Stage 1' assessment, the remaining potentially feasible route sections were progressed to Stage 2 of the assessment process. This stage comprised a more detailed qualitative and quantitative assessment of scheme options identified along each potential route, using criteria established to compare scheme options.*

The first step in the Stage 2 assessment was to combine shorter route sections which passed the Stage 1 assessment, to form longer end-to-end potential routes within the Study Area.

After developing routes options, each was explored using different design concepts to identify the degree of facility provision and necessary infrastructure requirements." .....

…. *"The scheme options for each route were then progressed to a multi-criteria analysis.*

The 'Common Appraisal Framework for Transport Projects and Programmes' published by the Department of Transport, Tourism and Sport (DTTAS), March 2016, requires schemes to undergo a 'Multi-Criteria Analysis' (MCA) under the following criteria;

- *Economy;*
- *Integration;*
- *Accessibility and Social Inclusion;*
- *Safety;*
- *Environment; and*
- *Physical Activity.*

Physical Activity has been scoped out of the multi-criteria analysis at this stage. This is because all route options are considered to promote physical activity equally and as such it is not considered to be a key differentiator between route options."

A number of locations along the EPR Option were identified where there was potential to revisit scheme proposals to address issues raised in the public consultation or identified through a review of additional information. For each

area identified, additional options were developed and if considered feasible, would be subject to an MCA in a similar manner to the EPR Option assessment process.

In addition to the new options considered, any alternative options previously considered within the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' were considered to determine whether they could potentially address the issues being encountered now. No options were brought forward in this regard. All new options were assessed against the EPR Option, in some cases refined to reflect issues identified upon review of the topographical survey and subsequent design refinement.

This additional assessment does not intend to supersede work undertaken during earlier stages but complements it and responds to issues raised by the public during the public consultation process or issues identified by additional information available to the Design Team.

The methodology for the assessment of new options explored at this stage of the project is the same as outlined in the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment'. A summary of the main criteria and sub-criteria used in the options assessment process is presented in **Table 5.1**. Further details on the assessment methodology are presented in the two aforementioned reports.

Table 5.1: Assessment Criteria

Assessment Criteria	Assessment Sub-Criteria
1. Economy	1.a. Capital Cost
	1.b. Transport Reliability and Quality (Journey Time)
2. Integration	2.a. Land Use Integration
	2.b. Residential Population and Employment Catchments
	2.c. Transport Network Integration
	2.d. Cycle Network Integration
	2.e. Traffic Network Integration
3. Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)
	3.b. Deprived Geographic Areas
4. Safety	4.a. Road Safety
	4.b. Pedestrian Safety
5. Environment	5.a. Archaeology and Cultural Heritage
	5.b. Architectural Heritage
	5.c. Flora & Fauna
	5.d. Soils and Geology
	5.e. Hydrology
	5.f. Landscape and Visual
	5.g Air Quality
	5.h. Noise & Vibration
	5.i. Land Use Character

As noted above, Physical Activity was scoped out of the multi-criteria analysis within both the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' and has been similarly scoped out herein. This is because all route options are considered to promote physical activity equally and as such it is not considered to be a key differentiator between route options.

As in both the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment', Route options were compared based on a five-point scale, ranging from having significant advantages to having significant disadvantages over other route options. **Table 5.2** shows the colour coding of the five-point scale, with advantageous routes graded "dark green" and disadvantageous routes graded "red".

Table 5.2: Route Options Colour Coded Ranking Scale

Colour	Description
	Significant advantages over other options.
	Some advantages over other options.
	Neutral compared to other options.
	Some disadvantages to other options
	Significant disadvantages to other options.

Where the design has undergone a material and fundamental change in respect of infrastructure provision or route choice, this will be recorded and explained. An MCA has been undertaken which assessed the newly developed and designed solutions against the MCAs that were previously assessed as part of the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' and the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' considering the chosen option for the EPR.

Where the design has undergone more general updates and enhancements as expected during design maturation these have not been subject to a new MCA.

5.3 Section 1: Fitzwilliam Street to Nutley Lane – Fitzwilliam Street, Baggot Street Lower, Baggot Street Upper, Pembroke Road, Merrion Road

5.3.1 Section 1 Emerging Preferred Route

The EPR Option previously identified along this section of the CBC corridor is presented in **Figure 5.3**. It is noted that Fitzwilliam Street did not form part of the EPR Option however it now forms part of the CBC and is assessed herein, as outlined in Section 4.2.1.

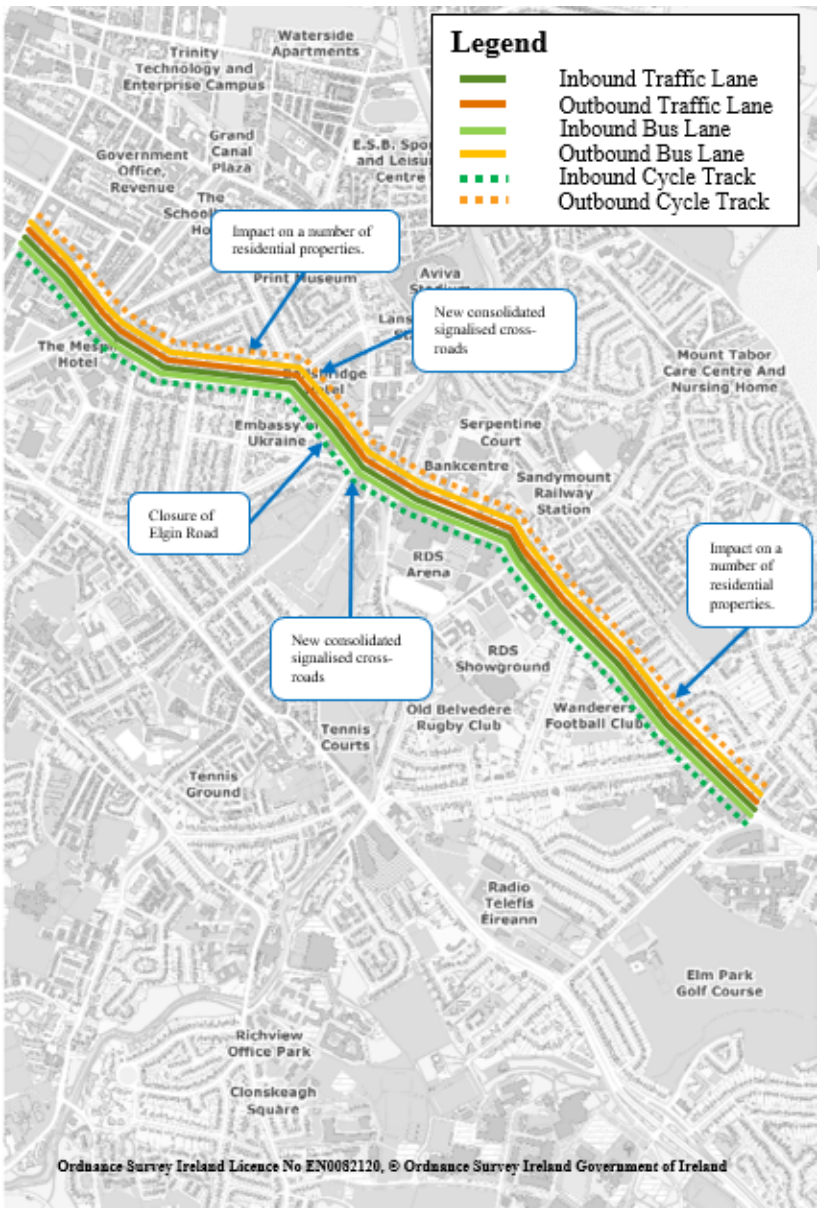


Figure 5.3: Section 1 EPR Option

The previous MCA undertaken determined that a route along Baggot Street Lower and Upper, Pembroke Road, and Merrion Road was the EPR Option.

It is considered that the options assessment presented in the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options

Assessment' has appropriately assessed route options and that the selected corridor offers the most benefits for pedestrians, cyclists, and buses.

However, upon review of the topographical survey and public consultation submissions, a number of issues were identified that could potentially be addressed through the consideration of alternative options along this route section.

These are summarised in the following section.

5.3.2 Areas Identified for Re-examination

5.3.2.1 Fitzwilliam Street – Between Baggot Street Lower and Mount Street Upper

As the EPR Option did not include this section, which is now forming part of the CBC, a Route Options Assessment has been carried out to examine potential options.

5.3.2.2 Pembroke Road – Between Baggot Street Upper and Northumberland Road

The EPR Option within this route section consisted of the 'optimum BusConnects cross-section', i.e. two traffic lanes, two bus lanes, two cycle tracks and two footpaths, from the Waterloo Road / Baggot Street Upper junction to the Northumberland Road junction. In order to achieve this, the EPR Option design indicated a reduction in on-street parking along both sides of the road, narrowing of existing footpaths, as well as possible land take on the southern side of the road between Raglan Road and Wellington Road, and the northern side of the road between Wellington Road and Eastmoreland Place.

From a review of submissions received as part of the public consultation of this route, as well as a review of the topographical survey carried out since the route's publication, a number of issues have been identified with the delivery of this section of the scheme as proposed.

It was highlighted through the public consultation process that this proposal impacted on several properties with heritage value, including the loss of mature trees from within these properties – many with antique railing and steps. Additionally, a review of the EPR Option proposals against the detailed topographical survey showed the full nature of the impact to existing properties and access steps on the northern side of the road, and it was determined that the design merited further review to avoid land take to this area if possible.

The potential removal of on-street mature trees and those in front gardens was also a cause for concern amongst residents and among the general submissions. A number of submissions expressed concerns with the removal of on-street parking along Pembroke Road as it is suggested that many residents rely on this for parking as they do not have driveways or parking to the rear. Concerns were expressed over the narrowing of the footpaths and increase of pedestrian crossing widths along this section, in relation to possible safety issues and universal access.

Residents raised concerns on the potential impacts to their gardens and the potential devaluation of property.

It is considered that the options assessment presented in the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' has appropriately assessed route options and that the selected corridor offers the most benefits for pedestrians, cyclists, and buses. However, upon review of the topographical survey and public consultation submissions, a number of issues were identified that could potentially be addressed through the consideration of alternative options along this route section.

Alternative design solutions have therefore been explored in this area in determining a Preferred CBC Route.

5.3.2.3 Merrion Road – Between Sandymount Avenue and Nutley Lane

The EPR Option within this route section consisted of the 'optimum BusConnects cross-section', i.e. two traffic lanes, two bus lanes, two cycle tracks and two footpaths, from Sandymount Avenue to the Nutley Lane junction. In order to achieve this, the EPR Option design indicated a loss of existing trees along the length, narrowing of existing footpaths, provision of narrow cycle tracks, as well as possible land take on the northern side of the road between Ailesbury Road and Merlyn Park.

From a review of submissions received as part of the public consultation of this route, as well as a review of the topographical survey carried out subsequent to the route's publication, a number of issues have been identified with the delivery of this section of the scheme as proposed. The potential removal of on-street mature trees and those in front gardens was also a cause for concern amongst residents and among the general submissions. Concerns were expressed over the perceived narrowing of the footpaths along this section, in relation to possible safety issues and universal access. Many submissions related to safety concerns focussing on cyclists on a busy arterial route which might become busier with more buses and traffic. Residents raised concerns about the potential impacts to their gardens and the potential devaluation of property.

Although many of these issues were in relation to the proposals along Merrion Road in its entirety, the land take along the section between Nutley Lane and Sandymount Avenue was significantly impacted upon within the EPR Option, in terms of loss of trees, narrowing of existing footpaths, sub-optimum cycle facilities, and potential impact to properties.

It was also determined, following the review of the topographical survey information, that land take would likely be required from a significant number of properties which were not previously identified in the EPR Option (with the information available at the time of production) to progress the EPR Option as published. It was also determined, unlike other areas along Merrion Road, that the issues identified could not be fully addressed through minor design refinements without amendments to the proposed cross-section.

It is considered that the options assessment presented in the 'Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment' has appropriately assessed route options and that the selected corridor offers the most benefits for pedestrians, cyclists and buses. However, upon review of the topographical survey and public consultation submissions, a number of issues were identified that could potentially be addressed through the consideration of alternative options along this route section.

Alternative design solutions have therefore been explored in this area in determining a Preferred CBC Route.

5.4 Section 2: Nutley Lane (Merrion Road to R138)

5.4.1 Section 2 Emerging Preferred Route

The EPR Option previously identified along this section of the CBC corridor is presented in **Figure 5.4**.

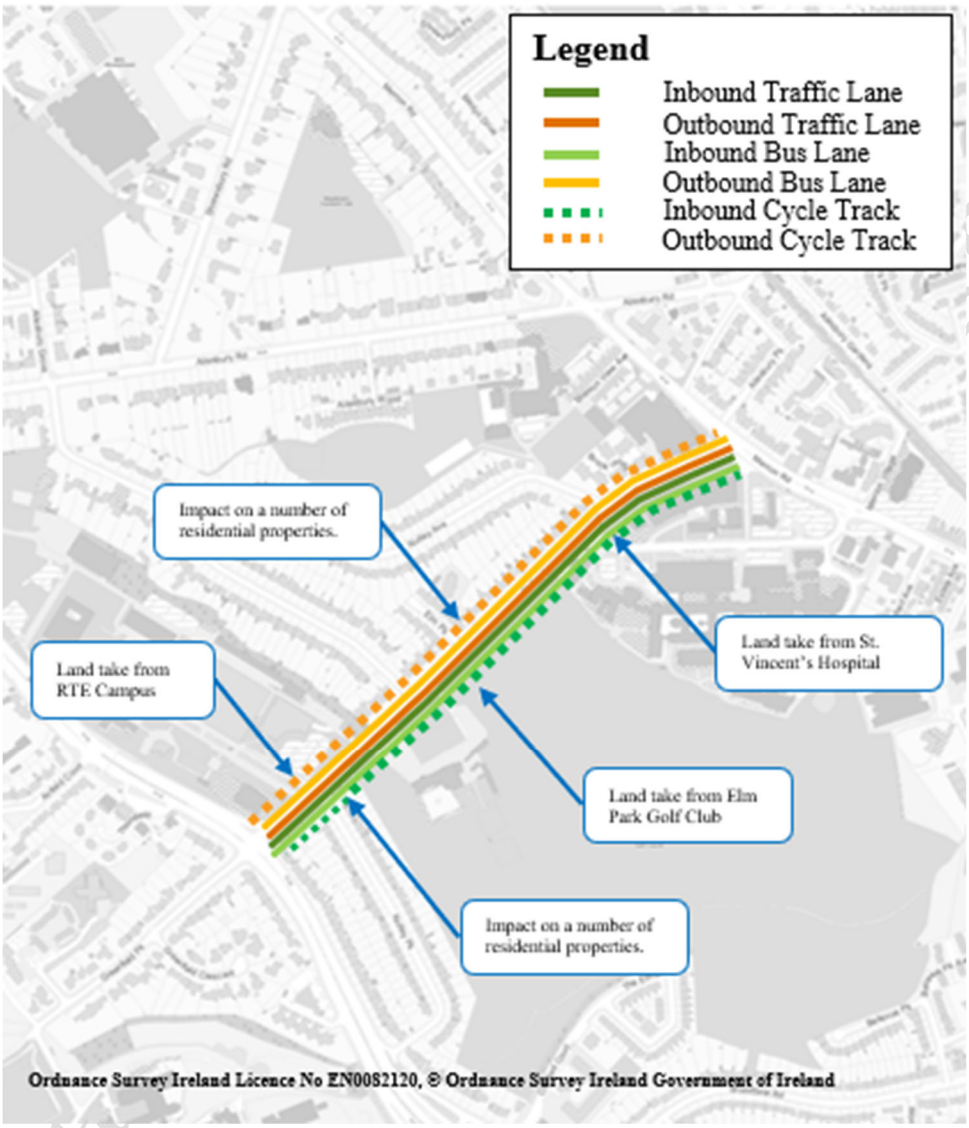


Figure 5.4: Section 2 EPR Option

The previous MCA undertaken determined that a route along Nutley Lane was the EPR Option.

It is considered that the options assessment presented in the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment' has appropriately assessed route options and that the selected corridor offers the most benefits for pedestrians, cyclists, and buses.

However, upon review of the topographical survey and public consultation submissions, a number of issues were identified that could potentially be addressed through the consideration of alternative options along this route section.

These are summarised in the following section.

5.4.2 Areas Identified for Re-examination

5.4.2.1 Provision of Cycle Facilities

The EPR Option along Nutley Lane included a single cycle track on both sides of the road along its entire length.

Numerous submissions from the public highlighted the perceived safety concerns over the multiple conflict points for residents exiting/entering homes by car due to the potential requirement for drivers to cross a footpath, a cycle path, a bus lane, and either enter a car lane or cross one to enter another. A number of submissions questioned the need for both cycle and bus provision on Nutley Lane, with alternative suggestions for cycle facilities being Woodbine Road or Booterstown Avenue.

As such, prior to the assessment of the principle route options for this section of the route, the options for cyclist facilities associated with this route were explored in this area in determining the draft PRO.

5.4.2.2 Nutley Lane – between St. Vincent's Hospital and Elm Park Golf Club entrances

The EPR Option within this route section consists of the 'optimum BusConnects cross-section', i.e. two traffic lanes, two bus lanes, two cycle tracks and two footpaths, from the R138 junction to the Merrion Road junction. In order to achieve this, the EPR Option design indicated a loss of existing trees and parking along the length of Nutley Lane, as well as possible land take on both sides of the road (largely front gardens on the north-west side and largely the western edge of the golf club on the south-east side).

From a review of submissions received as part of the public consultation for this route, as well as a review of the topographical survey carried out subsequent to the route's publication, a number of issues have been identified with the delivery of this section of the scheme as proposed. The proposed removal of on-street trees and those in front gardens was a significant cause for concern amongst residents. A number of submissions were based around the increase in the cross-section of what is currently perceived as a residential road with through traffic. In addition, based on a review of the topographical survey file, there is now a clearer indication of the potential impact to adjacent properties and the nature of the possible land take.

These issues primarily relate to the section of Nutley Lane between the St. Vincent's Hospital entrance and the Elm Park Golf Club entrance due to the number of residential properties fronting onto the north-western side of the road and the number of on-street trees.

Alternative design solutions have therefore been explored in this area in determining a Preferred CBC Route.

5.4.2.3 Requirement for footpath on the full length of the eastern side of the road

As part of an overall design review, it was determined that no footpath is to be proposed on the south-eastern (Elm Park Golf Club) side of Nutley Lane over this section from just south of the St. Vincent's Hospital entrance junction, with a pedestrian crossing provided at both ends. This is due primarily to the removal of parking along this section and presence of no private entrances along this section which would require footpath access, as well as the subsequent reduction in potential land take.

The existing footpath on the north-western side of the road is proposed to be retained, permitting the trees on this side of the road to also be retained.

This design change has been applied to all options within the MCA, as described in Section 6.2, with the exception of the EPR Option included in the MCA.

5.5 Summary

A summary of the EPR Option review areas discussed in this chapter and taken forward for detailed options assessment is presented below:

- Route options assessment for Fitzwilliam Street between Mount Street Upper and Baggot Street Lower;
- Alternative design options along Pembroke Road between Baggot Street Upper and Northumberland Road;
- Alternative design options along Merrion Road between Sandymount Avenue and Nutley Lane;
- Alternative options for cycle facilities on Nutley Lane; and
- Alternative design options along Nutley Lane.

Detail of the options assessment completed is presented in Chapter 6

6. Options Assessment

6.1 Section 1 Option Assessment: Fitzwilliam Street to Nutley Lane – Fitzwilliam Street, Baggot Street Lower, Baggot Street Upper, Pembroke Road, Merrion Road

6.1.1 Section 1a: Fitzwilliam Street

6.1.1.1 Introduction

As the EPR Option did not include this section, which is now forming part of the CBC, a Route Options Assessment has been carried out to examine potential options..

6.1.1.2 Options Considered

A number of options for Fitzwilliam Street have been developed with the objective of identifying the draft Preferred Route Option. As Fitzwilliam Street had not been previously examined, no Emerging Preferred Route was available to compare these options against. These options are outlined in more detail below:

- *Option FS1:* Full Bus Connects Cross-Section with removal of existing on-street parking, as an extension of the EPR Option (4 lane cross-section + cycle tracks).
- *Option FS2*: Two-lane cross section with a Bus Gate provided at the Mount Street Upper end with retention of parking on the northern side of the road (2 lane cross-section + cycle tracks + parking on one side).
- *Option FS3:* Four-lane cross section with retention of parking on the northern side of the road and cyclists cycling in the bus lanes (4 lane cross-section + parking on one side).
- *Option FS4:* Back-to-Back Bus Lanes along with signal controlled priority to enable a three-lane cross section of two general traffic lanes and single bus lane with retention of parking on the northern side of the road (3 lane cross section + cycle tracks + parking).

6.1.1.2.1 Alternative Options Considered

No alternative options were considered for this scheme section, additional to those run through the MCA.

6.1.1.2.2 Route Option FS1

Route Description

The location of route option FS1 is presented in **Figure 6.1**.

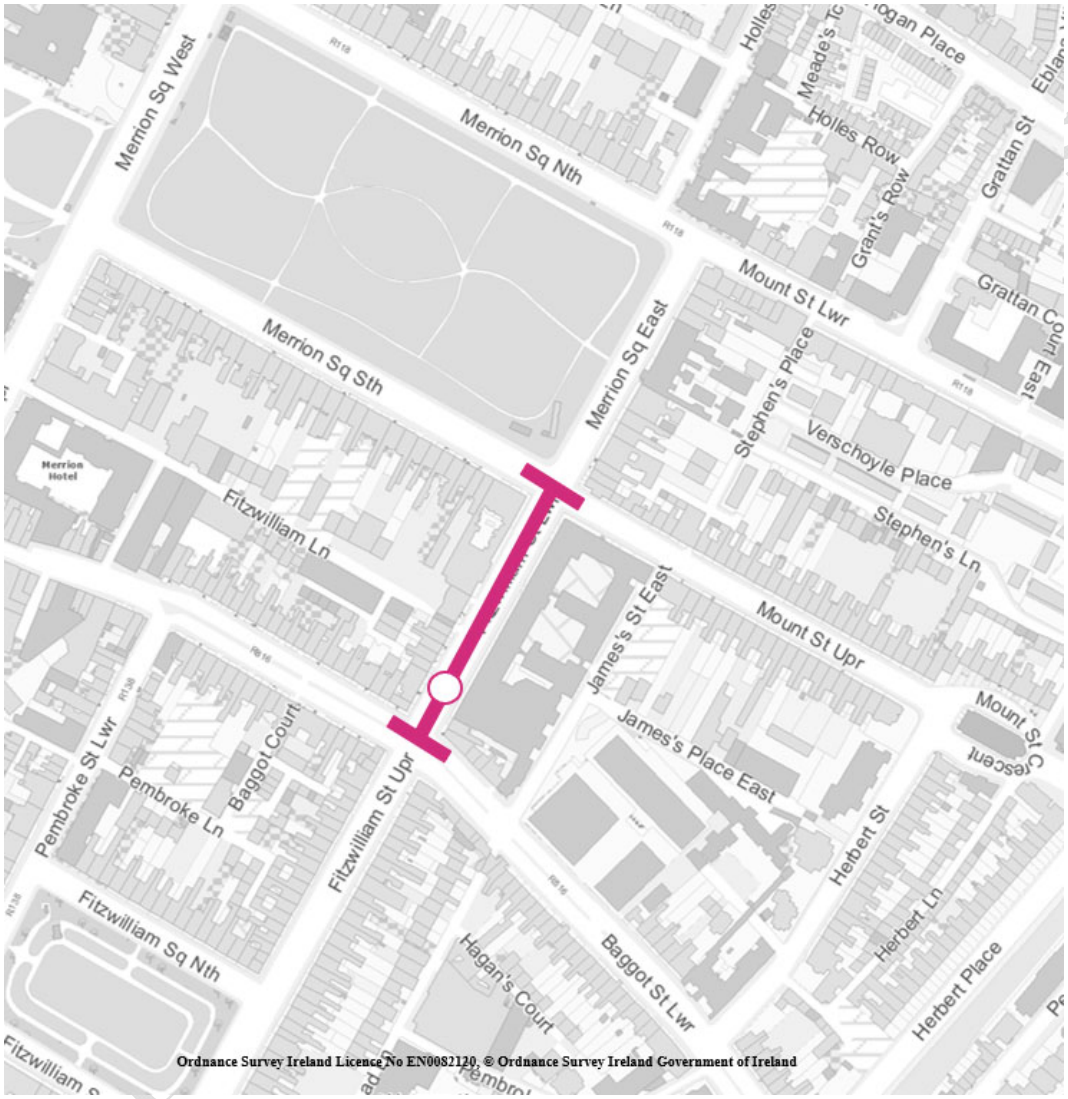


Figure 6.1: Route Option FS1

Inbound: This section of the route would begin at the junction of Baggot Street Lower and Fitzwilliam Street and proceed along Fitzwilliam Street Lower for approximately 160m, ending at the junction of Fitzwilliam Street Lower and Mount Street, at Merrion Square.

Outbound: The outbound route follows the same route as the inbound route.

Stops: One stop would likely be provided in the inbound direction along this route section.

Indicative Scheme Design

Figure 6.2 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

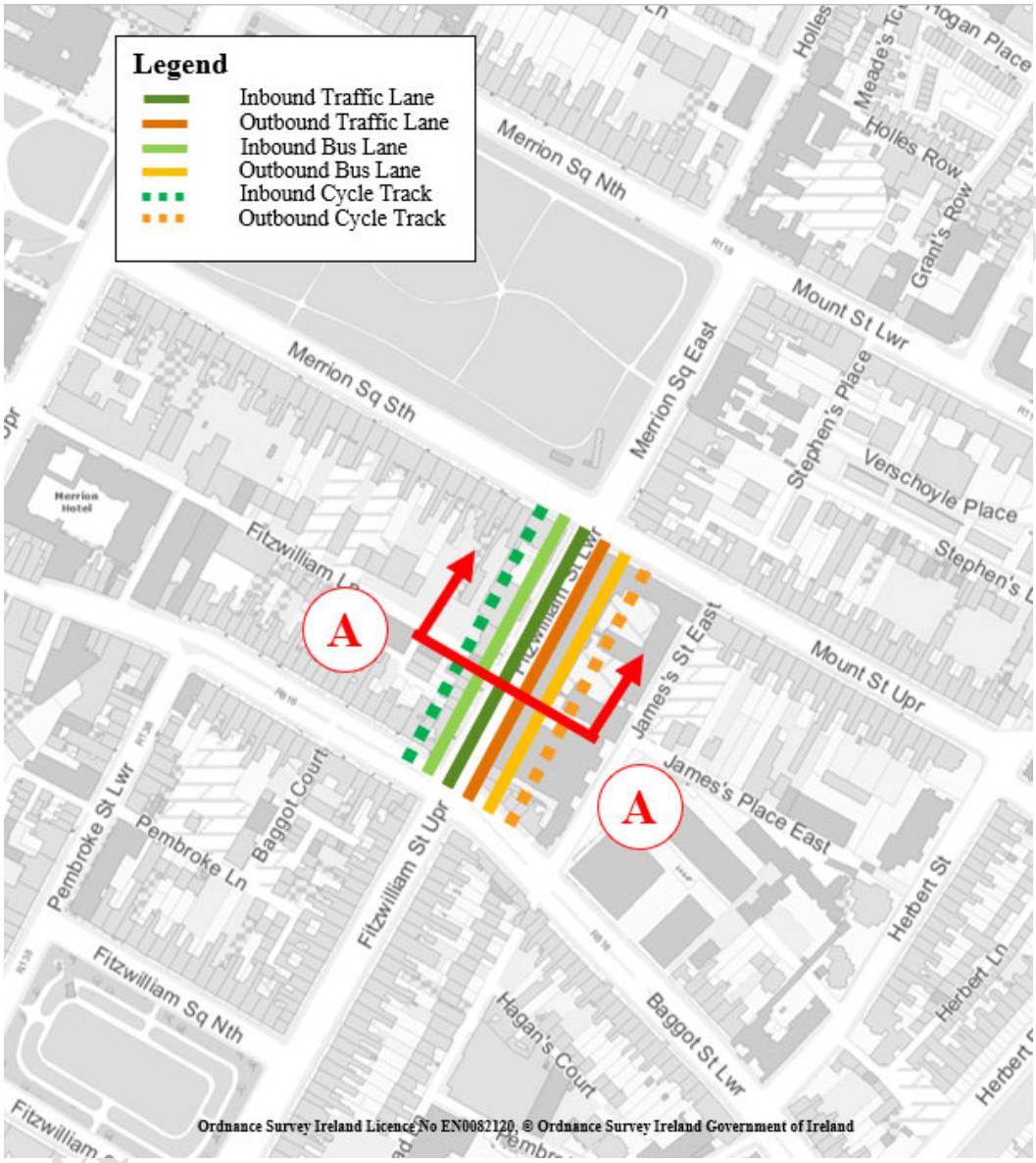


Figure 6.2: Route Option FS1 Indicative Scheme Design

This section of the route commences on Fitzwilliam Street Lower and the junction with Baggot Street Lower. Along the length of this route option section, two bus lanes, two general traffic lanes and two segregated cycle lanes are proposed. Existing footpaths would be retained or marginally widened along the majority of the route. All existing parking and load would be removed. The proposed cross-section along this section of Fitzwilliam Street Lower is presented in **Figure 6.3**.

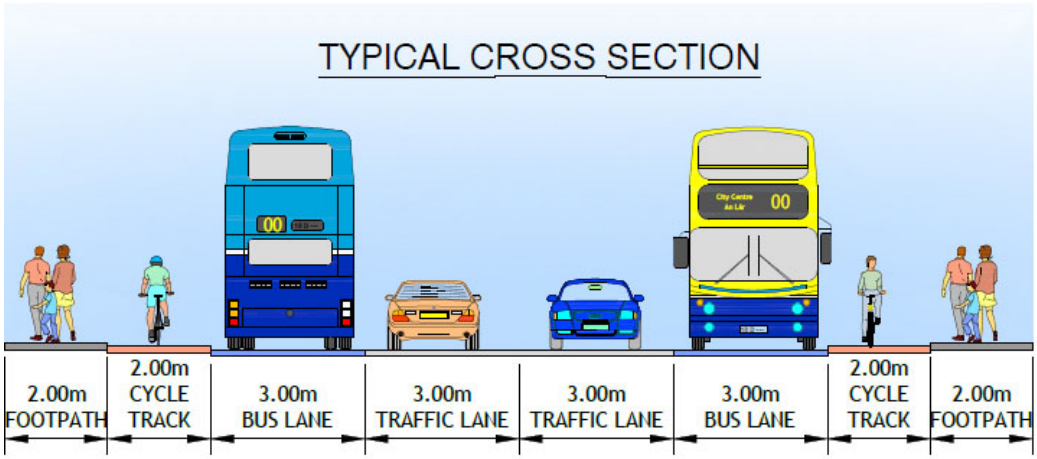


Figure 6.3: Route Option FS1 Cross-Section A-A

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

- Bus lanes in each direction between Baggot Street Lower and Mount Street;
- General traffic lane in both directions between Baggot Street Lower and Mount Street;
- Segregated cycle lanes in both directions between Baggot Street Lower and Mount Street;
- Retention of existing footway width along the majority of this route option section; and
- Removal of all parking and loading along Fitzwilliam Street Lower.

Junctions:

There are no major junctions along Fitzwilliam Street Lower. There is one priority-controlled junction with a minor road known as Fitzwilliam Lane. Currently Fitzwilliam Lane in one-way only from its junction with Little Fitzwilliam Place to Fitzwilliam Street Lower and this route option proposal would not alter this arrangement. At the junction of Fitzwilliam Lane and Fitzwilliam Street Lower is it proposed to provide a raised entry treatment to facilitate continued pedestrian and cycle priority along the street.

6.1.1.2.3 Route Option FS2

Route Description

Route option FS2 is presented in **Figure 6.4**.

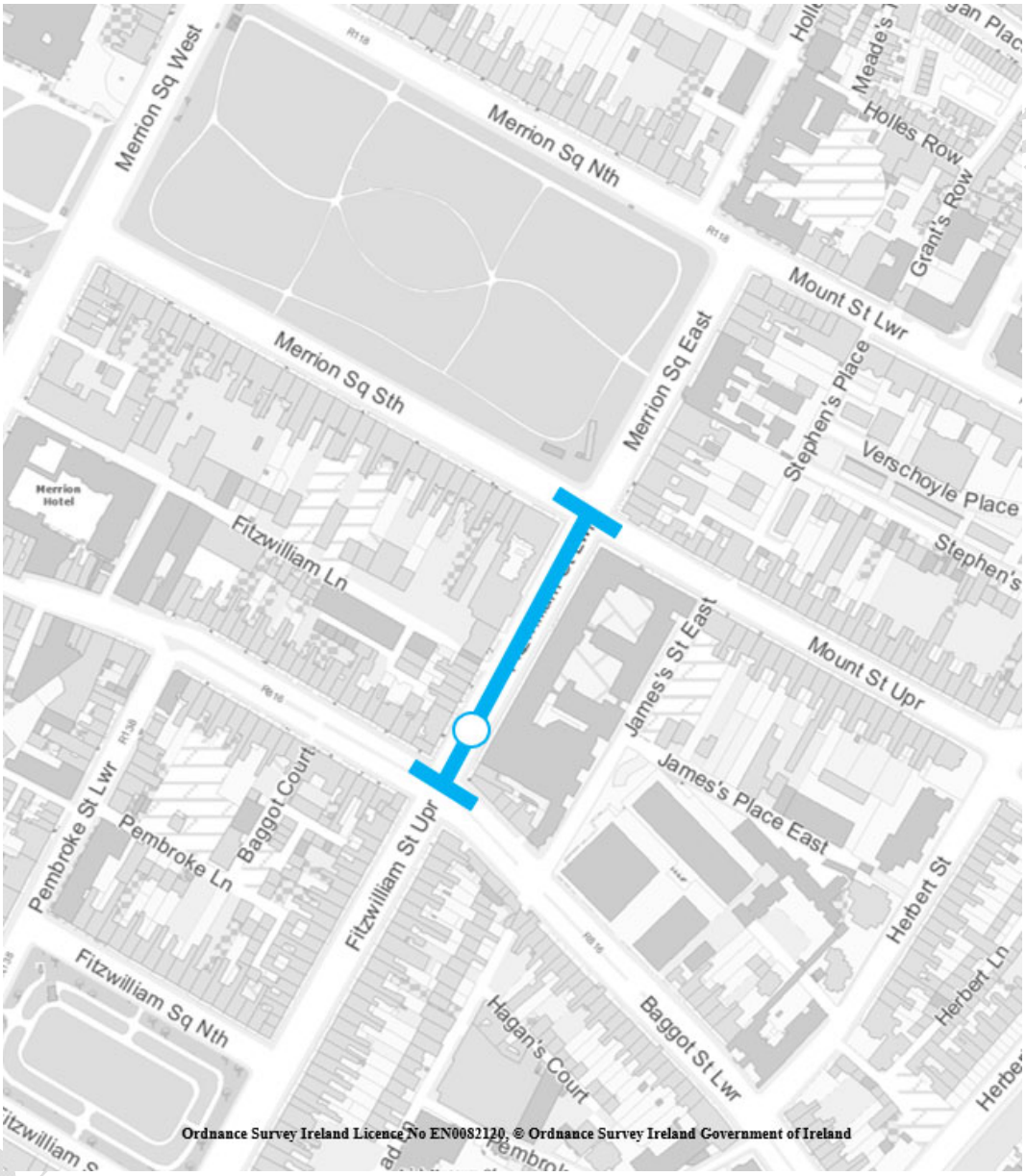


Figure 6.4: Route Option FS2

Inbound: This section of the route would begin at the junction of Baggot Street Lower and Fitzwilliam Street and proceed along Fitzwilliam Street Lower for approximately 160m, ending at the junction of Fitzwilliam Street Lower and Mount Street, at Merrion Square.

Outbound: The outbound route follows the same route as the inbound route.

Stops: One stop would likely be provided in the inbound direction along this route section.

Indicative Scheme Design

Figure 6.5 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

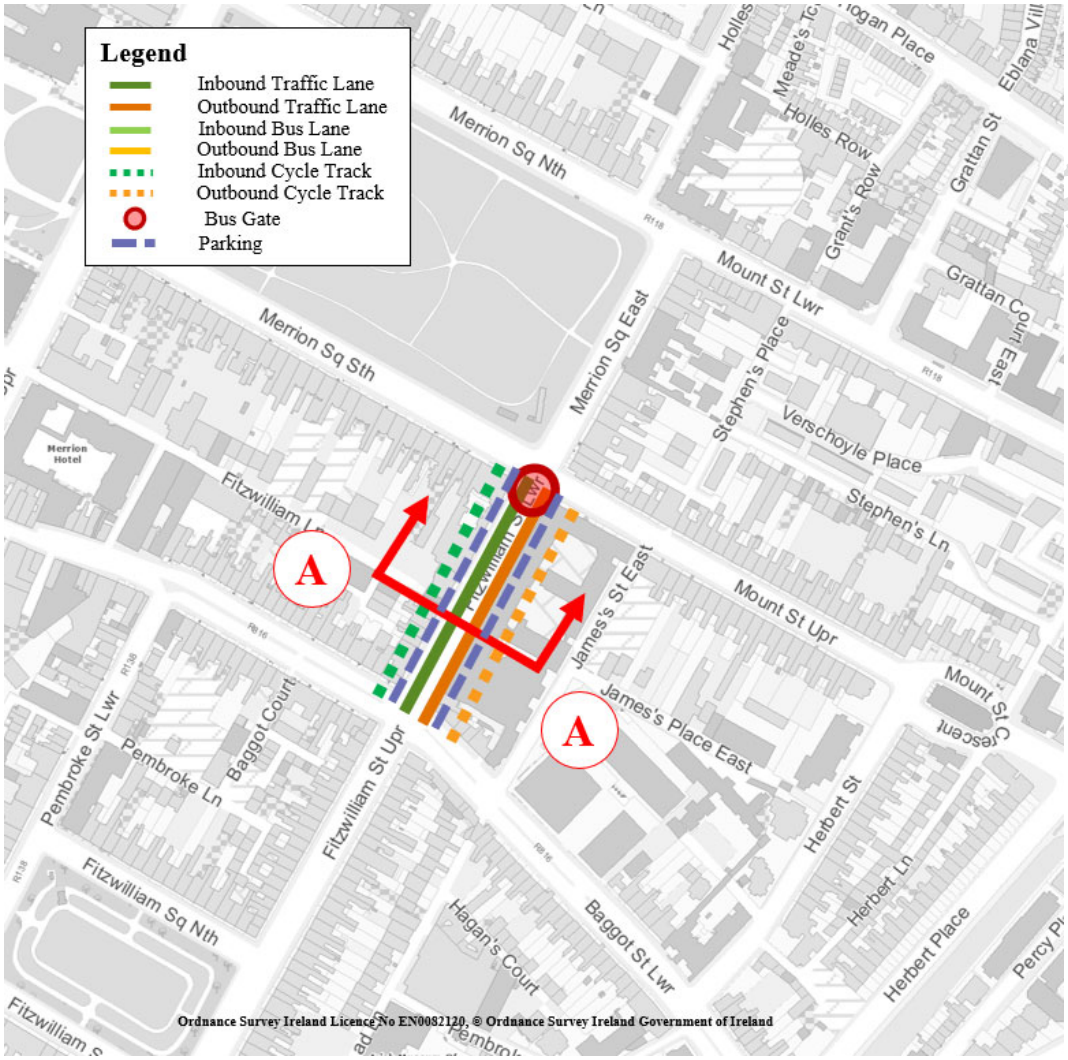


Figure 6.5: Route Option FS2 Indicative Scheme Design

This section of the route commences on Fitzwilliam Street Lower and the junction with Baggot Street Lower. A bus gate is proposed at the Merrion Square end of Fitzwilliam Street. Fitzwilliam Street Lower would become a local access only street, with all vehicles required to enter and exit the street vis the Baggot Street Lower junction. Along the length of this route option section, two general traffic lanes and two segregated cycle lanes are proposed. Existing footpaths would be retained or marginally widened along the majority of the route. Some parking / loading /set-down and bicycle parking would be provided on both sides of the street. The proposed cross-section along this section of Fitzwilliam Street Lower is presented in **Figure 6.6**.

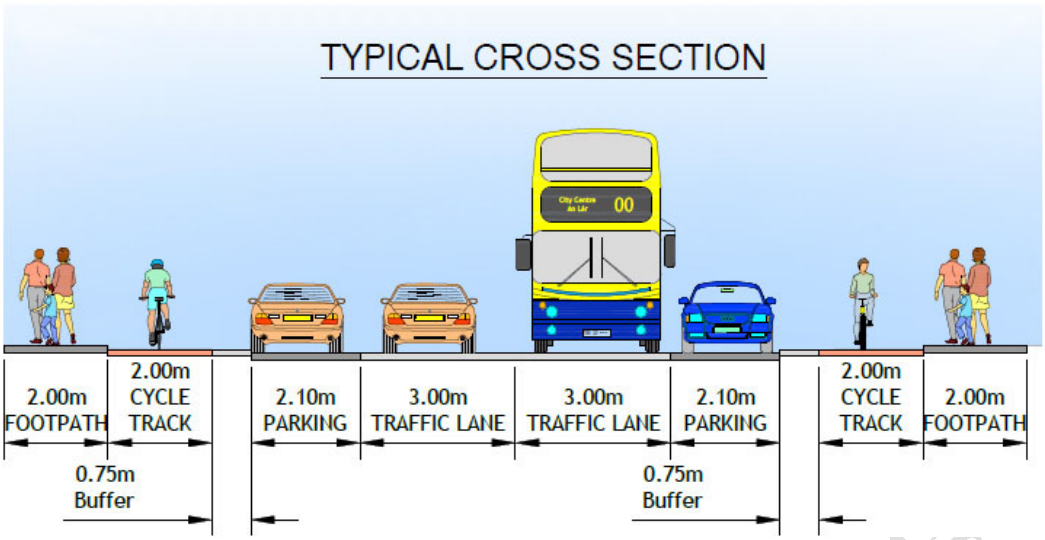


Figure 6.6: Route Option FS2 Cross-Section A-A

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

- The installation of a bus gate at the northern end of Fitzwilliam Street Lower at Merrion Square.
- An inbound and an outbound general traffic lane in both directions along the length of this route option section.
- An inbound and an outbound segregated cycle lane in both directions along the length of this route option section.
- Retention of existing footpaths along the majority of the road and increased footpath width over some short sections.
- Retention of a reduced quantum of on-street parking / loading / set-down and bicycle parking in each direction.

Junctions:

There is no major junction along Fitzwilliam Street Upper. There is one priority-controlled junction with a minor road known as Fitzwilliam Lane. Currently Fitzwilliam Lane in one-way only from its junction with Little Fitzwilliam Place to Fitzwilliam Street Upper and this route option proposal would not alter this arrangement. At the junction of Fitzwilliam Lane and Fitzwilliam Street Upper is it proposed to provide a raised entry treatment to facilitate continued pedestrian and cycle priority along the street.

6.1.1.2.4 Route Option FS3

Route Description

Route option FS3 is presented in **Figure 6.7**.

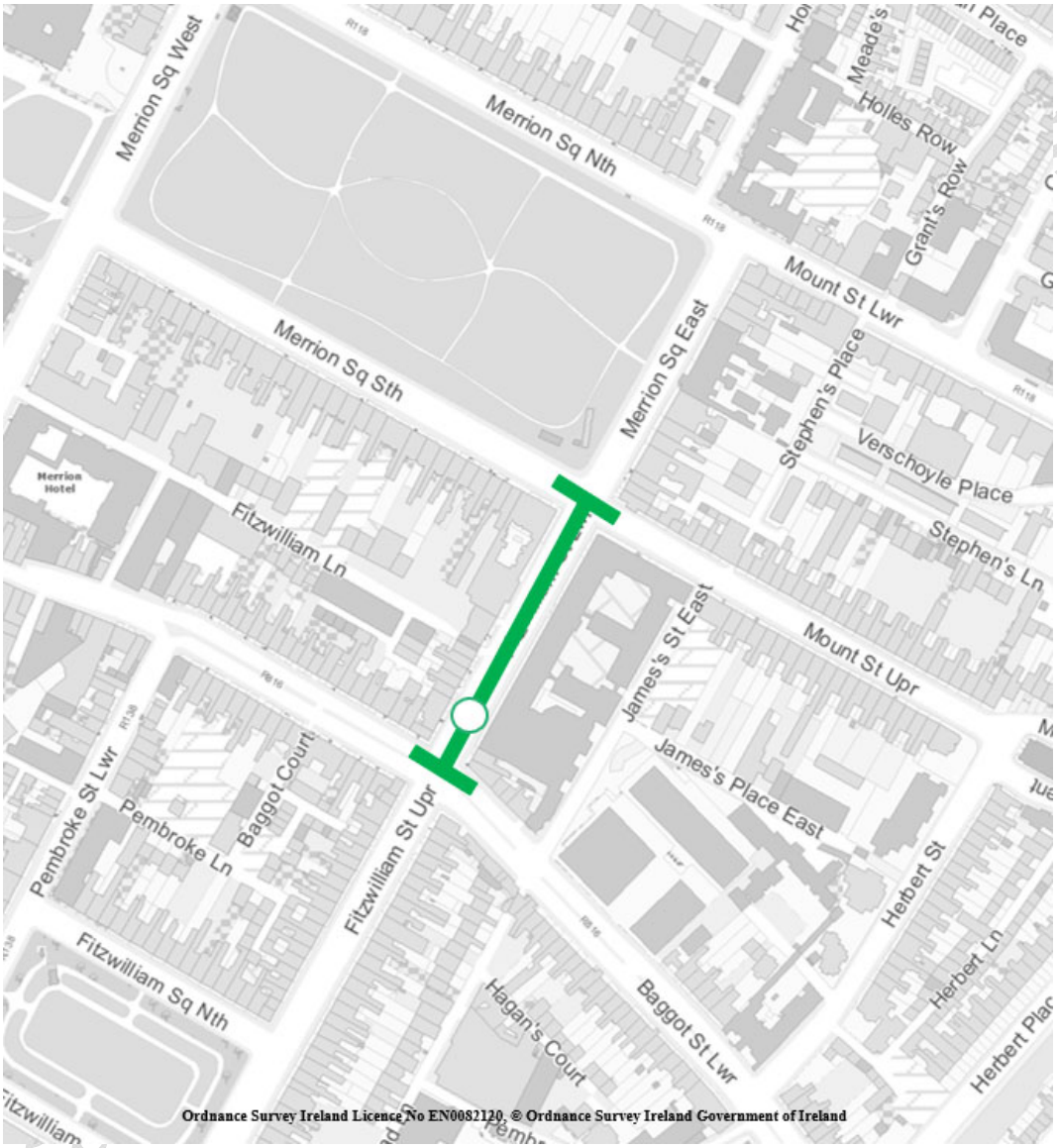


Figure 6.7: Route Option FS3

Inbound: This section of the route would begin at the junction of Baggot Street Lower and Fitzwilliam Street and proceed along Fitzwilliam Street Lower for approximately 160m, ending at the junction of Fitzwilliam Street Lower and Mount Street, at Merrion Square.

Outbound: The outbound route follows the same route as the inbound route.

Stops: One stop would likely be provided in the inbound direction along this route section.

Indicative Scheme Design

Figure 6.8 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

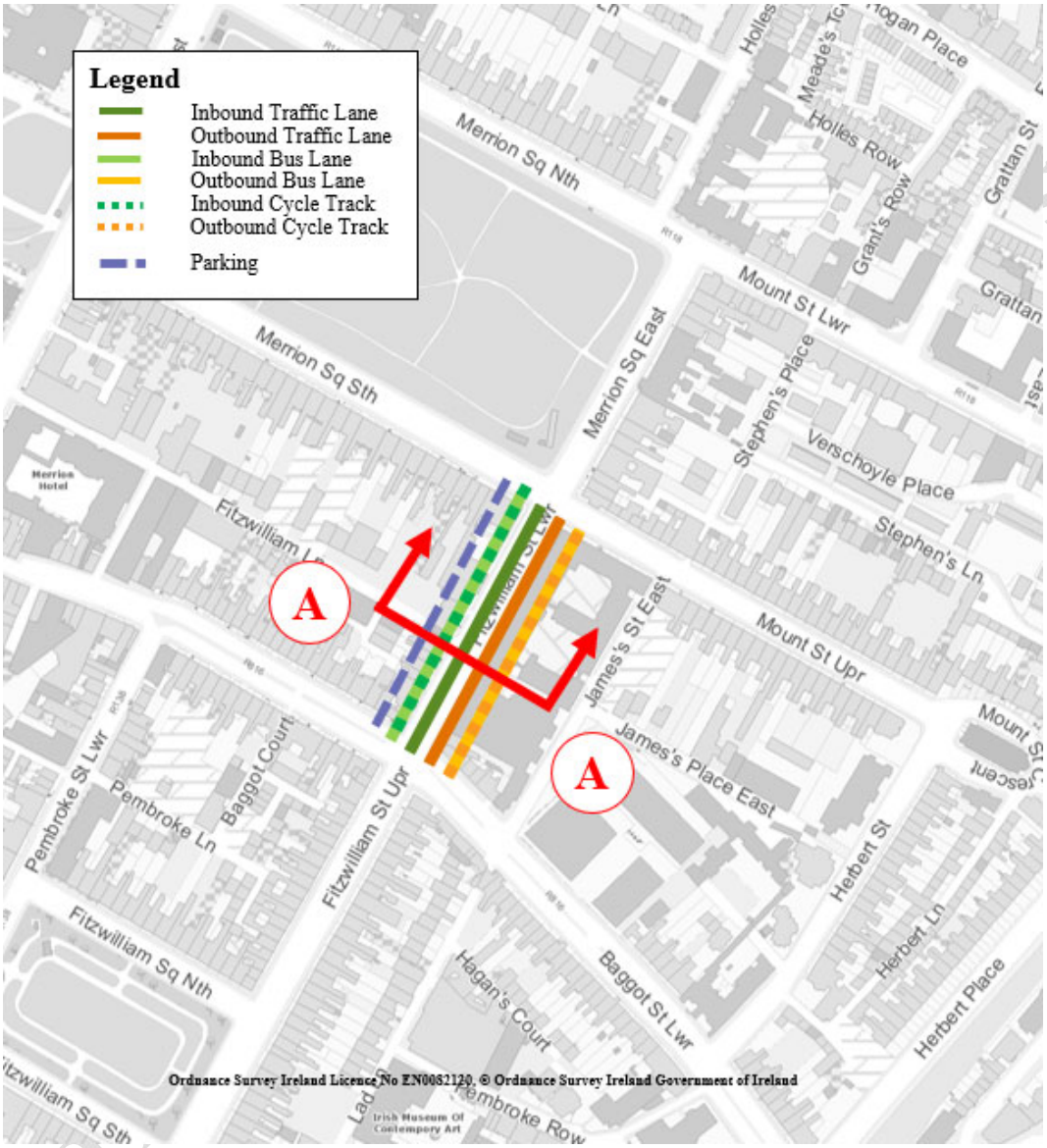


Figure 6.8: Route Option FS3 Indicative Scheme Design

This section of the route commences on Fitzwilliam Street Lower and the junction with Baggot Street Lower. Along the length of this route option section, two bus lanes, two general traffic lanes are proposed. No cycle tracks are proposed, with cyclists sharing the bus lane. Existing footpaths would be retained along the majority of the route. Some existing parking/loading/set-down would be retained.

The proposed cross-section along this section of Fitzwilliam Street Lower is presented in **Figure 6.9**.

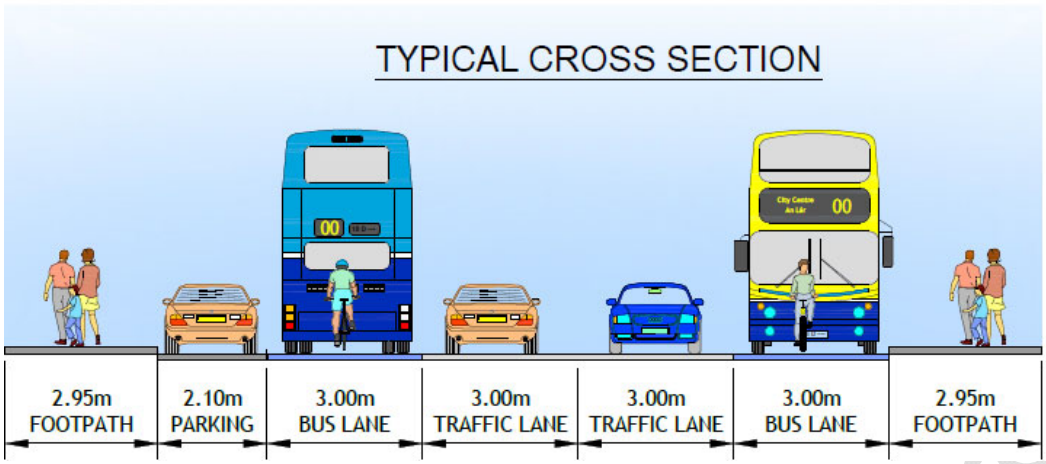


Figure 6.9: Route Option FS3 Cross-Section A-A

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

- Bus lanes in each direction between Baggot Street Lower and Mount Street to be shared with cyclists;
- General traffic lane in both directions between Baggot Street Lower and Mount Street;
- Retention of existing footway width along this route option section; and
- Retention of some parking and loading along Fitzwilliam Street Lower.

Junctions:

There is no major junction along Fitzwilliam Street Upper. There is one priority-controlled junction with a minor road known as Fitzwilliam Lane. Currently Fitzwilliam Lane in one-way only from its junction with Little Fitzwilliam Place to Fitzwilliam Street Upper and this route option proposal would not alter this arrangement. At the junction of Fitzwilliam Lane and Fitzwilliam Street Upper is it proposed to provide a raised entry treatment to facilitate continued pedestrian and cycle priority along the street.

6.1.1.2.5 Route Option FS4

Route Description

Route option FS4 is presented in **Figure 6.10**.

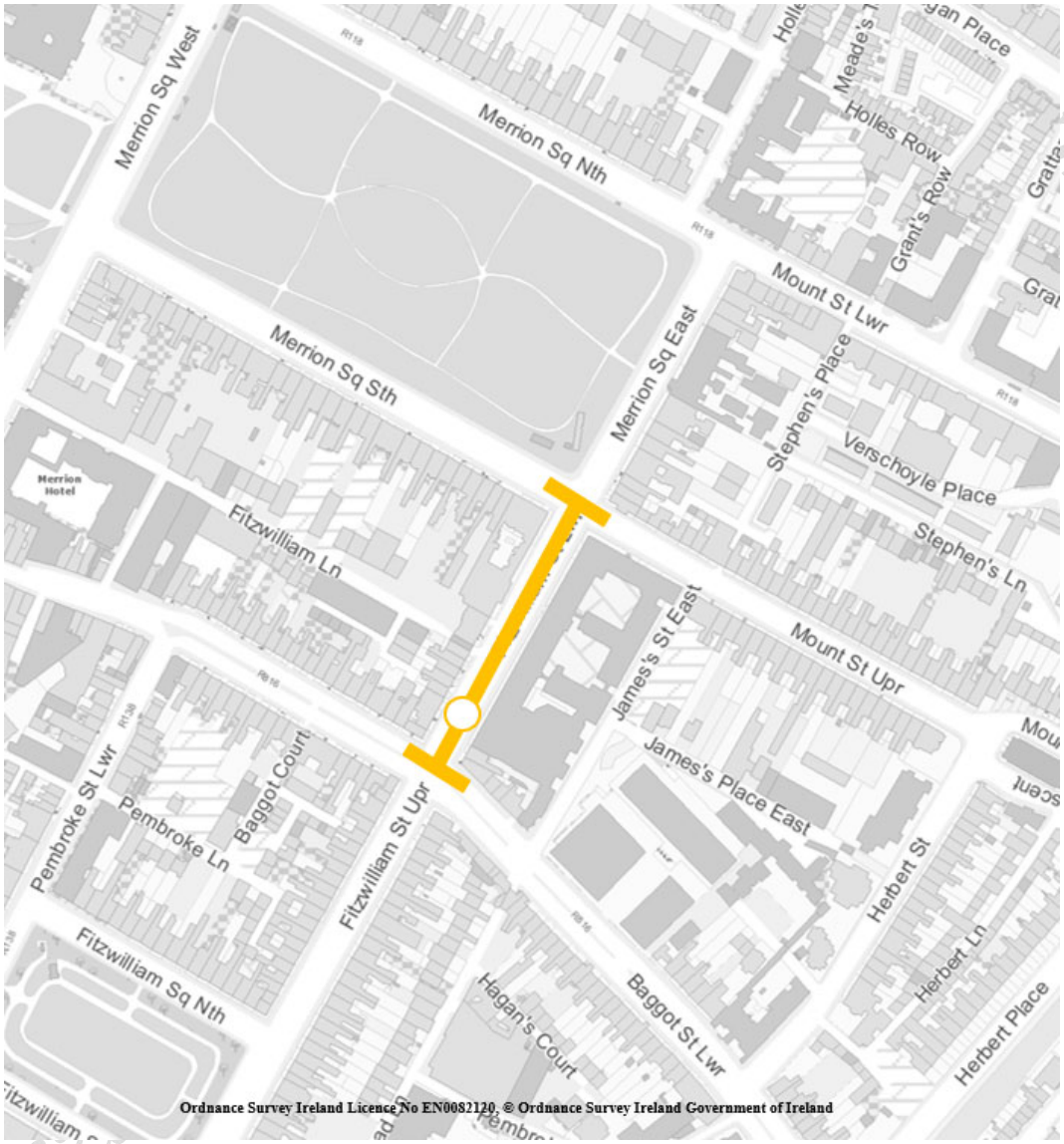


Figure 6.10: Route Option FS4

Inbound: This section of the route would begin at the junction of Baggot Street Lower and Fitzwilliam Street and proceed along Fitzwilliam Street Lower for approximately 160m, ending at the junction of Fitzwilliam Street Lower and Mount Street, at Merrion Square.

Outbound: The outbound route follows the same route as the inbound route.

Stops: One stop would likely be provided in the inbound direction along this route section.

Indicative Scheme Design

Figure 6.11 illustrates the indicative scheme design for this route option. The location of cross-sections referenced in subsequent sections describing this route option are also presented in this figure.

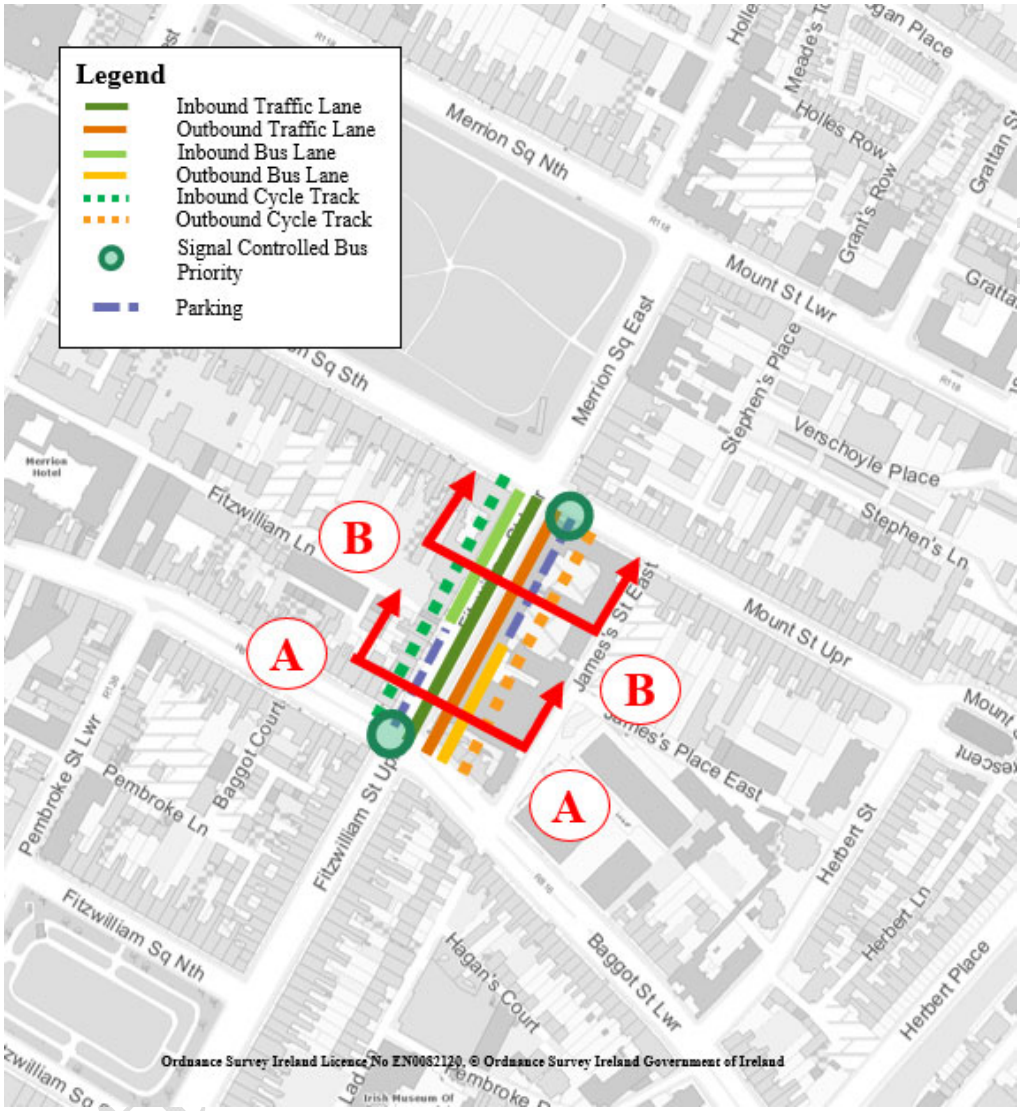


Figure 6.11: Route Option FS4 Indicative Scheme Design

This section of the route commences on Fitzwilliam Street Lower and the junction with Baggot Street Lower. Along the length of this route option section, three lanes are proposed with a back-to-back bus lane arrangement. This would comprise a southbound bus lane from Fitzwilliam Lane to Baggot Street Lower and a northbound bus lane from Fitzwilliam Lane to Mount Street. Signal Controlled Bus Priority would be necessary at the Mount Street and Baggot Street Lower junctions in order to control the flow of vehicles into this section and ensure buses can reach the bus lanes unhindered.

Two general traffic lanes and two segregated cycle lanes are proposed. Existing footpaths would be retained or marginally widened along the section while some parking and loading would be retained. The proposed cross-sections along this section of Fitzwilliam Street Lower are presented in **Figure 6.12** and **Figure 6.13**.

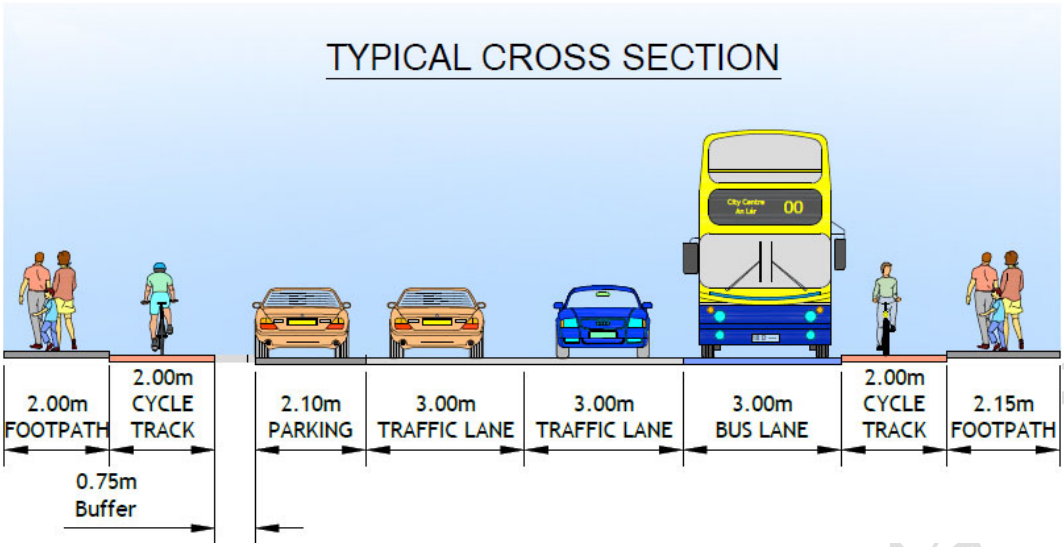


Figure 6.12: Route Option FS4 Cross-Section A-A

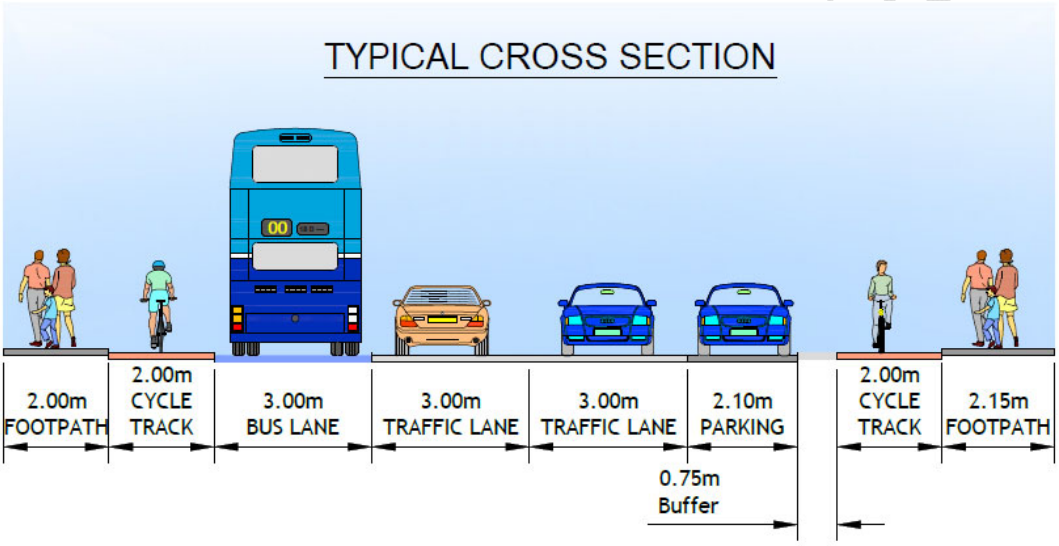


Figure 6.13: Route Option FS4 Cross-Section B-B

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

- Back-to-back bus lanes on Fitzwilliam Street Lower with a northbound bus lane from Fitzwilliam Lane to Mount Street and a southbound bus lane from Fitzwilliam Lane to Baggot Street;
- General traffic lane in both directions between Baggot Street Lower and Mount Street;
- Retention of existing footway width along this route option section; and
- Retention of some parking and loading along Fitzwilliam Street Lower.

Junctions:

There is no major junction along Fitzwilliam Street Upper. There is one priority-controlled junction with a minor road known as Fitzwilliam Lane.

Currently Fitzwilliam Lane in one-way only from its junction with Little Fitzwilliam Place to Fitzwilliam Street Upper and this route option proposal would not alter this arrangement. At the junction of Fitzwilliam Lane and Fitzwilliam Street Upper is it proposed to provide a raised entry treatment to facilitate continued pedestrian and cycle priority along the street.

6.1.1.3 Section 1a Route Option Assessment

Details of the route options assessment undertaken for the Fitzwilliam Street Lower section are presented in Appendix A. The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 6.1**.

Table 6.1: Section 1a Route Options Assessment Summary (Sub-Criteria)

Appraisal Criteria	Sub-Criteria	Option FS1	Option FS2	Option FS3	Option FS4
1 Economy	1A Capital Cost				
	1B Transport Quality & Reliability				
2 Integration	2A Land Use Policy				
	2B Residential Population and Employment Catchments				
	2C Transport Network Integration				
	2D Cycle Network Integration				
	2E Traffic Network Integration				
3 Accessibility & Social Inclusion	3A Key Trip Attractors				
	3B Deprived Geographic Areas				
4 Safety	4A Road Safety				
	4B Pedestrian Safety				
5 Environment	5A Archaeology & Cultural Heritage				
	5B Architectural Heritage				
	5C Flora & Fauna				
	5D Soils, Geology & Hydrogeology				
	5E Landscape & Visual				
	5F Air Quality				
	5G Noise & Vibration				
	5H Land Use Character				

In terms of Capital Cost, all options require similar levels of infrastructure upgrades and as such are ranked equally under this sub-criterion as each involves moderate road modifications with no land acquisition costs. In terms of Transport Quality & Reliability, Option FS1 performs highest for this criterion as full segregated bus lanes are proposed in this option while in options FS2 and FS4 provide only virtual bus priority as buses are required to share road space with general traffic over sections. In option FS3 buses would share road space with cyclists and are likely to be delayed as a result.

All options serve the same catchments and as such are ranked equally in relation to Land Use Policy and Residential Population Catchments and Employment Catchments. Similarly, in terms of Transport Network Integration, as all options follow the same route, the opportunity for interchange with other routes is equal.

In terms of Cycle Network Integration, Options FS1, FS2 and FS4 all proposed high quality segregated cycle facilities along the length of this route section are ranked as significantly better that option FS3 in which cyclists would be required to share the bus lane with buses.

Option FS1 and FS3 performs marginally better than option FS4 under the criterion of Traffic Network Integration, as all inbound traffic movements on Fitzwilliam Street Lower are retained however some delay is anticipated in option FS4 relative to FS1 and FS3. However, option FS2 scores poorly in this criterion due to the restrictions on traffic as a result of the bus gate.

All options rank equally under both sub-criteria under Accessibility & Social Inclusion as they all follow the same route.

In terms of Safety, all options perform the same with respect to Road Safety and Pedestrian Safety as the route is the same for each, the number of junctions and turning movements is equal and all options provide for pedestrian footpaths and crossings.

In terms of Environment, Option FS2 performs marginally better in terms of Air Quality and Noise & Vibration due to the removal of through traffic along Fitzwilliam Street. With respect to Land Use Character, options FS2, FS3 and FS4 perform marginally better that option FS1 as all three option retain some level of on-street parking. The options perform equally in the remaining sub-criteria under Environment.

A summary of the assessment and relative ranking of route options against the five main assessment criteria is presented in **Table 6.2**.

Table 6.2: Section 1a Criteria MCA Summary

Appraisal Criteria	Option FS1	Option FS2	Option FS3	Option FS4
1 Economy				
2 Integration				
3 Accessibility & Social Inclusion				
4 Safety				
5 Environment				

6.1.1.4 Section 1a Conclusion and Draft Preferred Option

Based on the assessment undertaken, route Option FS1 offers more benefits over other options. It performs highest or joint highest on all criteria with the exception of Environment, which is primarily due to the removal of parking and retention of through traffic.

Option FS1 is the preferred option for the Fitzwilliam Street Lower area for the following reasons:

- It provides segregated bus priority lanes along the length of Fitzwilliam Street;
- It provides on high-quality cycle facilities on a secondary route from the GDA Cycle Network Plan; and
- It delivers the desirable minimum BusConnects cross-section.

6.1.2 Section 1b: Pembroke Road (Baggot Street Upper to Northumberland Road)

6.1.2.1 Introduction

From a review of submissions received as part of the public consultation process, as well as a review of the topographical survey carried out since the EPR Option's publication, a number of issues were identified which had the potential to be overcome through the implementation of alternative design solutions.

6.1.2.2 Options Considered

Four options have been developed in order to address the concerns identified in Section 5.3.2.2 relating to Pembroke Road and are outlined below:

- *Option PR1:* EPR Option with the road realigned to remove impact on existing access steps to properties on the northern side and reapportion all land acquisition to the southern side of the road (4 lane cross-section + cycle tracks + parking).
- *Option PR2:* Removal of land acquisition on the northern side as per PR1 however with removal of all parking along the section, including removal of space between parking bays for tree planting (4 lane cross-section + cycle tracks).
- *Option PR3:* Removal of land acquisition on the northern side as per PR1 however with only a one-way outbound traffic lane and with Bus Lanes and cycle tracks in each direction (3 lane cross section + cycle tracks + parking).
- *Option PR4:* Introduction of a single bus gate between Waterloo Road and Eastmoreland Place with two general traffic lanes from there to the Northumberland Road junction, with retention of all trees and no impact to property boundaries (2 lane cross section + cycle tracks + parking).

6.1.2.2.1 Alternative Options Considered

Other options were also considered in the area but were not carried forward for the reasons briefly outlined below:

- **Option of reversing the direction of the proposed one-way general traffic in route option PR3**. This option was examined and sifted out as the outbound direction was considered to be the better option for a one-way road. This is primarily due to Pembroke Roads proximity to the city centre, which would have a higher probability of becoming congested more often if there are a higher number of inbound general traffic streets in comparison to outbound general traffic streets. This could in turn impact on bus operations within the city centre core.
- **Option of removing cycle tracks on Pembroke and providing an off-line cycle route**. This option was examined but not considered a viable solution due to a number of factors. Firstly, Pembroke Road is defined as a primary cycle corridor in the GDA Cycle Network Plan. In addition, alternative routes were examined in order to determine if suitable cycle routes could be

facilitated on a number of adjacent streets and lanes, but each of these routes were found to not meet the criteria of a primary cycle track under criteria including directness, safety and attractiveness and comfort.

6.1.2.2.2 Route Option PR1

Route Description

The location of route option PR1 is presented in **Figure 6.14**.

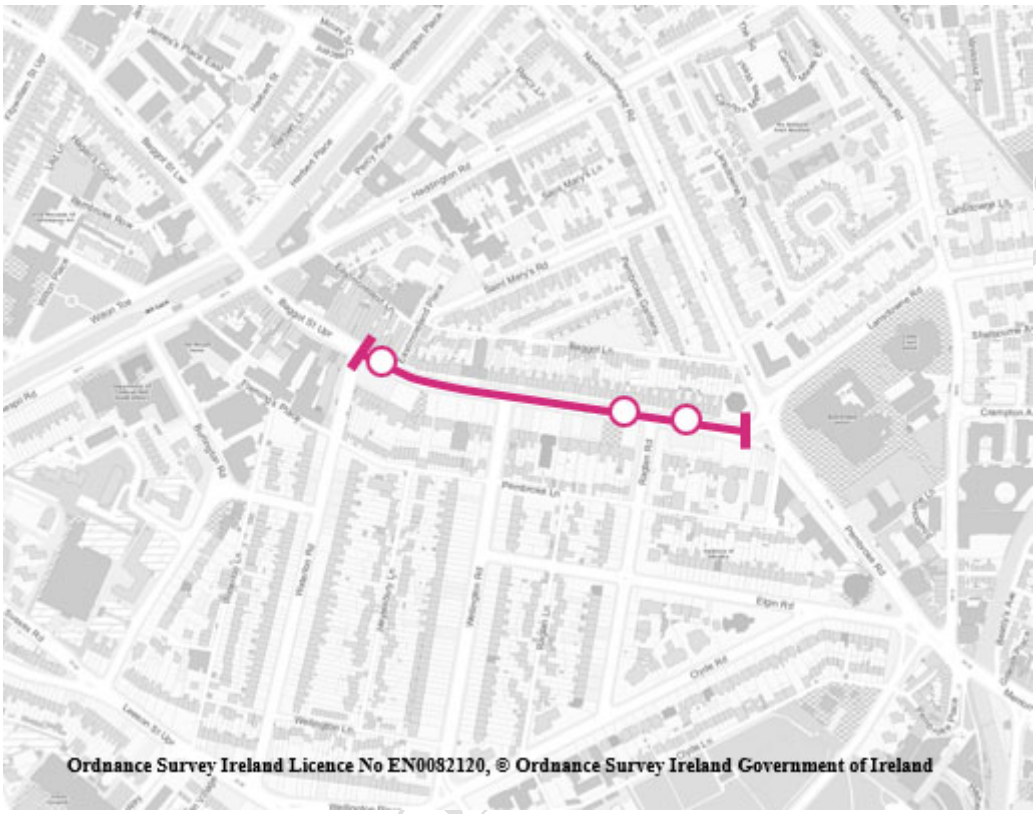


Figure 6.14: Route Option PR1

Inbound: This section of the route would commence at the junction of Pembroke Road and Northumberland Road and continue along Pembroke Road. This section of the route ends at Baggot Street Upper at the junction of Pembroke Road and Waterloo Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of three stops would likely be provided along this route section, two stops in the outbound direction and one inbound.

Indicative Scheme Design

Figure 6.15 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

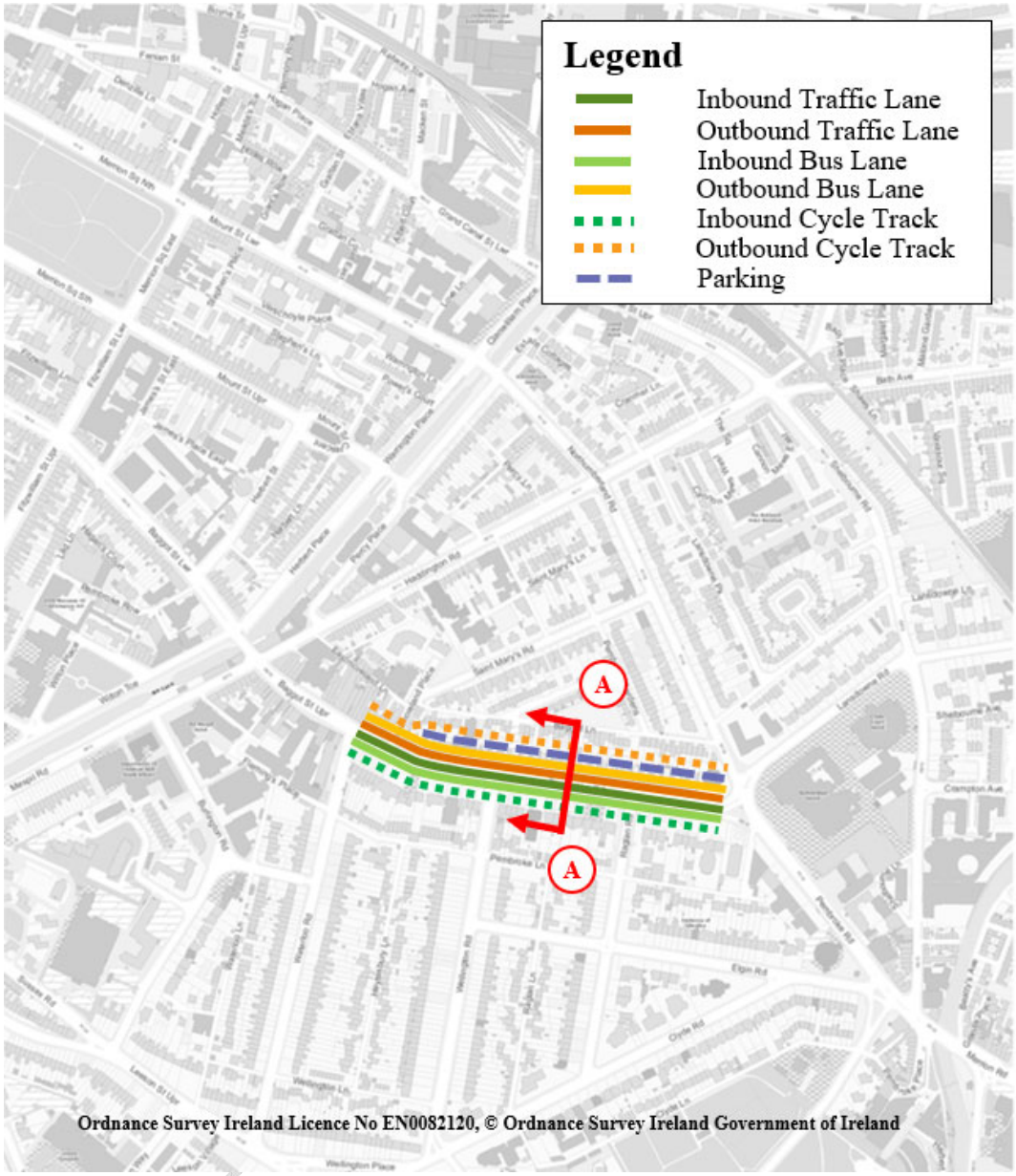


Figure 6.15: Route Option PR1 Indicative Scheme Design

This section of the route commences on Pembroke Road at the junction of Northumberland Road. Along Pembroke Road two bus lanes and two general traffic lanes are proposed.

On the northern side of the road, the existing footpath would be reduced to 2.0m in width, in between existing trees. At existing tree locations, the footpath would widen locally in order to retain the tree.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option. On the northern side of Pembroke Road, the cycle track would weave around existing trees maintaining its proposed 2.0m width.

Parking along the northern side of Pembroke Road is proposed in this option. This current length of parallel parking would however be broken up into 8 separate

sections as the footpath and cycle track conflict with parking in the vicinity of existing trees. All existing parking on the southern side of Pembroke Road is proposed to be removed.

In order to provide this route option land acquisition from approximately 33 properties would be necessary. This would include the removal of a number of existing trees currently on private property.

A cross-section of this option on Pembroke Road is presented in **Figure 6.16**.

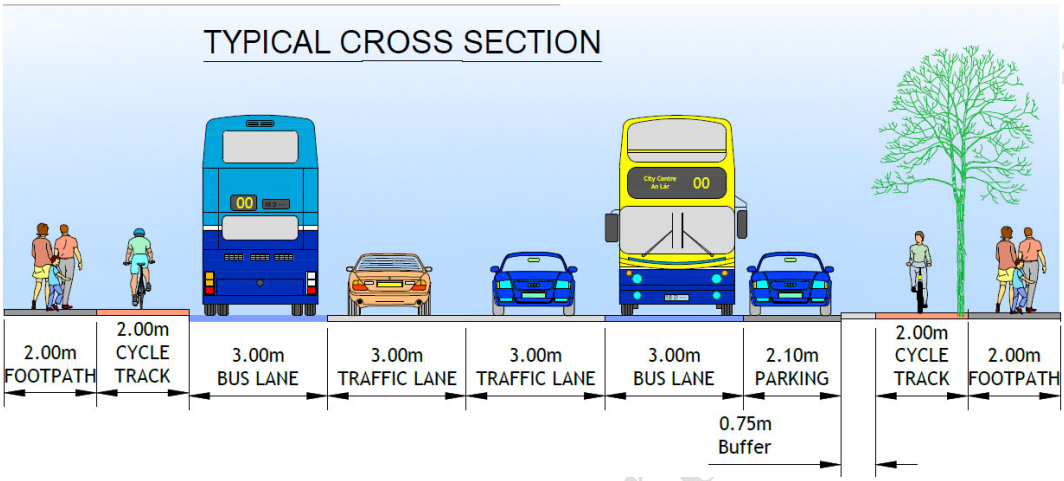


Figure 6.16: Route Option PR1 Cross-Section A-A

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

- An inbound and an outbound bus lane in both directions along the length of this route option section;
- An inbound and an outbound general traffic lane in both directions along the length of this route option section;
- An inbound and an outbound segregated cycle lane in both directions along the length of this route option section;
- Reduction in width of the existing footpath on both sides of the road;
- Retention of a significantly reduced quantum of on-street parking on the northern side of Pembroke Road and the removal of all existing parking on the southern side of the road;
- Retention of the majority of existing on-street trees but the removal of a large number of trees currently on private property; and
- Land acquisition from approximately 33 properties.

Junctions:

There are currently no signalised junctions along this route option and this proposal does not intend to signalise any additional junctions. There are three priority-controlled junctions of along this route option section, namely the junctions of Pembroke Road with Raglan Road, Wellington Road and Eastmoreland Place. This route option proposes to adjust these junctions to reduce

junction widths and radii and to provide junction entry treatment in order to improve these junctions for pedestrian use.

6.1.2.2.3 Route Option PR2

Route Description

The location of route option PR2 is presented in **Figure 6.17**.

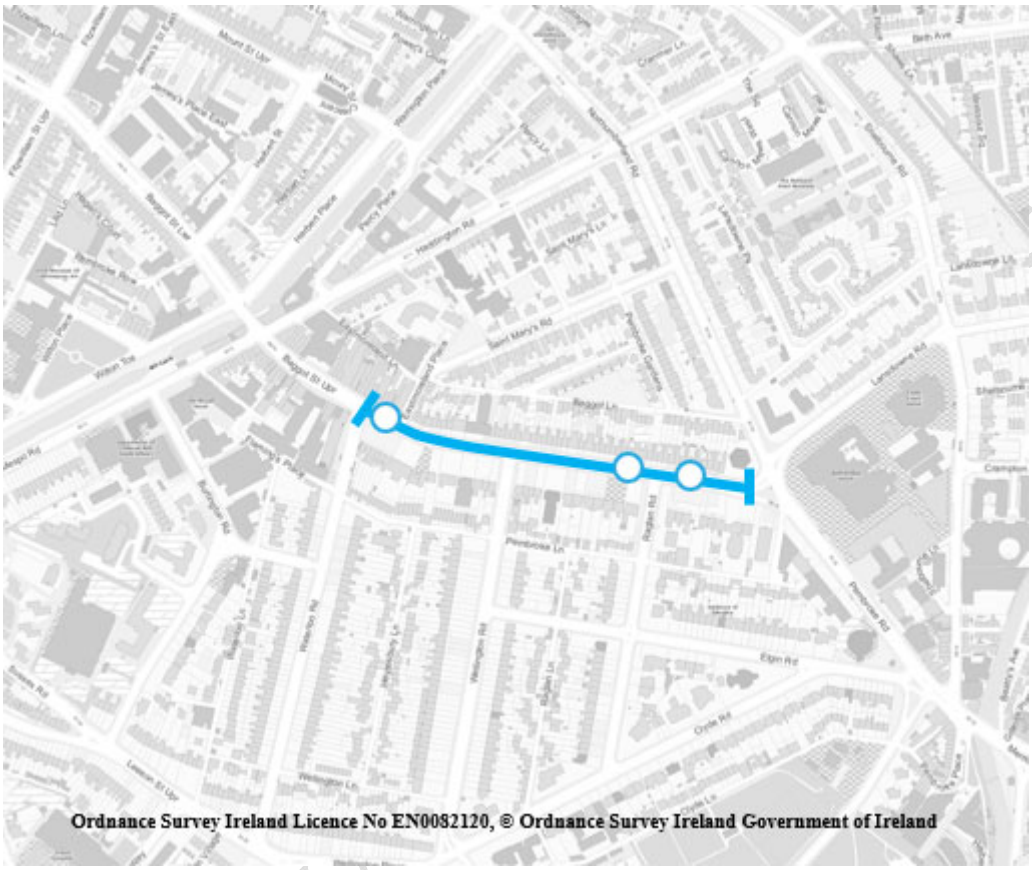


Figure 6.17: Route Option PR2

Inbound: This section of the route would commence at the junction of Pembroke Road and Northumberland Road and continue along Pembroke Road.

This section of the route ends at Baggot Street Upper at the junction of Pembroke Road and Waterloo Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of three stops would likely be provided along this route section, two stops in the outbound direction and one inbound.

Indicative Scheme Design

Figure 6.18 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

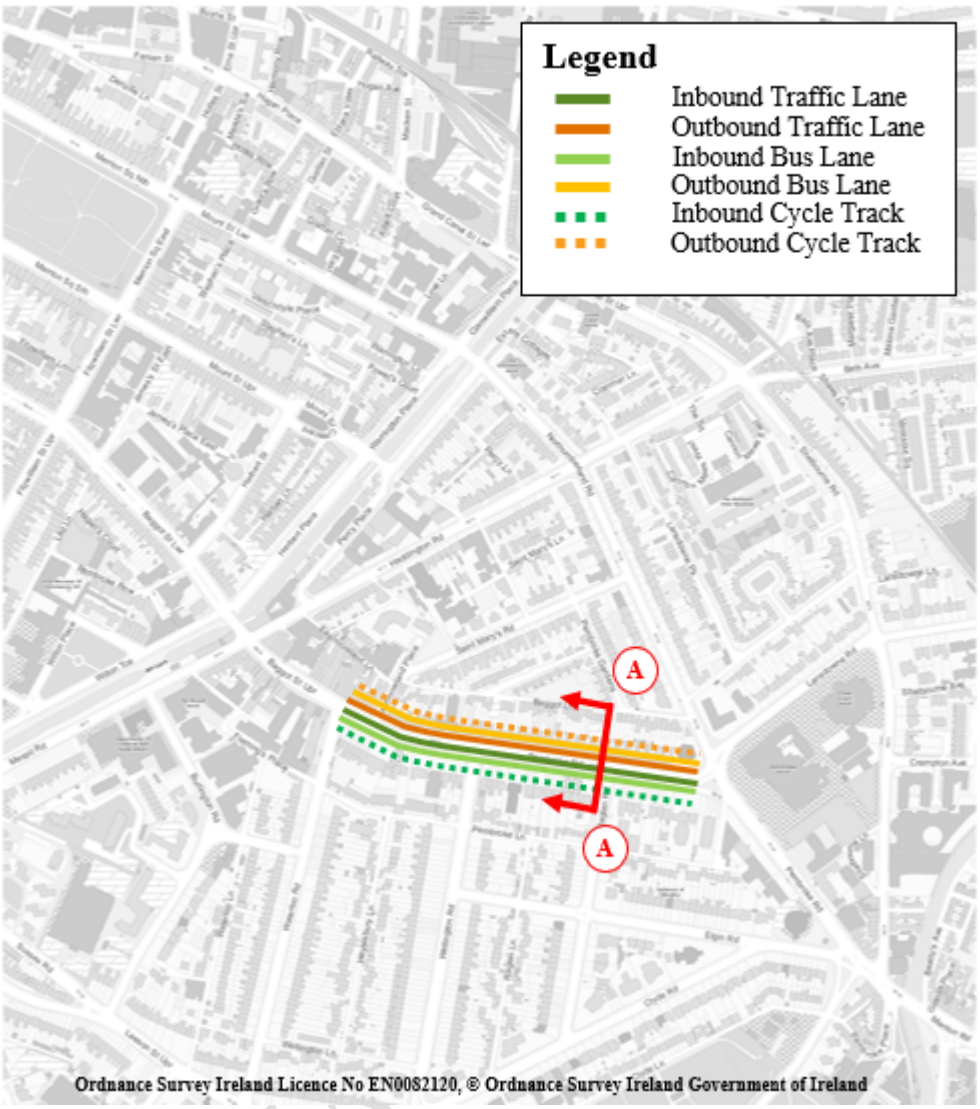


Figure 6.18: Route Option PR2 Indicative Scheme Design

This section of the route commences on Pembroke Road at the junction of Northumberland Road. Along Pembroke Road two bus lanes and two general traffic lanes are proposed.

On the northern side of the road, the existing footpath would be reduced to 2.0m in width and existing trees removed.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

All existing parking along Pembroke Road is proposed to be removed.

In order to provide this route option land acquisition from approximately 8 properties would be necessary.

A cross-section of this option on Pembroke Road is presented in **Figure 6.19**.

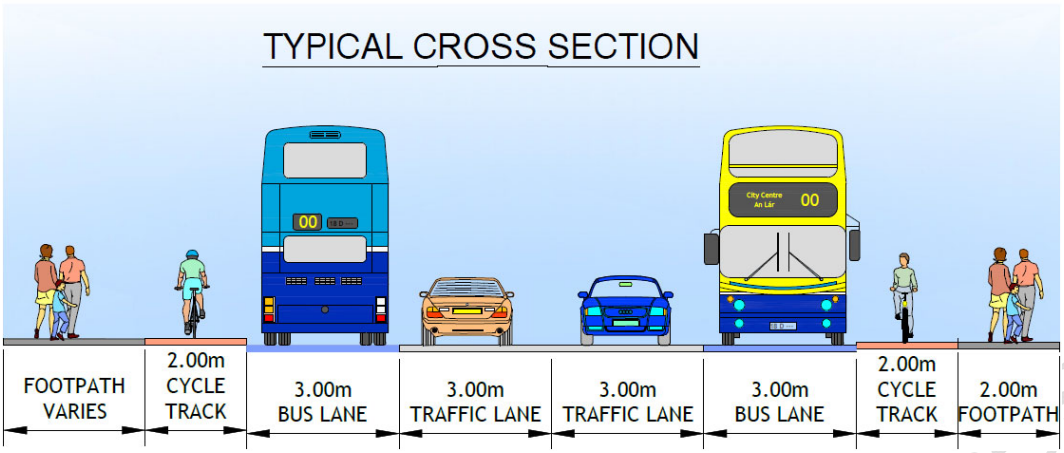


Figure 6.19: Route Option PR2 Cross-Section A-A

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

- An inbound and an outbound bus lane in both directions along the length of this route option section;
- An inbound and an outbound general traffic lane in both directions along the length of this route option section;
- An inbound and an outbound segregated cycle lane in both directions along the length of this route option section;
- Reduction in footpath width on both sides of the road;
- Removal of all on-street parking along this route option section;
- Removal of all existing on-street trees and a small number of trees currently located on private property; and
- Land acquisition from approximately 8 properties.

Junctions:

There are currently no signalised junctions along this route option and this proposal does not intend to signalise any additional junctions. There are three priority-controlled junctions of along this route option section, namely the junctions of Pembroke Road with Raglan Road, Wellington Road and Eastmoreland Place.

This route option proposes to adjust these junctions to reduce junction widths and radii and to provide junction entry treatment in order to improve these junctions for pedestrian use.

6.1.2.2.4 Route Option PR3

Route Description

The location of route option PR3 is presented in **Figure 6.20**.

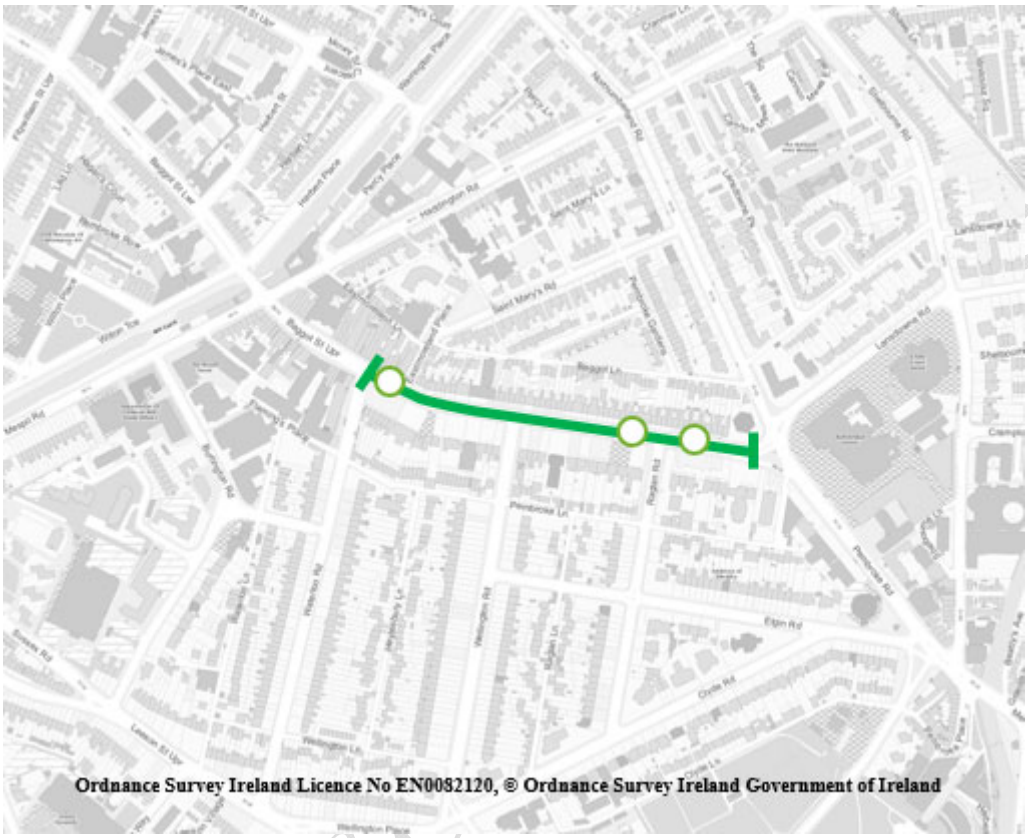


Figure 6.20: Route Option PR3

Inbound: This section of the route would commence at the junction of Pembroke Road and Northumberland Road and continue along Pembroke Road. This section of the route ends at Baggot Street Upper at the junction of Pembroke Road and Waterloo Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of three stops would likely be provided along this route section, two stops in the outbound direction and one inbound.

Indicative Scheme Design

Figure 6.21 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

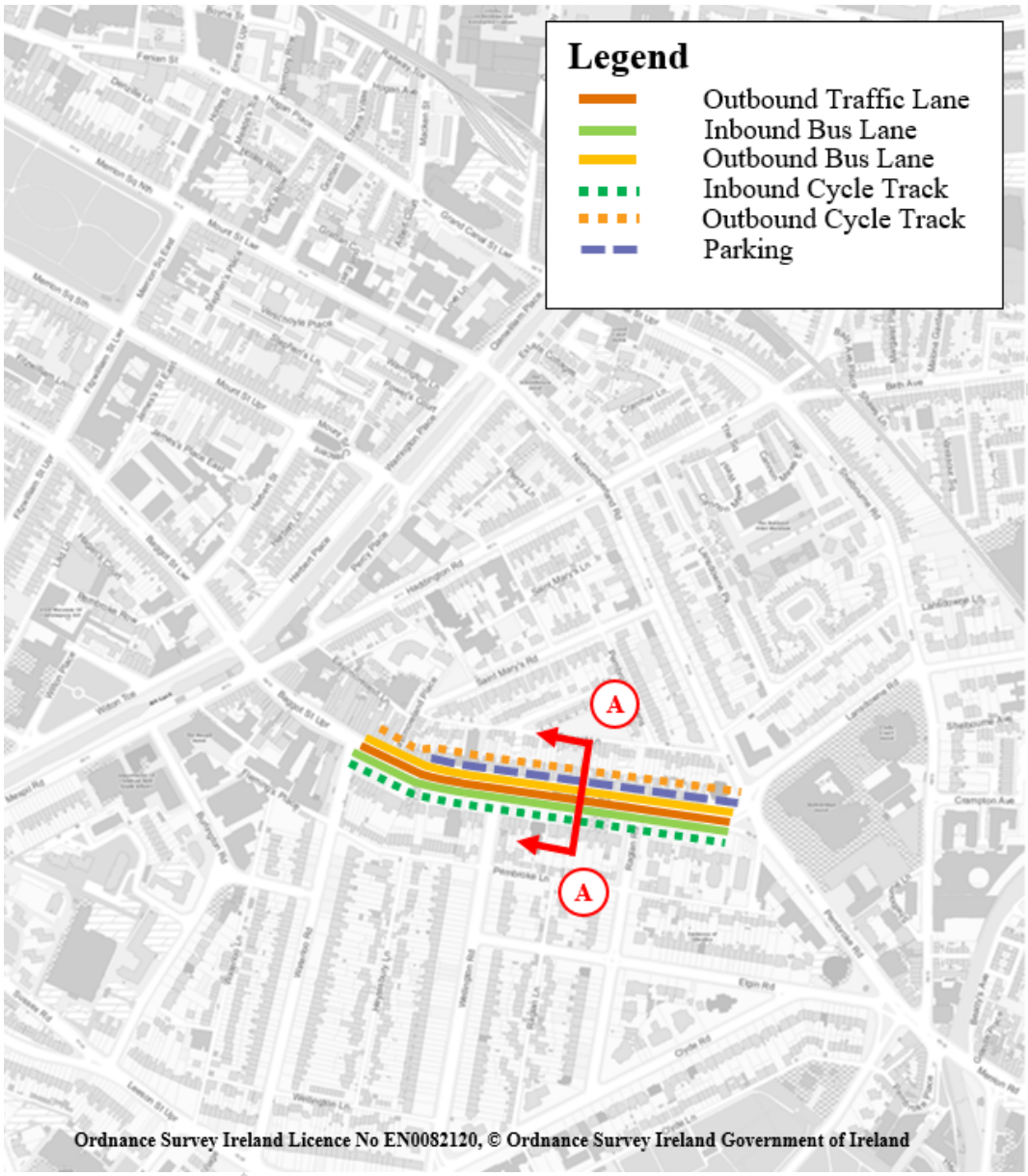


Figure 6.21: Route Option PR3 Indicative Scheme Design

This section of the route commences on Pembroke Road at the junction of Northumberland Road. Along Pembroke Road two bus lanes and one general traffic lane travelling in an outbound direction from Baggot Street to Northumberland Street is proposed.

On the northern side of the road, the existing footpath would be reduced to 2.0m in width, in between existing trees. At existing tree locations, the footpath would widen locally in order to retain the tree.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option. On the northern side of Pembroke Road, the cycle track would weave around existing trees maintaining its proposed 2.0m width.

Parking along the northern side of Pembroke Road is proposed in this option. The current length of parallel parking would however be broken up into eight separate sections as the footpath and cycle track conflict with parking in the vicinity of existing trees. All existing parking on the southern side of Pembroke Road is proposed to be removed.

In order to provide this route option land acquisition from approximately 13 properties would be necessary. This would include the removal of a small number of existing trees currently on private property.

A cross-section of this option on Pembroke Road is presented in **Figure 6.22**.

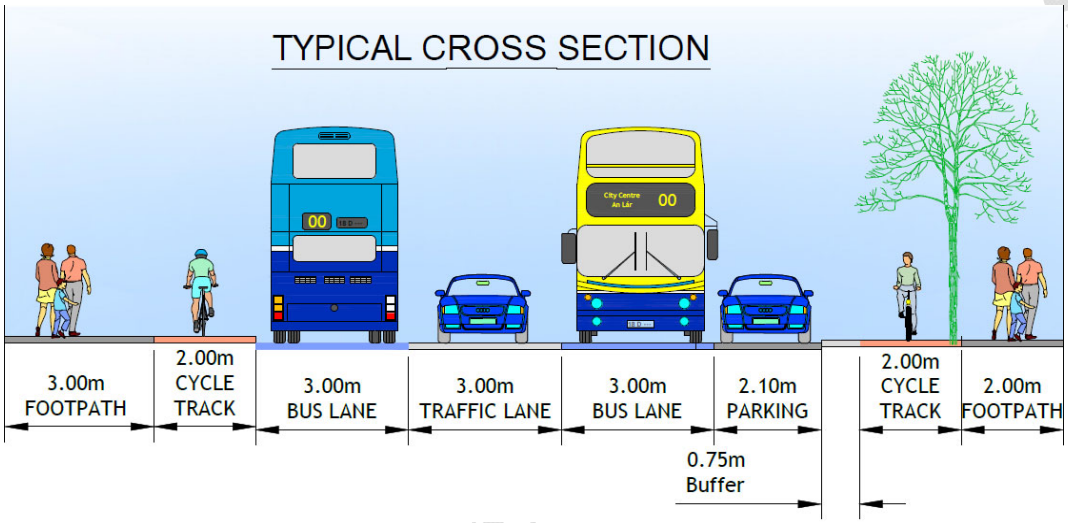


Figure 6.22: Route Option PR3 Cross-Section A-A

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

- An inbound and an outbound bus lane in both directions along the length of this route option section;
- An outbound general traffic lane only from Baggot Street to the junction with Northumberland Road;
- An inbound and an outbound segregated cycle lane in both directions along the length of this route option section;
- Reduced width of footpath on both sides of the road;
- Retention of a significantly reduced quantum of on-street parking on the northern side of Pembroke Road and the removal of all existing parking on the southern side of the road;
- Retention of the majority of existing on-street trees but the removal of a small number of trees currently on private property; and
- Land acquisition from approximately 13 properties.

Junctions:

There are currently no signalised junctions along this route option and this proposal does not intend to signalise any additional junctions. There are three priority-controlled junctions of along this route option section, namely the

junctions of Pembroke Road with Raglan Road, Wellington Road and Eastmoreland Place. This route option proposes to adjust these junctions to reduce junction widths and radii and to provide junction entry treatment in order to improve these junctions for pedestrian use.

6.1.2.2.5 Route Option PR4

Route Description

The location of route option PR4 is presented in Figure 6.23.

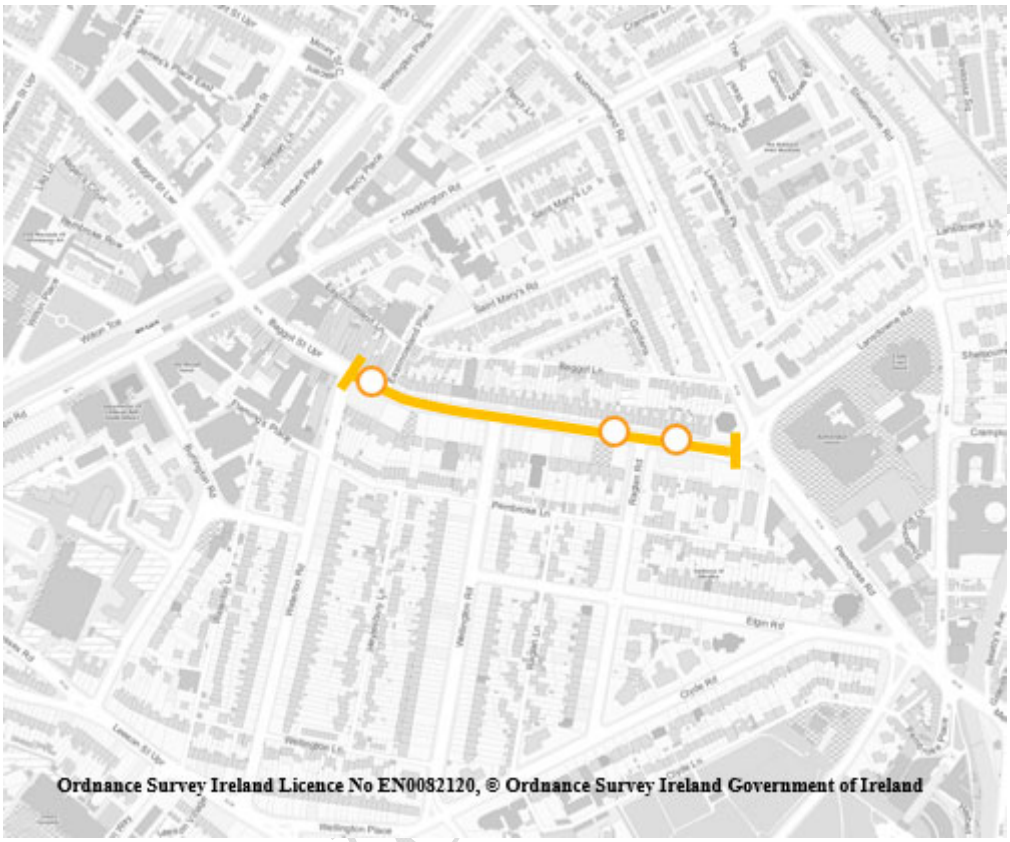


Figure 6.23: Route Option PR4

Inbound: This section of the route would commence at the junction of Pembroke Road and Northumberland Road and continue along Pembroke Road.

This section of the route ends at Baggot Street Upper at the junction of Pembroke Road and Waterloo Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of three stops would likely be provided along this route section, two stops in the outbound direction and one inbound.

Indicative Scheme Design

Figure 6.24 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

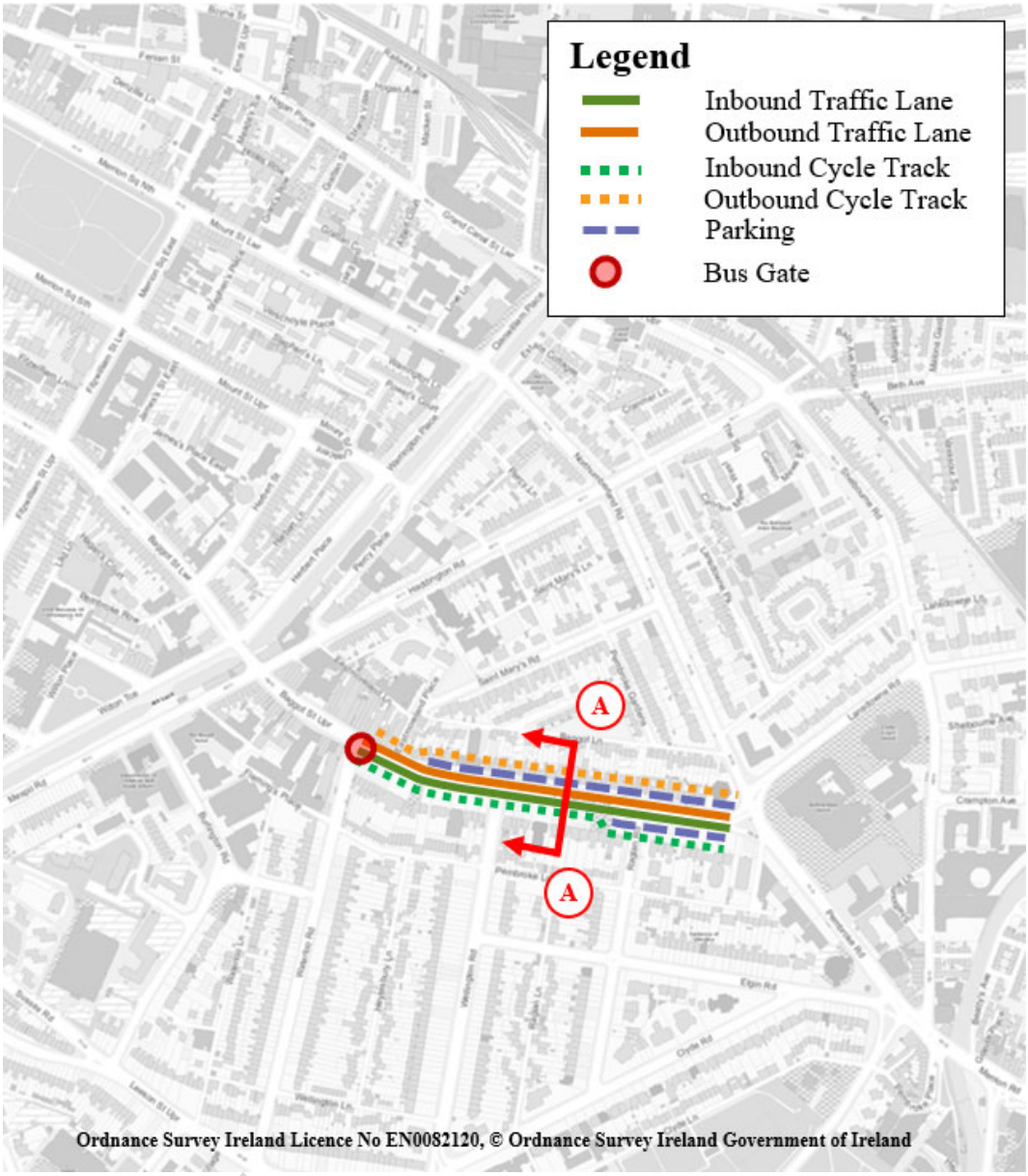


Figure 6.24: Route Option PR4 Indicative Scheme Design

This section of the route commences on Pembroke Road at the junction of Northumberland Road. Along Pembroke Road two general traffic lanes in both directions is proposed.

At the western end of Pembroke Road, between Eastmoreland Place and Waterloo Road a bus gate is proposed. This bus gate would remove all through traffic from Pembroke Road with vehicles wishing to get to Baggot Street and beyond to route along Northumberland Road and Haddington Road. Buses would share the general traffic lane but would not experience notable delays due to the removal of traffic from Pembroke Road.

On the northern side of the road, the existing footpath would be retained together with the existing trees along this footpath. On the southern side of the road the existing footpath would be retained for the most part and widened over some sections.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

Parking along the northern side of Pembroke Road is proposed in this option. The current length of parallel parking would however be broken up into 10 separate sections. A small quantum of parking on the southern side of Pembroke Road is proposed to be retained.

In order to provide this route option no land acquisition would be necessary.

A cross-section of this option on Pembroke Road is presented in **Figure 6.25**.

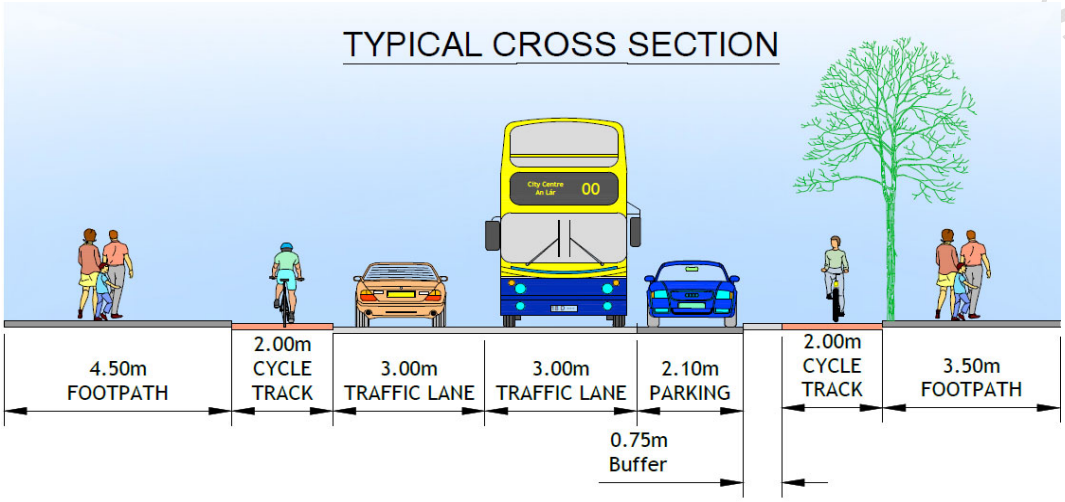


Figure 6.25: Route Option PR4 Cross-Section A-A

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

- The installation of a bus gate at the western end of Pembroke Road between Eastmoreland Place and Waterloo Road;
- An inbound and an outbound general traffic lane in both directions along the length of this route option section;
- An inbound and an outbound segregated cycle lane in both directions along the length of this route option section;
- Retention of existing footpaths along the majority of the road and increased footpath width over some short sections;
- Retention of a reduced amount of on-street parking on the northern side of Pembroke Road and the retention of a significantly reduced amount of parking on the southern side of the road;
- Retention of all existing on-street tress but the removal of a large number of trees currently on private property; and
- No land acquisition required.

Junctions:

There are currently no signalised junctions along this route option and this proposal does not intend to signalise any additional junctions. There are three priority-controlled junctions of along this route option section, namely the

junctions of Pembroke Road with Raglan Road, Wellington Road and Eastmoreland Place. This route option proposes to adjust these junctions to reduce junction widths and radii and to provide junction entry treatment in order to improve these junctions for pedestrian use.

6.1.2.3 Section 1b Route Option Assessment

Details of the route options assessment undertaken for the Pembroke study area section are presented in Appendix B. The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 6.3**.

Table 6.3: Section 1b Route Options Assessment Summary (Sub-Criteria)

Appraisal Criteria	Sub-Criteria	Option PR1	Option PR2	Option PR3	Option PR4
1 Economy	1A Capital Cost				
	1B Transport Quality & Reliability				
2 Integration	2A Land Use Policy				
	2B Residential Population and Employment Catchments				
	2C Transport Network Integration				
	2D Cycle Network integration				
	2E Traffic Network Integration				
3 Accessibility & Social Inclusion	3A Key Trip Attractors				
	3B Deprived Geographic Areas				
4 Safety	4A Road Safety				
	4B Pedestrian Safety				
5 Environment	5A Archaeology & Cultural Heritage				
	5B Architectural Heritage				
	5C Flora & Fauna				
	5D Soils, Geology & Hydrogeology				
	5E Landscape & Visual				
	5F Air Quality				
	5G Noise & Vibration				
	5H Land Use Character				

In terms of Capital Cost, Option PR1 is by far the most expensive option due to the significant land acquisition and infrastructure costs associated with the largest cross section. Option PR4 is the least expensive option as no land acquisition is necessary while options PR2 and PR3 are ranked equally and are slightly negative

relative to PR4. In terms of Transport Quality & Reliability, Options PR1, PR2 and PR3 are all ranked as slightly better than PR4, as PR4 relies on a bus gate to achieve priority while the other options all have segregated bus lanes.

All options serve the same catchments and as such are ranked equally in relation to Land Use Policy and Residential Population Catchments and Employment Catchments.

In terms of Cycle Network Integration all options propose high quality cycle facilities along the route and are therefore all ranked equal.

In terms of Traffic Network Integration, all traffic movements are retained in options PR1 and PR2, so these are ranked slightly positive relative to option PR3 which restricts traffic to one-way along Pembroke Road. PR4 is ranked as being significantly negative due to the restrictions on traffic as a result of the bus gate.

All options rank equally under the sub-criteria of Accessibility & Social Inclusion as they all follow the same route.

In terms of Safety, all options perform the same with respect to Road Safety as the route is the same for each and the number of junctions and turning movements is equal. Option PR4 performs marginally better in terms of Pedestrian Safety as it allows for existing footpaths to be retained or widened, whereas the other options require existing footpaths to be narrowed.

Option PR4 performs significantly better than the other options in relation to Flora & Fauna as it does not require the removal of any trees whereas, Option PR1 may require the removal of a significant number of trees while options PR2 and PR3 require the removal of a lesser, but still significant, number of trees.

In terms of Air Quality and Noise & Vibration, Option PR4 again performs the best as it removes significant volumes of traffic from the road and reduces the carriageway width. Option PR 3 also reduces the volume of traffic while options PR1 and PR2 would not reduce traffic volumes and may move some traffic closer to receptors.

In terms of Architectural Heritage, Landscape & Visual and Land Use Character, option PR4 would not require tree removal nor land acquisition and is ranked the highest under these categories. This option also retains the highest amount of parking. Each of the other options require land acquisition from properties that are on the record of protected structures and tree removal along the street. In these options existing parking volumes are also significantly reduced.

The options perform equally in the remaining sub-criteria under Environment.

A summary of the assessment and relative ranking of route options against the five main assessment criteria is presented in **Table 6.4**.

Table 6.4: Section 1b Criteria MCA Summary

Appraisal Criteria	Option PR1	Option PR2	Option PR3	Option PR4
1 Economy				
2 Integration				
3 Accessibility & Social Inclusion				
4 Safety				
5 Environment				

6.1.2.4 Section 1b Conclusion and Draft Preferred Option

Based on the assessment undertaken, route Option PR4 would offer more benefits over other options.

It performs well under all criteria, with the exception of integration due to the diversion of traffic onto other routes as a result of the bus gate. However, the distances required to divert through traffic is relatively small, with the additional distance to travel from Baggot Street Bridge to Lansdowne road by car being approximately 300m. Option PR4 is the preferred option for the Pembroke Road area for the following reasons:

- It does not require any land acquisition, in particular from properties that are on the Record of Protected Structures;
- It does not require any tree removal, which was identified as a particularly strong concern of residents and non-residents alike during the public consultation process for the EPR Option;
- Existing footpaths along Pembroke Road can be retained and widened in some locations;
- Diversion routes for general traffic as a result of the bus gate are relatively short for those travelling by car;
- This option retains the highest amount of parking on the street, which was also noted as a concern for a large number of residents and traders in the area; and
- It has the lowest environmental impacts of any of the options.

6.1.3 Section 1c: Merrion Road (Sandymount Avenue to Nutley Lane)

6.1.3.1 Introduction

It was determined through review of the topographical survey information, that land take would likely be required from a significant number of properties which were not previously identified in the EPR Option (with the information available at the time of production) to progress the EPR Option as published. It was also determined, unlike other areas along Merrion Road, that the issues identified could not be fully addressed through minor design refinements without amendments to the proposed cross-section.

6.1.3.2 Options Considered

A number of alternative options have been developed with the objective of addressing the issues noted in Section 5.3.2.3 relating to Merrion Road. These options are outlined below:

- *Option MR1*: EPR Option with road alignment adjustments to retain a number of trees and reduce land take where possible (4 lane cross-section + cycle tracks).
- *Option MR2:* As per MR1 from Nutley Lane to Ailesbury Road and Shrewsbury Road to Sandymount Avenue, with the introduction of Back-to-Back Bus Lanes together with signal controlled priority to enable a three-lane cross section consisting of two general traffic lanes and a single bus lane (3 lane cross-section + cycle tracks) between Ailesbury Road and Shrewsbury Road.
- *Option MR3:* Introduction of a bus gate at each end of the section with two general traffic lanes between them, with retention of all trees and no impact to property boundaries (2 lane cross section + cycle tracks).
- *Option MR4:* A three-lane cross section of two bus lane and one-way outbound general traffic only (3 lane cross-section + cycle tracks).

6.1.3.2.1 Alternative Options Considered

No further alternative options were considered for this scheme section, additional to those run through the MCA.

6.1.3.2.2 Route Option MR1

Route Description

The location of route option MR1 is presented in **Figure 6.26**.

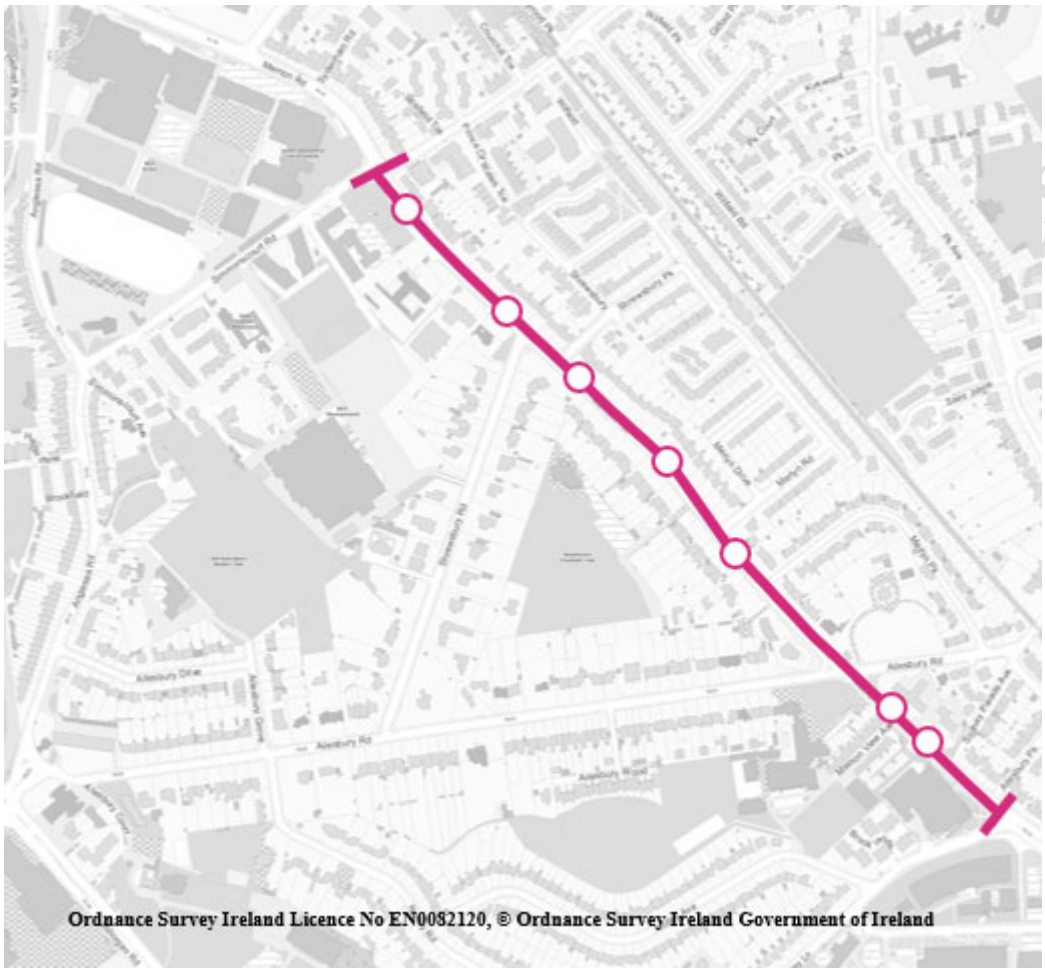


Figure 6.26: Route Option MR1

Inbound: This section of the route would commence on the Merrion Road at its junction with Nutley Lane and continue north west along Merrion Road, passing through its junctions with Ailesbury Road and Shrewsbury Road. This section terminates at the junction of Merrion Road and Sandymount Avenue.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of seven stops would likely be provided in this section, three in the inbound direction and four in the outbound direction.

Indicative Scheme Design

Figure 6.27 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option are also presented in this figure.

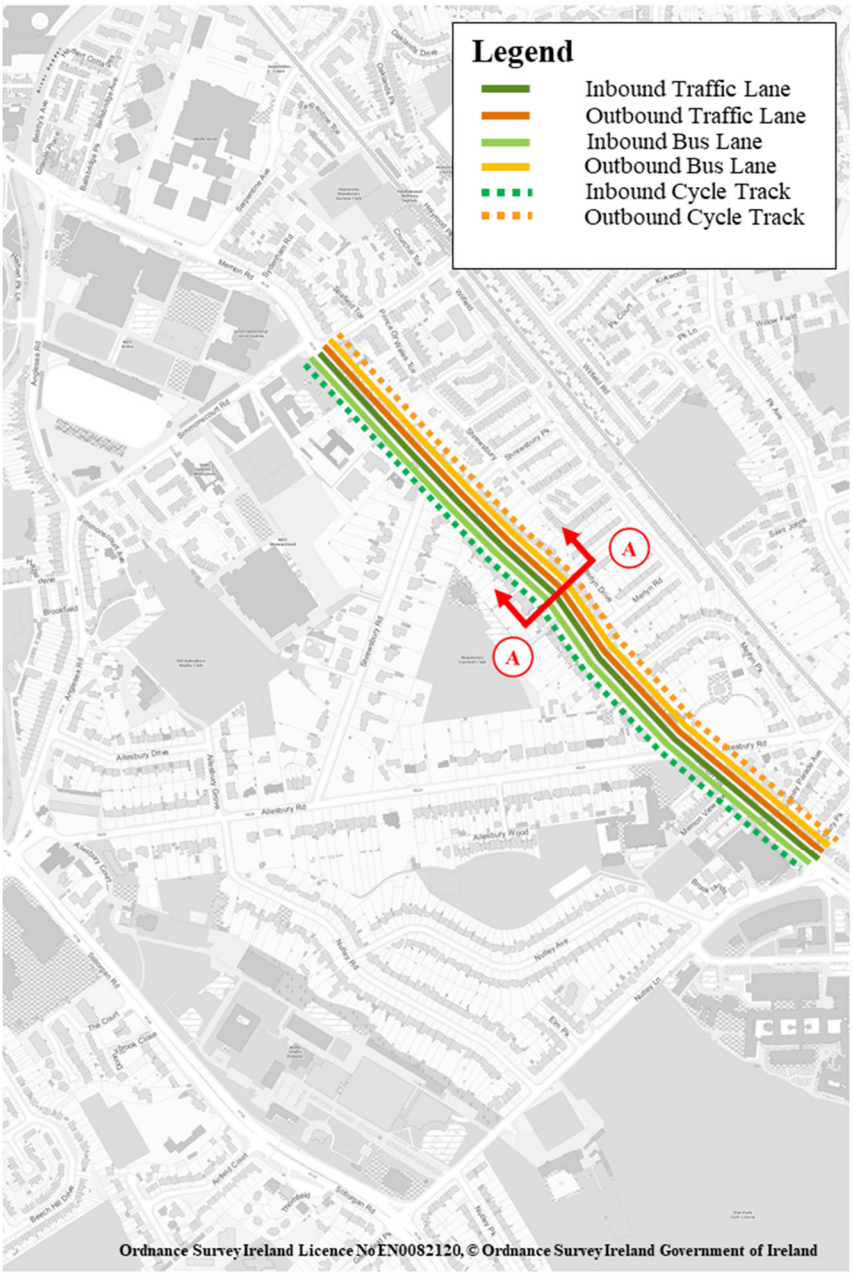


Figure 6.27: Route Option MR1 Indicative Scheme Design

This section of the route commences at the junction of the R118 Merrion Road and Nutley Lane, in front of the Merrion Shopping Centre, where the route meets the Blackrock to Merrion CBC. From its commencement, 2 bus lanes and 2 general traffic lanes are proposed along the entire length of this section.

This route would include the adjustment of three existing signal controlled new pedestrian crossings located in the proximity of Merrion Shopping Centre, Wanderers Rugby Club and Shrewsbury Road. Adjustments to the currently signalised junction with Ailesbury Road would also be necessary.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

In order to provide this route option, land acquisition would be necessary from approximately 29 properties along Merrion Road.

The proposed cross-section along this section of Merrion Road is presented in **Figure 6.28**.

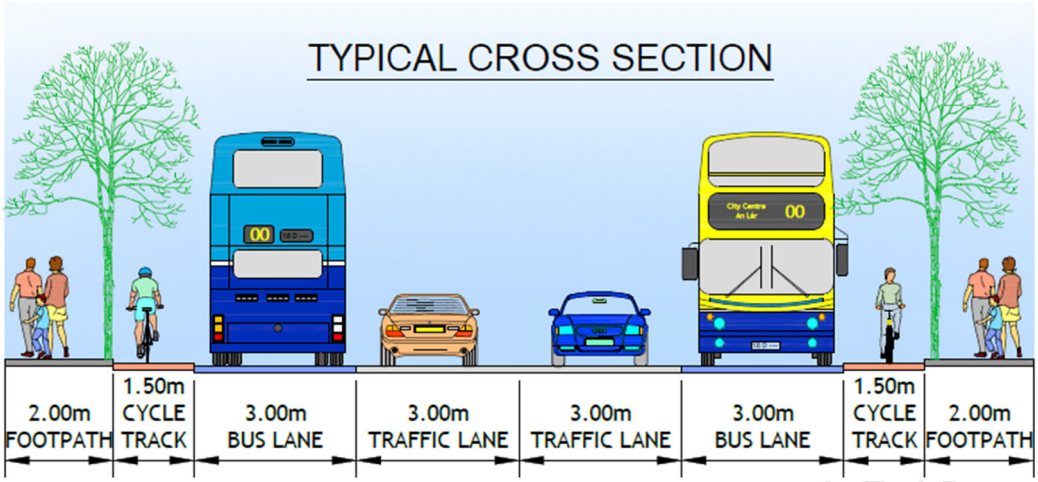


Figure 6.28: Route Option MR1 Cross-Section A-A

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

- Fully segregated bus priority provided along the full length of this scheme section;
- Segregated cycle tracks in both directions along the full length of this scheme section;
- Adjustments to the existing signalised junction of Merrion Road and Ailesbury Road;
- Adjustments to three existing signal-controlled pedestrian crossings;
- Removal of approximately 67 existing trees; and
- Land acquisition from approximately 29 properties.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and upgraded cycle facilities. This junction is the intersection of Merrion Road and Ailesbury Road.

Adjustments to the junction would include the provision of pedestrian crossings on all four arms of the junction. There would also be a possible requirement to relocate/provide new signal equipment.

The removal of the left turn slips from both sides of Ailesbury Road is proposed along with the installation of a Protected Junction.

As part of this proposal the existing priority-controlled junction along this section, including the junction with Shrewsbury Road would remain and minor adjustments to provide continuous cycle facilities and entry treatment are proposed.

6.1.3.2.3 Route Option MR2

Route Description

The location of route option MR2 is presented in **Figure 6.29**.

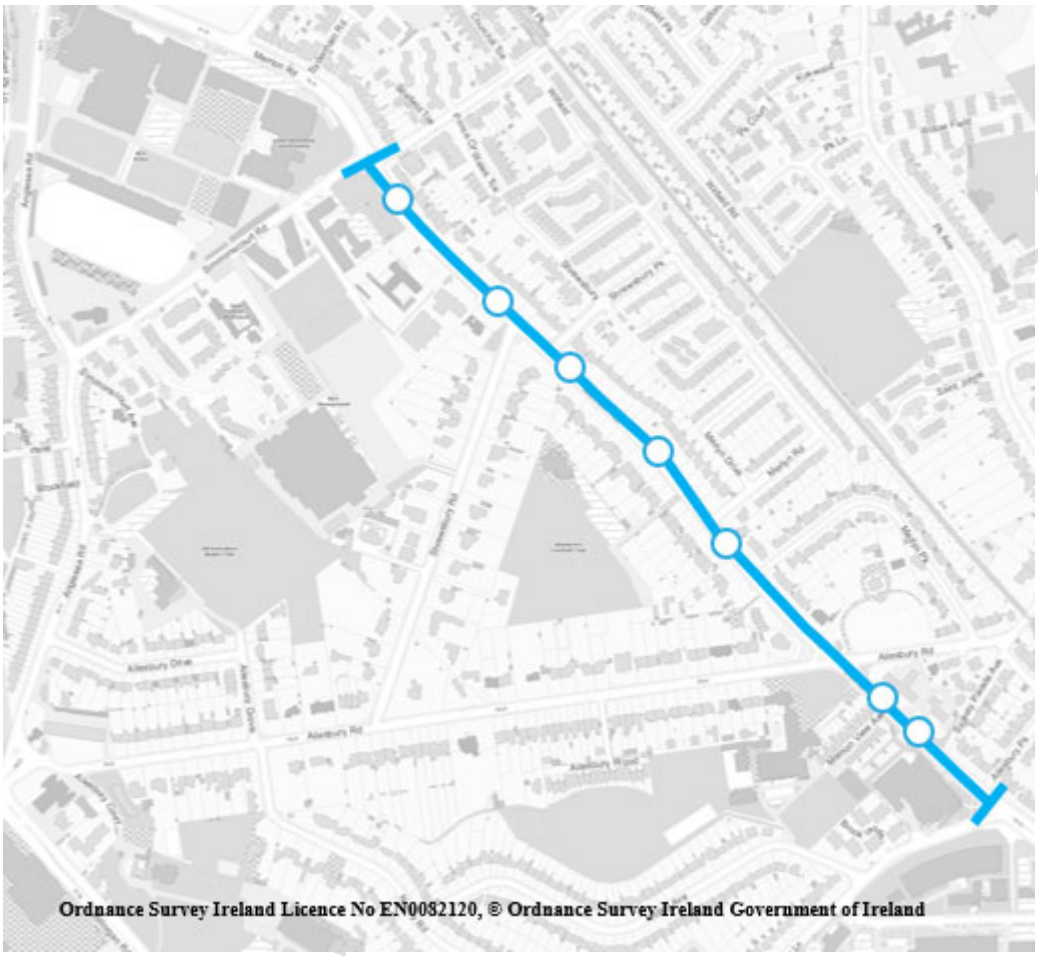


Figure 6.29: Route Option MR2

Inbound: This section of the route would commence on the Merrion Road at its junction with Nutley Lane and continue north west along Merrion Road, passing through its junctions with Ailesbury Road and Shrewsbury Road. This section terminates at the junction of Merrion Road and Sandymount Avenue.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of seven stops would likely be provided in this section, three in the inbound direction and four in the outbound direction.

Indicative Scheme Design

Figure 6.30 illustrates the indicative scheme design for this route option. The location of cross-sections referenced in subsequent sections describing this route option are also presented in this figure.

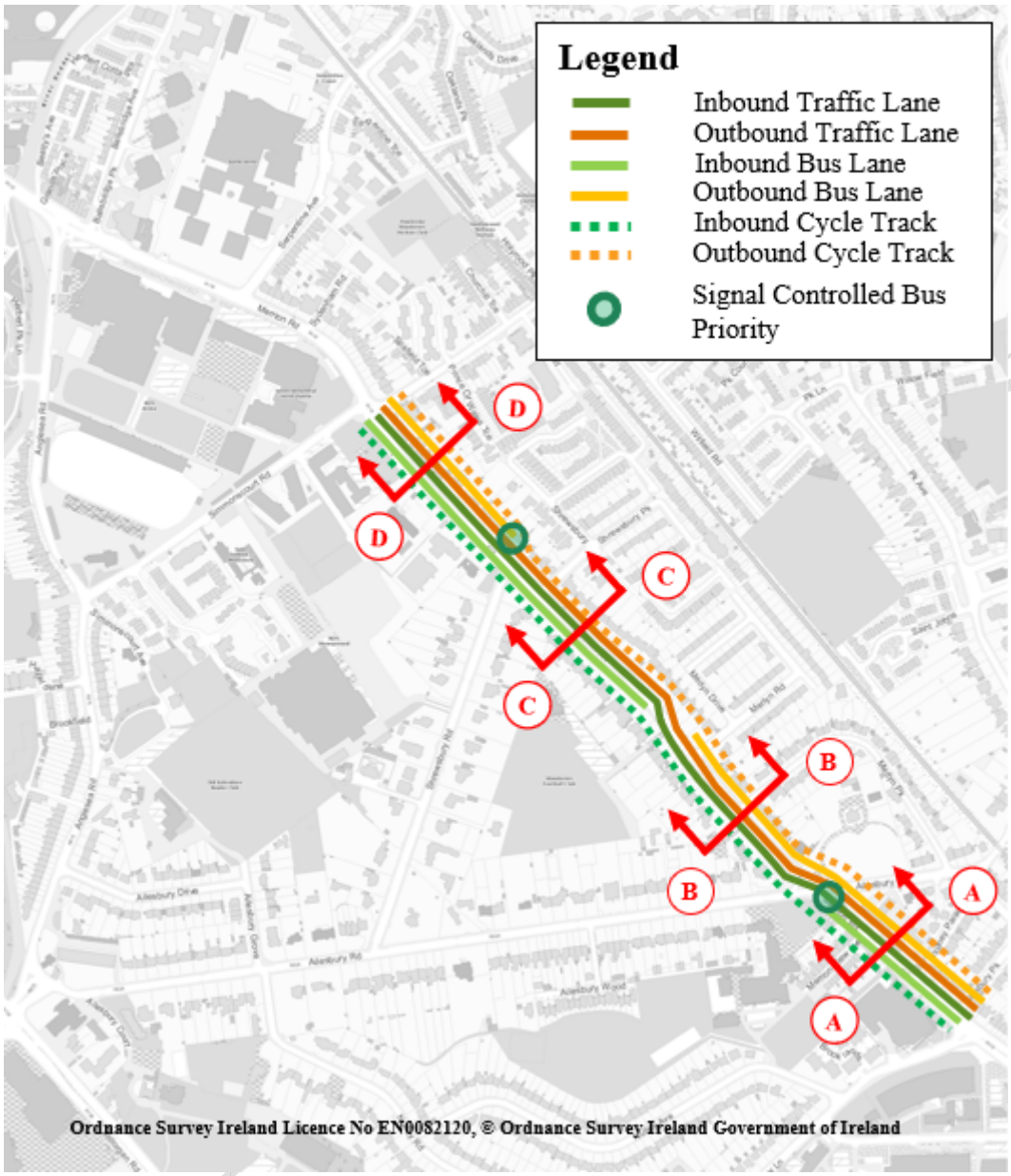


Figure 6.30: Route Option MR2 Indicative Scheme Design

This section of the route commences at the junction of the R118 Merrion Road and Nutley Lane, in front of the Merrion Shopping Centre, where the route meets the Blackrock to Merrion CBC. From its commencement, 2 bus lanes and 2 general traffic lanes are proposed between Nutley Lane and Ailesbury Road, similar to route option MR1.

Between Ailesbury Road and Shrewsbury Road, a 3-lane cross section is proposed with back-to-back bus lanes provided.

This would provide for an outbound bus lane from Wanderers Rugby Club to Ailesbury Drive junction and an inbound bus lane from Wanderers Rugby Club to Shrewsbury Road junction. Signal Controlled Bus Priority would be necessary at the Ailesbury Road and Shrewsbury Road junctions in order to control the flow of vehicles into this section and ensure buses can reach the bus lanes unhindered.

From Shrewsbury Road junction to Sandymount Road junction the proposed cross section would revert to 2 bus lanes and 2 general traffic lanes similar to route option MR1.

This route option would require the signalisation of the junction of Merrion Road and Shrewsbury Road including controlled pedestrian crossings on all arms. Accordingly, the existing pedestrian crossing adjacent to the Shrewsbury Road junction would be removed. The existing signal-controlled pedestrian crossings located in the proximity of Merrion Shopping Centre and Wanderers Rugby Club would be adjusted. Adjustments to the currently signalised junction with Ailesbury Road would also be necessary.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

A significant number of existing trees along Merrion Road can be retained under this route option.

In order to provide this route option, land acquisition would be necessary from approximately 4 properties along Merrion Road.

The proposed cross-sections between Ailesbury Road and Shrewsbury Road along are presented in **Figure 6.31, Figure 6.32, Figure 6.33** and **Figure 6.34**. The proposed cross section outside of this area are as per route option MR1.

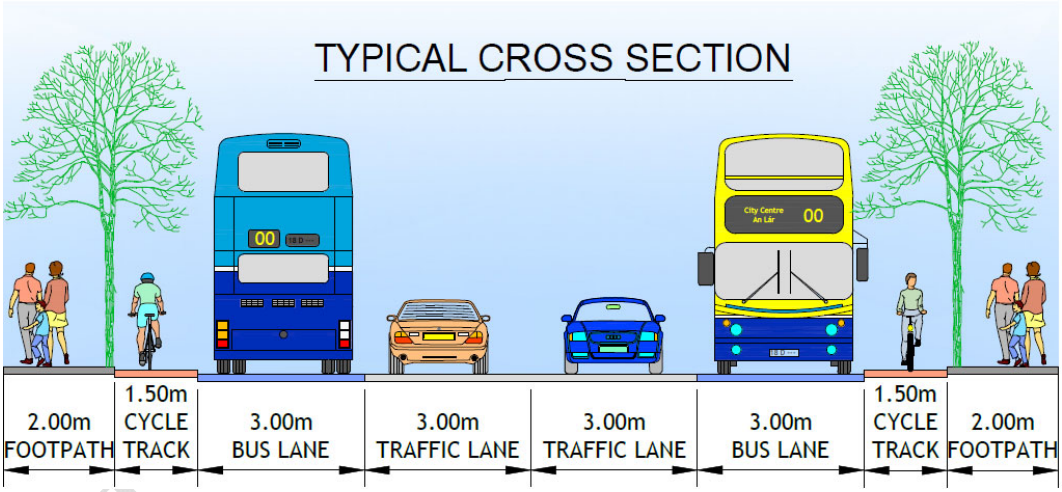


Figure 6.31: Route Option MR2 Cross-Section A-A

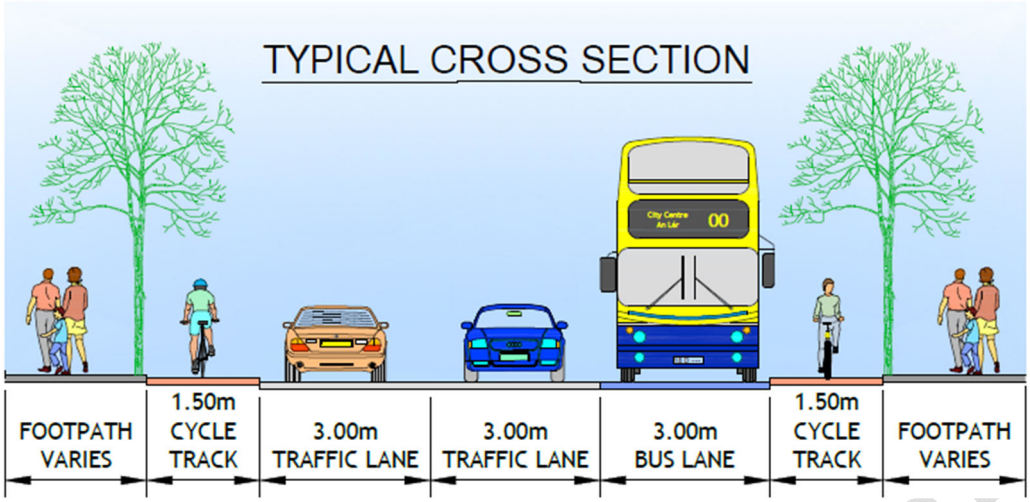


Figure 6.32: Route Option MR2 Cross-Section B-B

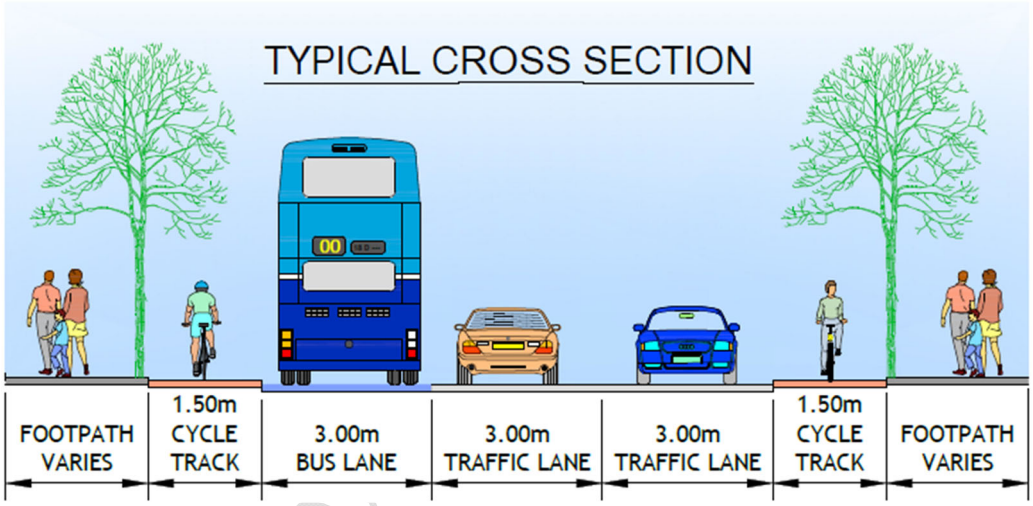


Figure 6.33: Route Option MR2 Cross-Section C-C

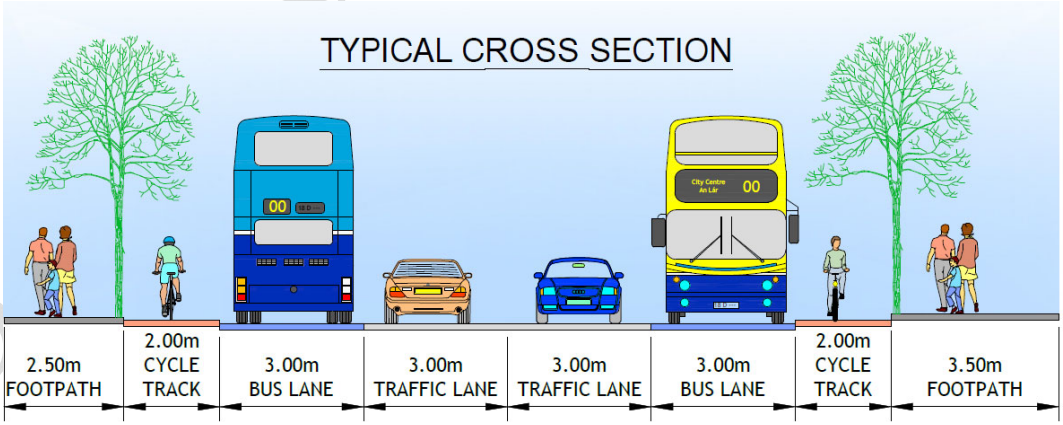


Figure 6.34: Route Option MR2 Cross-Section D-D

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

- Fully segregated bus priority provided between Nutley Lane and Ailesbury Road and also between Shrewsbury Road and Sandymount Avenue;
- Back-to-back outbound and inbound bus lanes between Ailesbury Road and Shrewsbury Road with signal controlled priority at both junctions;
- Segregated cycle tracks in both directions along the full length of this scheme section;
- Adjustments to the existing signalised junction of Merrion Road and Ailesbury Road;
- Signalisation of the existing priority junction of Merrion Road and Shrewsbury Road;
- Adjustments to two existing signal-controlled pedestrian crossings and the removal of the existing signal-controlled pedestrian crossing adjacent to Shrewsbury Road;
- Removal of approximately 37 existing trees; and
- Land acquisition from approximately 4 properties.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and upgraded cycle facilities. This junction is the intersection of Merrion Road and Ailesbury Road. Adjustments to the junction would include the provision of pedestrian crossings on all four arms of the junction. There would also be a possible requirement to relocate/provide new signal equipment. The removal of the left turn slips from both sides of Ailesbury Road is proposed along with the installation of a Protected Junction.

As part of this proposal the existing priority-controlled junction of Merrion Road and Shrewsbury Road would be upgraded to a signal-controlled junction incorporating controlled pedestrian crossings on all three arms of the junction is proposed along with the installation of a Protected Junction.

The other existing priority-controlled junctions would remain and minor adjustments to provide continuous cycle facilities and entry treatment are proposed.

6.1.3.2.4 Route Option MR3

Route Description

The location of route option MR3 is presented in **Figure 6.35**.

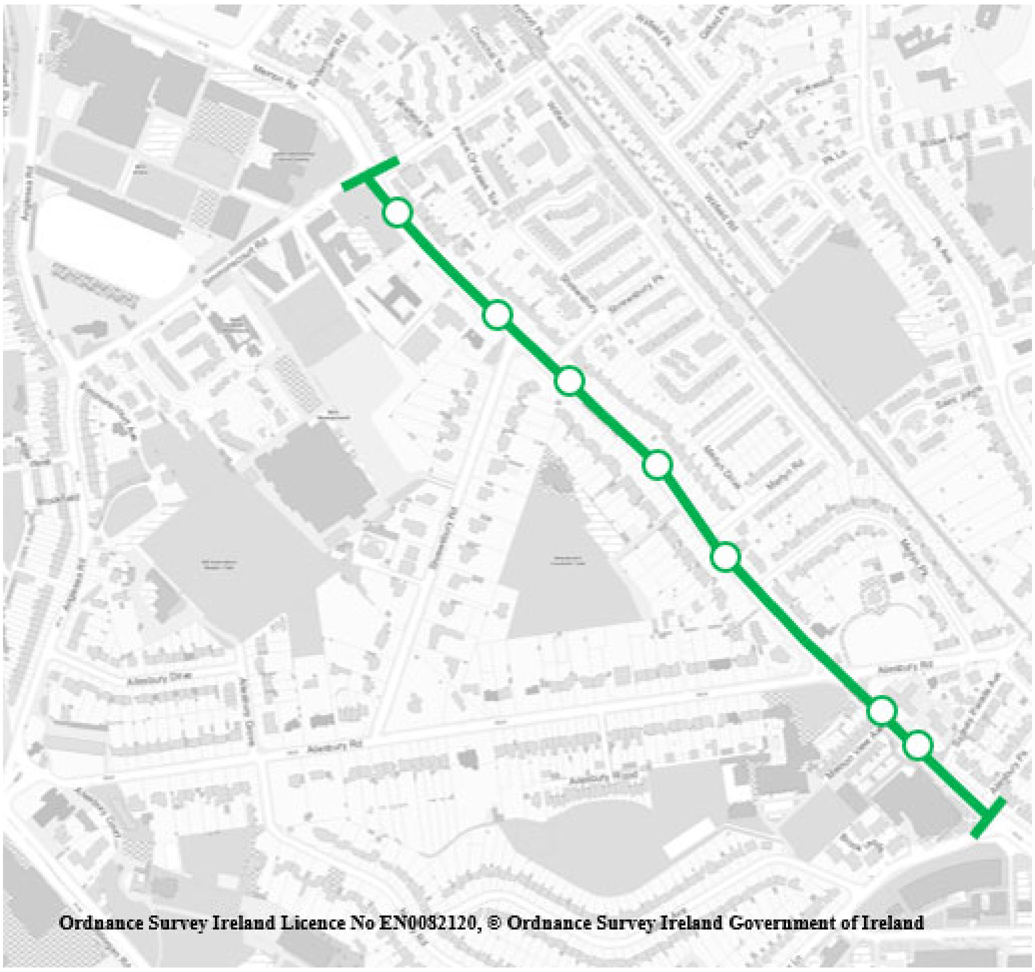


Figure 6.35: Route Option MR3

Inbound: This section of the route would commence on the Merrion Road at its junction with Nutley Lane and continue north west along Merrion Road, passing through its junctions with Ailesbury Road and Shrewsbury Road. This section terminates at the junction of Merrion Road and Sandymount Avenue.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of seven stops would likely be provided in this section, three in the inbound direction and four in the outbound direction.

Indicative Scheme Design

Figure 6.36 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

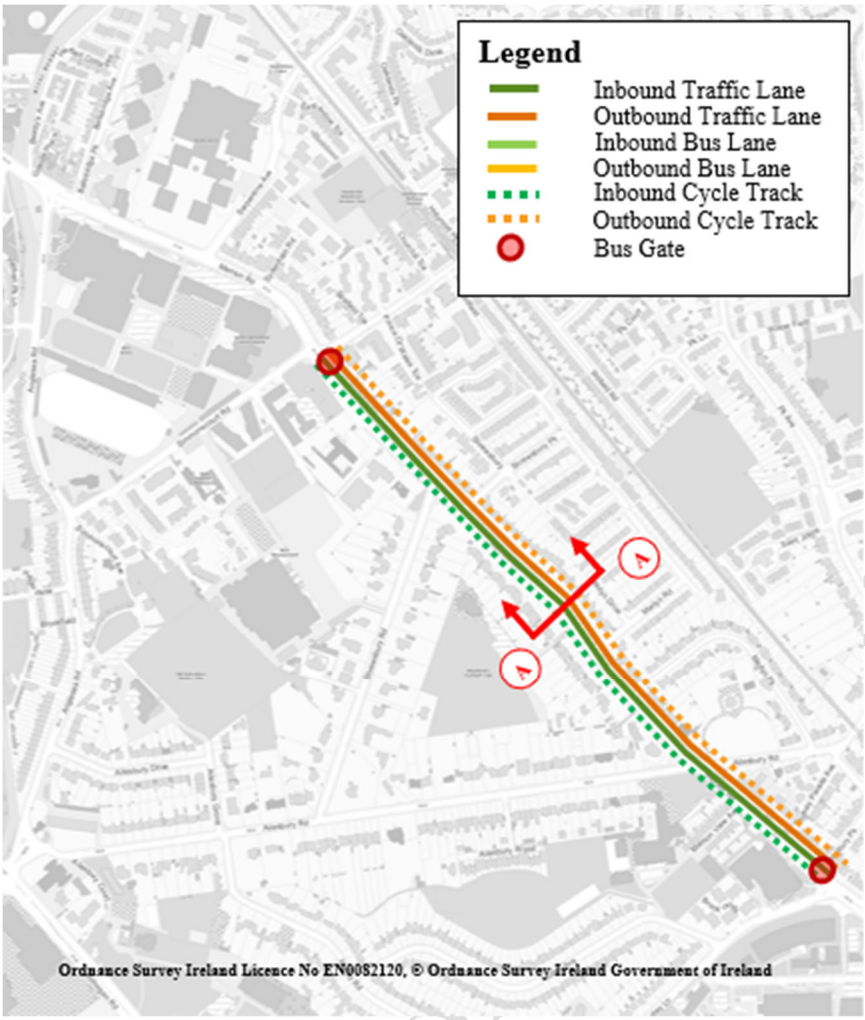


Figure 6.36: Route Option MR3 Indicative Scheme Design

The route option requires the installation of two bus gates at either end of the route. The first bus gate would be located on the section of Merrion Road between Nutley Lane and Ailesbury Road while the second bus gate would be located on the section of Merrion Road between Shrewsbury Road and Sandymount Avenue.

These bus gates could be positioned at any location along these sections and would be subject to further consultation with residents and stakeholders, however for the purposes of this assessment it is assumed that they are located at the junction with Nutley Lane on the Ailesbury Road side and at the junction of Sandymount Avenue on the Shrewsbury Road side respectively.

The installation of bus gates at either end of this section provides bus priority by virtue of the removal of all through traffic from this section of Merrion Road. Only vehicles with a destination along this section of Merrion Road would be present and would share the road space with through buses. This results in a two-vehicle lane cross section along the length of this route option.

This bus gate would remove all through traffic from Merrion Road with inbound vehicles wishing to get to Ballsbridge and beyond to route along Nutley Lane, the R138 Stillorgan Road and Anglesea Road. Outbound vehicles wishing to get to Blackrock and beyond would follow a similar reversed diversion route. Along with these diversion routes there would be a potential for rat-running on adjacent

residential streets such as Ailesbury Drive and Nutley Road. Buses would share the general traffic lane but would not experience notable delays due to the removal of traffic from Merrion Road.

Existing footpaths would be retained, and segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

All existing trees along Merrion Road can be retained under this route option and no land acquisition would be necessary.

The proposed cross-section along this section of Merrion Road is presented in **Figure 6.37**.

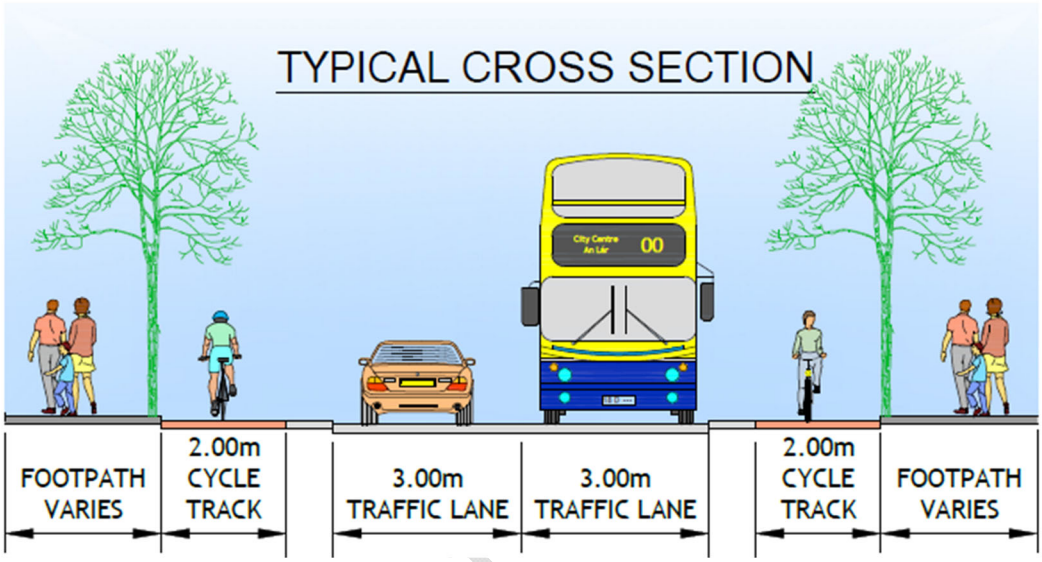


Figure 6.37: Route Option MR3 Cross-Section A-A

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

- Installation of a bus gate at both ends of this section;
- Bus priority achieved through removal of all through traffic along Merrion Road;
- Segregated cycle tracks in both directions along the full length of this scheme section;
- Adjustments to the existing signalised junction of Merrion Road and Ailesbury Road;
- Retention of three existing signal-controlled pedestrian crossings;
- Retention of existing footpaths;
- Retention of all existing trees; and
- No land acquisition necessary.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate upgraded pedestrian and cycle facilities and remove additional vehicle lanes. This junction is at the intersection of Merrion

Road and Ailesbury Road. Adjustments to the junction would include the removal of a traffic lane on both approaches from Merrion Road, the provision of pedestrian crossings on all four arms of the junction. The removal of the left turn slips from both sides of Ailesbury Road is proposed along with the installation of a Protected Junction.

As part of this proposal the existing priority-controlled junction along this section, including the junction with Shrewsbury Road would remain and minor adjustments to provide continuous cycle facilities and entry treatment are proposed.

6.1.3.2.5 Route Option MR4

Route Description

The location of route option MR4 is presented in **Figure 6.38**.

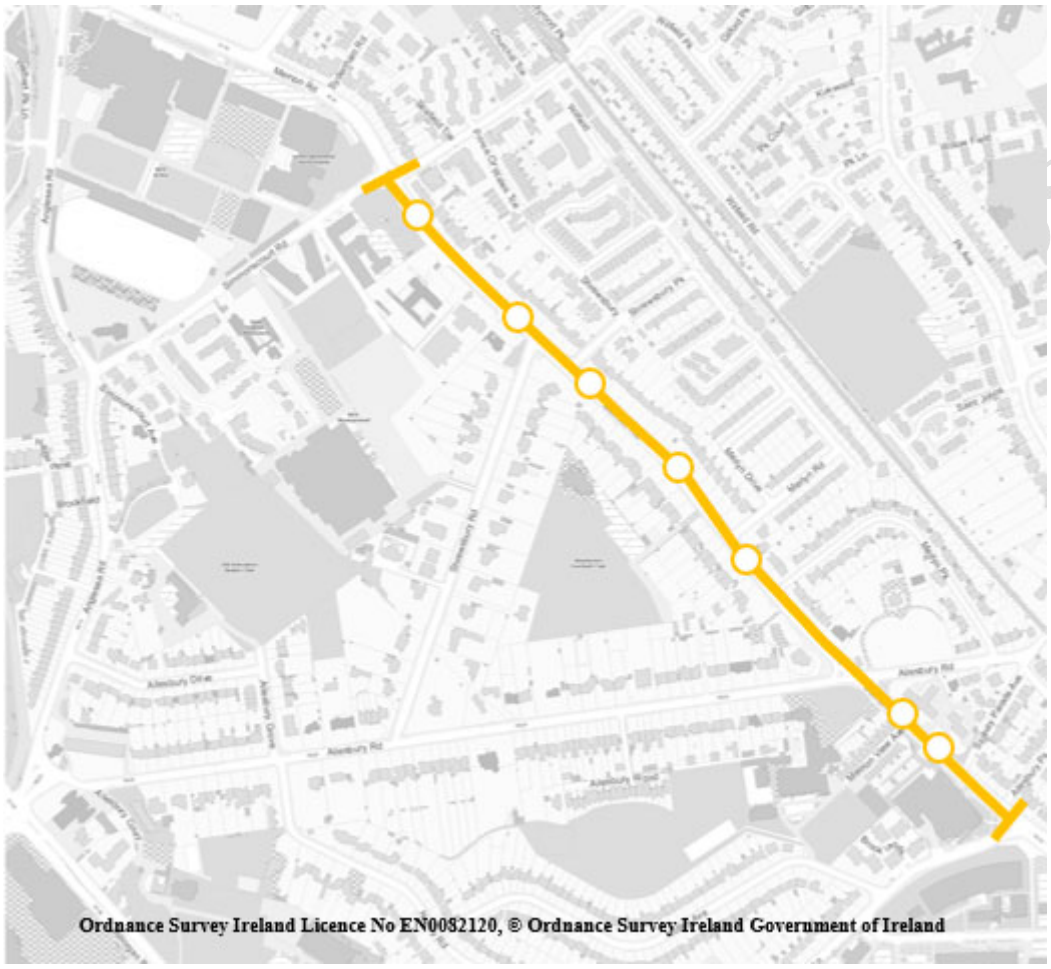


Figure 6.38: Route Option MR4

Inbound: This section of the route would commence on the Merrion Road at its junction with Nutley Lane and continue north west along Merrion Road, passing through its junctions with Ailesbury Road and Shrewsbury Road. This section terminates at the junction of Merrion Road and Sandymount Avenue.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of seven stops would likely be provided in this section, three in the inbound direction and four in the outbound direction.

Indicative Scheme Design

Figure 6.39 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

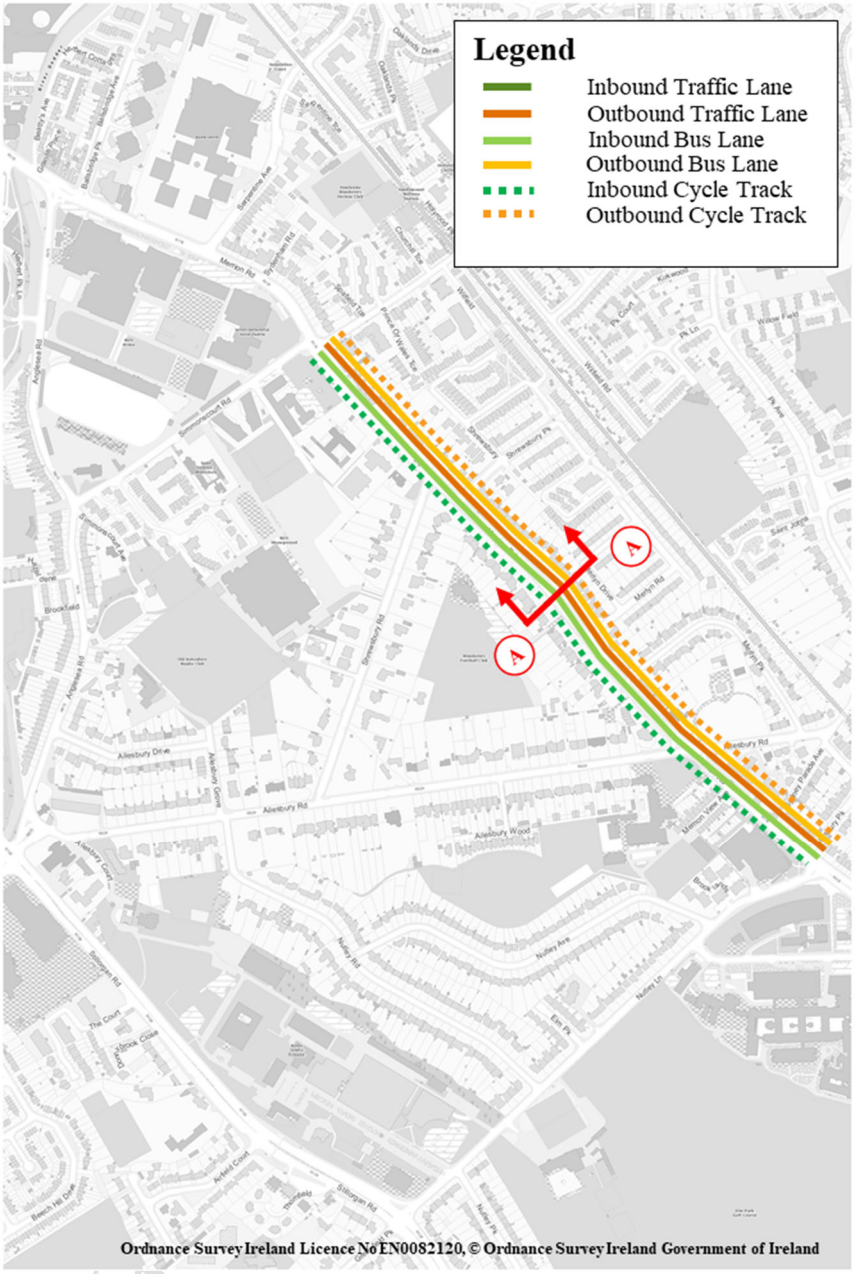


Figure 6.39: Route Option MR4 Indicative Scheme Design

This section of the route commences at the junction of the R118 Merrion Road and Nutley Lane, in front of the Merrion Shopping Centre, where the route meets the Blackrock to Merrion CBC. From its commencement, 2 bus lanes are proposed along the entire length of this section. This section of Merrion Road would become one-way for general traffic in the outbound direction, resulting in a three-lane cross section along the length of this route option.

This route would include the adjustment of three existing signal controlled new pedestrian crossings located in the proximity of Merrion Shopping Centre, Wanderers Rugby Club and Shrewsbury Road. Adjustments to the currently signalised junction with Ailesbury Road would also be necessary.

Segregated cycle tracks are proposed on both sides of the road along the entire length of the route as part of this option.

In order to provide this route option no land acquisition would be necessary.

The proposed cross-section along this section of Merrion Road is presented in **Figure 6.40**.

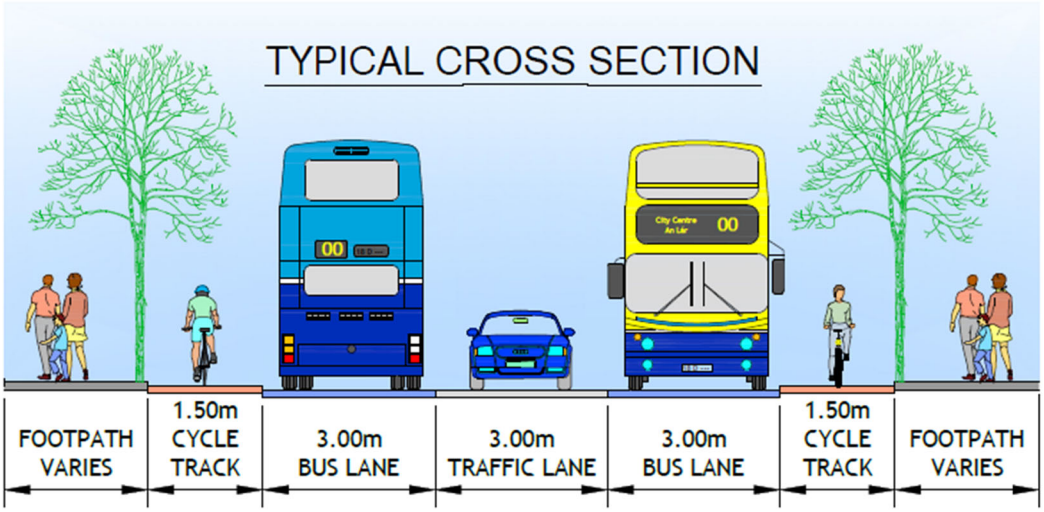


Figure 6.40: Route Option MR4 Cross-Section A-A

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

- Fully segregated bus priority provided along the full length of this scheme section;
- Segregated cycle tracks in both directions along the full length of this scheme section.
- One-way only for general traffic in an outbound direction from Sandymount Avenue to Nutley Lane;
- Adjustments to the existing signalised junction of Merrion Road and Ailesbury Road;
- Retention of three existing signal-controlled pedestrian crossings;
- Removal of approximately 21 existing trees; and
- No land acquisition necessary.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate upgraded pedestrian and cycle facilities and remove additional vehicle lanes. This junction is the intersection of Merrion Road and Ailesbury Road.

Adjustments to the junction would include the removal of a traffic lane on both approaches from Merrion Road, the provision of pedestrian crossings on all four arms of the junction. The removal of the left turn slips from both sides of Ailesbury Road is proposed along with the installation of a Protected Junction.

As part of this proposal the existing priority-controlled junction along this section, including the junction with Shrewsbury Road would remain and minor adjustments to provide continuous cycle facilities and entry treatment are proposed together with adjustments necessary to reflect the only-way system proposed.

6.1.3.3 Section 1c Route Options Assessment

Details of the route options assessment undertaken for the Merrion Road study area section are presented in Appendix C. The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 6.5**.

Table 6.5: Section 1c Route Options Assessment Summary (Sub-Criteria)

Appraisal Criteria	Sub-Criteria	Option MR1	Option MR2	Option MR3	Option MR4
1 Economy	1A Capital Cost				
	1B Transport Quality & Reliability				
2 Integration	2A Land Use Policy				
	2B Residential Population and Employment Catchments				
	2C Transport Network Integration				
	2D Cycle Network integration				
	2E Traffic Network Integration				
3 Accessibility & Social Inclusion	3A Key Trip Attractors				
	3B Deprived Geographic Areas				
4 Safety	4A Road Safety				
	4B Pedestrian Safety				
5 Environment	5A Archaeology & Cultural Heritage				
	5B Architectural Heritage				
	5C Flora & Fauna				
	5D Soils, Geology & Hydrogeology				
	5E Landscape & Visual				
	5F Air Quality				
	5G Noise & Vibration				
	5H Land Use Character				

Option MR1 is the most expensive option in terms of Capital Cost due to the significant land acquisition costs associated with it and having the largest area of construction. Option MR3 capital costs less due to no land acquisition being required and existing footpaths being retained. Options MR2 and MR4 also perform well under this sub-criterion when compared with MR1.

In terms of Transport Quality & Reliability, Options MR1 and MR4 perform well as full physical bus priority is provided throughout. Options MR2 and MR3 perform slightly worse due to buses being required to share the general traffic lane for sections of Merrion Road.

All options serve the same catchments and as such are ranked equally in relation to Land Use Policy, and Residential Population and Employment Catchments. Similarly, in terms of transport network integration, as all options follow the same route, the opportunity for interchange with other routes is equal.

In terms of cycle network integration, all options are also ranked equal as they all provide segregated cycle facilities along the full route.

In relation to Traffic Network Integration, Option MR1 is ranked as the highest performing option as it is free from any additional restrictions being applied to the traffic network. Option MR2 also performs well under this criterion as no restrictions are applied, however additional delay to traffic would occur due to the bus priority system required. Options MR3 and MR4 both perform poorly under this criterion as both rely on significant traffic restrictions along the corridor, with MR3 performing the worst as it impedes both inbound and outbound traffic whereas MR4 only impedes inbound.

All options rank equally under Accessibility and Social Inclusion as they all follow the same route.

All options rank equally under Safety as they all require the same number of turning movements at junctions and all options provide for pedestrian footpaths and crossings.

All options rank equally in relation to Archaeology & Cultural Heritage, Architectural Heritage and Soils, Geology and Hydrogeology.

Option MR1 ranks the worst in relation to Flora and Fauna as it requires the removal of the largest number of trees. Option MR3 ranks as the best under this criterion as no trees would be lost in this option.

Similarly, MR1 ranks the worst regarding Landscape and Visual due to the removal of all trees along this section and some trees within private property and the removal of existing boundaries. Option MR3 does not require the removal of trees or boundaries and therefore was ranked the highest. Options MR2 and MR4 were ranked poorly under this criterion relative to Option MR3, primarily due to tree removal.

Under the Air Quality sub-criterion, Options MR3 and MR4 have a positive impact along Merrion Road as both would result in reduced volumes of traffic along Merrion Road while Options MR1 and MR2 would both retain the existing traffic volumes in this section.

Similarly, under Noise & Vibration, due to the anticipated traffic volumes, Option MR3 is ranked as the highest followed by MR4, while relatively, Options MR1 and MR2 do not perform well.

With respect to Land Use Character, Option MR1 is ranked the lowest due to the removal of the highest number of trees and the necessary land acquisition. Option MR3 is ranked highest under this category

A summary of the assessment and relative ranking of route options against the five main assessment criteria is presented in **Table 6.6**.

Table 6.6: Section 1c Criteria MCA Summary

Appraisal Criteria	Option MR1	Option MR2	Option MR3	Option MR4
1 Economy				
2 Integration				
3 Accessibility & Social Inclusion				
4 Safety				
5 Environment				

6.1.3.4 Section 1c Conclusion and Draft Preferred Option

Based on the assessment undertaken, route option MR2 offers more benefits over the other options. It performs well under all criteria, with the exception of Environment due to the fact that some trees would require removal and traffic volumes along the route would not be reduced relative to MR3. While MR3 did perform well under many sections, the impacts in relation to traffic network integration are so severe and in particular the likely associated impacts on adjacent residential streets due to rat-running (e.g. Nutley Road and Ailesbury Drive), that this option is not being selected. Option MR2 is the preferred option for the Merrion Road (Nutley Lane to Sandymount Avenue) area for the following reasons:

- It provides physical bus priority along the majority of the section, with the exception of a short section of Merrion Road between Ailesbury Road and Wanderers Rugby Club inbound and between Shrewsbury Road and Wanderers Rugby Club outbound. It is proposed to manage bus priority through this short section using signal controlled priority;
- It provides a continuous high-quality cycle facility along its length;
- It significantly reduces the number of trees required to be removed relative to the EPR Option;
- It significantly reduces the amount of land acquisition necessary relative to the EPR Option; and
- All local access and through movements for all modes are retained.

6.2 Section 2 Option Assessment: Nutley Lane

6.2.1 Introduction

Numerous submissions from the public highlighted the perceived safety concerns relating to multiple conflict points for residents exiting/entering homes by car due to the potential requirement for drivers to cross a footpath, a cycle path, a bus lane, and either enter a car lane or cross one to enter another. A number of submissions questioned the need for both cycle and bus provision on Nutley Lane, with alternative suggestion for cycle facilities being Woodbine Road or Booterstown Avenue.

Within this section of the CBC route, Nutley Lane is particularly constrained in terms of the available width and the removal of or amendment to cycle facilities on this section may result in a reduced cross-section required. As such, this section of the route has been brought through an initial assessment to determine the optimum alternative cycle route for this section. The preferred alternative cycle route was then progressed for inclusion in an assessment of alternative bus infrastructure options for the CBC route through this section.

6.2.2 Initial Assessment of Alternative Cycle Routes

6.2.2.1 Introduction

Prior to the assessment of principal route options for Section 2, an assessment of alternative cycle routes was carried out to determine the optimum arrangement for cycle facilities associated with Nutley Lane. This section has certain characteristics which were considered in determining the appropriateness of the cycle facilities, in that:

- it is a Secondary Cycle Route on the Greater Dublin Area Cycle Network Plan;
- the cycle demand on this route is largely for connecting key local nodes such as UCD, RTÉ and St. Vincent's Hospital; and
- the built form is such that the majority of accesses are consolidated on one side of the road.

Both Nutley Lane and Woodbine Road are designated as a Secondary Cycle Routes connecting the No. 13 and No. 12 Primary Cycle Routes and neither currently has any dedicated cycle facilities. Therefore, the routes are being assessed in isolation from the connecting Primary Routes.

6.2.2.2 Options Considered

Two potential alternative cycle facility options have been identified and are presented within this section, as illustrated in **Figure 6.41**. For completeness the EPR Option has been included in this assessment.

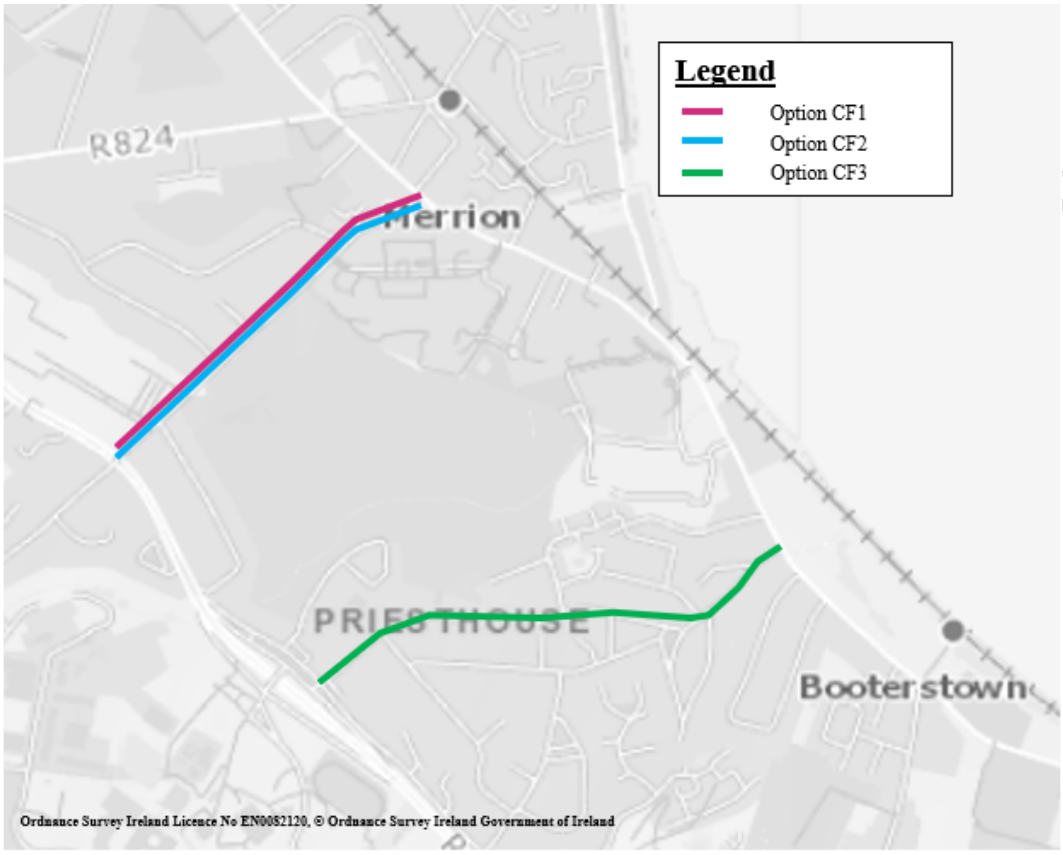


Figure 6.41: Section 2 Cycle Route Options

- **Option CF1** ***(EPR Option)*** – Two single cycle tracks along the length of Nutley Lane;
- **Option CF2** – Providing a two-way cycle facility on the RTÉ side from the R138 to the Elm Park Golf Club entrance, then crossing to the Elm Park side as far as the St. Vincent's Hospital entrance, then reverting to the EPR Option of two single cycle tracks to Merrion Road; and
- **Option CF3** - Parallel cycle route via Woodbine Road and Trimleston Avenue to connect UCD to Merrion Road and the Blackrock to Merrion CBC.

These three cycle facility options have been comparatively assessed in order to determine the preferred option for a cycle route. The assessment is based on a methodology that assesses options using the 'Five Needs of a Cyclist' outlined in the National Cycle Manual Guidelines together with Capital Cost and Environmental Impacts. The cycle routes were assessed using the criteria and rationale presented in **Table 5.1**.

Table 5.1: Alternative Cycle Route Assessment Criteria

Appraisal Criteria	Rationale
1 Capital Cost	Capital cost estimates consist of both the indicative infrastructure cost estimate and land acquisition costs The cycle route infrastructure cost examines the practicality and extent of works required to accommodate cycle route infrastructure along route options. This criterion evaluates the likely costs associated with land acquisition and associated boundary/accommodation works for each route option. The assessment takes consideration of: • The number of adjacent public/commercial/ residential/industrial properties, from which land acquisition would be required as well as the extent (area) of land acquisition likely to be necessary; and • The costs associated with boundary/accommodation works.
2 Road Safety	For the purposes of comparing route options, the extent of segregation and the number of junctions along the route has been used as a proxy for road safety. The number of junctions is effectively a measure of the number of potential conflicts on the route and therefore a measure of the potential for a collision. The type of movement required by the cyclist at junctions on the route is also considered with routes where turning movements (either left or right) are required being assigned a lower ranking in terms of safety. The quality of cycle provision practically achievable on route options has been assessed. For comparison purposes, the highest level of practical cycle provision achievable on each route has been determined and compared between route options.
3 Coherence	This criterion considers whether a route option forms part of the GDA Cycle Network Plan, with routes where CBC and designated Cycle Routes overlap given a higher designation in terms of benefits arising where cycle infrastructure can be provided as part of a proposed CBC scheme. In some instances, however it may be more appropriate to provide a parallel cycle track off the CBC route. Consideration is also given to cycle routes intersecting with the CBC route. The cycle route should also link the main origin and destination zones along the CBC route.
4 Directness	For the purposes of comparing route options, the number of junctions, length of the route and the number of detours & gaps from the CBC has been used as a proxy for directness.
5 Attractiveness	The cycling environment along the route should be pleasant and interesting. Monotony and lack of points of interest along the cycle route are unattractive to cyclists. Cycle routes should also be adequately lit so as not to deter evening and night-time use.
6 Comfort	The quality of cycle provision practically achievable on route options has been assessed. For comparison purposes, the highest level of practical cycle provision achievable on each route has been determined and compared between route options.

Appraisal Criteria	Rationale
7 Environmental	The provision of segregated cycle tracks has the potential to impact on the archaeological, architectural and cultural heritage environment. At this stage of the assessment process, a conservative approach has been adopted in assessing the potential for impact and this is further described below. The provision of segregated cycle tracks has the potential to impact on flora and fauna, the townscape/streetscape along the route and on the land use character through land-take, severance or reduction of viability which prevents or reduces it from being used for its intended use.

Each of the alternative cycle routes are described in further detail in the next section of the report.

6.2.2.2.1 Cycle Route Option CF1

The location of the cycle facility CF1 is presented in **Figure 6.42**.

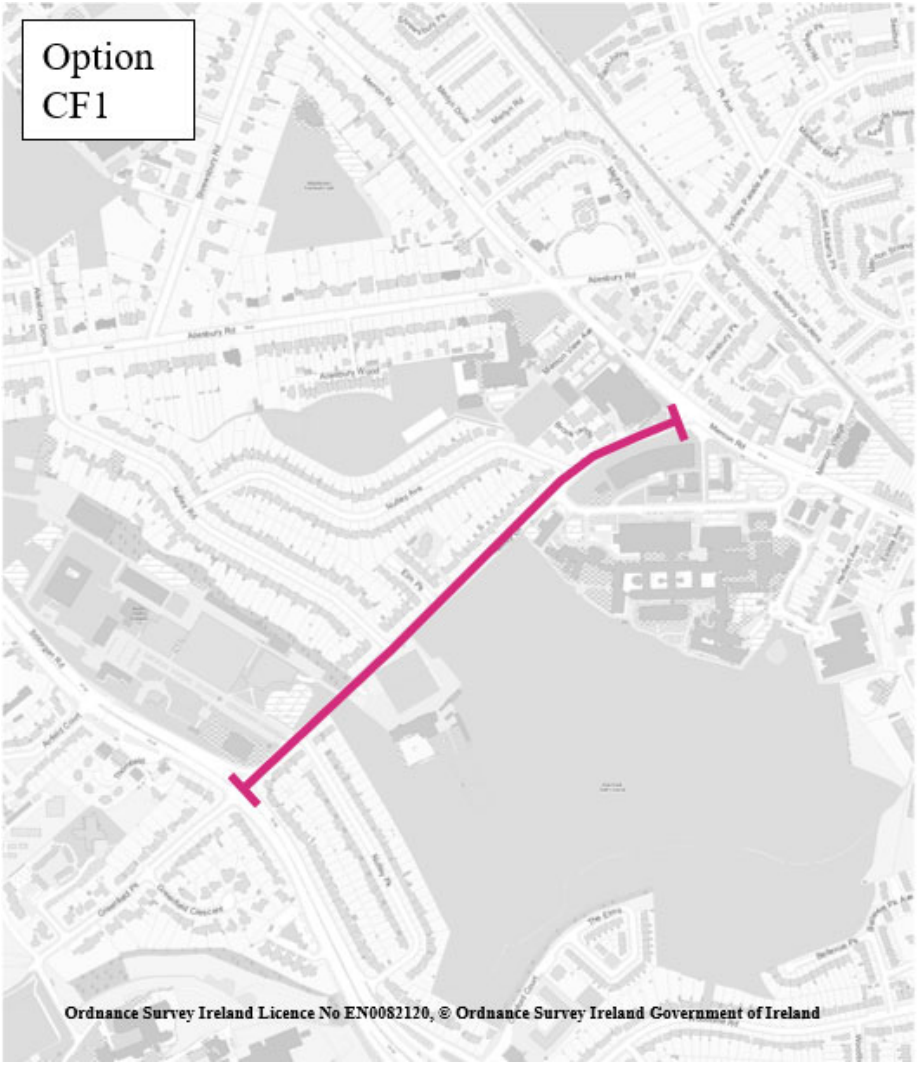


Figure 6.42: Cycle Route Option CF1

Inbound (Southbound): The single cycle track would proceed up the east side of Nutley Lane from Merrion Road.

The cycle track would then connect to the junction on the R138.

Outbound (Northbound): The single cycle track would proceed down the west side of Nutley Lane from the R138.

The cycle track would then connect to the junction on Merrion Road.

There is one signal-controlled junction along this route.

This segregated cycle route aligns with the GDA Cycle Network Plan proposal for the Secondary Route on Nutley Lane and the CBC.

Cycle Route CF1 scheme proposals are presented in **Figure 6.43** while sample cross-sections are illustrated in **Figure 6.44 and Figure 6.45**.

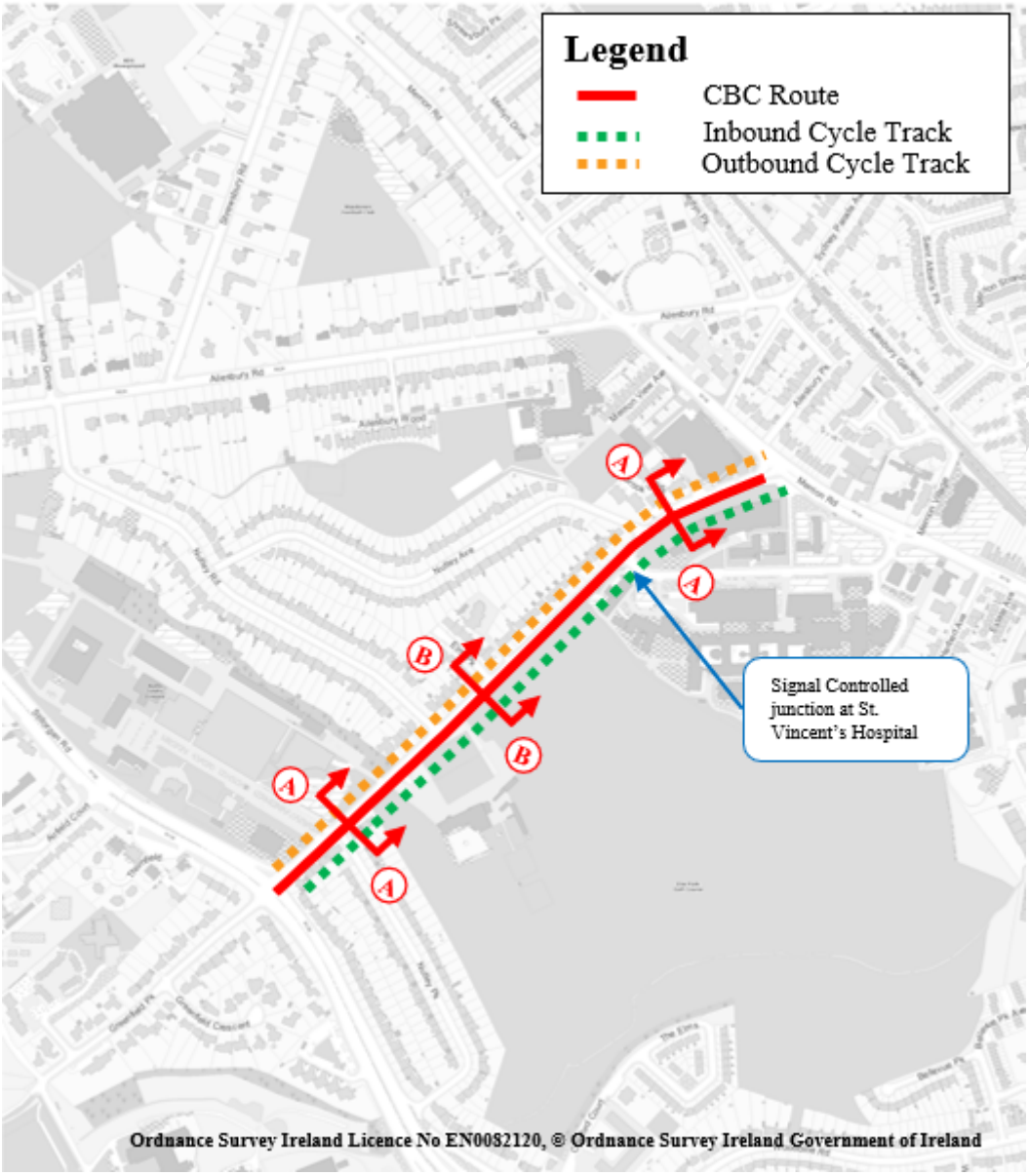


Figure 6.43: Cycle Route Option CF1 Indicative Scheme Design

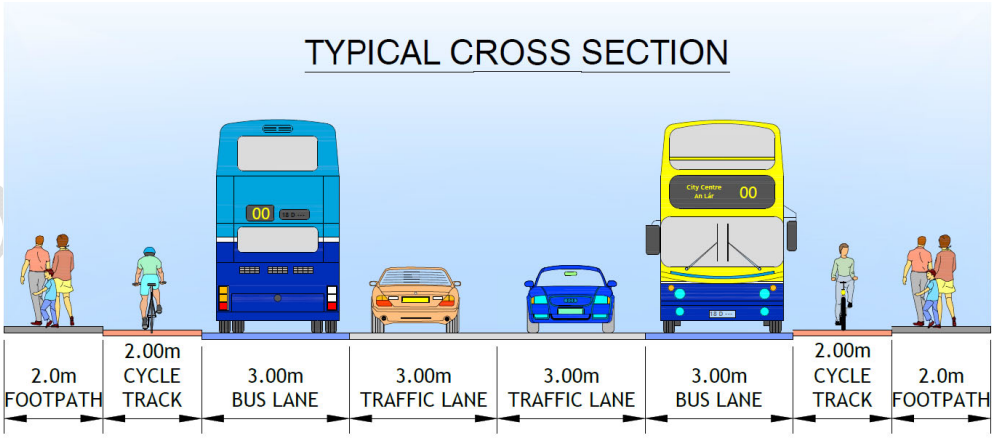


Figure 6.44: Cycle Route Option CF1 Cross-Section A-A

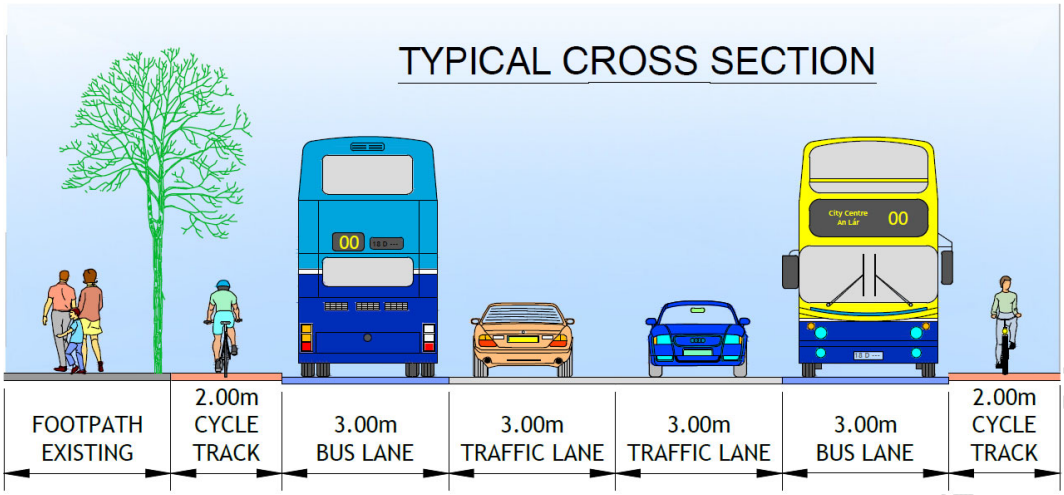


Figure 6.45: Cycle Route Option CF1 Cross-Section B-B

Cycle route Option CF1 represents the cycle facilities presented in the EPR Option along with the design refinements such as removal of the footpath over a portion of the Elm Park Golf Club side. This option would provide dedicated cycle facilities in each direction on each side of Nutley Lane.

6.2.2.2.2 Cycle Route Option CF2

The location of cycle route option CF2 is presented in **Figure 6.46**.

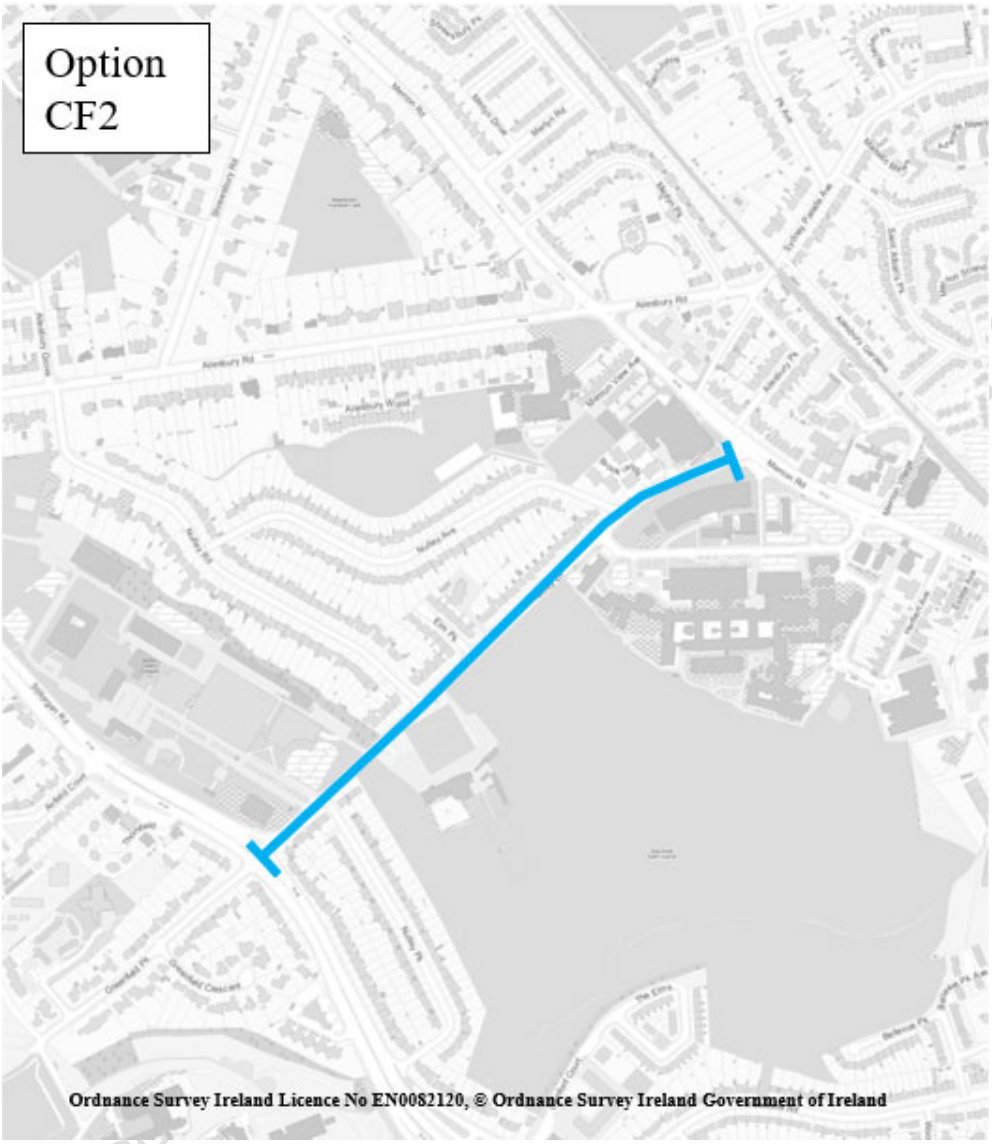


Figure 6.46: Cycle Route Option CF2

Inbound (Southbound): A single cycle track would proceed up the east side of Nutley Lane from Merrion Road. At the signalised junction of the St. Vincent's Hospital entrance the single cycle track would join with the two-way cycle track, staying on the east side of the road.

The two-way cycle track would then cross over to the west side of Nutley Lane via a toucan crossing just north of Nutley Park, then continue along Nutley Lane, connecting to the junction on the R138.

Outbound (Northbound): Northbound, the two-way cycle track would proceed as described above as far as St. Vincent's Hospital where it ends, and cyclists would cross to the west side of the road via a toucan crossing at the junction.

A single cycle track would then connect from the St. Vincent's Hospital junction to the junction on Merrion Road.

There is one signal-controlled junction and two signal-controlled crossings along this route.

This segregated cycle route aligns with the GDA Cycle Network Plan proposal for the Secondary Route on Nutley Lane and the CBC.

The Cycle Route CF2 scheme proposals are presented in **Figure 6.47** while sample cross-sections are presented in **Figure 6.48**, **Figure 6.49**, and **Figure 6.50**.

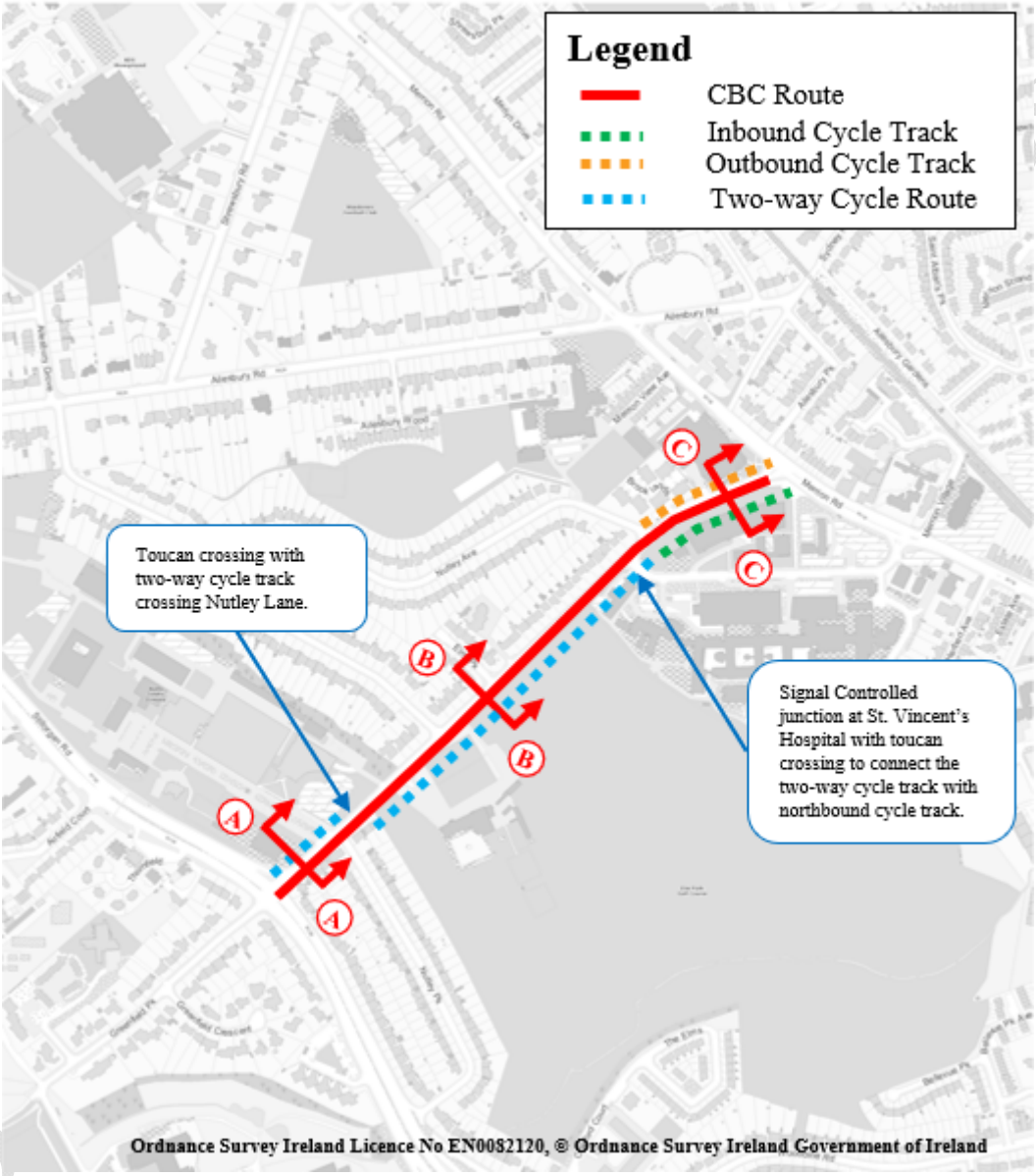


Figure 6.47: Cycle Route Option CF2 Indicative Scheme Design

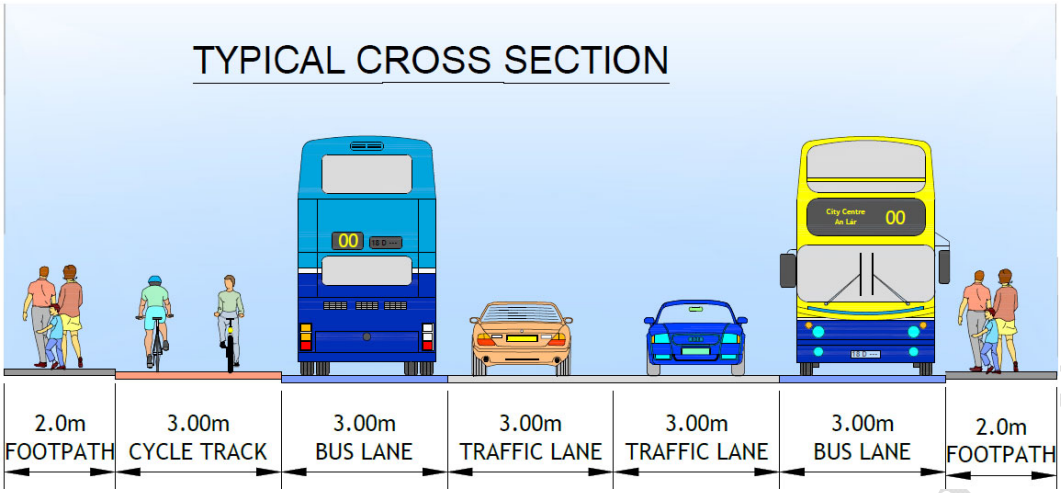


Figure 6.48: Cycle Route Option CF2 Cross-Section A-A

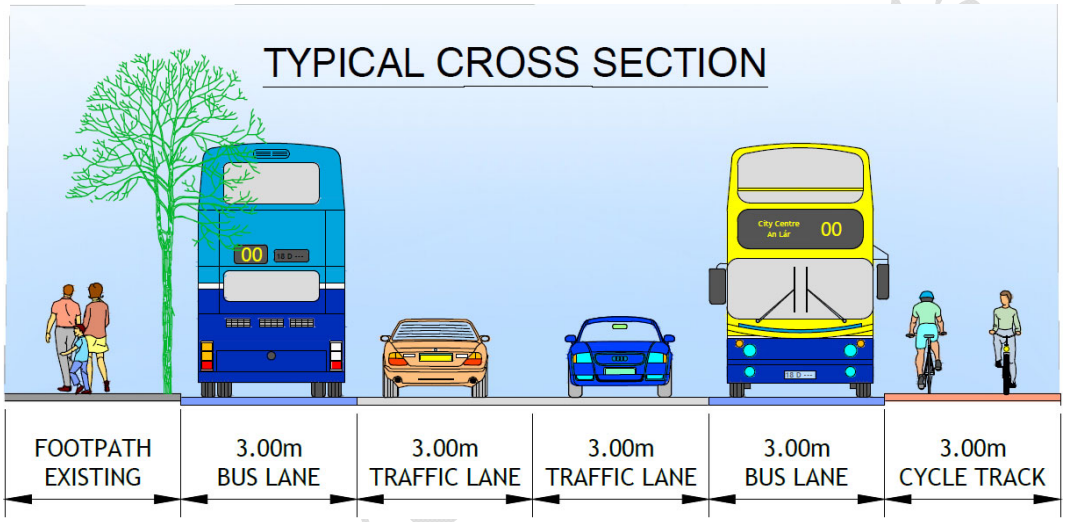


Figure 6.49: Cycle Route Option CF2 Cross-Section B-B

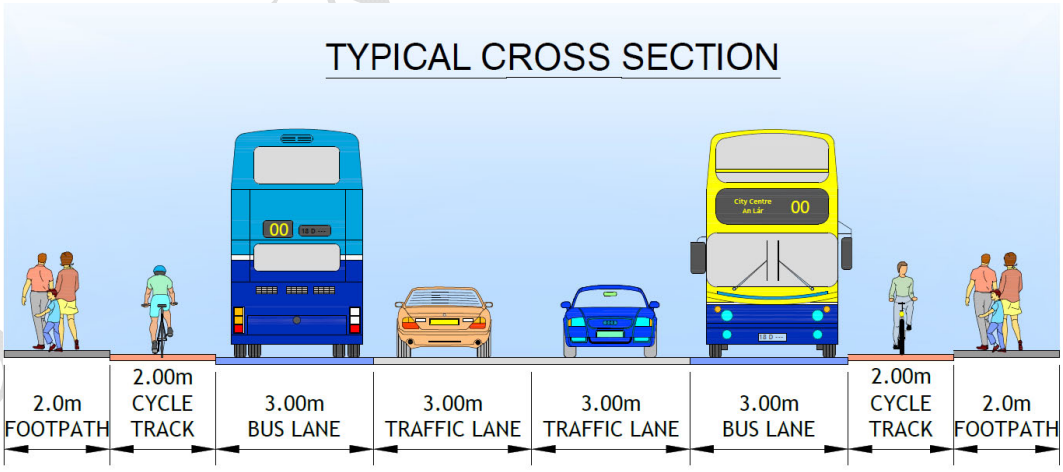


Figure 6.50: Cycle Route Option CF2 Cross-Section C-C

6.2.2.2.3 Cycle Route Option CF3

The location of parallel cycle route option CF3 is presented in **Figure 6.51**. It is noted that this follows the route of Section No. 5.56 in the 'Ballsbridge to UCD Bus Corridor – Route Options Assessment'. This section failed the Stage 1 Assessment therein due to the narrow existing carriageway, with limited scope to widen to provide both bus lanes and cycle facilities.

However, the cycle route option assessed herein would retain bus lanes on Nutley Lane and only provide cycle facilities on the parallel route, as such it has been reassessed in this regard.

Figure 6.51: Cycle Route Option CF3

Inbound (Southbound): The cycle route proceeds along Trimleston Avenue from the Rock Road, linking to Woodbine Road via Woodbine Park and Trimleston Avenue. The cycle route would continue on along Woodbine Road before connecting to both the west and east bound cycle facilities on the northern side of the R138 Stillorgan Road Interchange.

Outbound (Northbound): The northbound option follows the same route as southbound.

There are no signal-controlled junctions nor pedestrian/toucan crossings along this route. This route aligns with the GDA Cycle Network Plan proposal for the Secondary Route on Woodbine Road but does not align with the CBC.

Cycle Route CF3 scheme proposals are presented in **Figure 6.52** while a sample cross-section is illustrated in **Figure 6.53**.

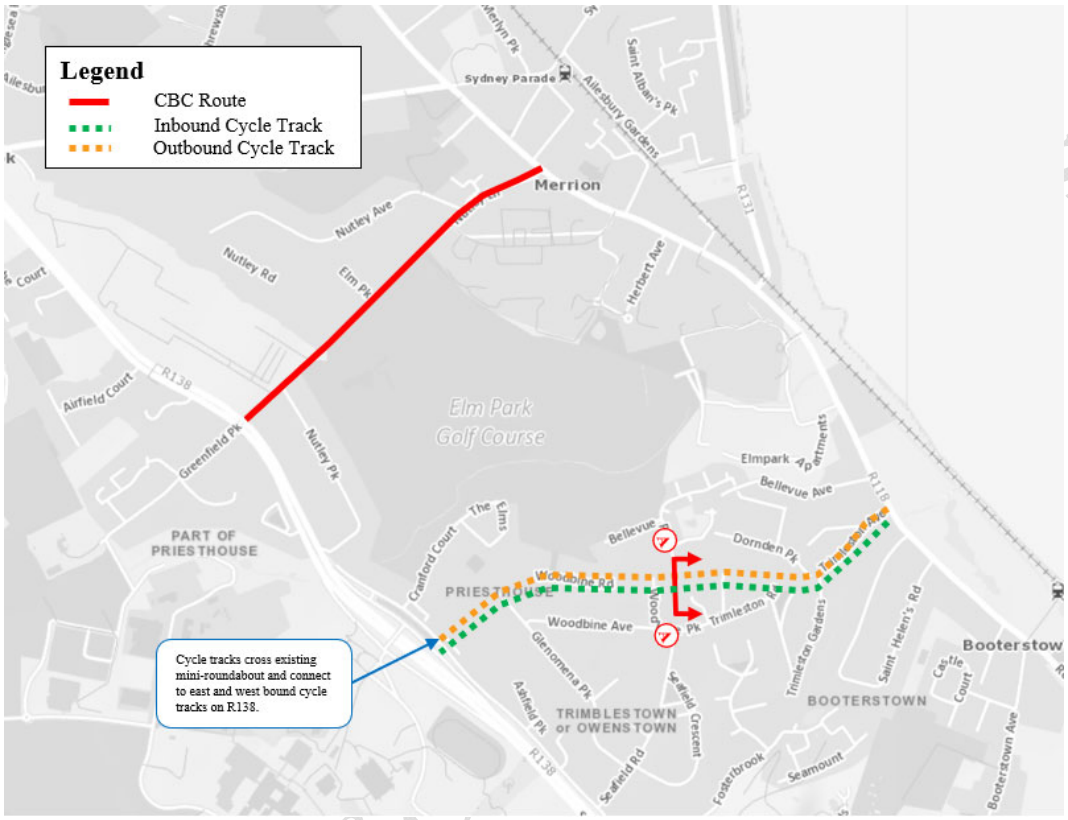


Figure 6.52: Cycle Route Option CF3 Indicative Scheme Design

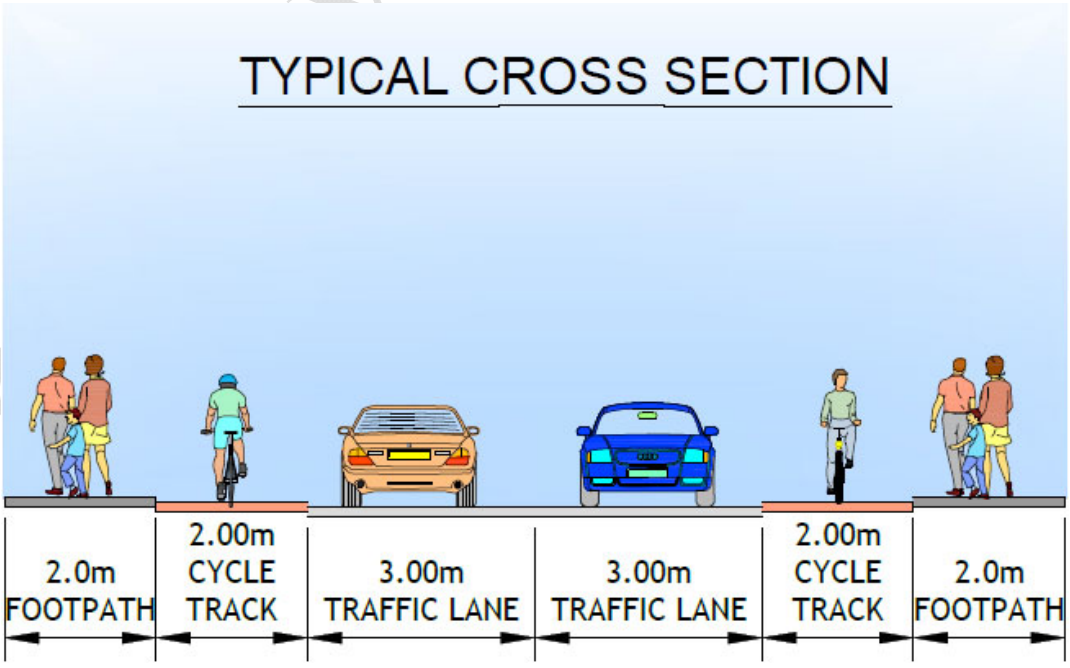


Figure 6.53: Cycle Route Option CF3 Cross-Section A-A

Cycle route Option CF3 would provide dedicated cycle facilities in each direction on each side of Woodbine Road, Woodbine Park, Trimleston Park, and Trimleston Avenue between the R138 and Rock Road.

It is important to note that provision of this arrangement would come in conjunction with the CBC related works on Nutley Lane, albeit without cycle facilities.

Therefore, in terms of provision of infrastructure it would involve all relevant works including road widening and land acquisition on both Nutley Lane and along the length of Woodbine Road, Woodbine Park, Trimleston Park and Trimleston Avenue. Due to the width of the existing roadway along the CF3 route, this would require significant land acquisition generally along the south/south-eastern side of the road both in terms of number of properties impacted and in terms of encroachment into gardens.

The following constraints would need to be considered should this route option be progressed:

- Existing residential parking which would need to be removed to facilitate the works along significant sections of the route; and
- Existing boundaries which may be impacted in order to facilitate the works – boundary to boundary cross section c. 12m in places.

6.2.2.3 Section 2 Cycle Route Options Assessment

Details of the cycle route options assessment undertaken for the Nutley Lane study area section are presented in Appendix D. The relative ranking of route options against the scheme assessment criteria is summarised in **Table 6.7**.

Table 6.7: Section 2 Cycle Route Options Summary MCA

Appraisal Criteria	Option CF1 (EPR)	Option CF2 (Two-way)	Option CF3 (Woodbine)
1 Capital Cost			
2 Road Safety			
3 Coherence			
4 Directness			
5 Attractiveness			
6 Comfort			
7 Environmental			

In terms of Capital Cost, Option CF2 is the cheapest option due to lower infrastructure costs and lower land acquisition costs than other options. Option CF3 is the most expensive option, due to significant land acquisition costs. Option CF1 has slightly higher infrastructure and land acquisition costs compared to CF2 due to the wider cross section required.

In terms of Road Safety, Option CF2 performs the best overall, as it includes a significantly lower number of driveway/access crossings and conflict points compared to the other two options. An advantage that Options CF1 and CF3 have over Option CF2 is that the cycle tracks run consistently along each side of the road, whereas northbound cyclists on CF2 have to cross at two toucan crossings.

Options CF1 and CF2, which align with the CBC perform well under the criterion of Coherence, since each option runs along the Secondary Network from the GDA cycle network plan. As such, CF1 and CF2 perform marginally better than CF3, which does not align with the CBC, under this criterion.

In terms of directness, options which align with the CBC perform well under this criterion, as the CBC follows the most direct route. As such, CF1 and CF2 perform significantly better than CF3 under this criterion. When compared to the alignment of the CBC, Option CF3 requires a significant detour (totalling c. 3.1 km versus the c. 860m length of Nutley Lane) and includes a higher number of junctions than both other options.

In terms of Attractiveness, it is considered that all options perform comparably as they are all segregated routes, in areas of similar character with sufficient public lighting provision.

In terms of Comfort, Option CF2 provide the most segregation for cyclists in terms of crossing minimal number driveways, access, and side roads compared to the other two options and therefore performs the best under this criterion.

Finally, in terms of Environment, Options CF2 performs the best under this criterion as it the lowest impact on property and trees. Option CF1 has a larger

impact on properties and trees than CF2 due to the wider cross section required, and so perform marginally worse under this criterion. Option CF3 would have a significantly larger impact on properties and trees due to the required road widening required along the majority of the route than other options and so performs worst.

6.2.2.4 Section 2 Alternative Cycle Route Options Conclusion and Draft Preferred Option

Based on the assessment undertaken, route Option CF2 offers more benefits over other options. Other than being comparable with both other options on Attractiveness and comparable with CF1 on Directness and Coherence, it performs significantly better than other options in terms of key criteria, namely Capital Cost, Road Safety and Environment, as well as being favourable in terms of Comfort. Option CF2 is therefore the preferred cycle route option for the Nutley Lane scheme section for the following reasons:

- It is the most cost effective due to the narrower cross-section required and the resultant reduced infrastructure and land acquisition costs;
- It provides a safe and comfortable facility for cyclists, removing them from multiple driveways and accesses along this section of the CBC route;
- It forms part of a direct linkage between UCD and St. Vincent's Hospital; and
- Due to the narrower cross section relative to CF1 and the available road space relative to CF3 it results in the lowest Environmental impact in terms of properties and trees.

Cycle Route Option CF2 will be brought forward to the principle route options assessment for Section 2.

6.2.3 Nutley Lane – Principle Route Options

6.2.3.1 Introduction

From a review of submissions received as part of the public consultation for this route, as well as a review of the topographical survey carried out subsequent to the route's publication, a number of issues have been identified with the delivery of this section of the scheme as proposed. The proposed removal of on-street trees and those in front gardens was a significant cause for concern amongst residents. A number of submissions were based around the increase in the cross-section of what is currently perceived as a residential road with through traffic. In addition, based on a review of the topographical survey file, there is now a clearer indication of the potential impact to adjacent properties and the nature of the possible land take.

These issues primarily relate to the section of Nutley Lane between the St. Vincent's Hospital entrance and the Elm Park Golf Club entrance due to the number of residential properties fronting onto the north-western side of the road and the number of on-street trees.

6.2.3.2 Options Considered

Following the initial assessment of Cycle Route options, four options for the delivery of the CBC from the R138 Stillorgan Road to Merrion Road have been developed:

- *Option NL1:* EPR Option of a single traffic lane, bus lane and cycle lane in each direction along the entire section, and some general design refinements identified upon review of the topographical survey.
- *Option NL2:* The reflects the EPR Option in terms of traffic and bus lane arrangements however includes the two-way cycle track as identified during the initial assessment of alternative cycle route options of the route selection process. This option also removes the footpath between Elm Park Golf Club and St. Vincent's Hospital entrances on the east side of the road as described in Section 5.4.2.3.
- *Option NL3:* As per NL2 from R138 to Nutley Road and from St. Vincent's Hospital Entrance to Merrion Road however reduced to a two-lane cross section of two general traffic lanes in-between, facilitated through the introduction of a bus gate on the northern side the Nutley Road junction.
- *Option NL4:* As per NL2 from R138 to Elm Park Golf Club Entrance and from St. Vincent's Hospital Entrance to Merrion Road, however reduced to a three-lane cross section in-between, comprised of a bus lane in either direction and one-way northbound for all other traffic. Restrictions to local access to Nutley Lane would be mitigated by a connection via Nutley Avenue and Nutley Road, which would involve opening the existing cul-de-sac at Nutley Avenue as left-out only egress.
- *Option NL5:* As per NL2 from R138 to Nutley Road and from St. Vincent's Hospital Entrance to Merrion Road however reduced to a three-lane cross section of two general traffic lanes and back-to- back bus lanes in-between

with the introduction of signal controlled priority at the start of the lane reduction at each end.

6.2.3.2.1 Alternative Options Considered

Two other options were also considered in the area but were not carried forward for the reasons briefly outlined below:

- **Option of reversing the direction of the proposed one-way general traffic in route option NL4**. This option was examined and sifted out due to the presence of St. Vincent's Hospital at the northern end of Nutley Lane. As a destination for a potentially large catchment, it was considered that a direct route to the hospital was more important that a direct route away from the hospital.
- **Option of a one-way route along the entire length of Nutley Lane**. This option was not considered feasible due to the presence of St. Vincent's Hospital at the northern end of Nutley Lane which would therefore not have two-way access to the entrance on Nutley Lane. As well as this, there is a large number of residents along Nutley Lane and in the vicinity of Nutley Lane that may be significantly negatively impacted by this proposal through limited local access, potential for rat-running on the residential streets, and need for additional traffic management interventions.

6.2.3.2.2 Route Option NL1

Route Description

The location of route option NL1 is presented in **Figure 6.54**.

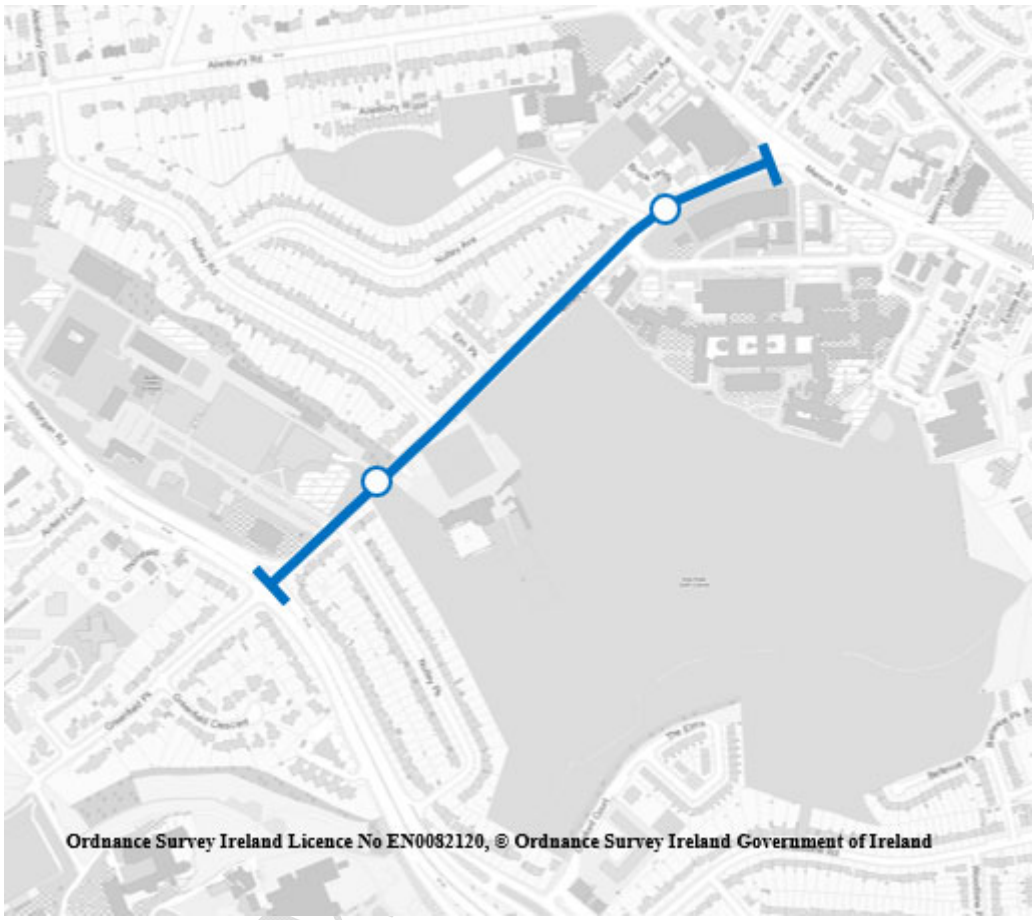


Figure 6.54: Route Option NL1

Inbound: This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. The route continues along Nutley Lane passing its junctions with Nutley Park, Nutley Road, St. Vincent's Hospital and Nutley Avenue and finishes at the junction of Nutley Lane and Merrion Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of two stops would likely be provided in each direction along this route section.

Indicative Scheme Design

Figure 6.55 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also illustrated in this figure.

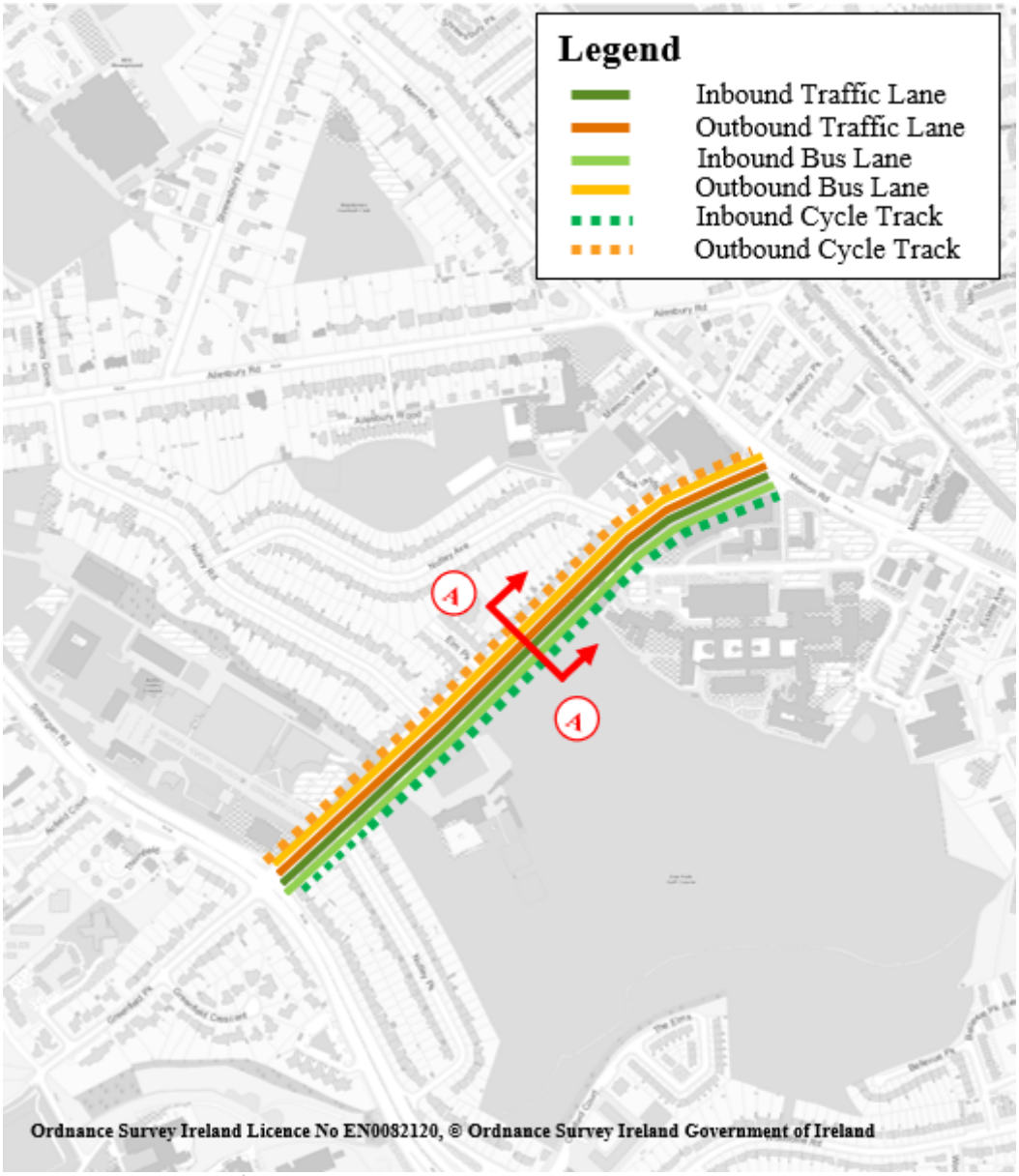


Figure 6.55: Route Option NL1 Indicative Scheme Design

This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. From its commencement, two bus lanes, two cycle tracks and two general traffic lanes are proposed along the entire length of the route.

In order to provide this route option, land acquisition would be necessary from Merrion Shopping Centre, St. Vincent's Hospital, Elm Park, RTÉ and Eir.

The proposed cross-section A-A as shown in the indicative scheme design above, is presented in **Figure 6.56**.

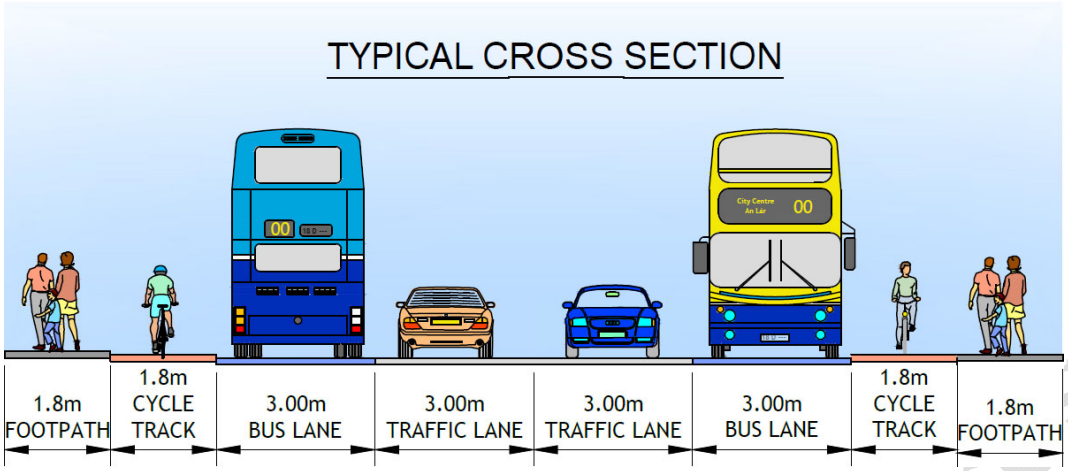


Figure 6.56: Route Option NL1 Cross-Section A-A

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

- Fully segregated bus priority provided along the full length of this scheme section;
- Narrowing of existing footpaths to 1.8m wide on both sides of the road;
- Removal of all on-street parking;
- Removal of existing trees on both sides of the road; and
- Land acquisition along the entirety of the St. Vincent's Hospital, Elm Park and RTE frontages with associated tree removal as well as land acquisition of seven residential properties adjacent to the Nutley Avenue junction.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and cycle facilities. This junction is located at the entrance to St. Vincent's Hospital.

6.2.3.2.3 Route Option NL2

Route Description

The Location of route option NL2 is presented in **Figure 6.57**.

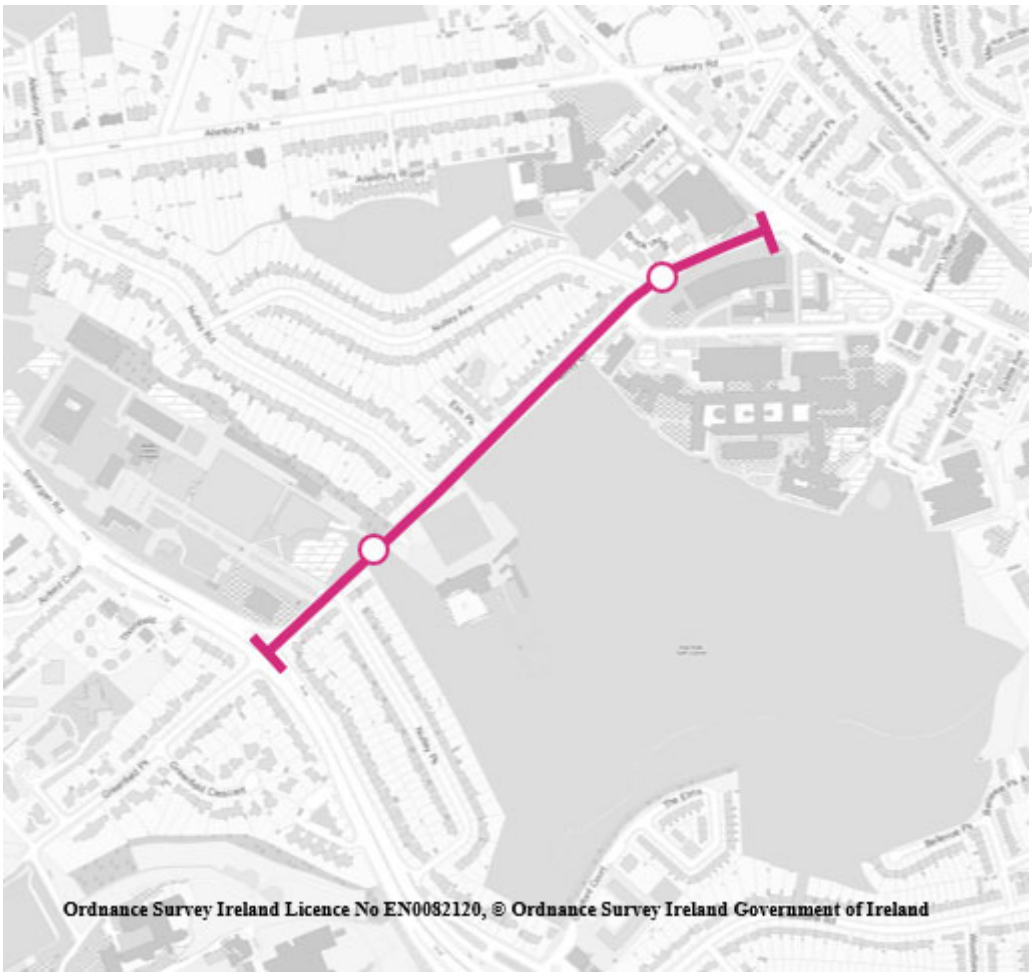


Figure 6.57: Route Option NL2

Inbound: This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. The route continues along Nutley Lane passing its junctions with Nutley Park, Nutley Road, St. Vincent's Hospital and Nutley Avenue and finishes at the junction of Nutley Lane and Merrion Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of two stops would likely be provided in each direction along this route section.

Indicative Scheme Design

Figure 6.58 illustrates the indicative scheme design for this route option. The location of the cross-sections referenced in subsequent sections describing this route option are also illustrated in this figure.

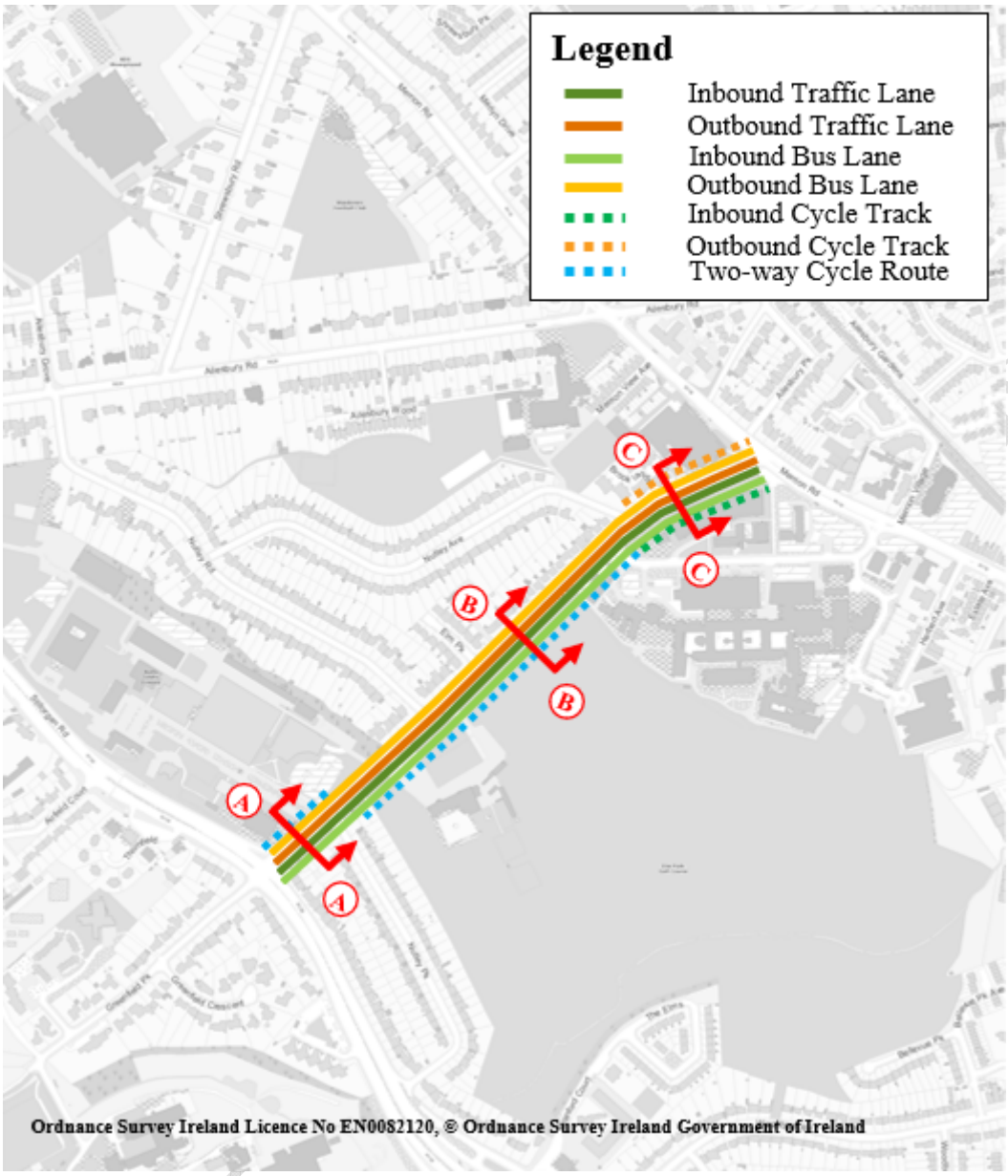


Figure 6.58: Route Option NL2 Indicative Scheme Design

This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. From its commencement, two bus lanes and two general traffic lanes are proposed along the entire length of the route. This route would include the provision of two new pedestrian crossings in the vicinity of Nutley Park and Elm Park and adjustments to the existing signalised access junction to St. Vincent's Hospital.

No footpath is proposed between the entrance to Elm Park and the entrance to St. Vincent's Hospital, with controlled pedestrian crossings provided at both locations.

The proposed cycle facilities are as selected in Section 6.1.2 of this report and are consistent for all four CBC options assessed, with the exception of Option NL1 (the EPR Option).

In order to provide this route option, land acquisition would be necessary from Merrion Shopping Centre, St. Vincent's Hospital, Elm Park, RTÉ and Eir.

The proposed cross-sections A-A, B-B, and C-C as shown in the indicative scheme design above, are presented in **Figure 6.59, Figure 6.60,** and **Figure 6.61**.

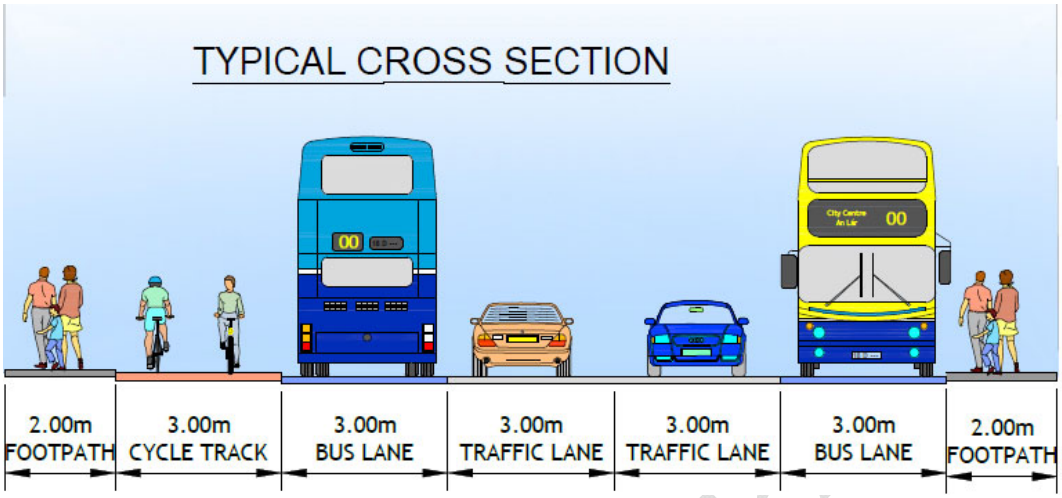


Figure 6.59: Route Option NL2 Cross-Section A-A (referenced in NL3, NL4 & NL5)

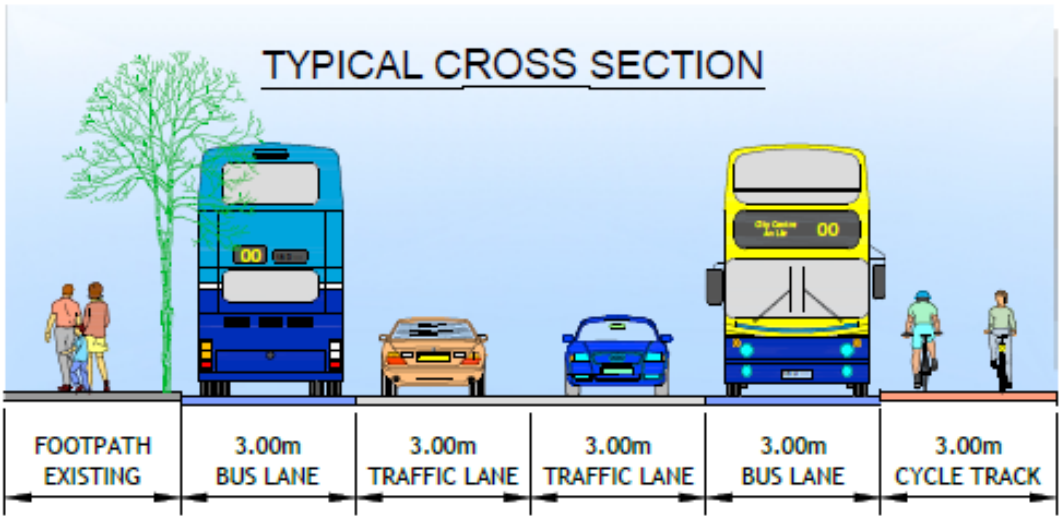


Figure 6.60: Route Option NL2 Cross-Section B-B

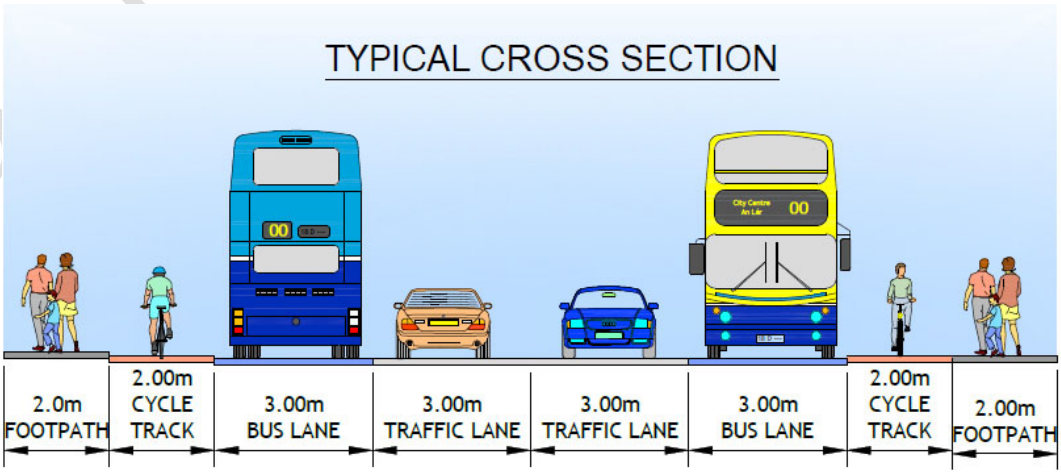


Figure 6.61: Route Option NL2 Cross-Section C-C (referenced in NL3, NL4 & NL5)

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

- Fully segregated bus priority provided along the full length of this scheme section;
- Retention of the existing footpath and trees on the residential side of the road between Nutley Road and Nutley Avenue;
- New Toucan crossings at Nutley Park and Elm Park;
- Removal of all on-street parking;
- Removal of existing trees on Elm Park side of the road; and
- Land acquisition along the entirety of the St. Vincent's Hospital, Elm Park and RTE frontages with associated tree removal.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and cycle facilities. This junction is located at the entrance to St. Vincent's Hospital. Adjustments to the junction would include the provision of an island on the approach from Merrion Road to enable signal controlled priority, the provision of toucan crossings on all three arms of the junction and the widening of the junction to accommodate the additional lanes. There would also be a possible requirement to relocate/provide new signal equipment.

6.2.3.2.4 Route Option NL3

Route Description

The location of route option NL3 is presented in **Figure 6.62**.

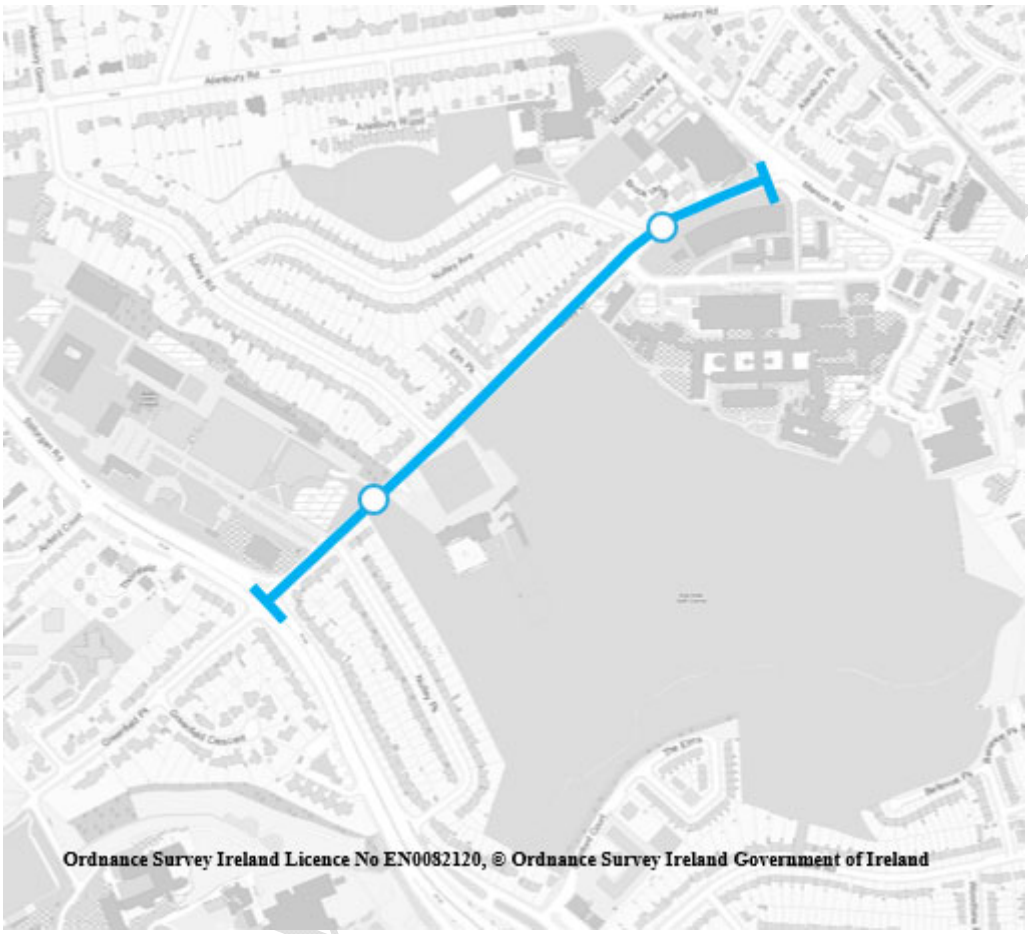


Figure 6.62: Route Option NL3

Inbound: This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. The route continues along Nutley Lane passing its junctions with Nutley Park, Nutley Road, St. Vincent's Hospital and Nutley Avenue and finishes at the junction of Nutley Lane and Merrion Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of two stops would likely be provided in each direction along this route section.

Indicative Scheme Design

Figure 6.63 illustrates the indicative scheme design for this route option. The location of cross-sections referenced in subsequent sections describing this route option are also presented in this figure.

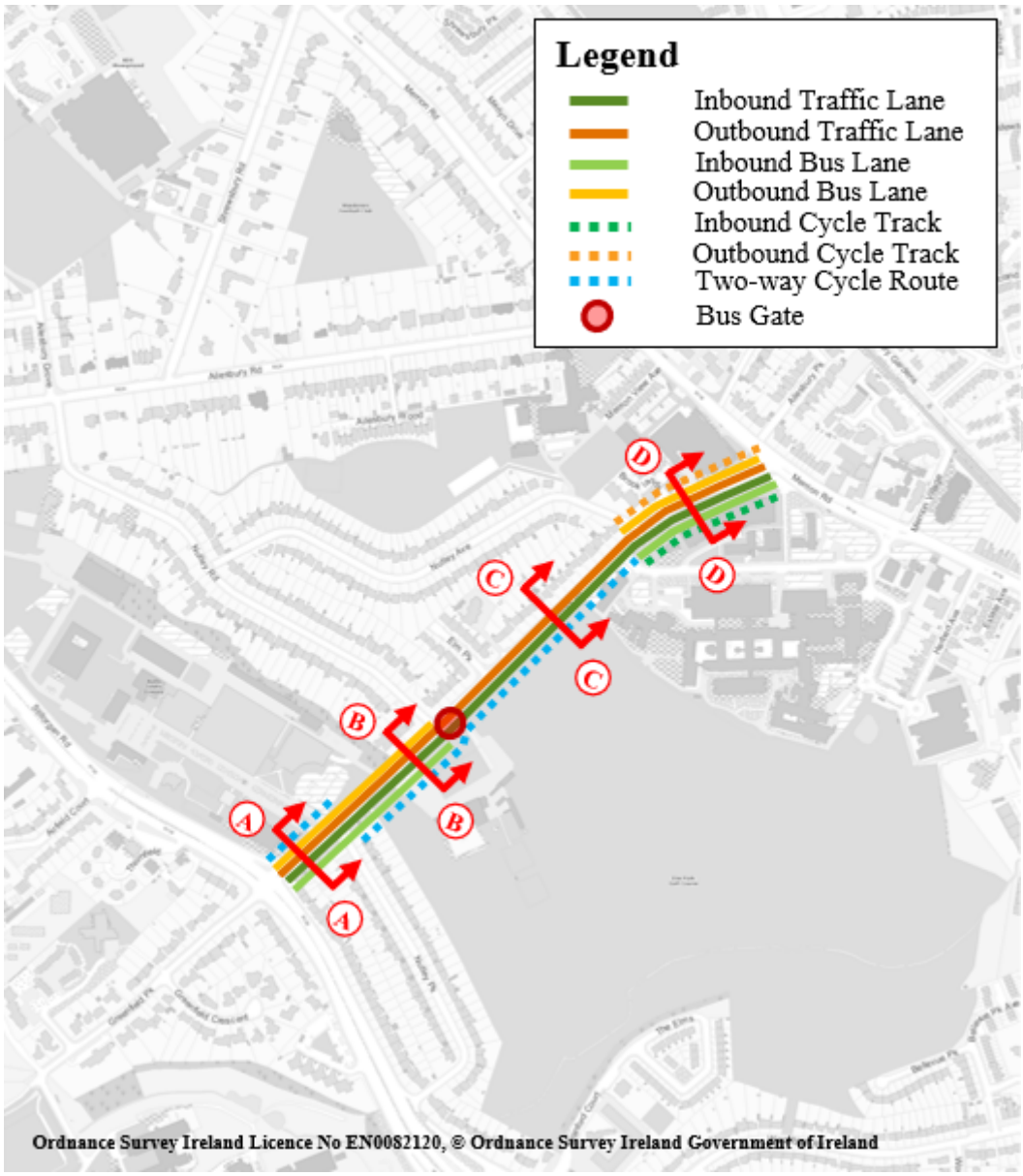


Figure 6.63: Route Option NL3 Indicative Scheme Design

This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. From its commencement, 2 bus lanes and 2 general traffic lanes are proposed as far as its junction with Nutley Road.

At its junction with Nutley Road, it is proposed that the northern Nutley Lane arm of this junction would act as a bus gate and only authorised vehicles would be permitted to use this arm of the junction.

From this junction, two general traffic lanes are proposed from Nutley Road to the junction of St. Vincent's Hospital. From the junction of St. Vincent's Avenue to Merrion road, route option NL3 is identical to route option NL2 described above.

route would include the provision of two new pedestrian crossings in the vicinity of Nutley Park and Elm Park and adjustments to the existing signalised access junction to St. Vincent's Hospital.

No footpath is proposed between the entrance to Elm Park and the entrance to St. Vincent's Hospital, with controlled pedestrian crossings provided at both locations.

The proposed cycle facilities are as selected in Section 6.1.2 of this report and are consistent for all four CBC options assessed, with the exception of Option NL1 (the EPR Option).

In order to provide this route option, land acquisition would be necessary from Merrion Shopping Centre, St. Vincent's Hospital, Elm Park, RTÉ and Eir.

The proposed cross-sections A-A and D-D are as per the cross-sections described in NL2 in **Figure 6.59** and **Figure 6.61** respectively. The proposed cross-sections C-C and B-B as shown in the indicative scheme design above are presented in **Figure 6.64** and **Figure 6.65**.

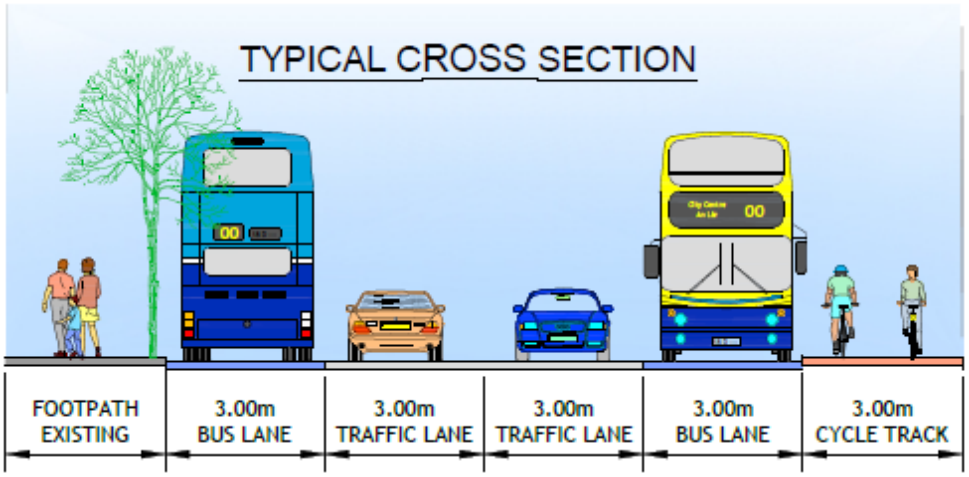


Figure 6.64: Route Option NL3 Cross-Section B-B

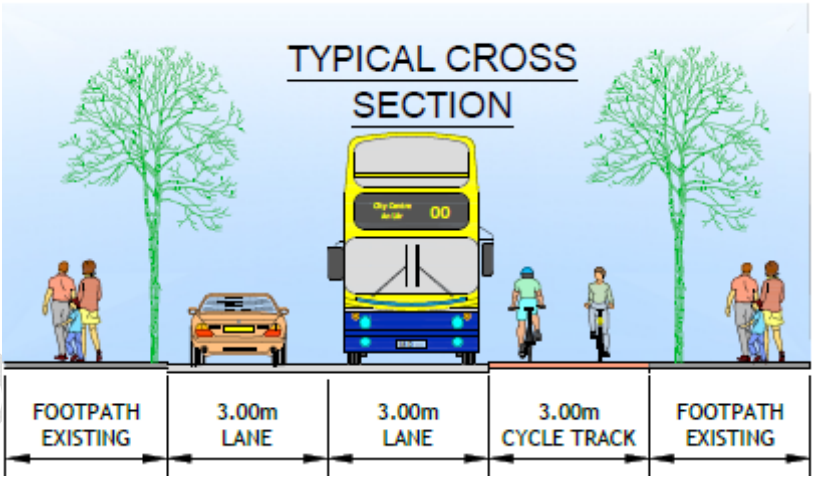


Figure 6.65: Route Option NL3 Cross-Section C-C

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

- Fully segregated bus priority provided between R138 Stillorgan Road and Nutley Road and also between St. Vincent's Hospital and Merrion Road;

- The provision of bus priority along the section of the route between Nutley Road and St. Vincent's Hospital through the elimination of through traffic from the installation of a bus gate on Nutley Lane at its junction with Nutley Road;
- Retention of the existing footpath and trees both sides of the road between Nutley Road and St. Vincent's Hospital;
- Signalisation of the junction of Nutley Lane and Nutley Park;
- New Toucan crossings at Nutley Park and Elm Park;
- Removal of all on-street parking; and
- Land acquisition along from St. Vincent's Hospital, Elm Park and RTE frontages with associated tree removal, albeit significantly less land acquisition required from Elm Park relative to NL2.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and cycle facilities. This junction is located at the entrance to St. Vincent's Hospital. Adjustments to the junction would include the provision of an island on the approach from Merrion Road to enable signal controlled priority, the provision of toucan crossings on all three arms of the junction and the widening of the junction to accommodate the additional lanes. There would also be a possible requirement to relocate/provide new signal equipment.

In addition, option NL3 would require the signalisation of the junction of Nutley Lane and Nutley Road in order to facilitate the bus gate. This junction layout would require a realignment of the road alignment into Elm Park, facilitating a traffic island on the approach to the junction from the R138 Stillorgan Road to enable signal controlled priority. A signalised pedestrian crossing of Nutley Road would be necessary and also a cycle crossing from Nutley Road to the Elm Park side of Nutley Lane.

6.2.3.2.5 Route Option NL4

Route Description

The location of route option NL4 is presented in **Figure 6.66**.

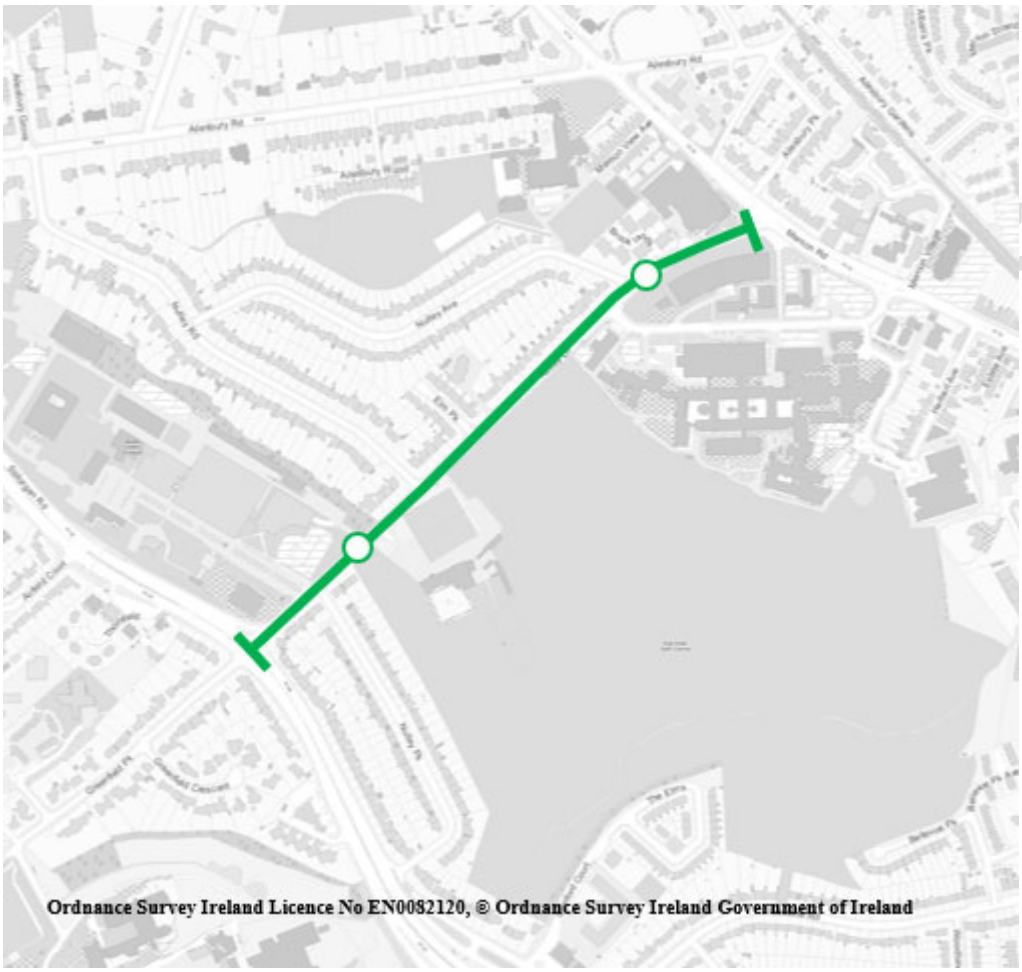


Figure 6.66: Route Option NL4

Inbound: This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13.

The route continues along Nutley Lane passing its junctions with Nutley Park, Nutley Road, St. Vincent's Hospital and Nutley Avenue and finishes at the junction of Nutley Lane and Merrion Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of two stops would likely be provided in each direction along this route section.

Indicative Scheme Design

Figure 6.67 illustrates the indicative scheme design for this route option. The location of the cross-section referenced in subsequent sections describing this route option is also presented in this figure.

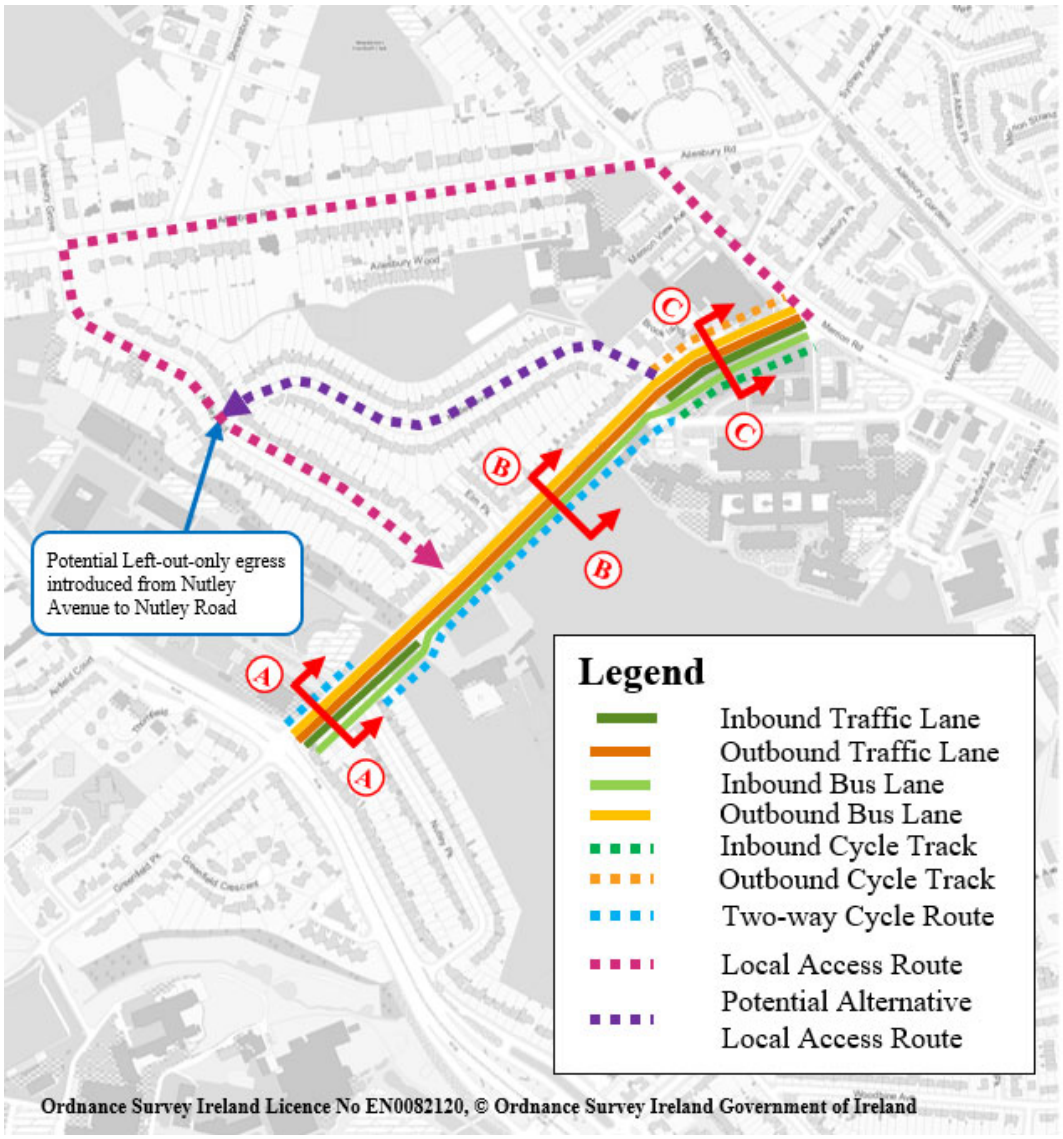


Figure 6.67: Route Option NL4 Indicative Scheme Design

This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. From its commencement, 2 bus lanes and 2 general traffic lanes are proposed as far as the Entrance to Elm Park.

At the entrance to Elm Park, it is proposed that the cross section of Nutley Lane would be reduced to 3 lanes, with a bus lane provided in both directions Nutley Lane becoming one-way only for general traffic. This proposed one-way would be in a northbound direction between Elm Park and St. Vincent's Hospital.

From the junction of St. Vincent's Avenue to Merrion road, route option NL4 is identical to route option NL2 described above.

This route would include the provision of two new pedestrian crossings in the vicinity of Nutley Park and Elm Park and adjustments to the existing signalised access junction to St. Vincent's Hospital.

No footpath is proposed between the entrance to Elm Park and the entrance to St. Vincent's Hospital, with controlled pedestrian crossings provided at both locations.

The proposed cycle facilities are as selected in Section 6.1.2 of this report and are consistent for all four CBC options assessed, with the exception of Option NL1 (the EPR Option).

In order to provide this route option, land acquisition would be necessary from Merrion Shopping Centre, St. Vincent's Hospital, Elm Park, RTÉ and Eir.

This arrangement would result in restricted access to the residential properties from No. 35 to No. 85 Nutley Lane and the Elm Park cul-de-sac from approaching from Merrion. There would be a detour of c. 2km required via Ailesbury Road (when approaching northbound on Merrion Road). It is noted that such restrictions to local access to these properties on Nutley Lane would benefit somewhat from a connection via Nutley Avenue and Nutley Road, which would involve opening the existing cul-de-sac at Nutley Avenue as a left-out only egress. This would result in a required detour of c. 1.4km via Nutley Avenue, which is approximately two-thirds the length of the detour via Ailesbury Road.

Along with a right turn ban from Nutley Avenue, the geometrical design of the proposed egress would be such that it catered for a left-out movement only to mitigate against the route being used as a potential rat-run from Merrion Road to Ailesbury Road via Nutley Avenue.

The proposed cross-sections A-A and C-C are as per the cross-sections described in NL2 in **Figure 6.59** and **Figure 6.61** respectively. The proposed cross-section B-B as shown in the indicative scheme design above, is presented in **Figure 6.68**.

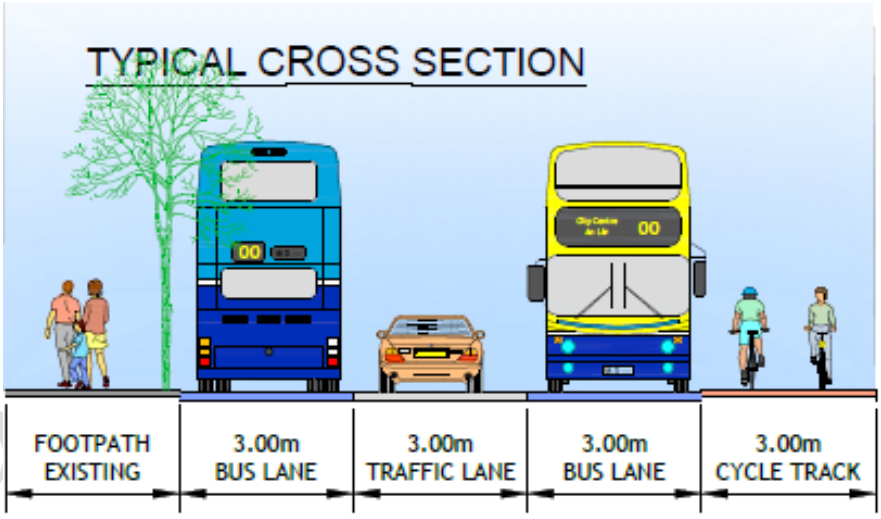


Figure 6.68: Route Option NL4 Cross-Section B-B

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

- Fully segregated bus priority along the entire section;
- Retention of the existing footpath and trees on the residential side of the road between Nutley Road and Nutley Avenue;

- New Toucan crossings at Nutley Park and Elm Park;
- Removal of all on-street parking; and
- Land acquisition along from St. Vincent's Hospital, Elm Park and RTE frontages with associated tree removal, albeit significantly less land acquisition required from Elm Park relative to NL2.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and cycle facilities. This junction is located at the entrance to St. Vincent's Hospital. Adjustments to the junction would include the provision of an island on the approach from Merrion Road to enable signal controlled priority, the provision of toucan crossings on all three arms of the junction and the widening of the junction to accommodate the additional lanes. There would also be a possible requirement to relocate/provide new signal equipment.

6.2.3.2.6 Route Option NL5

Route Description

The location of route option NL5 is presented in **Figure 6.69**.

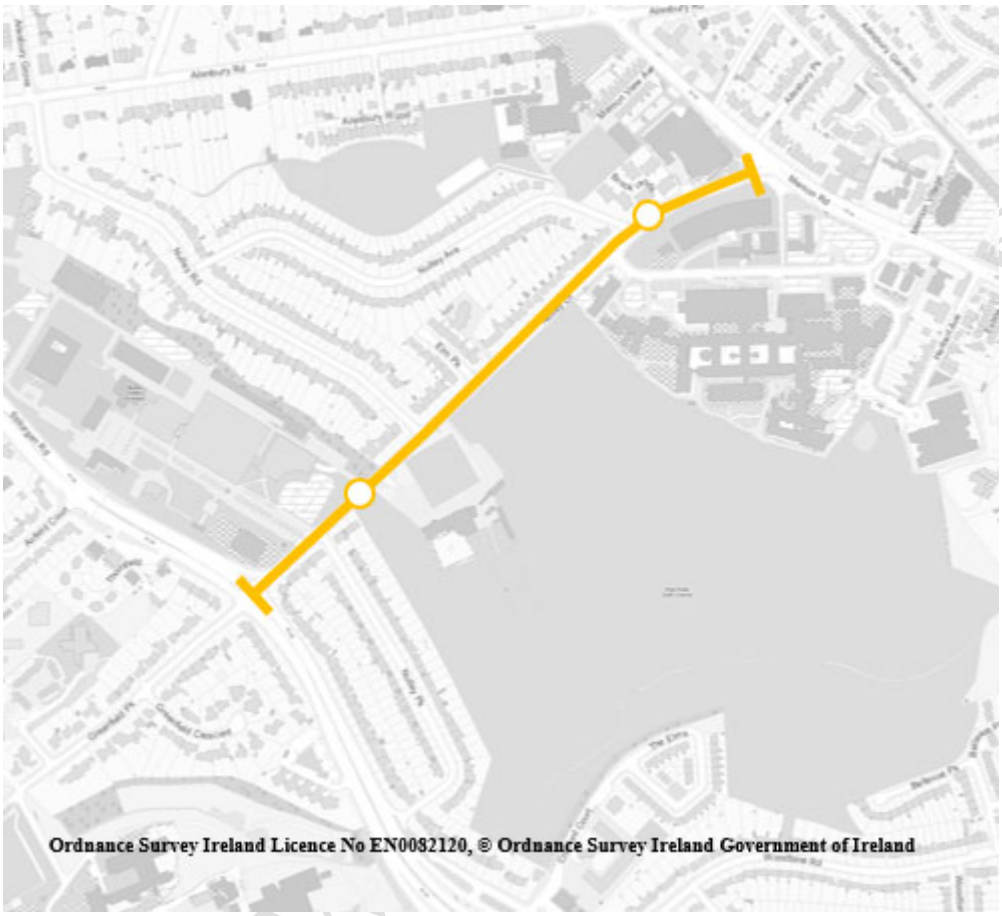


Figure 6.69: Route Option NL5

Inbound: This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. The route continues along Nutley Lane passing its junctions with Nutley Park, Nutley Road, St. Vincent's Hospital and Nutley Avenue and finishes at the junction of Nutley Lane and Merrion Road.

Outbound: The outbound route follows the same route as the inbound route.

Stops: A total of two stops would likely be provided in each direction along this route section.

Indicative Scheme Design

Figure 6.70 illustrates the indicative scheme design for this route option. The location of cross-sections referenced in subsequent sections describing this route option are also presented in this figure.

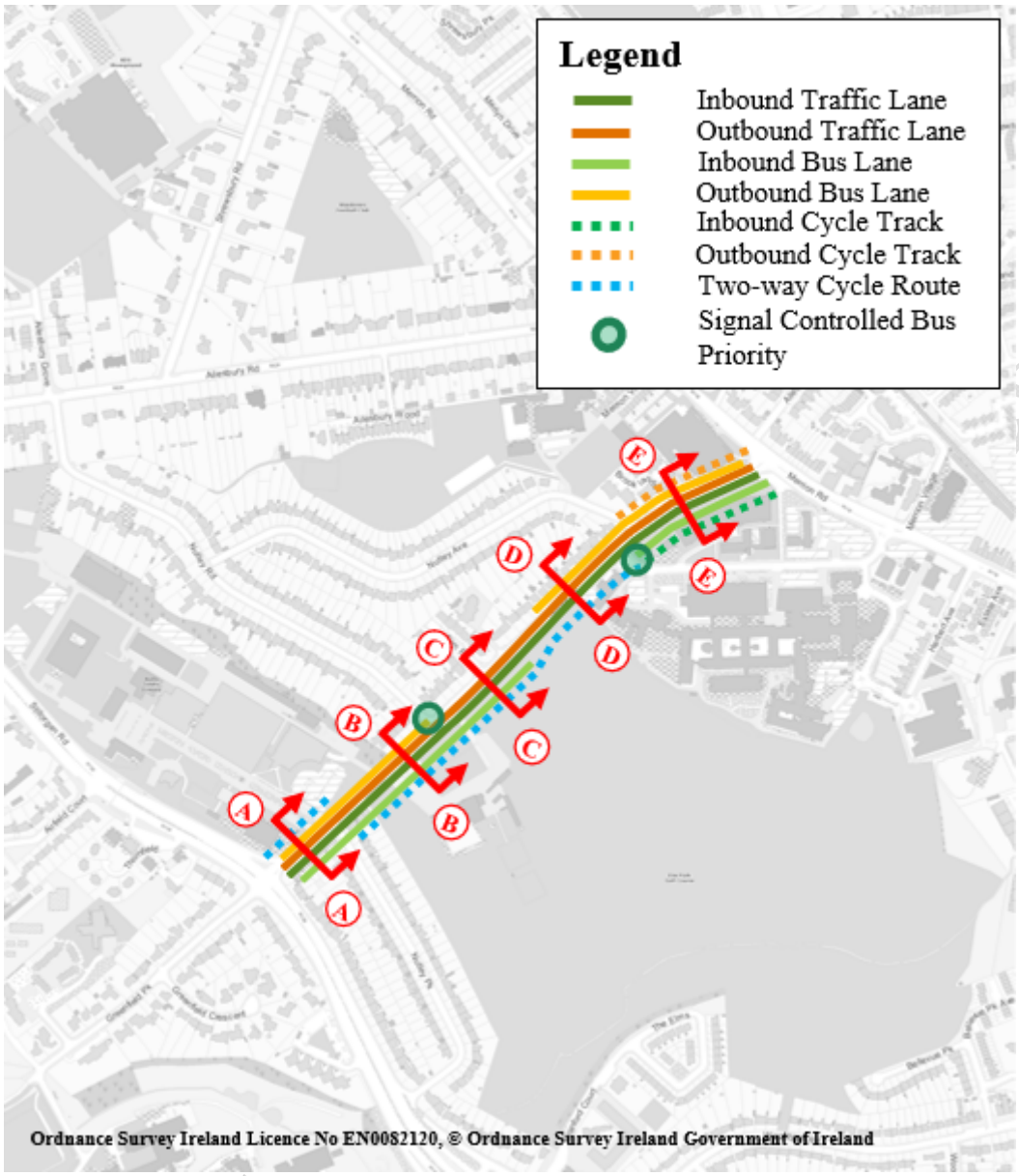


Figure 6.70: Route Option NL5 Indicative Scheme Design

This section of the route commences at the junction of the R138 Stillorgan Road and Nutley Lane, in front of property No. 10 Nutley Lane, where the route meets CBC Route 13. From its commencement, 2 bus lanes and 2 general traffic lanes are proposed as far as the Entrance to Elm Park.

At the entrance to Elm Park, it is proposed that the cross section of Nutley Lane would be reduced to 3 lanes, with a general traffic lane provided in both directions and a back-to-back bus lane arrangement.

This bus lane arrangement would result in an outbound bus lane approaching the Elm Park junction and an inbound bus lane approaching the St. Vincent's Hospital junction with the direction of the bus lane changing over in the middle of this section. This proposal requires the signalisation of the Elm Park access junction in order to provide signal controlled priority for northbound buses.

From the junction of St. Vincent's Avenue to Merrion road, route option NL5 is identical to route option NL2 described above.

This route would include the provision of a new pedestrian crossings in the vicinity of Nutley Park, the incorporation of pedestrian crossing facilities into the signalisation of the Elm Park entrance and adjustments to the existing signalised access junction to St. Vincent's Hospital.

No footpath is proposed between the entrance to Elm Park and the entrance to St. Vincent's Hospital.

The proposed cycle facilities are as selected in Section 6.1.2 of this report and are consistent for all four CBC options assessed, with the exception of Option NL1 (the EPR Option).

In order to provide this route option, land acquisition would be necessary from Merrion Shopping Centre, St. Vincent's Hospital, Elm Park, RTÉ and Eir.

The proposed cross-sections A-A, B-B and E-E are as per the cross-sections described in NL2 in **Figure 6.59**, **Figure 6.60** and **Figure 6.61** respectively. The proposed cross-sections C-C and D-D as shown in the indicative scheme design above, are presented in **Figure 6.71** and **Figure 6.72**.

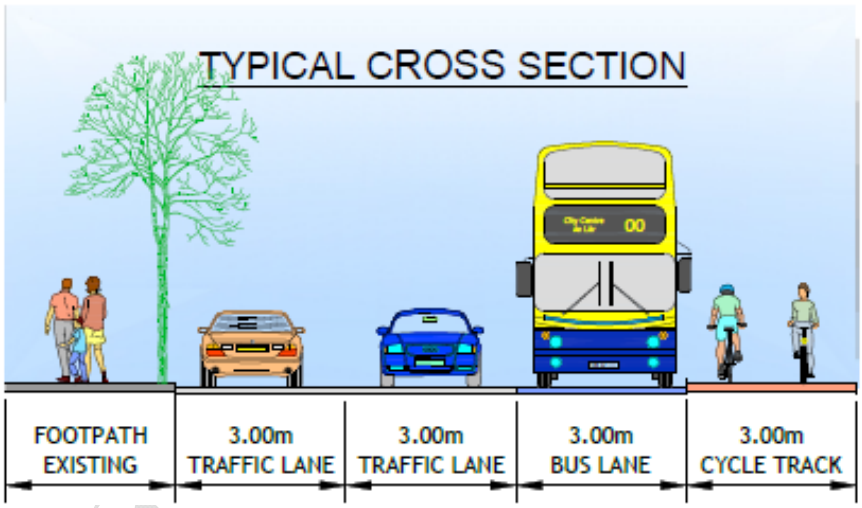


Figure 6.71: Route Option NL5 Cross-Section C-C

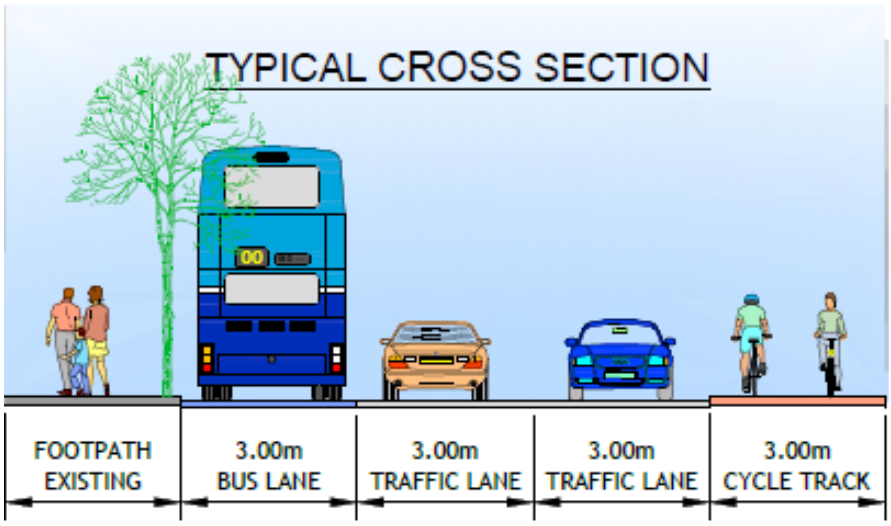


Figure 6.72: Route Option NL5 Cross-Section D-D

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

- Fully segregated bus priority provided between R138 Stillorgan Road and Elm Park and also between St. Vincent's Hospital and Merrion Road;
- The provision of bus priority along the section of the route between Elm Park and St. Vincent's Hospital through the provision of back-to-back bus lanes and signal controlled priority to control the flow of downstream traffic;
- Signalisation of the Elm Park access junction;
- Retention of the existing footpath and trees on the residential side of the road between Nutley Road and Nutley Avenue;
- New Toucan crossings at Nutley Park;
- Removal of all on-street parking; and
- Land acquisition along from St. Vincent's Hospital, Elm Park and RTE frontages with associated tree removal, albeit significantly less land acquisition required from Elm Park relative to NL2.

Junctions:

There is currently one existing signalised junction along this route option, which would require upgrading to facilitate bus priority and cycle facilities. This junction is located at the entrance to St. Vincent's Hospital. Adjustments to the junction would include the provision of an island on the approach from Merrion Road to enable signal controlled priority, the provision of toucan crossings on all three arms of the junction and the widening of the junction to accommodate the additional lanes. There would also be a possible requirement to relocate/provide new signal equipment.

In addition, option NL5 would require the signalisation of the junction of Nutley Lane and Elm Park in order to facilitate the signal controlled priority necessary to ensure bus priority is maintained along the section of road without a bus lane.

This junction layout would require a realignment of the road alignment into Elm Park, facilitating a traffic island on the approach to the junction from the R138 Stillorgan Road to enable signal controlled priority.. A signalised pedestrian and cycle crossing from Nutley Road to the Elm Park side of Nutley Lane would also be necessary.

6.2.3.3 Section 2 Route Option Assessment

Details of the route options assessment undertaken for the Nutley Lane study area section are presented in Appendix D. The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 6.8**.

Table 6.8: Section 2 Route Options Assessment Summary (Sub-Criteria)

Appraisal Criteria	Sub-Criteria	Option NL1	Option NL2	Option NL3	Option NL4	Option NL5
1 Economy	1A Capital Cost					
	1B Transport Quality & Reliability					
2 Integration	2A Land Use Policy					
	2B Residential Population and Employment Catchments					
	2C Transport Network Integration					
	2D Cycle Network integration					
	2E Traffic Network Integration					
3 Accessibility & Social Inclusion	3A Key Trip Attractors					
	3B Deprived Geographic Areas					
4 Safety	4A Road Safety					
	4B Pedestrian Safety					
5 Environment	5A Archaeology & Cultural Heritage					
	5B Architectural Heritage					
	5C Flora & Fauna					
	5D Soils, Geology & Hydrogeology					
	5E Landscape & Visual					
	5F Air Quality					
	5G Noise & Vibration					
	5H Land Use Character					

In terms of Capital Cost, Option NL1 is the most expensive option due to it being the widest cross section of the five options coupled with land acquisition costs. Option NL4 performs better than the other options due to the retention of the majority of existing kerb lines and the lower land acquisition costs.

In terms of Transport Quality & Reliability, Option NL1 performs the best under this sub-criterion as full physical bus priority is provided throughout, with NL2 and NL4 performing slightly worse due to the additional signalised crossings which could impede journey time. Options NL3 and NL5 perform badly under this criterion due to higher journey times due to a lack of physical bus priority, with NL5 performing the worst.

All options serve the same catchments and as such are ranked equally in relation to Land Use Policy and Residential Population and Employment Catchments. Similarly, in terms of Transport Network Integration, as all options follow the same route, the opportunity for interchange with other routes is equal.

In terms of Cycle Network Integration, as set out in Section 6.2.1 an assessment of cycle route options was carried out independently to identify the preferred cycle route option and this option was applied to all four CBC route options with the exception of NL1, the EPR Option. It is deemed that the two-cycle track offers benefits over the two single cycle track in terms of comfort and safety when comparing the number of drive-ways and accesses which need to be crossed. Hence NL1 performed slightly worse than all other options.

Options NL1 and NL2 perform the best under traffic network integration as all movements would be permitted along Nutley Lane. Options NL3 and NL4 perform worse than other options under the Traffic Network Integration criterion, due to the detours required for through traffic as a result of a bus gate and one-way system, with NL3 performing the worst of the two.

All options rank equally under Accessibility & Social Inclusion as they all follow the same route.

Options NL1 and NL2 performed best under Road Safety due to no turning movements of buses being necessary and only one signalised junction for buses to manoeuvre. Option NL4 also performed well but slightly less due to the southbound bus lane crossing the traffic lane at the end of the one-way arrangement. Options NL3 and NL5 both require an additional signalised junction and associated turning movements.

All options rank equally under Pedestrian Safety as each provides footpaths throughout with dedicated signalised crossing points to connect footpaths as appropriate.

All options rank equally under Archaeology & Cultural Heritage, Architectural Heritage, and Soils, Geology & Hydrogeology as they all have no appreciable impacts.

Option NL1 performs poorly under Flora & Fauna due to this option requiring the largest number of trees to be removed as on street trees are removed on both sides of the road as opposed to options NL2, NL4, and NL5 which retain the majority of trees on the residential side of the road. NL3 requires the least number of trees to be removed and as such performs the best.

Similarly, with Landscape & Visual, option NL3 performs the best with the retention of much of the existing trees on both sides of the road. Each of NL2, NL4, and NL5 remove the trees on the eastern side of the road, but NL2 performs the worst of the three, due to the impact upon property boundary along the golf

course. NL1 performs the worst due to the removal of majority of on street trees along with the impact to properties on both sides of the road.

Option NL3 is ranked highest under Air Quality as this option removes all through traffic from a large section of Nutley Lane. Options NL1, NL2 and NL5 could continue to facilitate through traffic and are ranked worst accordingly;

Similarly, NL3 is ranked the best under Noise & Vibration due to the anticipated traffic volumes on Nutley Lane. Aside from NL1, proximity of road edge to residential properties is equivalent across all options, as such it performs the worst in this sub-criterion.

Option NL1 is ranked lower than the other options under Land Use Character primarily due to this option requiring the removal of the largest number of trees and having the most significant impact on adjacent property boundaries.

A summary of the assessment and relative ranking of route options against the five main assessment criteria is presented in **Table 6.9**.

Table 6.9: Section 2 MCA Criteria Summary

Appraisal Criteria	Option NL1	Option NL2	Option NL3	Option NL4	Option NL5
1 Economy					
2 Integration					
3 Accessibility & Social Inclusion					
4 Safety					
5 Environment					

6.2.3.4 Section 2 Conclusion and Draft Preferred Option

Based on the assessment undertaken, route options NL2 and NL4 offer more benefits over the other options without any significant disadvantages.

However, due to the difference in benefits and negatives associated with both options, no option clearly performed better than the other option in this MCA.

It was therefore recommended that both options be further considered and presented to Residents, Stakeholders and the General Public for further consultation together with an assessment of traffic models of both options, prior to finalisation of the PRO.

6.2.3.5 Section 2 Additional Assessment

The two options NL2 and NL4 were included within the documentation published in March 2020, with this second round of public consultation commencing on 4th March 2020 to the 17th of April 2020. Within the consultation documents the options were presented as follows:

- Option A [NL2] – Two-way General Traffic (four lanes)

- Option B [NL4] – One-way Northbound General Traffic (three lanes)

In terms of the number of submissions received, there was an even split between submissions in support of NL2 and NL4. It is noted that, although a number of submissions specifically indicated their preference for one or other of the options, a number of submissions referred to impacts of NL4 in relation to potential traffic disruptions and impact on residential access without specifically stating a preference for NL2.

This was taken into consideration, along with additional assessment of available information including initial traffic modelling results and additional topographical survey data received.

When comparing the two options against each other, NL2 performs better under the Integration and Safety criteria due to the benefits in Traffic Network Integration and the bus movements as regards Road Safety. NL4 performs better under the Environment criterion largely due to the fact that the linear hedgerow would be retained along the Elm Park Golf Club boundary and traffic volumes along the route would be reduced relative to NL2 which has no restrictions to general traffic. NL4 also performs better under Economy due to the lower Capital Cost.

While NL4 did perform well under many sections, the impacts in relation to traffic network integration are considerably more than NL2. In particular the likely associated impacts on surrounding residential streets due to potential rat-running – e.g. on Ailesbury Road and Nutley Road (or alternatively Nutley Avenue, if the current cul-de-sac were to be opened) – and/or due to local traffic detouring onto other streets such as Ailesbury Road and Nutley Road. This, as well as the feedback received through public consultations has led to a decision where NL4 is not being carried forward in the Draft PRO published in the third non-statutory public consultation.

Based on the above assessment, with consideration for all information currently available, Option NL2 is therefore the draft preferred option for Nutley Lane, for the following reasons:

- It provides physical bus priority along the entire section;
- It provides a continuous high-quality cycle facility along its length;
- It significantly reduces the number of trees required to be removed relative to the EPR Option;
- It significantly reduces the amount of land acquisition necessary relative to the EPR Option; and
- All local access and through movements for all modes in both directions are retained.

7. Draft Preferred Route Option

7.1 Introduction

Chapter 6 of this report presents an appraisal of all route options considered for the UCD Ballsbridge to City Centre CBC. Following this appraisal, the preferred options have been incorporated into the full proposed route of the CBC to form an end-to-end draft PRO. This chapter of the report presents and describes the draft PRO identified and the draft PRO scheme design. The updated draft PRO scheme design drawings are included in the Appendices of this report.

7.2 Draft Preferred Route Description

The draft Preferred Route is presented in **Figure 7.1**.

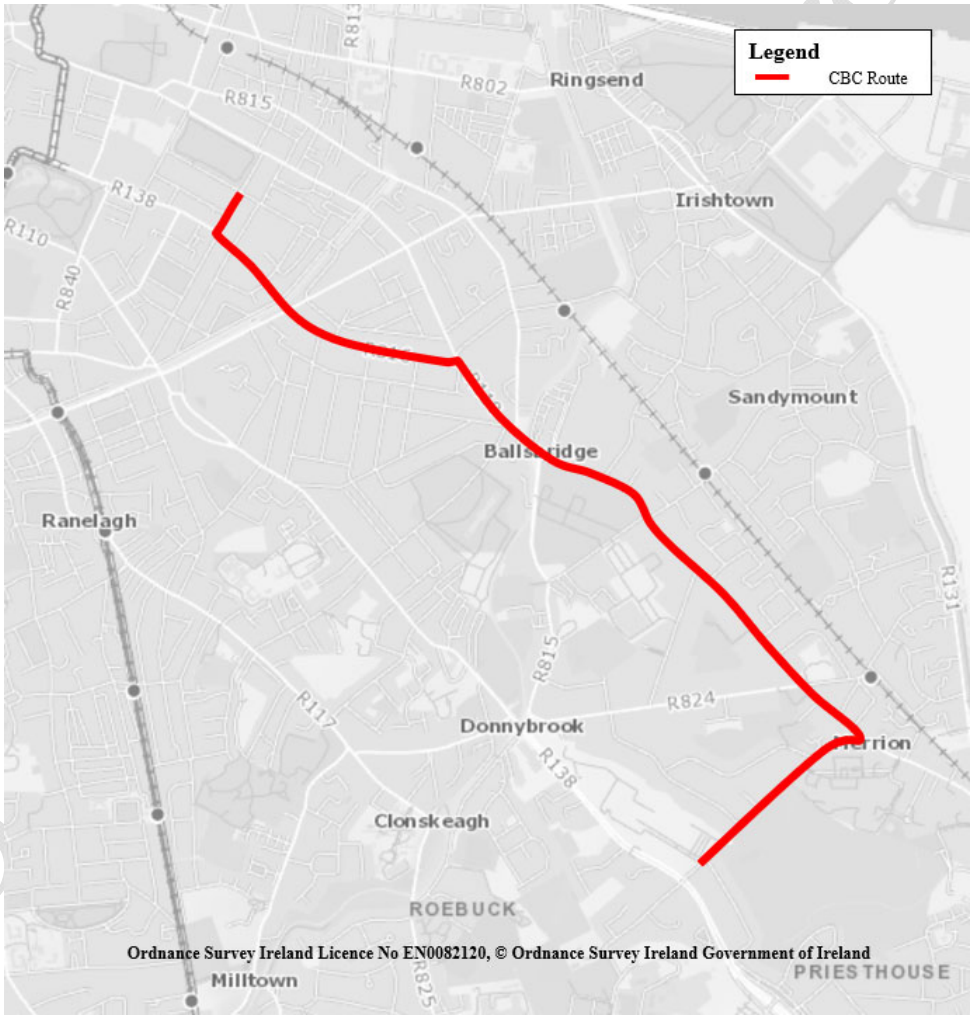


Figure 7.1: Draft Preferred Route of the CBC

The CBC commences on Fitzwilliam Street at the junction with Mount Street Upper / Merrion Square South / Merrion Square East. It routes along Fitzwilliam Street, turning onto R816 Baggot Street Lower at its junction with Fitzwilliam Street Lower and is then routed along R816 Baggot Street Lower, Baggot Street

Upper, Pembroke Road, through its junction with Lansdowne Road, R118 Pembroke Road, through Ballsbridge village and R118 Merrion Road to its junction with Nutley Lane. It travels along Nutley Lane from the R118 Merrion Road to the R138 Stillorgan Road where it meets the Bray to City Centre CBC.

7.3 Draft Preferred Route Option Scheme Design Description

7.3.1 Section 1: Fitzwilliam Street to Nutley Lane – Fitzwilliam Street, Baggot Street Lower, Baggot Street Upper, Pembroke Road, Merrion Road

Fitzwilliam Street

The CBC commences at the junction of Fitzwilliam Street with Mount Street Upper/ Merrion Square South/Merrion Square East before turning onto Baggot Street Lower.

Along Fitzwilliam Street the proposed cross-section would provide two bus lanes and two general traffic lanes, together with the introduction of cycle tracks. No land acquisition would be required to provide this, however it would be necessary to remove all parking along this section. It is proposed to provide a dedicated, right-turn bus-only lane from Baggot Street Lower onto Fitzwilliam Street.

Baggot Street Lower

Along Baggot Street Lower, it is proposed to provide a bus lane in each direction, a vehicular lane in each direction, a cycle track in each direction and a footpath on both sides of the road. In order to maintain the majority of existing trees located in the median, it is proposed to adjust the previously developed cross section in order to retain the existing median along Baggot Street Lower. Some recessed parking bays are proposed on both sides of the road where space permits. As part of the design development a new signalised pedestrian crossing has been included on Baggot Street Lower.

At the MacCarthy Bridge (Baggot Street Bridge), where Baggot Street Lower meets Baggot Street Upper, it is proposed to widen the existing footpaths on both sides of the bridge and introduce cycle tracks on both sides of the road on the bridge. It is also proposed to reduce the number of lanes to one general traffic lane in each direction crossing the bridge which allows for the provision of improved minimum standard widths for pedestrians and cyclists crossing the canal. A previously proposed cycle crossing on the northern arm of the Baggot Street Lower arm of the Herbert Place junction has been replaced by a dedicated pedestrian crossing.

Baggot Street Upper

At Baggot Street Upper on the inbound approach to Mespil Road, it is proposed to reduce the number of lanes at the junction from four to two. Signal Controlled Priority would be installed approaching the Mespil Road junction, where buses would be allowed to cross the bridge ahead of other traffic.

A similar facility would be provided for buses travelling outbound from Baggot Street Lower to Upper. In order to optimise the operation of this arrangement, left and right turn bans are proposed from Herbert Place and Wilton Terrace respectively onto Baggot Street Bridge, and from Mespil Road onto Baggot Street Upper.

Along Baggot Street Upper, it is proposed to reduce the width of the existing carriageway. This can be facilitated through the installation of a Bus Gate at the western end of Pembroke Road with a short section of bus lane between the Waterloo Road and Eastmoreland Place junctions.

Eastbound general traffic on Baggot Street Upper would not be permitted to access Pembroke Road and vice versa for westbound traffic on Pembroke Road. Consequently, the general traffic movement of right-turning vehicles from Baggot Street Upper to Waterloo Road would be accommodated in a single right turn lane, permitting the removal of the existing straight-ahead lane towards Pembroke Road. The proposal includes providing dedicated cycle tracks through the village while improving the Urban Realm. Some loading and parking would be retained in the Baggot Street Upper village centre.

Pembroke Road

A single Bus Gate is proposed on Pembroke Road, between the Waterloo Road and Eastmoreland Place junctions. This Bus Gate would ensure that the only traffic utilising Pembroke Road would be local traffic with a destination on or close to Pembroke Road, as well as through buses and authorised vehicles. This removes the need for four traffic lanes including dedicated bus lanes along this section of Pembroke Road, as buses would not be delayed by queuing traffic. The additional space means that existing trees along Pembroke Road would be retained, while new cycle tracks are proposed on both sides, with some on-street parking retained. The existing footpath width along this section of the route would also be retained and/or widened where the space allows. Land acquisition along this section of the route would no longer be required based on the revised proposals compared to the EPR.

Access to Pembroke Road, between Waterloo Road and Northumberland Road would be maintained via the Lansdowne Road Junction. Local access would also be maintained via Wellington Road and Raglan Road. Traffic management measures such as turning restrictions at junctions or road closures would also be considered on adjoining residential streets at suitable locations to prevent through traffic diverting inappropriately.

On Pembroke Road, from Northumberland Road to Elgin Road, it is proposed to reduce the width of the cycle track to 1.5m in places and to reduce the length of the right-turn lane from Pembroke Road onto Lansdowne Road. This would facilitate the retention of a number of existing trees along this section of Pembroke Road. The splitter island on Pembroke Road approaching the Northumberland Road junction as per the EPR Option is now proposed to be omitted due to the lack of space identified by the topographical survey.

Ballsbridge

At the Ballsbridge junction of Shelbourne Road, Herbert Park Road and Elgin Road, it is proposed to introduce a left-turn only entry into Elgin Road from Ballsbridge, which is a change from the EPR Option to convert Elgin Road into a cul-de-sac. At this junction, the Herbert Park arm has also been realigned in order to minimise the impact on adjacent properties and to retain a number of existing trees to the east of the junction.

On the eastern side of the Dodder River, it is proposed to provide a two-way cycle track from Anglesea Road to Beatty's Avenue connected by a Toucan Crossing on the R118. This would form part of the Dodder Greenway.

Entry to Ballsbridge Avenue is proposed to be located at the current exit, while a new exit to the north is proposed, taking cognisance of the extent to which Ballsbridge Park is a private road. This would remove the requirement for vehicles to turn right onto Beatty's Avenue from the R118. The left slip road from Merrion Road to Anglesea Road is proposed to be removed, with the relocation of vehicular access to the CDETB onto Anglesea Road. The access into the City of Dublin Educational and Training Board (CDETB) premises has been positioned to minimise the impact on historic railings. The proposed road layout between Anglesea Road and Sandymount Avenue would remain largely unchanged from the EPR Option aside from the removal of the traffic islands on Merrion Road at Serpentine Avenue and associated widening of the proposed footpath.

Merrion Road

Merrion Road from Sandymount Avenue to Nutley Lane is sub-divided into three sections by its main junctions with Shrewsbury Road and Ailesbury Road. The section between Sandymount Avenue and Shrewsbury Road is proposed as a 4-lane carriageway with a bus lane and general traffic lane in both directions. There are a number of mature trees located along the footway on this section of road and the proposed layout attempts to maximise the number of trees to be retained.

In order to retain as many trees as possible, a small section of land acquisition is proposed within the grounds of the Clayton Hotel Ballsbridge, Merrion Road, whereby a new footpath and cycle lane is proposed to run behind the existing trees. This would require land acquisition of a portion of the grass frontage and railing of this property which was not previously identified in the EPR Option.

Also, along this section of Merrion Road it is proposed to reduce the footpath and cycle track widths locally in certain locations in order to retain more trees. This would locally reduce footpaths to a minimum width of 1.2m and cycle tracks to a minimum width of 1.4m over the short length of each pinch point.

Between Shrewsbury Road and Ailesbury Road, it is proposed to provide a three-lane carriageway along its length with a footpath and cycle track in each direction. The carriageway would comprise of two general traffic lanes and one bus lane, using Signal Controlled Priority to give buses priority. The direction in which the bus lanes travel would swap in the vicinity of Wanderers Rugby Football Club (WFC). From WFC to Shrewsbury Road an inbound bus lane would be provided, while from WRC to Ailesbury Road an outbound bus lane is proposed. This would permit the retention of a number of existing trees and avoids the

requirement for land acquisition from the properties adjacent to the Dutch Embassy.

The proposed cross section reverts to a four-lane proposal between Ailesbury Road and Nutley Lane. This would require land acquisition, as previously identified in the EPR Option, with the exception of St. Michaels College where land acquisition would no longer be required. At Merrion View Avenue, the existing gate accessing a residential laneway has been retained in its existing location, which was proposed to be relocated in the draft PRO published in March 2020.

On approach to Nutley Lane, it is proposed to remove the splitter island between the bus lane and the straight-ahead general traffic lane and provide Signal Controlled Priority at the pedestrian crossing between Ailesbury Road and Nutley Lane. This would permit buses accessing Nutley Lane to move into the right turn general traffic lane and complete their manoeuvre from this lane. This in turn facilitates continuous bus and cycle lanes along Merrion Road southbound through the junction.

7.3.2 Section 2: Nutley Lane (Merrion Road to R138)

From its junction with Merrion Road to the access junction to St. Vincent's Hospital, the proposed layout is largely in keeping with the previous proposal in the EPR Option.

From St. Vincent's Hospital Access to Nutley Park, it is proposed that four lanes, two bus lanes and two general traffic lanes would be provided on the carriageway. A two-way, 3.0m wide cycle track is proposed on the Elm Park side of the road, from St. Vincent's to Nutley Park. A Toucan Crossing is proposed at the St. Vincent's junction to connect the two-way cycle track to the single cycle tracks to the north. No footpath is proposed on the Elm Park Golf Club side of road over this section from just south of the St. Vincent's junction, with a pedestrian crossing provided at this location. The existing footpath on the north-western side of the road is proposed to be retained, which in turn would allow the trees on this side of the road to also be retained.

From Nutley Road to the Stillorgan Road it is proposed to retain this overall cross section, aside from the reintroduction of the footpath on the south east side, just north of the Elm Park Golf Club entrance. A pedestrian crossing would be provided at this location as well as the switch over of the two-way cycle track.

It is proposed that the two-way cycle track would continue past the entrance to Elm Park Golf Club before crossing onto the RTE side via a Toucan Crossing just north of Nutley Park. The two-way cycle track would then continue on the RTE side to tie in with the proposals for the R138 junction where it joins the Bray to City Centre CBC. This proposal retains the requirement for land acquisition from the properties currently occupied by RTE and Eir.

In relation to the EPR Option, this layout reduces the extent of land acquisition required from St. Vincent's Hospital and the Elm Park golf course and avoids the need for land acquisition from the residential properties along this road.

7.4 Summary

7.4.1 Infrastructure Provision

The draft PRO is approximately 4.3km long from end to end. The updated concept scheme design drawings show the extent of the infrastructure proposed to deliver this CBC. The bullet points below present the length of existing and proposed bus and cycle priority as a percentage of the overall route length.

- *16*% Existing bus priority (outbound) *(16% physical)*
- *34*% Existing bus priority (citybound) *(34% physical)*
- *100*% Proposed bus priority (outbound) *(78% physical – 22% virtual)*
- *100*% Proposed bus priority (citybound) *(81% physical – 19% virtual)*

- *36*% Existing cycle priority (outbound) (*16% mandatory cycle lane – 20% advisory cycle lane*)
- *14*% Existing cycle priority (citybound) (*14% advisory cycle lane*)
- *100*% Proposed cycle priority (outbound)
- *100*% Proposed cycle priority (citybound)

Virtual bus priority measures are proposed at the following locations:

1. Baggot Bridge and Baggot Street Upper between Herbert Place and Baggot Village (inbound and outbound) – Approximately 90m length inbound and Approximately 145m length outbound;
2. Pembroke Road between Eastmoreland Plan and Northumberland Road (inbound and outbound) – Approximately 480m length;
3. Merrion Road between Ailesbury Road and Wanderers Rugby Football Club (WFC) (inbound) – Approximately 250m length; and
4. Merrion Road between Wanderers Rugby Football Club (WFC) and Shrewsbury Road (outbound) – Approximately 305m length.

7.4.2 Material Scheme Changes

The following list highlights the material scheme changes between the published EPR Option and the draft PRO proposals:

- The proposed scheme has been extended to include Fitzwilliam Street from Baggot Street to Merrion Square.
- The existing median along Baggot Street Lower is proposed to be retained and a new signalised pedestrian crossing is proposed south of James Street East.
- The cross-section of Baggot Street Upper is proposed to be adjusted to reduce the carriageway width and improve the urban realm.
- A bus gate is proposed on Pembroke Road at the Baggot Street end, permitting the removal of bus lanes along Pembroke Road. Land acquisition along Pembroke Road would no longer be required.
- A large proportion of trees to be retained between Northumberland Road and Ballsbridge by revising the alignment of the road.
- A left turn entry only to Elgin Road from Ballsbridge is proposed.

- At the Ballsbridge Junction, the Herbert Park arm has been realigned in order to minimise the impact on adjacent properties and to retain a number of existing trees to the east of the junction.
- At the Anglesea Road / Merrion Road junction, the access into the City of Dublin Educational and Training Board (CDETB) premises has been relocated with the removal of the left turn slip, and had be positioned to minimise the impact on historic railings.
- A revised access to Ballsbridge Avenue with and entry and exit from Ballsbridge Park is proposed.
- Land acquisition from the Clayton Hotel Ballsbridge, Merrion Road, is proposed.
- Revisions to the road layout on Merrion Road between Shrewsbury Road and Sandymount Avenue to reduce impacts on trees.
- A three-lane option with back-to-back bus lanes and signal controlled priority is proposed on Merrion Road between Shrewsbury Road and Ailesbury Road.
- A two-way cycle track and removal of footpath is proposed along Nutley Lane in front of Elm Park. The two-way cycle track continues on Nutley Lane crossing via a toucan crossing continuing in front of RTE.
- Bus stop locations have been modified in this revised proposal – with some bus stops relocated or removed to achieve a better spacing between stops, while also ensuring that each stop is sited in the best location to serve surrounding neighbourhoods. These proposals will also ensure a more efficient bus network operation.

In developing the Draft PRO, consideration has been given to the carbon generated by the scheme during construction. Many of the changes made to the scheme design since the EPR proposal have resulted in a change in the construction carbon generated by the scheme. Notable changes include the following:

- Retention of the existing median and the majority of the existing kerb lines on Baggot Street Lower along with the existing trees within the median;
- Retention of the majority of existing kerb lines on Pembroke Road, along with the retention of a significant number of trees and the removal of all road widening into adjacent properties;
- Revisions to the proposed road layout on Merrion Road, including a three-lane section, which significantly reduces the number of trees to be removed and the extent of road widening required; and
- Retention of the majority of the existing kerb line on the western side of Nutley Lane, along with revisions to the cross section, which significantly reduces the extent of construction works, removal of trees, and widening into adjacent properties.

Construction carbon will continue to be considered and assessed as part of the evolving scheme design and the preparation of the supporting EIAR documentation.

7.4.3 Scheme Benefits

7.4.3.1 Bus Journey Times

Through the provision of increased bus priority infrastructure, the proposed scheme would improve both the overall journey times for buses along the route and their journey time reliability. This can help to realise the objectives of the scheme as set out in Section 2.5 of this report. The facilitation of bus priority along the CBC, through the delivery of dedicated bus lanes and virtual bus priority measures such as bus gates and signal controlled priority, is envisaged to reduce bus journey times along the CBC. In addition to this, journey reliability is envisaged to be improved, by largely removing interaction between bus traffic and general traffic.

7.4.3.2 Walking & Cycling

In addition to the improvements to bus journey time and journey time reliability as discussed in section 7.4.3.1, the proposed scheme would provide benefits for cyclists and pedestrians. The provision of dedicated cycling infrastructure along the CBC, would improve the level of service provided for cyclists along the route, making cycling trips safer and more attractive.

The scheme would deliver substantial elements of the GDA Cycle Network Plan as outlined in Section 4.5, as well as linking with other proposed cycling schemes, contributing towards the development of a comprehensive cycling network for Dublin.

The scheme would also provide improved facilities for pedestrians along the route. Improved crossing facilities would be provided both at junctions and in mid-block locations.

A number of public realm upgrades, including widened footpaths, high quality hard and soft landscaping and street furniture would be provided in areas of high activity to contribute towards a safer, more attractive environment for pedestrians.

8. Next Steps

This report has identified a draft PRO for the bus infrastructure along this CBC for which an updated concept design has been developed.

It has been determined by NTA that a third non-statutory public consultation is to be conducted prior to finalising the PRO. This public consultation is to commence in November 2020, when submissions will once again be invited from the public on the draft PRO.

Following the non-statutory public consultations and subsequent review of the submissions received therein, the Draft PRO designs for the CBC will be further developed to form a Preliminary Design.

This next project stage (the development of a Preliminary Design) will further refine and update the concept design along the route. Further account will be taken of likely public transport service levels, particularly the bus service patterns and any changes to the overall bus network which may arise from the separate bus network review process. The proposals will be amended, if and as required, to integrate any resultant changes. The Preliminary Design will define the final practically achievable scheme for the CBC, considering more detailed studies of constraints, impacts and environmental assessment required at a local level.

This Preliminary Design will form the basis of the planning consent process for the scheme, which will require a development consent application to be made directly to An Bord Pleanála, due to the nature and extent of the proposed works.

Appendix A

Section 1a Fitzwilliam Street Lower Route Options Assessment MCA Tables

Table A.1: Fitzwilliam Street MCA

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
1 Economy	**1A Capital Cost**	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment and site clearance along the length of the section - Construction of new cycle lanes ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment and site clearance along the length of the section - Construction of new cycle lanes and parking bays ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment and site clearance along the length of the section - Construction of parking bays ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment and site clearance along the length of the section - Construction of new cycle lanes and parking bays ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected
	Rank				

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
	1B Transport Quality & Reliability	Journey Time Inbound: 18s Journey Time Outbound: 18s Length: 0.150 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Full physical bus priority in both directions.	Journey Time Inbound: 23s Journey Time Outbound: 23s Length: 0.150 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Virtual bus priority provided by bus gate.	Journey Time Inbound: 33s Journey Time Outbound: 33s Length: 0.150 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Reduced bus priority despite bus lanes in both directions due to likelihood of cyclist cycling in bus lanes.	Journey Time Inbound: 28s Journey Time Outbound: 28s Length: 0.150 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Full physical bus priority provided in bus lanes. Virtual bus priority provided by the signal controlled priority where there are no bus lanes.
	Rank				
2 Integration	**2A Land Use Policy**	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.
	Rank				
	2B Residential Population and Employment Catchments	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.
	Rank				
	2C Transport Network Integration	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
	2D Cycle Network integration	High quality Cycle facilities provided along Secondary Route C7 in the GDA Cycle network plan.	High quality Cycle facilities provided along Secondary Route C7 in the GDA Cycle network plan.	Non-segregated Cycle facilities provided along Secondary Route C7 in the GDA Cycle network plan due to cycling in the bus lane.	High quality Cycle facilities provided along Secondary Route C7 in the GDA Cycle network plan.
	Rank				
	2E Traffic Network Integration	No restrictions to general traffic.	In-bound through traffic diverted via Herbert Street and Mount Street Upper. Outbound through traffic diverted via Mount Street Upper and Herbert Lane.	No restrictions to general traffic.	No diversions for general traffic. Delays due to signal controlled priority and reduced queuing capacity.
	Rank				
3 Accessibility & Social Inclusion	**3A Key Trip Attractors**	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.
	Rank				
	3B Deprived Geographic Areas	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
4 Safety	**4A Road Safety**	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.
	Rank				
	4B Pedestrian Safety	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.
	Rank				
5 Environment	**5A Archaeology & Cultural Heritage**	No impact to recorded monuments within the study area.	No impact to recorded monuments within the study area.	No impact to recorded monuments within the study area.	No impact to recorded monuments within the study area.
	Rank				
	5B Architectural Heritage	No impact on protected structures.	No impact on protected structures.	No impact on protected structures.	No impact on protected structures.
	Rank				
	5C Flora & Fauna	Requires the removal of 0 trees in public areas and 0 trees in private areas. Total trees impacted: 0	Requires the removal of 0 trees in public areas and 0 trees in private areas. Total trees impacted: 0	Requires the removal of 0 trees in public areas and 0 trees in private areas. Total trees impacted: 0	Requires the removal of 0 trees in public areas and 0 trees in private areas. Total trees impacted: 0
	Rank				
	5D Soils, Geology & Hydrology	No appreciable impact	No appreciable impact	No appreciable impact	No appreciable impact

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
	Rank				
	5E Landscape & Visual	This option involves no loss of trees and no impact to existing properties.	This option involves no loss of trees and no impact to existing properties.	This option involves no loss of trees and no impact to existing properties.	This option involves no loss of trees and no impact to existing properties.
	Rank				
	5F Air Quality	Possible impact on air quality due to the introduction of two bus lanes over the full length of this section of Fitzwilliam Street and retention of both general traffic lanes.	Possible positive impact on air quality due to only two lanes being provided over the section, and reduction in through traffic.	Possible impact on air quality due to the introduction of two bus lanes over the full length of this section of Fitzwilliam Street and retention of both general traffic lanes.	Possible impact on air quality due to the introduction of two bus lanes over the majority of this section of Fitzwilliam Street and retention of both general traffic lanes.
	Rank				
	5G Noise & Vibration	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of this section of Fitzwilliam Street and retention of both general traffic lanes. Proximity of road edge to properties is decreased compared to existing on both sides of the road over the majority of the section due to introduction of cycle lanes.	Possible positive impact on noise and vibration due to only two lanes being provided over the section, and reduction in through traffic. Proximity of road edge to properties is decreased significantly compared to existing on both sides of the road over the majority of the section.	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of this section of Fitzwilliam Street and retention of both general traffic lanes. Proximity of road edge to properties is decreased compared to existing on both sides of the road over the majority.	Possible impact on noise and vibration due to the introduction of two bus lanes over the majority of this section of Fitzwilliam Street and retention of both general traffic lanes. Proximity of road edge to properties is decreased significantly compared to existing on both sides of the road over the majority of the section.

Appraisal Criteria	Sub-Criteria	**Option FS1** (Full Cross Section - continuation of EPR Option)	**Option FS2** (2-lanes with Bus Gate)	**Option FS3** (Cycling in Bus Lane - retain parking)	**Option FS4** (3-lanes with back-to-back bus lanes)
	Rank				
	5H Land Use Character	This option involves no loss of trees and no impact to existing properties. This option results in the loss of all existing on-street parking along the section.	This option involves no loss of trees and no impact to existing properties. This option retains on street parking on both sides of the road, however, is a reduction on existing.	This option involves no loss of trees and no impact to existing properties. This option retains on street parking on one side of the road, however, is a reduction on existing.	This option involves no loss of trees and no impact to existing properties. This option retains on street parking over the full section on alternating sides of the road, however, is a reduction on existing.
	Rank				

Appendix B

Section 1b Pembroke Road
Route Options Assessment MCA
Tables

Table B.1: Pembroke Road MCA

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
1 Economy	**1A Capital Cost**	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance along the length of the section - Construction of new cycle lanes ***Land Acquisition Cost*** 1,150 sqm Private Land 33 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Construction of new cycle lanes ***Land Acquisition Cost*** 135 sqm Private Land 8 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment - Construction of new cycle lanes ***Land Acquisition Cost*** 151 sqm Private Land 12 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate kerb realigning and site clearance - Construction of new cycle lanes ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected
	Rank				
	1B Transport Quality & Reliability	Journey Time Inbound: 1.3 mins Journey Time Outbound: 1.3 mins Length: 0.518 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Full physical bus priority in both directions.	Journey Time Inbound: 1.3 mins Journey Time Outbound: 1.3 mins Length: 0.518 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Full physical bus priority in both directions.	Journey Time Inbound: 1.3 mins Journey Time Outbound: 1.3 mins Length: 0.516 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Full physical bus priority in both directions.	Journey Time Inbound: 1.5 mins Journey Time Outbound: 1.5 mins Length: 0.51 km No. of Junctions: 0 No. of Pedestrian Crossings: 0 Virtual bus priority provided by bus gate.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
2 Integration	**2A Land Use Policy**	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.
	Rank				
	2B Residential Population and Employment Catchments	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.
	Rank				
	2C Transport Network Integration	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.
	Rank				
	2D Cycle Network integration	High quality Cycle facilities provided along Primary Route 13A in the GDA Cycle network plan.	High quality Cycle facilities provided along Primary Route 13A in the GDA Cycle network plan.	High quality Cycle facilities provided along Primary Route 13A in the GDA Cycle network plan.	High quality Cycle facilities provided along Primary Route 13A in the GDA Cycle network plan.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
	2E Traffic Network Integration	All traffic movements retained as per current arrangement.	All traffic movements retained as per current arrangement.	In-bound through traffic restricted, however Northumberland Road and Morehampton Road are signed routes into City Centre. The inbound diversion length via Northumberland Road to Baggot Street Lower is 400m. No restrictions to outbound through traffic. No local access directly from the east end of the section. Local access much arrive via Waterloo Road / Baggot Street Upper, or via the other local diversions as appropriate.	In-bound through traffic diverted, however onto Northumberland Road and Morehampton Road which are signed routes into City Centre. The inbound diversion length via Northumberland Road to Baggot Street Lower is 400m. Outbound through traffic must divert onto Waterloo Road towards Morehampton Road on towards R138 Stillorgan Road. The outbound diversion length via Haddington Road and Northumberland Road is 300m. Local access available directly from the east. Outbound local traffic must divert along Waterloo Road and then Wellington Road and/or Raglan Road.
	Rank				
3 Accessibility & Social Inclusion	**3A Key Trip Attractors**	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.
	Rank				
	3B Deprived Geographic Areas	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
4 Safety	**4A Road Safety**	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.	No. of junctions: 0 No turn movements required.
	Rank				
	4B Pedestrian Safety	Footpaths provided throughout.	Footpaths provided throughout.	Footpaths provided throughout.	Footpaths provided throughout. This option offers the widest pedestrian footpaths and shortest roadway crossing widths, and therefore is considered to be a safer environment relative to the other options.
	Rank				
5 Environment	**5A Archaeology & Cultural Heritage**	There is a Sites and Monuments Record (SMR) zone for Baggotrath Castle within the study area. The castle is listed on the Record of Monuments and Places (DU018-055) It is noted however that no works are proposed at the cited location, and that the castle was completely demolished, and no visible surface trace survives. There therefore is likely no impact to recorded monuments within the study area.	There is a Sites and Monuments Record (SMR) zone for Baggotrath Castle within the study area. The castle is listed on the Record of Monuments and Places (DU018-055) It is noted however that no works are proposed at the cited location, and that the castle was completely demolished, and no visible surface trace survives. There therefore is likely no impact to recorded monuments within the study area.	There is a Sites and Monuments Record (SMR) zone for Baggotrath Castle within the study area. The castle is listed on the Record of Monuments and Places (DU018-055) It is noted however that no works are proposed at the cited location, and that the castle was completely demolished, and no visible surface trace survives. There therefore is likely no impact to recorded monuments within the study area.	There is a Sites and Monuments Record (SMR) zone for Baggotrath Castle within the study area. The castle is listed on the Record of Monuments and Places (DU018-055) It is noted however that no works are proposed at the cited location, and that the castle was completely demolished, and no visible surface trace survives. There therefore is likely no impact to recorded monuments within the study area.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
	5B Architectural Heritage	Impact on the boundary of 31 no. protected structures. (Approx. 0.5m to 4.5m land acquisition)	Impact on the boundary of 7 no. protected structures. (Approx. 0.5m to 1.5m land acquisition)	Impact on the boundary of 11 no. protected structures. (Approx. 0.5m to 2m land acquisition)	No impact on no protected structures.
	Rank				
	5C Flora & Fauna	Requires the removal of **3** trees in public areas and **37** trees in private areas. Total trees impacted: **40**	Requires the removal of **11** trees in public areas and **10** trees in private areas. Total trees impacted: **21**	Requires the removal of **2** trees in public areas and **14** trees in private areas. Total trees impacted: **16**	Requires the removal of **0** trees in public areas and **0** trees in private areas. Total trees impacted: **0**
	Rank				
	5D Soils, Geology & Hydrology	No appreciable impact	No appreciable impact	No appreciable impact	No appreciable impact
	Rank				
	5E Landscape & Visual	The widening works would require the removal of a number of the existing trees within the footpath. This scheme option would require land-take and removal of a significant number of trees outside the current road boundary. It is noted that 31 of the 33 properties impacted are on the Record of Protected Structures.	The widening works would require the removal of the majority of the existing trees within the footpath. This scheme option would require land-take and the removal of a number of trees outside the current road boundary. It is noted that 7 of the 8 properties impacted are on the Record of Protected Structures.	The widening works would require the removal of a number of the existing trees within the footpath. This scheme option would require land-take and removal of a number of trees outside the current road boundary. It is noted that 11 of the 12 properties impacted are on the Record of Protected Structures.	All existing trees would be retained, and no existing boundaries are affected.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
	5F Air Quality	Possible impact on air quality due to the introduction of two bus lanes over the full length of this section of Merrion Road and retention of both general traffic lanes.	Possible impact on air quality due to the introduction of two bus lanes over the full length of this section of Merrion Road and retention of both general traffic lanes.	Possible positive impact on air quality due to only three lanes being provided over the section, and reduction in through traffic.	Possible positive impact on air quality due to only two lanes being provided over the section, and reduction in through traffic.
	Rank				
	5G Noise & Vibration	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of this section of Pembroke Road and retention of both general traffic lanes. The distance from the road edge to residential properties is decreased from existing on the southern side of the road over the majority of the section due to the road widening.	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of this section of Pembroke Road and retention of both general traffic lanes. The distance from the road edge to residential properties is decreased from existing on the northern side of the road over the majority of the section due to the removal of parking. As the properties on the northern side of the road are relatively closer to the roadway, compared to the southern side, encroachment on this is considered to be more detrimental.	Possible positive impact on noise and vibration due to only three lanes being provided over the section, and reduction in through traffic. The distance from the road edge to residential properties is decreased on the southern side of the road over the majority of the section.	Possible positive impact on noise and vibration due to only two lanes being provided over the section, and reduction in through traffic. Proximity of road edge to residential properties is decreased significantly on both sides of the road over the majority of the section.
	Rank				

Appraisal Criteria	Sub-Criteria	**Option PR1** (EPR Option realigned to avoid steps)	**Option PR2** (Removal of parking)	**Option PR3** (3-lanes with One Way outbound)	**Option PR4** (2-lanes with Bus Gate)
	5H Land Use Character	The widening works would require the removal of a number of the existing trees within the footpath. This scheme option would require land-take and removal of a significant number of trees outside the current road boundary. It is noted that 31 of the 33 properties impacted are on the Record of Protected Structures. This option would require the removal of the all on-street parking spaces on the southern side of the road, and a reduction in the number on the northern side. This option would reduce the footpath widths compared to existing, in an area of high pedestrian footfall.	The widening works would require the removal of a number of the existing trees within the footpath. This scheme option would require land-take and the removal of a number. It is noted that 7 of the 8 properties impacted are on the Record of Protected Structures. This option involves the removal of all on-street parking. This option would reduce the footpath widths compared to existing, in an area of high pedestrian footfall.	The widening works would require the removal of a number of the existing trees within the footpath. This scheme option would require land-take and removal of a number of trees outside the current road boundary. It is noted that 11 of the 12 properties impacted are on the Record of Protected Structures. This option would require the removal of all on-street parking spaces on the southern side of the road, and a reduction in the number on the northern side. This option would reduce the footpath widths compared to existing, in an area of high pedestrian footfall.	All existing trees would be retained and no existing boundaries are affected. This option would require the removal of a number of on-street parking spaces on the southern side of the road, and a reduction in the number on the northern side, however to a lesser extent than PR1 and PR2. This option would maintain or increase the footpath widths compared to existing, in an area of high pedestrian footfall.
	Rank				

Appendix C

Section 1c Merrion Road Route Options Assessment MCA Tables

Table C.1: Merrion Road MCA

Appraisal Criteria	**Sub-Criteria**	**Option MR1** (EPR Option)	**Option MR2** (3-lanes with back-to-back bus lanes)	**Option MR3** (2-lanes with Bus Gate)	**Option MR4** (3-lanes with One Way E-bound)
1 Economy	**1A Capital Cost**	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance along the length of the section - Construction of new cycle lanes - Upgrade of pedestrian crossing at Wanderers - Signalisation of Shrewsbury Road Junction - Upgrade of Ailesbury Road junction - Upgrade of pedestrian crossing at Merrion Centre ***Land Acquisition Cost*** 587 sqm Private Land 31 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Construction of new cycle lanes - Upgrade of pedestrian crossing at Wanderers - Signalisation of Shrewsbury Road Junction - Upgrade of Ailesbury Road junction - Upgrade of pedestrian crossing at Merrion Centre ***Land Acquisition Cost*** 146 sqm Private Land 4 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway realignment - Construction of new cycle lanes - Upgrade of pedestrian crossing at Wanderers - Signalisation of Shrewsbury Road Junction - Upgrade of Ailesbury Road junction - Upgrade of pedestrian crossing at Merrion Centre ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Construction of new cycle lanes - Upgrade of pedestrian crossing at Wanderers - Signalisation of Shrewsbury Road Junction - Upgrade of Ailesbury Road junction - Upgrade of pedestrian crossing at Merrion Centre ***Land Acquisition Cost*** 0 sqm Private Land 0 Properties affected
	Rank				

Appraisal Criteria	Sub-Criteria	**Option MR1** (EPR Option)	**Option MR2** (3-lanes with back-to-back bus lanes)	**Option MR3** (2-lanes with Bus Gate)	**Option MR4** (3-lanes with One Way E-bound)
	1B Transport Quality & Reliability	Journey Time Inbound: 4.0 mins Journey Time Outbound: 3.7 mins Length: 1.14 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Full physical bus priority in both directions.	Journey Time Inbound: 4.5 mins Journey Time Outbound: 4.2 mins Length: 1.14 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Full physical bus priority provided in bus lanes. Virtual bus priority provided by the signal controlled priority in back-to-back section.	Journey Time Inbound: 4.3 mins Journey Time Outbound: 4.0 mins Length: 1.14 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Virtual bus priority provided by bus gate.	Journey Time Inbound: 4.0 mins Journey Time Outbound: 3.7 mins Length: 1.14 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Full physical bus priority in both directions.
	Rank				
2 Integration	**2A Land Use Policy**	Integrates with existing residential, educational & leisure uses in this established area.	Integrates with existing residential, educational & leisure uses in this established area.	Integrates with existing residential, educational & leisure uses in this established area.	Integrates with existing residential, educational & leisure uses in this established area.
	Rank				
	2B Residential Population and Employment Catchments	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.
	Rank				
	2C Transport Network Integration	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.
	Rank				

Appraisal Criteria	Sub-Criteria	Option MR1 (EPR Option)	Option MR2 (3-lanes with back-to-back bus lanes)	Option MR3 (2-lanes with Bus Gate)	Option MR4 (3-lanes with One Way E-bound)
	2D Cycle Network integration	Cycle facilities delivered along Primary route and CBC.	Cycle facilities delivered along Primary route and CBC.	Cycle facilities delivered along Primary route and CBC.	Cycle facilities delivered along Primary route and CBC.
	Rank				
	2E Traffic Network Integration	No restrictions to general traffic.	No diversions for general traffic. Delays due to signal controlled priority and reduced queuing capacity.	Inbound and Outbound through traffic and access to Ailesbury Road, Shrewsbury Road, Merlyn Road, Shrewsbury Park and majority of residential properties on Merrion Road requires diversion. Restricts access to SVH for outbound traffic. For local access within the one-way section vehicles would need to approach from via Ailesbury Road or Shrewsbury Road as appropriate depending on destination.	Inbound through traffic and access to Ailesbury Road, Shrewsbury Road, Merlyn Road, Shrewsbury Park and majority of residential properties on Merrion Road requires diversion. For local access within the one-way section vehicles from the east would need to approach from via Simmonscourt Road/Sandymount Avenue, or via Ailesbury Road and/or Shrewsbury Road.
	Rank				
3 Accessibility & Social Inclusion	**3A Key Trip Attractors**	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.	All routes service the same trip attractors.
	Rank				

Appraisal Criteria	Sub-Criteria	Option MR1 (EPR Option)	Option MR2 (3-lanes with back-to-back bus lanes)	Option MR3 (2-lanes with Bus Gate)	Option MR4 (3-lanes with One Way E-bound)
	3B Deprived Geographic Areas	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.
	Rank				
4 Safety	**4A Road Safety**	No. of junctions: 2 No turn movements required.	No. of junctions: 2 No turn movements required.	No. of junctions: 2 No turn movements required.	No. of junctions: 2 No turn movements required.
	Rank				
	4B Pedestrian Safety	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.	Footpaths provided throughout. Signalised crossings at all major junctions.
	Rank				
5 Environment	**5A Archaeology & Cultural Heritage**	No recorded monuments within the study area.	No recorded monuments within the study area.	No recorded monuments within the study area.	No recorded monuments within the study area.
	Rank				
	5B Architectural Heritage	No properties within this section are on the Record of Protected Structures. No appreciable impact	No properties within this section are on the Record of Protected Structures. No appreciable impact	No properties within this section are on the Record of Protected Structures. No appreciable impact	No properties within this section are on the Record of Protected Structures. No appreciable impact
	Rank				

Appraisal Criteria	Sub-Criteria	Option MR1 (EPR Option)	Option MR2 (3-lanes with back-to-back bus lanes)	Option MR3 (2-lanes with Bus Gate)	Option MR4 (3-lanes with One Way E-bound)
	5C Flora & Fauna	Requires the removal of 52 trees in public areas and 15 trees in private areas. Total trees impacted: 67	Requires the removal of 37 trees in public areas and 0 trees in private areas. Total trees impacted: 37	Requires the removal of 0 trees in public areas and 0 trees in private areas. Total trees impacted: 0	Requires the removal of 21 trees in public areas and 0 trees in private areas. Total trees impacted: 21
	Rank				
	5D Soils, Geology & Hydrology	No appreciable impact	No appreciable impact	No appreciable impact	No appreciable impact
	Rank				
	5E Landscape & Visual	The widening works would require the removal of the majority of the existing trees within the footpath on both sides of Merrion Road in this section. This scheme option would require land-take and removal of some trees outside the current road boundary.	The widening works would require the removal of approximately half of the existing trees within the footpath on both sides of Merrion Road in this section, with the main impact being between Ailesbury Road and Shrewsbury Road.	This option would retain all existing trees along the section as the works are contained within the existing road extents.	The widening works would require the removal of approximately one third of the existing trees within the footpath on both sides of Merrion Road in this section, with the main impact being between Ailesbury Road and Shrewsbury Road.
	Rank				
	5F Air Quality	Possible impact on air quality due to the introduction of two bus lanes over the full length of this section of Merrion Road and retention of both general traffic lanes.	Possible impact on air quality due to the introduction of two bus lanes over the majority of this section of Merrion Road and the retention of both general traffic lanes.	Possible positive impact on air quality due to only two lanes being provided over the section, and reduction in through traffic.	Possible positive impact on air quality due to only three lanes being provided over the section, and reduction in through traffic.
	Rank				

Appraisal Criteria	Sub-Criteria	Option MR1 (EPR Option)	Option MR2 (3-lanes with back-to-back bus lanes)	Option MR3 (2-lanes with Bus Gate)	Option MR4 (3-lanes with One Way E-bound)
	5G Noise & Vibration	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of this section of Merrion Road and retention of both general traffic lanes. Proximity of road edge to residential properties is increased on both sides of the road over the majority of the section.	Possible impact on noise and vibration due to the introduction of two bus lanes over the majority of this section of Merrion Road and the retention of both general traffic lanes. Proximity of road edge to residential properties is decreased on both sides of the road over the majority of the section, however to a lesser extent than MR3.	Possible positive impact on noise and vibration due to only two lanes being provided over the section, and reduction in through traffic. Proximity of road edge to residential properties is decreased significantly on both sides of the road over the majority of the section.	Possible positive impact on noise and vibration due to only three lanes being provided over the section, and reduction in through traffic. Proximity of road edge to residential properties is decreased on both sides of the road over the majority of the section, however to a lesser extent than MR3.
	Rank				
	5H Land Use Character	The widening works would require the removal of the majority of the existing trees within the footpath on both sides of Merrion Road in this section. The land-take on the northern side would impact upon existing frontages and a number of trees in private gardens.	The widening works would require the removal of approximately half of the existing trees within the footpath on both sides of Merrion Road in this section, with the main impact being between Ailesbury Road and Shrewsbury Road. This option would result in a small amount of land-take to properties at Merrion Centre and the frontage of the Clayton Hotel	This option would retain all existing trees along the section as the works are contained within the existing road extents and there is not impact to properties.	The widening works would require the removal of approximately one third of the existing trees within the footpath on both sides of Merrion Road in this section, with the main impact being between Ailesbury Road and Shrewsbury Road. There is not impact to properties.
	Rank				

Appendix D

Section 2 Nutley Lane Route Options Assessment MCA

Table D.1: Nutley Lane Alternative Cycle Route MCA

Appraisal Criteria	**Option CF1** (EPR Option)	**Option CF2** (Two-way)	**Option CF3** (Woodbine)
1 Capital Cost	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance - Dedicated cycle tracks constructed - New signalised pedestrian crossing - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 2,831 sqm Private Land 5 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance - Dedicated two-way cycle track constructed with toucan crossing - New signalised pedestrian crossing - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 2,471 sqm Private Land 5 Properties affected	***Indicative Scheme Infrastructure Works Costs on Nutley Lane*** - Moderate roadway widening and site clearance - New bus lanes added - New signalised pedestrian crossing - Upgrade of SVH signalised junction ***Indicative Scheme Infrastructure Works Costs on Woodbine*** - Major roadway widening and site clearance - Dedicated cycle tracks constructed ***Land Acquisition Cost on Nutley Lane*** 808 sqm Private Land 3 Properties affected ***Land Acquisition Cost on Woodbine*** 1,612 sqm Private Land 57 Properties affected
Rank			
2 Road Safety	5 priority side roads to traverse eastbound. 2 minor side roads and 1 signalised junction to traverse westbound. As well as crossing ~ 28 driveways / accesses in eastbound direction and 7 westbound. Segregated cycle route in both directions for 860m. 100% of the total route is segregated.	2 priority side roads and 1 signalised junction to traverse. As well as crossing ~ 7 driveways / accesses westbound. Coming from R138 cyclist required to cross stand-alone signalised crossing to get onto from RTÉ side to Elm Park Golf Club side. Segregated cycle route in both directions for 860m. 100% of the total route is segregated.	3 priority side roads to traverse eastbound. 4 minor side roads to traverse westbound. As well as crossing ~ 60 driveways / accesses in eastbound direction and ~ 59 westbound. Segregated cycle route in both directions for 1.1km. 100% of the total route is segregated.
Rank			

Appraisal Criteria	Option CF1 (EPR Option)	Option CF2 (Two-way)	Option CF3 (Woodbine)
3 Coherence	This route fully aligns with the Nutley Lane Secondary Cycle Route and overlaps with the CBC.	This route fully aligns with the Nutley Lane Secondary Cycle Route and overlaps with the CBC.	This route fully aligns with the Woodbine Road Secondary Cycle Route - however does not align with the CBC.
Rank			
4 Directness	No. of Junctions: 3 Total Length: 860m Length of parallel route: 0m All of the cycle route is on the CBC. No diversion required from the CBC for through cycle traffic or journeys between key local nodes of UCD and St. Vincent's. More likely to be used by cyclists in these cases compared to other route options	No. of Junctions: 3 Total Length: 860m Length of parallel route: 0m All of the cycle route is on the CBC. No diversion required from the CBC for through cycle traffic or journeys between key local nodes of UCD and St. Vincent's, with slightly more direct access between these nodes given the location of the two-way track. More likely to be used by cyclists in these cases compared to other route options	No. of Junctions: 7 Total Length: 3.1km Length of parallel route: 3.1km None of the cycle route is on the CBC. Long diversion required from the CBC for through cycle traffic or journeys between key local nodes of UCD and St. Vincent's. Less likely to be used by cyclists in these cases compared to other options. However, may be used for cyclists between Booterstown Dart Station and UCD.
Rank			
5 Attractiveness	Segregated cycle route in both directions for 860m. Nutley Lane has a residential character and would have both vehicular and bus traffic alongside, with landscaped edge alongside Elm Park and landscaped front gardens. There is existing public lighting on both sides of the road.	Segregated cycle route in both directions for 860m. Nutley Lane has a residential character and would have both vehicular and bus traffic alongside, with landscaped edge alongside Elm Park and landscaped front gardens. There is existing public lighting on both sides of the road.	Segregated cycle route in both directions for 1.1km. Woodbine has a residential character and would have vehicular traffic alongside, with landscaped front gardens. The existing public lighting is largely only on one side of the road - however this could be rectified as part of the works.
Rank			

Appraisal Criteria	**Option CF1** (EPR Option)	**Option CF2** (Two-way)	**Option CF3** (Woodbine)
6 Comfort	Segregated cycle route in both directions for 860m. However multiple driveway crossings may lead to cyclist discomfort.	Segregated cycle route in both directions for 860m. Minimal interactions with driveways (only 3 no.) adds to cyclist comfort and aligns with the National Cycle Manual guidance on appropriate use of two-way cycle tracks.	Segregated cycle route in both directions for 1.1km. However multiple driveway crossings may lead to cyclist discomfort.
Rank			
7 Environmental	Cross section on Nutley Lane has 1m extra width over two-way track – additional land take on Nutley Lane - however full impact will be determined based on outcome of MCA on Principle Route Options. Potential removal of existing trees on Nutley Lane however full impact will be determined based on outcome of MCA on Principle Route Options.	Cross section on Nutley Lane has 1m less width over two-way track – less land take on Nutley Lane - however full impact will be determined based on outcome of MCA on Principle Route Options. Potential removal of existing trees on Nutley Lane however full impact will be determined based on outcome of MCA on Principle Route Options.	A greater number (~59 no.) of properties impacted with approx. 1m - 2m land take consistently along a longer length. Likely removal of existing trees along Woodbine Road.
Rank			

Table D.2: Nutley Lane Route Options MCA

Appraisal Criteria	Sub-Criteria	Option NL1 (EPR Option)	Option NL2 (EPR Option with Two-way Cycle)	Option NL3 (2-lanes with Bus Gate)	Option NL4 (3-lanes with One Way N-bound)	Option NL5 (3-lanes with back-to-back bus lanes)
1 Economy	**1A Capital Cost**	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance - Dedicated cycle facilities - New signalised pedestrian crossing - Upgrade of SVH signalised junction - Additional accommodation works in Golf Course ***Land Acquisition Cost*** 2,844 sqm Private Land 12 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Major roadway widening and site clearance - Dedicated two-way cycle track constructed with toucan crossing - New signalised pedestrian crossing - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 2,471 sqm Private Land 5 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Dedicated two-way cycle track constructed with toucan crossing - New signalised pedestrian crossing - Signalisation of Nutley Road junction - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 1,656 sqm Private Land 5 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Dedicated two-way cycle track constructed with toucan crossing - New signalised pedestrian crossing - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 1,325 sqm Private Land 5 Properties affected	***Indicative Scheme Infrastructure Works Costs*** - Moderate roadway widening and site clearance - Dedicated two-way cycle track constructed with toucan crossing - New signalised pedestrian crossing - Signalisation of Nutley Road junction - Upgrade of SVH signalised junction ***Land Acquisition Cost*** 1,608 sqm Private Land 5 Properties affected
	Rank					

Appraisal Criteria	Sub-Criteria	**Option NL1** (EPR Option)	**Option NL2** (EPR Option with Two-way Cycle)	**Option NL3** (2-lanes with Bus Gate)	**Option NL4** (3-lanes with One Way N-bound)	**Option NL5** (3-lanes with back-to-back bus lanes)
	1B Transport Quality & Reliability	Journey Time Inbound: 1.9 mins Journey Time Outbound: 1.9 mins Length: 0.81 km No. of Junctions: 1 No. of Pedestrian Crossings: 0 Full physical bus priority in both directions.	Journey Time Inbound: 2.4 mins Journey Time Outbound: 2.4 mins Length: 0.81 km No. of Junctions: 1 No. of Pedestrian Crossings: 2 Full physical bus priority in both directions.	Journey Time Inbound: 2.9 mins Journey Time Outbound: 2.9 mins Length: 0.81 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Full physical bus priority provided in bus lanes. Virtual bus priority provided by bus gate.	Journey Time Inbound: 2.4 mins Journey Time Outbound: 2.4 mins Length: 0.81 km No. of Junctions: 1 No. of Pedestrian Crossings: 2 Full physical bus priority in both directions.	Journey Time Inbound: 3.1 mins Journey Time Outbound: 3.1 mins Length: 0.81 km No. of Junctions: 2 No. of Pedestrian Crossings: 2 Full physical bus priority provided in bus lanes. Virtual bus priority provided by the signal controlled priority in back-to-back section.
	Rank					
2 Integration	**2A Land Use Policy**	Integrates with existing / planned residential (Montrose campus) educational, commercial, medical and leisure uses in this established area.	Integrates with existing / planned residential (Montrose campus) educational, commercial, medical and leisure uses in this established area.	Integrates with existing / planned residential (Montrose campus) educational, commercial, medical and leisure uses in this established area.	Integrates with existing / planned residential (Montrose campus) educational, commercial, medical and leisure uses in this established area.	Integrates with existing / planned residential (Montrose campus) educational, commercial, medical and leisure uses in this established area.
	Rank					
	2B Residential Population and Employment Catchments	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.	Similar Catchment for all route options.
	Rank					
	2C Transport Network Integration	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.	Similar potential along all route options.
	Rank					

Appraisal Criteria	Sub-Criteria	Option NL1 (EPR Option)	Option NL2 (EPR Option with Two-way Cycle)	Option NL3 (2-lanes with Bus Gate)	Option NL4 (3-lanes with One Way N-bound)	Option NL5 (3-lanes with back-to-back bus lanes)
	2D Cycle Network integration	Cycle facilities delivered along Secondary route and CBC, however the two-way facility in the other options offers benefits in terms of safety and comfort.	Cycle facilities delivered along Secondary route and CBC.	Cycle facilities delivered along Secondary route and CBC.	Cycle facilities delivered along Secondary route and CBC.	Cycle facilities delivered along Secondary route and CBC.
	Rank					
	2E Traffic Network Integration	No restrictions to general traffic.	No restrictions to general traffic.	Northbound through traffic and access to Nutley Avenue, St. Vincent's Hospital, Tesco and majority of residential properties on Nutley Lane requires diversion. Restricts access to SVH. Southbound through traffic and access to Nutley Road, Elm Park GC and Nutley Park requires diversion.	Southbound through traffic restricted entirely - diverted to side roads. For local access within the one-way section vehicles would need to approach from R138 junction or via Nutley Avenue and the proposed left-out egress onto Nutley Road.	No diversions for general traffic. Delays due to signal controlled priority and reduced queuing capacity.
	Rank					
3 Accessibility & Social Inclusion	**3A Key Trip Attractors**	All routes service the same trip attractors. - St. Vincent's Hospital - RTE Studios - Planned development (Montrose campus) - Elm Park Golf Club - Hibernia College - Tesco	All routes service the same trip attractors. - St. Vincent's Hospital - RTE Studios - Planned development (Montrose campus) - Elm Park Golf Club - Hibernia College - Tesco	All routes service the same trip attractors. - St. Vincent's Hospital - RTE Studios - Planned development (Montrose campus) - Elm Park Golf Club - Hibernia College - Tesco	All routes service the same trip attractors. - St. Vincent's Hospital - RTE Studios - Planned development (Montrose campus) - Elm Park Golf Club - Hibernia College - Tesco	All routes service the same trip attractors. - St. Vincent's Hospital - RTE Studios - Planned development (Montrose campus) - Elm Park Golf Club - Hibernia College - Tesco
	Rank					
	3B Deprived Geographic Areas	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.	All routes serve areas of the same means from the Pobal Deprivation Index.
	Rank					

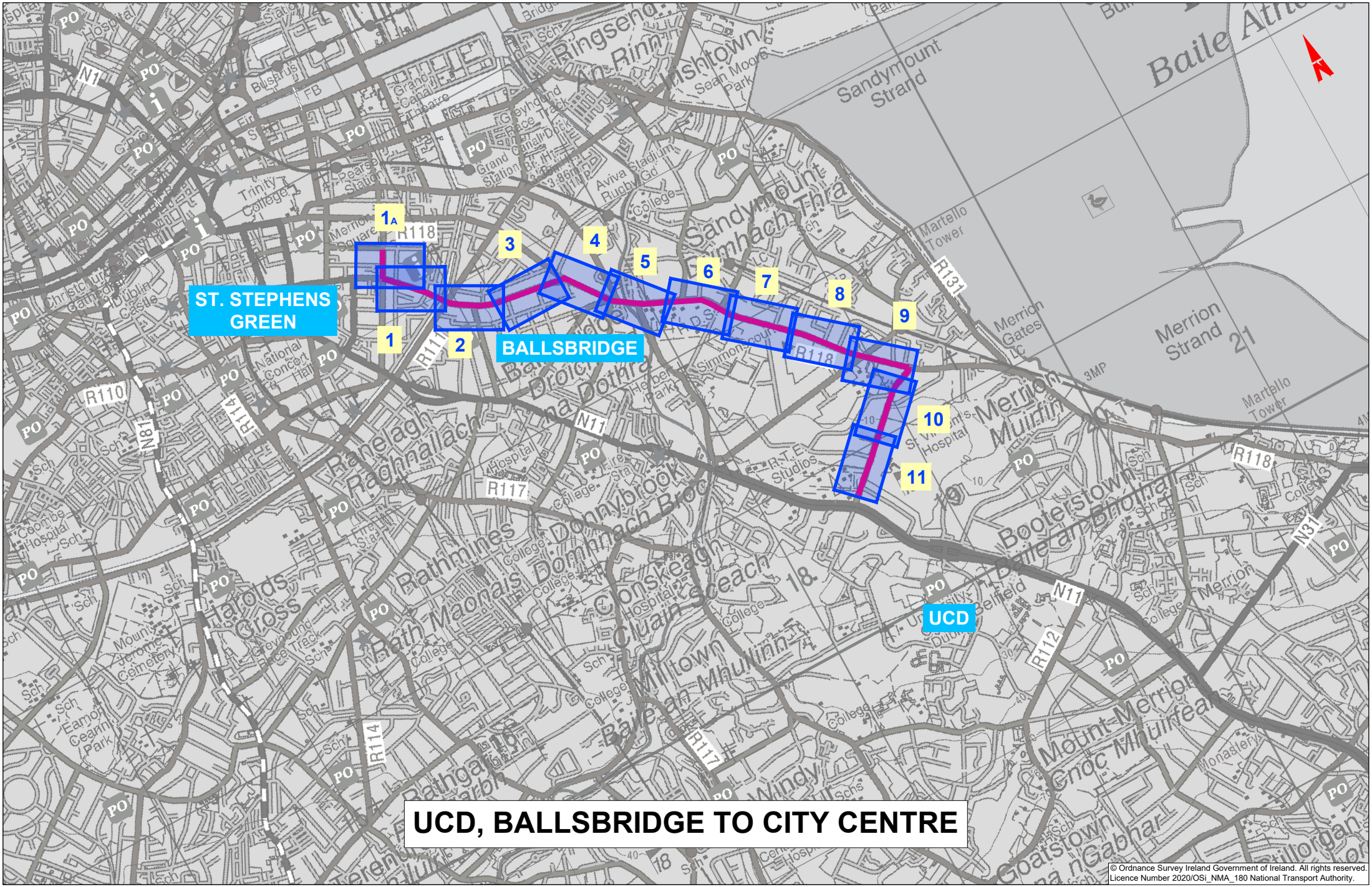
Appraisal Criteria	Sub-Criteria	**Option NL1** (EPR Option)	**Option NL2** (EPR Option with Two-way Cycle)	**Option NL3** (2-lanes with Bus Gate)	**Option NL4** (3-lanes with One Way N-bound)	**Option NL5** (3-lanes with back-to-back bus lanes)
4 Safety	**4A Road Safety**	No. of junctions: 1 No turn movements required	No. of junctions: 1 No turn movements required	No. of junctions: 2 Both directions require bus merging into general lane via controlled signals into main traffic lane at bus gate.	No. of junctions: 1 Bus must cross southbound traffic lane at each end of one-way section.	No. of junctions: 2 Both directions require bus merging into general lane via controlled signal into main traffic lane.
	Rank					
	4B Pedestrian Safety	Footpaths provided throughout with dedicated signalised crossing points to connect footpaths as appropriate. Signalised crossings at all major junctions.	Footpaths provided throughout with dedicated signalised crossing points to connect footpaths as appropriate. Signalised crossings at all major junctions.	Footpaths provided throughout with dedicated signalised crossing points to connect footpaths as appropriate. Signalised crossings at all major junctions.	Footpaths provided throughout with dedicated signalised crossing points to connect footpaths as appropriate. Signalised crossings at all major junctions.	Footpaths provided throughout with dedicated signalised crossing points to connect footpaths as appropriate. Signalised crossings at all major junctions.
	Rank					
5 Environment	**5A Archaeology & Cultural Heritage**	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.
	Rank					
	5B Architectural Heritage	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.	No appreciable impacts.
	Rank					
	5C Flora & Fauna	Requires the removal of **70** trees in public areas, approximately **27** trees in private areas, Total trees impacted: 97 Also includes the removal of approximately 200 linear m of hedgerow along Elm Park Golf Club.	Requires the removal of **47** trees in public areas, approximately **26** trees in private areas, Total trees impacted: **73** Also includes the removal of approximately 200 linear m of hedgerow along Elm Park Golf Club.	Requires the removal of **29** trees in public areas and **19** trees in private areas. Total trees impacted: **48**	Requires the removal of **50** trees in public areas and **14** trees in private areas. Total trees impacted: **64**	Requires the removal of **50** trees in public areas and **14** trees in private areas. Total trees impacted: **64**
	Rank					

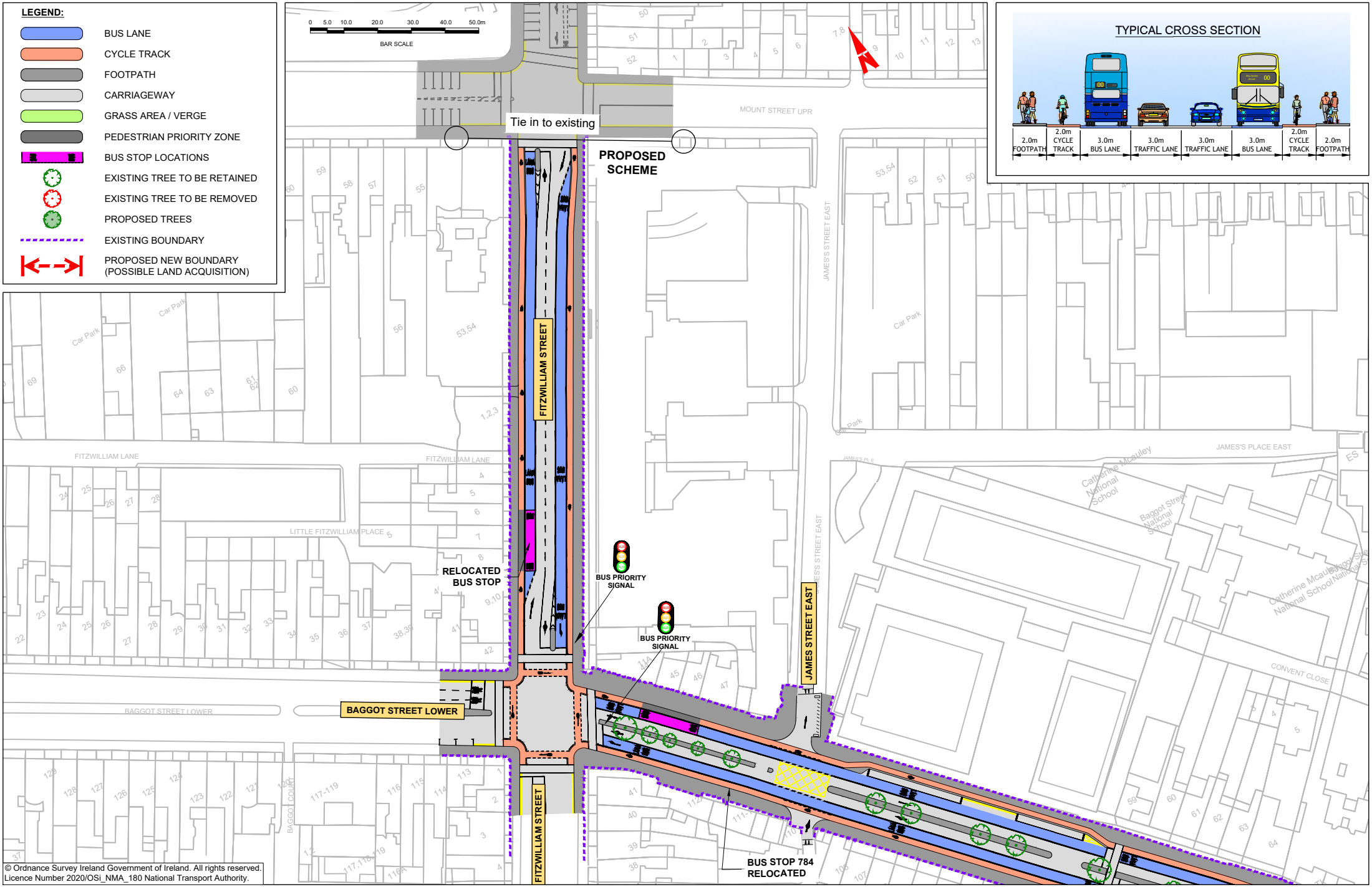
Appraisal Criteria	Sub-Criteria	Option NL1 (EPR Option)	Option NL2 (EPR Option with Two-way Cycle)	Option NL3 (2-lanes with Bus Gate)	Option NL4 (3-lanes with One Way N-bound)	Option NL5 (3-lanes with back-to-back bus lanes)
	5D Soils, Geology & Hydrology	No appreciable impact	No appreciable impact	No appreciable impact	No appreciable impact	No appreciable impact
	Rank					
	5E Landscape & Visual	The installation of bus and cycle facilities would require the removal of existing trees within the footpath on both sides of Nutley Lane. This scheme option would require land-take and removal of some trees outside the current road boundary. The land-take on the eastern side will require removal of the linear hedgerow along the Elm Park Golf Club boundary.	The installation of bus and cycle facilities would require the removal of existing trees within the footpath on the eastern side of Nutley Lane. This option retains the majority of existing street trees on the western side. This scheme option would require land-take and removal of some trees outside the current road boundary. The land-take on the eastern side will require removal of the linear hedgerow along the Elm Park Golf Club boundary.	The addition of cycle facilities in this option would likely not have a significant effect on existing tree lines and footpaths over the length of the restriction with many of the existing trees retained on both sides, while bus provision is catered for by virtual bus lane using existing road space. This scheme option would require land-take and removal of some trees outside the current road boundary.	The addition of bus and cycle facilities on Nutley Lane would require the removal of existing trees within the footpath on the eastern side of Nutley Lane. This option retains the majority of existing street trees on the western side and, unlike NL1 and NL2, retains the majority of the existing Elm Park green boundary. This scheme option would require land-take and removal of some trees outside the current road boundary.	The addition of bus and cycle facilities on Nutley Lane would require the removal of existing trees within the footpath on the eastern side of Nutley Lane. This option retains the majority of existing street trees on the western side and, unlike NL1 and NL2, retains the majority of the existing Elm Park green boundary. This scheme option would require land-take and removal of some trees outside the current road boundary.
	Rank					
	5F Air Quality	Possible impact on air quality due to the introduction of two bus lanes over the full length of Nutley Lane and retention of both general traffic lanes.	Possible impact on air quality due to the introduction of two bus lanes over the full length of Nutley Lane and retention of both general traffic lanes.	Possible impact on air quality due to the introduction of two bus lanes on the short stretches outside of the 2-lane section, however mitigated due to only two lanes being provided over a section, and reduction in through traffic.	Possible impact on air quality due to the introduction of two bus lanes over the full length of Nutley Lane, however mitigated due to the general traffic lanes reduced being reduced to one over the 3-lane section.	Possible impact on air quality due to the introduction of two bus lanes over the majority of Nutley Lane and the retention of both general traffic lanes.
	Rank					

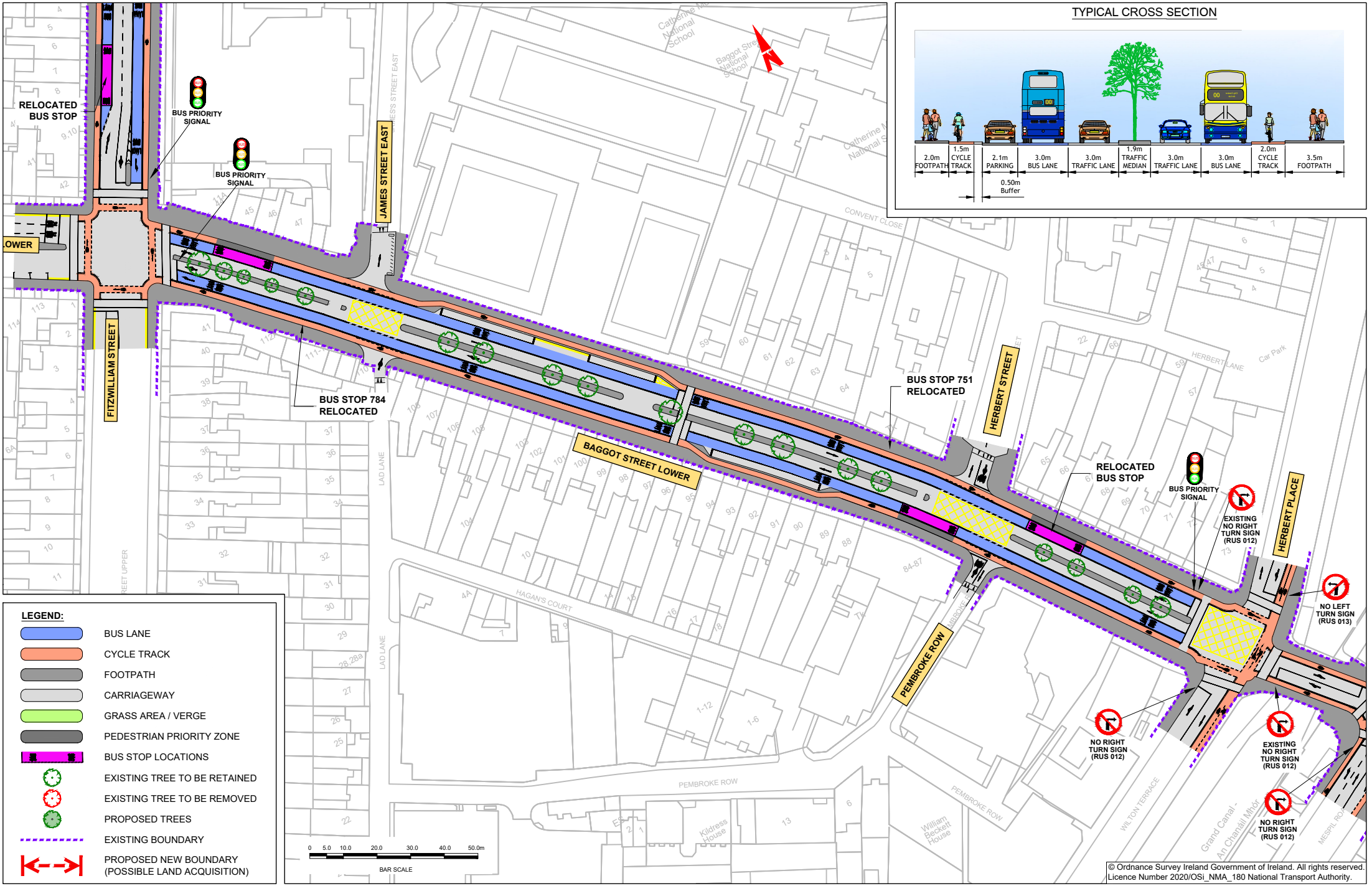
Appraisal Criteria	Sub-Criteria	Option NL1 (EPR Option)	Option NL2 (EPR Option with Two-way Cycle)	Option NL3 (2-lanes with Bus Gate)	Option NL4 (3-lanes with One Way N-bound)	Option NL5 (3-lanes with back-to-back bus lanes)
	5G Noise & Vibration	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of Nutley Lane and retention of both general traffic lanes. Along with NL2 and NL5, this option therefore has the highest expected traffic volume Unlike the other options, this option brings traffic closer to the adjacent residential properties by narrowing the footpath on the western side and encroaching into a number of properties.	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of Nutley Lane and retention of both general traffic lanes. Along with NL1 and NL5, this option therefore has the highest expected traffic volume. Aside from NL1, proximity of road edge to residential properties is equivalent across all options.	Possible impact on noise and vibration due to the introduction of two bus lanes on the short stretches outside of the 2-lane section, however mitigated due to only two lanes being provided over a section, and reduction in through traffic. This option therefore has the lowest expected traffic volume. Aside from NL1, proximity of road edge to residential properties is equivalent across all options.	Possible impact on noise and vibration due to the introduction of two bus lanes over the full length of Nutley Lane, however mitigated due to the general traffic lanes reduced being reduced to one over the 3-lane section. This option therefore has the second lowest expected traffic volume. Aside from NL1, proximity of road edge to residential properties is equivalent across all options.	Possible impact on noise and vibration due to the introduction of two bus lanes over the majority of Nutley Lane and the retention of both general traffic lanes. Along with NL1 and NL2, this option therefore has the highest expected traffic volume. Aside from NL1, proximity of road edge to residential properties is equivalent across all options.
	Rank					
	5H Land Use Character	This option for road widening along the entire length of Nutley Lane would impacts on existing tree lines on both sides of the road, reduces on-street parking provision, and encroaches into residential properties. This option would have a significant impact upon the existing sporting and commercial facilities through land take to a greater extent than other options due to it encroaching on active elements of the facility.	This option for road widening along the entire length of Nutley Lane would impact on existing tree lines and on-street parking provision, and would impact upon the existing sporting and commercial facilities through land take but to a lesser extent than NL1.	This option for road widening along short sections of Nutley Lane would impact on existing tree lines in places, and would impact somewhat upon existing sporting and commercial facilities through land take.	This option for road widening along short sections of Nutley Lane would impact on existing tree lines in places, and would impact somewhat upon existing sporting and commercial facilities through land take.	This option for road widening along short sections of Nutley Lane would impact on existing tree lines in places, and would impact somewhat upon existing sporting and commercial facilities through land take.
	Rank					

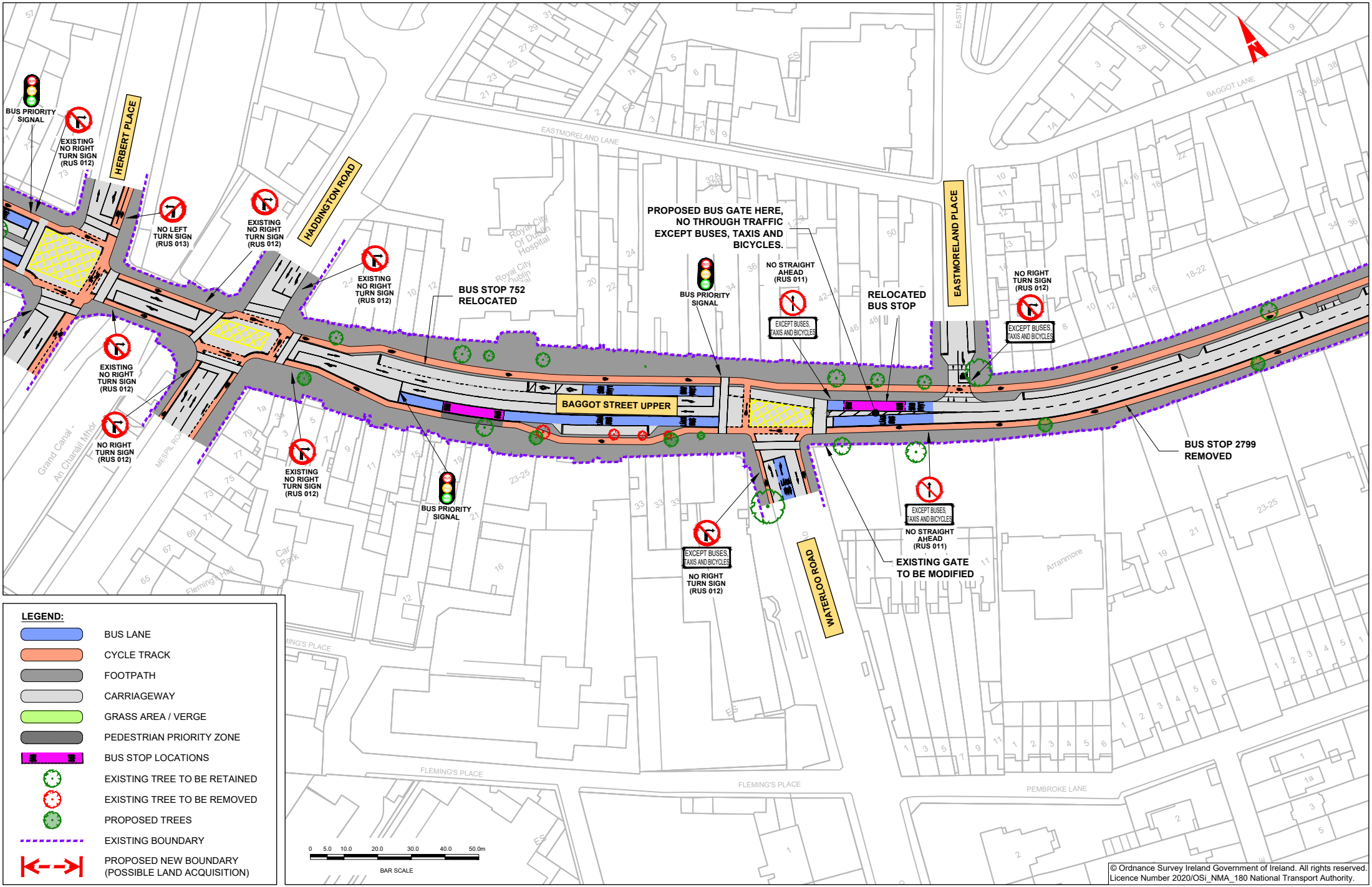
Appendix E

Updated Concept Scheme Drawings

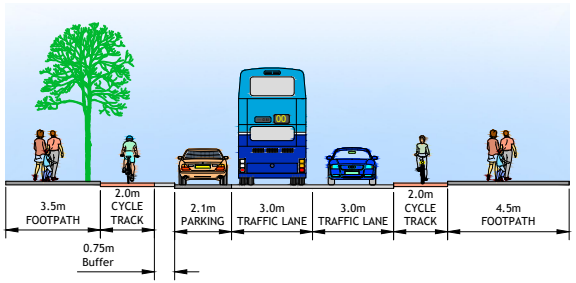








TYPICAL CROSS SECTION



BUS STOP 2796 REMOVED

RELOCATED BUS STOP

BUS STOP 2797 RELOCATED

RELOCATED BUS STOP

BUS STOP 2798 RELOCATED

PEMBROKE ROAD

WELLINGTON ROAD

RAGLAN ROAD

NORTHUMBERLAND ROAD

BAGGOT LANE

PEMBROKE LANE

RAGLAN LANE

Car Park

Embassy

Caroline Court

Pembroke Court

Carrisbrook House

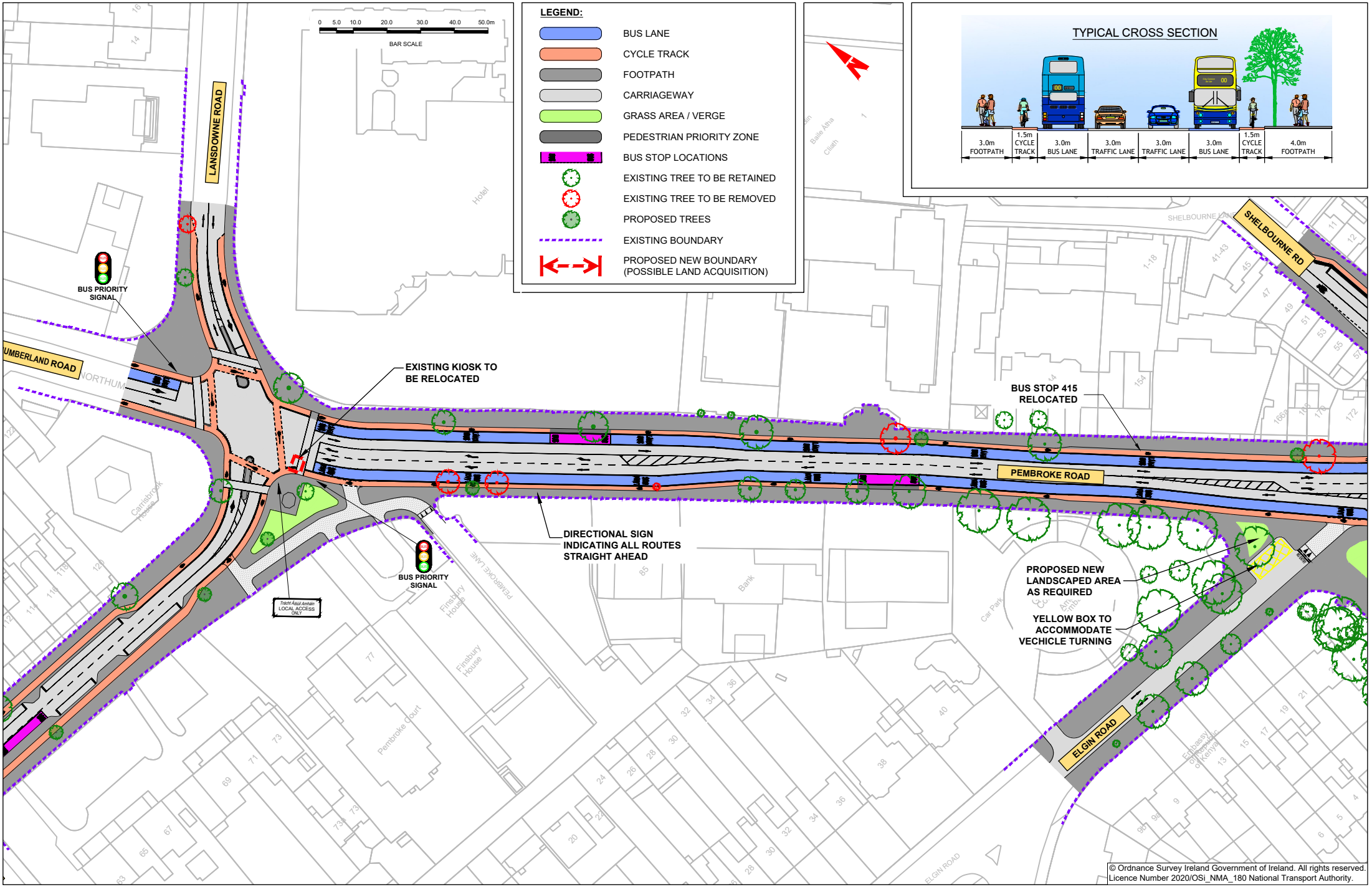
Finsbury House

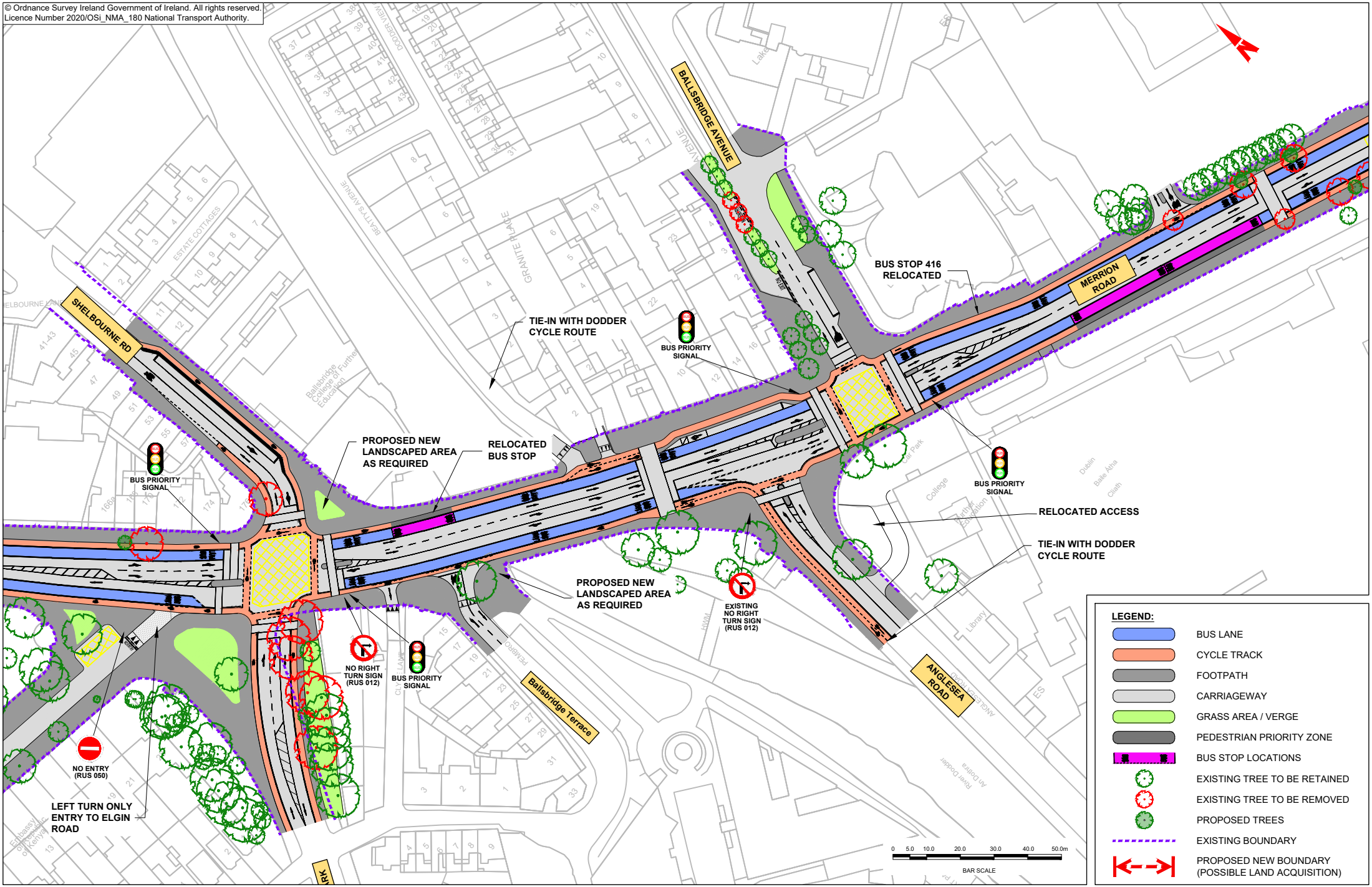
LEGEND:

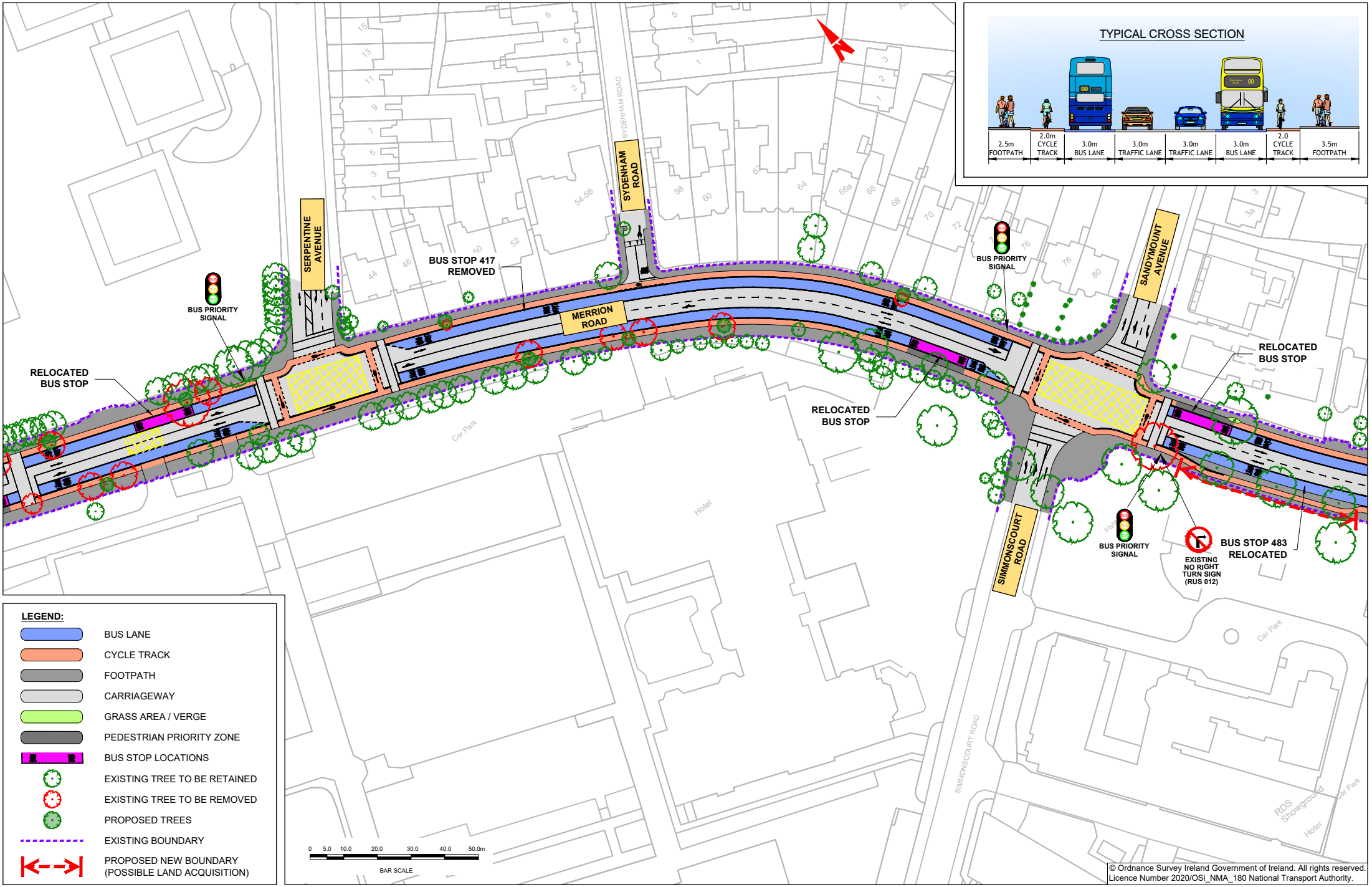
- BUS LANE
- CYCLE TRACK
- FOOTPATH
- CARRIAGEWAY
- GRASS AREA / VERGE
- PEDESTRIAN PRIORITY ZONE
- BUS STOP LOCATIONS
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PROPOSED TREES
- EXISTING BOUNDARY
- PROPOSED NEW BOUNDARY (POSSIBLE LAND ACQUISITION)

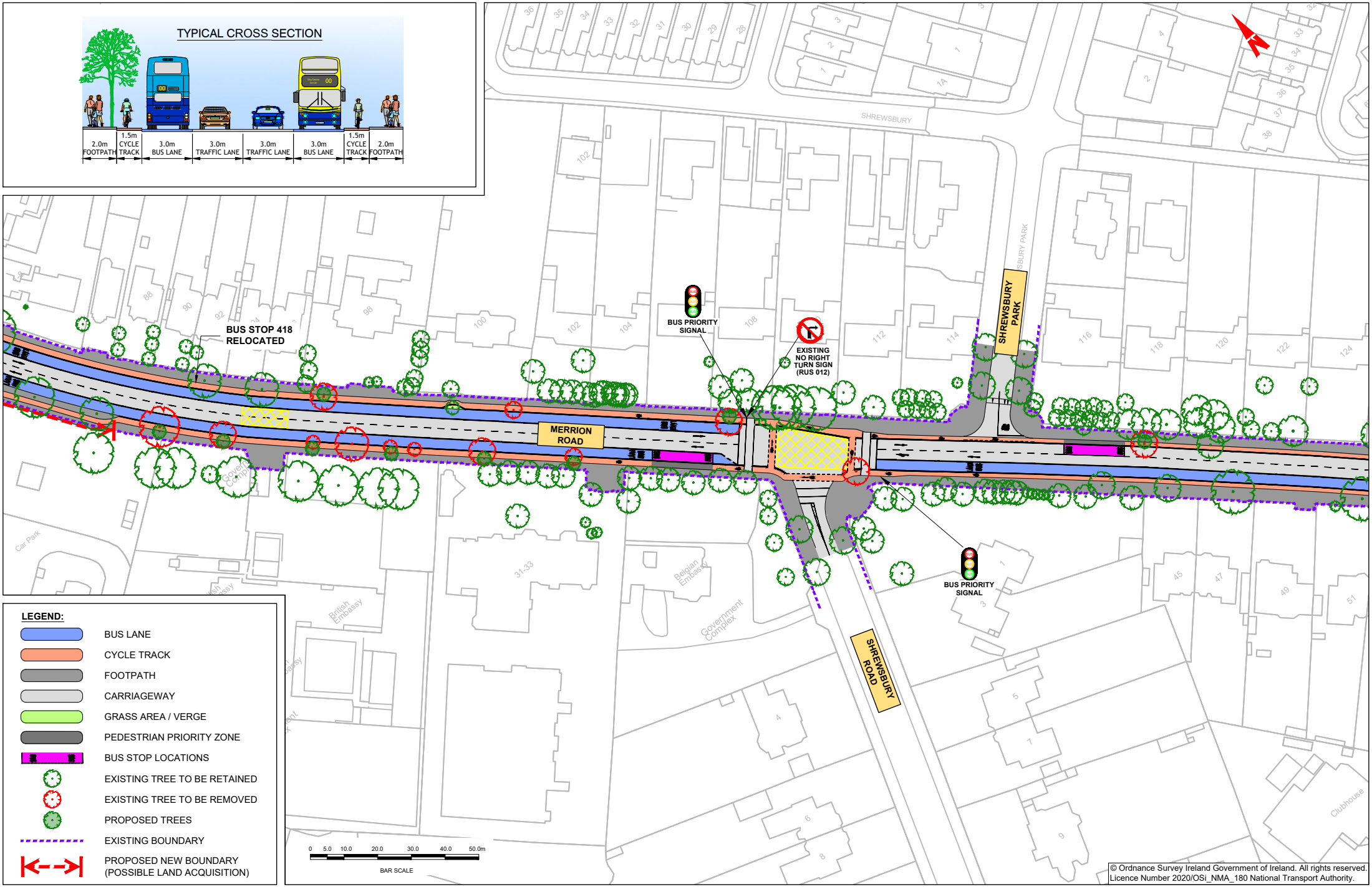
0 5.0 10.0 20.0 30.0 40.0 50.0m

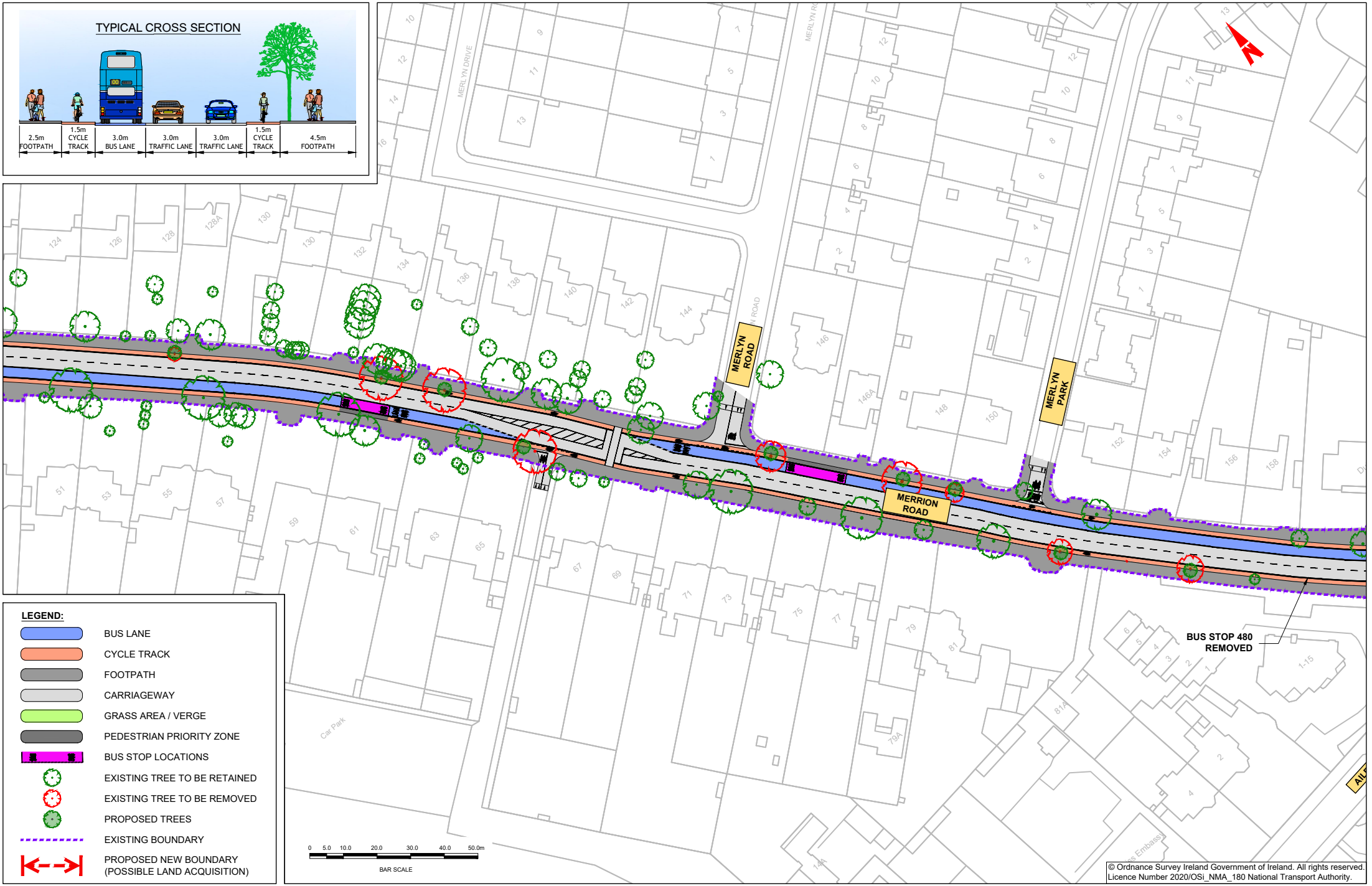
BAR SCALE

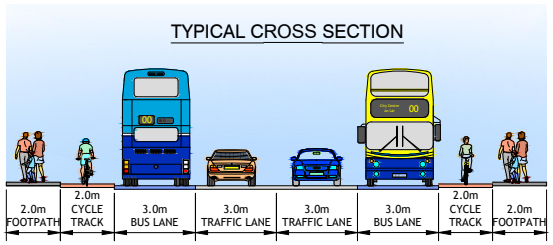












AILESBURY ROAD

BUS PRIORITY SIGNAL

BUS STOP 421 RELOCATED

RELOCATED BUS STOP

BUS PRIORITY SIGNAL

SYDNEY PARADE

AILESBURY PARK

MERRION ROAD

PROPOSED SCHEME

Blackrock to Merrion CBC

BUS PRIORITY SIGNAL

EXISTING NO RIGHT TURN SIGN (RUS 012)

RELOCATED BUS STOP

PROPOSED NEW LANDSCAPED AREA AS REQUIRED

EXISTING CAR PARKING TO BE RETAINED

BUS STOP 479 RELOCATED

BUS PRIORITY SIGNAL

NUTLEY LANE

AILESBURY ROAD

MERRION VIEW AVENUE

Saint Michael's College

The Merrion Shopping Centre

Car Park

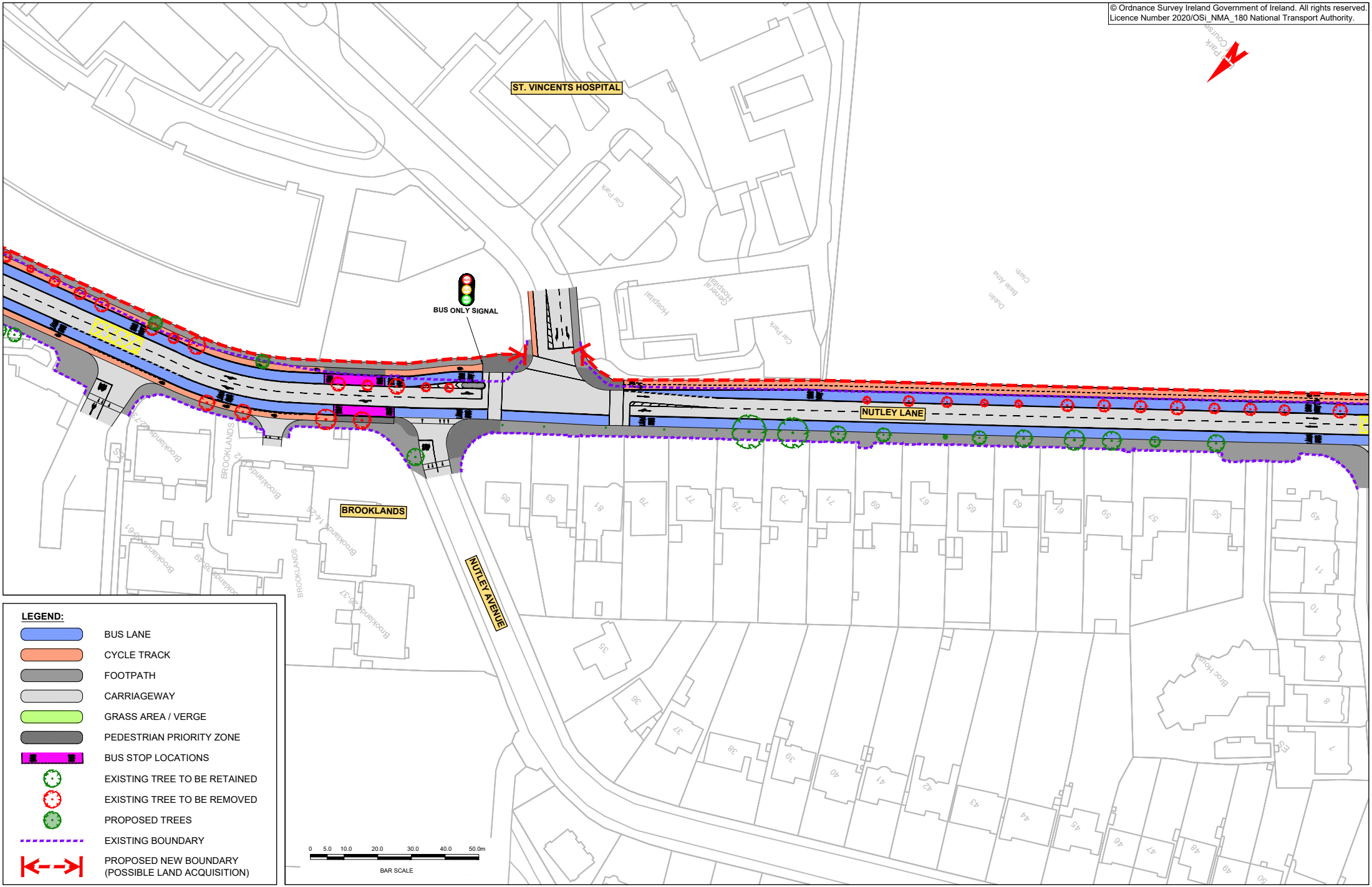
BROOKLANDS

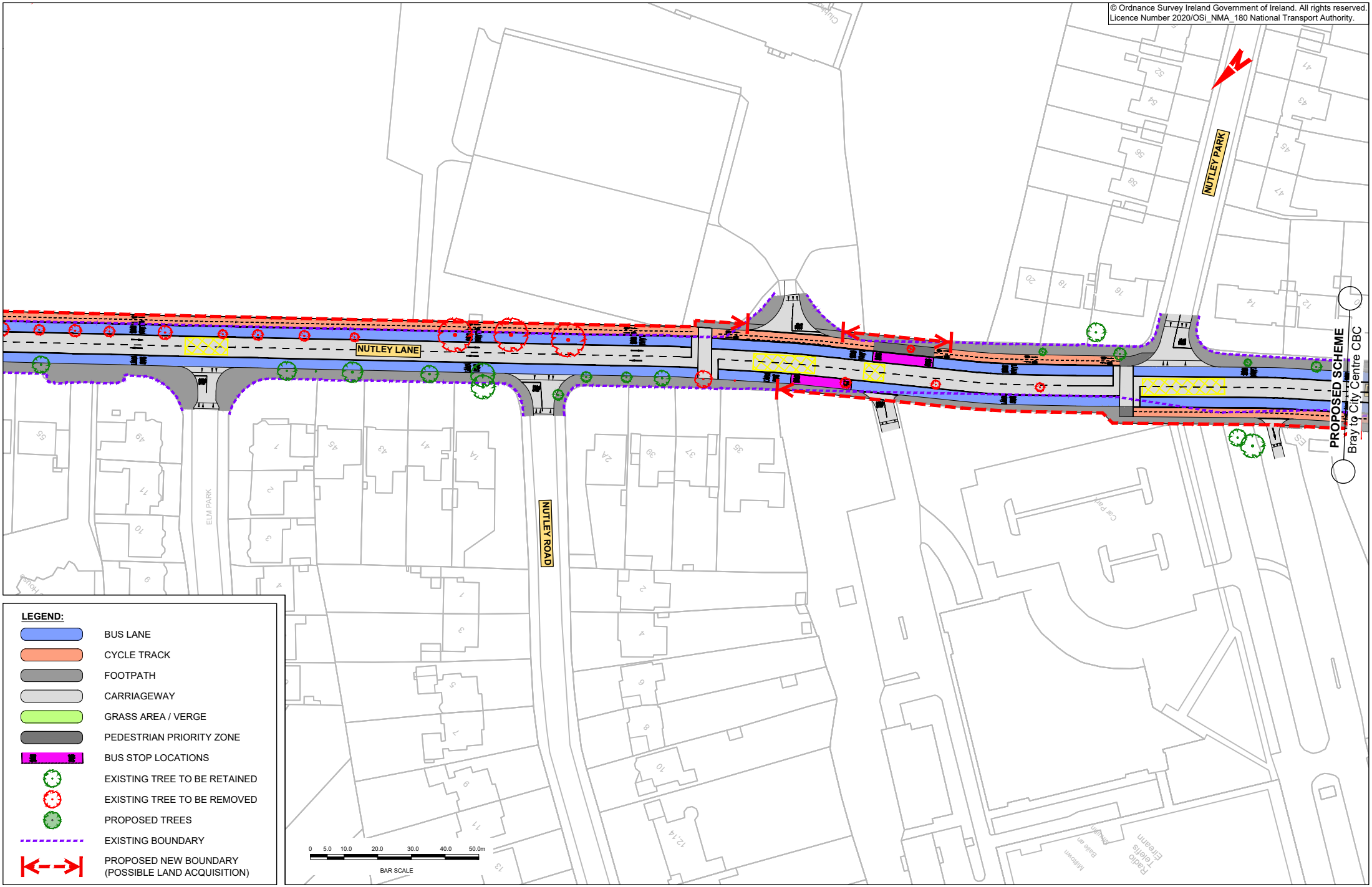
LEGEND:

- BUS LANE
- CYCLE TRACK
- FOOTPATH
- CARRIAGEWAY
- GRASS AREA / VERGE
- PEDESTRIAN PRIORITY ZONE
- BUS STOP LOCATIONS
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PROPOSED TREES
- EXISTING BOUNDARY
- PROPOSED NEW BOUNDARY (POSSIBLE LAND ACQUISITION)

0 5.0 10.0 20.0 30.0 40.0 50.0m

BAR SCALE





Appendix F

Dún Laoghaire to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment

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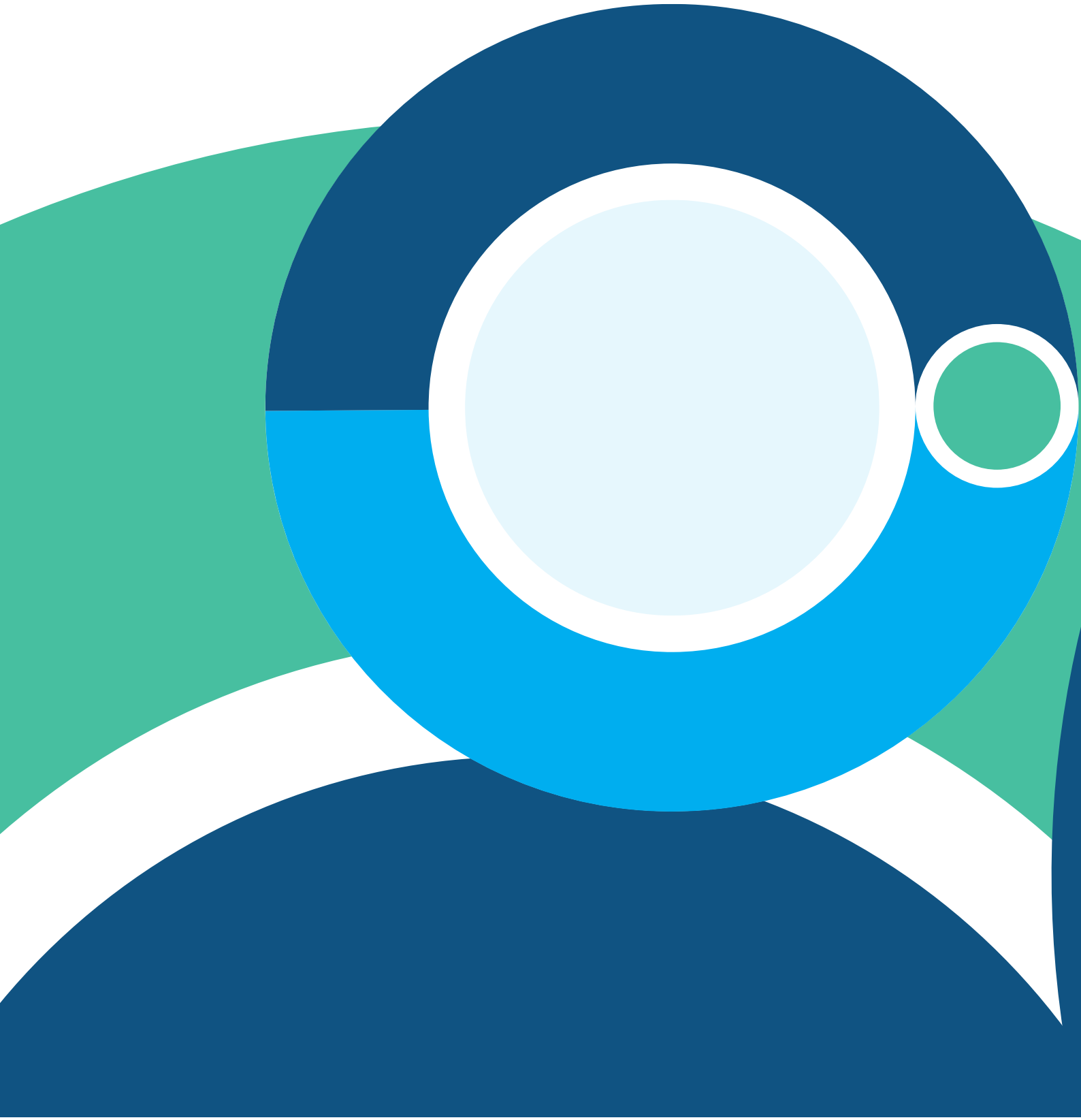
Ballsbridge to UCD Bus Corridor – Route Options Assessment

https://busconnects.ie/initiatives/core-bus-corridor-background-information/technical-documents/

Appendix G

UCD Ballsbridge to City Centre Core Bus Corridor - Emerging Preferred Route Information Brochure

https://busconnects.ie/media/1475/busconnects-cbc14-ucd-to-city-centre-180219-fa-web.pdf



NTA
Údarás Náisiúnta Iompair
National Transport Authority
Harcourt Lane,
Dún Scéine,
Dublin 2.
D02 WT20

Jacobs ARUP SYSTRA