Appendix E1.1
Ballymun to City Centre Core Bus Corridor Options Study – Feasibility and Options Assessment Report January 2018

AECOM
Roughan & O'Donovan

Ballymun to City Centre Core Bus Corridor

Feasibility Study and Options Assessment Report

Prepared by: .....
Robert Kelly/ Matthew Richardson
Associate Director/ Engineer

Checked by: .....
Joe Seymour
Director

Approved by: .....
Eoin O'Mahony
Associate Director

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4th Floor, Adelphi Plaza, George's Street, Dun Laoghaire, Co. Dublin, Republic of Ireland
Telephone: +353 (0) 1 238 3100 Website: http://www.AECOM.com

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Executive Summary

This report presents the output from a route options assessment undertaken for the Ballymun to City Centre Core Bus Corridor (CBC) scheme and makes a recommendation on a preferred route. The study was commissioned by the National Transport Authority (NTA) and undertaken by AECOM Roughan and O'Donovan (ROD) Consulting Engineers.

Core Bus Network

The proposed scheme forms part of the planned Core Bus Network which was identified for the region in the NTA's Greater Dublin Area (GDA) Transport Strategy 2016-2035. The CBN is set out as representing 'the most important bus routes in the region, and are generally characterised by a high frequency of bus services, high passenger volumes and with significant trip attractors located along the route'.

The Ballymun – Phibsborough corridor represents one of the 16 radial bus corridors (Core Bus Corridors) forming the Core Bus Network: which also comprises of the following:

- Clontarf – East Wall;
- M1/ M50 – Dublin Port Tunnel;
- Clongriffin – Artane – Fairview;
- Swords – Airport – Drumcondra;
- Ballymun – Phibsborough;
- Finglas – Phibsborough;
- Blanchardstown – Cabra – Stoneybatter;
- Lucan – Palmerstown – Kilmainham;
- Liffey Valley – Ballyfermot;
- N7/Clondalkin – Crumlin;
- Tallaght – Walkinstown – Crumlin;
- Tallaght – Rathfarnham – Terenure;
- Marley Park – Rathmines;
- Bray/N11 – UCD – Donnybrook;
- Dun Laoghaire – Blackrock – Ballsbridge; and
- Ringsend – Pearse Street.

The study area outlined in the Project Brief (Dec 2015) extends the route from Phibsborough to the River Liffey at Church Street.

Scheme Objectives

The following specific objectives have been set for the proposed scheme:

- To deliver enhanced bus services along the corridor to improve journey times, reliability and upgraded facilities including bus stops.
- To serve the existing and proposed origins and destinations along the corridor.
- To provide enhanced cycle and pedestrian facilities and in particular include any cycle facilities along the routes that are required under the Greater Dublin Area Cycle Network Plan (Primary Route 3A) to the target Quality of Service(s) specified therein.

The Study Area

The Study Area is bounded to the north by the M50 motorway and to the south by the River Liffey. The Finglas and Swords QBC's border the study area to the west and east respectively. The Study Area was intended to include roads within a 500 m radius of the existing Ballymun (R108) QBC corridor but extends beyond this in places to consider potentially feasible route options.

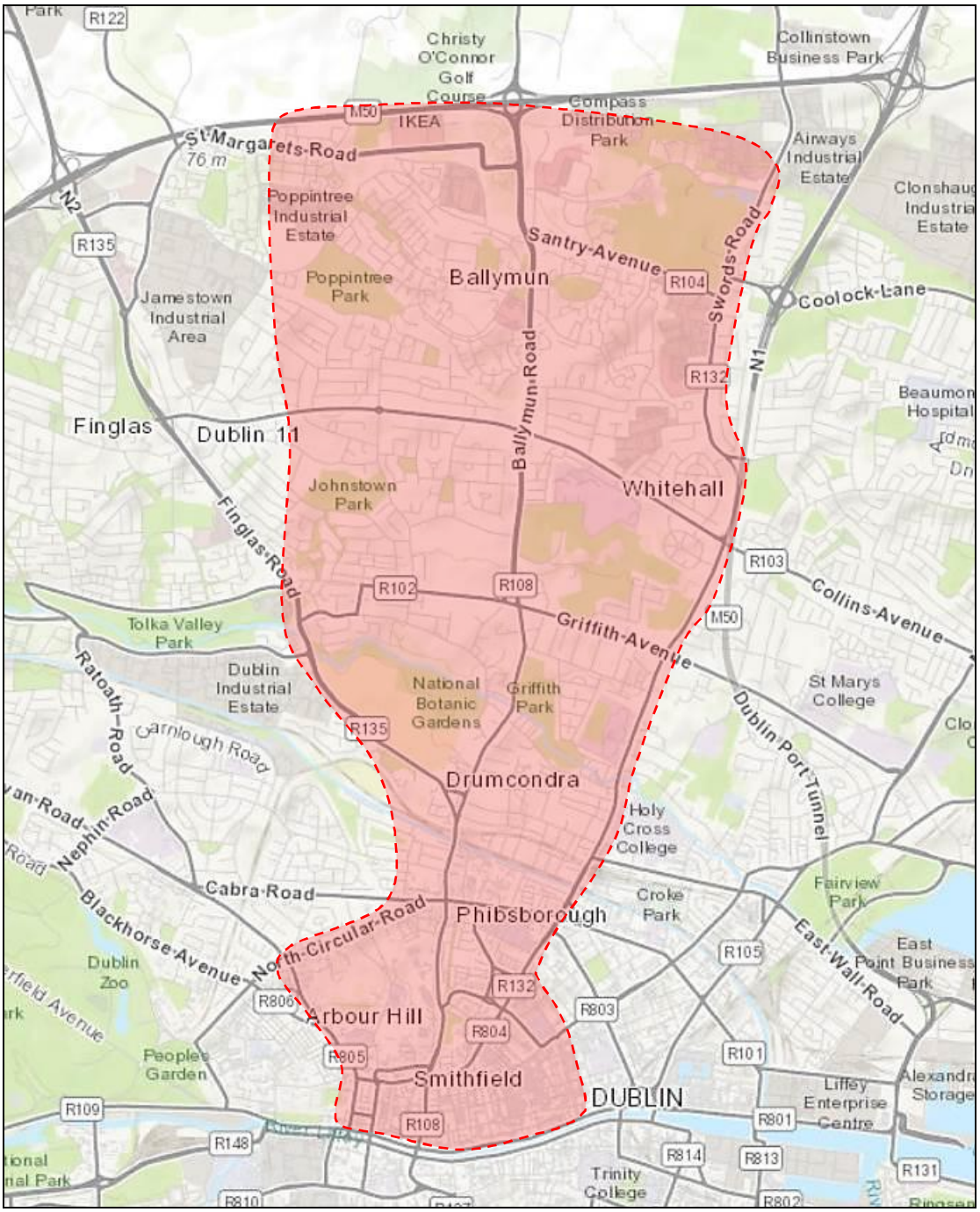


Figure (i): Study Area map

In order to simplify the assessment process, the Study Area has been divided into three more manageable Study Area Sections (SAS); these include;

- SAS 1 – Northern terminus off Ballymun Road between junction with Santry Avenue and M50 Interchange No 4;
- SAS 2 – Ballymun Road/ Santry Avenue junction to Griffith Avenue; and
- SAS 3 – Griffith Avenue to Arran Quay.

The proposed Ballymun to City Centre Core Bus Corridor (CBC) will serve a transport corridor with several key destinations along, or close to, the route. These include Dublin City University (DCU), Botanic Gardens, Dublin Institute of Technology at Grangegorman (DIT), several hospitals as well as the areas of Ballymun, Glasnevin and Phibsborough.

The corridor is already a busy transport artery, with additional capacity required to cater for the travel growth predicted. While a rail based solution may serve a portion of the route in the long term, Core Bus Corridors can provide an attractive primary public transport service for the short and medium term and will act as a feeder to widen the rail catchment in the long term.

It is not practical that the proposed scheme would directly serve all destinations within the broader corridor, and maintain a core scheme objective of journey time reduction and reliability. As such, the introduction of proposed scheme may result in a rationalisation of the wider bus network and service provision within the corridor. This network rationalisation will both complement the proposed scheme and improve overall transport accessibility and level of service provision for existing and new public transport users which include those using other Core Bus Corridors as identified in the GDA Transport Strategy (2016 – 2035).

Assessment Process

An initial 'spiders-web' of potential route sections that could possibly accommodate a level of bus service required of a CBC was identified for each of the three Study Area Sections. This 'spiders-web' of route sections was chosen with reference to the CBC characteristics and in order to meet the scheme objectives. Initial route sections identified also took cognisance of the physical constraints and opportunities present and the ability to integrate with other public transport modes.

A two-stage assessment of the 'spiders-web' route sections was adopted:

- The initial 'Stage 1' high-level route sections assessment or 'sifting' process appraised the sections in terms of ability to achieve scheme objectives and whether they could be practicably delivered. This assessment stage focused on engineering constraints together with a desktop study, identifying
    - Technical feasibility;
    - Transport Planning; and
    - Environment.

  Route sections which passed this initial stage were taken forward to Stage 2 for a more detailed qualitative and quantitative assessment.
- 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 routes options within each Study Area Section. The Stage 2 assessment comprised a 'Multi-Criteria Analysis' (MCA) of the resulting route options under the following main criteria:
    - Economy;
    - Integration;
    - Accessibility and Social Inclusion;
    - Physical Activity;
    - Safety; and
    - Environment.

An appreciation of the constraints and opportunities within the study area, as well as the defined project objectives, led to establishment of project-specific route options assessment sub-criteria under each of the main criteria listed above.

For this 7km long study area, 80 individual streets were assessed with up to 10 design options considered in detail for some critical sections, such as Mobhi Road. Following this exhaustive assessment the optimum design which best meets the project objectives were linked together to create an Emerging Preferred Route (EPR) for the Ballymun CBC.

Emerging Preferred Route

Based on the outcomes from the route options assessment process, the Emerging Preferred Route (EPR) is presented in **Figure (ii).**

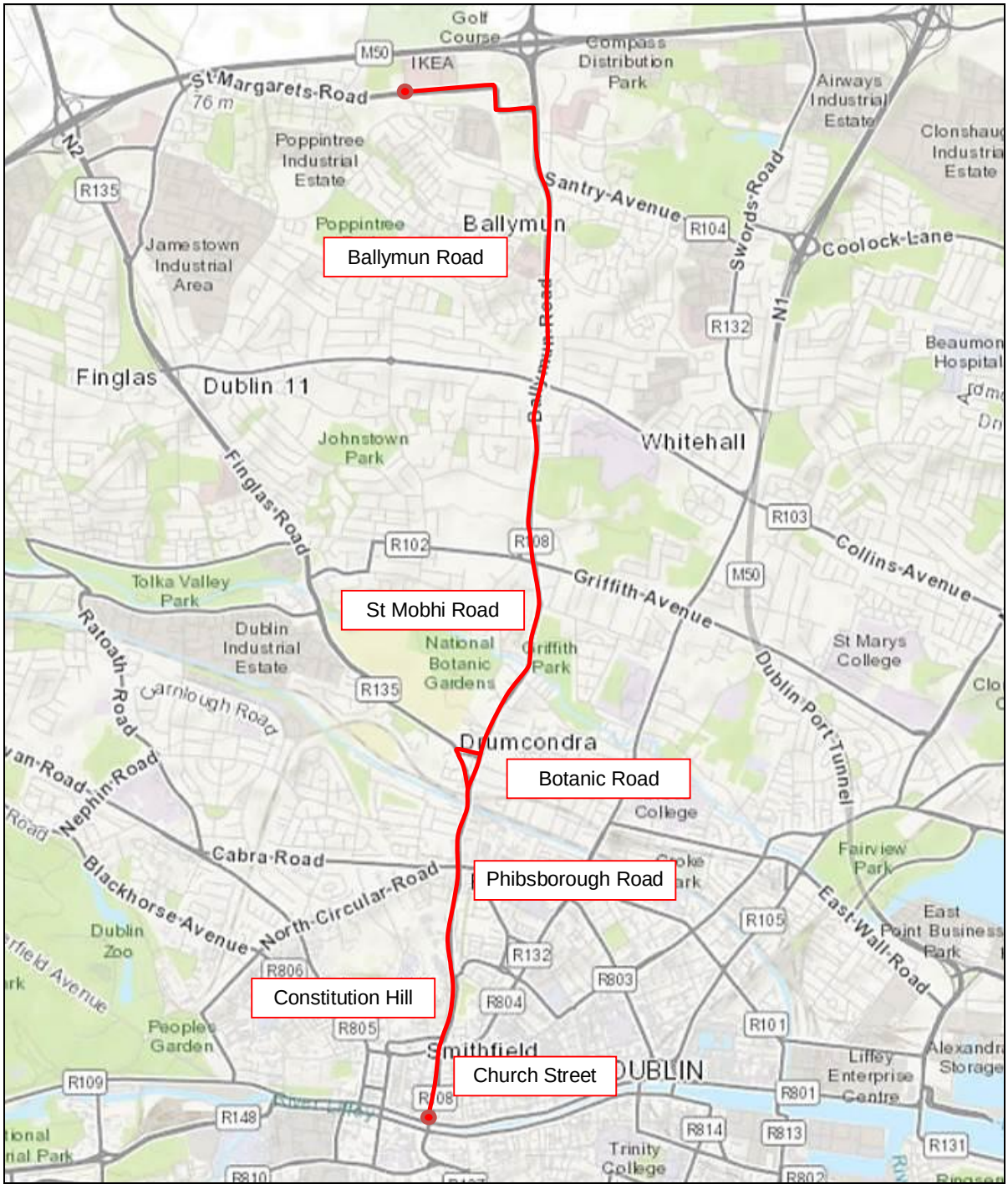


Figure (ii): Ballymun to City Centre Core Bus Corridor Preferred Route

The preferred CBC route starts at a new Termini on St Margaret's Road (south of Ikea) in the northwest of Ballymun and will generally follows the R108, Ballymun Road, Mobhi Road, Botanic Road, Phibsborough Road, Constitution Hill and Church Street to Arran Quay where it will continue on a route to be defined from the NTA Bus Connects Study which is currently ongoing.

Concept Design

The following section summarises the concept design that is presented on the accompanying drawings:

Section 1 St Margarets Road (Ikea) to Griffith Avenue

Length of Section: 4km

Indicative Cost Estimate for Section: €6million

Level of segregated Bus Priority provided: >95%.

The Emerging Preferred Route (EPR) for this section will start at a new terminus to be located immediately south of the Ikea Store on St Margaret's Road, north of Ballymun. The route will make maximum use of the existing Bus Lanes which run the full length of St Margaret's Road and Ballymun Road, with enhancements mainly located at junctions where priority has been maximised. In addition the number of bus stops has been reviewed with some removed where there was a significant overlap of stops, in this case mainly around Ballymun town centre.

As part of this scheme the existing cycle lanes along this road will be upgraded in line with current best practise as will the pedestrian crossing facilities at junctions.

Overall the EPR for this section requires an upgrade of existing facilities along its length.

Section 2 Griffith Avenue to Phibsborough (Doyles Corner)

Length of Section: 2km

Indicative Cost Estimate for Section: €13.5million

Level of segregated Bus Priority provided: >85%.

The EPR for this section follows the existing Ballymun Quality Bus Corridor routeing as far as Whitworth Road, where it is now proposed to continue straight to Phibsborough. As this section currently has bus lanes in one direction only a significant upgrade of the existing facilities has been required to bring it in line with the requirements of the Core Bus Corridor infrastructure. This has required widening the existing road over some sections, including on Mobhi Road where the existing mature trees will need to be removed to facilitate the provision of an outbound bus lane. As part of any implementation plan for this corridor locations for planting new trees will be identified and it is proposed that a proportionally higher number of trees will be provided where any mature trees are removed.

In addition some property boundaries will need to be set back a small amount to allow the provision of cycle tracks in both directions. It is not envisaged that this setback is significant and the use of the driveways for parking vehicles will not be impacted.

South of Fairfield Road on the Botanic Road it was not possible to provide an inbound bus lane due to the space restrictions and the limited scope to widening this road due to the differing ground levels between the street and the houses. In order to provide bus priority a Virtual Bus Lane will be created through the use of an inbound bus gate at the Fairfield Road junction, where traffic into the following section will be metered so as the inbound queue length never exceeds the length of the subsequent section of bus lane. This is only possible because there is effectively a continuous section of bus lane approaching Fairfield Road which allows the bus to bypass queuing traffic.

Through Phibsborough the proposed CBC works will be integrated within any future upgrade of the Village. As part of the scheme development additional pedestrian crossings and upgrading of existing crossings is proposed.

Cycle facilities are being proposed over much of this section, however there is not sufficient space to provide facilities in line with current design standards for a distance of approximately 0.5km on Botanic Road due to the lack of available space and the

geometric constraints mentioned above. In Phibsborough the cycle route is rerouted to an adjoining parallel route in line with the GDA Cycle Network Plan. This route uses Royal Canal Bank to provide facilities for cyclists along quiet mainly residential streets.

Section 3 Phibsborough (Doyles Corner)to Arran Quay

Length of Section: 1.7km

Indicative Cost Estimate for Section: €5.5million

Level of segregated Bus Priority provided: >90%.

The EPR for this section follows the R108, via Phibsborough Road, Constitution Hill, and Church Street. Between Doyles Corner and North King Street the carriageway is sufficiently wide enough to provide an inbound and outbound bus lane with little or no modifications to the existing cross-section. In addition cycle facilities are generally provided along the adjoining Royal Canal Bank route as far as Western Way where they join the R108 again. At Western Way this CBC corridor will provide linkage to both the Luas CrossCity and the new Dublin Institute of Technology campus at Grangegorman. There will be a small loss in on street car parking on this initial section although it is noted that off-street parking is available for most residents and side streets also appear to have sufficient capacity to accommodate more vehicles.

On Constitution Hill one of the traffic lanes in each direction will be replaced with a bus lane in each direction. This short section of four lanes has little impact on the overall traffic capacity of this route so their removal is not expected to have a significant impact on traffic capacity.

In order to reduce the impact of queuing traffic impacting on the reliability of outbound bus journey times at King Street North, the existing permitted right turn movement will be banned at this location and will be relocated to a purpose built right turn facility at the top of Coleraine Street. The small number of vehicles turning right to North King Street will now enter Coleraine Street and follow it back to King Street. In order to minimise the impact on local residents it will be necessary to provide additional traffic calming on this road so as vehicle speeds remain low. Cyclists will also be guided to this route to follow an alternative route to Church Street via Beresford Street.

The Church Street section of the EPR is one of the more constrained with limited scope to provide the full CBC cross-section (Bus, Traffic and Cycle Lanes). For the Concept Design an option which includes traffic lanes in both direction and bus lane in the northbound direction is proposed. For bus priority in the southbound direction, a bus gate at North King Street will meter the traffic into the following section and will allow the CBC buses to pass the queuing traffic. Cyclists are provided with a cycle lane where space is available, however over most of this 0.5km section they will need to share with buses within the bus lanes, or use the alternative route via Beresford Street.

Scheme Benefits

Through the provision of a high level of segregation (>90% dedicated bus lanes in both directions), the proposed scheme would improve both the overall journey times for buses along the route and more importantly the journey time reliability. The concept design is aimed at delivering bus speeds of over 20kph (average) over the full length of the corridor. The estimated journey time along the CBC with the proposed bus lanes is approximately 44 minutes in both the inbound and outbound direction. With the existing bus lanes, the estimated journey time along the proposed CBC is approximately 56 minutes. Hence, the proposed bus lanes would achieve journey time savings of approximately 12 minutes in each direction along the corridor In the next stage of design development it will be necessary to undertake a detailed modelling exercise to predict accurately the journey time savings and level of demand.

While detailed information is not available it can be concluded that providing a high level of bus priority, coupled with the introduction of cashless fares, the risk of turbulence to buses would be significantly reduced, allowing buses to move along the route more quickly and with more consistent journey times. The extent of these benefits will be confirmed and quantified at the next design stage.

Cost Estimate

The indicative cost of the proposed Ballymun to City Centre CBC, based on current rates, is approximately **€25** million plus VAT. This includes an allowance for land costs along the route. The cost estimates were primarily developed for comparing options and must be considered a general indication of the costs rather than a project costs estimate. A more detailed costs estimate will be developed at the Preliminary Design Stage of this corridor and will be used for developing a Business Cases for the project.

Proposed Stop Locations

This scheme is intended to serve the Ballymun to City Centre Corridor with stops at key locations along the route. The proposed stop locations are indicated in **Figure (iii).** The residential catchment within 5, 10 and 15 minutes walking distance of the proposed stops is also illustrated in **Figure (iii).** The outermost isochrone defines the perimeter within which the stop can be reached by pedestrians in 15 minutes or less at a typical walking pace. The population residing within each of the isochrones areas is summarised below:

- Ø 0-5 minutes walking distance – 16,524 residents
- Ø 5-10 minutes walking distance – 32,095 residents
- Ø 10-15 minutes walking distance – 43,703 residents
- Ø Total catchment within 15 minutes walking distance – 92,600 residents

These figures are based on the Census 2011 Small Area Population Statistics (SAPS). Furthermore, there are a total of 83,664 people working or attending an educational institution within the 15 minute walking catchment of the CBC stops i.e. 58,950 in employment and 24,714 in education.

Next Stages of Design Development

This report has identified an emerging preferred route for the bus infrastructure along this Core Bus Corridor for which a concept design has been developed. The next project stage (The development of a Preliminary Design) will further refine and update the initial 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, taking into account more detailed studies of constraints, impacts and environmental assessment required at a local level.

Prior to finalisation of the Ballymun CBC scheme design, a public consultation process will be undertaken, with inputs and feedback received incorporated where practical and appropriate to do so. 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.

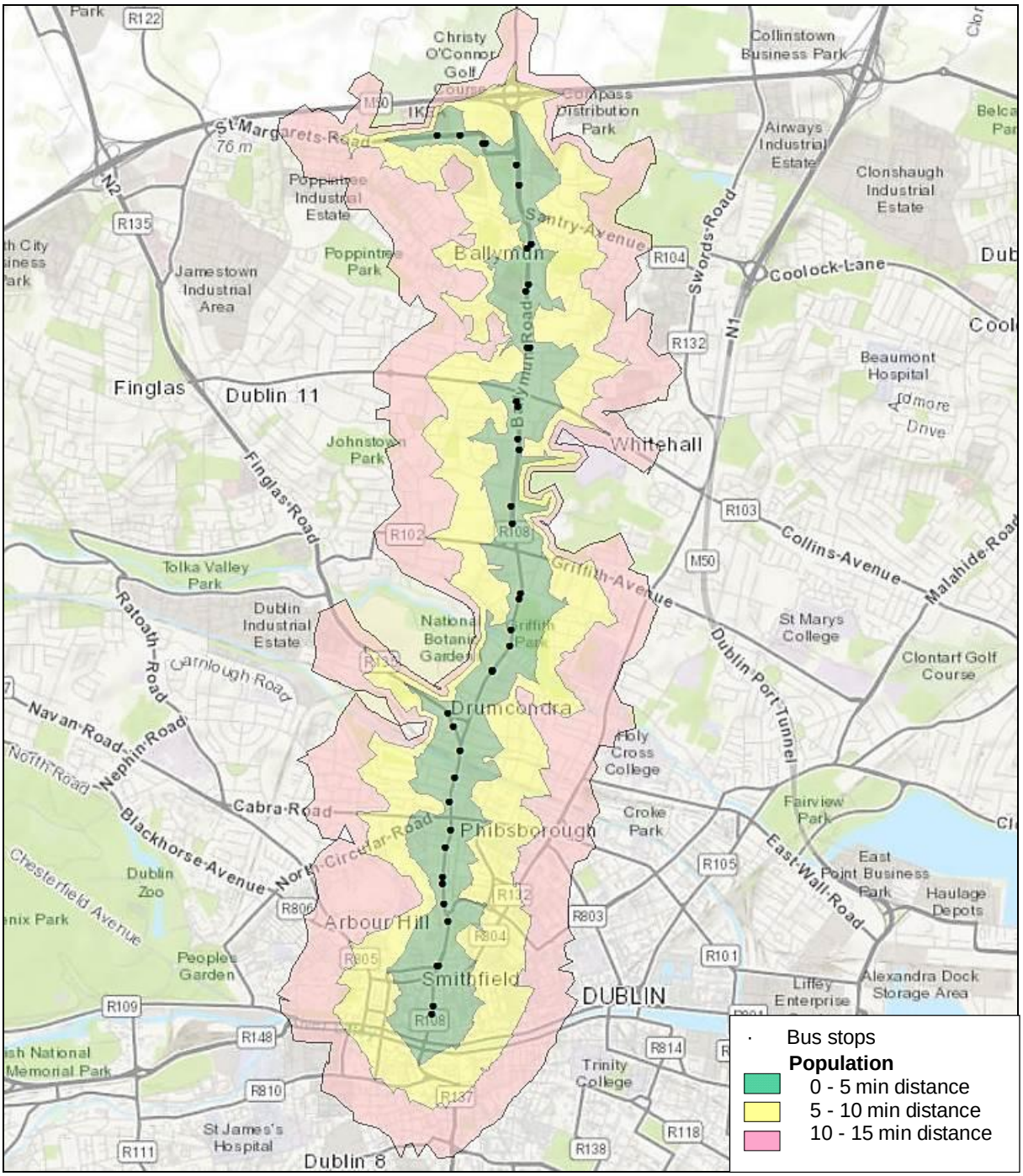


Figure (iii): Preferred route walk catchments

Glossary of Terms

- CBN: Core Bus Network
- CBC: Core Bus Corridor
- DCC: Dublin City Council
- DTTAS: Department of Transport, Tourism and Sport
- EPR: Emerging Preferred Route
- FCC: Fingal County Council
- GDA: Greater Dublin Area
- GIS: Geographic Information Systems
- ITS: Intelligent Transport Systems
- LAP: Local Area Plan
- LoS: Level of Service
- NTA: National Transport Authority
- OSi: Ordnance Survey Ireland
- pNHA: proposed Natural Heritage Area
- QBC: Quality Bus Corridor
- QoS: Quality of Service
- RMP: Record of Monuments and Places
- ROA: Route Options Assessment
- RPA: Railway Procurement Agency
- RTPI: Real Time Passenger Information
- SAC: Special Area of Conservation
- SPA: Special Protection Area
- TII: Transport Infrastructure Ireland

Definitions

- Scheme: This refers to the measures, which will need to be put in place to deliver the Ballymun to City Centre Core Bus Corridor infrastructure and priority measures.
- Study Area: The area along the Ballymun to City Centre corridor within which route options have been identified and assessed.
- Study Area Section (SAS): An identifiable extent of the study area between two locations.
- Route Section: The road(s), or alternative location, along which the Ballymun to City Centre Core Bus Corridor will be provided. A route section is generally confined to a single road/street.
- Route Option: Various adjacent route sections are combined to form ‘end-to-end’ route options.
- Journey Time: The time taken to make a journey between two distinct points including dwell times at stops and delays at junctions.

- CBC Infrastructure: All physical facilities required to support the CBC system – Bus Stops, Bus lanes, public lighting, etc.
- Route Options Assessment Study: The assessment process for potentially viable route options carried out in order to identify the nature and extent of the effects, both positive and negative, on the existing and planned transport infrastructure and receiving environment. The outcome of the route options assessment study is a recommendation for a preferred route for the proposed scheme.

Citations

- The background mapping used frequently in figures in this report is based on OSI maps. The source is ArcGIS Viewer for Silverlight (ESRI), for which AECOM hold a license.
- Residential, employment destination and education destination figures in report Section 6 are based on the Census 2011 Small Area Population Statistics (SAPS).

1 Background

1.1 Preamble

AECOM-ROD has been commissioned by the National Transport Authority (NTA) to undertake Feasibility Study and Options Assessment Report which identifies an Emerging Preferred Option for the Ballymun to City Centre Core Bus Corridor Scheme as identified in the Draft Transport Strategy for the Greater Dublin Area 2016 – 2035 (NTA 2015). This report presents the findings of the assessment work undertaken for the Ballymun to City Centre Core Bus Corridor scheme (hereafter referred to as the 'proposed scheme') and a recommendation on a preferred route is made.

This route options assessment report describes the detailed assessment of potentially viable route sections within the study area identified for the proposed scheme against established assessment criteria.

1.2 Report Structure

The route option assessment process and corresponding report structure are detailed below:

- Section 1 – Introduction and background to the planned Core Bus Network,
- Section 2 – The strategic policy context in relation to Ballymun CBC is outlined.
- Section 3 – The objectives of the proposed scheme are presented.
- Section 4 – The proposed Study Area is described identifying key constraints and opportunities, the integration of the Ballymun CBC with the wider public transport network and the compatibility with other road users.
- Section 5 – The methodology for identifying and assessing the feasibility of the various route options is discussed in this section, including:
    - o the identification of study area sections where practical route sections were considered and presentation of the 'spiders web' – the network of sections examined;
    - o the selection and determination of initial criteria for screening and assessing technically feasible route options, based on distinct, project-specific objectives; and
    - o the definition of assessment criteria.
- Section 6 – sets out the structure for the assessment of the route options undertaken in the following Sections
- Section 7 – details the route option assessment for Study Area Section 1.
- Section 8 – details the route option assessment for Study Area Section 2.
- Section 9 – details the route option assessment for Study Area Section 3.
- Section 10 – The preferred route for the proposed scheme is described and the next steps for the project are set out in this section.
- Section 11 - The cost estimate for the proposed scheme is outlined.

1.3 Core Bus Network

One of the principal additions to the NTA Transport Strategy for the GDA (2016 – 2035) was the introduction of a 'Core Bus Network' (CBN) identified for the region. The Strategy states the following in regard to the CBN:

> *This core network represents the most important bus routes in the region, and are generally characterised by a high frequency of bus services, high passenger volumes and with significant trip attractors located along the route. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors and six regional bus corridors. While this network represents the core high frequency bus routes, it is supplemented by other bus services operating on lower frequency routes and by local buses running on other routes.*
>
> *The Core Bus Network will serve significant origins and destinations in the Dublin Metropolitan Area and throughout the GDA, particularly those locations not directly served by rail and light rail. It will also provide greater opportunity for reliable and convenient interchange with these services.*
>
> *In order to ensure an efficient, reliable and effective bus system, it is intended, as part of the Strategy, to develop the Core Bus Network to achieve, as far as practicable, continuous priority for bus movement on the portions of the Core Bus Network within the Metropolitan Area. This will mean enhanced bus lane provision on these corridors, removing current delays on the bus network in the relevant locations and enabling the bus to provide a faster alternative to car traffic along these routes, making bus transport a more attractive alternative for road users.*
>
> *It will also make the overall bus system more efficient, as faster bus journeys means that more people can be moved with the same level of vehicle and driver resources.*

The Ballymun – Phibsborough corridor represents one of the 16 radial bus corridors forming the Core Bus Network: which also comprises of the following:

- Clontarf – East Wall;
- M1/ M50 – Dublin Port Tunnel;
- Clongriffin – Artane – Fairview;
- Swords – Airport – Drumcondra;
- Ballymun – Phibsborough;
- Finglas – Phibsborough;
- Blanchardstown – Cabra – Stoneybatter;
- Lucan – Palmerstown – Kilmainham;
- Liffey Valley – Ballyfermot;
- N7/Clondalkin – Crumlin;
- Tallaght – Walkinstown – Crumlin;
- Tallaght – Rathfarnham – Terenure;
- Marley Park – Rathmines;
- Bray/N11 – UCD – Donnybrook;
- Dun Laoghaire – Blackrock – Ballsbridge; and
- Ringsend – Pearse Street.

Figure 1.1: 2035 Core Bus Network - Radial Corridors (Source: NTA Transport Strategy for the GDA 2016 – 2035).

The combined CBN comprising, Radial, Orbital and Regional corridors as well as the 2035 Bus Rapid Transit Network is illustrated in Figure 1.2 below.

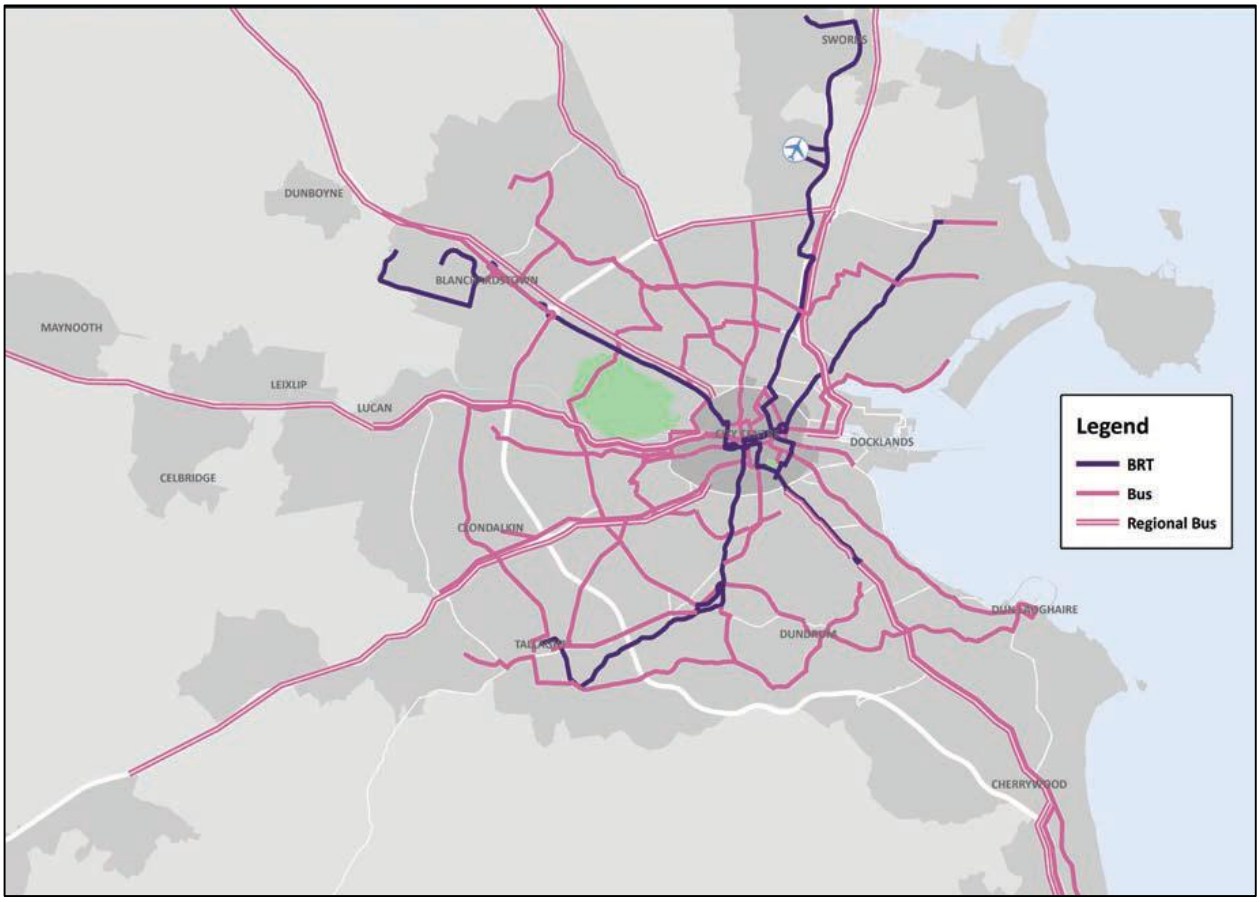


Figure 1.2: 2035 Core Bus Network (Source NTA Transport Strategy for the GDA 2016 – 2035).

1.4 Project Brief

The brief for the subject study has been developed as a result of the identification of the CBN in the Strategy. This was dated December 2015 and stated the following in regard to the routing:

> *The Corridor/Study Area runs from the north of Ballymun at the M50 to the river Liffey at Church Street in the City Centre. It generally traverses Ballymun, Ballymun Road, St Mobhi Road Botanic Road and Phibsborough. But the exact route is not fixed.*

While it generally follows the alignment of the Ballymun Quality Bus Corridor (QBC) from Ballymun to the River Liffey through Phibsborough, it is necessary to examine alternative routes that may meet the study objectives as well.

2 Transport Planning and Policy Context

2.1 Introduction

This section of the report will provide an overview of the national, regional and local transportation policy relevant to the Ballymun CBC scheme. These documents provide the policy framework for the development of an improved bus corridor between Ballymun and the City Centre. Relevant extracts from the documents are outlined in this section and commentary provided where necessary.

2.2 Greater Dublin Area Transport Strategy 2016-2035

The GDA Transport Strategy 2016-2035 outlines a transport vision and objectives 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 current strategy was adopted in April 2016 as an update to the original 2012 draft strategy. One of the principal amendments to the Strategy was the introduction of a 'Core Bus Network' (CBN) which was identified for the region and has been discussed in Section 1.3 above.

Importantly the CBC's are identified as a measure for early implementation in the overall Strategy. The delivery of projects included in this Strategy will be undertaken in conformity with the "Public Spending Code" published by the Department of Public Expenditure and Reform, incorporating the required level of scheme appraisal and evaluation in each case.

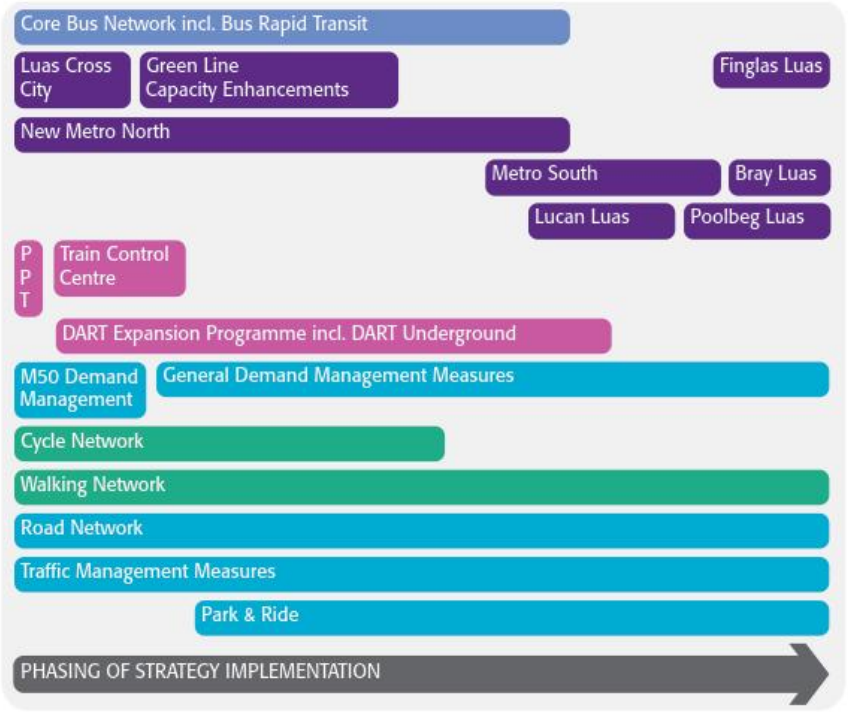


Figure 2.1 Phasing of the GDA Transport Strategy's Implementation

(Source NTA Transport Strategy for the GDA 2016 – 2035).

2.3 Integrated Implementation Plan 2013 – 2018

The NTA published the Integrated Implementation Plan 2013 – 2018 in February 2014. This report sets out the short term infrastructure investment programme for the Greater Dublin Area for a five year period up to 2018 including investment in existing bus services.

The proposals in relation to Bus investment are encompassed in four investment areas:
1) Bus Fleet Investment;
2) Bus Stop and Shelter Provision;
3) General Bus Network Improvements; and
4) Bus Rapid Transit Schemes.

Investment areas 2 and 3 are most relevant to the subject scheme and will be addressed. More specifically, the Integrated Implementation Plan proposes the following measures in relation to bus network improvements:

- Further development of a quality bus network appropriate to serve the needs of the GDA;
- Seeking to achieve, as far as practicable, continuous inbound priority and the maximum possible outbound priority on key bus routes into Dublin City Centre;
- Enhancing bus priority at other urban locations in the GDA;
- Seeking enhanced bus prioritisation at signalised traffic junctions in the GDA;
- Improving the level of interchange facilities between services and with other transport modes;
- Creation of bus hubs or bus focal points in key urban locations in the GDA; and
- Reducing the level of bus layover and parking in central urban areas.

These measures will provide an interim transport solution in the shorter term, pending the development of a higher capacity rail solution, such as a New Metro North which may serve this study area. However, it should be noted that route selection has yet to be undertaken at the time of writing.

2.4 Infrastructure and Capital Investment 2016 – 2021: Department of Expenditure and Public Reform

On 29 September 2015 the Minister for Public Expenditure and Reform, Mr Brendan Howlin TD, announced a large scale investment programme that included proposed expenditure of €3.6 billion on public transport which included *'further upgrading of Quality Bus Corridors'* amongst other items such as the development of Metro North.

2.5 Dublin City Council Development Plan (2016 – 2022)

The current Development Plan for Dublin City Council (in effect since October 2016) contains some Objectives in relation to bus travel which are of general relevance to the Scheme such as (Chapter 8):

- To support improvements to the city's bus network and related services to encourage greater usage of public transport in accordance with the objectives of the NTA's strategy and the Government's 'Smarter Travel' document (MT04).
- To facilitate and support measures proposed by transport agencies to enhance capacity on existing public transport lines and services, to provide/improve interchange facilities and provide new infrastructure (MT05).

- To review future strategic provision of bus depots/garages in the city in consultation with Dublin Bus and the NTA (MT06).

This also notes that DCC policy on public transport will be implemented in collaboration with the NTA's Transport Strategy for the Greater Dublin Area 2016 – 2035.

2.6 Fingal County Council Development Plan (2017 – 2023)

The current Development Plan for Fingal County Council has a Strategic Policy which relates to the facilitation of Public Transport:

- Seek the development of a high quality public transport system throughout the County and linking to adjoining counties, including the development of the indicative route for New Metro North and Light Rail Corridor, improvements to railway infrastructure including the DART Expansion Programme, Quality Bus Corridors (QBCs) and Bus Rapid Transit (BRT) systems, together with enhanced facilities for walking and cycling.

It also contains some objectives in relation to bus travel which are of general relevance to the Scheme such as:

- Facilitate and promote the enhancement of bus services through bus priority measures including bus lanes and bus gates. Support the NTA in the implementation of Bus Rapid Transit from Blanchardstown to Belfield and from Swords to Merrion Square, subject to detailed design (MT33).
- Work with public transport providers and State agencies to create bus connectivity between Dublin 15 and Dublin Airport/Swords (MT34).
- Support public transport improvements by reserving the corridors of planned routes free from development. Provide setbacks along public transport corridors to allow for future improvement to enable the provision of a safe and efficient network of public transport infrastructure (DMS119).

2.7 Greater Dublin Area Cycle Network Plan

In August 2013, the NTA published the Greater Dublin Area Cycle Network Plan. Following a period of consultation with the public and various stakeholders it was officially adopted and published in early 2014. The plan undertook a review of existing cycle facilities in the GDA and sets out the strategy for the development of an integrated cycle network for the future.

The plan identified that the existing Ballymun QBC corridor between Northwood and the Royal Canal would form part of the primary cycle network (Route 3A) and thus form a key part of the strategic cycle network. It is therefore important that any upgrade to bus priority infrastructure along the corridor takes cognisance of this objective and, where practical, provides cycle infrastructure to the appropriate level and quality of service (as defined by the NTA National Cycle Manual) required for a primary cycle route.

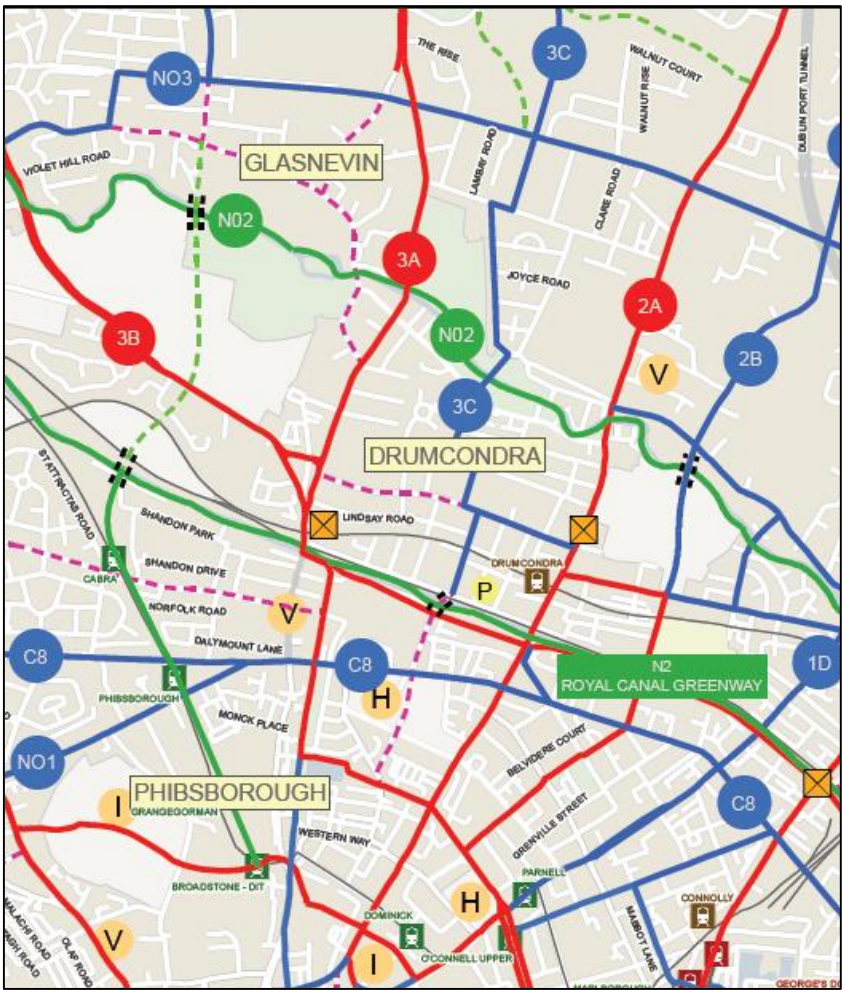


Figure 2.2 Proposed Cycle Network in Glasnevin/Phibsborough (GDA Cycle Network Plan)

2.8 Conclusion

The various studies discussed in the preceding sub-sections set out the transport planning policy context and need for the proposed scheme. The need for the scheme is predominantly borne out of the need to provide a higher quality bus service, than currently exists, to serve the Ballymun corridor in the short to medium term in advance of New Metro North.

3 Objectives and Alternatives

3.1 Introduction

This section sets out the objectives for public transport along the corridor based on the findings of the studies and plans set out in the previous section. It then sets out a rationale for the scheme by briefly outlining the do-nothing alternative and also provides the scheme-specific objectives of the Ballymun to City Centre CBC scheme.

3.2 Goals for Core Bus Corridors

Having regard to the findings of the studies and plans set out in Section 2, the following goals were established for the Core Bus Corridor Projects:

§ Deliver the on-street infrastructure necessary to provide continuous priority for bus movements along Core Bus Corridors. This will mean enhanced bus lane provision on the corridors, removing current delays in relevant locations and enabling the bus to provide a faster alternative to car traffic along the route, making bus transport a more attractive alternative for road users. It will also make the bus system more efficient, as faster bus journeys means that more people can be moved with the same level of vehicle and driver resources; and

§ Provide any cycle facilities along routes that are required under the Greater Dublin Area Cycle Network Plan to the target Quality of Service(s) specified therein and to give consideration to further providing cycle facilities along sections of the route where they may be not expressly required under the Cycle Network Plan.

3.3 Do-Nothing

The Ballymun QBC was one of six of the 16 radial QBCs which returned faster inbound average journey times than the private vehicle according to the QBC Monitoring Report (2011; last available). However its performance falls well short of the CBC objectives and it will be difficult to increase the capacity further without significant enhancements. Doing nothing therefore would deprive Ballymun and the wider corridor of any significant public transport improvements, in advance of the future delivery of New Metro North which is not likely to be available until 2026. Other than for reasons of budgetary constraint, this is considered to be a sub-standard solution to meeting existing transport demand on the corridor, particularly in the short to medium term given the long term delivery date currently envisaged for New Metro North.

3.4 Project Objectives

Having ascertained that the CBC scheme objectives would not be met by the existing Ballymun QBC and that there were no feasible alternatives in advance of New Metro North, the following Objectives for the Ballymun CBC Scheme were derived:

a. To deliver enhanced bus services along the corridor to improve journey times, reliability and upgraded facilities including bus stops.

b. To serve the existing and proposed origins and destinations along the corridor.

c. To provide enhanced cycle and pedestrian facilities and in particular include any cycle facilities along the routes that are required under the Greater Dublin Area Cycle Network Plan (Primary Route 3A) to the target Quality of Service(s) specified therein.

4 Study Area

4.1 Introduction

Arising from the transport policy context, the broad study area identified for the proposed scheme is as identified by the area within the red area in Figure 4.1 below. Generally speaking, the study area was taken to include roads within a 500m of the existing Ballymun (R108) QBC corridor, but extends beyond this in places to consider potentially feasible route options. The Study Area is generally bounded to the north by the M50 motorway and to the south by the River Liffey. The Finglas and Swords QBC's border the study area to the west and east respectively.

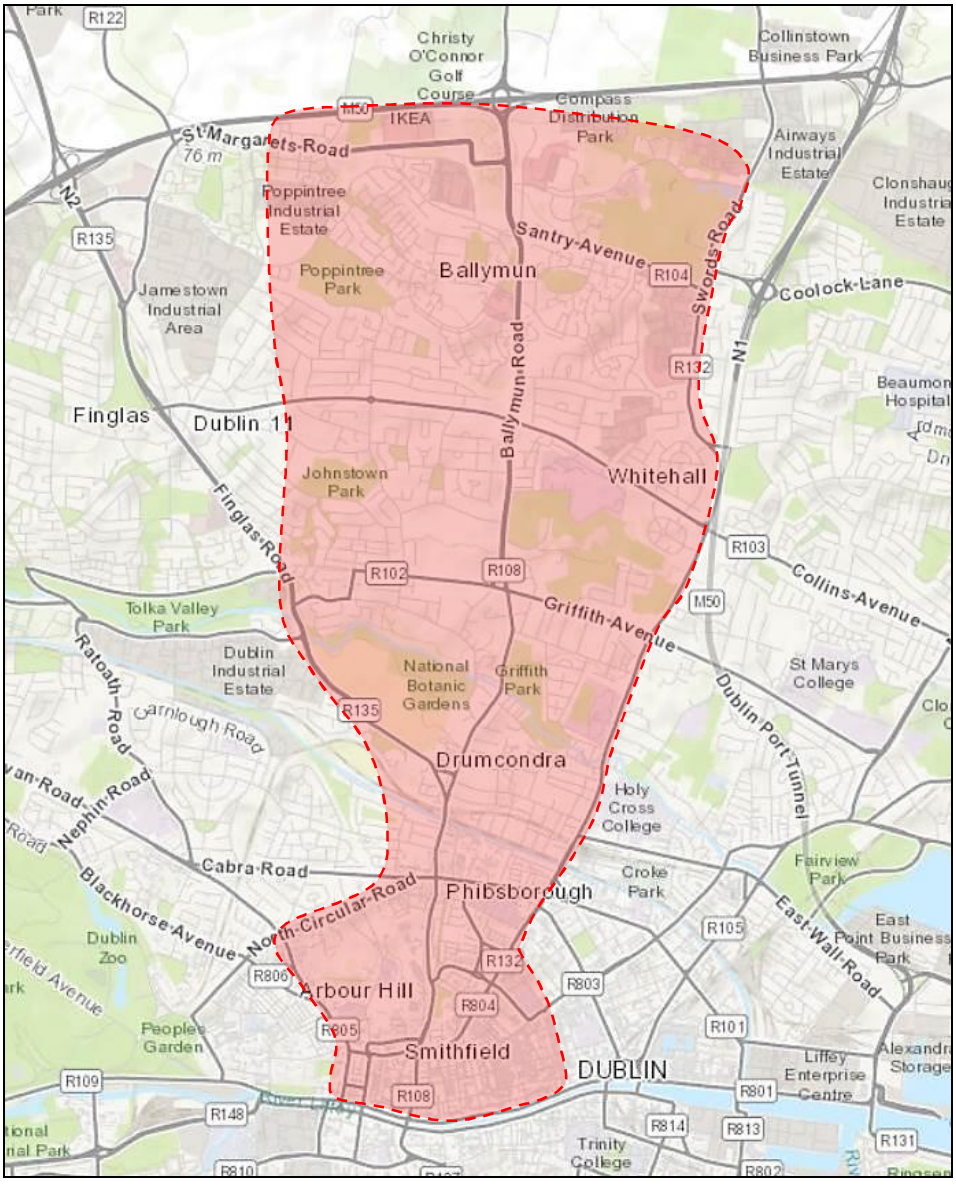


Figure 4.1: Proposed Scheme Study Area

4.2 Study Area Sections

The study area has been divided into three more manageable sections to simplify the assessment process:

- § SAS 1 – Northern terminus off Ballymun Road between junction with Santry Avenue and M50 Interchange No 4;
- § SAS 2 – Ballymun Road / Santry Avenue junction to Griffith Avenue; and
- § SAS 3 – Griffith Avenue to Church Street.

The extent of each of these corridor sections is presented in Figure 4.2.

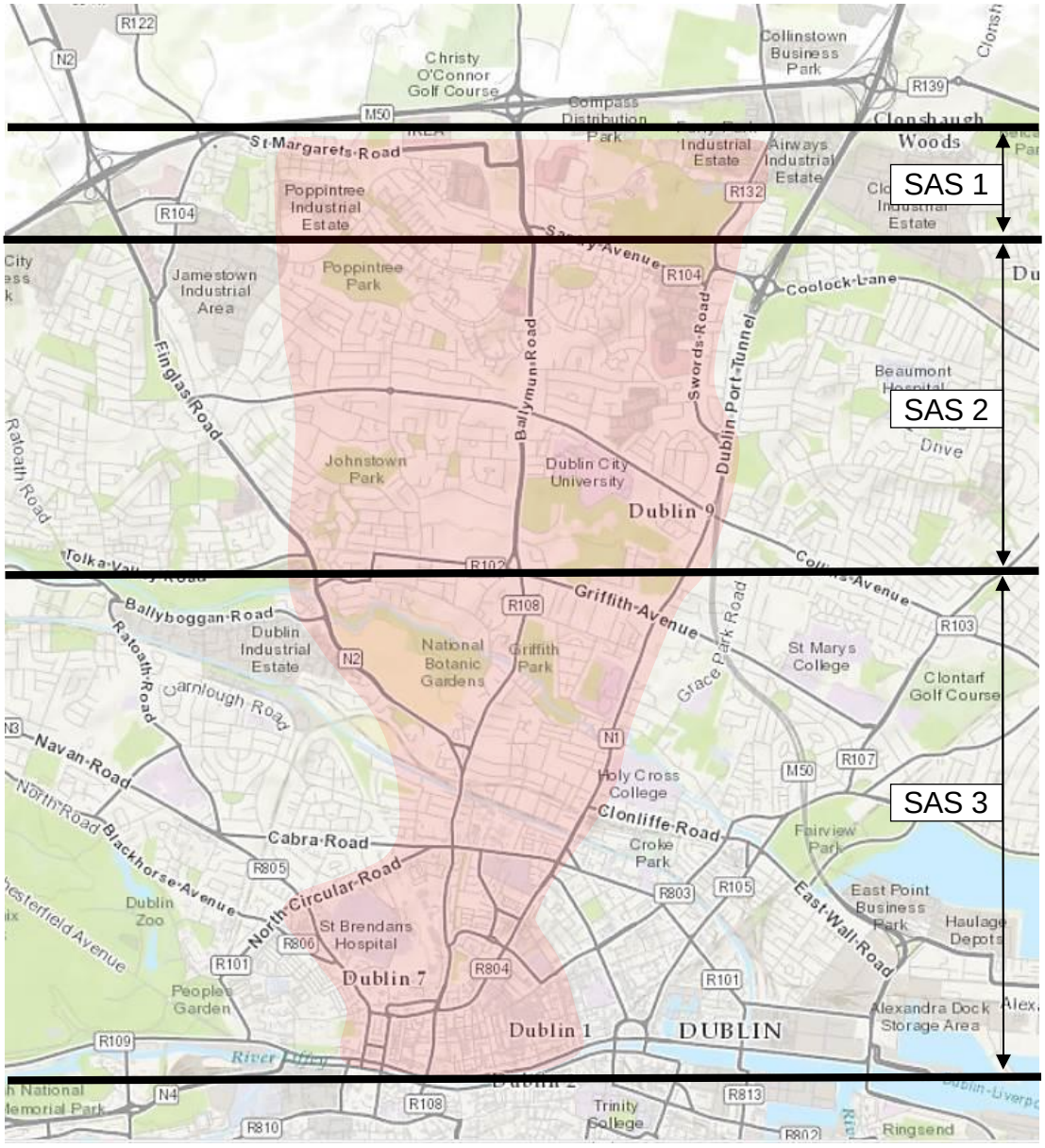


Figure 4.2: Study Area Sections

4.2.1 SAS 1 - Northern terminus off Ballymun Road Santry Avenue and M50 Interchange No 4.

The land-use along the corridor north of Santry Avenue/Balbutcher Lane is a mixture of greenfield and large retail / commercial with some residential and medical land uses provided in the Northwood development. There is employment uses locally provided within Northwood to the east and also in IKEA and Musgraves to the west. Study Area Section (SAS) 1 is presented in Figure 4.3**.** The individual route sections identified in SAS 1 are illustrated in Figure 4.4.

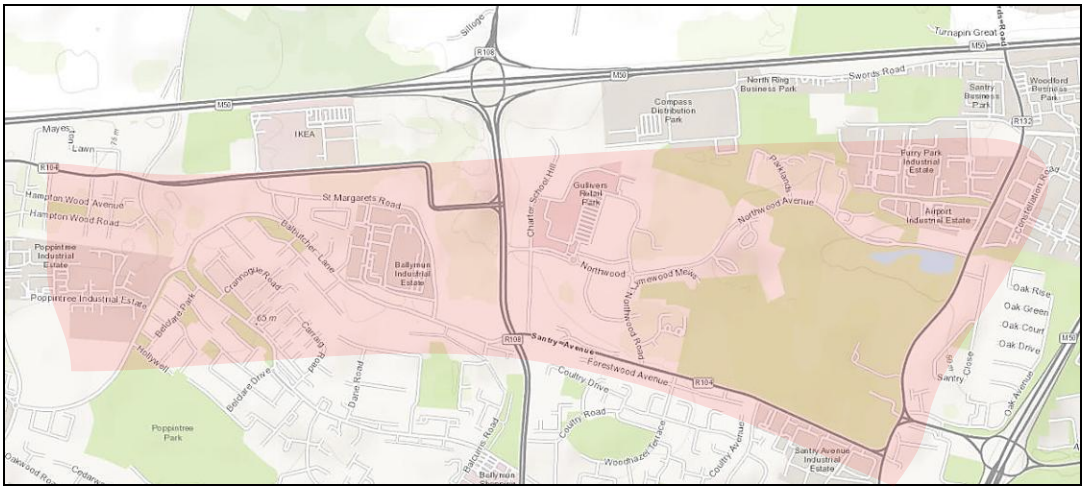


Figure 4.3: SAS 1

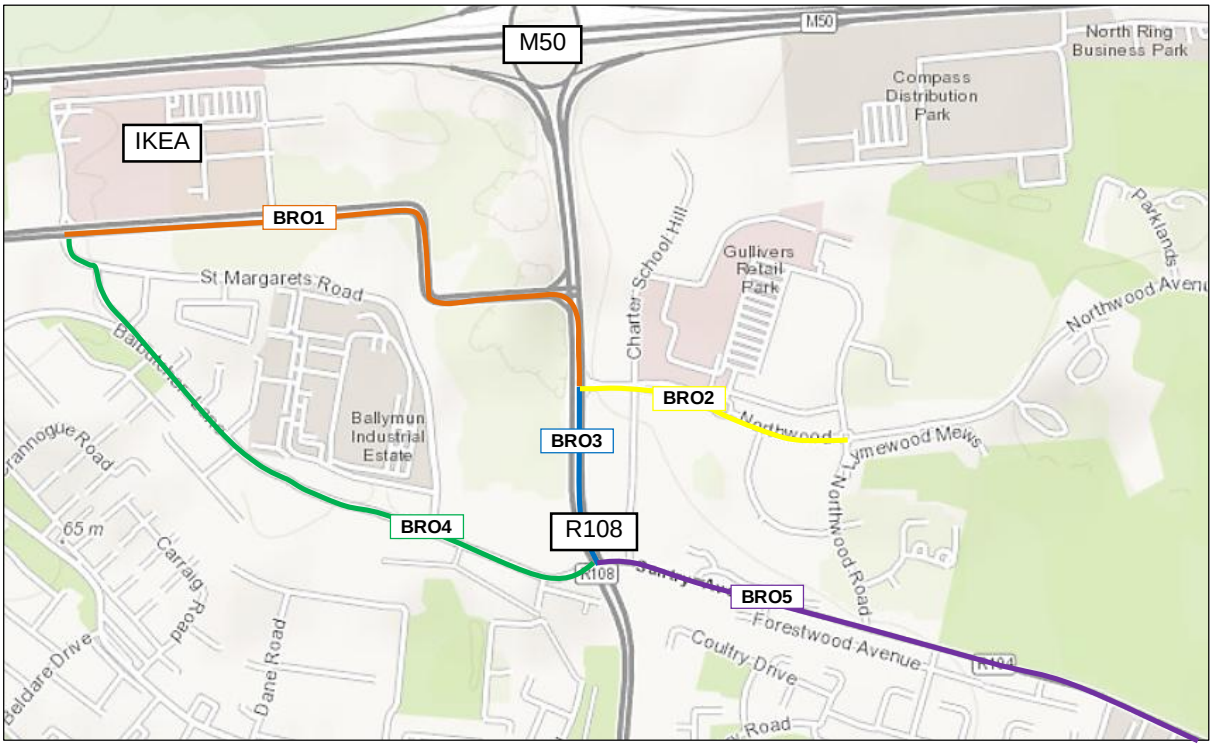


Figure 4.4: Route sections for SAS 1

A description of the characteristics of the different route sections is presented below:

BRO 1: St Margaret's Road and short section of Ballymun Road (R108); Ikea to Northwood.

Between IKEA and Ballymun Road, this section of Margaret's Road (R104) has a single lane in the eastbound direction and varies from one to two lanes in the westbound direction. Bus lanes, footpaths off-road cycle tracks are also provided in each direction. The short section of Ballymun Road covered by this route primarily consists of three lanes of traffic in each direction, including slip lanes. An off-road cycle track is provided in each direction along this section as well as footpaths on either side of the road. The only establishment along this route is an IKEA and there is no on-street parking. Current Dublin Bus services along this section include route 140.

BRO 2: Northwood; Shopping Centre to Ballymun Road.

This route starts at Ballymun Road / Northwood Avenue junction and extends to the second roundabout in Northwood Avenue, This route primarily is primarily a two lane, two-way carriageway which has no on-street parking. A two-way, off-road cycle track is provided along the north side of the road and footpaths are provided on either side. There are no bus lanes along the route. Northwood Avenue provides access primarily to the Northwood Development which consists of apartment developments but also a number of commercial establishments including Gulliver's Retail Park. Northwood Avenue itself is still under private control.

BRO 3: Ballymun Road (R108); Northwood to Santry Avenue (R104).

This section of Ballymun Road primarily has three lanes of traffic in each direction and a large central grass median. An off-road cycle track and footpaths are provided on either side of the road and there is no off-street parking. The only establishment along this route is a Topaz. Current services along this section include Dublin Bus routes 4 and 13.

BRO 4: Balbutcher Lane; Ikea to Ballymun Road (R108).

Balbutcher Lane is a two-way, single lane road with no bus or cycle lanes. A footpath is provided on either side of the road along this route. This section of Balbutcher Lane primarily links residential estates but also a primary school, a community and sports centre, an industrial estate (Sika Ireland) and several brownfield sites. On-street (indented) parking is provided along much of Balbutcher Lane as many of the houses and apartments do not have front gardens. Current services along this section include Dublin Bus routes 13 and 88N.

BRO 5: Santry Avenue (R104) and Swords Road (R132); from Ballymun Road to Collins Avenue.

This route extends from the Ballymun Road / Santry Avenue junction to the Swords Road in Santry via Santry Avenue (R104). Santry Avenue is a two-way single carriageway road in the main but varies from 1 to 2 lanes in each direction at junctions and has a cycle lane along part of its length; between the Ballymun Road and Forestwood Close junctions. Footpaths are provided either side of this road. Santry Avenue links a number of residential and commercial developments including an Aldi. Along most of the road large trees overhang from the north side. The section of Santry Avenue running alongside Santry Park has a stone wall on the Park side of the road which makes the footpath on this side very narrow, in the vicinity of the Trinity College sports grounds. Current services along this section include Dublin Bus route 17A.

4.2.2 Study Area Section 2 – Ballymun Road/Santry Avenue junction to Griffith Avenue

Study Area Section 2 is presented in **Figure 4.5.** The land uses along SAS 2 are predominantly residential in nature with local commercial development supplemented by educational and community uses in the vicinity of Ballymun Civic Centre. There is also a hotel adjacent to the junction between Ballymun Road and Santry Avenue. Dublin City University as well as Albert College Park are also located within SAS 2. The individual route sections identified in SAS 2 are illustrated in Figure 4.6.

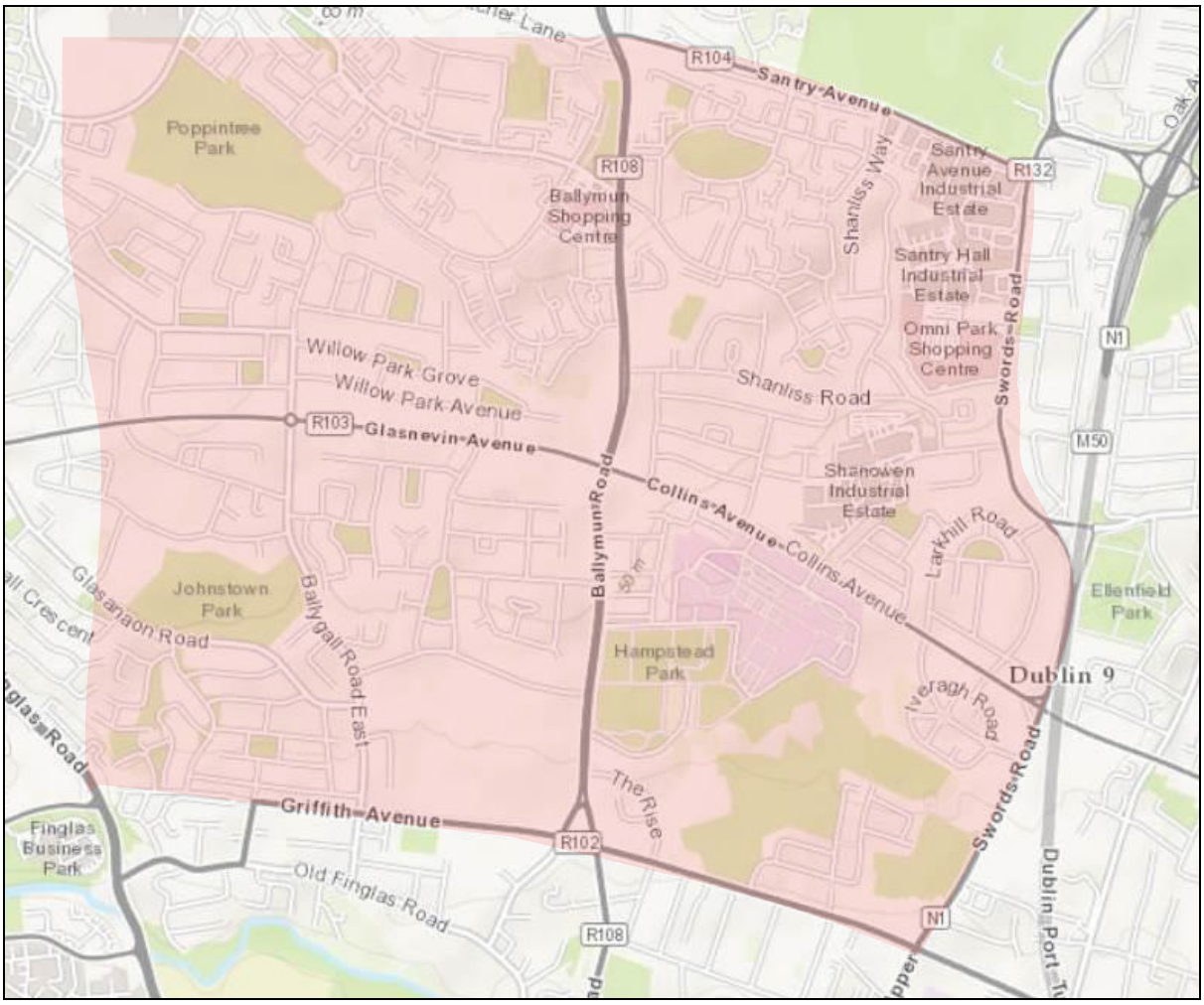


Figure 4.5: Section 2 Study Area

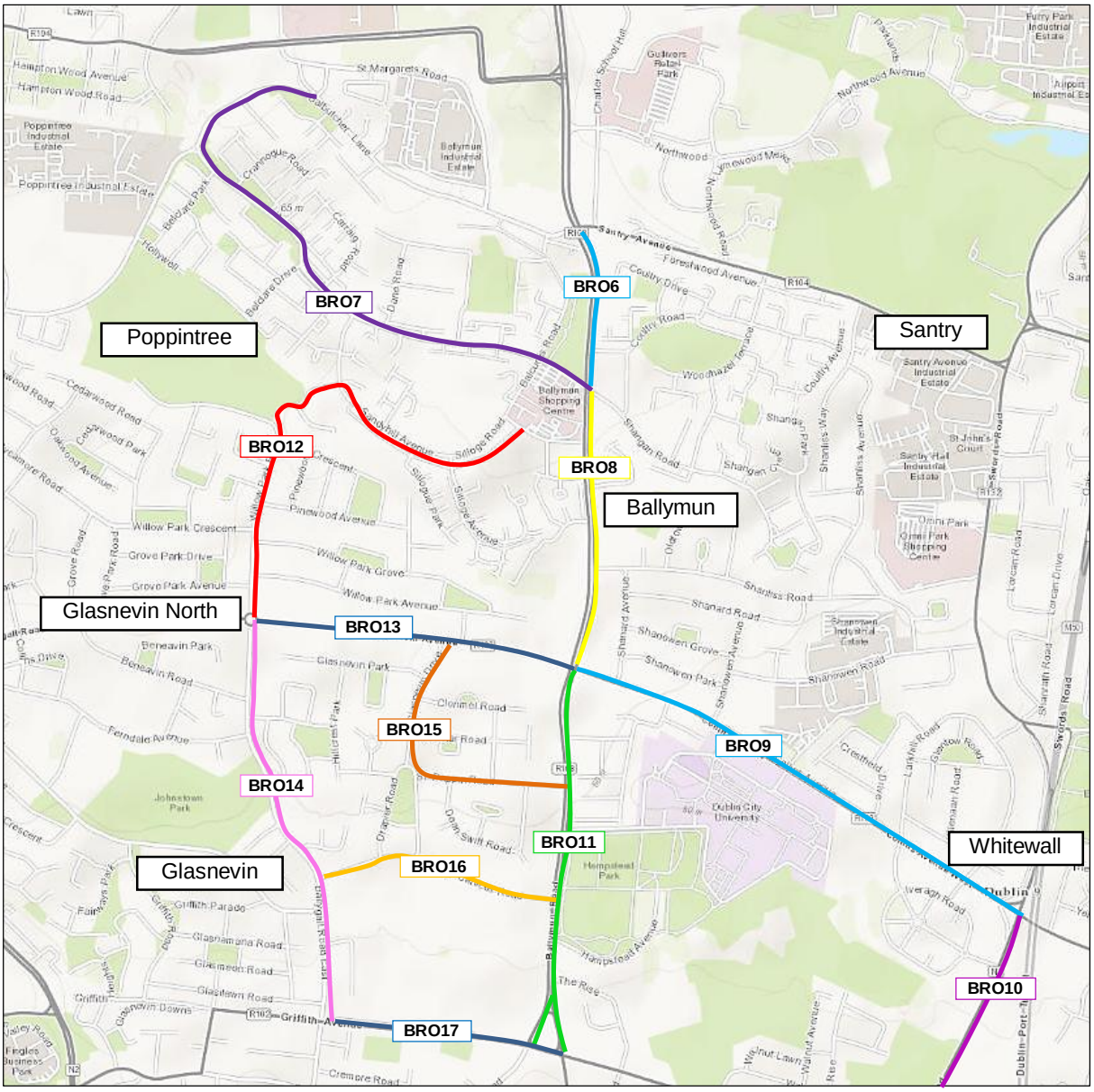


Figure 4.6: Route Sections within SAS 2

A description of the characteristics of the different route sections in SAS 2 is presented below:

BRO 6: Ballymun Road (R108); Santry Avenue (R104) to Shangan Road

This section of Ballymun Road primarily has three lanes of traffic in each direction including bus lanes in each direction and a large median with young trees at regular intervals. An on-road cycle lane and wide footpaths are provided on either side of the road and on-street parking is provided along the route on a part time basis. This route links a small number of apartment blocks

and commercial establishments as well as the Metro Hotel Dublin Airport. Current services along this section include Dublin Bus routes 4, 17A and 88N.

BRO 7: Shangan Road to Balbutcher Lane/St Margaret's Road

This route is a two-way single lane road with no bus or bicycle lanes. A footpath is provided on either side of the road along the route, which primarily links residential estates. On-street (indented) parking is provided along much of Balbutcher Lane as many of the houses and apartments along this section do not have front gardens. Current services along this section include Dublin Bus routes 13, 88N and 220. Balbutcher Lane can be used to reach N2 road by exiting the roundabout at Poppintree Park Lane and taking St Margaret's Road via Charlestown Shopping centre to the N2.

BRO 8: Ballymun Road (R108); Shangan Road to Collins Avenue (R103)

This route extends from the Ballymun Road / Shangan Road junction to the Ballymun Road / Collins Avenue junction via Ballymun Road (R108). Ballymun Road is primarily a two-way dual carriageway with three lanes in each direction including bus lanes. Cycle lanes are also provided in both directions along Ballymun Road and there are young trees on either side of the road and in the central median along most of the route. This section of Ballymun Road is primarily of a residential nature with a small number of commercial establishments including the Ballymun Civic centre and Trinity Comprehensive Secondary school. All the houses on this route have off-road parking and on-street parking is provided in front of the Ballymun Civic centre on a part time basis. Current services along this section include Dublin Bus routes 4, 13,17A, 88N, 787 and 104.

BRO 9: Collins Avenue (R103); Ballymun Road (R108) to Swords Road (N1)

The route starts at the Collins Avenue / Ballymun Road junction and continues along Collins Avenue (R103) to the Collins Avenue / Swords Road. Collins Avenue is a wide two-way single carriageway road which generally has one lane of traffic in each direction. No bus lanes are provided but there is a cycle lane in both directions on the section of Collins Avenue between Ballymun Road and Falcaraigh Road. Beyond Falcaraigh Road the cycle lanes end and there is on-street parking. Large trees planted at regular intervals overhang from both sides of the road along its length. All the houses on Collins Avenue have front gardens with private parking. Collins Avenue is mostly of a residential nature but it also provides access to Dublin City University (DCU). Current services along this section include Dublin Bus routes the 104, 16C, 16 and 44.

BRO 10: Swords Road (N1); Collins Avenue (R103) to Griffith Avenue (R102)

The route starts at the Collins Avenue / Swords Road junction and continues along Swords Road to Drumcondra Road Upper. Swords Road is generally a two-way, two lane carriageway including bus lanes in each direction. A cycle lane is provided along most of the road in the outbound direction only. There is no on-street parking along Swords Road. The Swords Road catchment has a number of local businesses, houses with private off-road parking, sports fields (Home Farm F.C.), Plunkett College and a large brownfield site at the Whitehall junction. Current services along this section include Dublin Bus routes 16, 740, 1, 16, 33, 41, 44, 16C, 41A, 41B, 41C, 41N, 33N, 823 and 101.

BRO 11: Ballymun Road (R108); Collins Avenue (R103) to Griffith Avenue (R102)

This route extends from the Ballymun Road / Collins Avenue junction to the St Mobhi Road / Griffith Avenue junction via Ballymun Road. This section of Ballymun Road is primarily a two-way carriageway with three lanes in each direction including bus lanes and cycle lanes are provided in each direction. Trees are planted either side of the road and in the central median along its length. Large trees are located on the inbound approach to the Griffith Avenue junction. This route links a number of attraction points including Dublin City University, DCU Sports Grounds, Albert College Park and Church of Our Lady of Victories. All the houses on this route have private off-road parking. On-street parking is provided along a small section of the route - outside Albert College Park. Current services along this section include Dublin Bus routes 4, 9, 11 and 13.

BRO 12: Willow Park Road; Glasnevin Avenue to Balcurris Road via Marewood Crescent and Balbutcher Lane

This route links Glasnevin Avenue to Balcurris Road via Willow Park Road, Marewood Crescent and Balbutcher Lane. Willow Park Road connects to Marewood Crescent via the current cul-de-sac at Poppintree Crescent and through Barnwell Drive. Marewood Crescent connects to Balbutcher Lane via Sillogue Road. This route is primarily of a residential nature. All the roads are two-way with one lane of traffic in each direction. No bus or cycle facilities are provided along this route. Willow Park Road is a residential estate and all the houses have private parking in their front gardens. On-street parking is permitted either side of the road on Willow Park Road. The other roads along this route (i.e. between Willow Park Road and Balbutcher Lane) serve apartment blocks as well as a large brownfield site south of Marewood Crescent. On-street parking is provided along most of the route in front of the apartments. No Dublin bus services use this route.

BRO 13: Glasnevin Avenue (R103); Ballymun Road (R108) to Willow Park Road

This route starts from the Ballygall Road East / Griffith Avenue junction and continues up Ballygall Road East onto the Glasnevin Avenue / Willow Park Road roundabout. The route is a two-way single lane carriageway throughout with footpaths either side, and no cycle or bus lanes. The route runs through a residential area which has a small number of shops. All the houses along this route have private off-street parking. Current services along this section include Dublin Bus routes 9, 17A and the 88N.

BRO 14: Ballygall Road; Griffith Avenue (R104) to Glasnevin Avenue (R103)

This route starts from the Griffith Avenue / Willow Park Road and extends along Griffith Avenue to Ballymun Road. The route is a two-way single lane carriageway throughout with footpaths either side, and no cycle or bus lanes. The carriageway is quite wide in sections. The route runs through a residential area which has several shops as well as a garage, pub and a clinic. There are speed ramps at regular intervals and the houses and shops along this route have private parking. On-street parking is provided on the section of Ballygall Road East opposite the Church of Our mother of Divine Grace. Current services along this section include Dublin Bus routes 83 and 88N.

BRO 15: St Pappin Road; Glasnevin Avenue (R103) to Ballymun Road (R108)

This route connects Ballymun Road to Glasnevin Avenue via St Pappin Road, Delville Road and Glasnevin Drive. St Pappin Road, Delville Road and Glasnevin Drive are all two-way roads with one-lane of traffic in each direction. There are no bus or cycle lanes on this route. Trees are provided at regular intervals on the footpaths either side of the roads. The route is of a residential nature and all the houses have front gardens with private parking. On-street parking is permitted on both sides of the roads along most of the route and there are a number of speed bumps throughout. Current services along this section include Dublin Bus route 11.

BRO 16: St Canice's Road; Ballygall Road East to Ballymun Road (R108)

St Canice's Road is a two-way street with one lane of traffic in each direction and no bus or cycle lanes. Trees are provided at regular intervals on the footpaths either side of the road and there are several speed bumps along the route. St Canice's Road is primarily of a residential nature but there are also a number of schools (Scoil Chiaran, Sacred Hearts BNS and Delfin School) and a church (Our Mother of Divine Grace) at the Ballygall Road East end of the route. All the houses on St Canice's Road have front gardens with private parking and on-street parking is permitted either side of the road along most of the route. There are no Dublin Bus services using this route.

BRO 17: Griffith Avenue (R102); Ballygall Road to Ballymun Road (R108)

This route extends from the Ballygall Road East to Ballymun Road via Griffith Avenue. The section of Griffith Avenue between Ballygall Road East and Ballymun Road has two lanes of traffic each direction, a cycle lane and footpaths either side of the road forming part of an extensive road reservation. There is a single row of trees on each side of Griffith Avenue and also along the central median. No off-road parking is provided along this route. A parallel residential road exists on the northern side of the Griffith Avenue. Griffith Avenue is of a residential nature but it also provides access to Tolka Rovers Sports Grounds. There are no Dublin Bus services running along this route.

4.2.3 Study Area Section 3: Griffith Avenue to Church Street.

Study Area Section 3 is presented in **Figure 4.7.** SAS 3 encompasses the inner suburban and City Centre area. Existing residential land-uses dominate the initial northern sections from Griffith Avenue to Phibsborough and Drumcondra respectively. Existing land-use varies to the south considerably as one enters the City Centre area and includes pockets of residential, together with retail, office and other commercial and educational / institutional uses such as DIT Grangegorman and Kings Inns on Constitution Hill as well as Mountjoy Prison and the Mater Hospital.

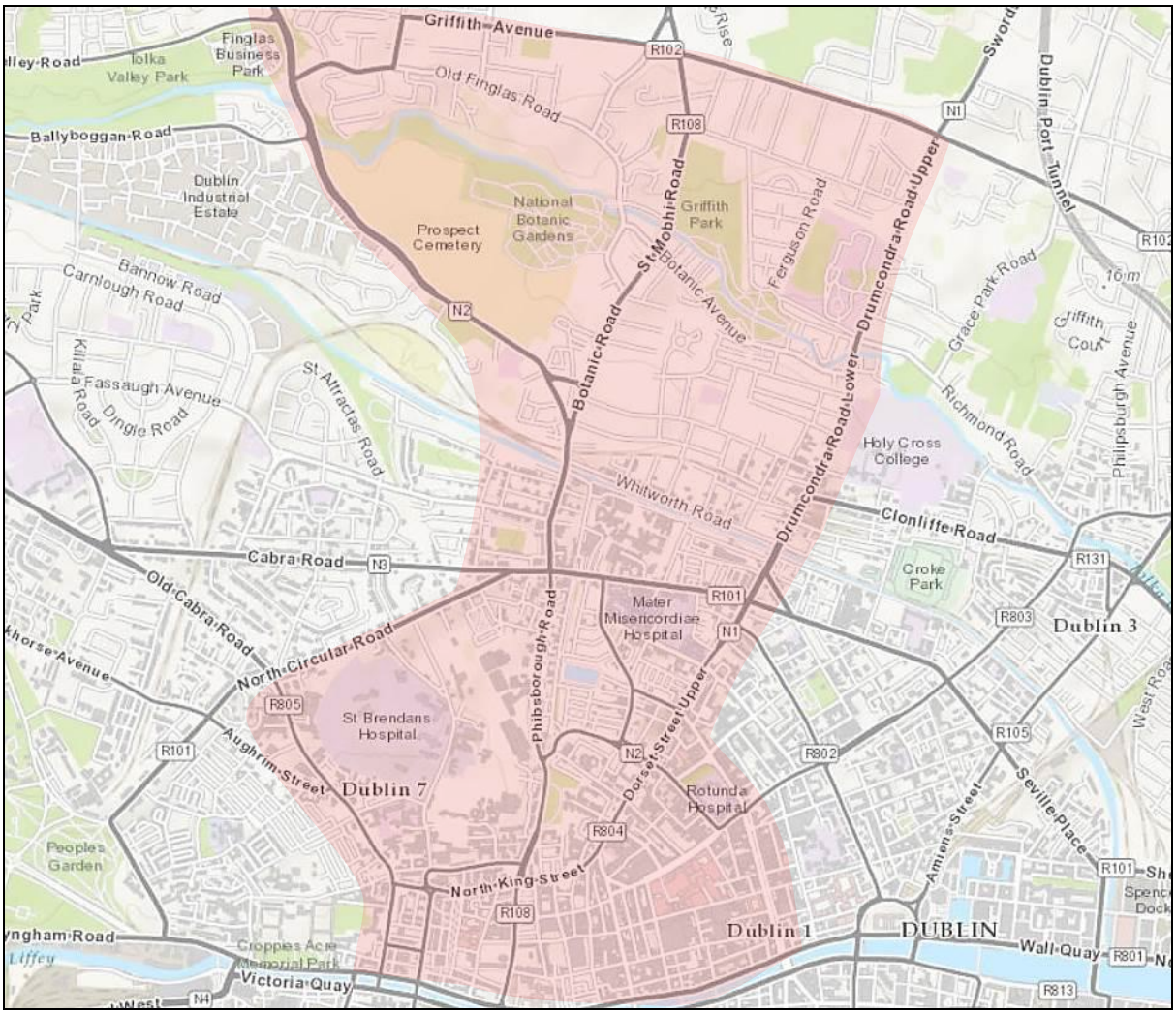


Figure 4.7: Section 3 Study Area

The northern part of SAS 3 contains several tree line streets such as St Mobhi Road and Griffith Avenue. Local and national amenities such as the Botanic Gardens are served by roads in this section. The section also contains crossings of the River Tolka and the Royal Canal.

The individual route sections identified in SAS 3 are illustrated in Figure 4.8.

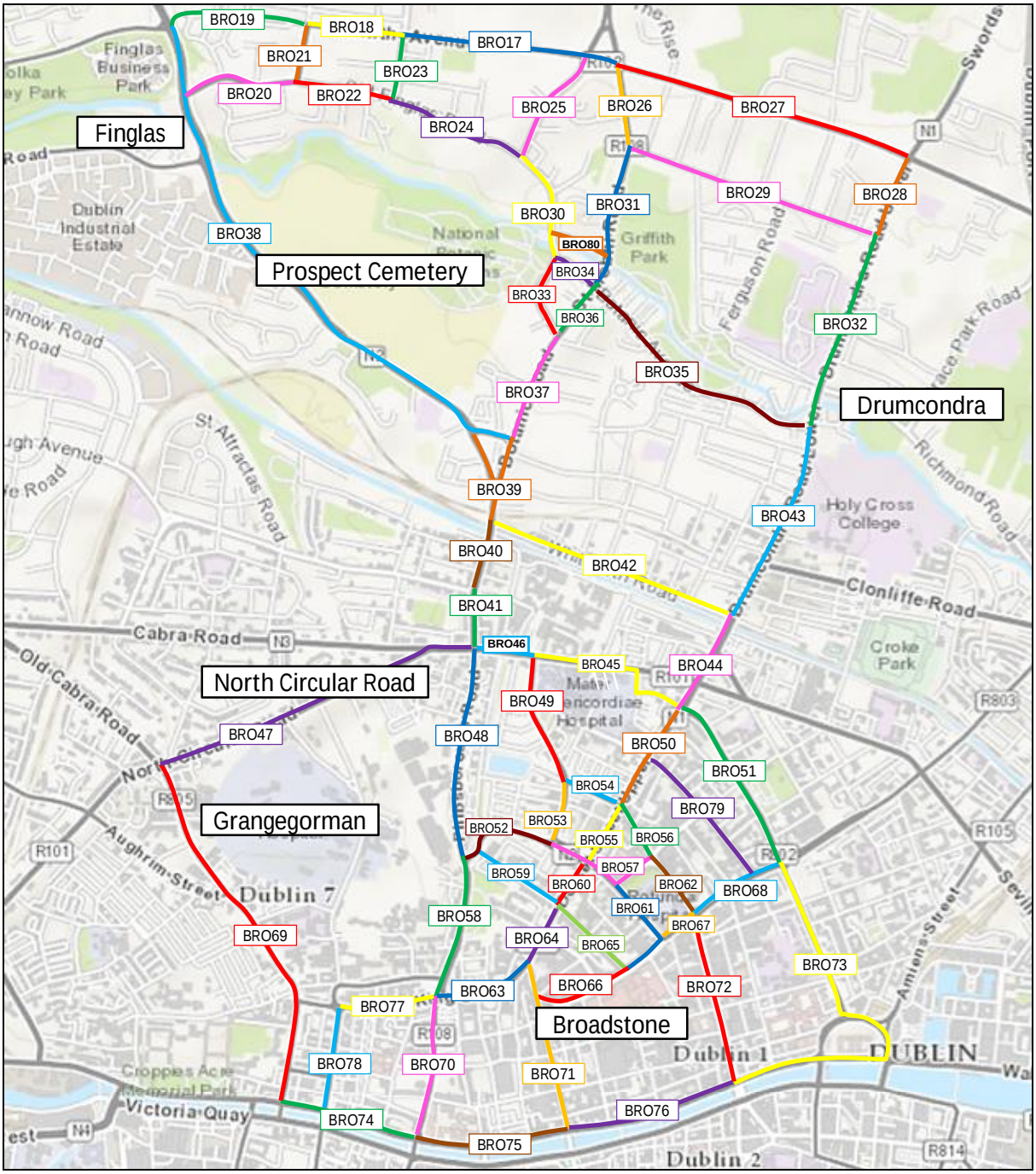


Figure 4.8: Route sections within SAS 3

The City Centre study area includes individual buildings and streets of high heritage value including a number of Architectural Conservation Areas (ACAs). Major landmarks include:

- Architectural Landmark Buildings (inter alia, Kings Inns, the Four Courts, numerous Churches and Friary's);
- Protected structures (Binn's Bridge) and streetscapes; and
- The zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020).

A description of the characteristics of the different roads in this section is presented below:

BRO 18: Griffith Avenue (R102); Cremore Villas to Tolka Estate

This route extends from Tolka Estate Road to Cremore Villas via Griffith Avenue. This section of Griffith Avenue is a two-way, single carriageway with footpaths either side of the road and no bus or cycle lanes. The route is of a residential nature and all the houses have front gardens with private parking, though on-street parking is also provided. Cars can park on both sides of the road on Griffith Avenue. Large trees overhang from both sides of the road along Griffith Avenue. There are no Dublin Bus services running along this route.

BRO 19: Glasnevin Downs; Tolka Estate to N2

This route extends from Tolka Estate to the end of the cul-de-sac on Glasnevin Downs. This route is a two-way, single lane road which serves the surrounding houses. A footpath is provided on the north side of the road and there are no bus or cycle lanes. Trees run along either side of the road and there is no on-street parking. An opportunity exits to remove the cul-de-sac at the end of Glasnevin Downs to connect the route to Finglas Road (N2). There are no Dublin Bus services running along this route.

BRO 20: Old Finglas Road; Tolka Estate Road to Finglas Road (N2)

This route extends from Finglas Road (N2) to Tolka Estate via Old Finglas Road. Old Finglas road is a single lane, two-way carriageway with both young and mature trees either side of the road as well as footpaths. The route is of a residential nature and there are no bus lanes or cycle lanes. Speed bumps are provided at regular intervals along the route and there is no on-street parking. There is a considerable level difference between the existing Old Finglas Road and the residential units which back onto the road near the junction with the N2. There are no Dublin Bus services running along this route.

BRO 21: Tolka Estate Road; Old Finglas Road to Griffith Avenue (R103)

This route extends from the Old Finglas Road to Griffith Avenue via Tolka Estate Road. Tolka Estate Road is a two-way, single lane road with footpaths either side, and no bus or cycle lanes. This route serves the surrounding residential catchment. All the houses along the route have front gardens with private parking. Overhanging trees are provided either side of the road and there is no on-street parking. Current services along this section include Dublin Bus route 83 and 83A.

BRO 22: Old Finglas Road; Tolka Estate Road to Cremore Villas

This route extends from Cremore Villas to Tolka Estate via Old Finglas Road. Old Finglas road is a single lane two-way carriageway with both young and mature trees either side of the road as well as footpaths. The route is of a residential nature and there are no bus lanes or cycle lanes. Speed bumps are provided at regular intervals along the route and there is no on-street parking. Current services along this section include Dublin Bus route 83 and 83A.

BRO 23: Cremore Villas; Griffith Avenue to Old Finglas Road

Cremore Villas, which joins Old Finglas Road and Griffith Avenue, is a two-way single carriageway road with footpaths either side, no bus or cycle lanes and with on-street parking at sections. The road primarily serves existing residential units which generally have off-street parking provided. There are some young trees dispersed along the route. Current services along this section include Dublin Bus route 88N (Nitelink).

BRO 24: Old Finglas Road; Cremore Villas to Old Ballymun Road

This route extends from the Old Finglas Road at the Glasnevin Hill / Old Ballymun Road junction onto Cremore Villas. Old Finglas road is a single lane two-way carriageway with both young and mature trees either side of the road. The route provides direct access to residential land and also links with St Marys Secondary School and the Convent of Holy Faith. There are no bus lanes, cycle lanes or on-street parking along Old Finglas Road but footpaths are provided either side of the road and there are speed bumps at regular intervals. Current services along this section include Dublin Bus route 83 and 83A.

BRO 25: Old Ballymun Road; Old Finglas Road to Ballymun Road (R108)

This route extends from Old Finglas Road / Glasnevin Hill to Ballymun Road via Old Ballymun Road. Old Ballymun Road is a two-way single lane road with parking on the east side of the road and a cycle lane on the west side (outbound direction). Due to the on-street parking, the road width is very narrow. There are no bus lanes along this route which is of a residential nature. The houses on the west side of Old Ballymun Road have off-road private parking whereas most of the houses on the east side do not and have to use on-street parking. The footpaths on either side of the route are quite narrow and contain a small number of trees which overhang onto the road. No Dublin Bus services use this route.

BRO 26: St Mobhi Road (R108); Griffith Avenue (R102) to Home Farm Road

The section of St Mobhi Road between Griffith Avenue and Home Farm Road is a two-way, single carriageway with an additional lane for buses in the inbound direction. There are no cycle lanes along this route and large trees overhang from either side of the road. The footpaths either side of St Mobhi Road are quite wide. This route serves a residential catchment and all the houses have private off-road parking. No on-street parking is provided. Current services along this section include Dublin Bus routes 4, 9 and 11.

BRO 27: Griffith Avenue (R102); Ballymun Road (R108) to Swords Road (N1)

This route extends from St Mobhi Road to Swords via Griffith Avenue. Griffith Avenue is a wide, two-way, single lane road with informal on-street parking and the houses on this road also have front gardens with private parking. Footpaths are provided either side of the road but no bus lanes or cycle lanes are provided along this road. Griffith Avenue is a residential road with two rows of mature trees on each side which overhang onto the roadway. Current services along this section include Dublin Bus route 13.

BRO 28: Drumcondra Road Upper (N1); Griffith Avenue (R102) to Home Farm Road

This route extends from Griffith Avenue (R103) to Home Farm Road via Drumcondra Road Upper. This section of Drumcondra Road Upper is mostly a two-way single lane road with bus lanes in each direction and large footpaths on either side of the road. The route is of a residential nature and the houses all have off-road private parking; hence there is no on-street parking. Along its

length, large trees overhang from either side of the road. Drumcondra Road is a key distributor road linking the city centre with the M1 motorway. Current services along this section include Dublin Bus routes 16, 44, 1, 33, 41, 44, 16C, 33N, 41A, 41B, 41C, 41N, 101 and 13.

BRO 29: Home Farm Road; St Mobhi Road (R108) to Drumcondra Road (N1)

Home Farm Road is a two-way single carriageway road through a primarily residential area. This road is used to access Corpus Christi school which adjoins Home Farm Road directly. Like Griffith Avenue, informal on-street parking is provided along Home Farm Road despite the houses having private parking in their front gardens. However, on-street parking is the only form of parking for residents closer to the Drumcondra Road Upper / Home Farm Road junction. Footpaths are provided either side of Home Farm Road and there are no bus lanes or cycle lanes. Also similar to Griffith Avenue, large trees either side of the road overhang onto Home Farm Road along most of its length. Current services along this section include Dublin Bus route 11.

BRO 30: Glasnevin Hill; Botanic Avenue to Old Ballymun Road

This route extends from Botanic Road to the Old Ballymun Road via Glasnevin Hill. Glasnevin Hill is a two-way single carriageway with footpaths on either side of the road and a cycle lane in the outbound direction. There are no bus lanes along this route which is mostly residential with several shops. This route serves the National Botanic Gardens, the boundary walls of which run in close proximity to the existing road reservation. Many of the houses and shops along the route do not have private parking and hence on-street parking is provided. Current services along this section include Dublin Bus routes 83, 83A and the 88N.

BRO 31: St Mobhi Road (R108); Home Farm Road to Botanic Avenue

This section of St Mobhi Road connects Home Farm Road to Botanic Avenue. St Mobhi Road is a two-way three lane carriageway including a bus lane in the inbound direction. An off-road cycle track is provided beside the footpath on the east side of the road i.e. in the inbound direction. St Mobhi Road's catchment is of a residential nature however the GAA Club Na Fianna and Home Farm Football Club also have grounds along the link. There are also two schools and a college of further education accessed from the route. There is no on-street parking along this route – all the houses have front gardens with private parking. Along the route, large trees overhang from both sides of the road. The main trip attraction points on St Mobhi Road are the Na Fianna and Home Farm sports fields, Scoil Chatriona and Scoil Mobhi. Current services along this section include Dublin Bus routes 4 and 9.

BRO 32: Drumcondra Road Upper (N1); Home Farm Road to Botanic Avenue

This route extends from Home Farm Road to Botanic Avenue via Drumcondra Road Upper. This section of Drumcondra Road Upper is mostly a two-way single lane road with bus lanes and cycle lanes in each direction along most of the route and large footpaths on either side of the road. This route is predominately of a commercial nature with several houses, apartments and a college (St. Patricks College) as well. On-street parking is provided in front of many of the shops, particularly at the Home Farm Road end of the route. Drumcondra Road is a key distributor road linking the city centre with the M1 motorway. Current services along this section include Dublin Bus routes 126, 109A, 16, 44, 11, 1, 33, 41, 44, 16C, 33N, 41A, 41B, 41C, 41N, 740, 101, 180, 13, 980, 910, 900, 901 and 904.

BRO 33: Botanic Road; St Mobhi Road to Glasnevin Hill

This route extends from the Botanic Road / St Mobhi Road junction up Botanic Road to Glasnevin Hill. Botanic Road is a two-way single carriageway with footpaths on either side of each road and a cycle lane in the outbound direction. There are no bus lanes along this route which is mostly residential with several shops. This route serves the National Botanic Gardens, the boundary walls of which run in close proximity to the existing road reservation. Many of the houses and shops along the route do not have private parking and hence on-street parking is provided. The on-street parking on Botanic Road opposite the Botanic Gardens makes the road very narrow at this point. Current services along this section include Dublin Bus routes 83, 83A and the 88N.

BRO 34: Botanic Avenue; Glasnevin Hill to St Mobhi Road (R108)

This route extends from Glasnevin Hill to St Mobhi Road via Botanic Avenue. This section of Botanic Avenue is a two-way single lane street which serves a residential catchment. Speed bumps are provided at regular intervals and there is no on-street parking. All the houses on this street have private parking. Our Lady of Dolours Church grounds also adjoin. There are no bus or cycle lanes on this route and the footpaths on either side of the road are quite narrow. No Dublin bus services use this route.

BRO 35: Botanic Avenue; St Mobhi Road (R108) to Drumcondra Road (N1).

This section of Botanic Avenue connects St Mobhi Road to Drumcondra Road Lower. This two-way, single lane street runs a residential area and has speed bumps at regular intervals. It also links Griffith Park. Though many of the houses on this street have front gardens with private parking, there is on-street parking along most of the route; in the form of informal and perpendicular spaces. The road becomes quite narrow at parts due to the informal on-street parking. Footpaths are provided on both sides of the street and there are no bus or cycle facilities. No Dublin Bus facilities run along this route.

BRO 36: St Mobhi Road (R108); Botanic Avenue to Fairfield Road/Botanic Road

This route extends from Botanic Avenue to Fairfield Road via St Mobhi Road. This section of St Mobhi Road is a two-way, three lane single carriageway including a bus lane in the inbound direction. St Mobhi Road's catchment is of a residential nature and there is no on-street parking along this route – all the houses have front gardens with private parking. Along the route, large trees overhang from both sides of the road. Current services along this section include Dublin Bus routes 4 and 9.

BRO 37: Botanic Road (R108); Fairfield Road to Prospect Avenue

This route extends from Fairfield Road to Prospect Avenue via Botanic Road. Botanic Road is two-way, single carriageway with one traffic lane and one cycle lane in each direction between St Mobhi Road and to just beyond Marguerite Road. After this point the two-way carriageway has an additional lane for buses in the inbound direction. The cycle lanes on both sides end at Prospect Avenue. Botanic Road is of a residential nature with a few local businesses. No on-street parking is provided despite none of the houses or businesses on this road having private parking. There are no trees on the footpaths along this route and both the road and footpaths are quite wide at sections. Current services along this section include Dublin Bus routes 83, 83A, 83N, 4 and 9.

BRO 38: Finglas Road (N2); Prospect Avenue/Hart's Corner to Old Finglas Road

This section of Finglas Road connects Prospect Avenue to Old Finglas Road and primarily consists of a two-way carriageway with two lanes in each direction, including two bus lanes. Cycle lanes and footpaths are provided on either side of the road for most of the route. Large trees have been planted throughout Finglas Road either on the sides of the road or on the road's central

island. Finglas Road directly links to the M50 and passes several residential areas along the way. It mainly connects large commercial establishments including Lidl, Aldi, Finglas Shopping Centre, motor garages as well as Glasnevin Cemetery, Glasnevin Museum and a secondary school. On-street parking is provided outside Glasnevin Cemetery and Glasnevin Museum. At this section of the route, the bus lane in the inbound direction has been removed for the provision of on-street parking. This provides a major constraint for buses as they are only prioritised in the outbound direction for this part of the route. Current services along this section include Dublin Bus routes 40, 40B, 40D, 140, 103, and 107.

BRO 39: Botanic Road/Prospect Road (R108); Prospect Avenue to Whitworth Road

This route connects Whitworth Road to Prospect Avenue via Prospect Road and both Botanic Road and Finglas Road. This section of Botanic Road and Finglas are both one-way single carriageways with an additional lane for buses. Botanic Road is one-way in the inbound direction and Finglas Road is one-way in the outbound direction. Prospect Road is a two-way, two lane carriageway. The entire route is of a residential nature with several local businesses. There are only a small number of on-street parking spaces along this route – at the south end of Finglas Road. There are no trees on the footpaths along this route and both the road and footpaths are quite wide at sections. This section of Botanic Road forms a one way gyratory junction with Prospect Avenue and Finglas Road. Botanic Road becomes Phibsborough Road in the vicinity of Cross Guns Bridge at the Royal Canal which connects to Whitworth Road and Royal Canal Bank. Current services along this section include Dublin Bus routes 83, 83A, 83N, 40, 4, 9, 140, 40B, 40D, 103, 107, 103X and 980.

BRO 40: Phibsborough Road (R108); Whitworth Road to Connaught Street

This route extends from Whitworth Road to the Connaught Street via Phibsborough Road. This section of Phibsborough Road is a two-way carriageway with two lanes in the outbound direction and three lanes in the inbound direction, including bus lanes in each direction. The route is of a residential nature with some local businesses. There is no on-street parking and the houses do not having private parking. Young trees are planted at regular intervals on either side of the road. The main attraction points along Phibsborough Road include Phibsborough Shopping Centre and a football stadium (Dalymount Park). Current services along this section include Dublin Bus routes 4, 9, 83, 83A, 83N and 140.

BRO 41: Phibsborough Road (R108); Connaught Street to North Circular Road

This route extends from Connaught Street to North Circular Road via Phibsborough Road. The route consists of a two-way single lane carriageway with a short length of indented on-street parking provided in the inbound direction to serve the terrace of shops here. This section of Phibsborough Road is predominantly a shopping street with a large number of commercial establishments. The footpaths are quite wide and there are no trees either side of the road. The main attraction points along Phibsborough Road include Phibsborough Shopping Centre and a football stadium (Dalymount Park). Current services along this section include Dublin Bus routes 4, 9, 83, 83A, 83N and 140.

BRO 42: Whitworth Road; Prospect Road/Botanic Road (R108) to Drumcondra Road (N1).

This route starts at the Whitworth Road / Prospect Road junction at Cross Guns Bridge and extends along Whitworth Road to Drumcondra Road Lower. Whitworth Road is a single carriageway two-way street with ramps at regular intervals, no on-street parking and a footpath along the northern side. Houses on this street generally do not have private parking in their front gardens. Whitworth Road is a residential street which runs parallel to a rail line to the south. This rail line is a constraint since the road cannot be widened without reducing the width of the footpath on the northern side. Charleville Lawn Tennis club is also accessed from Whitworth Road near Cross Guns Bridge. Current services along this section include Dublin Bus routes 40, 40B, 40D, 980.

BRO 43: Drumcondra Road Lower (N1); Botanic Avenue to Whitworth Road

This route extends from Botanic Avenue to Whitworth Road via Drumcondra Road Lower. Between Botanic Avenue and St Alphonsus' Road Lower, this section of Drumcondra Road Lower is residential and consists of a two-way single lane carriageway with additional lanes for buses in each direction as well as off-road cycle tracks. All houses along this route have private off-road parking and there are large trees which overhang from either side of the road. Between St Alphonsus' Road Lower and Whitworth Road, Drumcondra Road Lower is primarily of a commercial nature and on-street parking is provided in front of many of the shops. Along this section of the route the road becomes a two-way carriage with two lanes of traffic in each direction as well as an additional lane for buses in the inbound direction. On-road cycle lanes are provided in each direction. The footpaths along this section of the route are quite wide at parts and there are no trees either side of the road. Drumcondra Road is a key distributor road linking the city centre with the M1 motorway. Current services along this section include Dublin Bus routes 1, 11, 13, 16, 33, 33N, 40, 41, 44, 122, 16C, 41A, 41B, 41C, 41N, 41X, 900, 901, 904, 700, 740, 101, 101N.

BRO 44: Dorset Street (N1); Whitworth Road to Gardiner Street (R802)

This route extends from Whitworth Road to Gardiner Street via Dorset Street Lower. Dorset Street Lower is a two-way carriage way with three lanes in each direction including bus lanes and has no on-street parking. Dorset Street Lower is predominantly a commercial area with a great number of shops but it also has several apartment blocks and a school. A central median with trees at regular intervals runs along this street. Current services along this section include Dublin Bus routes 1, 11, 13, 16, 33, 40, 41, 44, 122, 16C, 41A, 41B and 41C.

BRO 45: North Circular Road (R101) via Synott Place; Berkley Street to Gardiner Street (R802)

This route extends from the Berkley Road to Gardiner Street via North Circular Road, Leo Street, St Joseph Road and Synnott Place. This section of North Circular Road is primarily a two- way road with one lane in the eastbound direction and two lanes of traffic in the westbound direction. The route has on-street parking and cycle lanes on the northern side along most of its length. The route provides access to Mountjoy Prison, the Mater Hospital as well as local businesses and residential areas. There are a small of young trees planted on either side of the road along this part of North Circular Road. Leo Street, St Joseph Road and Synnott Place are all a single lane two-way residential streets with on-street parking on either side of the road and narrow footpaths. None of the houses along these roads have private off-road parking. Current services along this section include Dublin Bus routes 46a, 105, 109, 111, 122, 33N and 41N.

BRO 46: North Circular Road (R101); Phibsborough Road (R108) to Berkley Road

This route extends from the Phibsborough Road to Berkley Road via North Circular Road. This section of North Circular is a two way carriageway with two lanes in each direction and no cycle lanes. This route serves a commercial area and there is a number of bus loading bays on the north side of the road. Current services along this section include Dublin Bus routes 46A, 38, 120, 122, 38A and 38B.

BRO 47: North Circular Road (R101); Phibsborough Road (R108) to Prussia Street (R805).

This route starts at the North Circular Road / Phibsborough Road junction and continues west down North Circular to Prussia Street. Between Phibsborough Road and Rathdown Road, this section of North Circular Road is a single lane, two-way carriageway with cycle lanes on either side of the road. Between Rathdown Road and Prussia Street, the cycle lane in the

outbound direction is replaced by on street parking. The top of North Circular Road at the Cabra Road junction has a number of shops and also a church (St. Peter's). The remainder of North Circular Road is of a residential nature and almost none of the houses on this street have private parking in their front gardens. Large trees are planted at regular intervals on the footpaths either side of the road. Current services along this section include Dublin Bus route 46A.

BRO 48: Phibsborough Road (R108); North Circular Road (R101) to Western Way

This route extends from the Phibsborough Road to Western Way junction via Phibsborough Road. This route is generally a two-way, single lane carriageway with an additional lane for buses in the outbound direction. A cycle lane is provided in the inbound direction along this route and in the outbound direction along part of this route. There are several shops and public houses along this route as well as houses – none of which have front gardens with private parking. On-street parking is provided along most of the route. There is potential alternative parking in laneways to rear of these properties. The footpaths on either side of the road are very narrow in some sections and a number of young trees have been planted along the way. At the Western Way end of this route there is a large bus depot (Broadstone) and the Broadstone Gate entrance to Grangegorman is currently under construction here as part of the Luas Cross City works. Current services along this section include Dublin Bus routes 4, 9, 83, 83A, 83N and 140.

BRO 49: Berkeley Street; North Circular Road (R101) to Blessington Street

This route extends from the Berkeley Road / North Circular Road junction down Berkeley Road to Blessington Street. The route is a two-way, single carriageway with one traffic lane in each direction as well as cycle lanes and on-street parking provided on both sides along most of its length. There are a large number of shops along this route as well as houses; none of which have private off-road parking. The footpaths on either side of the road are quite wide throughout the route and have a small number of trees planted on them. The main constraint is St Joseph's Church and the Mater Hospital grounds in terms of land take and the need for parking spaces on Berkeley Road. Current services along this section include Dublin Bus routes 38, 120, 38A, 38B, 46A, 105, 109, 111 and 180.

BRO 50: Dorset Street (N1); Gardiner Street (R802) to Blessington Street/North Frederick Street

This route extends from Gardiner Street to Blessington Street via Dorset Street Upper. Between Blessington Street and Eccles Street, this section of the route is a single lane, two-way road with additional lanes for buses in each direction. Between Eccles Street and Gardiner Street, this section of the route changes to a two-lane two way road with additional lanes for buses in each direction and has a central median with young trees planted at regular intervals. The route is primarily of a commercial nature with a small number of dwellings. The footpaths either side of the road are quite wide and there is no on-street parking along the route. Current services along this section include Dublin Bus routes 1, 11, 13, 16, 33, 40, 41, 44, 122, 16C, 40B, 40D, 41A, 41B and 41C.

BRO 51: Gardiner Street Upper (R802)/Mountjoy Square West; Dorset Street (N1) to Parnell Street (East) (R803)

This route starts at the Dorset Street Lower / Gardiner Street Upper and extends down Gardiner Street Upper onto Parnell Street East. Gardiner Street Upper is primarily a two-way single lane carriageway with on-street parking on both sides. This road is mainly residential with few shops and also links Mountjoy Square Park. There is an outbound bus lane between Mountjoy Square Park and Dorset Street. Between Mountjoy Square Park and Parnell Street, the bus lane on Gardiner Street Upper is replaced with cycle lanes in both directions. The roads throughout this route are quite wide. None of the residential or commercial

establishments along the route have private parking. Current services along this section include Dublin Bus routes 31, 41, 180, 41B, 41C, 836, 1, 11, 13, 16, 33, 40, 44, 122, 16C, 33N, 40B, 40D, 41A, 41N, 980, 41X, 7, 101, 103, 105, 107 and 103X.

BRO 52: Western Way (R135); Constitution Hill (R108) to Mountjoy Street

This route starts at the Western Way / Phibsborough Road junction and extends along Western Way (R135) to Mountjoy. Western Way is a two-way road with one lane for traffic in each direction and an additional bus lane in the direction of Phibsborough Road. This route has no cycle facilities but it has on-street parking for coaches along part of its length. There are large overhanging trees along this road planted on the wide footpaths either side of the road as well as old stone walls. There is a large church (Black Church) at the bottom of Western Way. There is also coach parking provided on the northern side of Western Way for much of its length. Current services along this section include Dublin Bus routes 4, 9, 140, 39N and 88N.

BRO 53: Mountjoy Street; Western Way (R135) to Blessington Street

This route starts at the Western Way and extends along Mountjoy Street to Blessington Street. Mount Joy Street is a two-way single lane street with on-street parking on both sides of the road as the houses and businesses on this street do not have private off-road parking. This route has a cycle lane on the north side of the road and wide footpaths either side of the street. Current services along this section include Dublin Bus routes 836, 38, 120, 38A and 38B.

BRO 54: Blessington Street; Mountjoy Street to North Frederick Street

This route extends from Mountjoy Street to North Frederick Street via Blessington Street. Blessington Street is a one-way (southbound) two lane street with on-street parking on both sides of the road as the houses and businesses on this street do not have private off-road parking. There is a cycle lane on the east side of the road. This route is primarily of a residential nature but also has several businesses at the North Frederick Street end. Current services along this section include Dublin Bus routes 4, 9, 38, 120, 140, 38A, 38B and 46A.

BRO 55: Dorset Street Upper (N1); Blessington Street/North Frederick Street to Granby Row

This route extends from Blessington Street to Granby Row via Dorset Street Upper. This two-way, single lane street has an additional lane for buses in the eastbound direction. This route serves a primarily residential area and has wide footpaths either side of the road. There are young trees and on-street parking provided on the south side of the road along part of the route. There are no Dublin services along this route.

BRO 56: North Frederick Street; Dorset Street (N1) to Parnell Square East

This route extends from Dorset Street to Parnell Square East via North Frederick Street. North Frederick Street is a two-way single lane street with on-street parking on the west side of the road as the houses and businesses on this street do not have private off-road parking. There are no bus or cycle lanes along this route and the footpaths either side of the road are quite wide. This route primarily serves a residential catchment but there are also a number of businesses along its length and the Abbey Presbyterian Church. There are no Dublin services along this route.

BRO 57: Granby Row/St Mary's Place; Mountjoy Street to North Frederick Street

This route extends from Mountjoy Street to North Frederick Street via St Mary's Place, Granby Row and Parnell Street North. St Mary's Place and Granby Row are both one-way in the northbound direction. St Mary's Place is a two lane residential street which splits around the church at Western Way (Black Church). Granby Row is a three lane street and there are generally residential units on the east side of the road and commercial establishments on the west side. Parnell Square North links the Hugh Lane gallery and the Garden of Remembrance. This two lane street is one-way in the eastbound direction and on-street parking is provided either side of the road. There are no bus or cycle lanes throughout the entire route. The only Dublin Bus stops along this route are on Parnell Square North and include the 46E, 180, 932 and 933.

BRO 58: Constitution Hill/Church Street Upper (R108); Western Way to King Street North (N1)

This route runs between the Western Way / Constitution Hill junction to the Church Street Upper / King Street North junction via Constitution Hill (R108) and Church Street Upper (R108). This route is a two-way, single carriageway which varies from one to two lanes in each direction along its length between Western Way and Catherine's Lane. Cycle lanes are provided in both directions along the route and footpaths are provided on either side of the road. The road becomes a dual carriageway between Catherine's Lane and King Street North. Young trees are planted beside the footpath on the left side of the road and also in the central median at the King Street North end of the route. The route is bounded by Broadstone Gate to the west and Kings Inn Park to the east. There are a number of large apartment blocks along the bottom of Constitution Hill and on Church Street Upper. These are set back from the road edge in the vicinity of Prebend Street and there are trees planted in front of these units. There is no on-street parking on this route. Current services along this section include Dublin Bus routes 83 and 83N.

BRO 59: Dominick Street Upper; Dorset Street (N1) to Western Way (R135)

Dominick Street Upper links Dorset Street to Western Way and is a two-way single lane street. On-street parking is provided on both sides of the road along most of the section between Western Way and Mountjoy Street. This route is of a residential nature and is at a considerable incline in the northbound direction. There are no bus or cycle lanes or Dublin bus stops along this route.

BRO 60: Dorset Street Upper (N1); Granby Row to Dominick Street Lower

Between Granby Row and Dominick Street Lower, this section of Dorset Street Lower is a two-way, single lane street with on-street parking and cycle lanes on either side of the road as well as wide footpaths. This route is primarily residential but also links a small number of shops, the Church of Saint Saviours and St Saviour's Priory. There are no Dublin Bus services along this route.

BRO 61: Parnell Street & Parnell Square (West); Dominick Street Lower to Parnell Square South

Between Parnell Square West and Dominick Street Lower, this section of Parnell Street is a two-way two lane carriageway with a central median and wide footpaths either side of the road. However, following completion of Luas Cross City much of this road space will not be available as the service will run in both directions between O'Connell Street and Dominick Street. Young trees are planted at regular intervals along the central median. The catchment area of Parnell Street is of a commercial nature with several large establishments including Jury's Inn and Tesco. Parnell Square West is a wide one-way (northbound) street with three lanes of traffic. A number of bus loading bays are provided along the west side of the road and on-street parking is provided on the east side. Parnell Square West runs alongside residential buildings to the west and the Rotunda Hospital and Garden of

Remembrance to the east. The Dublin Bus services using this route include the 179A, 38, 120, 122, 38A, 38B, 46A, 46E, 836, 9, 4, 13, 40, 140, 40B, 40D, 7, 8, 7BB, 7D, 39N, 88N, 1, 11, 16, 44, 16C

BRO 62: Parnell Square East; North Frederick Street to O'Connell Street Upper

This route extends from North Frederick Street to O' Connell Street via Parnell Square East. Parnell Square East is a one-way (southbound) two lane road with an additional lane for buses. On-street parking is provided along most of its length on the west side of the road. There are many bus services and bus stops around Parnell Square East. There are also a large number of businesses and public buildings, including the Rotunda Hospital, Ambassador Theatre, Abbey Presbyterian Church and the Garden of Remembrance. At the bottom of Parnell Square East, vehicular traffic must turn right or left – only buses, motorcyclists and taxis can continue south onto O' Connell Street. The Dublin Bus services using this route include the 4, 11, 13, 40, 86, 116, 16, 16C, 9, 120, 122, 103, 140, 46A, 1, 38, 44, 38A, 38B and 933.

BRO 63: King Street North (N1); Church Street Upper (R108) to Bolton Street

This route starts at the North King Street / Church Street Upper junction and continues along North King Street to Bolton Street. The route is a two-way dual carriageway which serves small business establishments and a number of apartments – most of which do not have private off-road parking. The footpaths either side of the road are very wide at some parts and cycle lanes are provided on both sides. King Street North forms part of the Dublin City Inner Orbital traffic route. There are no bus lanes along this route or Dublin Bus services.

BRO 64: Bolton Street (N1); Capel Street to Dominick Street

This route extends from Capel Street to Dominick Street via Bolton Street. Bolton Street is a two-way dual carriageway with cycle lanes either side of the road. This route runs through a commercial area and the footpaths on either side of the road are quite narrow at parts. Informal on-street parking is permitted along most of the route. The main attraction point along this street is DIT Bolton Street. There are no Dublin Bus services along this route. Bolton Street forms part of the Dublin City Inner Orbital traffic route.

BRO 65: Dominick Street Lower; Dorset Street (N1) to Parnell Street

Dominick Street Lower connects Dorset Street to Parnell Street. This route is a two-way single lane street which runs through a residential area. There is a large church (Church of St Saviours) and church carpark at the Dorset Street end of this route. On-street parking is provided on both sides of the road in the form of parallel and perpendicular parking on the west and east side of the road respectively. There are no bus or cycle lanes or Dublin bus stops along this route.

BRO 66: Ryder's Row/Parnell Street; Capel Street to Dominick Street Lower

This route connects Capel Street to Dominick Street Lower via Ryder's Row and Parnell Street. The route is of a commercial nature and links many small local businesses as well as larger commercial establishments on Parnell Street, including a cinema (Cineworld), a shopping centre (Parnell Centre) and large shops (Penny's, Aldi and Dunne's Stores) to name a few. Parnell Street is a two-way two lane carriageway with bicycle lanes in each direction. The road is quite wide with a trees planted along

the central median. Ryders Row is a one-way two lane street with a cycle lane. Wide footpaths are provided on either side of Ryder's Row and Parnell Street. There are no Dublin Bus services using this route.

BRO 67: Parnell Square South; O'Connell Street Upper to Parnell Square West

Parnell Square South extends from O' Connell Street Upper to Parnell Square West. Parnell Square South is a one-way (westbound) two lane street. However, following completion of Luas Cross City much of this road space will not be available as the service will run in both directions between O'Connell Street and Dominick Street. This route runs alongside several commercial establishments on the south and the Rotunda Hospital staff parking lot on the north side of the road. A cycle lane is provided in the westbound direction and there are footpaths either side of the road. There are no Dublin Bus stops along this route.

BRO 68: Parnell Street (East) (R803); Gardiner Street Middle (R802) to O'Connell Street Upper

This route extends from Gardiner Street Upper along Parnell Street to the top of O' Connell. Parnell Street is a two-way single carriageway road with cycle lanes in each direction and will carry the northbound Luas Cross City when complete. This road mainly consists of commercial establishments. At the O' Connell Street end of Parnell Square, on-street parking is provided on the southern side of the road. The roads throughout this route are quite wide. None of the residential or commercial establishments along the route have private parking. The Dublin Bus services using this route include the 40B, 40D, 120 and123.

BRO 69: Prussia Street/Manor Street/Blackhall Place (R805); North Circular Road (R101) to Ellis Quay (R148)

This route extends from North Circular Road to Ellis Quay via Prussia Street, Manor Street, Stoneybatter and Blackhall Place. Prussia Street is a two-way single lane road with a cycle lane in the northbound direction and very little on-street parking. Prussia Street is primarily of a residential nature with a few shops along the street. None of the houses on Prussia Street have private parking. Manor Street has a single lane of traffic in each direction as well as an additional lane for buses in the southbound direction. Manor Street also has a cycle lane in the northbound direction and on-street parking is provided along most of its length. This street is largely residentially at the Prussia Street end with an increasing number of commercial establishments towards the Stoneybatter end. The footpaths on Manor Street are quite wide and young trees are planted along the east side. Between Brunswick Street and Blackhall Street, this section of Brunswick Place has a single lane of traffic in the northbound direction and a bus lane in each direction. On-street parking is provided on the east side of the road along most of this section. Between Blackhall Street and Ellis Quay, Blackhall Place has two lanes of traffic in each direction as well as bus lanes. No on-street parking is provided. There are no cycle facilities along Blackhall Place. This street is largely residential but it also serves a number of commercial establishments and the Law Society of Ireland. The Dublin Bus services using this route include the 46a, 836, 37, 39, 70, 39A and 70N,

BRO 70: Church Street (N1); King Street North to Inns Quay (R148)

This route extends from the Church Street Upper / King Street North junction to the Church Street / Inns Quay junction via Church Street Upper (N1) and Church Street (N1). Between King Street North and Mary's Lane, Church Street is a two-way single lane carriageway with cycle lanes in each direction and footpaths either side of the road with a small number of trees. This

section of the route consists of both residential and commercial buildings, none of which have off-road private parking and no on-street parking provided. There is also a large Church (Capuchin Friary) as well as the Bar Council of Ireland on the west side of this narrow section. Between Mary's Lane and the Inns Quay junction, Church Street has two lanes of traffic in the inbound direction and one lane in the outbound direction. The section of Church Street crosses the Luas red line and has a number of apartment blocks and a further church (St. Michan's) in close proximity. The road width is wider in this section of Church Street and there are no trees on the footpaths. However, there is considerable parking associated with the Bridewell Garda Station and the nearby Courts. Current services along this section include Dublin Bus route 83 and 83N.

BRO 71: Capel Street (N1); Bolton Street (N1) to North Quays

Between Bolton Street and Parnell Street, Capel Street is one-way in the northbound direction with two lanes of traffic, a cycle lane in the southbound direction and on-street parking on the west side of the road. Between Parnell Street and the North Quays, Capel Street is one-way in the southbound direction and varies from one lane (Parnell Street to Abbey Street Upper) to two lanes (Abbey Street Upper to North Quays) of traffic. On-street parking is provided on one or both sides of the road throughout most of the southbound section of Capel Street. No bus or cycle facilities are provided on this section. Capel Street serves a commercial catchment area and the road width becomes quite narrow at various sections due to on-street parking and widened footpaths. There are currently no Dublin Bus services running along Capel Street.

BRO 72: O'Connell Street Upper/Lower; Parnell Street to O'Connell Bridge

O' Connell Street connects O' Connell Bridge to Parnell Street and is a two-way two lane street with cycle lanes in each direction. This street has very wide footpaths with young trees planted at regular intervals. A wide central median runs along the route which also has young trees as well as a number of monuments, including the Spire of Dublin, the O' Connell Monument, Fr Theobald Matthew monument and Charles Stewart Parnell monument to name a few. O' Connell Street is one the Dublin's main shopping districts with a large number of both small and large retail stores, food and drinks places, a cinema (Savoy), hotels, banks and the GPO (General Post Office). All traffic is permitted along the northbound lanes but only buses, taxis and cyclist are permitted to use the southbound lanes on O' Connell Street. This street has no on-street parking but there are many bus stops along its length. The Dublin Bus services using this route include the 4, 9, 39N, 140, 88N, 38, 38A, 38B, 46A, 120, 11, 13, 40, 86, 116, 16, 16C, 112, 933, 1, 44, 179A, 836, 40B, 40D, 7, 7B, 7D, 8, 16, 39N, 46E, 900, 901, 904, 180, 705X, 700, 123, 101, 103, 105, 107, 109, 111, 932, 33, 41, 41A, 41B, 41C and 747.

BRO 73: Gardiner Street Lower (R802)/Memorial Road/Custom House Quay/Eden Quay

This route extends from Parnell Street to O' Connell Street via Gardiner Street Lower, Memorial Road, Custom House Quay and Eden Quay. Gardiner Street Lower is a two-way street with two lanes of traffic in each direction. Cycle lanes are provided on one or both side of the street and on-street parking is provided at various sections along its length. Gardiner Street Lower is primarily residential but also has a number of commercial establishments. Memorial Road is one-way in the southbound direction with two lanes of traffic and a bus lane. A cycle lane is provided in the northbound direction. Memorial Road merges with Amiens Street on the east side of the road and a wide footpath is provided on the west side of the road. Custom House Quay is one-way in the eastbound direction with two lanes of traffic and a bus lane is provided in the westbound direction. A cycle lane is provided in the eastbound direction and there is no on-street parking. The footpaths either side of Custom House Quay are quite wide. This street runs alongside the River Liffey to the south and the Custom House to the north. Eden quay is also one-way in the eastbound direction with two lanes of traffic and a cycle lane. A bus lane is also provided along Eden Quay. This bus lane runs in

the westbound direction between Marlborough Street and Custom House Quay and in the eastbound direction between O' Connell Street and Marlborough Street. Eden Quay runs alongside the River Liffey to the south and a number of commercial establishments to the north. A small number of taxi ranks and loading bays are provided along Eden Quay and Custom House quay but there are no public parking spaces. The Dublin Bus services using this route include 33, 33N, 33X, 41, 41B, 41C, 41N, 41X, 747, 2, X2, 133, 100X, 101X, 151, 15, 15A, 15B, 191, 43, 27B, 42, 142, 27, 27A, 27X, 14, 14C, 32X, 717, 720, 736, 4, 7, 12, 22, 23, X4, X8, 109, 111, 124, 133, X12, 100X and 101X.

BRO 74: Ellis Quay/Arran Quay/Ushers Quay (R148)

Eilis Quay and Arran Quay are both one-way streets in the eastbound direction with one lane for traffic and a bus lane. A cycle lane is provided along most of the route and footpaths are provided either side of the roads. Ushers Quay runs parallel to Ellis Quay and Arran Quay on the south side of the River Liffey and it also has one lane for traffic and a bus lane. There are no cycle lanes on Ushers Quay. There is no on-street parking on Ellis Quay, Arran Quay and Ushers Quay. This route mostly serves local businesses and several apartment blocks. The Dublin Bus services using this route include the 25, 26, 37, 66, 67, 69, 70, 79, 145, 25A, 25B, 25X, 39A, 51D, 51X, 66A, 66B, 66X, 67X, 69X, 747, 79A, 66N, 67N, 70N and 747.

BRO 75: Inns Quay/Ormond Quay Upper/Essex Quay/Merchant's Quay (R148)

Inns Quay and Ormond Quay Upper are one-way in the eastbound direction with two lanes of traffic and a bus lane. Footpaths are provided on both sides of the road and there is on-street parking along most of its length on the River Liffey (south) side of the road and also along part of Ormond Quay upper on the north side. Essex Quay and Merchant's Quay run parallel to Inns Quay and Ormond Quay on the south side of the River Liffey. Essex Quay and Merchant's Quay are both one-way in the westbound direction with two lanes of traffic and a bus lane. There is no parking on Essex Quay or Wood Quay (which joins Essex Quay with Merchant's Quay) but on-street parking is provided on Merchant's Quay on the River Liffey (north) side of the road. This route mostly serves local businesses and several apartment blocks and government buildings, including the Four Courts (Inns Quay) and the Dublin City Council Civic Offices (Wood Quay). Most of these buildings do not have off-road private parking. The Dublin Bus services using this route include the 25, 26, 37, 66, 67, 70, 83, 145, 151, 25A, 25B, 25X, 25N, 39A, 51D, 51X, 66A, 66B, 66X, 66N, 67N, 67X, 70N, 83A, 69, 69X, 79, 79A and 836.

BRO 76: Ormond Quay Lower/Bachelor Walk/Aston Quay/Wellington Quay (R148)

Ormond Quay Lower and Bachelor Walk are one-way in the eastbound direction with two lanes of traffic and a bus lane. Footpaths are provided on both sides of the road and there is no on-street parking. Aston Quay and Wellington Quay run parallel to Ormond Quay Lower and Bachelor Walk on the south side of the River Liffey. Aston Quay and Wellington Quay are both one-way in the westbound direction with two lanes of traffic and a bus lane. There is no on-street parking on Wellington Quay but some on-street spaces are provided on Aston Quay on the River Liffey (north) side. This route mostly serves local businesses and several apartment blocks. The Dublin Bus services using this route include the 25, 26, 33N, 37, 41N, 66, 67, 67N, 70, 70N, 83, 145, 151, 25A, 25B, 25N, 25X, 39A, 39N, 300, 51D, 51X, 66A, 66B, 66N, 66X, 67X, 69, 69X, 79, 79A, 83A, 727, 745, 845, 847, 660, 761, 763, 704X, 115, 115A, 120, 123, 124, 130, 115A and 126.

BRO 77: King Street North (R804); Queen Street (R804) to Church Street Upper (R108)

King Street North is one-way in the westbound direction with two lanes of traffic and a cycle lane. This route is primarily of a commercial nature with a small number of residential properties, in front of which on-street parking is provided. King Street North links Smithfield Plaza which is a public square with a number of shops, formerly an open market. There are no Dublin Bus services using this route.

BRO 78: Queen Street (R804); Arran Quay (R148) to King Street North (R804)

Queen Street is one-way in the inbound direction and has three lanes of traffic. No bus or cycle lanes are provided on Queen Street and on-street parking is prohibited. The footpath widths either side of the road are very narrow at parts, particularly on the west side of the road. Queen street is primarily of a residentially nature at the King Street North end with an increasing number of commercial establishments towards the Arran Quay end. There are no Dublin Bus services using this route.

BRO 79: Temple Street / Hill Street; Dorset Street Upper (N1) to Parnell Street (R803)

This route connects Dorset Street Upper to Parnell Street via Temple Street and Hill Street. Temple Street and Hill Street are two-way single lane streets with on-street parking either of the roads. The road and footpaths are quite wide on Temple Street and Hill Street and neither have bus or cycle lanes. With the exception of Temple Theatre and Temple Street Children's Hospital, most of the other buildings on the Temple Street are residential. Hill Street is also primarily of a residential nature but has a larger number of commercial establishments, particularly towards the Parnell Street end. Speed ramps are provided along Hill Street due to its considerable decline in the southbound direction i.e. towards Parnell Street. There are no Dublin Bus services using this route.

BRO 80: Temple Street / Hill Street; Dorset Street Upper (N1) to Parnell Street (R803)

This route extends from Glasnevin Hill to St Mobhi Road via St Mobhi Drive. St Mobhi Drive is a two-way single lane street which serves a residential catchment to the north. On-street parking is permitted along most of the route on one side of the road. All the houses on this street have long driveways with private parking. Our Lady of Dolours Church grounds adjoin to the south of St Mobhi Drive. There are no bus or cycle lanes on this route and the footpaths on either side of the road are quite narrow. No Dublin bus services use this route.

4.3 Physical Constraints

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

- Santry Demesne;
- River Tolka;
- Royal Canal (including protected structures);
- Luas Cross City;
- Luas Red Line;
- River Liffey;
- Existing and committed future development along the route, in particular in the City Centre, much of which has high heritage value, including particular Architectural Conservation Areas;
- Existing monuments along the route;
- National Botanic Gardens
- Street trees and other natural features along the route;
- Existing urban and sub-urban roads and street network;
- Bridges at identified natural constraints;
- Public Parks;
- Maynooth / Sligo Rail line; and
- The need to maintain traffic flow for all modes during construction and subsequent operation of the CBC.

4.4 Integration with Existing and Proposed Public Transport Network

One of the objectives of the proposed scheme is to enhance interchange between the various modes of public transport operating in the city, 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 provide for interchange with existing and planned future transport services, including:

- Luas Red Line at Four Courts and Luas Cross City at Broadstone;
- Potential New Metro North stops on the R108;
- Swords BRT/Swiftway route and also those proposed Swiftway route from Blanchardstown to UCD; and
- Existing Dublin Bus services at numerous locations along the route.

4.5 Compatibility with Other Road Users

A key objective of the proposed scheme is to improve pedestrian and cyclist facilities along the route. In general, segregated facilities will be proposed for these modes along the Primary Cycle Network. The scheme will provide for cycle facilities along the routes that are required under the Greater Dublin Area Cycle Network Plan (published by the NTA, 2013) to the target Quality of Service(s) specified therein.

Where it is considered impractical to construct pedestrian or cycle facilities along a particular section of the CBC route (and it is considered inappropriate to reroute the bus), such facilities will need to be provided along a suitable alternative route.

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

General traffic will be maintained along the CBC corridor although it is inevitable that there will be impacts on traffic capacity along the route associated with the reallocation of road space to the bus lanes and the introduction of turning movement restrictions. Reductions in traffic carrying capacity of the road network need however to be considered in the context of the overall significant increase in efficiency and reliability of the bus services that will be achieved.

5 Assessment Methodology

5.1 Assessment Process

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

- An initial 'Stage 1' high-level route sections assessment or 'sifting' process which appraised route sections in terms of ability to achieve scheme objectives (as outlined in Section 3.1) and whether they could be practicably delivered; and
- Routes which passed this initial stage were taken forward to a more detailed 'Stage 2' assessment.

5.2 Stage 1: Route Sections Assessment – Sifting Stage

As set out in Section 4.2 above, the study area has been broken into 3 distinctive sections (SAS) for the purposes of the route option assessment.

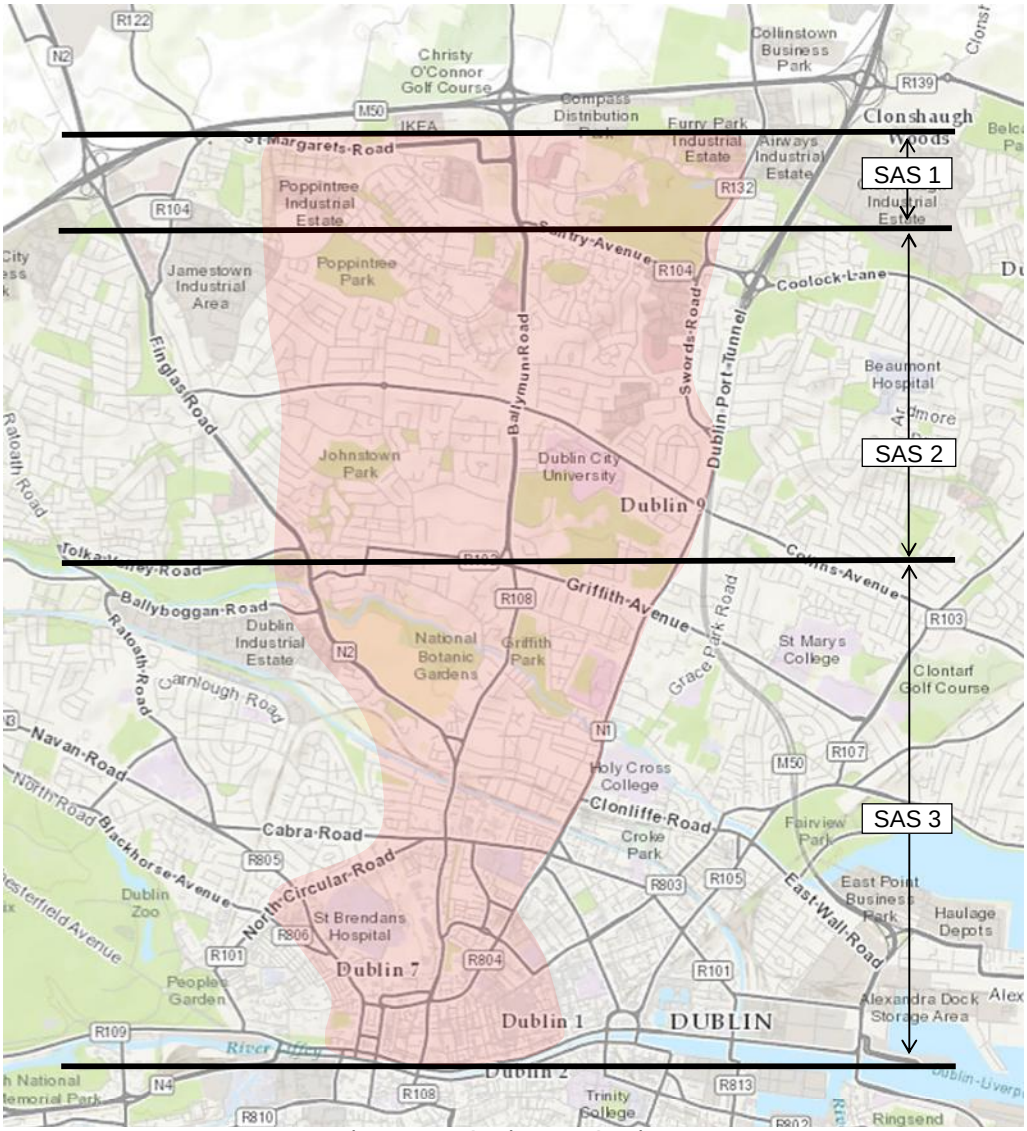


Figure 5.1: Study Area Sections

An initial 'spiders-web' of potential route sections that could possibly accommodate a level of bus service required of a CBC was identified for each study area section. This 'spiders-web' of route sections was chosen with reference to the CBC characteristics and in order to meet the scheme objectives as set out in Section 3.1 of this report. Initial route sections identified also took cognisance of the physical constraints and opportunities present (Section 4.3) and the ability to integrate with other public

transport modes (Section 4.4). Of particular relevance in developing the spiders-web was the potential for the road or route sections to accommodate bus priority and hence, facilitate fast and reliable journey times. The resulting spiders-web of route sections identified is presented in Figure 5.2 on the following page.

At the Stage 1 'sifting' stage, the initial 'spiders-web' of route sections presented in Figure 5.2 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 excessive cost and/or impact to achieve these objectives (e.g. excessive land-take).

This assessment stage focused on engineering constraints together with a desktop study, identifying:

- technical feasibility;
- transport planning; and
- environment.

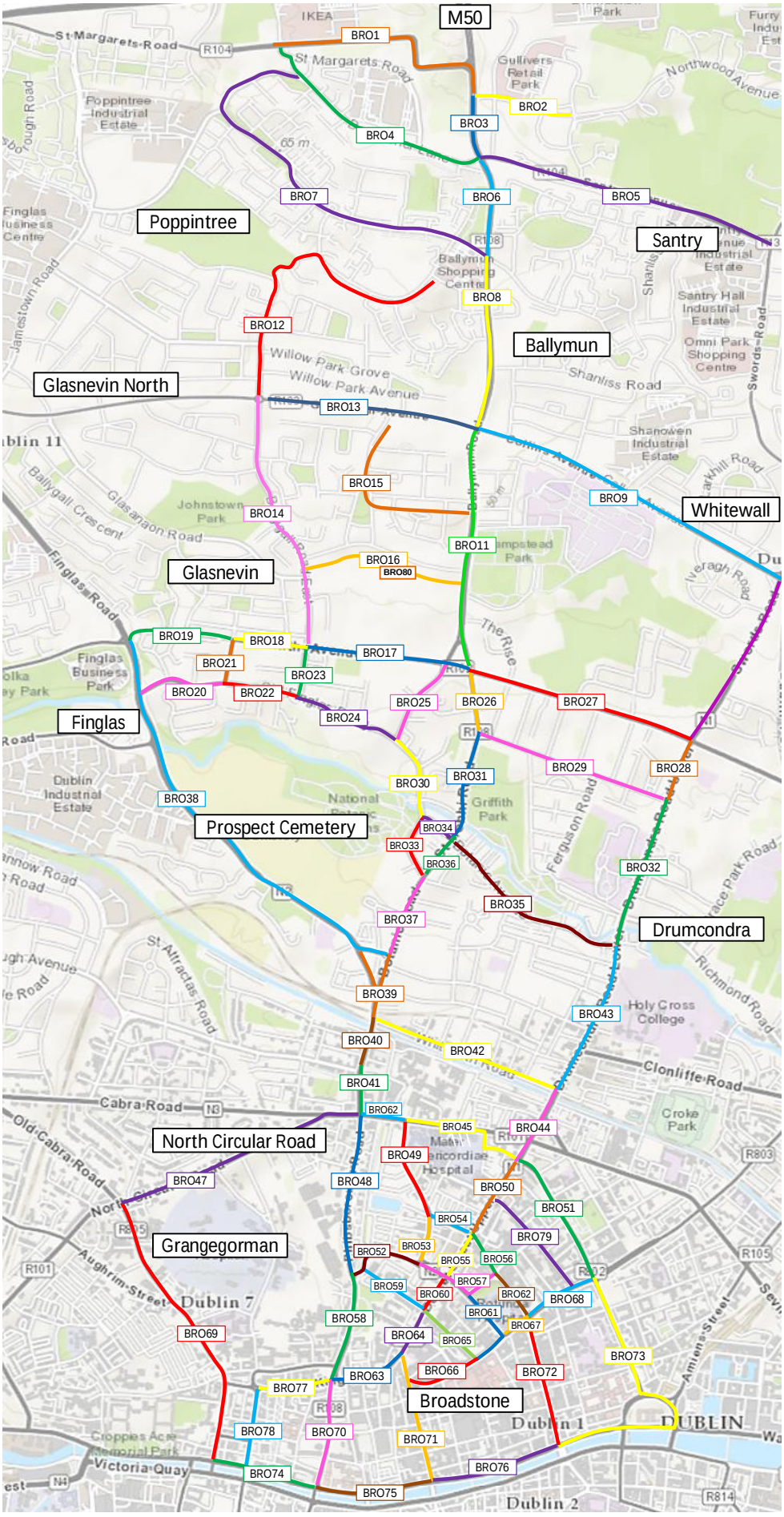


Figure 5.2: Spiders Web of route sections for the Ballymun to City Centre CBC

5.3 Stage 2: Route Options Assessment – Detailed Assessment

Following completion of the 'Stage 1' assessment, the remaining potentially feasible route sections were combined to form end-to-end route options in Stage 2 of the assessment process. This stage comprised a more detailed qualitative and quantitative assessment, using criteria established to compare route options.

The 'Guidelines on a 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;
- Physical Activity;
- Safety; and
- Environment.

An appreciation of constraints and opportunities within the study area as well as the defined project objectives, led to the establishment of project-specific route options assessment criteria. These were tailored to have commonality to the Common Appraisal Framework guidelines where practical.

The assessment process is illustrated in Figure 5.3 below. It can be seen that Section 3 (Griffith Avenue to Church Street) contains a number of sub sections which must be assessed firstly to determine the configuration/layout taken forward to form part of one of the two principal route options for Section 3. This is discussed further in Section 9 of this report.

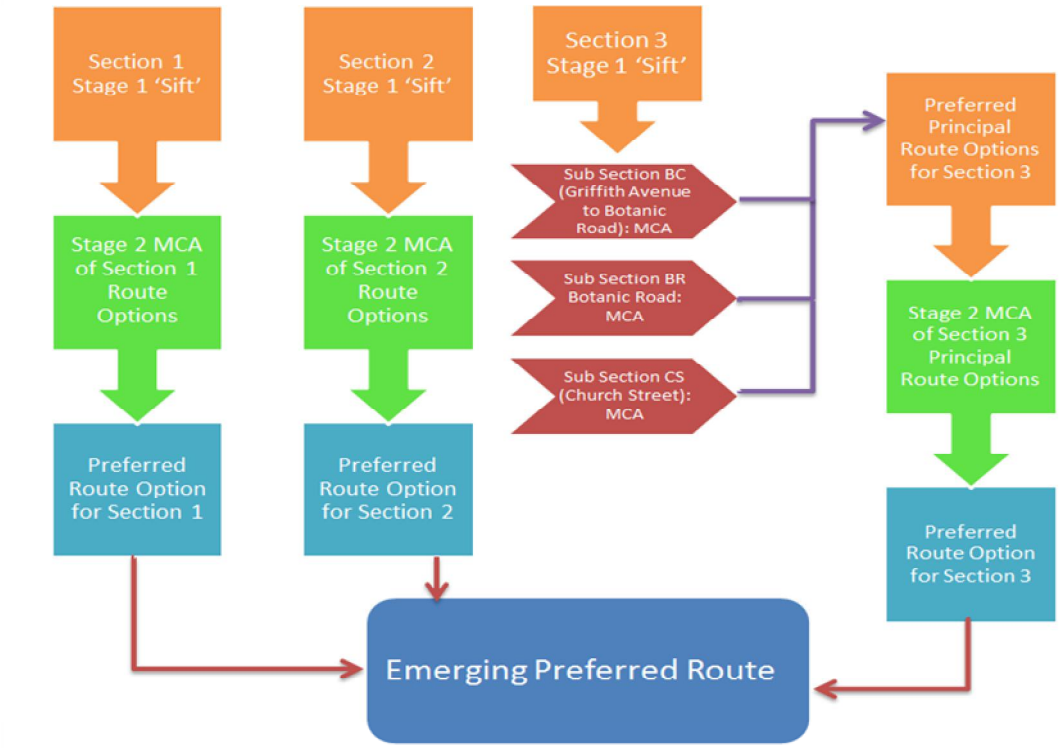


Figure 5.3: Route Options Assessment Process

Table 5.1 presents a summary of the assessment criteria and sub criteria used as part of the 'Stage 2' detailed route options assessment process.

Table 5.1: Assessment Criteria

Assessment Criteria	Assessment Sub-Criteria
Economy	1.a. Capital Cost
	1.b. Transport Reliability and Quality (Journey Time)
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
Accessibility and Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)
	3.b. Deprived Geographic Areas
Safety	4.a. Road Safety
	4.b. Pedestrian Safety
Physical Activity	5.a Physical Activity
Environment	6.a. Archaeology and Cultural Heritage
	6.b. Architectural Heritage
	6.c. Flora and Fauna
	6.d. Soils and Geology
	6.e. Hydrology
	6.f. Landscape and Visual
	6.g. Air Quality
	6.h. Noise and Vibration
	6.i. Land Use Character

In applying these criteria to the assessment process, it is clearly recognised that for different sections of the study area corridor, greater emphasis may need to be applied to some criterion over others in terms of their significance and influence on the route selection process.

5.3.1 Economy (1)

5.3.1.1 Capital Cost (1.a.)

Capital cost estimates consist of both the indicative infrastructure cost estimate and land acquisition costs. The methodology used in determining these costs, standardised to per-kilometre rates, is described below.

1.a.i. Indicative Infrastructure Cost Estimate
This sub-criterion is established to assess route options for their likely capital infrastructure cost. Each route option has been assessed relative to the nature and extent of infrastructure requirements to deliver the scheme objectives. In order to evaluate route options, a degree of initial outline design has been undertaken for some routes to inform infrastructure requirements.

Infrastructure costs include:

- **Carriageway**: whether potential re-alignment (i.e. re-alignment of the highway) is necessary and the extent of new or existing pavement reconstruction works required;
- **Drainage**: the extent to which additional drainage works, or modification of existing drainage networks is required;
- **Services/Utilities**: the extent of utility service protection or relocation works required;
- **Lighting**: whether existing public lighting would need to be replaced or a new public lighting system required along a particular route option;
- **Structures**: whether the introduction of the proposed scheme on a route would require existing structures to be modified or replaced and consideration of any new structures to be provided;
- **Construction traffic management**: an assessment of the extent of the likely traffic management measures (e.g. potential diversion of traffic away from the route) required to construct the proposed scheme along routes; and
- **Cycle route infrastructure**: the practicality and extent of works required to accommodate cycle route infrastructure along route options.

For the purposes of the route options assessment, a high level cost estimate has been prepared for each type of construction i.e. upgrade to existing bus lanes within existing reservation, widening of existing reservation including boundary treatment and/or land acquisition etc.

1.a.ii. Land Acquisition Cost Estimate
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.

For the purposes of route options comparison and assessment, the extent of land acquisition required for each route option is calculated by developing an outline design for each option based on ordnance survey mapping available, and applying the following assumed typical scheme assumptions:

- 3.0 m Bus lane;
- 3.0 m Traffic Lane;
- 2.0 m Footpath; and
- 2.0 m Cycle Track (where such a provision is required based on the GDA Cycle Network Plan).

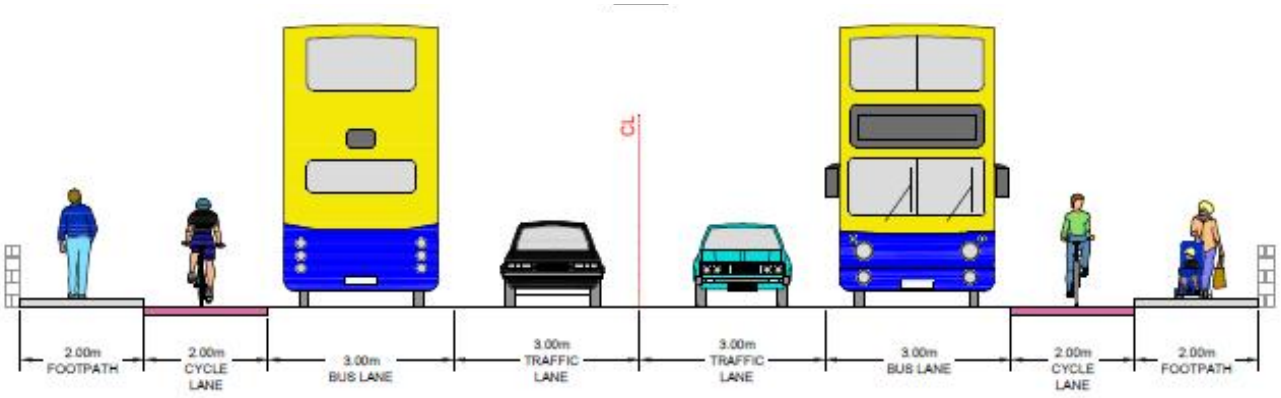


Figure 5.4: Typical cross-section

Outline designs prepared for some route options also considered any specific constraints and tailored the above assumptions where appropriate to minimise land-take without compromising on the overall scheme objectives to maximise bus priority. It should be noted that the lane provisions above are generally achievable in both directions with some exceptions where alternative routing for cyclists and / or separation of inbound / outbound bus and traffic lanes have been designed. These sections are highlighted in Section 6 below.

The areas of land-take required are presented as being either public land or private land. For the purposes of comparing route options, public land is generally defined as the space between physical boundaries on either side of a road (e.g. property boundary wall to property boundary wall). Areas outside the road reserve are assumed to be private land except where it is clear that it is owned by a public entity (e.g. a public park). Similarly, areas within the road reserve are assumed to be public land except where it is clear that it is owned by a private entity. This exercise has been based on available Ordnance Survey mapping and available topographical survey.

The methodology typically adopted in calculating the land acquisition costs is very site-specific (value of the property, costs of acquiring and moving to a new property etc.). However for the purpose of this assessment, a high level assessment methodology has been used to develop a cost per square metre (sqm) for private land acquisition based on valuations carried out by TII (RPA) for other public transport projects. Using this information, a rate of €1,500/sqm has been applied to route options to derive an indicative cost for private land-take for all route options.

For the purposes of this assessment, no cost has been assumed for public land acquisition.

5.3.1.3 Transport Reliability and Quality of Service (1.b.)

This criterion assesses route options in terms of the degree to which transport reliability and quality of service is likely to be achieved, with associated economic benefits. The assessment considers the following:

1.b.i. Journey Time; the extent to which journey time savings, and associated economic benefits, for public transport services including the CBC, can be achieved on a route. This would be practically achieved through the implementation of any or all of the following measures;

- Enhancement of existing bus and / or provision of new bus priority along road links;
- Provision of bus priority through junctions (preferably through signal controlled junctions);
- Local upgrading of road sections to provide more carriageway space and therefore, additional capacity;
- Removal of ‘pinch points’ for bus services and traffic along the route; and
- Rationalisation of existing bus stops in terms of location, indentation (i.e. ability to provide laybys to avoid blockage of bus lanes) and spacing.

Journey times for each route option have been calculated by comparing the time required by a bus to travel between common start and end points on each route. Where both the start and end points are not the same for each route option (e.g. at the route, and therefore, the scheme terminus), the journey time is calculated between one common point and the end of the route. The following assumptions have been made when calculating the comparative journey times along route options:

- Top operational speed of 20 kph in suburban areas and 10-15 kph in City Centre areas;

- § Dwell time of 10 - 60 seconds per stop depending on anticipated usage; and
- § Delay of 15 - 120 seconds per junction on average depending on the level of achievable priority.

Delays at junctions and stops include delays associated with deceleration /acceleration to/from a stationary position.

1.b.ii. Number of Signalised Junctions; the number of signalised junctions along each route have been compared.

Regardless of the level of practical or feasible bus priority provided at signalised junctions, there will always be an element of delay to buses associated with signalised junctions, even with the most efficient signalling system being provided. While it is impossible to completely avoid signalised junctions on any route option, this risk of potential delay has been considered when comparing route options. This feeds into the overall journey time calculations as indicated above.

1.c.iii. Level of Bus Priority Provision; the level of bus priority achievable along route options has been considered and compared. The level of priority is predominantly concerned with the degree to which road space can be allocated to buses, the amount of protection afforded to this priority (i.e. segregation) and the provision at junctions such as bus lanes at the stop line. This feeds into the overall journey time calculations as indicated above.

5.3.2 Integration (2)

5.3.2.1 Land-Use Integration (2.a.);

This criterion identifies the extent to which a route would encourage or support planned development and provide for economic opportunities; whether particular route options offer synergies with other urban enhancement proposals and whether route options afford the potential to regenerate particular streets or quarters.

The interaction of routes with Local Area Plans (LAPs), masterplans or specific objectives in the County Development Plans are also considered under this criterion.

5.3.2.2 Residential Population and Employment Catchments (2.b.);

2.b.i. Residential Population Catchments: This criterion compares the existing residential populations within 5, 10 and 15 minute walk catchments from existing bus stops on routes and is representative of the number of potential users for a particular route option. The assessment does not quantitatively assess the future populations of zoned, but yet undeveloped residential development lands along route options. The analysis involved extracting 2011 population statistics from the Central Statistics Office (CSO) 'small areas' dataset. GeoDirectory was used to assist in calculating the proportional figures for the population within the specific contour bands for each of the routes. This information was subsequently used to calculate the population living within the contours.

2.b.ii. Employment Population Catchments: This criterion compares the existing employment populations within 5, 10 and 15 minute walk catchments. The analysis involved extracting information from the 2011 POWSCAR (Place of Work, School or College - Census of Anonymised Records) data, which contains data on employment and school goers within specific areas. The areas used for the analysis were taken from the NTA's multi-modal transport model of the Greater Dublin Area and correspond to the zones defined in the model. These zones are effectively modified Central Statistics Office (CSO) boundaries. GeoDirectory was used to assist in calculating the proportional figures for the employment units within the specific contour bands for each of the routes. This information was subsequently used to calculate the number of people working within the contours. As with the residential population catchments, the assessment does not quantitatively assess the future populations of zoned, but yet undeveloped commercial development lands along route options.

It should be noted that in the case of route options which converge with other CBC or BRT corridors the residential and employment population served by these different corridors have been deducted to avoid duplication of population figures.

5.3.2.3 Transport Network Integration (2.c.);

This criterion identifies the extent to which route options would maximise wider public transport usage and reach in terms of facilitating efficient interchange between transport modes (e.g. Luas, DART, rail stations, public (other CBC) and private bus operators and Dublin bikes). Linked to this, is the availability of space at potential interchange locations for facilities such as cycle parking areas, covered interchange areas, safe walking areas to and from stops, kiss-and-ride etc.

5.3.2.4 Cycle Network Integration (2.d.);

This criterion is established to assess route options for the practicality of achieving cycle track segregation and their potential to integrate high quality cycle facilities. The assessment considers the following;

5.3.2.5 Traffic Network Integration (2.e.);

A comparative assessment of the expected traffic impact of each option has been undertaken for routes formed by combining route options which remain from the previous assessment stages. This assessment was undertaken based on professional judgement and understanding of traffic conditions in the Study Area.

This represents a high level assessment of the traffic impact of the route options considered in the Stage 2 Multi – Criteria Analysis (MCA). The anticipated traffic impact expected to be incurred by motorists using private vehicles as a result of the different route options will be assessed. The dis - benefit experienced by motorists in respect of reduced junction capacity and restricted movements will be considered.

2.d.i. Compatibility with the GDA Cycle Network Plan: 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 the proposed 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.

2.d.ii. Quality of Infrastructure for Cyclists: The quality of cycle provision 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.

5.3.3 Accessibility and Social Inclusion (3)

5.3.3.1 Key Trip Attractors (3.a.)

This assessment criterion identifies key trip attractors located within approximate 15 minute walk catchments which would generate significant demand for the CBC service but would not be otherwise picked up by either the employment or residential catchment analysis. For the purposes of this assessment the following land-uses have been considered as key trip attractors:

- Education (schools and universities);
- Commercial centres (shopping centres, town centres etc.);
- Healthcare (hospitals);
- Employment (business parks, large office developments etc.); and
- Leisure (parks, sports grounds etc.).

5.3.3.2 Deprived Geographic Areas (3.b.)

The possible impact of the route options on deprived areas including RAPID (Revitalising Areas by Planning, Investment and Development) areas according to the Pobal Deprivation Index was investigated.

5.3.4 Safety (4)

5.3.4.1 Road Safety (4.a.)

Generally, the introduction of CBC will result in a reduction in road accidents due to people switching from private car to public transport. However, the reduction in accidents is unlikely to differ between various route options, particularly over the short sections being investigated as part of this assessment.

Therefore, for the purposes of comparing route options, 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 bus 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.

5.3.4.2 Pedestrian Safety (4.b.)

This criterion assesses the safety of passengers accessing the stops along the route. This is predominantly concerned with the proximity of stops to crossing facilities and the presence of footpaths along desire lines to stops.

5.3.5 Physical Activity (5)

This criterion, added to the most recent Common Appraisal Framework, relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.

The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.

5.3.6 Environmental (6)

The scope and methodology for the environmental assessment was established by considering what environmental aspects are likely to be impacted and are therefore of importance in evaluating the route options. A list of the environmental topics considered is outlined in Table 5.2.

Table 5.2: Environmental Aspects Considered

Aspect	Rationale
Included in Environmental Assessment	
6.a./6.b. Archaeological, Architectural and Cultural Heritage	The provision of CBC infrastructure 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 (see Section 5.3.6.1).
6.c. Flora and Fauna	The provision of CBC infrastructure has the potential to impact on flora and fauna.
6.d. Soils and Geology	The provision of CBC infrastructure has the potential to impact on soil and geology as a result of land-take and possible ground excavation (including potential to encounter ground contamination).
6.e. Hydrology	The provision of CBC infrastructure has the potential to impact on surface water bodies as a result of land-take (with particular emphasis on floodplains and flood zones).
6.f. Landscape and Visual	The provision of CBC infrastructure has the potential to impact the townscape/streetscape along the CBC route.
6.g. Air Quality	The provision of CBC infrastructure has the potential to impact the air quality along the CBC route.
6.h. Noise and Vibration	The provision of CBC infrastructure has the potential to impact the noise environment along the CBC route.
6.i. Land Use Character	The provision of CBC infrastructure has the potential to impact on land use character through land-take, severance or reduction of viability which prevents or reduces it from being used for its intended use.

Aspect	Rationale
Scoped out of Environmental Assessment	
Agronomy	Given the urban/suburban nature of the proposed scheme and the assumption that the CBC will run on predominantly existing road infrastructure this aspect is not considered to be relevant to the assessment.
Hydrogeology	Hydrogeology is not considered to be a determining factor in the selection of the preferred route option. Also at this stage of the design process it is not possible to determine the quality, type or duration of these impacts, particularly as the location and type of structures e.g. underpasses, bridges etc. is unknown.
Property/Land Acquisition	This aspect has been considered separately as part of the Economy criterion in the overall multi-criteria analysis commensurate with the information available at the route option assessment stage.
Socio-economics	Elements of socio-economics such as journey times, catchment analysis, transport integration, quality of service for cyclists etc. are assessed under other non-environmental criteria and will be considered as part of the multi-criteria analysis.

When preparing the Environmental Impact Statement (EIS) for the preferred route and scheme design, the environmental topics which have been scoped out (and others that are not considered relevant for the route options assessment), will be reviewed and incorporated into the EIS as appropriate.

5.3.6.1 Archaeological, Architectural and Cultural Heritage

As mentioned previously a conservative approach has initially been adopted in undertaking the route options assessment in relation to the archaeological, architectural and cultural heritage environment. The constraints comprise Recorded Monuments and Protected Structures (RMPs) within 50m of each CBC route section, extending to 250 m in greenfield areas. Sites of archaeological and cultural heritage merit and sites of architectural heritage merit which are directly intersected by the CBC route sections are also included within the scope of this assessment.

During the detailed design of the proposed scheme, the aim will be to avoid known constraints and/or minimise the number of constraints which may be directly or indirectly impacted by the proposed scheme. Appropriate mitigation for construction will be included which will seek, where practicable, to ensure preservation in situ of archaeological remains and the avoidance of impacts on archaeological and cultural heritage constraints. A similar approach has been adopted in relation to the route options assessment for architectural heritage.

As a result, the assessment effectively evaluates the potential for impact on architectural heritage from façade to façade which provides for a comparative and qualitative evaluation of Protected Structures along route sections, in particular along heavily developed sections such as those identified within the City Centre.

However, it is important to note that the CBC route will primarily travel on existing established road networks. Other than locations of potential significant widening of the existing road curtilage, it is currently not anticipated that adjacent structures and buildings will be impacted by the proposed scheme (while acknowledging that the designation of, and protection afforded to a Protected Structure is not restricted to the structure itself but to all elements within its curtilage, e.g. coal cellars and boundary elements). Within the City Centre, the selection of a viable route options will involve the running of the CBC service in the vicinity of numerous Protected Structures irrespective of which route section is preferred (archaeological, architectural and cultural heritage is only one of the criteria being considered as part of the MCA analysis). The detailed design of the proposed scheme will seek to avoid and minimise impacts on architectural heritage.

5.3.7 Route Options Summary Table

For each study area section, a route options summary table (in Project Appraisal Balance Sheet, (PABS) format has been prepared which collates and summarises the appraisal of route options under each of the assessment criterion.

The route options summary table for each study area section is presented in **Appendix A.**

For each individual assessment criterion considered, routes have been relatively compared against each other based on a five point scale, ranging from having significant advantages to having significant disadvantages over other route options. For illustrative purposes, this five point scale is colour coded as presented in **Table 5.3**, with advantageous routes graded to 'dark green' and disadvantaged routes graded to 'dark red'.

Table 5.3: Route Options Colour Coded Ranking Scale

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

The extent of reporting may vary between each study area section route options assessment, depending on the significance attached to specific criterion in terms of route differentiation.

At the end of each study area section route options assessment, an overall Multi Criterion Appraisal (MCA) table is provided, bringing together each of the individual criterion assessments.

This is then summarised for each study area section under the main assessment criterion as set out in Table 5.1.

A qualitative appraisal of, and conclusions from, the route options assessment is then provided, highlighting the key issues considered in determining recommended route options ('preferred' and in some instances, where applicable, 'next preferred'). It should be noted that a balanced approach is taken when assessing the preferred routes. All criteria are considered in undertaking the assessment and a lower ranking on one criterion, for example, will not necessarily mean that the route is not suitable.

5.3.8 Conclusion

The outcome from the multi-criteria assessment is considered in a holistic manner to derive a preferred 'end-to-end' route, which will be identified as the Emerging Preferred Route.

6 Study Area Section 1 (Northern Terminus) Route Option Assessment

6.1 SAS 1: Northern Terminus Option Assessment

When assessing route options for the northern end of the study area, a key consideration is the terminus location for the proposed scheme. In this regard, there are a number of locations where the scheme could be terminated.

For the Ballymun CBC, the most efficient service that provides the most patronage, is an 'end-to-end service', providing access to the existing residential and employment populations. In this context, the purpose of the terminus is to provide layover for vehicles prior to commencing service and, as such, it should be located close to the start of the preferred route.

Broadly speaking, there are four areas within the Ballymun North/Santry Demesne Area which could be considered for the CBC terminus location:

- St Margaret's Road;
- Northwood;
- Balbutcher Lane; and
- Santry Avenue.

While these are all possible terminus locations, not all options maximise the benefits associated with the proposed scheme. The assessment of the options for the Northern Terminus is discussed in Section 7.2 below. It should be noted that route section BRO 03 is a link which must form part of a route towards a possible terminus located along either BRO 01 or BRO 02.

6.2 Stage 1: Route Sections Assessment

Each of the route sections considered as part of the Stage 1 assessment for SAS 1 (northern terminus) are illustrated in Figure 6.1 below.

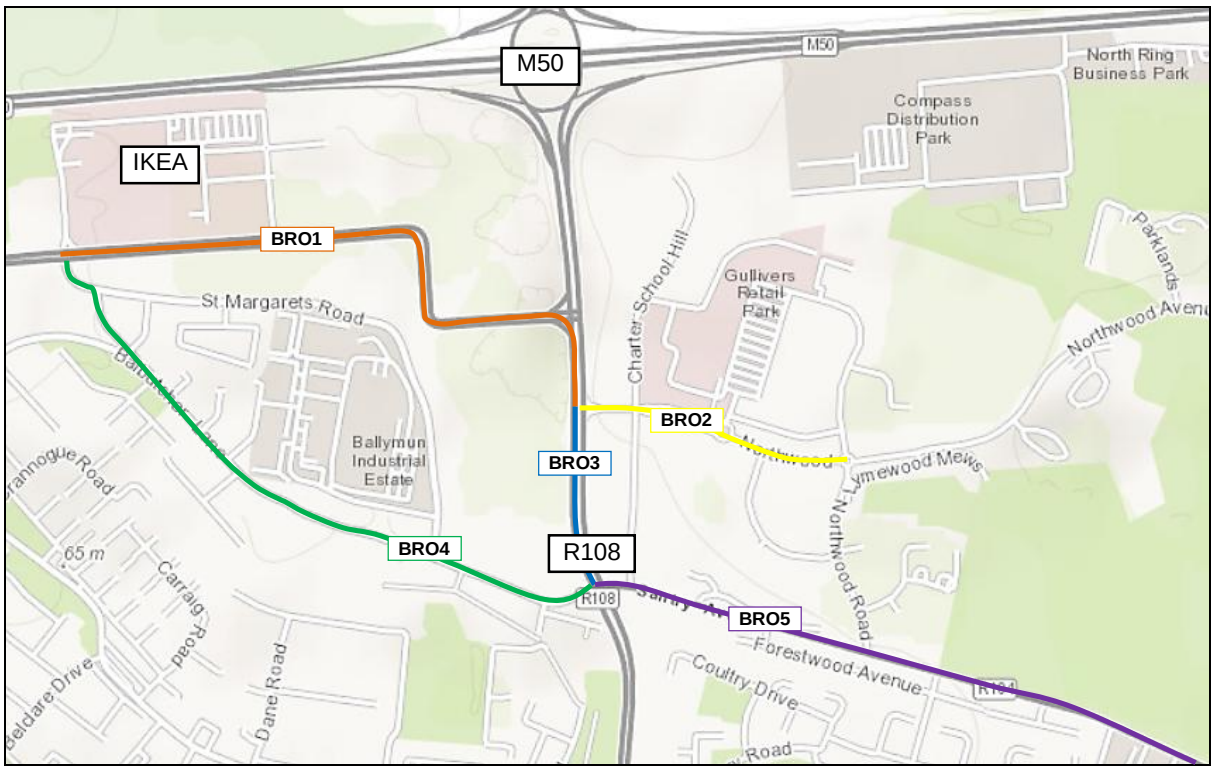


Figure 6.1: Route Sections within SAS 1

The table below presents a summary of the 'Stage 1' route sections sifting process for SAS 1.

Table 6.1: Route Sections Sifting (Stage 1) Summary – SAS 1 (North Terminus)

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 01	St Margaret's Road and short section of Ballymun Road (R108), Ikea to Northwood.	Suburban Currently served by buses from Finglas Corridor	Dual carriageway with bus lanes in both directions, although not in use. Serves substantial business and future development area; as a result a feasible section.	Pass
BRO 02	Northwood, Shopping Centre to Ballymun Road.	Suburban Sections of road are private and not in charge of local authority	Dual Carriageway with substantial verge area along the initial length of this section. Serves Retail Centre and high density residential area; as a result a feasible section.	Pass
BRO 03	Ballymun Road (R108), Northwood to Santry Avenue (R104).	Suburban Fragmented cycle lane sections in each direction. No existing bus lanes but sections of 3-4 traffic lanes	Dual Carriageway with verge areas along full length of section; as a result a feasible section.	Pass
BRO 04	Balbutcher Lane, Ikea to Ballymun Road (R108).	Suburban Dedicated 'on street parking' Poppintree Sports Campus located along the existing road boundary.	Single carriageway road with residential frontage and dedicated parking provided on the street for the residents. Potential to widen road over much of its length is restricted by the presence of residential properties and associated parking as well as Poppintree Sports Campus; as a result it is not a feasible section.	Fail
BRO 05	Santry Avenue (R104) and Swords Road (R132), from Ballymun Road to Collins Avenue.	Suburban Provides access to a mix of residential, commercial and leisure facilities (Trinity College Sports Grounds).	Single Carriageway Road over most of its length with limited existing bus lanes on Swords Road. There is also limited potential to widen over its entire length of this section as a result of frontage residential, leisure, commercial and retail properties and the route does not serve the main destinations along the Ballymun corridor; as a result it is not a feasible section.	Fail

Of the five sections considered for SAS 1, three were progressed to the next assessment stage i.e. BRO 01, BRO 02 and BRO 03. These route sections are presented in **Figure 6.2.**

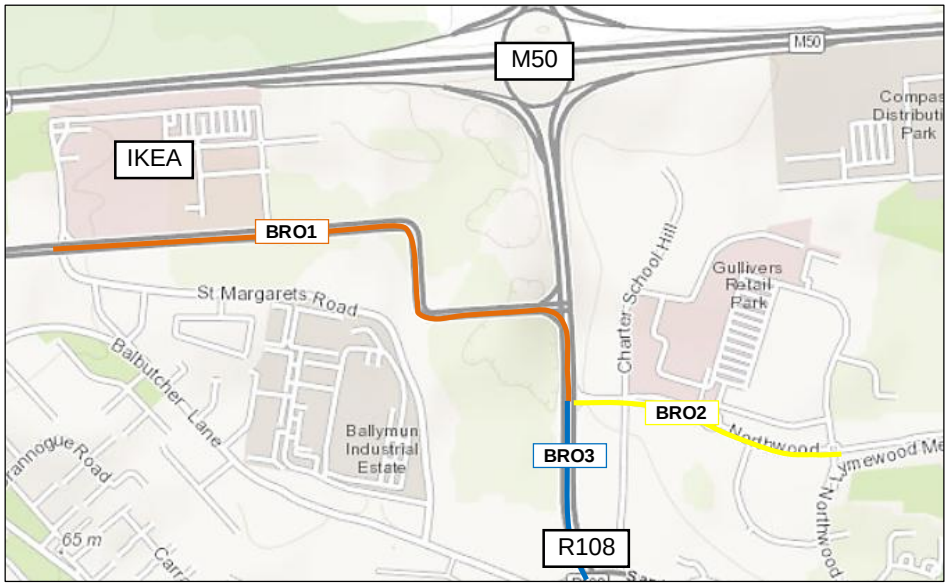


Figure 6.2 Route Sections passing Stage 1 'Sift' in SAS 1

6.3 Stage 2: Northern Terminus Options Assessment

6.3.1 Introduction

Following the 'Stage 1' sift for the SAS 1/Northern Termini, the remaining three route sections were combined to form two cohesive route options between the R108 and the potential route terminus as shown in Figure 6.3 below:

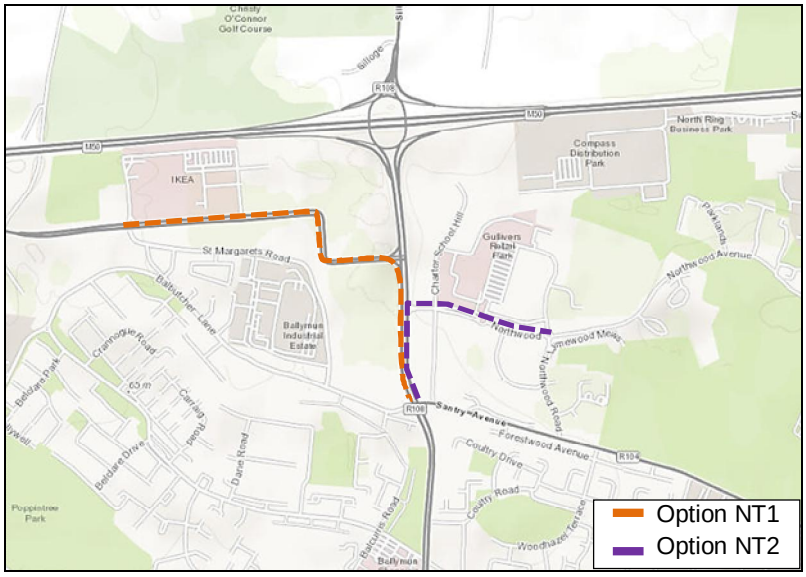


Figure 6.3 Northern Terminus Cohesive Route Options

Two terminus options, as identified above, were taken forward:

- § NT1: A route option via St Margaret's Road and short section of Ballymun Road (R108) and
- § NT2: A route option via Northwood and short section of Ballymun Road (R108).

6.3.2 Terminus Option NT1: Ballymun Road with St Margaret's Road Terminus at IKEA.

Terminal option NT1 is presented in **Figure 6.4** and described in the following text.

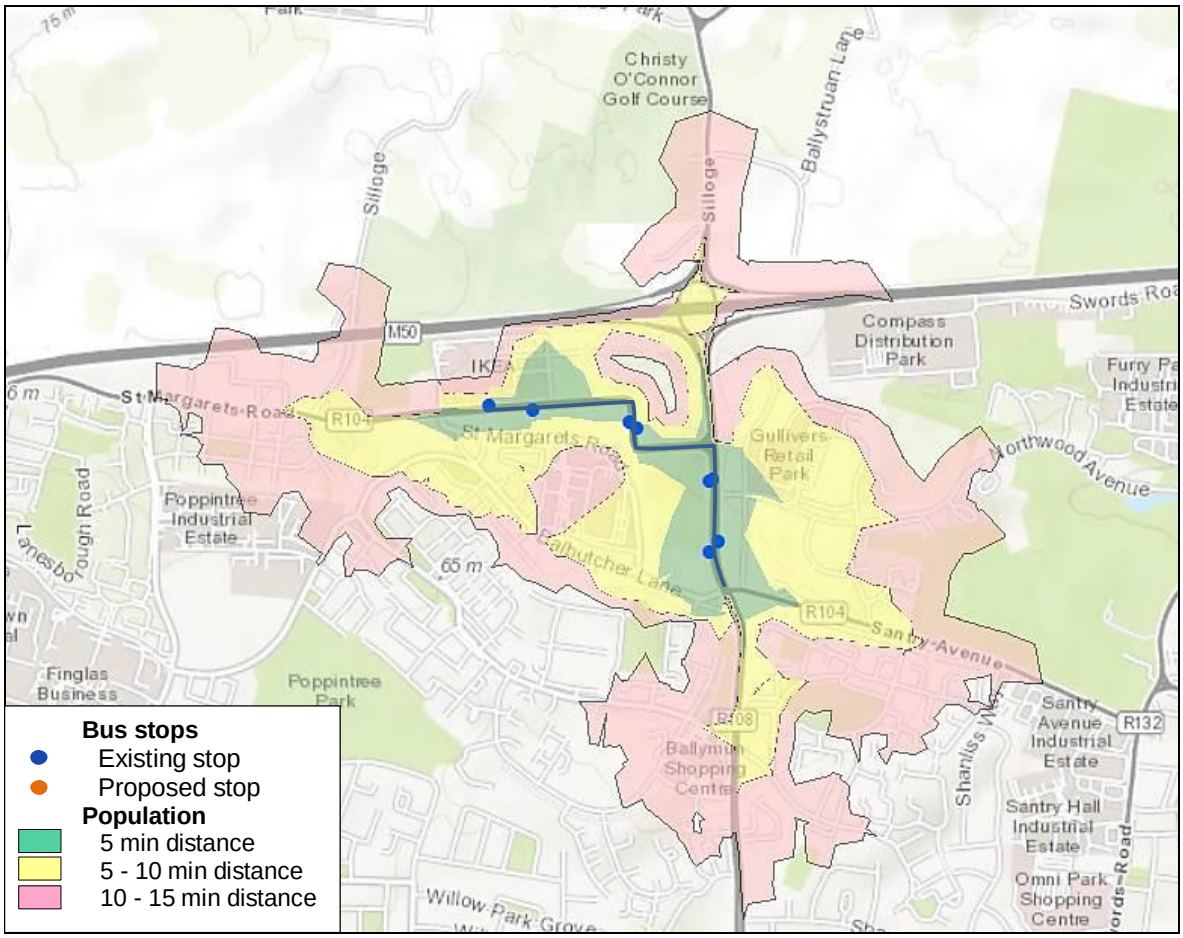


Figure 6.4: Terminus Option NT1: Ballymun Road with St Margaret's Road Terminus at IKEA.

Outbound: This route option would deviate from the Ballymun Road (R108) at the existing St Margaret's Road junction, taking the CBC into the North Ballymun lands. The route option would perform a 'U – turn' at the signalised junction on St Margaret's Road at the western extent of IKEA before terminating on the northern side of St Margaret's Road outside IKEA.

Inbound: Inbound, buses would travel the same route as taken by outbound vehicles.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation between Ballymun Road and St Margaret's Road.

The journey time for this route option from the Santry Avenue junction to the route terminus is 7 - 8 minutes over a distance of approximately 1.5 km.

At present, St Margaret's Road typically consists of 2 traffic lanes and a bus lane with a footpath and cycle track on either side. A cycle lane is also provided on both sides of the road along some sections. The eastbound section of St Margaret's Road consists of a single traffic lane and bus lane on approach to Ballymun Road.

The proposed interventions under Option NT1 would be to upgrade the existing bus lanes on St Margaret's Road, generally involving re-marking the route, whilst also providing layover space for two buses at the northern terminus for the scheme. This space would be equipped with double bus shelters and RTPI and would be located on the eastbound carriageway directly adjacent to the southern boundary of IKEA. The option NT1 proposals are presented in Figure 6.5 while a sample cross section for St Margaret's Road is presented in Figure 6.6 below.

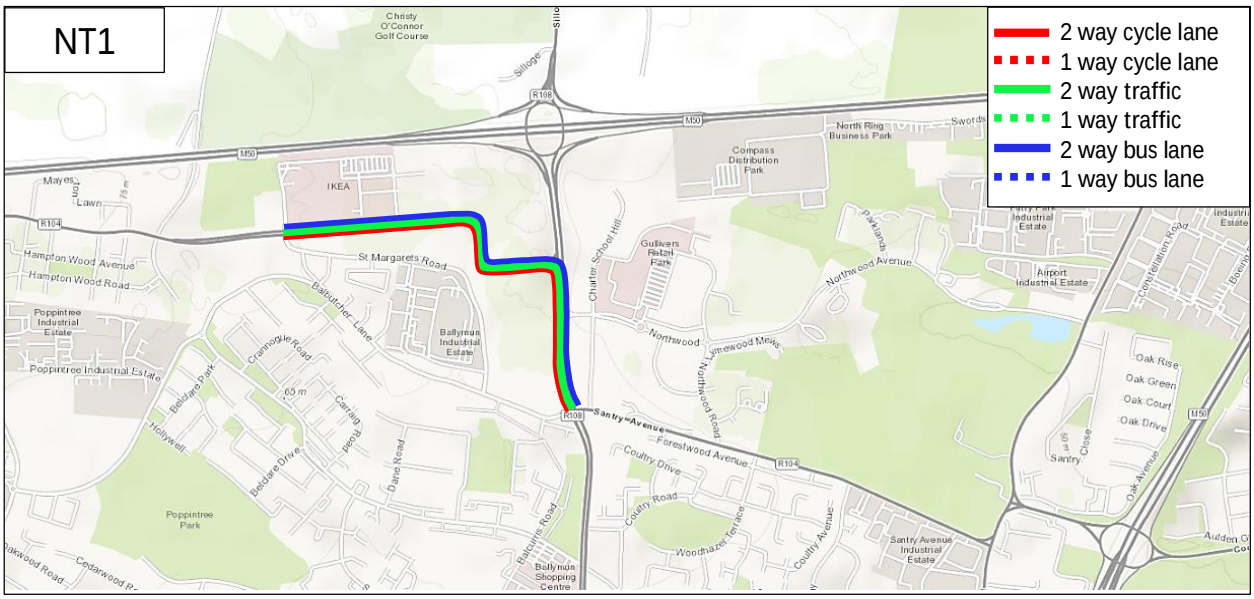


Figure 6.5: Terminus Option NT1 Proposals: Ballymun Road with St Margaret's Road Terminus at IKEA.

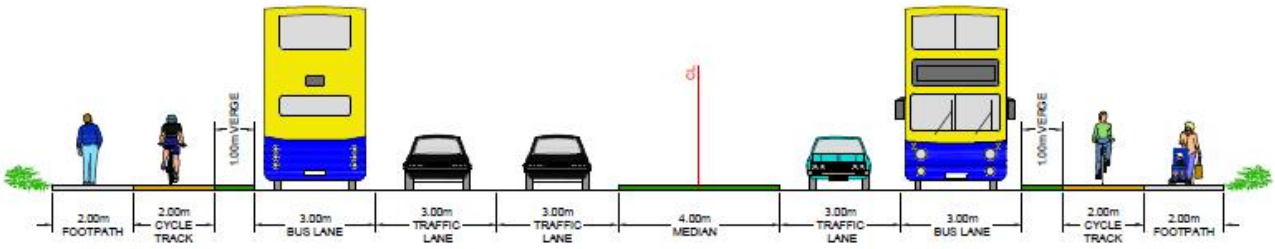


Figure 6.6: Terminus Option NT1: Typical Cross Section (North facing) of St Margaret's Road Terminus at IKEA

Ballymun Road (R108) consists of a wide dual carriageway road with two and three wide traffic lane sections. No bus lanes are provided but there are footpaths and cycle lanes/tracks on both sides. As such, it is proposed to introduce bus lanes in both directions between the junctions of St Margaret's Road and Santry Avenue whilst improving the existing cycle tracks and footways. This could be achieved within the existing road reservation and / or public land and it is not expected that property acquisition will be required. A sample cross section is provided in Figure 6.10 below.

There are a total of 5 controlled junctions along this route option, all of which would not require significant physical upgrade. ITS measures may be required to deliver the level of bus priority required.

There are no significant constraints associated with this option. It is anticipated that this option would cost approximately €1.0 million (€1.0 million infrastructure costs, €0 land acquisition costs).

6.3.3 Terminus Option NT2: Northwood Avenue and short section of Ballymun Road (R108)

Terminal option NT2 is presented in **Figure 6.7** and described in the following text.

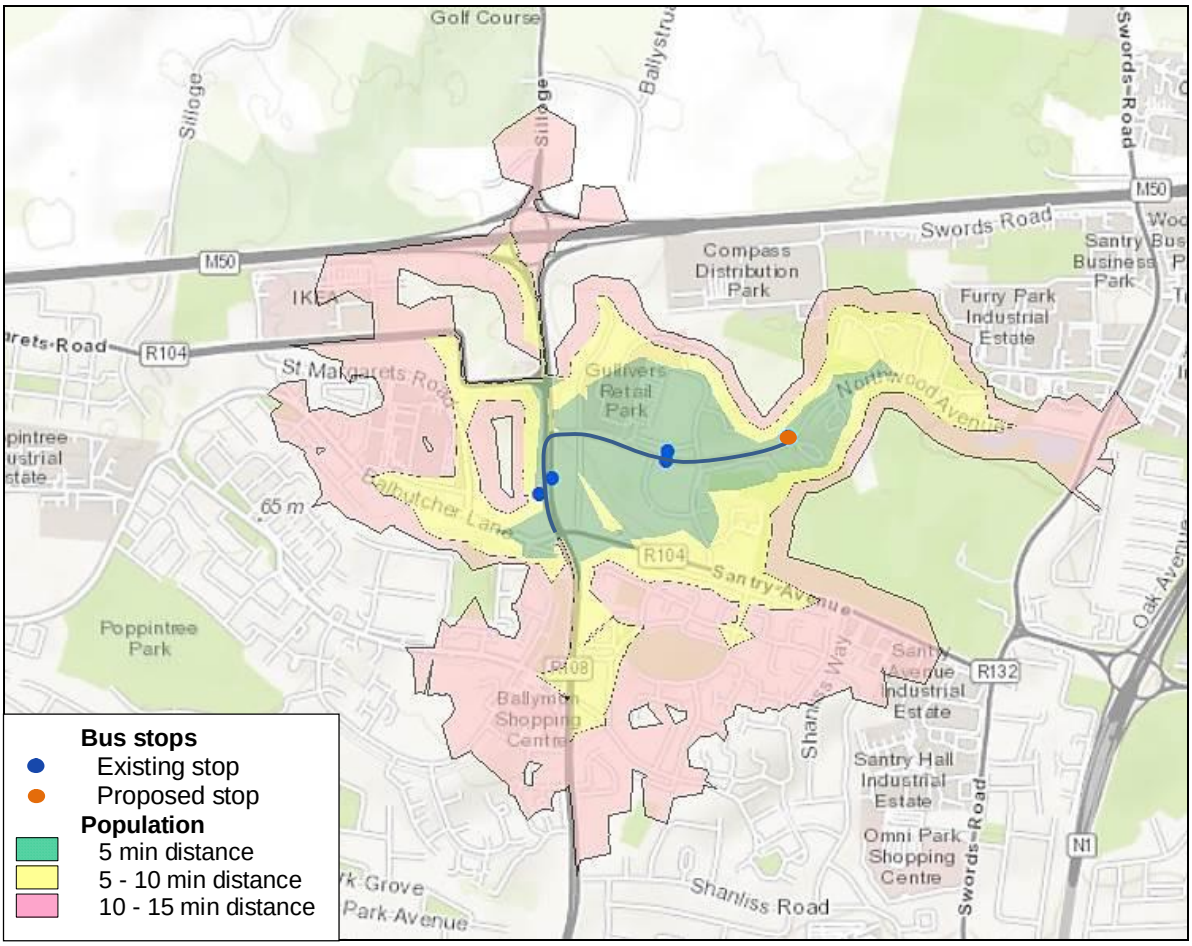


Figure 6.7: Terminus Option *NT2: A route option via Northwood and short section of Ballymun Road (R108).*

Outbound: This route option would deviate from the Ballymun Road at the existing Northwood junction, taking the CBC into the Santry Demesne/Northwood lands. The route option would terminate in the grassed area adjacent to Gulliver's Retail Park. Buses would perform a 'U – turn' at the western roundabout in Northwood before re-joining Ballymun Road.

Inbound: Inbound, buses would travel the same route as taken by outbound vehicles.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation with an additional stop within Northwood at the terminus location.

The journey time for this route option from the Santry Avenue junction to the route terminus is 6-7 minutes over a distance of approximately 1 km.

The section of Northwood Avenue between the Ballymun Road and the proposed terminus location adjacent to the most western roundabout is a dual carriageway road at present. It is not intended as part of option NT2 to introduce bus lanes in the place of one of the traffic lanes in each direction for a relatively short length. This is principally as a result of the fact that Northwood Avenue is a private roadway and the introduction of a bus lane at the expense of one of the traffic lanes will be difficult to obtain agreement from the property owners and tenants of Northwood. However, the introduction of the terminus facilities as per option NT2 would require the relocation of the existing two-way cycle track and a level of land acquisition on what is essentially private land that is used as open space adjacent to Gulliver's Retail Park.

The option NT2 proposals are presented in Figure 6.8 while a sample cross section for Northwood Avenue is presented in Figure 6.9 below.

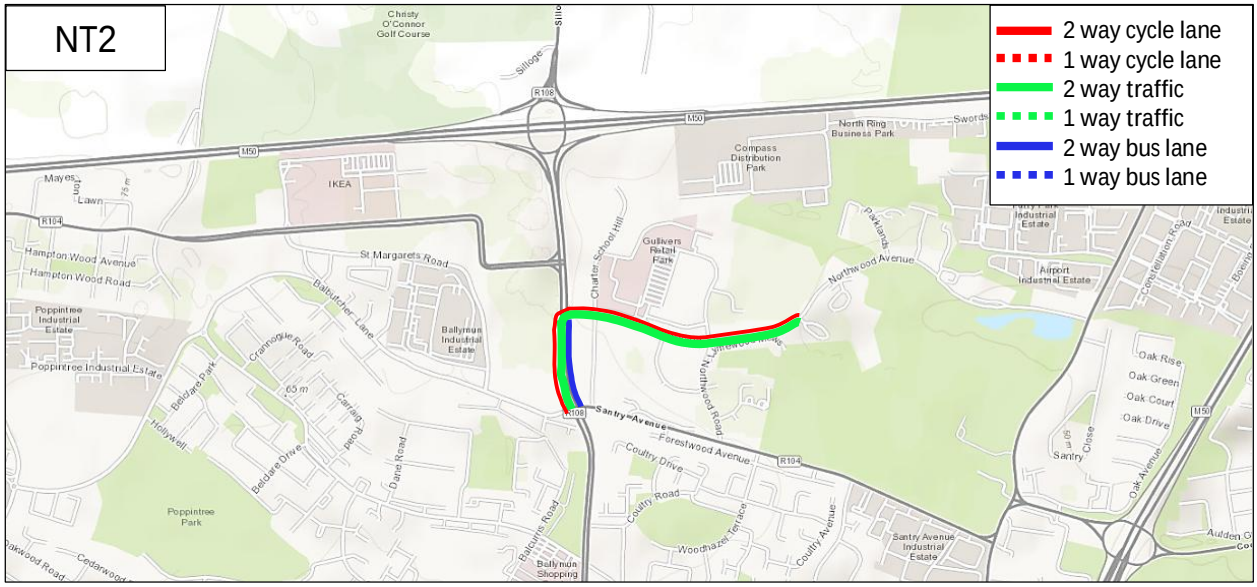


Figure 6.8: Terminus Option NT2 Proposals: Ballymun Road with Northwood Avenue Terminus

Figure 6.9: Terminus Option NT2: Typical Cross Section (North facing) of Northwood Avenue.

The proposals for Ballymun Road (R108) are similar to those under NT1, although over a shorter length and include bus lanes in both directions between the junctions of Northwood Avenue and Santry Avenue whilst improving the existing cycle tracks and footways. This could be achieved within the existing road reservation and/or public land and it is not expected that property acquisition will be required. A sample cross section is presented in Figure 6.10 below.

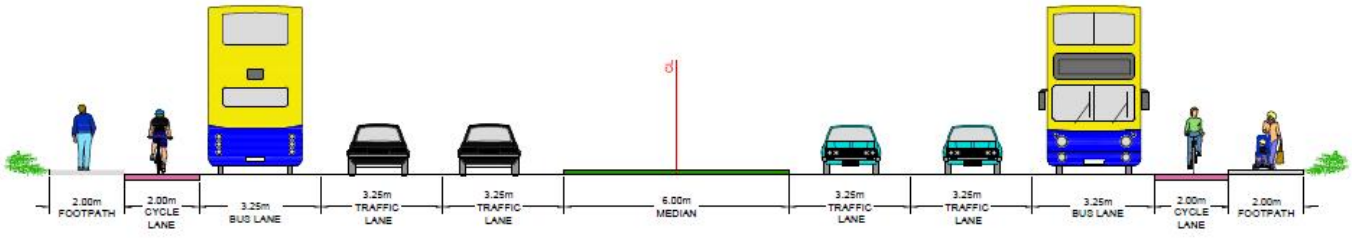


Figure 6.10: Terminus Option NT1 and NT2: Typical Cross Section (North facing) of Ballymun Road (R108).

There are no private dwelling driveways with direct access onto the portion of the route option considered as part of NT2. There are a total of 3 controlled junctions and two roundabouts along this route option. ITS measures may be required to deliver the level of bus priority required.

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

- There is a land reservation for Metro North in existence across the Northwood junction
- The proximity of the retail park may restrict the ability of buses to layover
- There may be additional environmental sensitivities associated with Santry Demesne

It is anticipated that this option would cost approximately €1.2 million (€0.5 million infrastructure costs, €0.7 million land acquisition costs).

6.3.4 Stage 2 Route Options Multi – Criteria Analysis

The 'Stage 2' route options assessment summary tables for the Northern Terminus are presented in Table 1 of **Appendix A.**

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 6.2.**

Table 6.2: Northern Terminus Options MCA Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	NT1	NT2
Economy	Capital Cost		
	Transport Reliability and Quality of Service		
Integration	Land Use Integration		
	Residential Population and Employment Catchments		
	Transport Network Integration		
	Cycling Integration		
	Traffic Network Integration		
Accessibility and Social Inclusion	Key Trip Attractors		
	Deprived Geographic Areas		
Safety	Road Safety		
	Pedestrian Safety		
Physical Activity	Physical Activity		
Environment	Archaeology and Cultural Heritage		
	Architectural Heritage		
	Flora and Fauna		
	Soils and Geology		
	Hydrology		
	Landscape and Visual		
	Air Quality		
	Noise and Vibration		
	Land Use Character		

In terms of 'Economy', a primary differentiator between route options is the level of land acquisition that would be required within Northwood to construct the terminus (NT2) which would be private land.

In terms of 'Integration', NT1 extends further north and west towards the existing residential areas of Poppintree and Balbutcher Lane which have the potential to serve the future development of this area which also forms part of the Ballymun RAPID area. This leads to a differentiation between route options in this section of the study area under the 'Accessibility and Social Inclusion' criterion. In terms of 'traffic impact', a differentiator between route options would be that bus lanes would be provided for the entire length of NT1 whereas there will be sections within Northwood Avenue (NT2) that buses will share with traffic. Buses pulling in and out of the proposed layby in Northwood would also have the potential to impact on traffic capacity. Neither option would be more restrictive than the other in terms of traffic movements. Therefore NT1 ranks higher under 'Traffic Network Integration'.

Under 'Safety' there is relatively little to differentiate, with both NT2 and NT1 having turn turning movements though NT2 has only 3 signalised junctions to negotiate compared to 5 signalised junctions on NT1.

In terms of 'Environment', route option NT2 is generally considered to be slightly less attractive in terms of potential for environmental impacts in relation to landscape and visual owing to the creation of a stop within an existing landscaped area in Northwood.

Based on the assessment undertaken, terminus option NT1 appears to offer more benefits over NT2. NT1 is therefore preferred for the Northern terminus for the following reasons:

- § It has a lower Capital Cost;
- § It serves larger residential and employment catchments (existing and developing);
- § It requires little private land-take – predominantly acquired from common areas within the existing road reservation;
- § It has a lower landscape and visual impact when compared to NT2;
- § It has a similar impact on flora and fauna, air quality and noise and vibration; and
- § It has a similar impact on land-use character, particularly public amenity.

Based on the multi-criteria assessment undertaken for this section of the study area, **option NT1 is identified as the preferred Northern Terminus. Therefore NT1 will form part of the emerging preferred route.**

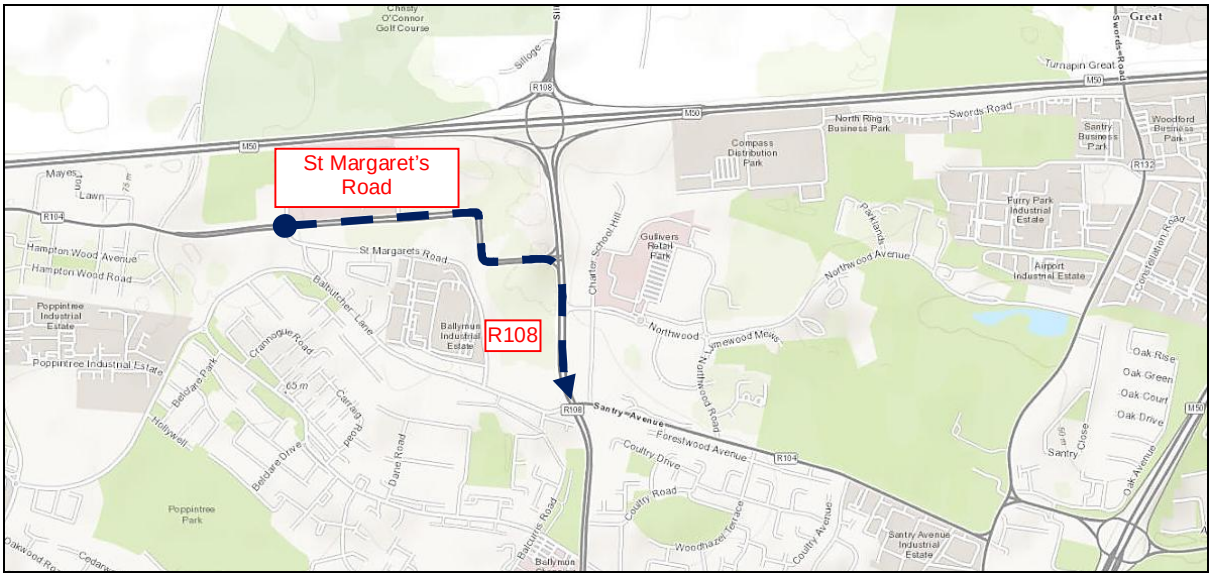


Figure 6.11: Emerging Preferred Route for SAS 1.

7 Study Area Section 2 (Ballymun Area) Route Option Assessment

7.1 SAS 2: Ballymun Area Option Assessment

When assessing route options for the Ballymun section of the study area, broadly speaking, the R108 (Ballymun Road) runs through Ballymun town with residential catchments located to the east and west of the Ballymun Road. The areas to the west include Poppintree and Glasnevin North and to the east include Coultry and Shanowen/Shanard whilst also serving the DCU campus in the vicinity of the Albert College Park grounds.

The assessment of the options for the Ballymun Area is discussed in Sections 7.2 and 7.3 below.

7.2 Stage 1: Route Sections Assessment

Each of the route sections considered as part of the Stage 1 assessment for SAS 2 (Central Area) are illustrated in Figure 7.1 below.

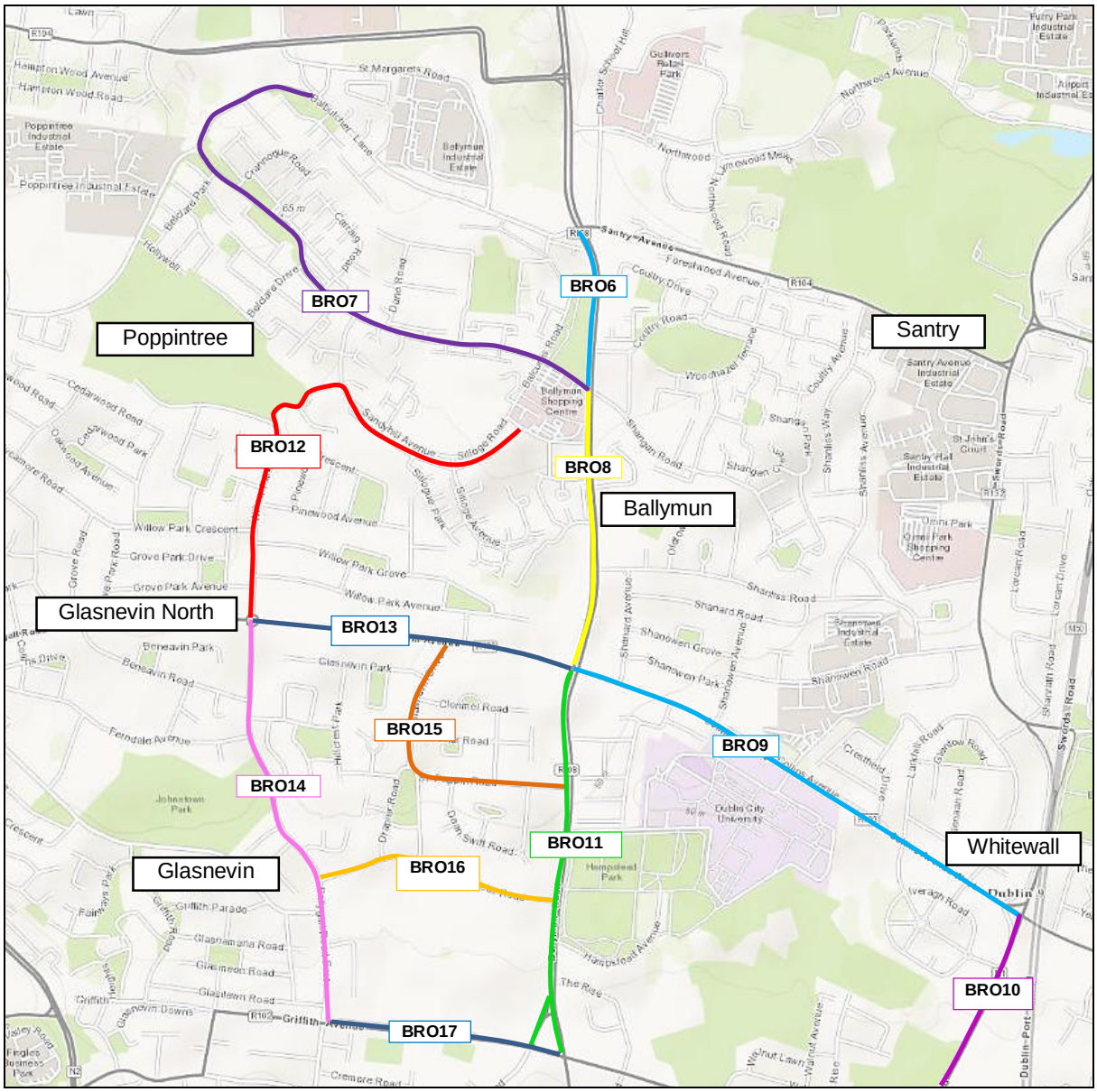


Figure 7.1: Route sections within SAS 2

The table below presents a summary of the 'Stage 1' route sections sifting process for the Ballymun Area.

Table 7.1: Route Section Sifting (Stage 1) Summary – SAS 2 (Ballymun Area)

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 06	Ballymun Road (R108), Santry Avenue (R104) to Shangan Road	Suburban On road cycle lanes Part time bus lanes in both directions Indented parking	Dual Carriageway with verge areas along full length of section and median; as a result a feasible section.	Pass
BRO 07	Shangan Road to Balbutcher Lane/St Margaret's Road	Suburban Dedicated 'on street parking'	Single carriageway road with residential frontage and dedicated parking provided on the street for the residents. Limited potential to widen road over much of its length without removing dedicated on street parking; as a result it is not a feasible section.	Fail
BRO 08	Ballymun Road (R108), Shangan Road to Collins Avenue (R103)	Suburban On road cycle lanes Part time 'on street' parking in inbound bus lane in vicinity of Ballymun	Dual Carriageway with bus lanes in both directions verge areas along full length of section and median; as a result a feasible section.	Pass
BRO 09	Collins Avenue (R103), Ballymun Road (R108) to Swords Road (N1)	Suburban Wide single carriageway road with on road cycle lanes and no bus lanes Provides direct access to DCU campus	This route diverges from the principal trip attractors along the Ballymun to City Centre Corridor and would result in convergence with the Swords – Airport – Drumcondra CBC or BRT. As such, this section is not progressed for further consideration because of the extent of the convergence with the Swords CBC/BRT.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 10	Swords Road (N1), Collins Avenue (R103) to Griffith Avenue (R102)	Suburban Dual carriageway road with bus lane in either direction and off road cycle lane outbound Potential route for Swords CBC and emerging preferred route Swords BRT	This route diverges from the principal trip attractors along the Ballymun to City Centre Corridor and would result in convergence with the Swords – Airport – Drumcondra CBC or BRT. As such, this section is not progressed for further consideration because of the extent of the convergence with the Swords CBC/BRT.	Fail
BRO 11	Ballymun Road (R108), Collins Avenue (R103) to Griffith Avenue (R102)	Suburban Bus lanes in both directions On road cycle lanes Indented 'on street' parking adjacent to inbound bus lane in vicinity of DCU Entrance	Dual Carriageway with verge areas along full length of section and median; as a result a feasible section.	Pass
BRO 12	Willow Park Road. Glasnevin Avenue to Balcurris Road via Marewood Crescent and Balbutcher Lane	Suburban Dedicated 'on street parking' Route is currently a 'cul de sac' at Poppintree Park	Single carriageway road with residential frontage and dedicated parking provided on the street for the residents. Potential loss of amenities at Poppintree Park. Limited potential to widen road over much of its length without removal of dedicated on street parking and as well as impacting on Poppintree Park; as a result it is not a feasible section.	Fail
BRO 13	Glasnevin Avenue (R103) Ballymun Road (R108) to Willow Park Road	Suburban Off street parking Verge on both sides of road	Single carriageway road with grass verges on both sides and young trees. Residents generally have parking within property boundaries; as a result it is	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
			a feasible section.	
BRO 14	Ballygall Road Griffith Avenue (R104) to Glasnevin Avenue (R103)	Suburban Off street parking Verge on both sides of road Commercial and community based facilities along route. Sections served by no 9 and 83 buses.	Reasonably wide single carriageway road with grass verges on both sides and young trees in sections. Residents generally have parking within property boundaries. as a result it is a feasible section.	Pass
BRO 15	St Pappin Road, Glasnevin to Ballymun Road (R108)	Suburban Residents generally have dedicated parking within property boundaries. Trees on both sides of road Served by bus route No 11.	Single carriageway road Limited potential to widen road over much of its length and a circuitous route; as a result it is not a feasible section for a CBC but it is appropriate for bus services	Fail
BRO 16	St Canice's Road, Ballygall Road East to Ballymun Road (R108)	Suburban Residents generally have dedicated parking within property boundaries. Trees on both sides of narrow estate road.	Narrow single carriageway road Limited potential to widen road over much of its length; this is primarily a residential estate road and as a result it is not a feasible section for a CBC.	Fail
BRO 17	Griffith Avenue (R102) Ballygall Road to Ballymun Road (R108)	Suburban Off street parking Wide Road reservation including parallel road	Wide road with two lanes in each direction and considerable road reservation including trees. Residents have parking within property boundaries and on parallel road; as a result it is a feasible section.	Pass

Six sections exist for the Ballymun area section (Section 2) BR 06, BRO 08, BRO 11, BRO 13, BRO 14 and BRO 17 were progressed to the next assessment stage.

These sections are presented in **Figure 7.2.**

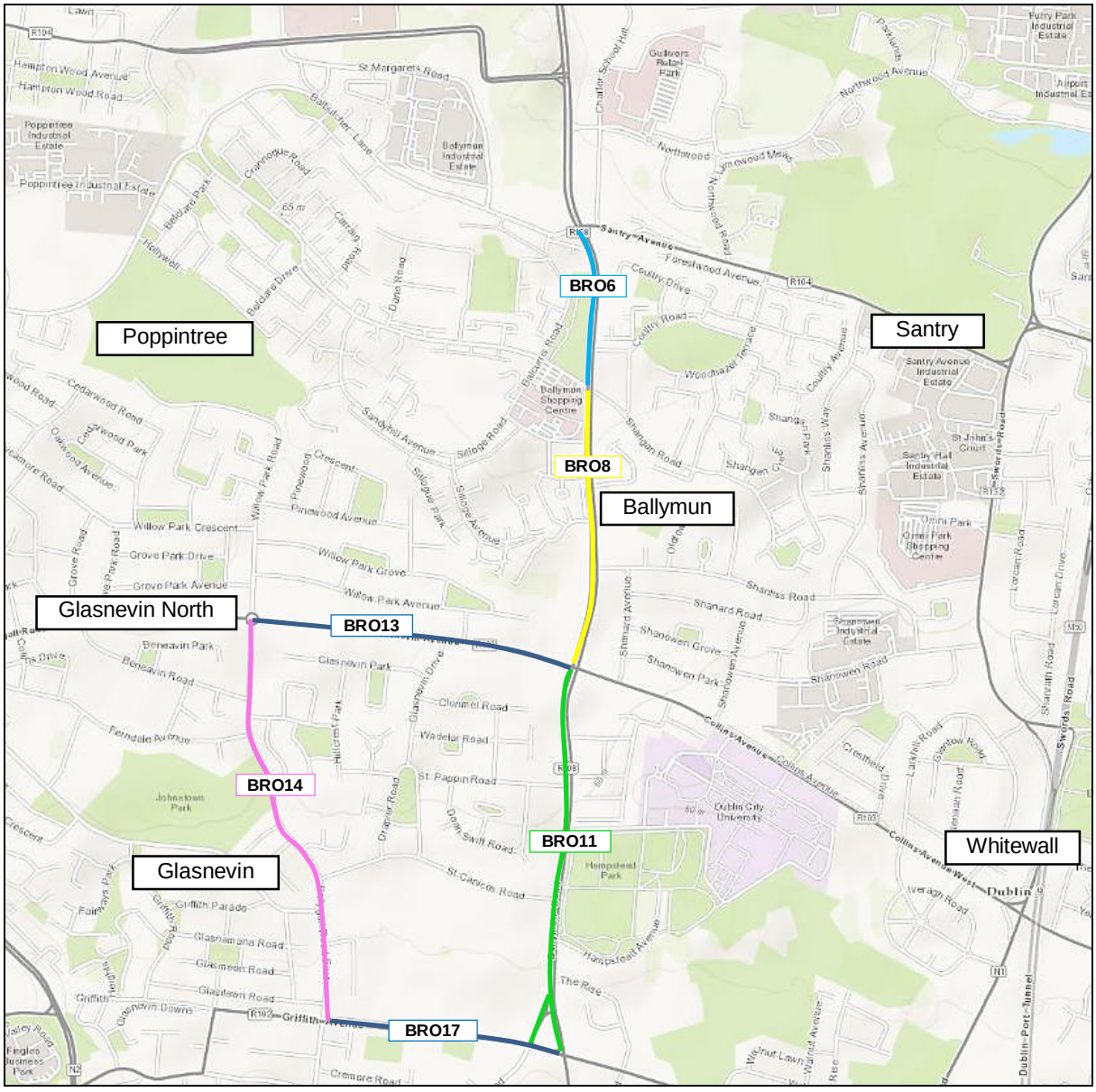


Figure 7.2 Route sections passing Stage 1 'Sift' in SAS 2

7.3 Stage 2: Ballymun Area Options Assessment

7.3.1 Introduction

Following the Stage 1 sift, two cohesive route options for the Ballymun town area were passed to the Stage 2 assessment:

- A route option via Ballymun Road (R108) (BN1); and
- A route option via the Ballymun Road (R108), Glasnevin Avenue, Ballygall Road East and Griffith Avenue (BN2).

These route options are illustrated in Figure 7.3 whilst the features of the route options are discussed separately below.

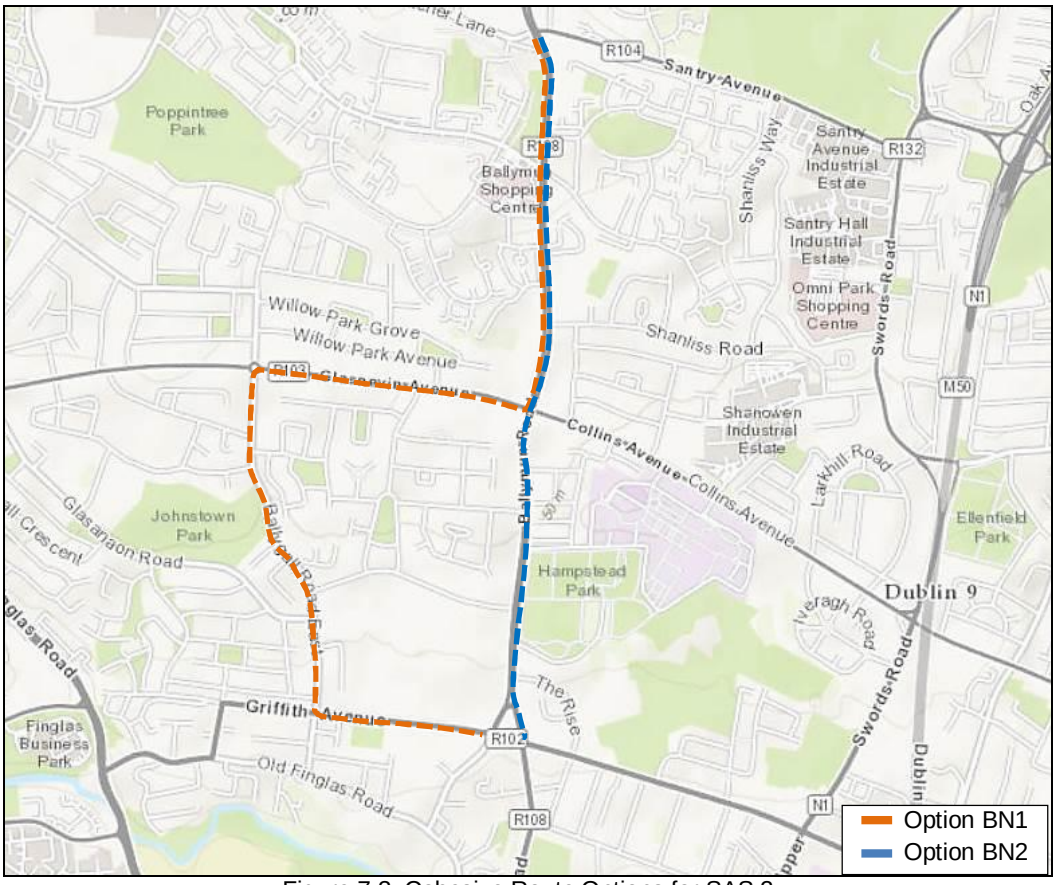


Figure 7.3: Cohesive Route Options for SAS 2

7.3.2 Route Option BN1: Ballymun Road (R108)

Route option BN1 through Ballymun town centre, is presented in **Figure 7.4.**

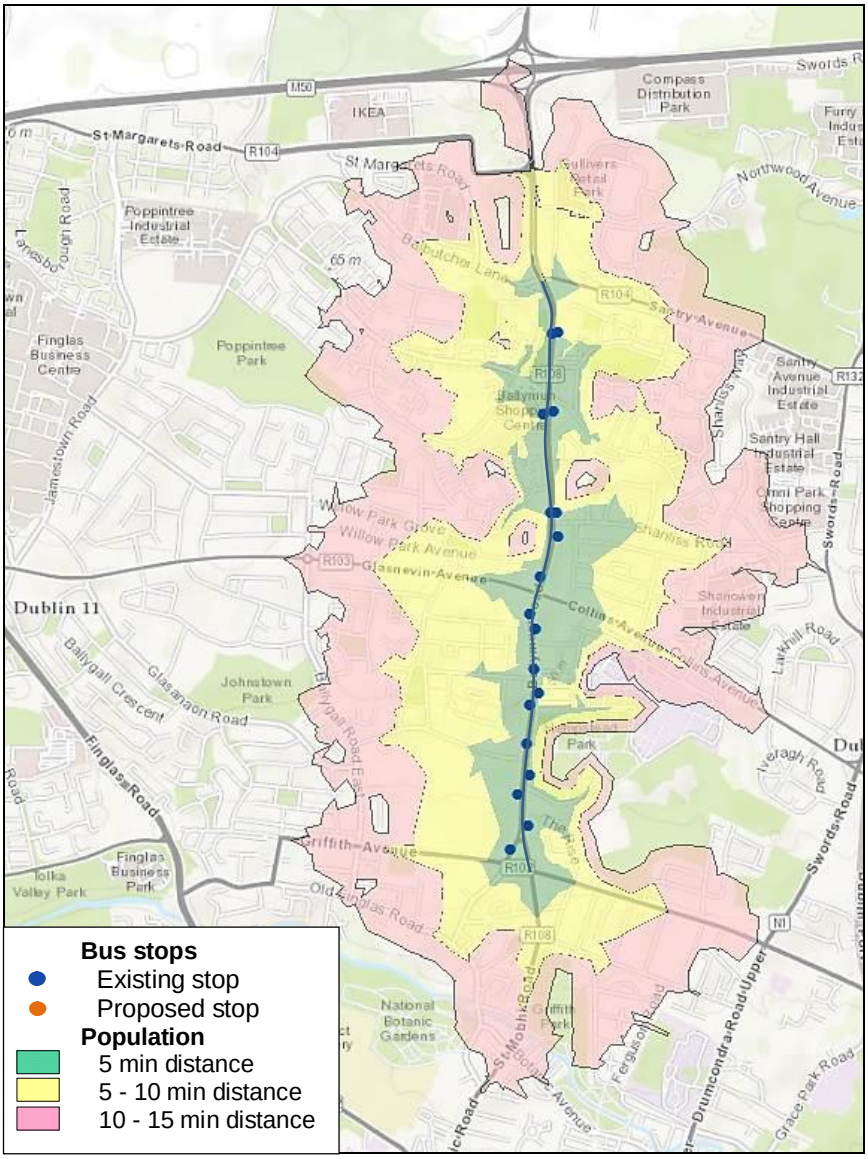


Figure 7.4: Route Option BN1 Ballymun Road

Outbound: The CBC service will proceed in a northerly direction along the Ballymun Road (R108) between the junction with Griffith Avenue/Mobhi Road in the south and the junction with Balbutcher Lane/Santry Avenue along the route of the existing QBC.

Inbound: The inbound option follows the same route as outbound.

Stops: The number of stops is illustrated in Figure 7.4 above. It is anticipated that there may be some consolidation in the number of stops between Griffith Avenue and Collins Avenue to optimise the journey time along this section.

The journey time for this route option from the Santry Avenue junction to the Griffith Avenue junction is 12-13 minutes over a distance of approximately 2.5 km.

The section of the R108 (Ballymun Road) between Santry Avenue and Griffith Avenue junctions is a dual carriageway road at present with bus lanes for the entire length although bus lanes generally do not lead up to stop lines at junctions. It is proposed as part of option BN1 to provide continuous bus priority along the existing QBC route with some sections of physical segregation

in the vicinity of junctions to limit the potential for private vehicles entering the bus lane. Segregated cycle facilities will be provided along the route which forms part of Primary Cycle route 3A. The option BN1 proposals are presented in Figure 7.5 while a sample cross section for Ballymun Road is presented in Figure 7.6 below.

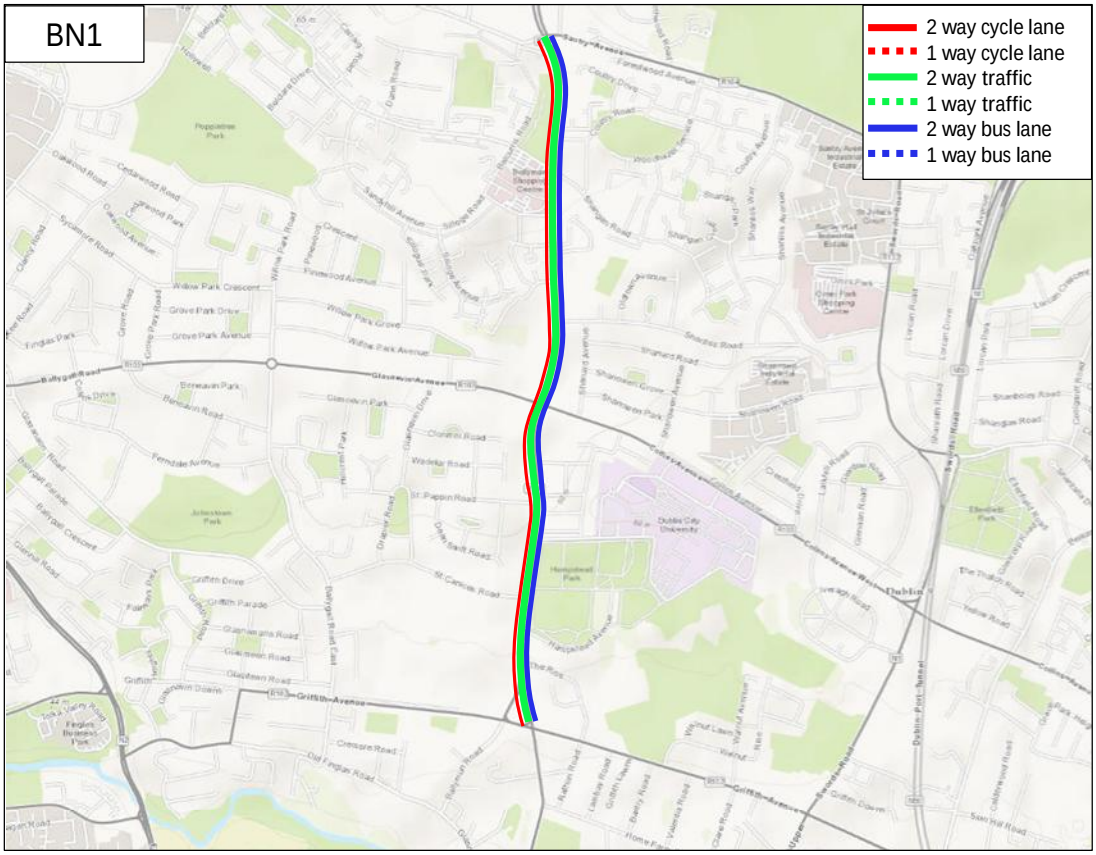


Figure 7.5: Route Option BN1 Proposals: Ballymun Road (R108)

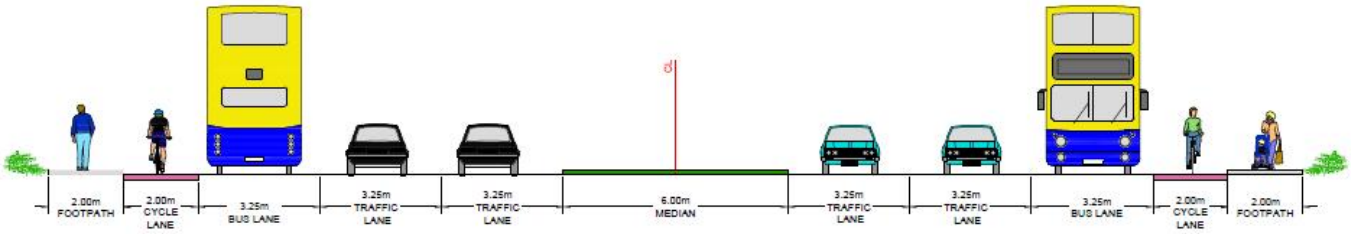


Figure 7.6: Route Option BN1: Typical Cross Section (North facing) of Ballymun Road (R108).

There are a number private dwelling driveways with direct access onto the portion of the route option considered as part of BN1 particularly on the western side of the Ballymun Road between the Collins Avenue and Griffith Avenue junctions. There are also access to schools and parking areas for duplex residential units to the north of Collins Avenue. Some residential land acquisition may be required on the inbound approach to the Griffith Avenue junction. This would take the form of a portion of front gardens.

There are a total of 7 controlled junctions and 7 pedestrian crossings along this route option. ITS measures may be required to deliver the level of bus priority required for additional bus services. Bus priority measures are currently in place for the No 4 service only at key junctions.

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

§ There are few constraints associated with the existing QBC link which is on a dual carriageway; and

§ Realignment of inbound and outbound sections of R108 which adjoin Griffith Avenue (R103) may require private land acquisition and removal of trees.

It is anticipated that this option would cost approximately €4.9 million (€4.6 million infrastructure costs, €0.3 million land acquisition costs).

7.3.3 Route Option BN2: Ballymun Road (R108)/ Glasnevin Avenue (R103)/ Ballygall Road East and Griffith Avenue (R102)

Route option BN2 runs along the R108 Ballymun Road before turning westbound onto Glasnevin Avenue and then onto Ballygall Road East before routing on to Griffith Avenue and is presented in Figure 7.7.

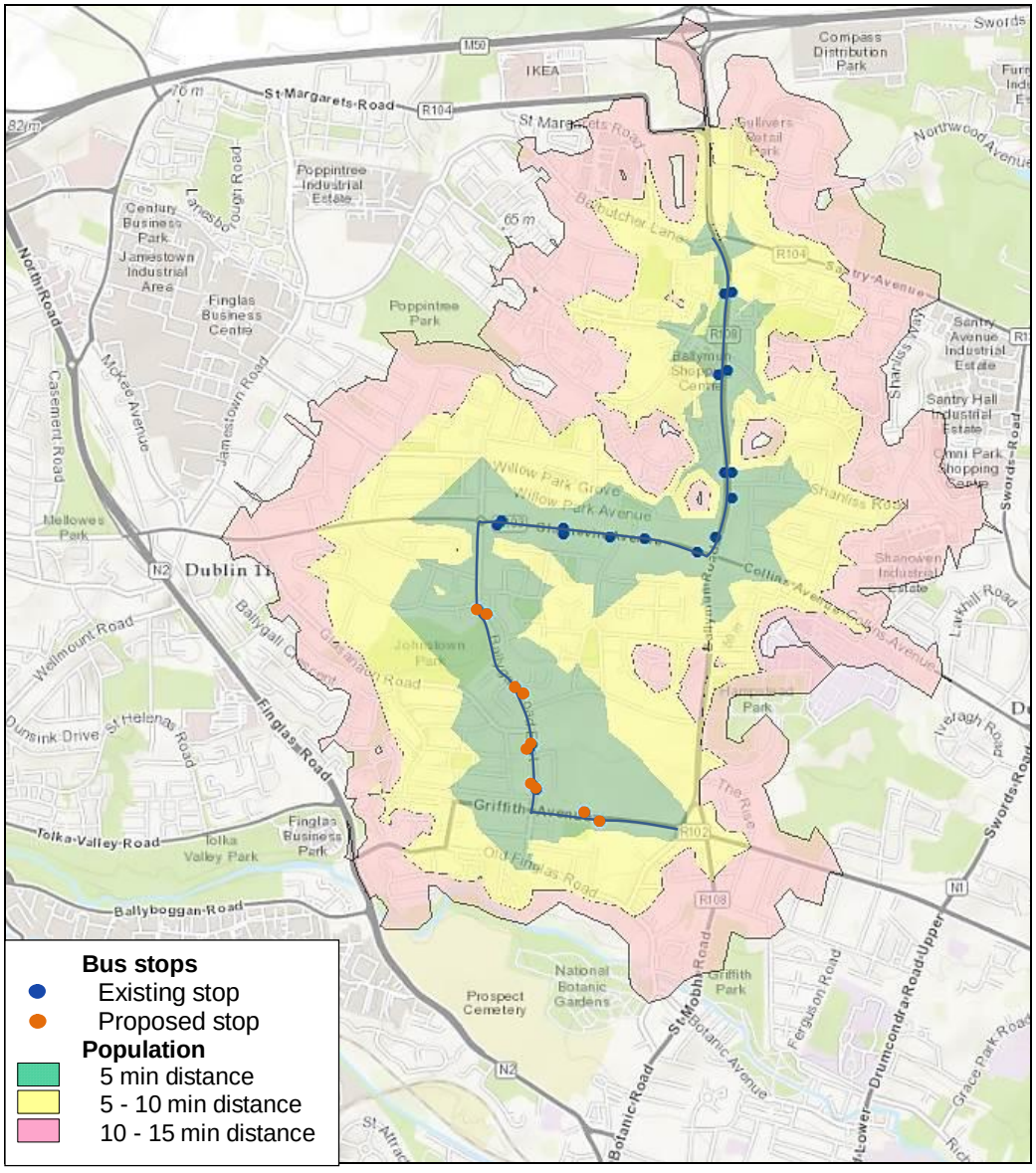


Figure 7.7 Route Option BN2: Ballymun Road (R108)/ Glasnevin Avenue (R103)/ Ballygall Road East and Griffith Avenue (R102)

Outbound: This route option would proceed westbound on Griffith Avenue before turning right and outbound up Ballygall Road East. The route would then return eastwards along Glasnevin Avenue before making a left turn onto the Ballymun Road (R108) and proceeding outbound along the Ballymun Road until the junction with Santry Avenue/Balbutcher Lane.

Inbound: The inbound option follows the same route in reverse.

Stops: It is anticipated that the existing number of stops in each direction (13) will be preserved but the location of these may be changed to align with stops in the opposite direction.

The journey time for this route option from the Santry Avenue junction to the St Mobhi Road junction is 19 minutes over a distance of approximately 4.2km.

The proposals for the section of the Ballymun Road between Santry Avenue and Collins Avenue are similar to those outlined for this section under option BN1. The remainder of the section BN2 includes for the realignment of Glasnevin Avenue and Beneavin Drive / Ballygall Road to provide segregated facilities for bus, cyclist and pedestrian. The cycle lane provision on Glasnevin Avenue would be 2.0m wide lanes owing to the fact that this forms part of Primary Orbital Cycle Route NO4. The cycle lane provision on Ballygall Road would be 1.5m wide lanes owing to the fact that this forms part of Secondary Cycle Route 3D. It is also proposed to upgrade Glasnevin Avenue / Beneavin Drive roundabout to signalised junction to maximise bus priority and improve cycle safety at this point. The provision of these facilities would require considerable acquisition of the front gardens (and car parking) of residential properties which front onto both sides of the roads along the Glasnevin Avenue/Ballygall Road section of the route.

It is also proposed to provide bus lanes and improved cycle facilities within the considerable road reservation of the western section of Griffith Avenue (R102).

The option BN2 proposals are presented in Figure 7.8 while a sample cross section for Ballygall Road is presented in Figure 7.9 below.

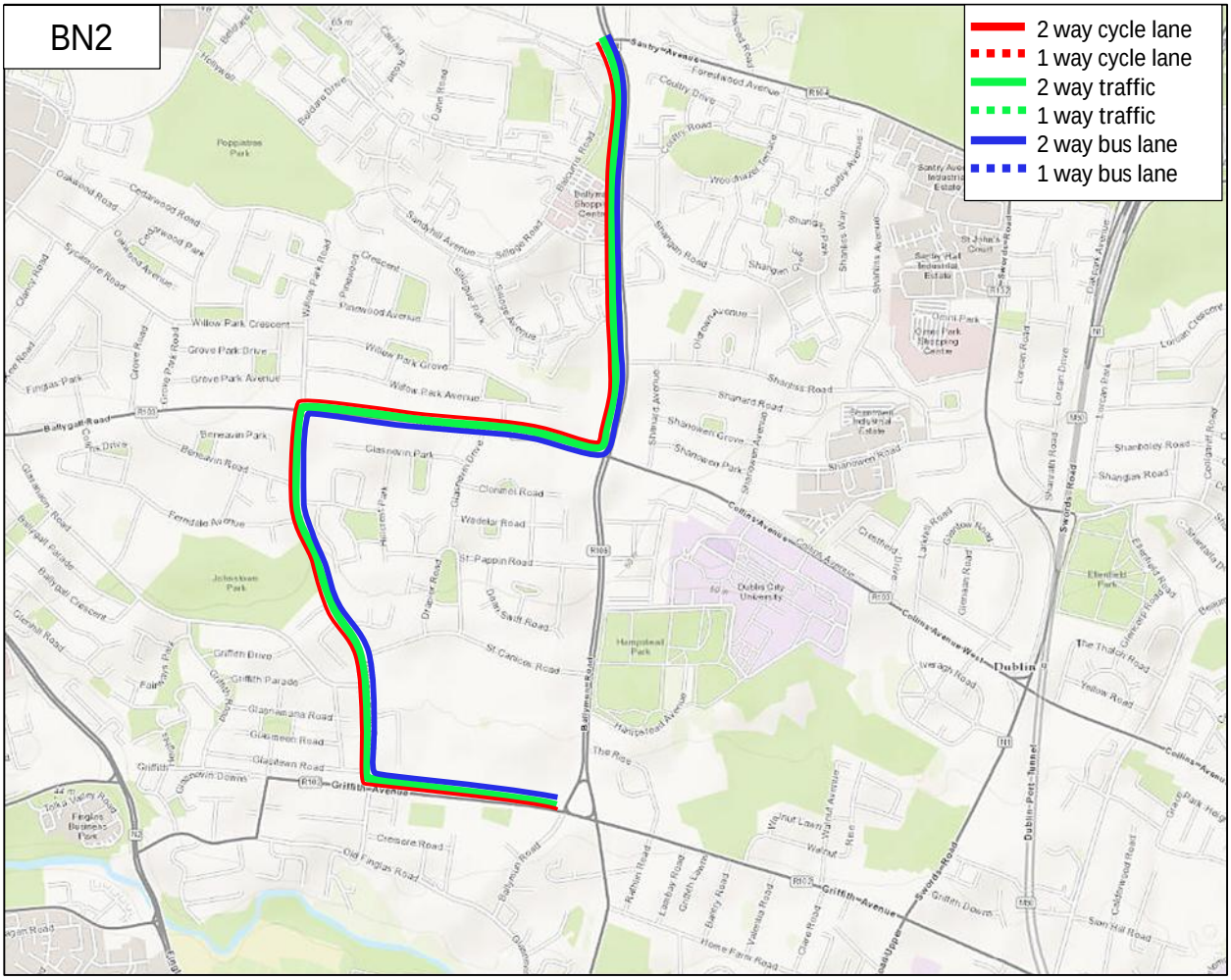


Figure 7.8: Route Option BN2 Proposals

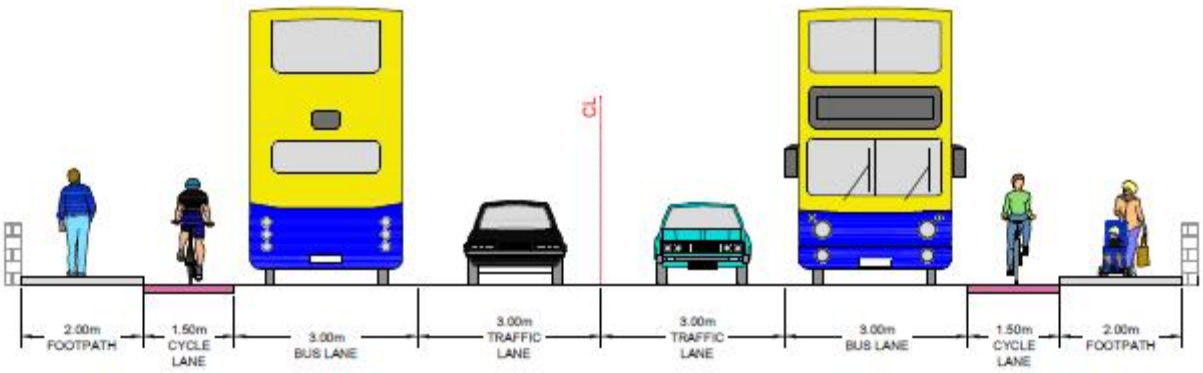


Figure 7.9: Route Option BN2: Typical Cross Section (North facing) for Ballygall Road

There are a number private dwelling driveways with direct access onto the Glasnevin Avenue / Ballygall Road section of the route option. There are also access to schools, a church and local retail along Ballygall Road.

There are a total of 6 signalised junctions, 9 pedestrian crossings and one roundabout along this route option. It is proposed to upgrade the roundabout between Glasnevin Avenue and Beneavin Drive to a signalised junction.

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

- Priority for inbound right turn at Ballymun Road/Collin's Avenue junction to Glasnevin Avenue will be difficult to achieve because of significant opposing traffic flows;
- Priority for right turn from Beneavin Drive to Glasnevin Avenue will also pose challenges. This will have an adverse effect on journey time reliability; and
- Segregated cycle facilities could be provided in each direction along the length of Glasnevin Avenue/Ballygall Road but will require removal of trees. Will also require a level of residential land acquisition in the form of gardens is some sections also

It is anticipated that this option would cost approximately €28.5 million (€22.9 million infrastructure costs, €5.7 million land acquisition costs).

7.3.4 Section 2 Ballymun Area Route Options Multi – Criteria Analysis

The Stage 2 route options MCA summary table for the Ballymun area route options is presented in Table 2 **Appendix A.**

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 7.2.**

Table 7.2: Ballymun Area Route Options MCA Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	BN1	BN2
Economy	Capital Cost		
	Transport Reliability and Quality of Service		
Integration	Land Use Integration		
	Residential Population and Employment Catchments		
	Transport Network Integration		

Assessment Criteria	Assessment Sub-Criteria	BN1	BN2
	Cycling Integration		
	Traffic Network Integration		
Accessibility and Social Inclusion	Key Trip Attractors		
	Deprived Geographic Areas		
Safety	Road Safety		
	Pedestrian Safety		
Physical Activity	Physical Activity		
Environment	Archaeology and Cultural Heritage		
	Architectural Heritage		
	Flora and Fauna		
	Soils and Geology		
	Hydrology		
	Landscape and Visual		
	Air Quality		
	Noise and Vibration		
	Land Use Character		

In terms of 'Economy', a differentiator between route options is the capital cost. Route option BN2 would cost considerably more than route option BN1, largely due to the quantity of private land-take required. In terms of transport reliability and quality of service, route option BN1 is more attractive than route option BN2 due to a combination of the number of junctions and the extent to which priority can be delivered practically with minor improvements to the existing QBC length.

In terms of 'Integration', route option BN2 serves a larger residential catchment. However, route option BN1 has the potential to encourage future development in DCU, and therefore ranks higher under land use integration. BN1 ranks slightly higher in terms of cycle network integration as the route is direct and aligns entirely with Primary Route 3A in the GDA Cycle Network Plan. In terms of 'traffic impact', a differentiator between route options would be that there are existing bus lanes along the majority of the length of BN1 whereas BN2 will result in a significant change to roads such as Glasnevin Avenue and Ballygall Road with a greater volume of buses affecting traffic capacity at junctions. BN1 is effectively the existing Ballymun QBC and as such a high volume of buses currently share the route with traffic. Further to this, the majority of signalised junctions along Ballymun Road (BN1) already have bus priority provision. Whilst the level of bus priority at junctions may be increased as part of the scheme this will not be as difficult to achieve for straight through movements under BN1 as the turning movements required under BN2 such as at the Collins Avenue / Glasnevin Avenue / Ballymun Road junction. It would be expected that BN2 will more restrictive than BN1 in terms of traffic movements particularly on the minor roads such as Glasnevin Avenue and Ballygall Road. Therefore BN1 ranks higher under 'integration'.

There is relatively little to differentiate between route options in this section of the study area under the ‘Accessibility and Social Inclusion’ criterion. However, BN1 provides as higher level of connectivity to the DCU campus and ranks slightly higher overall in this category.

Under ‘Safety’, route option BN1 is considered to rank higher as it is a more direct route option with few turning movements required.

In terms of ‘Environment’, route option BN2 is generally considered to be less attractive in terms of potential for environmental impacts, such as impact on landscape and visual and flora and fauna which would arise as a result of any widening works required for segregated facilities.

Based on the assessment undertaken, it is apparent that route option BN1, which would route the CBC along the Ballymun Road, offers the most practical, deliverable route option for the following reasons:

- The lower capital cost compared to the BN2 route;
- Avoids impacting on significant property numbers which reduces planning risk, scheme costs and construction disruption;
- The likelihood of being able to deliver considerably shorter overall journey times and assurances on journey time reliability when compared to the BN2 option;
- Relatively minor private land-take required which would be a modification to an existing parking area;
- The assessment shows that BN2 would serve a larger residential catchment. However, it is considered that these areas are currently sufficiently served by bus routes such as the 11, 83, 83A at present;
- The retention of the QBC/CBC service on the Ballymun Road corridor would also be consistent with serving future proposed land-use planning objectives, including the expansion of DCU which has been earmarked for considerable development in the future; and
- Less environmental impacts.

Based on the MCA of the Ballymun Area undertaken above, BN1, which would route the CBC along Ballymun Road (R108), offers the most effective route option.

Therefore BN1 will form part of the emerging preferred route.

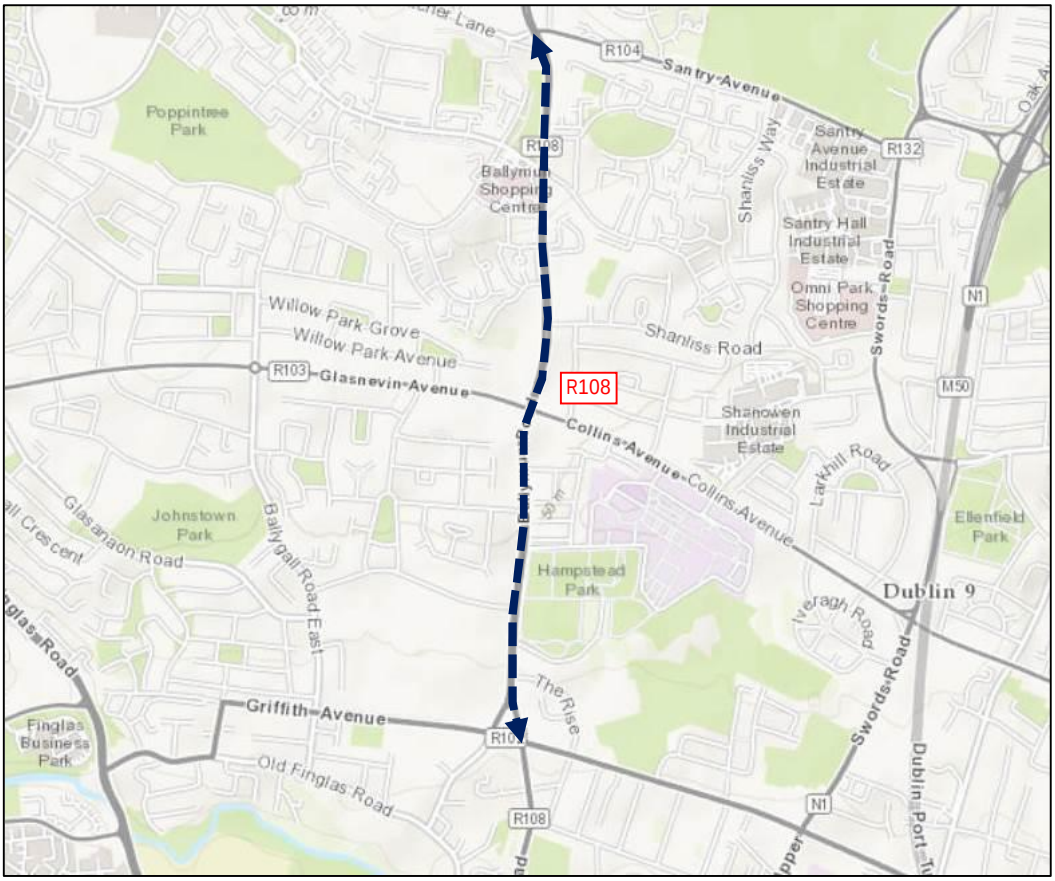


Figure 7.10: Emerging Preferred Route for SAS 2

8 Study Area 3 (Central Area) Route Option Assessment

8.1 SAS 3: Central Area Option Assessment

The final Section of the Study Area extends from Griffith Avenue in the north to the southern extent of the scheme at Church Street. There are a significantly larger number of route sections considered within this section as part of the Stage 1 assessment. Further to this there are an increased number of options assessed as part of the Stage 2 assessment as consideration is given to a range of (design) interventions, particularly in more constrained areas.

The Stage 1 assessment of the options for the Central Area is discussed in Sections 9.2 below.

Following the Stage 1 assessment for the entire Central Area, the Stage 2 assessment is undertaken initially for a number of specific smaller sections of the Central Area to determine what layout/configuration of these sections should form part of the principal route options for the Central Area.

The principal route options for the Central Area are then subjected to the Stage 2 assessment to determine the final section of the Emerging Preferred Route.

8.2 Stage 1: Route Sections Assessment

Each of the route sections considered as part of the Stage 1 assessment for SAS 3 (Central Area) are illustrated in Figure 8.1 below.

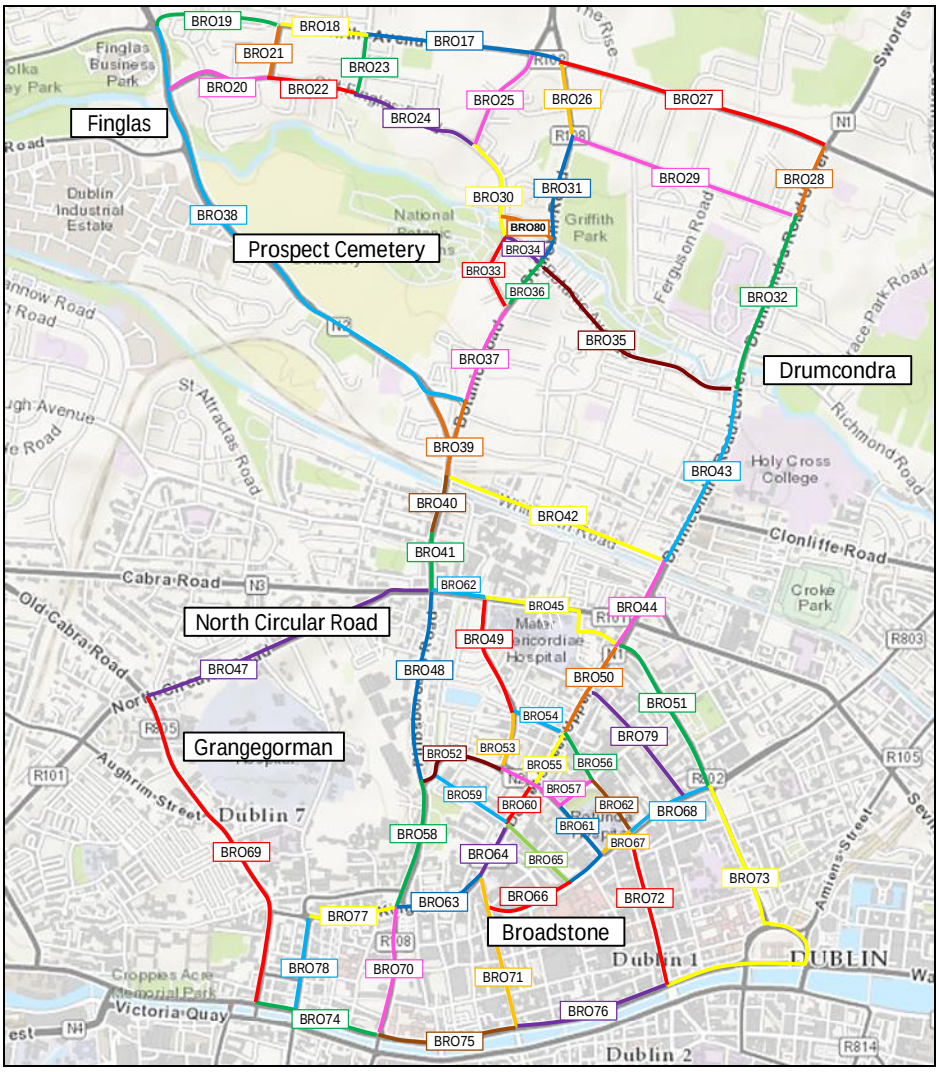


Figure 8.1: Route Sections within SAS 3

The table below presents a summary of the 'Stage 1' route sections sifting process for the Central Area.

Table 8.1: Route Section Sifting (Stage 1) Summary – SAS 3 (Central Area)

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 18	Griffith Avenue (R102) Cremore Villas to Tolka Estate	Suburban Substantial verge and trees on both sides of Griffith Avenue. Single carriageway Off street parking for residences	Single carriageway road with trees on both sides of sections. Significant verge on both sides that could facilitate widening; as a result it is a feasible section.	Pass
BRO 19	Glasnevin Downs Tolka Estate to N2	Suburban Trees on southern side of Glasnevin Downs Single carriageway Off street parking for residences No link through to N2 and significant level difference.	Single carriageway road with trees on both sides of sections. Significant level differences between the N2 and Glasnevin Downs which would be extremely difficult to resolve; route deviates from principal trip attractors of the Ballymun CBC. Route section is not technically feasible and diverges from principal trip attractors, as a result it is not a feasible section.	Fail
BRO 20	Old Finglas Road Tolka Estate Road to Finglas Road (N2)	Inner Suburban Significant technical constraints	Single carriageway road with trees on both sides. Significant level differences between the rear of properties and the existing road would render widening extremely difficult in the vicinity of the N2 junction; route deviates from principal trip attractors of the Ballymun CBC also. Route section is not technically feasible and diverges from principal trip attractors, as a result it is not a feasible section.	Fail
BRO 21	Tolka Estate Road; Old Finglas Road to Griffith Avenue (R103)	Inner Suburban Off street parking but with small front gardens	Single carriageway road with trees on both sides. Residents generally have parking within property	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		Trees on western side Serves existing buses 83 and 83A	boundaries; as a result it is a feasible section.	
BRO 22	Old Finglas Road Tolka Estate Road to Cremore Villas	Inner Suburban	Single carriageway road with trees on both sides. Widening potential possibly in one direction where verge exists; Section progressed for further consideration in combination with other sections.	Pass
BRO 23	Cremore Villas Griffith Avenue to Old Finglas Road	Inner Suburban Off street parking Trees on western side	Single carriageway road with trees on western side. Residents generally have parking within property boundaries; as a result it is a feasible section.	Pass
BRO 24	Old Finglas Road Cremore Villas to Old Ballymun Road	Inner Suburban School, Convent and Met Office accessed from road Narrow verge on north side of road	Single carriageway road with trees on both sides. Widening extremely difficult in the vicinity of the convent, school and Met office. Section progressed for further consideration in combination with other sections as it is an existing bus route (83 and 83A).	Pass
BRO 25	Old Ballymun Road; Old Finglas Road to Ballymun Road (R108)	Inner Suburban Dedicated ‘on street parking’ Cycle lane in outbound direction	Single carriageway road with residential frontage and dedicated parking provided on the street for the residents. Limited potential to widen road over much of its length. Section progressed for further consideration in combination with other sections as it represents a direct route and which currently carries outbound cyclists from Botanic Road.	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 26	St Mobhi Road (R108) Griffith Avenue (R102) to Home Farm Road	Inner Suburban Trees on both sides Inbound bus lane present Cycle lanes provided on both sides for sections with inbound cycle lane provided for entire length.	Single carriageway road with bus lane on inbound side and trees on both sides. Residents have parking within property boundaries. May require the acquisition of a portion of the front gardens. Existing QBC route which is most direct, as a result it is a feasible section.	Pass
BRO 27	Griffith Avenue (R102), Ballymun Road (R108) to Swords Road (N1)	Suburban Four rows of Mature trees Wide single carriageway Off street parking for residences Informal on street parking also provided	Could require some tree removal and loss of informal on street parking to provide bus lanes and cycle lanes. However, existing road is quite wide, section progressed to the next stage for further assessment.	Pass
BRO 28	Drumcondra Road Upper (N1), Griffith Avenue (R102) to Home Farm Road	Inner Suburban Dual carriageway road with bus lane in both directions. Large trees in verge on both sides Potential route for Swords CBC and emerging preferred route for Swords BRT.	Dual Carriageway with bus lanes along full length of section; as a result a feasible section. However it does converge with Swords CBC/BRT.	Pass
BRO 29	Home Farm Road; St Mobhi Road (R108) to Drumcondra Road (N1)	Inner Suburban Two rows of Mature trees Single carriageway Dedicated ‘on street parking’ in vicinity of Drumcondra Road Upper junction Existing national school	Will require tree removal and loss of dedicated (for residents) on street parking as well as land acquisition in the form of front gardens including existing school grounds.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		accessed Serves existing 11 and 13 bus routes.		
BRO 30	Glasnevin Hill Botanic Avenue to Old Ballymun Road	Inner Suburban Bon Secours Hospital access Parallel Road along frontage of the Tolka House Botanic Gardens border to the west.	Wide single carriageway road with cycle lane in outbound direction. Widening difficult in the vicinity of the Botanic Gardens and Our Lady of Dolours church. Section progressed for further consideration in combination with other sections; as it represents a direct route and which currently carries buses and outbound cyclists from Botanic Road.	Pass
BRO 31	St Mobhi Road (R108) Home Farm Road to Botanic Avenue	Inner Suburban Trees on both sides Inbound bus lane present Primary School and College of Further Education accessed Na Fianna GAA and Home Farm soccer club also accessed. Includes crossing of Tolka River	Single carriageway road with bus lane on inbound side and trees on both sides. Residents have parking within property boundaries. May require the acquisition of a portion of the front gardens of residential properties. Section progressed for further consideration in combination with other sections.	Pass
BRO 32	Drumcondra Road Upper (N1), Home Farm Road to Botanic Avenue	Urban Dual carriageway road with bus lane and cycle lane in both directions between Richmond Road and Home Farm Road junctions Large trees in close proximity to Home Farm Road junction. Potential route for	Dual Carriageway with bus lanes along majority of length of section; as a result a feasible section. However does converge with Swords CBC/BRT corridor.	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		Swords CBC and emerging preferred route Swords BRT.		
BRO 33	Botanic Road St Mobhi Road to Glasnevin Hill	Inner Suburban Access to National Botanic Gardens Bounded by wall of National Botanic Gardens Dedicated 'on street' parking for majority of houses	Single carriageway road with cycle lane in outbound direction. Widening difficult in the vicinity of the Botanic Gardens. Section progressed for further consideration in combination with other sections as it represents a direct route and which currently carries outbound cyclists from Botanic Road.	Pass
BRO 34	Botanic Avenue Glasnevin Hill to St Mobhi Road (R108)	Inner Suburban Existing church (Our Lady of Dolours) Narrow road with poor pedestrian facilities Off street parking but with small front gardens Some houses have steps to entrance from road level	Single carriageway road Limited potential to widen road over much of its length due to presence of houses and Church, as a result it is not a feasible section.	Fail
BRO 35	Botanic Avenue St Mobhi Road (R108) to Drumcondra Road (N1).	Inner Suburban Narrow road with poor pedestrian facilities Dedicated 'on street' parking Some houses have steps to entrance from road level Considerable level difference to a terrace of houses to south Griffith Park to north	Single carriageway road Limited potential to widen road over much of its length due to adjacent properties; as a result it is not a feasible section.	Fail
BRO 36	St Mobhi Road (R108) Botanic Avenue to	Inner Suburban Trees on both sides in	Single carriageway road with cycle lane on inbound	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
	Fairfield Road/Botanic Road	verge. Inbound cycle lane present Off street parking for residents	side and trees on both sides. Residents have parking within property boundaries. May require the removal of trees. Section progressed for further consideration as forms existing QBC route and is the most direct route.	
BRO 37	Botanic Road (R108) Fairfield Road to Prospect Avenue	Inner Suburban Cycle lanes in both directions Inbound bus lane commences opposite the Sunnybank Hotel No parking for residents Most houses have steps to entrance from road level.	Limited potential to widen this single carriageway road over much of its length but it forms a section of existing QBC and is a direct route. While this section would otherwise be a fail, it is relatively short and forms a critical link in one of the route sections; therefore it continues to the next stage of assessment.	Pass
BRO 38	Finglas Road (N2) Prospect Avenue/Hart's Corner to Old Finglas Road	Inner Suburban Glasnevin Cemetery borders to the east and St Vincent's School to west Forms part of Finglas CBC	Single carriageway road with bus lane on inbound side and trees on both sides as well as secondary school at its narrowest point. Route diverges from study area and adjoins the study area for Finglas CBC. As a result it is not progressed for further consideration as part of the Ballymun CBC.	Fail
BRO 39	Botanic Road/Prospect Road (R108) Prospect Avenue to Whitworth Road	Inner Suburban One way Gyratory with Finglas Road and Prospect Avenue (Hart's Corner) Inbound bus lane and fragmented outbound bus lane Fragmented outbound	Two to three lanes in each direction along this section, as a result it is a feasible section	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		cycle lane No parking for majority of residents Local shops front onto road		
BRO 40	Phibsborough Road (R108) Whitworth Road to Connaught Street	Urban Bus Lanes in both directions No parking for majority of residents	Existing bus lanes along majority of length of section; as a result a feasible section. (Cycle route identified for alternative alignment)	Pass
BRO 41	Phibsborough Road (R108) Connaught Street to North Circular Road	Urban Bus Lanes in outbound direction Indented parking on eastern side adjacent to terrace of shops Limited potential for widening at the North Circular Road junction. Phibsborough shopping centre and number of local shops, public houses and businesses accessed from this section.	Limited, but some, potential to widen road over much of its length due to proposed redevelopment, and also follows the most direct routing serving a significant catchment/demand. Section progressed for further consideration of alternative bus priority measures.	Pass
BRO 42	Whitworth Road Prospect Road/Botanic Road (R108) to Drumcondra Road (N1).	Urban Rail line to south Footpath on northern side of road only Glasnevin Lawn Tennis Club Houses closest to Cross Guns Bridge do not have parking and have small front gardens.	Single carriageway road Limited potential to widen road over much of its length due to adjacent houses and rail line; as a result it is not a feasible section.	Fail
BRO 43	Drumcondra Road Lower	Urban	Dual Carriageway with bus	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
	(N1), Botanic Avenue to Whitworth Road	Dual carriageway road with bus lane either direction for the majority of the section. Young trees in median between Royal Canal and Maynooth rail line bridge. Potential route for Swords CBC and emerging preferred route for Swords BRT.	lanes along majority of length of section; as a result a feasible section. However does converge with Swords CBC/BRT.	
BRO 44	Dorset Street (N1), Whitworth Road to Gardiner Street (R802)	Urban Dual carriageway road with bus lane either direction between North Circular Road and Royal Canal Young trees in median Potential route for Swords CBC and emerging preferred route for Swords BRT.	Dual Carriageway with bus lanes along majority of length of section; as a result a feasible section. However does converge with Swords CBC/BRT.	Pass
BRO 45	North Circular Road (R101) via Synott Place Berkley Street to Gardiner Street (R802)	Urban Mountjoy Prison and Mater Hospital accessed. Typically suffers from traffic congestion Synnott Place constrained in terms of property boundaries and car parking.	Limited potential to widen road over much of its length due to existing residential properties but also the adjacent Mater hospital and Mountjoy prison grounds, traffic congestion would lead to increased journey times; as a result it is not a feasible section.	Fail
BRO 46	North Circular Road (R101) Phibsborough Road (R108) to Berkley Road	Urban Typically suffers from traffic congestion No parking for residences along the route.	Limited potential to widen road over much of its length and would lead to increased journey times; as a result it is not a feasible section.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		Pinch Point at entrance to Blessington Street Park		
BRO 47	North Circular Road (R101) Phibsborough Road (R108) to Prussia Street (R805).	Single Carriageway Road St Peter's Church adjoins Parking along sections Westbound cycle lane Large trees on both sides of route	Limited potential to widen road over much of its length due to residential properties, trees and also narrow bridge crossing of Luas Cross City, circuitous route which converges with Blanchardstown CBC/BRT; as a result it is not a feasible section.	Fail
BRO 48	Phibsborough Road (R108) North Circular Road (R101) to Western Way	Urban Bus Lane in outbound direction between Western Way and Monck Place Inbound cycle lane Indented parking on both sides of road some of which is dedicated to residential units fronting onto the road. However, potential alternative parking in laneways to rear of these properties. Retaining walls and parallel roads on section to between Western Way and McGowan's Public House.	Potential to provide improved bus facilities may require alternative route for cyclists; as a result it is a feasible section.	Pass
BRO 49	Berkeley Street North Circular Road (R101) to Blessington Street	Inner City Mater Hospital accessed. St Joseph's Church and park adjoin the route	Limited potential to widen road over much of its length owing to proximity of buildings and St Joseph's Church, would also diverge from principal trip attractors; as a result it is not a feasible section.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		Dedicated on street parking		
BRO 50	Dorset Street (N1), Gardiner Street (R802) to Blessington Street/North Frederick Street	Inner City Dual carriageway road with bus lane either direction and hatched median. Potential route for Swords CBC	Dual Carriageway with bus lanes; as a result a feasible section. Does converge with Swords CBC however.	Pass
BRO 51	Gardiner Street Upper (R802)/Mountjoy Square West; Dorset Street (N1) to Parnell Street (East) (R803)	Inner City Single carriageway road with 2 and 3 lane sections Part time bus lane in outbound direction with parking provided off peak. Parking also on inbound sections adjacent to St Francis Xavier Church. Residential units opposite the church generally have off street parking. Widened single lanes in the vicinity of Mountjoy Square narrows slightly on Gardiner Street Middle Potential route for Swords CBC	Bus lanes along sections with potential for increased coverage; however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 52	Western Way (R135), Constitution Hill (R108) to Mountjoy Street	Inner City On road cycle lane inbound Outbound bus lane Coach parking Historical stone walls and mature trees	Potential for improved facilities for buses but may require removal of coach parking; however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 53	Mountjoy Street; Western Way (R135) to Blessington Street	Inner City On road cycle lane outbound Dedicated on street parking	Limited potential for widening without removal/relocation of parking, however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 54	Blessington Street; Mountjoy Street to North Frederick Street	Inner City Wide single lane road in inbound direction On road cycle lane inbound On street parking on both sides	Potential for improved facilities with and without removal/relocation of parking, however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 55	Dorset Street Upper (N1), Blessington Street/North Frederick Street to Granby Row	Inner City Single carriageway road with bus lane outbound and inbound cycle lane Indented on street parking on southern side of road Potential route for Swords CBC	Potential to rationalise lane widths and provide alternative route for cyclists; as a result a feasible section. Does potentially converge with Swords CBC however.	Pass
BRO 56	North Frederick Street; Dorset Street (N1) to Parnell Square East	Inner City Single carriageway Limited length of cycle lane Abbey Church adjoins the route On street parking on western side of road	Limited potential to widen road over much of its length due to adjoining buildings which are of high architectural value however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 57	Granby Row/St Mary's Place Mountjoy Street to North Frederick Street	Inner City Wide two lane road on St Mary's Place On street parking on	Potential for improved facilities with and without removal/relocation of parking, requires consideration of DCC	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		both sides Black Church located at junction between Western Way/Mountjoy Street and St Mary's Place Outbound bus lane on Granby Row DCC proposals for Parnell Square may restrict potential for bus priority	proposals for Parnell Square; however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	
BRO 58	Constitution Hill/Church Street Upper (R108) Western Way to King Street North (N1)	Inner City Road cross section varies between wide single carriageway road north of Catherine Lane to a dual carriageway road with two traffic lanes in either direction and a median between Catherine Lane and King Street North Cycle lanes in both directions Wide verge adjacent to Prebend Street flats. Kings Inn boundary wall is a constraint to the east.	Potential to provide improved bus facilities as a result it is a feasible section.	Pass
BRO 59	Dominick Street Upper; Dorset Street (N1) to Western Way (R135)	Inner City Luas Cross City to run in both directions here	No potential for buses owing to Luas Cross City; as a result it is not a feasible section.	Fail
BRO 60	Dorset Street Upper (N1), Granby Row to Dominick Street Lower	Inner City Single Carriageway Road with 3 lanes. No Bus lane and cycle lanes in both directions Potential route for	Limited potential for widening, however provides direct route to Church Street; as a result it is a feasible section.	Pass

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		Swords CBC St Saviours Priory adjoins		
BRO 61	Parnell Street and Parnell Square (West); Dominick Street Lower to Parnell Square South	Inner City Luas Cross City to run in both directions here	Limited potential for buses owing to Luas Cross City on Parnell Street; also diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 62	Parnell Square East; North Frederick Street to O'Connell Street Upper	Inner City Existing inbound bus lane Wide inbound traffic lanes On street parking on western side of road	Existing bus lane with potential for improved facilities, however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 63	King Street North (N1); Church Street Upper (R108) to Bolton Street	Inner City Dual Carriageway Road with cycle lanes in both directions Cycle lanes in both directions DCC Inner Orbital Traffic Route	Potential to provide improved bus facilities. However, it may require alteration to City Centre traffic management; taken forward for consideration as it is a feasible section.	Pass
BRO 64	Bolton Street (N1), Capel Street to Dominick Street	Inner City Dual Carriageway Road with cycle lanes in both directions DCC Inner Orbital Route	Potential to provide improved bus facilities. However, it may require alteration to City Centre traffic management; taken forward for consideration as it is a feasible section.	Pass
BRO 65	Dominick Street Lower; Dorset Street (N1) to Parnell Street	Inner City Luas Cross City to run in both directions here	Limited potential for buses owing to Luas Cross City; as a result it is not a feasible section.	Fail
BRO 66	Ryder's Row/Parnell	Inner City	Potential to provide improved facilities but this	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
	Street Capel Street to Dominick Street Lower	Constrained width on Ryder's Row with access provided to car park Derelict buildings on site between Ryder's Row and Capel Street. Dual carriageway on Parnell Street with median. Narrow cycle lanes in both directions.	will require property acquisition on Ryder's Row, however diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	
BRO 67	Parnell Square South O'Connell Street Upper to Parnell Square West	Inner City Luas Cross City to run in both directions here	Limited potential for buses owing to Luas Cross City; also diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 68	Parnell Street (East) (R803); Gardiner Street Middle (R802) to O'Connell Street Upper	Inner City Single carriageway Cycle lane and parking in sections Inbound Luas Cross City will use the section	Limited potential to widen road over much of its length, existing available road space will diminish following completion of Luas Cross City which would be expected to lead to increased journey times; also diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 69	Prussia Street/Manor Street/Blackhall Place(R805); North Circular Road (R101) to Ellis Quay (R148)	Single Carriageway Road Severely constrained width between Hanlon's Corner and Aughrim Street Parking along sections Mixture of outbound and inbound bus lane sections Future route for Blanchardstown CBC/BRT	Limited potential to widen road over much of its length, circuitous route which converges with Blanchardstown CBC/BRT; as a result it is not a feasible section.	Fail

Section No.	Description	Receiving Environment	Comment	Pass/Fail
BRO 70	Church Street (N1), King Street North to Inns Quay (R148)	Inner City Single Carriageway Road with 2 traffic lanes and 2 cycle lanes between Mary's Lane and King Street. Capuchin Friary and Law Society adjoin the road to the west Varies from 1 to 2 lanes for traffic between Mary's Lane and the north quays with cycle lanes in both directions. Bridewell Garda station and associated parking. Luas Red Line crossing.	Limited potential for widening between King Street North and Mary's Lane, however provides a direct route into the city with interchange potential with the Luas Red Line; as a result it is a feasible section.	Pass
BRO 71	Capel Street; Bolton Street (N1) to North Quays	Inner City Significant commercial properties and associated on street parking Roadway only suitable for single lane for much of its length	Limited potential for specific bus facilities and would lead to increased journey times, also diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	Fail
BRO 72	O'Connell Street Upper/Lower Parnell Street to O'Connell Bridge	Inner City Dual carriageway road with bus lane in both directions	Potential to provide improved facilities, however diverges from principle origin/destination on Church Street with limited accessibility to Church Street along the keys (one-way system), as a result it is not a feasible section.	**Fail**
BRO 73	Gardiner Street Lower (R802)/Memorial Road/Custom House Quay/Eden Quay	Inner City Single carriageway Varies from Single to double lanes in	Limited potential to widen road over much of its length particularly on Gardiner Street Lower, circuitous route which	**Fail**

Section No.	Description	Receiving Environment	Comment	Pass/Fail
		sections Cycle lane & parking in sections Potential route for Swords CBC Converges with Malahide Road CBC	converges with other CBC; as a result it is not a feasible section.	
BRO 74	Ellis Quay/Arran Quay/Ushers Quay (R148)	Inner City One-way street Bus lanes in eastbound direction only	One-way street with limited potential to provide bus facilities in both directions, as a result is not a feasible route section.	**Fail**
BRO 75	Inns Quay/Ormond Quay Upper/Essex Quay/Merchant's Quay(R148)	Inner City One-way street Bus lanes in eastbound direction only	One-way street with limited potential to provide bus facilities in both directions, as a result is not a feasible route section.	**Fail**
BRO 76	Ormond Quay Lower/Bachelor Walk/Aston Quay/Wellington Quay(R148)	Inner City One-way street Bus lanes in eastbound direction only	One-way street with limited potential to provide bus facilities in both directions, as a result is not a feasible route section.	**Fail**
BRO 77	King Street North (R804); Queen Street (R804) to Church Street Upper (R108)	Inner City One-way westbound street with two lanes of traffic and a cycle lane	One-way street which diverges from principle origin/destination on Church Street, as a result it is not a feasible section.	**Fail**
BRO 78	Queen Street (R804); Arran Quay (R148) to King Street North (R804)	Inner City Wide one-way street with three lanes of traffic (southbound)	Potential to provide improved facilities in southbound direction only, however diverges from principle origin/destination on Church Street with limited accessibility to Church Street along the keys (one-way system), as a result it is not a feasible section.	**Fail**
BRO 79	Temple Street / Hill Street; Dorset Street Upper (N1)	Inner City	Potential to provide improved facilities,	**Fail**

Section No.	Description	Receiving Environment	Comment	Pass/Fail
	to Parnell Street (R803)		however diverges from principle origin/destination on Church Street with limited accessibility to Church Street along the keys (one-way system), as a result it is not a feasible section.	
BRO 80	St Mobhi Drive; Glasnevin Hill to St Mobhi Road	Inner Suburban Existing church (Our Lady of Dolours) Narrow road with on-road parking Off-street parking with long front gardens	Single carriageway road with potential to provide single bus lane if on-street parking is removed; all the houses along this street have off-street private parking, as a result is a feasible section.	**Pass**

Twenty nine sections; BRO 18, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33, 36, 37, 39, 40, 41, 43, 44, 48, 50, 55, 58, 60, 63, 64, 70 and 80 were progressed to the next assessment stage for the central section (SAS 3).

BRO 17 (Griffith Avenue west), which did not form part of the Emerging Preferred Route option for SAS 2, was also brought forward to the Stage 2 assessment for SAS 3 as it formed part of a cohesive route option within the Central Area.

The route sections taken forward following the Stage 1 'sift' are presented in **Figure 8.2.**

Figure 8.2 Route Sections passing Stage 1 ‘Sift’ in SAS 3

8.3 Stage 2: Central Area Options Assessment

8.3.1 Introduction

Following the Stage 1 sift, two principle route options for the Central Section of the study area were passed to the Stage 2 assessment:

- A route option via Botanic Road/ Phibsborough Road/Church Street (R108), (CC1); and
- A route option via Griffith Avenue (R102)/Drumcondra Road/Dorset Street/Bolton Street/North King Street (N1)/Church Street (CC2).

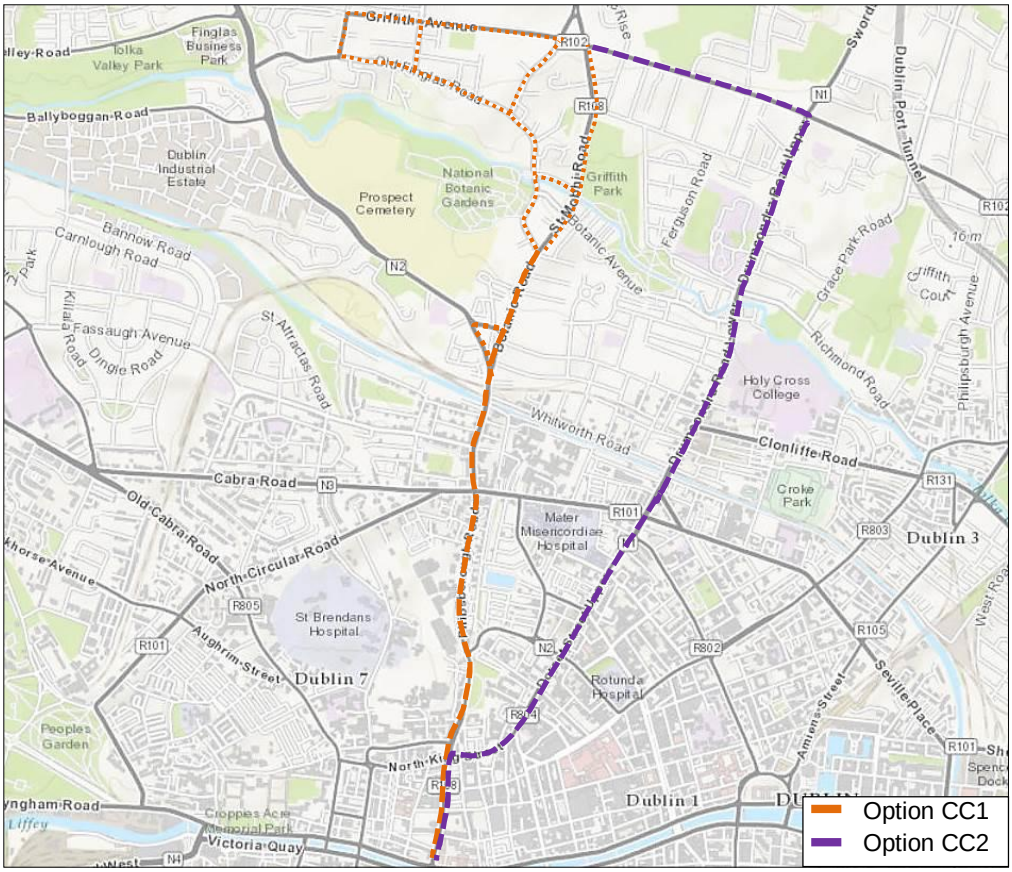


Figure 8.3A Cohesive Route Options in Section 3

Within CC1, there are a number of sections with various options requiring consideration before being taken forward to form part of CC1. These sections of CC1 are generally more constrained and include (see Figure 8.3B):

- Section BC between Griffith Avenue and the junction of Botanic Road/St Mobhi Road/Fairfield Road;
- Section BR: Botanic Road between the junction of Botanic Road/Mobhi Road/Fairfield Road and Hart's Corner (Prospect Road/Phibsborough Road); and
- Section CS: Church Street (common to CC2 as well).

A separate MCA has been undertaken for each of these sections separately under a Stage 2 assessment. Following the assessment of the various sub options, the option emerging will then be incorporated into the Stage 2 MCA for the Central Area (forming Option CC1).

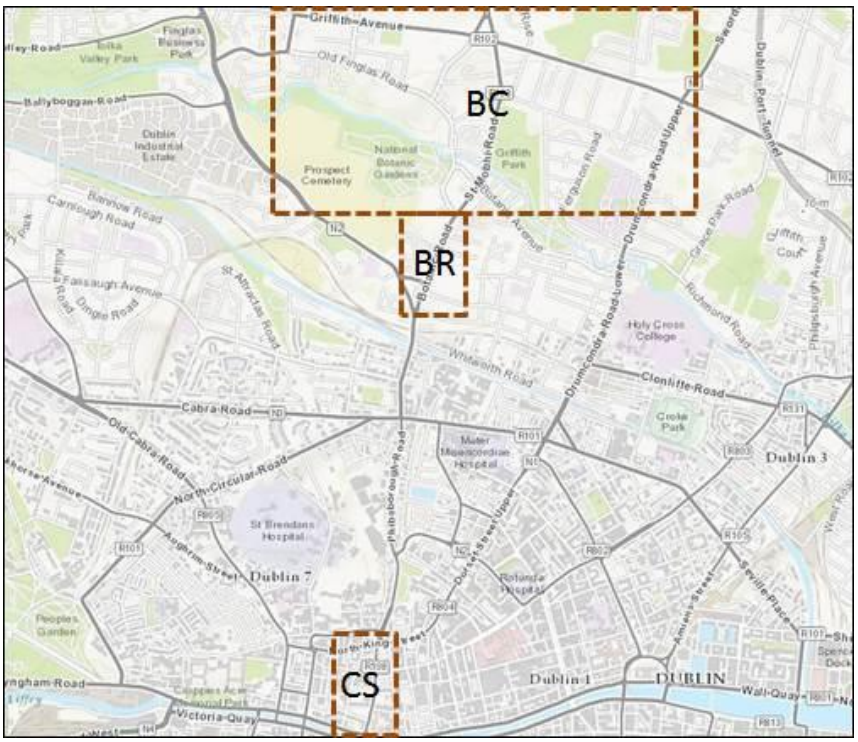


Figure 8.3B Locations with Alternative route/design options along CC1

8.4 Central Area Sub-options Assessment

Section BC – Griffith Avenue to Botanic Road / Mobhi Road / Fairfield Road junction

There are a number of routes between Griffith Avenue and the junction of St Mobhi Road/Fairfield Road/Botanic Road. These routes are illustrated in Figure 8.4 below. There are also a number of design variations using these routes which will also be addressed individually in the following section.

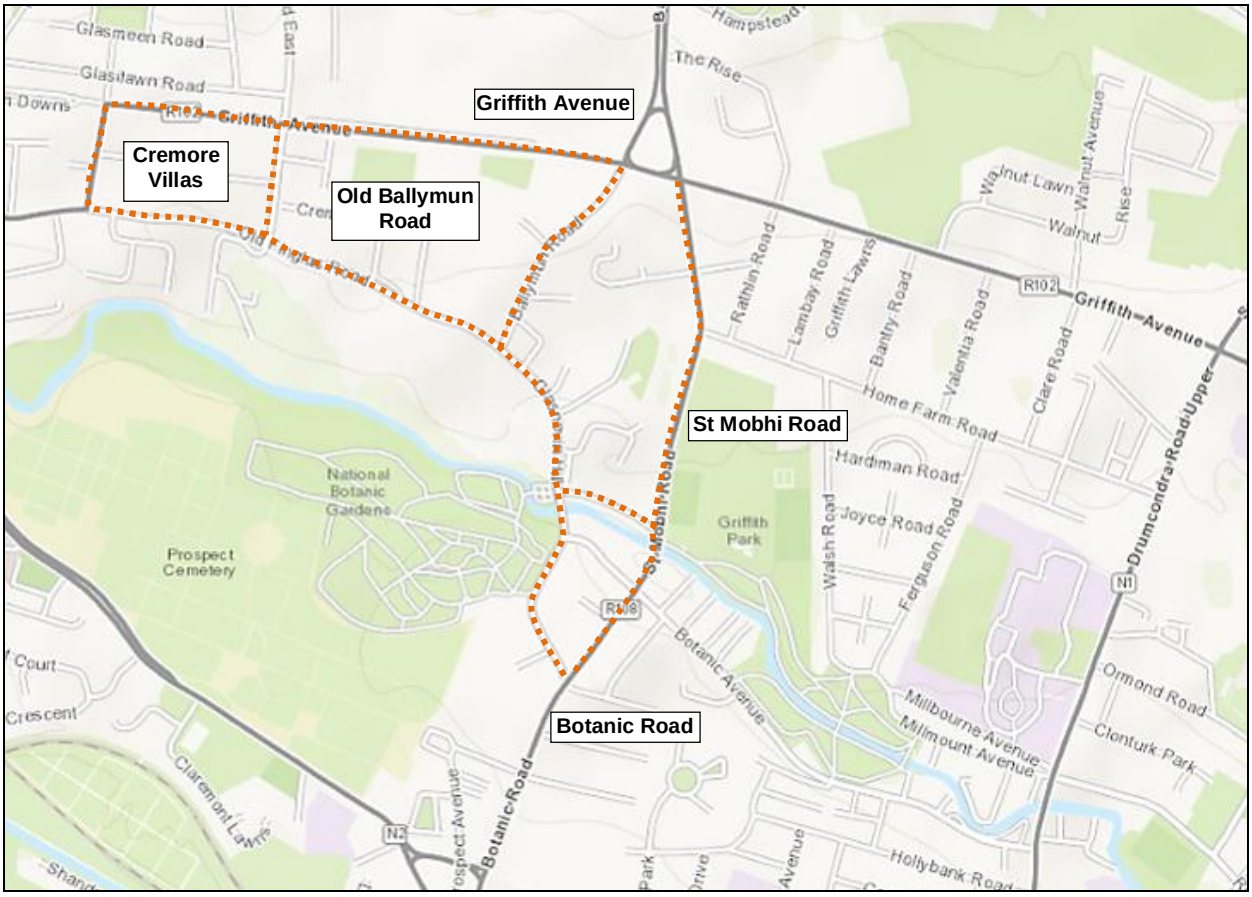


Figure 8.4 Route Options in Section BC

8.4.1 Route Sub - Option BC1: St Mobhi Road (R108)

Route option BC1, via Mobhi Road, is presented in **Figure 8.5.**

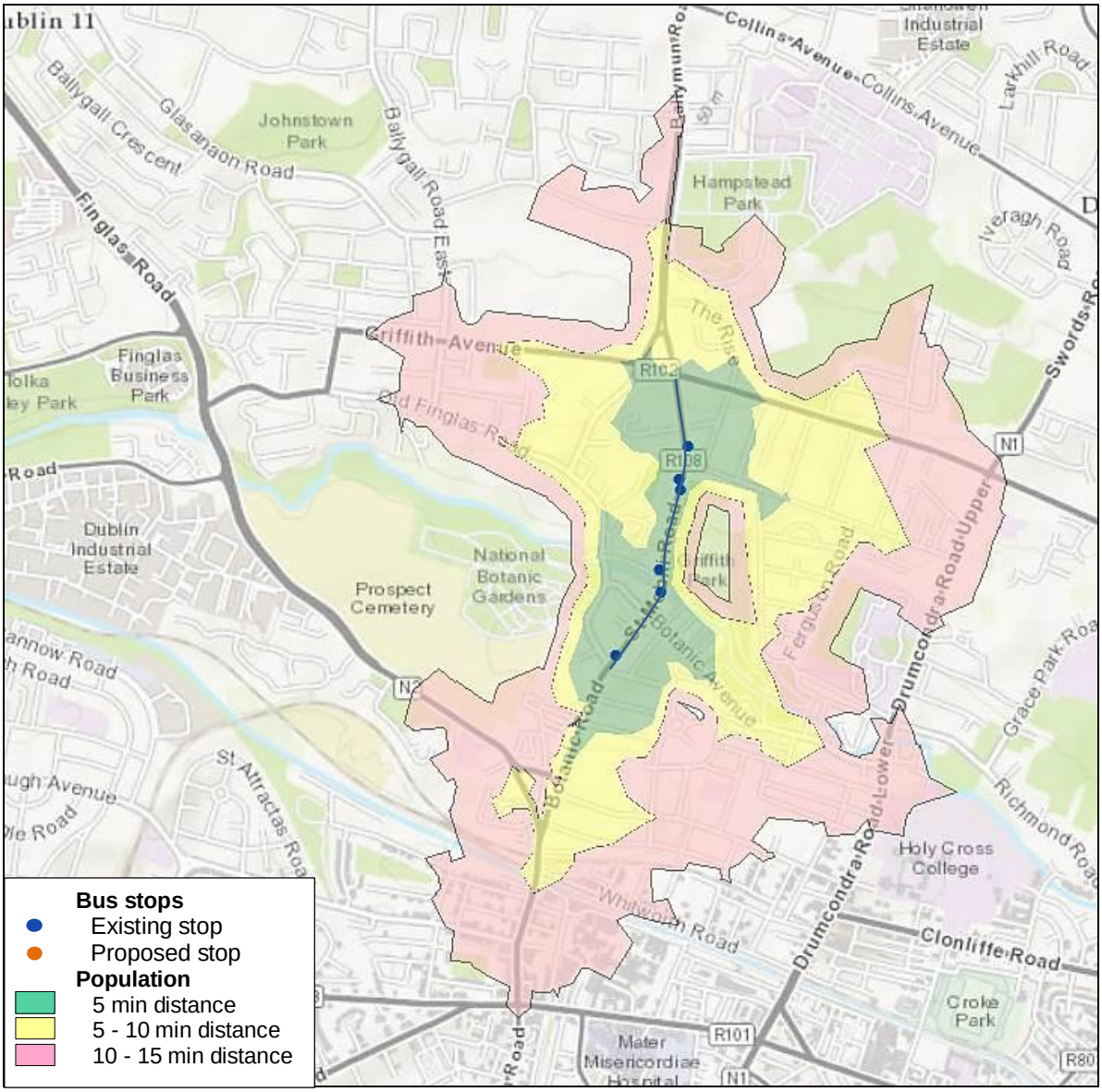


Figure 8.5: Route Sub - Option **BC1** St Mobhi Road

Outbound: The CBC service will proceed in a northerly direction along St Mobhi Road (R108) between the junction with Botanic Road/Fairfield Road and the Griffith Avenue junction along the route of the existing QBC.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops (3 in each direction) compared to the existing situation.

The journey time for this route option from the Griffith Avenue junction to Fairfield Road junction is 5 minutes over a distance of approximately 1.0 km.

It is proposed as part of option BC1 to provide bus lanes and 2.0m wide cycle lanes in both directions along Mobhi Road (which forms part of Primary Cycle Route 3A) whilst also maintaining two way traffic as illustrated in Figures 8.6 and 8.7 below. The provision of these facilities may require acquisition of the front gardens (and car parking) of residential properties which front onto both sides of the roads along St Mobhi Road.

There are 4 signal controlled junctions along this route as well as 2 signalised pedestrian crossings.

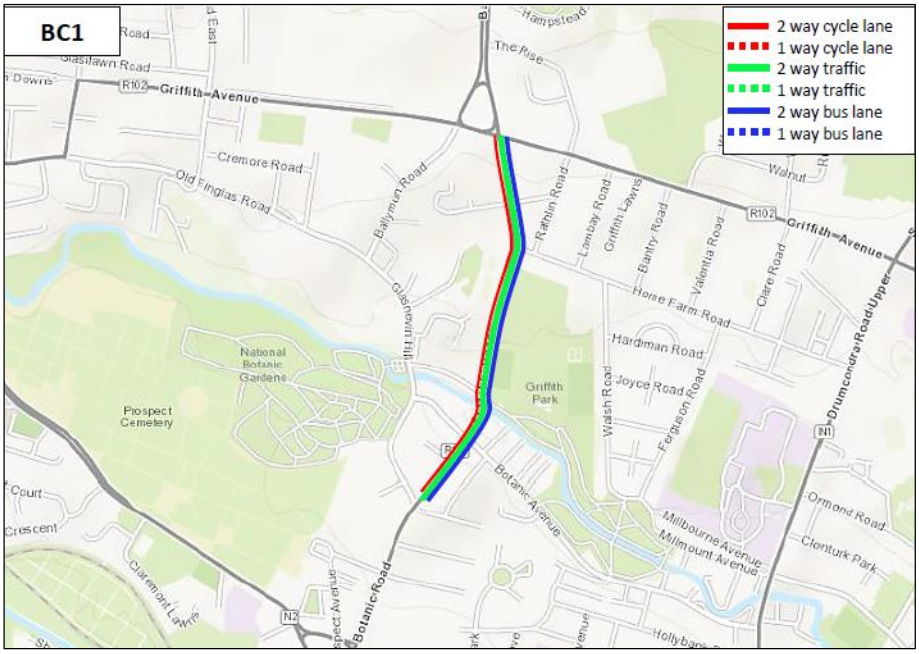


Figure 8.6: Route Sub - Option BC1 Proposals St Mobhi Road

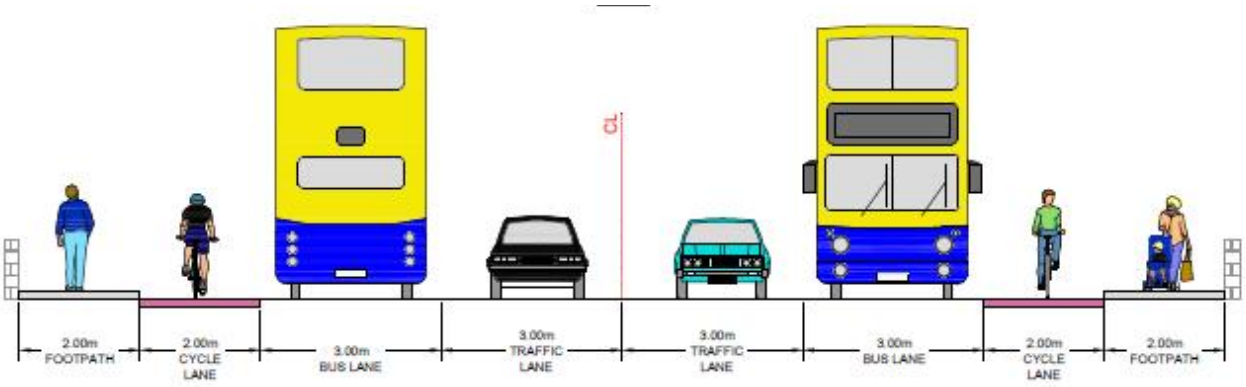


Figure 8.7: Route Sub - Option BC1 Typical Cross Section (North facing) St Mobhi Road

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

- The presence of trees on both sides of St Mobhi Road;
- The presence of numerous entrances to existing residential properties; and
- Bridge crossing of Tolka Road adjacent to Botanic Avenue.

It is anticipated that this option would cost approximately €11.4 million (€5.7 million infrastructure costs, €5.7 million land acquisition costs).

8.4.2 Route Sub - Option BC2: Old Ballymun Road/Glasnevin Hill/Botanic Road

Route option BC2 runs along the Botanic Road/Glasnevin Hill before routing on to Old Ballymun Road and is presented in Figure 8.8.

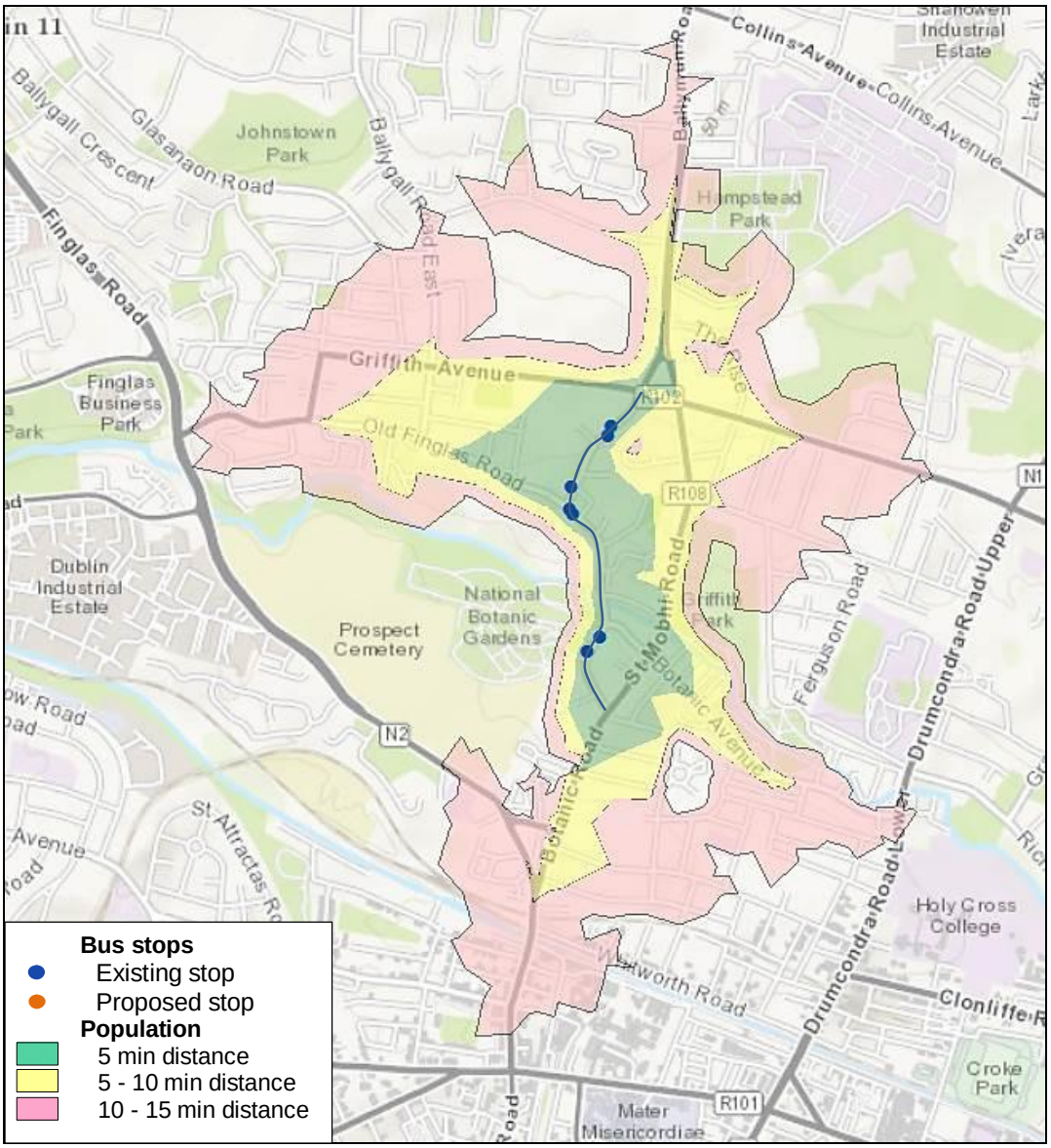


Figure 8.8 Route Sub - Option **BC2**: Old Ballymun Road/ Glasnevin Hill/Botanic Road

Outbound: This route option would proceed westbound on Botanic Road at the junction with St Mobhi Road continuing up Glasnevin Hill. The route would then turn right at the junction with Old Ballymun Road, adjacent to the National Meteorological Office. The route options would join Griffith Avenue at its northern extent.

Inbound: The inbound option follows the same route as outbound but would require an alteration to the existing junction between Griffith Avenue/St Mobhi Road and Old Ballymun Road.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation as illustrated in Figure 8.8.

The journey time for this route option from the St Mobhi Road/Fairfield Road junction to the Griffith Avenue junction is 6 minutes over a distance of approximately 1.1 km.

It is proposed as part of option BC2 to provide bus lanes in both directions along Botanic Road/Ballymun Road whilst also maintaining two-way traffic as illustrated in Figures 8.9 and 8.10 below. The provision of these facilities may require acquisition of the front gardens of residential properties which front onto both sides of the roads along Old Ballymun Road and would also require land acquisition from the National Botanic Gardens. It is also proposed that 2 way cycle facilities are provided along a parallel route on St Mobhi Road as part of the scheme, as it forms part of Primary Cycle Route 3A.

There are 3 signal controlled junctions along this route as well as 1 signalised pedestrian crossing.

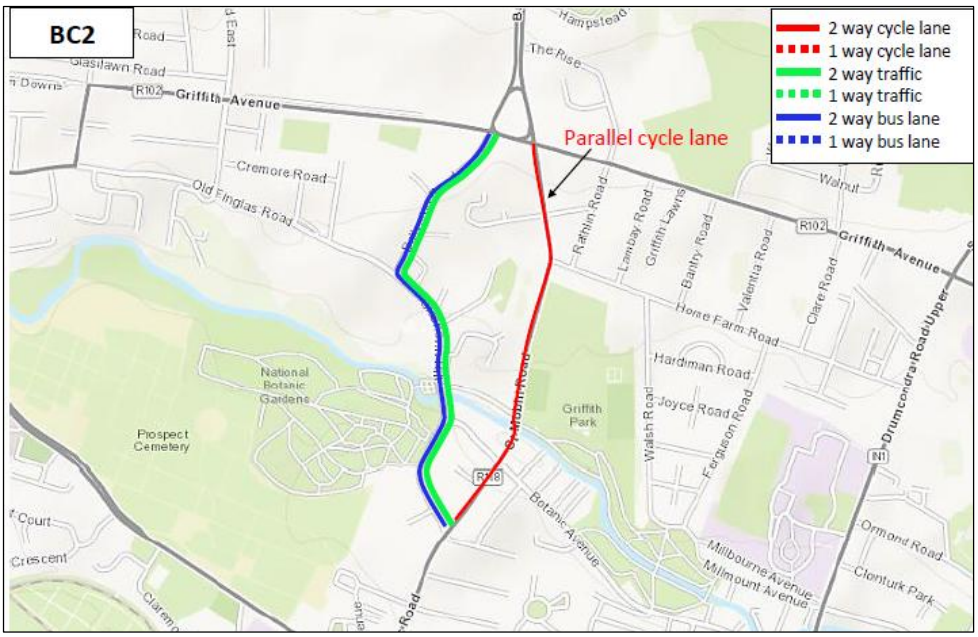


Figure 8.9: Route Sub - Option BC2 Proposals

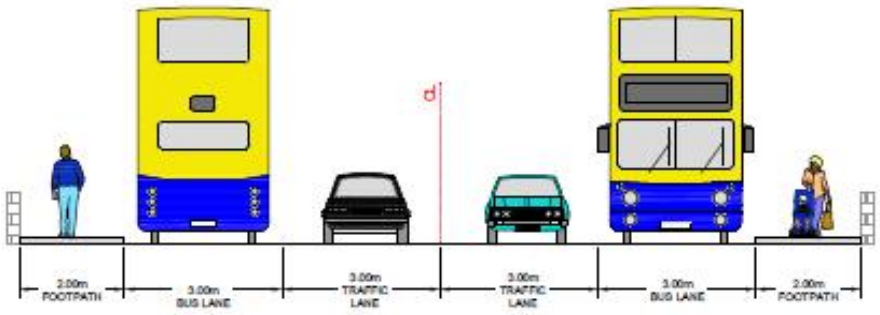


Figure 8.10: Route Sub - Option BC2 Typical Cross Section (North facing) Old Ballymun Road

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

- § Entrance and boundaries to National Botanic Gardens;
- § Bridge crossing of Tolka River; and
- § Segregated bus facilities could be difficult to achieve as significant property acquisition in the form of gardens will be required, particularly on Old Ballymun Road.

It is anticipated that this option would cost approximately €15.3 million (€13.2 million infrastructure costs, €2.1 million land acquisition costs).

8.4.3 Route Sub - Option BC3: Griffith Avenue/Cremore Villas/Old Finglas Road/Glasnevin Hill/Botanic Road

Route option BC3 runs along a similar direction to BC2 but uses Cremore Villas as opposed to Old Ballymun Road and is presented in Figure 8.11. This route option uses BRO17 from the Section 2, although this did not form part of the EPR that emerged from that assessment.

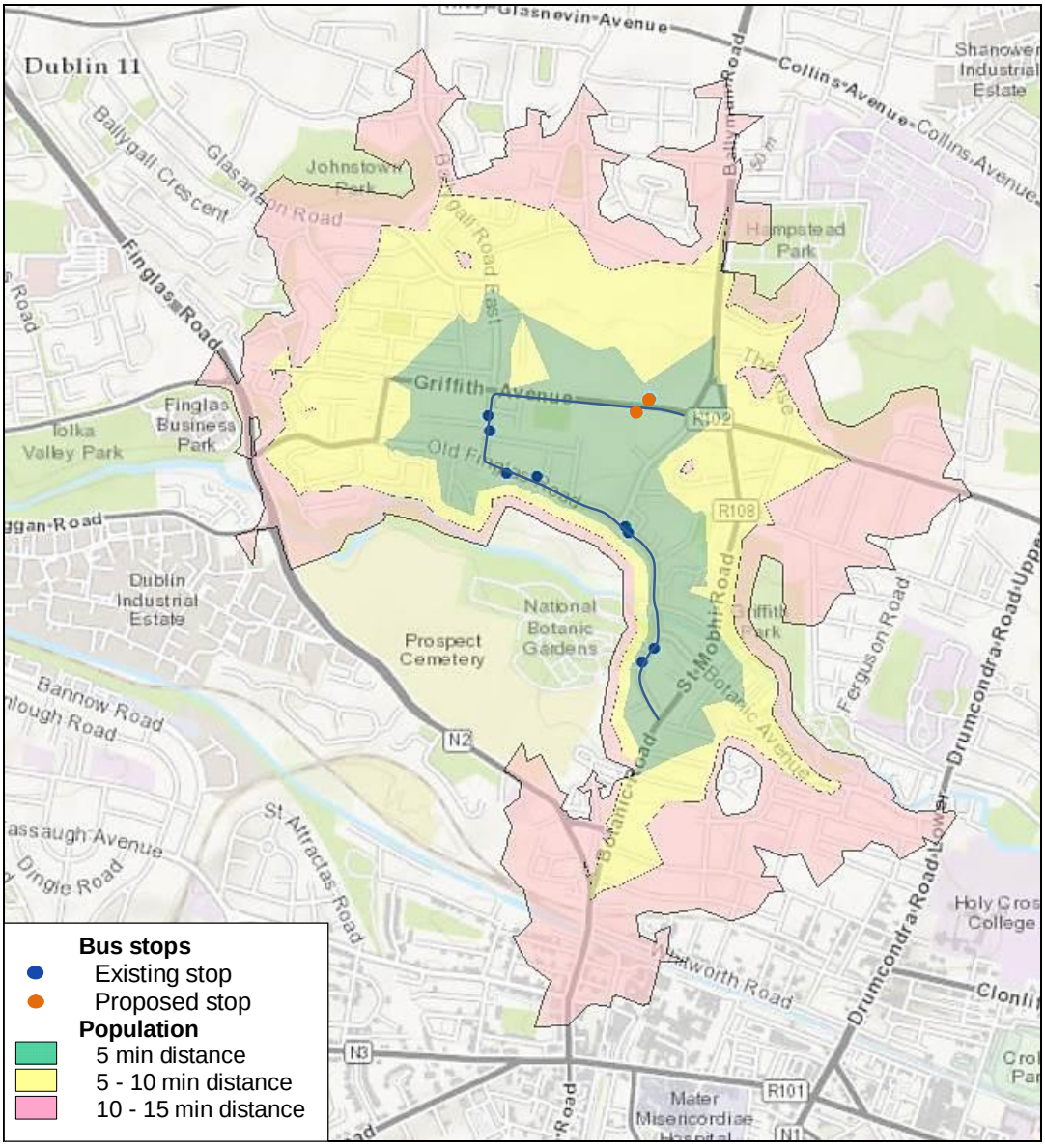


Figure 8.11 Route Sub - Option **BC3**: Griffith Avenue/Cremore Villas /Old Finglas Road/Glasnevin Hill/Botanic Road

Outbound: This route option would proceed westbound on Botanic Road at the junction with St Mobhi Road before proceeding up Glasnevin Hill. The route would then turn right at the junction with Cremore Villas before turning right again at Griffith Avenue at its northern extent.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation with an additional stop in each direction on Griffith Avenue.

The journey time for this route option from the St Mobhi Road/Fairfield Road junction to the Griffith Avenue junction is 10 minutes over a distance of approximately 2 km.

As with Option BC2, it is proposed as part of option BC3 to provide bus lanes in both directions along Botanic Road/Cremore Villas whilst also maintaining two-way traffic as illustrated in Figures 8.12 and 8.13 below. The provision of these facilities may require acquisition of a portion of the front gardens of residential properties which front onto both sides of the roads along Cremore Villas and would also require land acquisition from the National Botanic Gardens. It is also proposed that 2-way cycle facilities are provided along a parallel route on St Mobhi Road as part of the scheme. The existing cycle facilities on Griffith Avenue (west) would also be upgraded as part of the scheme while bus lanes would also be introduced here also in place of one of the traffic lanes in either direction.

There are 4 signal controlled junctions along this route as well as 2 signalised pedestrian crossings.

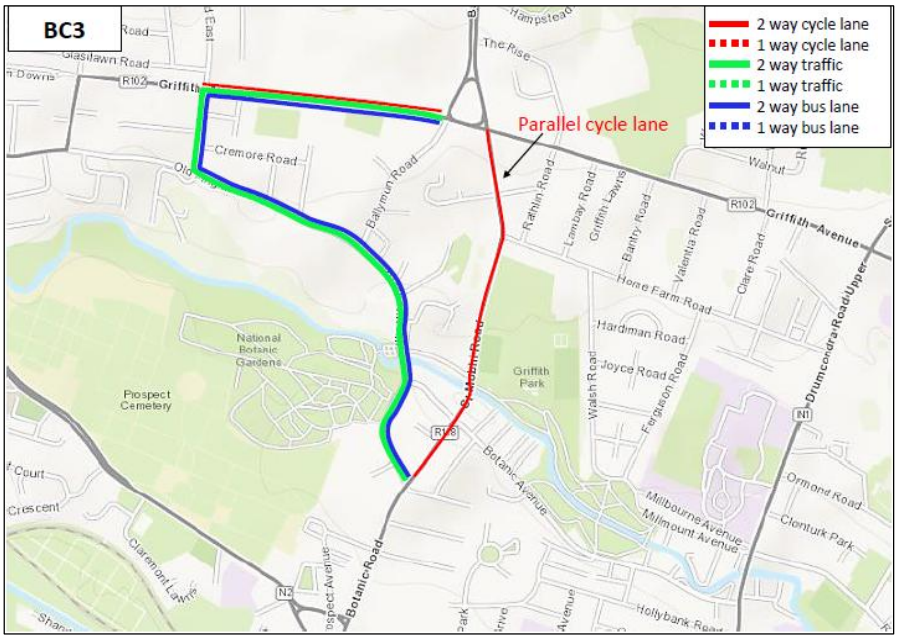


Figure 8.12: Route Sub - Option BC3 Proposals

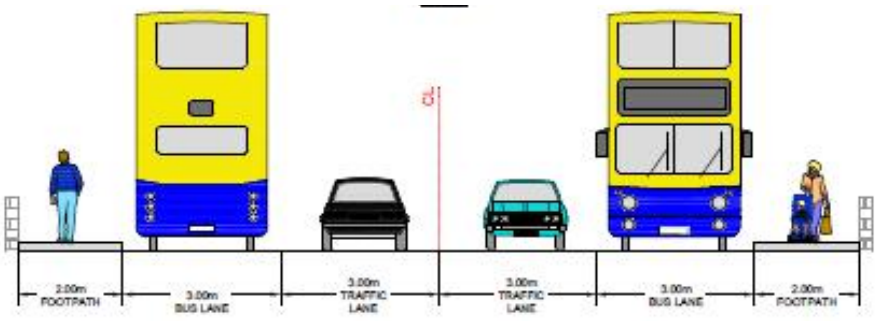


Figure 8.13: Route Sub - Option BC3 Typical Cross Section (North facing) Cremore Villas

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

- § Entrance and boundaries to National Botanic Gardens;
- § Bridge crossing of Tolka River; and
- § Segregated bus facilities could be difficult to achieve as significant property acquisition in the form of gardens will be required, particularly within Cremore Villas.

It is anticipated that this option would cost approximately €14.6million (€13.3 million infrastructure costs, €1.3 million land acquisition costs).

8.4.4 Route Sub - Option BC4: Griffith Avenue/Tolka Estate Road/Old Finglas Road/Glasnevin Hill/Botanic Road

Route option BC4 runs along a similar route to BC3 but uses Tolka Estate Road as opposed to Cremore Villas and is presented in **Figure 8.14** below.

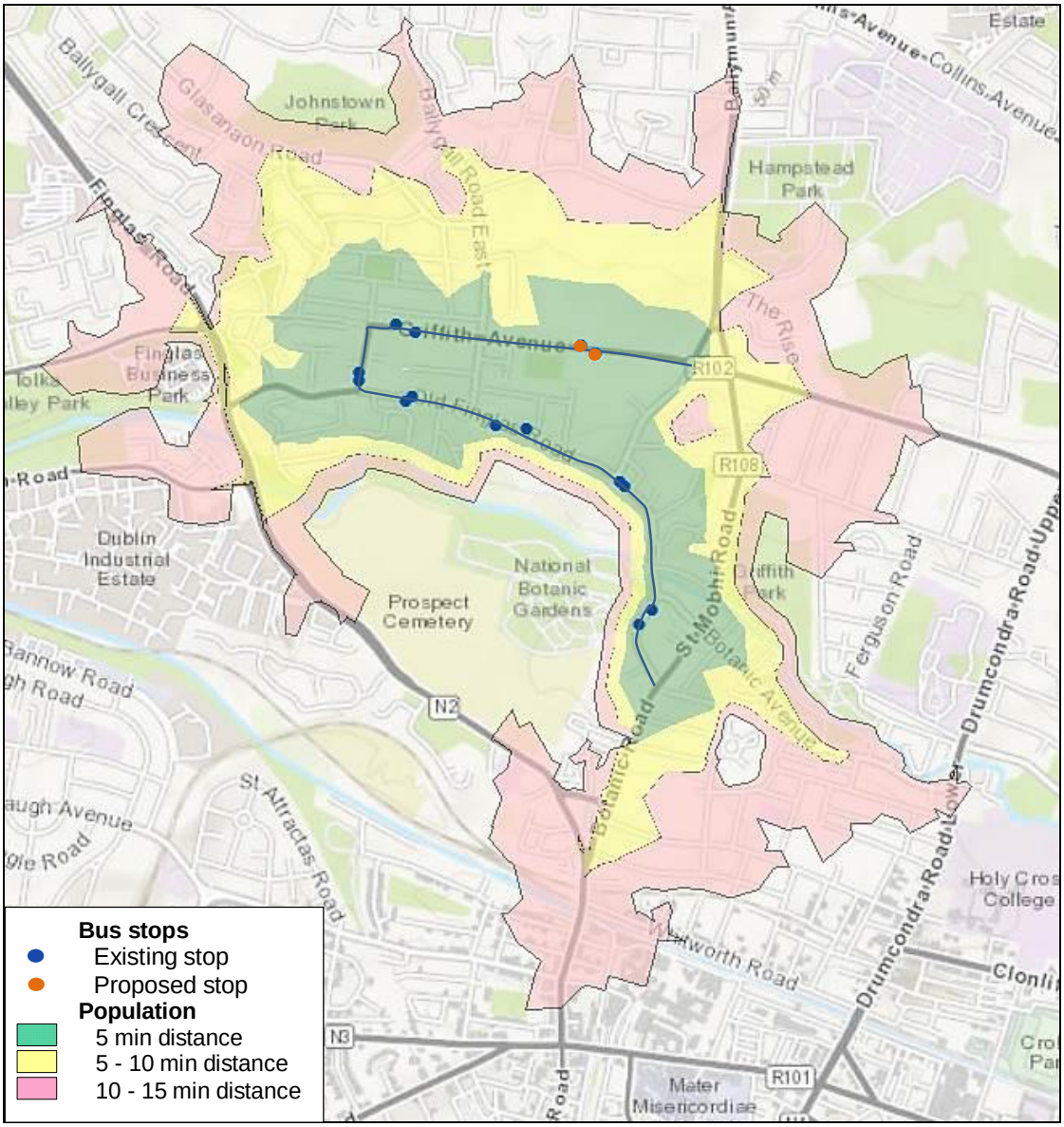


Figure 8.14 Route Sub - Option BC4**:** Griffith Avenue/Tolka Estate Road/ Old Finglas Road/Glasnevin Hill/Botanic Road

Outbound: This route option would proceed westbound on Botanic Road at the junction with St Mobhi Road before proceeding up Glasnevin Hill. The route would then turn right at the junction with Tolka Estate Road before turning right again at Griffith Avenue at its northern extent.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation with an additional stop in each direction on Griffith Avenue.

The journey time for this route option from the St Mobhi Road/Fairfield Road junction to the Griffith Avenue junction is 12-13 minutes over a distance of approximately 2.6 km.

As with Options BC2 and BC3, it is proposed as part of option BC4 to provide bus lanes in both directions along Botanic Road/Tolka Estate Road whilst also maintaining two-way traffic as illustrated in Figures 8.15 and 8.16 below. However, as Tolka Estate Road forms part of Secondary Cycle Route N03, 1.5m cycle lanes are to be provided on both sides also. The provision of these facilities may require acquisition of a portion of the front gardens of residential properties which front onto both sides of the roads along Tolka Estate Road and would also require land acquisition from the National Botanic Gardens. It is also proposed that 2 way cycle facilities are provided along a parallel route on St Mobhi Road as part of the scheme. The existing cycle facilities on Griffith Avenue (west) would also be upgraded as part of the scheme while bus lanes would also be introduced here also in place of one of the traffic lanes in either direction between Cremore Villas and Ballymun Road.

The provision of similar facilities would require tree removal and road widening within the sizeable grass verge along Griffith Avenue between Cremore Villas and Tolka Estate Road.

There are 6 signal controlled junctions along this route as well as 2 signalised pedestrian crossings. It is likely that the junction between Griffith Avenue and Tolka Estate Road would have to be upgraded to a signalised junction also.

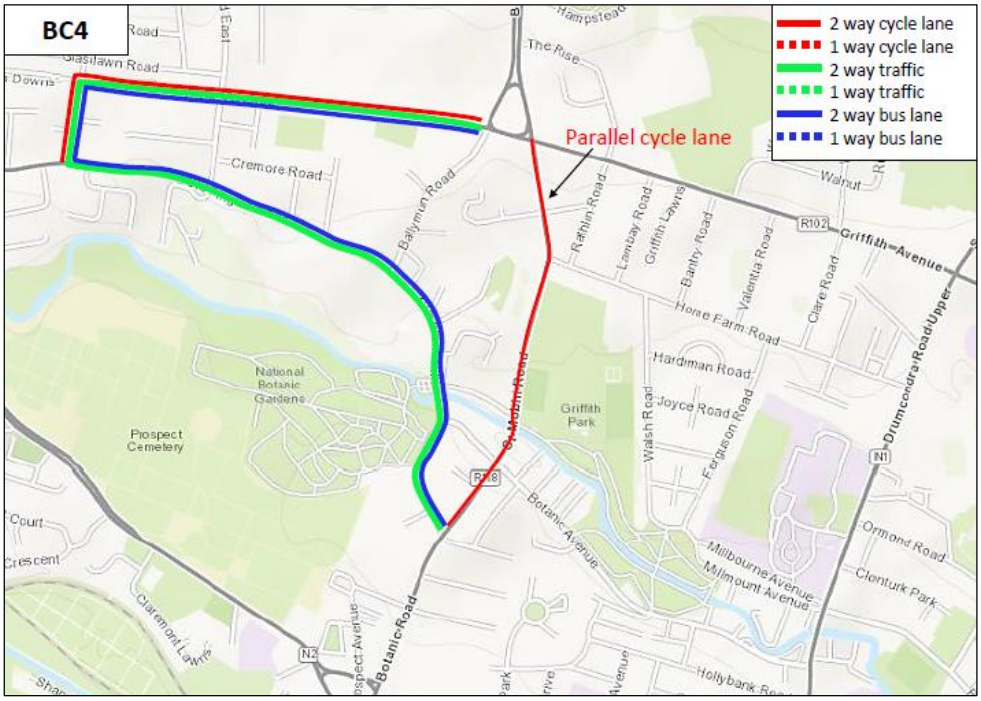


Figure 8.15: Route Sub - Option BC4 Proposals

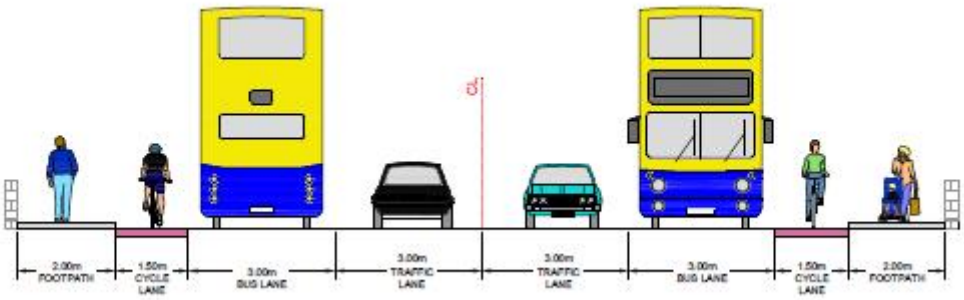


Figure 8.16: Route Sub - Option BC4 Typical Cross Section (North facing) Tolka Estate Road

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

- Entrance and boundaries to National Botanic Gardens;
- Bridge crossing of Tolka River; and
- Segregated bus and cycle facilities could be difficult to achieve as significant property acquisition in the form of gardens will be required, particularly within Tolka Estate Road.

It is anticipated that this option would cost approximately €22.7 million (€19.7 million infrastructure costs, €3 million land acquisition costs).

8.4.5 Route Sub - Option BC5: Mobhi Road and Glasnevin Hill/Ballymun Road

Route option BC5 comprises of a split routing to inbound and outbound bus services along Mobhi Road and Ballymun Road respectively and is presented in Figure 8.17.

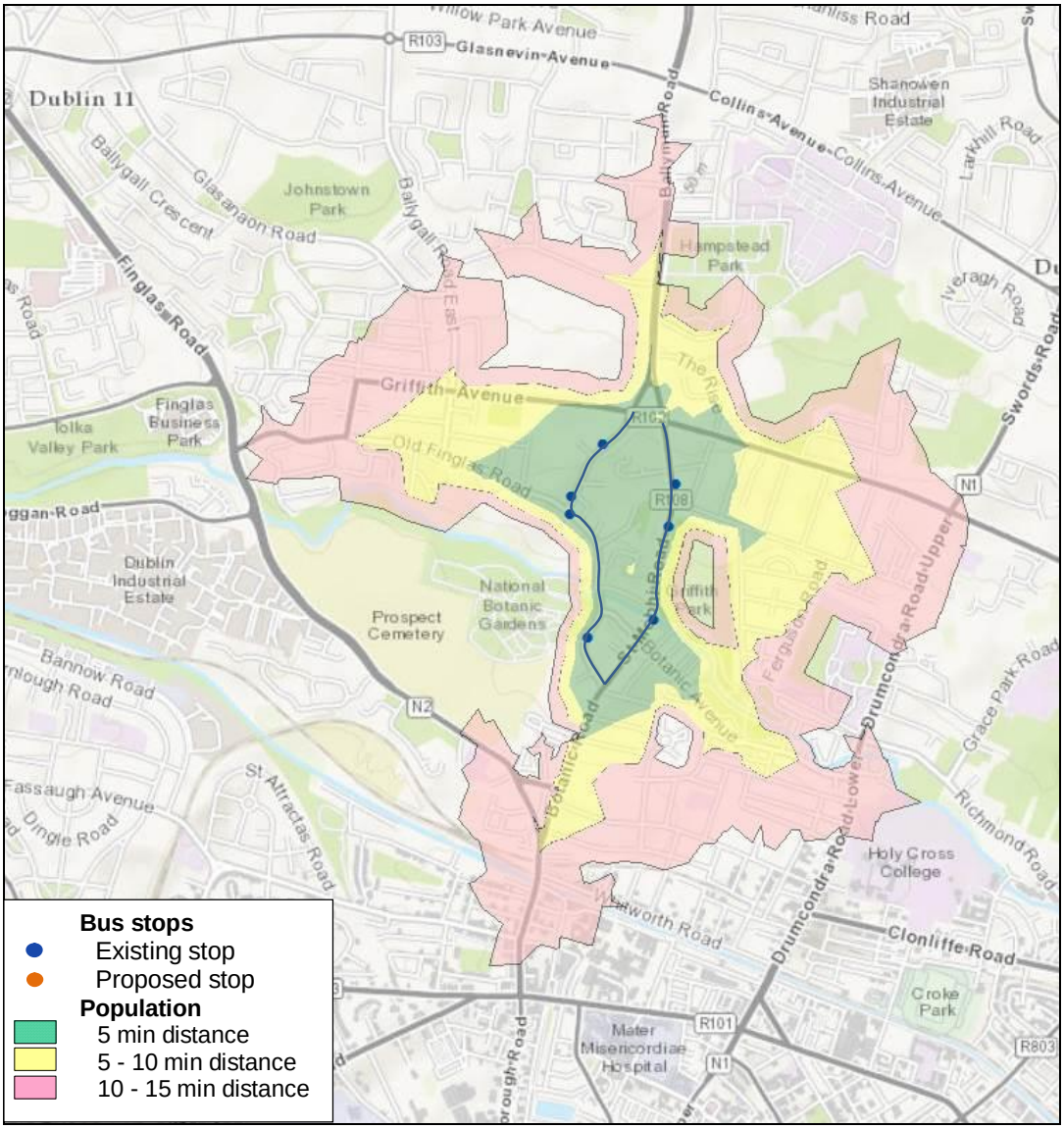


Figure 8.17 Route Sub - Option **BC5**: Mobhi Road and Glasnevin Hill/Old Ballymun Road

Outbound: Bus services would proceed westbound in a bus lane on Botanic Road at the junction with St Mobhi Road before proceeding up Glasnevin Hill. The route would then turn right at the junction with Old Ballymun Road with a bus gate proposed at its northern extent to restrict outbound traffic accessing Ballymun Road. This will render Old Ballymun Road suitable for local access and buses only and will help preserve bus journey times in the absence of a bus lane on Old Ballymun Road. In order to implement the outbound bus lane on Glasnevin Hill, general traffic will be excluded in this direction between Mobhi Road/Fairfield Road and Old Ballymun Road. Outbound traffic must use St Mobhi Road and use Botanic Avenue, Mobhi Drive and Griffith Avenue to access sections of Botanic Road/Glasnevin Hill and Old Ballymun Road.

Inbound: Bus services will continue to use an inbound bus lane on St Mobhi Road with general two-way traffic maintained here also.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation with potential relocation of bus stops to align with potential pedestrian routes such as Church Ave and St Mobhi Boithrin.

The journey time for this route option from the Griffith Avenue junction to Fairfield Road junction is 5 - 6 minutes over a distance of approximately 0.7km outbound and1.0 km inbound.

It is proposed as part of Option BC5 to maintain the existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue and to introduce an outbound bus lane on Botanic Road/Glasnevin Hill. It is also proposed to provide segregated cyclist facilities in both directions on St Mobhi Road which forms part of Primary Cycle Route 3A. The outbound traffic lane would be removed on Botanic Road/Glasnevin Hill with outbound local access only and bus outbound at Old Ballymun Road, there would be no bus lane on Old Ballymun Road. These proposals are illustrated in Figures 8.18. 8.19 and 8.20 below.

This option would require the acquisition of a portion of number of front gardens from the east side of Mobhi Road and also a portion of land from the Na Fianna GAA and Home Farm soccer grounds on this side of the road also. There would also be a requirement for the acquisition of a portion of a yard associated with apartments at the northern end of Old Ballymun Road for a turning head which would be required adjacent to the proposed bus gate.

There are 4 signal controlled junctions along the inbound route as well as 2 signalised pedestrian crossings. There are 2 signal controlled junctions along the outbound route as well as 1 signalised pedestrian crossing.

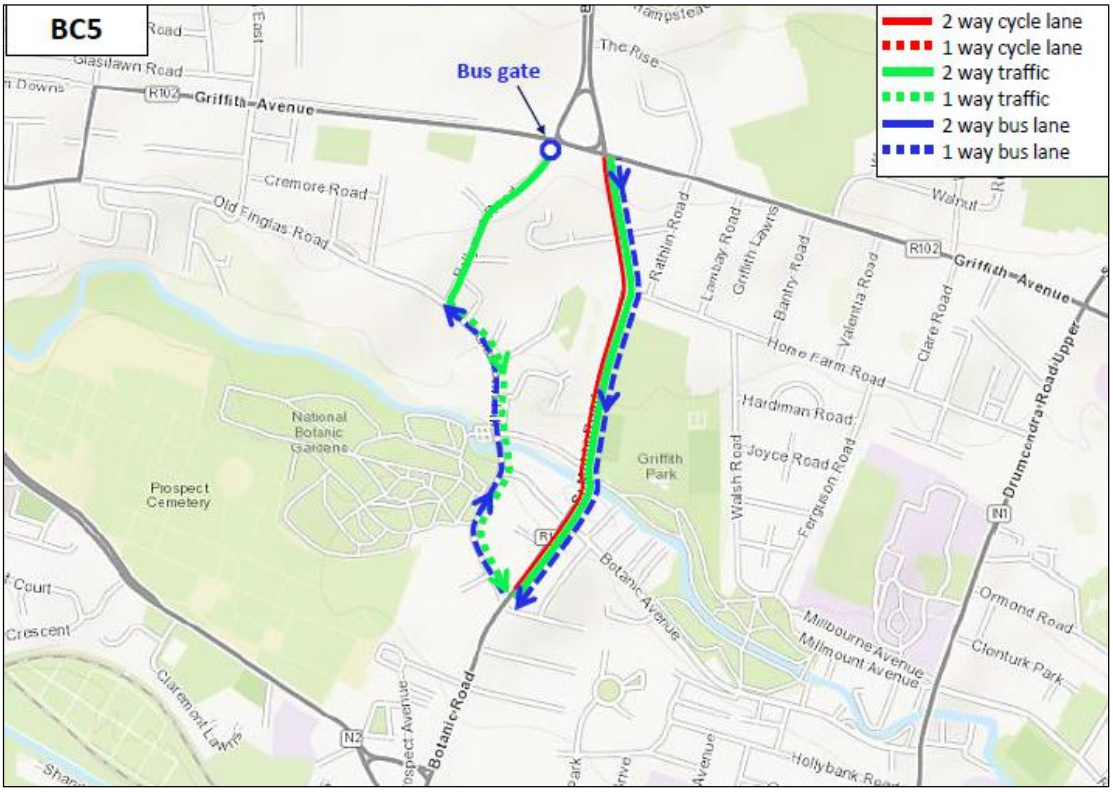


Figure 8.18: Route Sub - Option BC5 Proposals

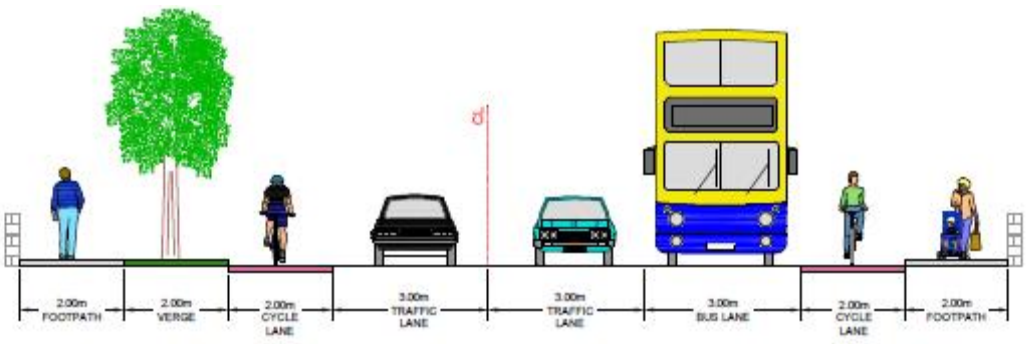


Figure 8.19: Route Sub - Option BC5 Typical Cross Section (North facing) St Mobhi Road

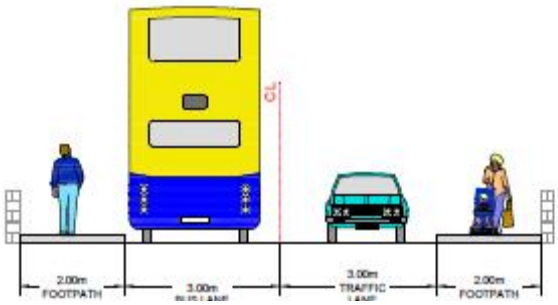


Figure 8.20: Route Sub - Option BC5 Typical Cross Section (North facing) Glasnevin Hill

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

- § Entrance and boundaries to National Botanic Gardens;
- § The presence of trees on both sides of St Mobhi Road;
- § Requires the acquisition of a portion of the front gardens along St Mobhi Road;
- § The presence of numerous entrances to existing residential properties; and
- § Bridge crossing of Tolka River adjacent to Botanic Avenue.

It is anticipated that this option would cost approximately €8.5 million (€6.4 million infrastructure costs, €2.1 million land acquisition costs).

8.4.6 Route Sub - Option BC6: Mobhi Road and Glasnevin Hill/Ballymun Road

Route option BC6 comprises of a split routing to inbound and outbound bus services along Ballymun Road and Mobhi Road. This is effectively the opposite of Option BC5 and is presented in Figure 8.21.

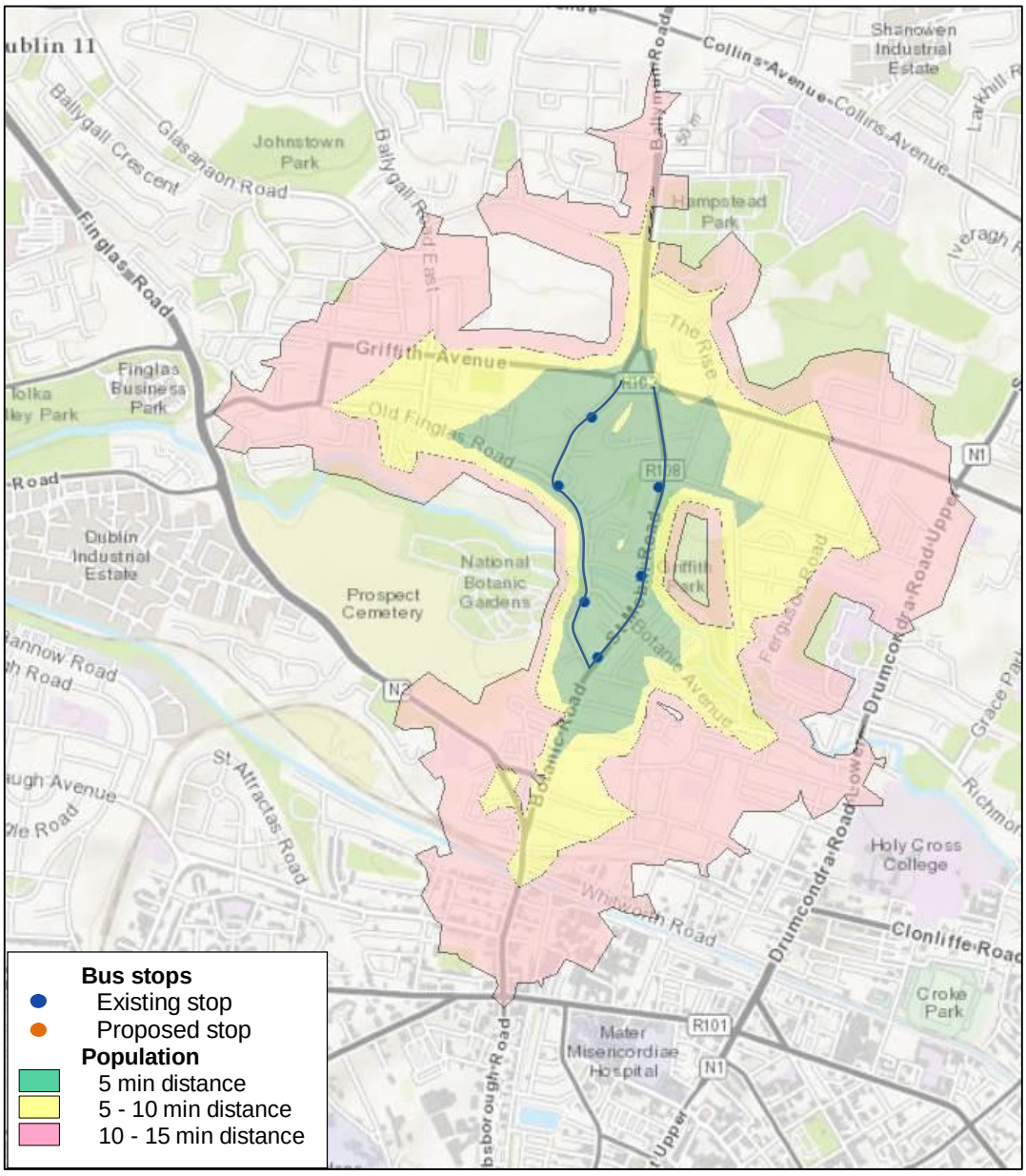


Figure 8.21 Route Sub - Option **BC6**: Mobhi Road and Glasnevin Hill/Old Ballymun Road

Outbound: Bus lanes would be provided on St Mobhi Road with two-way vehicular traffic maintained along this road also.

Inbound: An inbound bus lane would be provided on Botanic Road between the junction with St Mobhi Road and Old Ballymun Road. A bus gate is proposed at the northern extent of Old Ballymun Road to restrict inbound traffic accessing Glasnevin Hill. This will render Old Ballymun Road suitable for local access and buses only and will help preserve bus journey times in the absence of a bus lane on Old Ballymun Road. In order to implement the inbound bus lane on Glasnevin Hill, general traffic will be excluded in this direction between Old Ballymun Road and Mobhi Road / Fairfield Road. Inbound traffic must use St Mobhi Road and then either Botanic Avenue, Mobhi Drive and Griffith Avenue to access sections of Botanic Road/Glasnevin Hill and Old Ballymun Road.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation with potential relocation of bus stops to align with potential pedestrian routes such as Church Ave and St Mobhi Boithrin.

The journey time for this route option from the Fairfield Road junction to Griffith Avenue junction is 5 - 6 minutes over a distance of approximately 0.7km inbound and 1km outbound.

It is proposed as part of Option BC6 to relocate the bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue to the outbound direction and to introduce an inbound bus lane on Botanic Road/Glasnevin Hill and Old Ballymun Road. It is also proposed to provide segregated cyclist facilities in both directions on St Mobhi Road which forms part of Primary Cycle Route 3A. The inbound traffic lane would be removed on Botanic Road/Glasnevin Hill with inbound local access only and bus inbound at Old Ballymun Road, there would be no bus lane on Old Ballymun Road. These proposals are illustrated in Figures 8.22, 8.23 and 8.24 below.

This option would require the acquisition of a portion of some front gardens along the east side of Mobhi Road and also a portion of land from the Na Fianna GAA and Home Farm soccer grounds on this side of the road also. There would also be a requirement for the acquisition of a portion of a yard associated with apartments at the northern end of Old Ballymun Road for a turning head which would be required adjacent to the proposed bus gate.

There are 4 signal controlled junctions along the outbound route as well as 2 signalised pedestrian crossings. There are 2 signal controlled junctions along the inbound route as well as 1 signalised pedestrian crossing.

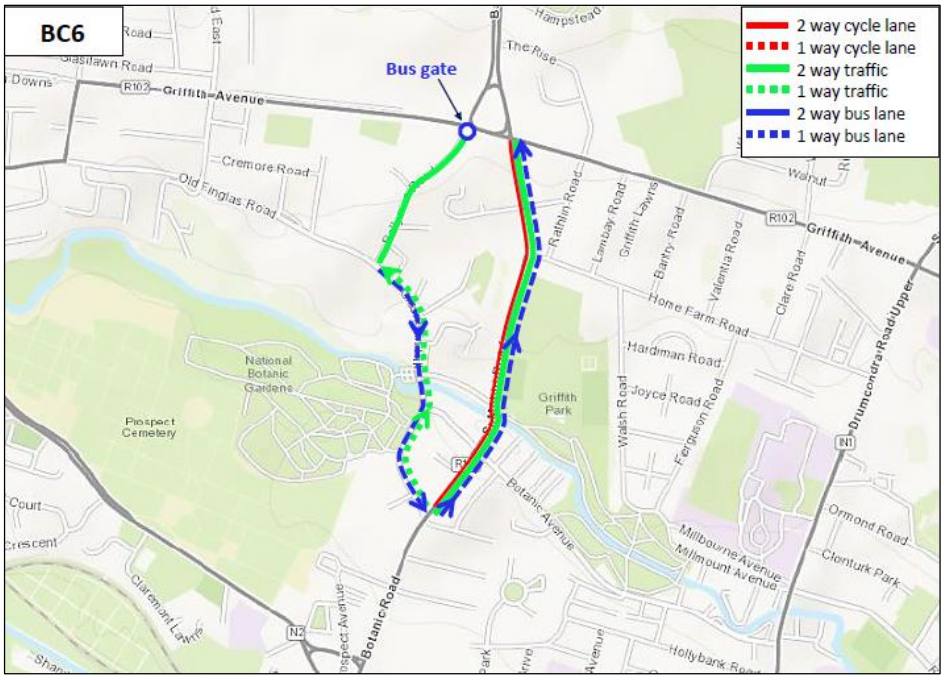


Figure 8.22: Route Sub - Option BC6 Proposals

Figure 8.23: Route Sub - Option BC6 Typical Cross Section (North facing) Mobhi Road

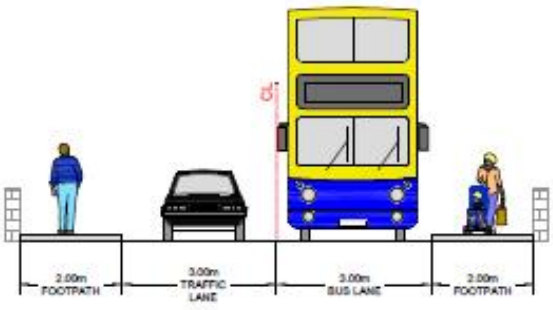


Figure 8.24: Route Sub - Option BC6 Typical Cross Section (North facing) Glasnevin Hill

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

- § Entrance and boundaries to National Botanic Gardens;
- § The presence of trees on both sides of St Mobhi Road;
- § The presence of numerous entrances to existing residential properties; and
- § Bridge crossing of Tolka River adjacent to Botanic Avenue.

It is anticipated that this option would cost approximately €8.5 million (€6.4 million infrastructure costs, €2.1 million land acquisition costs).

8.4.7 Route Sub - Option BC7: Mobhi Road and Glasnevin Hill/Ballymun Road

Route option BC7 comprises of the provision of two way bus lanes and traffic along Mobhi Road and two way cycle facilities along Botanic Road/Glasnevin Hill/Old Ballymun Road and is presented in Figure 8.25.

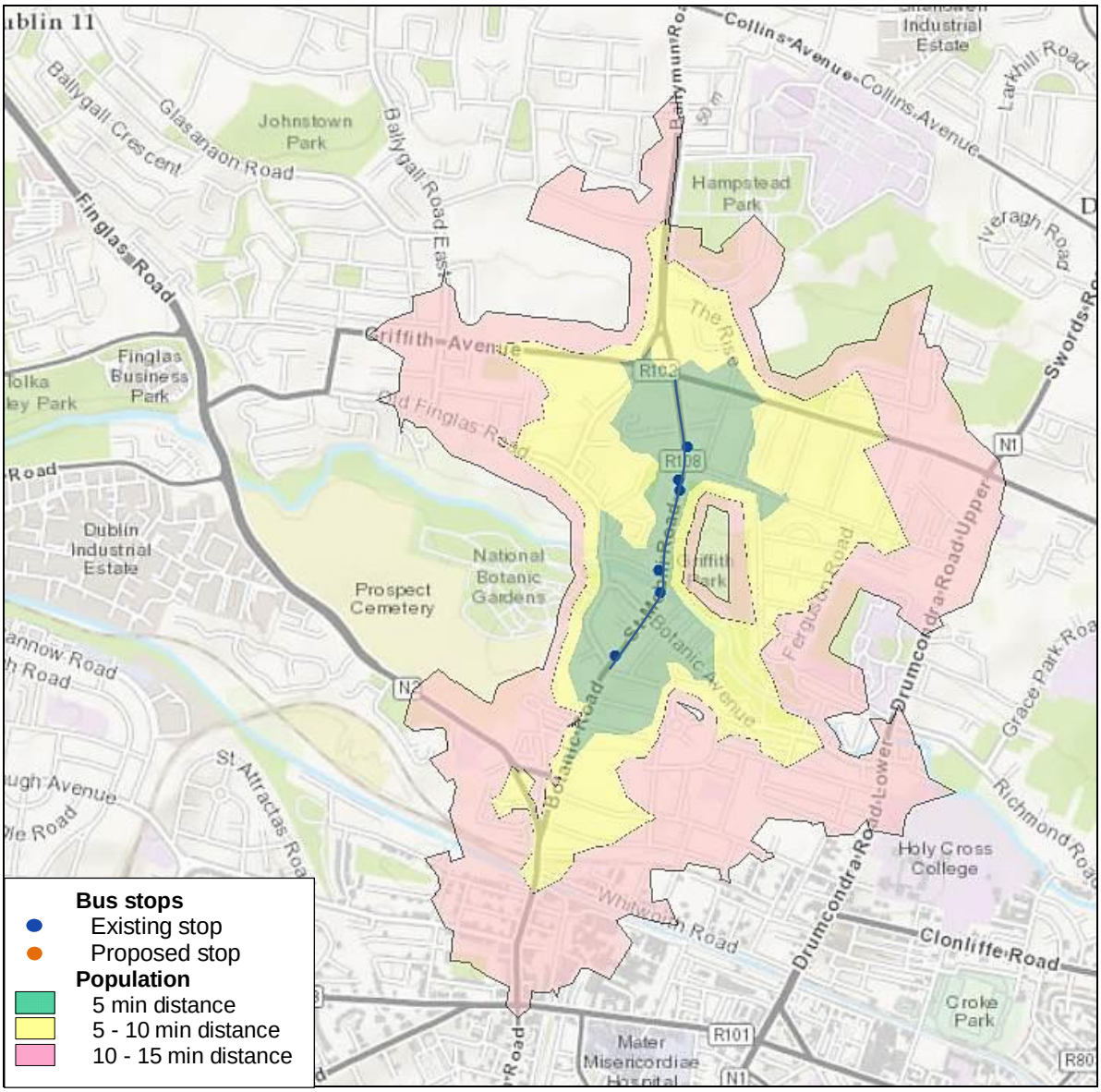


Figure 8.25 Route Sub - Option **BC7**: Mobhi Road and Glasnevin Hill/Old Ballymun Road

Outbound: Bus lanes would be provided on St Mobhi Road with two way vehicular traffic maintained along this road also.

Inbound: Inbound services would run along the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation as shown in Figure 8.25.

The journey time for this route option from the Fairfield Road junction to Griffith Avenue junction is 5 minutes over a distance of approximately 1.0 km.

It is proposed as part of Option BC7 to separate the segregated bus and cycle facilities with buses running along St Mobhi Road and cycle lanes provided on Glasnevin Hill/Old Ballymun Road. These proposals are illustrated in Figures 8.26, 8.27 and 8.28 below. This option would require similar land acquisition to Options BC5 and 6 on St Mobhi Road with further acquisition of a portion of front gardens from properties on Old Ballymun Road to facilitate the construction of a two way cycle track here.

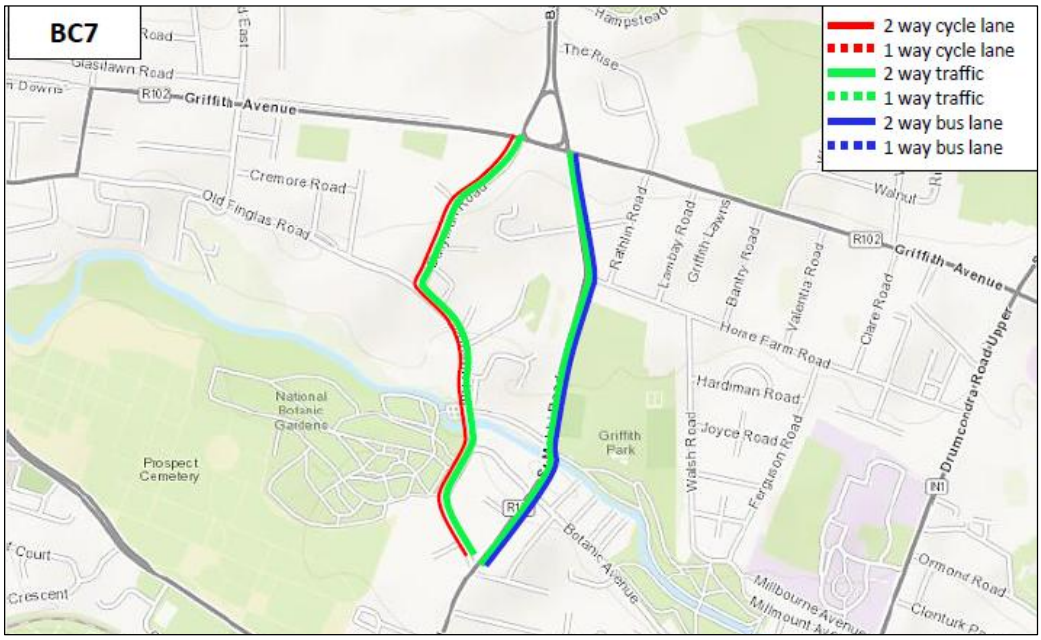


Figure 8.26: Route Sub - Option BC7 Proposals

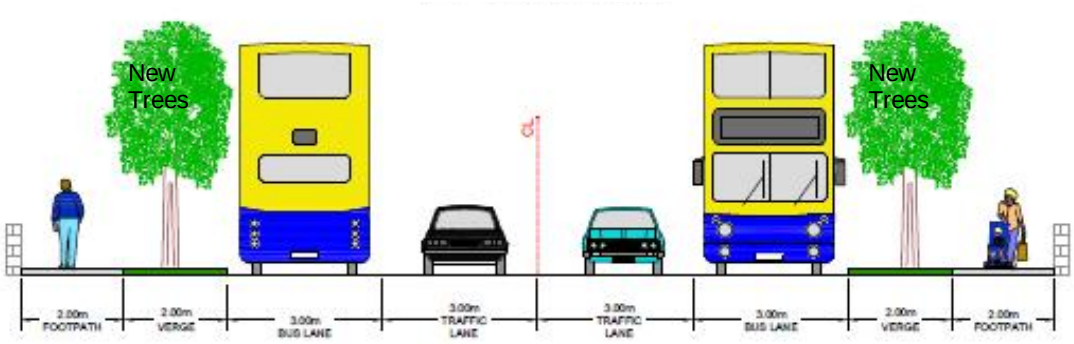


Figure 8.27: Route Sub - Option BC7 Typical Cross Section (North facing) Mobhi Road

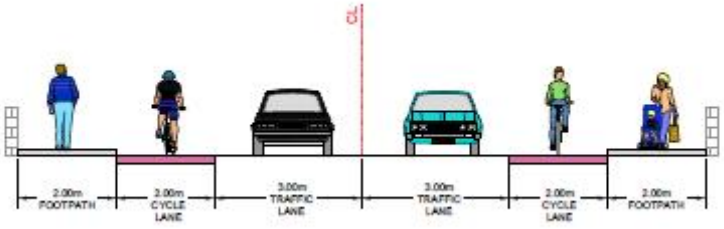


Figure 8.28: Route Sub - Option BC7 Typical Cross Section (North facing) Glasnevin Hill

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

- Entrance and boundaries to National Botanic Gardens;
- The presence of trees on both sides of St Mobhi Road;
- The presence of numerous entrances to existing residential properties; and
- Bridge crossing of Tolka River on both alignments.

It is anticipated that this option would cost approximately €11.4 million (€8.6 million infrastructure costs, €2.8million land acquisition costs).

8.4.8 Route Sub - Option BC8: Mobhi Road and Glasnevin Hill

Route option BC8, presented in **Figure 8.29,** comprises of a split routing of inbound and outbound bus services between the St Mobhi Road / St Mobhi Drive junction and Griffith Avenue. Inbound and outbound bus services follow the same route along St Mobhi Road between St Mobhi Drive and Farfield Drive.

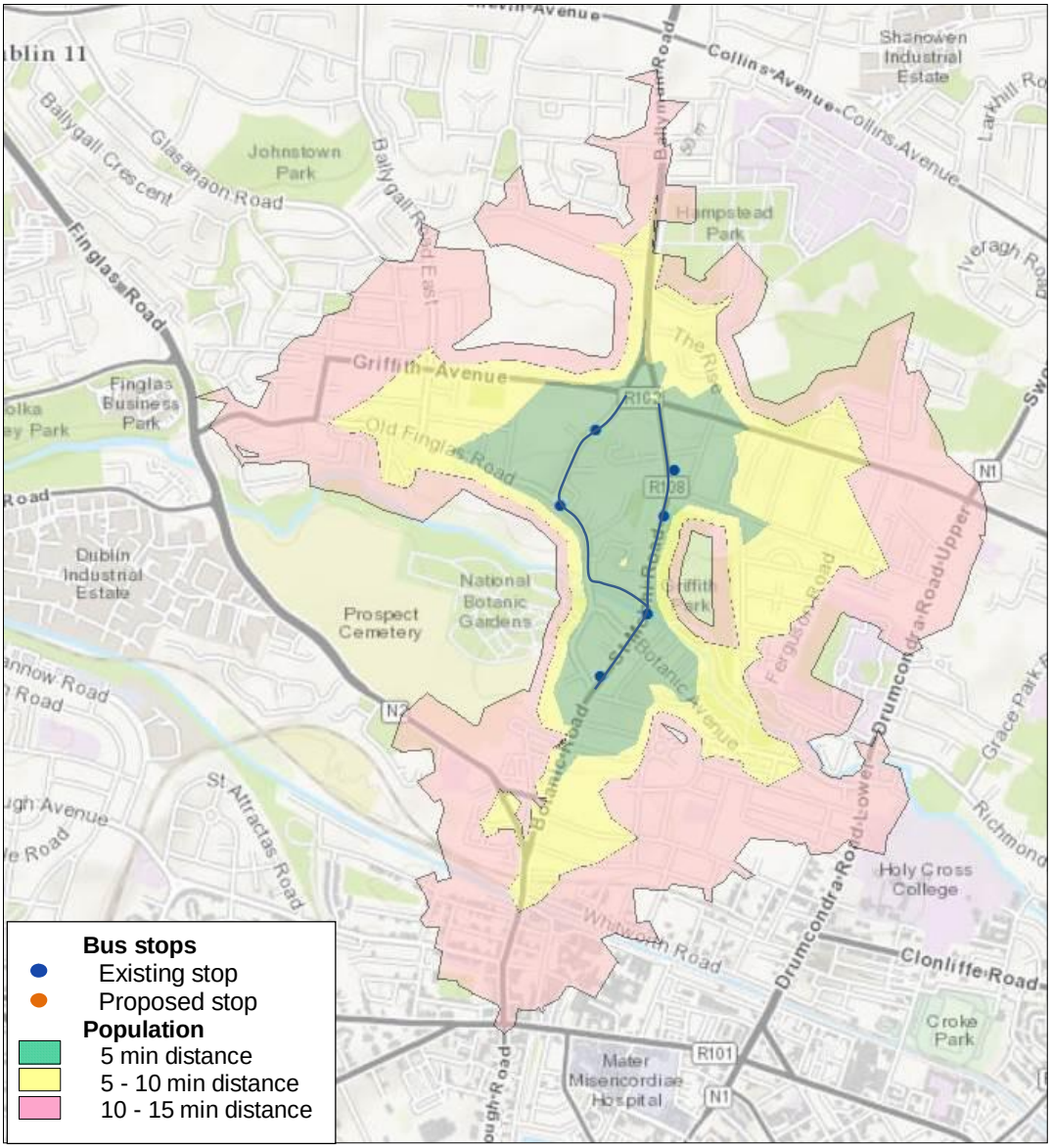


Figure 8.29: Route Sub - Option **BC8** St Mobhi Road

Outbound: The CBC service will proceed in a northerly direction from the Botanic Road / Farfield Road junction along St Mobhi Road up to St Mobhi Drive. At this point, the CBC service will turn left onto St Mobhi Drive and continue north up Glasnevin Hill and Ballymun Road up to Griffith Avenue.

Inbound: The inbound option follows the same route as outbound southerly direction along St Mobhi Road (R108) between the Griffith Avenue and the junction of Botanic Road / Farfield Road along the route of the existing QBC.

Stops: It is anticipated that there will be a similar number of stops (3 in each direction) compared to the existing situation.

The journey time for this route option from the Griffith Avenue junction to Fairfield Road junction is 7 minutes over a distance of approximately 1.25 km in the outbound direction and 5 minutes over a distance of 1km in the inbound direction.

There are 4 signal controlled junctions as well as 2 signalised pedestrian crossings along this route in the inbound direction. In the outbound direction, the route crosses 3 signal controlled junctions and no pedestrian crossings.

It is proposed as part of Option BC8 to maintain the existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue and to extend this bus lane southwards to the Botanic Road / Farfield Road junction. It is also proposed to provide an outbound bus lane along St Mobhi Road from Botanic Road to St Mobhi Drive and continue this bus lane west along St Mobhi Drive and north along Glasnevin Hill.

Segregated cyclist facilities are proposed in both directions on St Mobhi Road which forms part of Primary Cycle Route 3A. These proposals are illustrated in Figures 8.30 and 8.31 below.

This option would require the acquisition of a portion of a number of front gardens from the east side of Mobhi Road and also a portion of land from the Na Fianna GAA and Home Farm soccer grounds on this side of the road also. The provision of a segregated bus lane along St Mobhi Drive and Glasnevin Hill would require the removal of a number of parking spaces. There would also be a requirement for the acquisition of a portion of a yard associated with apartments at the northern end of Old Ballymun Road for a turning head which would be required adjacent to the proposed bus gate.

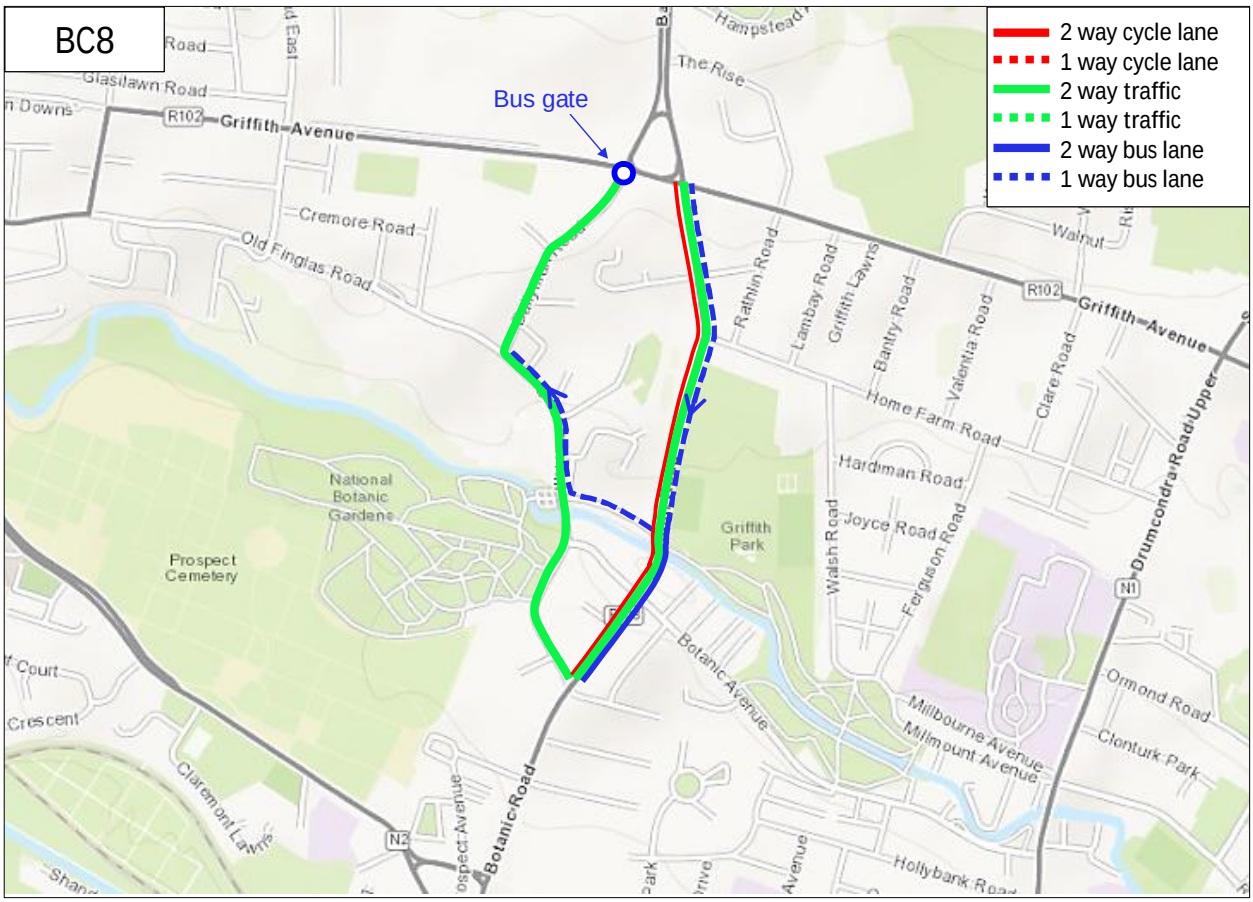


Figure 8.30: Route Sub - Option BC8 Proposals St Mobhi Road

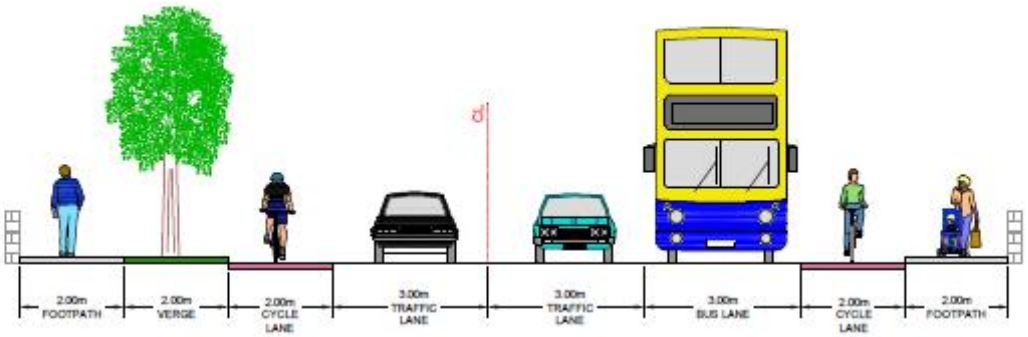


Figure 8.31: Route Sub - Option BC8 Typical Cross Section (North facing) St Mobhi Road

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

- § The presence of trees on both sides of St Mobhi Road;
- § The presence of numerous entrances to existing residential properties; and
- § Bridge crossing of Tolka Road adjacent to Botanic Avenue.

It is anticipated that this option would cost approximately €8.5 million (€6.4 million infrastructure costs, €2.1 million land acquisition costs).

8.4.9 Route Sub - Option BC9: Two-way Bus Lanes and Southbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill

In order to develop an option that retains the existing mature trees on Mobhi Road an option that avoids road widening was developed. Route option BC9, presented in **Figure 8.32,** comprises of a split routing of inbound and outbound traffic, with southbound traffic on St Mobhi Road and northbound traffic on Glasnevin Hill/ Ballymun Road. Inbound and outbound bus services follow the same route along St Mobhi Road.

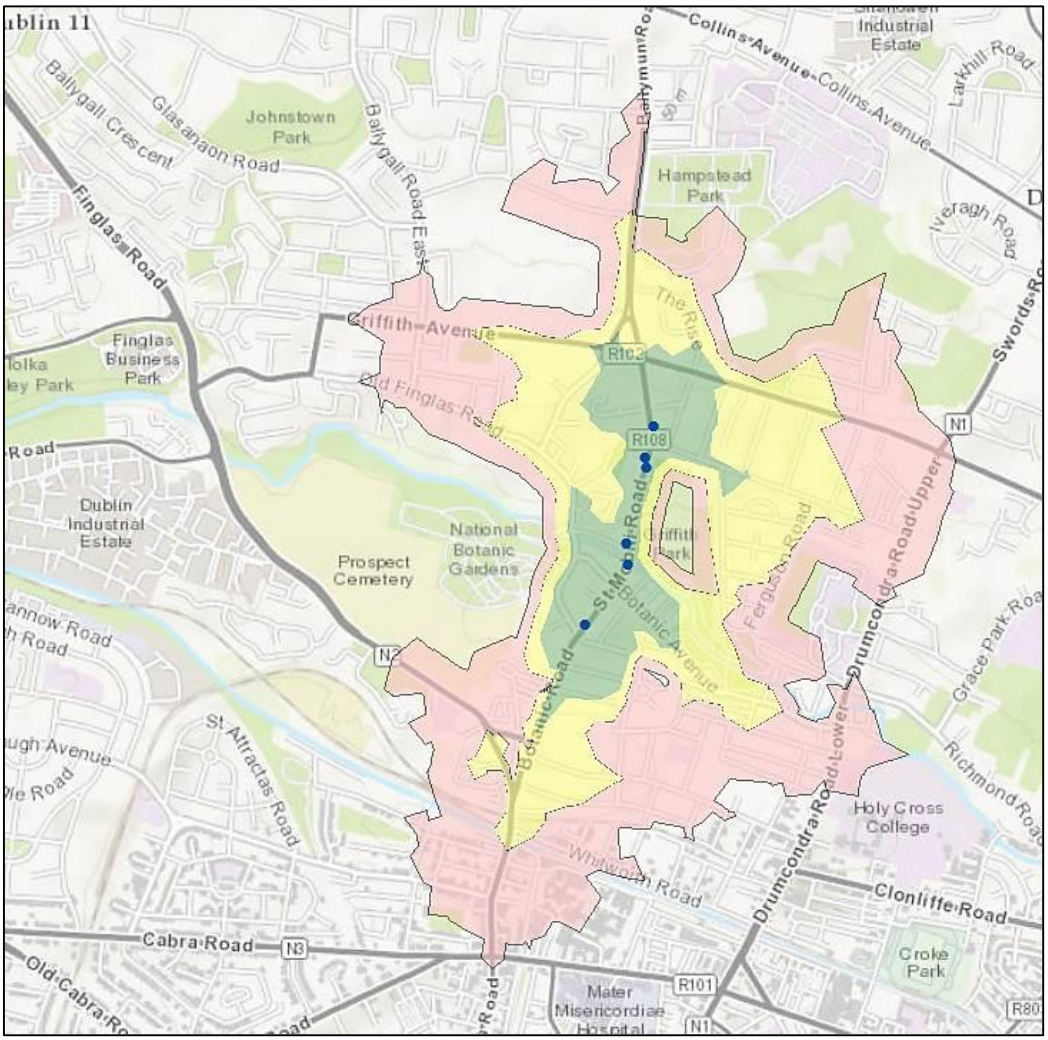


Figure 8.32: Route Sub - Option **BC9** St Mobhi Road

Outbound: Bus lanes would be provided on St Mobhi Road with northbound traffic diverted to Glasnevin Hill/ Ballymun Road.

Inbound: Inbound services would run along the same route as outbound, with one lane of traffic travelling southbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation as shown.

The journey time for this route option from the Fairfield Road junction to Griffith Avenue junction is 5 minutes over a distance of approximately 1.0 km. However traffic journey times will be increased, particularly in the outbound direction. In addition, long detours will result from the introduction of the gyratory for traffic, with some vehicles having to travel an additional 1km to reach key destinations such as the schools.

As a primary aim of this option is to retain the existing trees the provision of cycle facilities along the corridor will have an impact on the properties along its length. Two options are available:

- A cycle lane in both directions provided by setting all properties back by up to 2.5m (including walls); and
- A two-way cycle track along one side of the road, requiring the setting back of properties by up to 4.0m (including walls).

As the driveways along the eastern side of Mobhi Road are relatively shorter any setback over (approximately) 1.5m starts impacting on the viability of some driveways with the length dropping below 6.0m in some cases. It is therefore difficult to provide either a cycle lane or a two-way cycle track along the eastern side of the road without significantly impacting on the residential property. Therefore the two-way cycle track along the western side of the road has been considered further. While the driveways are generally longer along this side of the road, many are only marginally longer and the requirement to provide a two-way cycle track brings many to the our desirable minimum length of 6.0m, and a small few fall below this. In addition the driveways begin to slope upwards towards the houses south of Home Farm Road. As a result reducing the length of the driveway will increase this slope to an unacceptable level, making access to these houses more difficult.

Therefore it is not possible to provide dedicated cycle facilities as part of this option along Mobhi Road and also retain the existing trees. Although it is noted that cyclists can share the bus lanes (suitable for confident cyclists) or could be diverted to a Quiteway route to the east of Mobhi Road. This would be along quiet, residential streets and park land and will be suitable for use by all level of cyclists. However, inbound cyclists will be travelling approximately 800m more than they would do if they followed the direct routing. The image below indicates a typical Quiteway in London:

Photo 8.1 Greenwick to Waterloo Quiteway (Q1), London (Source: Road CC Website)

This option would therefore have a lesser impact on existing properties and would not require trees to be removed on St Mobhi Road, although some parking will likely be lost on Ballymun Road.

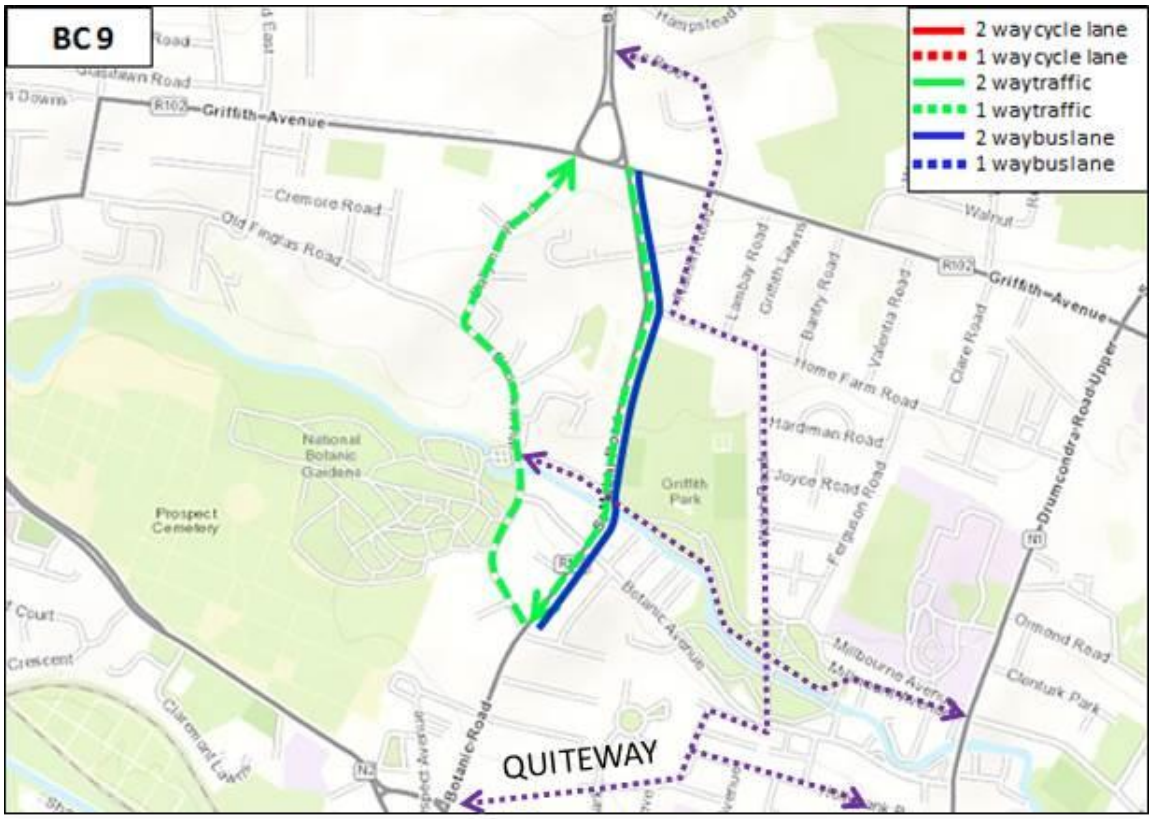


Figure 8.33: Route Sub - Option BC9 Proposals St Mobhi Road

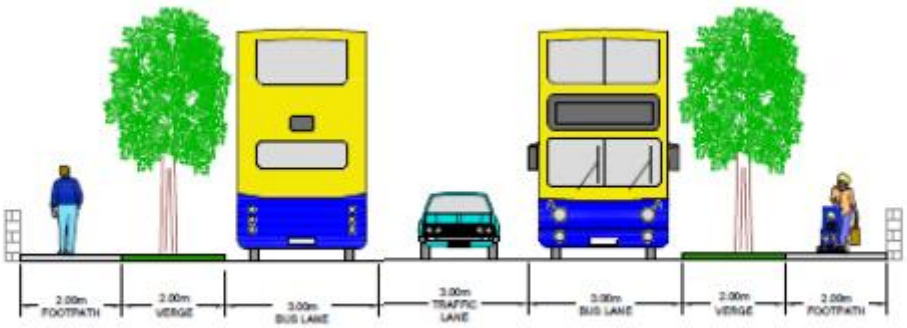


Figure 8.34: Route Sub - Option BC9 Typical Cross Section (North facing) St Mobhi Road (existing trees retained).

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

- Access top Schools and Botanic Gardens and residents along the route will be impacted significantly due to the one-way systems that are proposed.

It is anticipated that this option would cost approximately €7 million (€6.4 million infrastructure costs, €0.5 million land acquisition costs).

A further variation of BC09 (see image below) was also considered which would allow local access northbound by introducing a bus gate on St Mobhi Road to reduce the impact on local traffic and allow them to gain access to their property. In view of the length of this section that would require to remain open to traffic and the complexity of introducing an effective bus gate (evidence from many similar schemes would suggest that a bus gate in a location such as this would need to be physically enforced which leads to significant on-going maintenance issues and in most cases were removed within a very short period due to their ineffectiveness) along the route it is considered that this is not a viable option and has thus not been considered further.

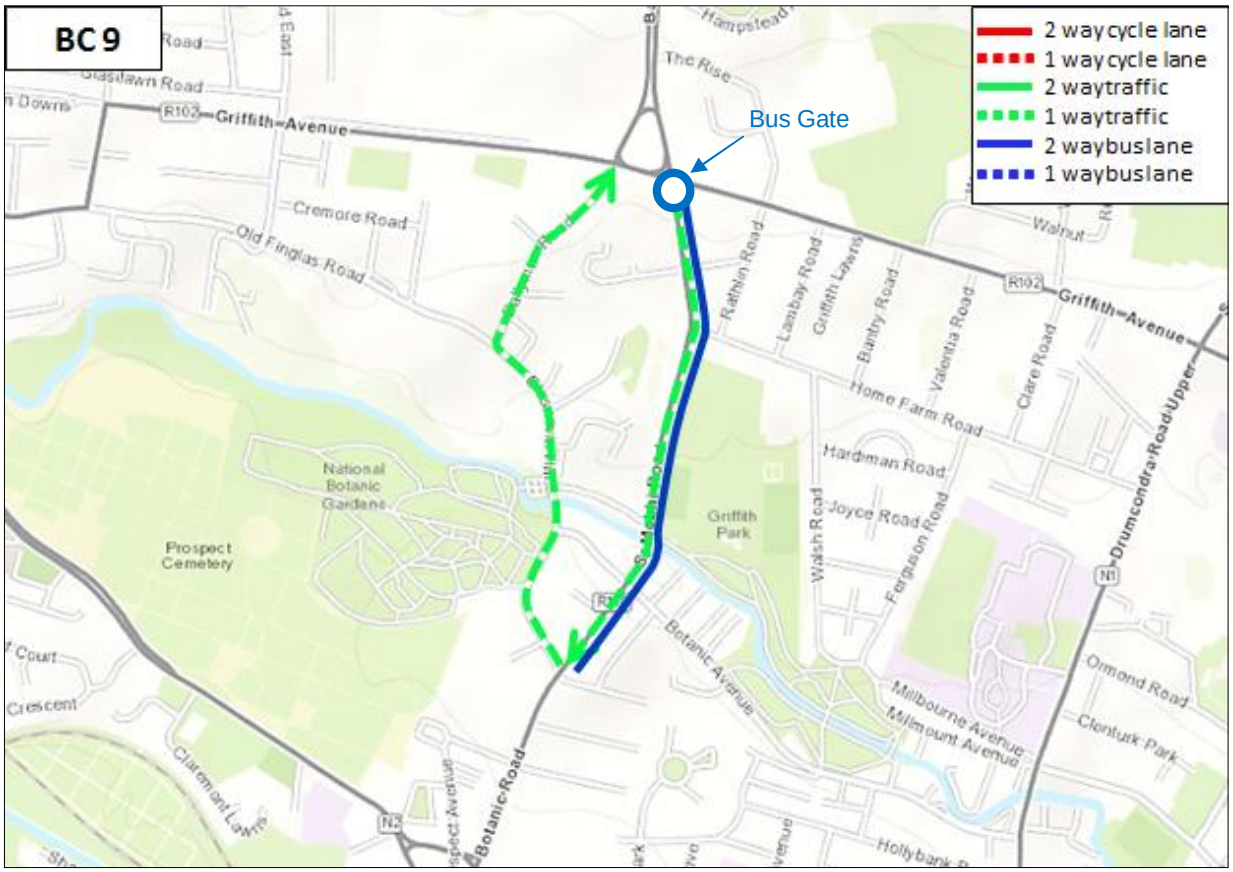


Figure 8.35: Route Sub - Option BC9 Proposals St Mobhi Road with additional bus gate.

8.4.10 Route Options Assessment

The Stage 2 route options assessment summary table for the Central Section BC route sub - options is presented in Table 3 **Appendix A.**

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 8.2.**

Table 8.2: Central Area sub – section BC Route Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	BC1	BC2	BC3	BC4	BC5	BC6	BC7	BC8	BC9
Economy	Capital Cost									
	Transport Reliability and Quality of Service									
Integration	Land Use Integration									
	Residential Population and Employment Catchments									
	Transport Network Integration									
	Cycling Integration									
	Traffic Network Integration									
Accessibility and Social Inclusion	Key Trip Attractors									
	Deprived Geographic Areas									
Safety	Road Safety									
	Pedestrian Safety									
Physical Activity	Physical Activity									
Environment	Archaeology and Cultural Heritage									
	Architectural Heritage									
	Flora and Fauna									
	Soils and Geology									
	Hydrology									
	Landscape and Visual									
	Air Quality									

Assessment Criteria	Assessment Sub-Criteria	BC1	BC2	BC3	BC4	BC5	BC6	BC7	BC8	BC9
	Noise and Vibration									
	Land Use Character									

In terms of 'Economy', a differentiator between route options is the capital cost. Route option BC4 would cost considerably more than other options, largely due to the quantity of private land-take required and the length of the route. Conversely, Options BC 5, 6, 8 and 9 would cost less owing to the reduced level of land acquisition required. In terms of transport reliability and quality of service, route option BC1 is similarly attractive to route option BC7 and 9 due to the similar bus routes which are shortest and most direct, although BC9 drops a level as routes in and around Glasnevin will be negatively impacted due to the increased traffic as a result of the outbound traffic diversion.

In terms of 'Integration', route options BC4-6 and BC 8 serve a larger residential and employment catchment. However, BC1 ranks higher in terms of transport and cycle network integration. Route options BC1, 2, 5, 6, 7, 8 and 9 provide interchange opportunities with future orbital bus services on Griffith Avenue though BC1 is direct and aligns entirely with Primary Route 3A in the GDA Cycle Network Plan. However BC9 fails to provide adequately for cyclists and has a significant negative impact on traffic flows in the area.

In terms of traffic impact, a differentiator between route options is that BC1, 2, 3, 4 and 7 will not result in any loss in the number of traffic lanes or restriction on vehicular movements. BC 1 and 7 involve the retention of CBC/QBC along the Mobhi Road, therefore this will not have any traffic impact on other roads such as Botanic Road/Glasnevin Hill, Old Finglas Road & Cremore Villas. As such, the traffic impact of Options BC 1 and 7 is expected to be slightly less than other options. Options BC 1 and 7 may impact on left turning capacity at junctions but there is potential for similar restrictions along route options BC 3 and 4 also as well as potential restricted right turning movements at junctions such as Cremore Villas/Griffith Avenue.

BC5, 6 and 9 will result in the implementation of traffic management measures on St Mobhi Road, Botanic Road, Glasnevin Hill & Old Ballymun Road. It is considered that Option BC6, whereby southbound traffic is restricted along Botanic Road/Glasnevin Hill, will have the greater impact as generally the removal of inbound traffic is considered to have the most pronounced traffic impact, particularly in the critical AM peak period. Traffic surveys undertaken in March 2016 indicated that the southbound flows on Botanic Road were slightly higher (290 PCU) in the AM peak than the northbound flows recorded in the PM peak (265 PCU).

There is relatively little to differentiate between route options in this section of the study area under the 'Accessibility and Social Inclusion' criterion. However, BC2 - BC6 and BC8 serve a greater number of key trip attractors and also serve area of marginally below average means hence the slightly higher overall rank in this category.

Under 'Safety', route options BC1 and 7 are considered to rank higher as they are a more direct route option with no turning movements required.

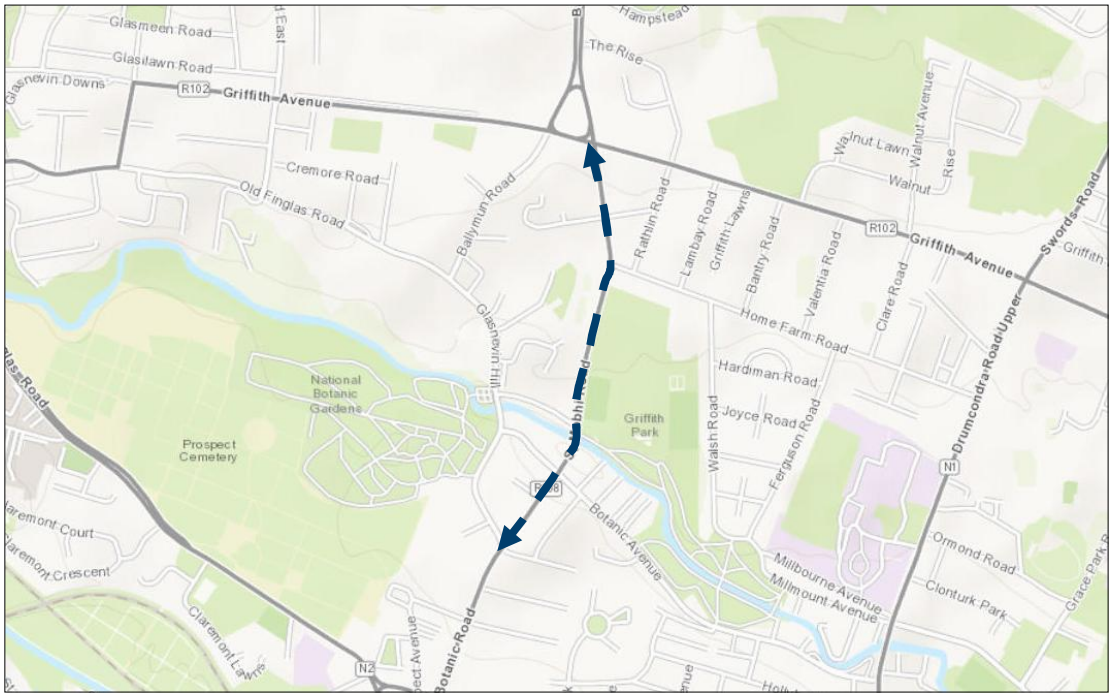
In terms of 'Environment', route options BC1, 7 and 9 are generally more attractive primarily as a result of the architectural and archaeological constraints associated with the other four routes. Although the negative impacts on trees on Mobhi Road results in a significant environmental impacts in terms of flora and fauna and landscape and visual associated assessment. Overall BC9 has the least environmental impact and is rated highest.

Based on the assessment undertaken, it is apparent that route option BC1, which routes buses and cyclists along the R108 on St Mobhi Road, offers the most attractive route option for the following reasons:

- The greatest reliability in terms transport and a higher quality of the direct service which would be provided;
- Routes the cyclists along the designated direct routing to the City Centre; and
- The reduced traffic impact when compared with other options.

Although it is acknowledged the BC7 could also be considered viable option and would have a lesser impacts on St Mobhi Road.

Therefore the St Mobhi Road alignment is taken to be the highest ranking option overall and as such will form part of route CC1:



Section BC –Botanic Road between Mobhi Road/Fairfield Road junction and Prospect Avenue

The section of Botanic Road between the junction with St Mobhi Road/Fairfield Road and Prospect Road (Hart's Corner) is constrained in width due to the presence of residential property boundaries and also some commercial properties. There are a number of route options along this section of Botanic Road which will be addressed individually below.

Section BR – Griffith Avenue to Botanic Road between the junction of Botanic Road/Mobhi Road/Fairfield Road and Hart's Corner (Prospect Road/Phibsborough Road

There are a number of design options for the section of the route on Botanic Avenue, between Hart's Corner and Fairfield Road, which will also be addressed individually in the following section.

8.4.11 Route Sub - Option BR1: Botanic Road (R108)-

Route option BR1, is presented in **Figure 8.36.**

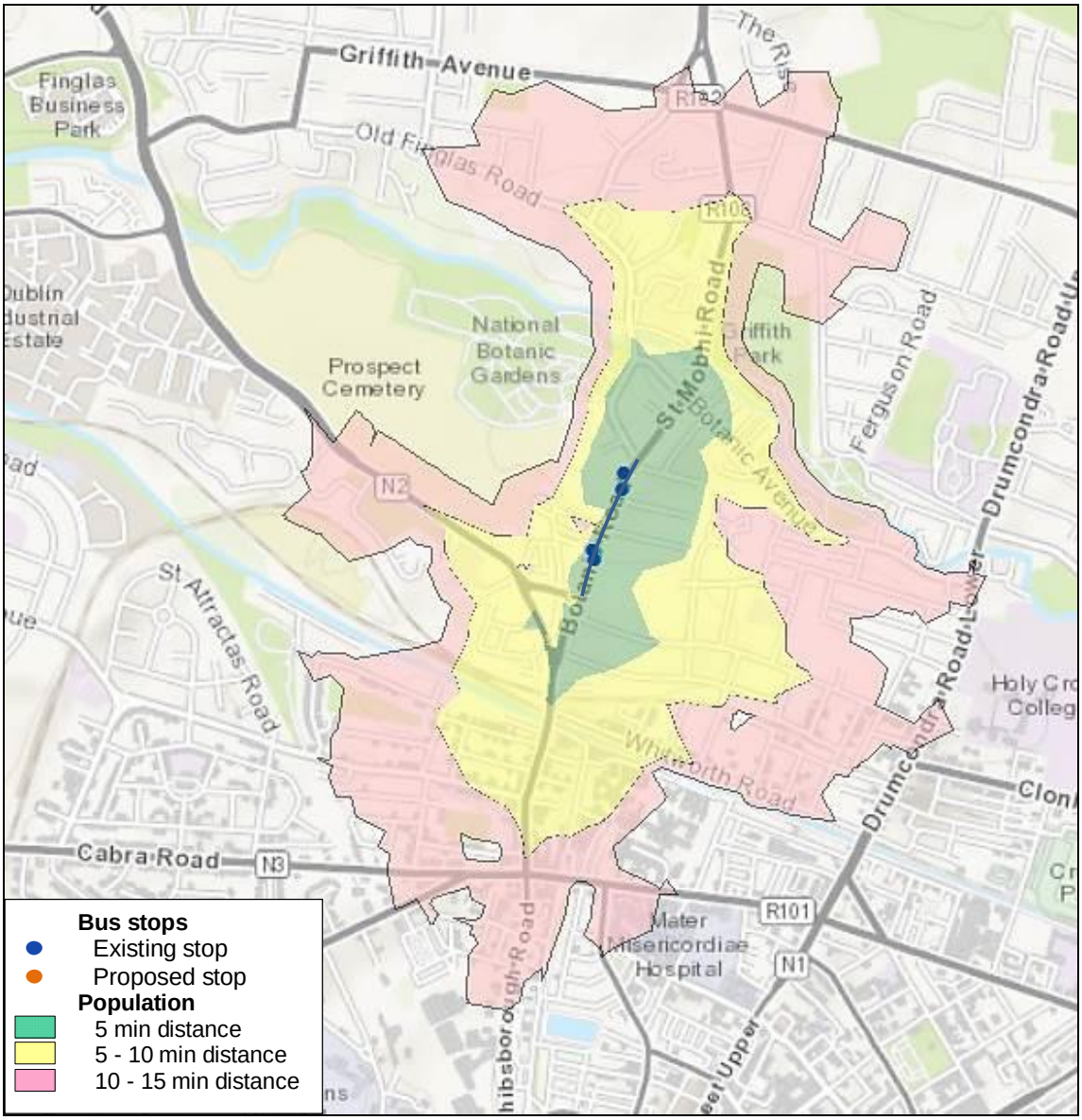


Figure 8.36: Route Sub - Option **BR1** Botanic Road

Outbound: The CBC service will proceed in a northerly direction along Botanic Road (R108) between Prospect Road and the junction with Mobhi Road / Fairfield Road along the route of the existing QBC.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation (two in each direction).

The journey time for this route option is 2 minutes in both the outbound and inbound over a distance of approximately 350m.

It is proposed as part of option BR1 to provide bus lanes and 2.0m wide cycle lanes in both directions along Botanic (which forms part of Primary Cycle Route 3A) whilst also maintaining two way traffic as illustrated in Figures 8.37 and 8.38 below. The provision of these facilities would require acquisition of a portion of the front gardens of residential properties which front onto both sides of the roads along Botanic Road. The level difference between the house entrances and the road may result in the requirement to purchase entire properties however.

There are 2 signal controlled junctions along this route as well as 1 signalised pedestrian crossing.

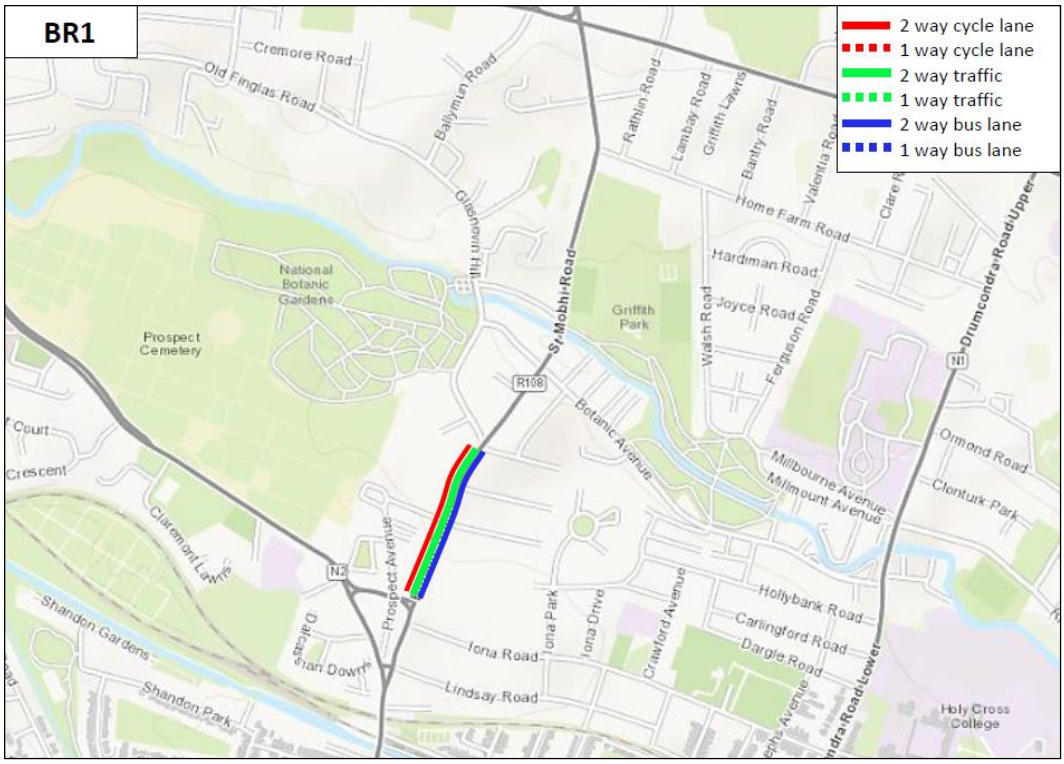


Figure 8.37: Route Sub - Option BR1 Proposals Botanic Road

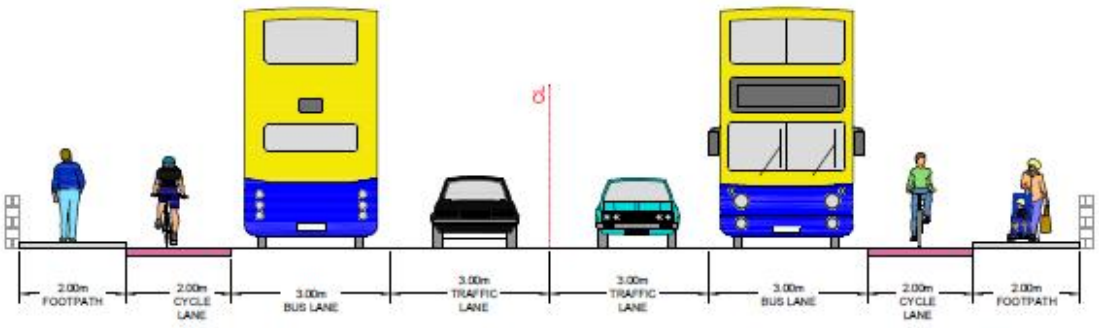


Figure 8.38: Route Sub - Option BR1 Typical Cross Section (North facing) Botanic Road

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

- The presence of numerous entrances to existing residential properties and commercial properties i.e. Sunnybank House and the industrial facility beside the Iona Centre. At the time of writing a planning application for a residential development proposed for the Smurfit site near the junction with Prospect Road was under review by An Bord Pleanala;
- The steps provided to the house along this section will make it difficult (if not impossible) to get a satisfactory road levels that will maintain access to all premises; and

§ Segregated bus facilities could be difficult to achieve as significant property acquisition will be required.

It is anticipated that this option would cost approximately €5.9 million (€3.2 million infrastructure costs, €2.7 million land acquisition costs).

8.4.12 Route Sub - Option BR2: Botanic Road (R108)

Route option BR2 follows the same outbound and inbound route as BR1 via Botanic Road, as presented in **Figure 8.36.**

The journey time for this route option is 2 minutes in both the outbound and inbound direction over a distance of approximately 350m.

It is proposed as part of option BR2 to remove the existing cycle lanes and provide bus lanes in both directions along Botanic Road whilst also maintaining two-way traffic as illustrated in Figures 8.39 and 8.40 below. The provision of these facilities would require acquisition of a proportion of the front gardens of residential properties which front onto both sides of the roads along Botanic Road. The level difference between the house entrances and the road may result in the requirement to purchase entire properties, which may not be practical.

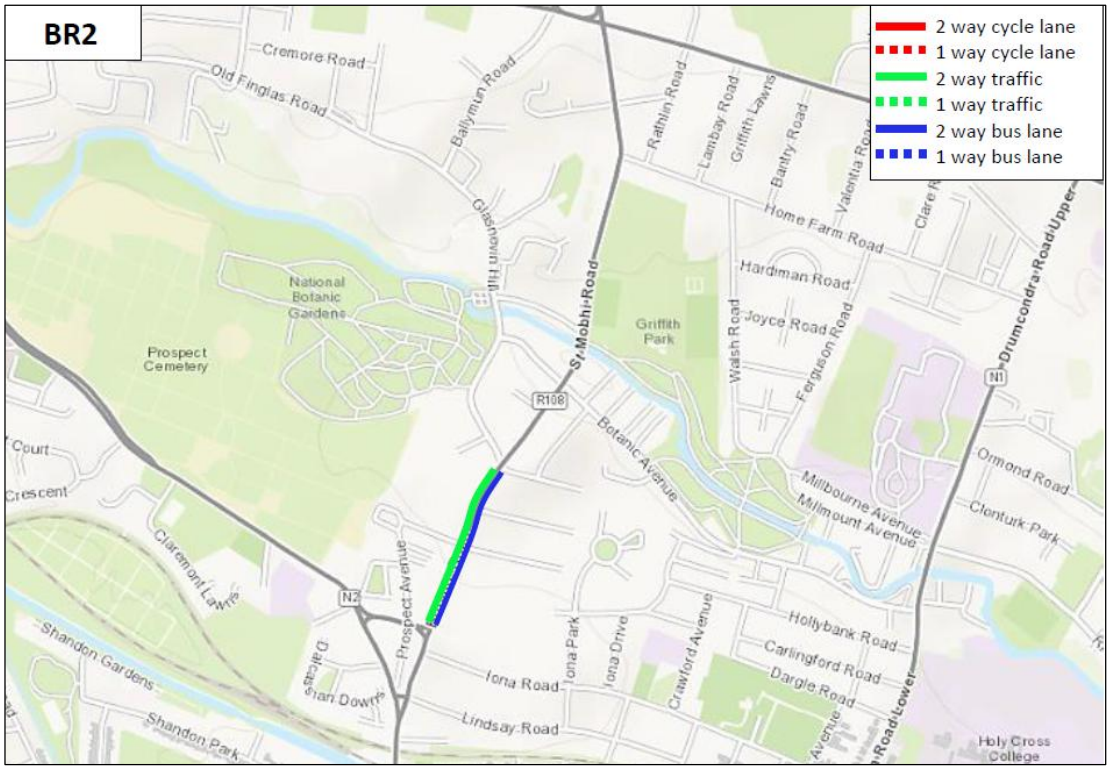


Figure 8.39: Route Sub - Option BR2 Proposals

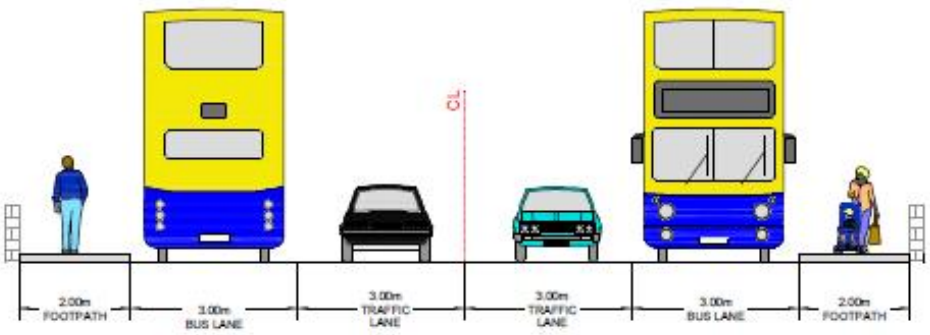


Figure 8.40: Route Sub - Option BR2 Typical Cross Section (North facing) Botanic Road

The same constraints to BR1 would also need to be considered if this route option is progressed; in terms of entrances to properties and property acquisition required for segregated bus facilities.

It is anticipated that this option would cost approximately €2.6 million (€2 million infrastructure costs, €0.6 million land acquisition costs).

8.4.13 Route Sub - Option BR3: Botanic Road (R108)

Route option BR3 follows the same outbound and inbound route as BR1 via Botanic Road, as presented in **Figure 8.36.**

The journey time for this route option is 3 minutes outbound direction and 2 minutes in the inbound direction over a distance of approximately 350m.

Option BR3 proposes to remove the existing cycle lanes and provide a single bus lane in the inbound direction whilst also maintaining two-way traffic as presented in Figure 8.41 and 8.42. This option could be constructed within the existing road space and would not require any land / property acquisition.

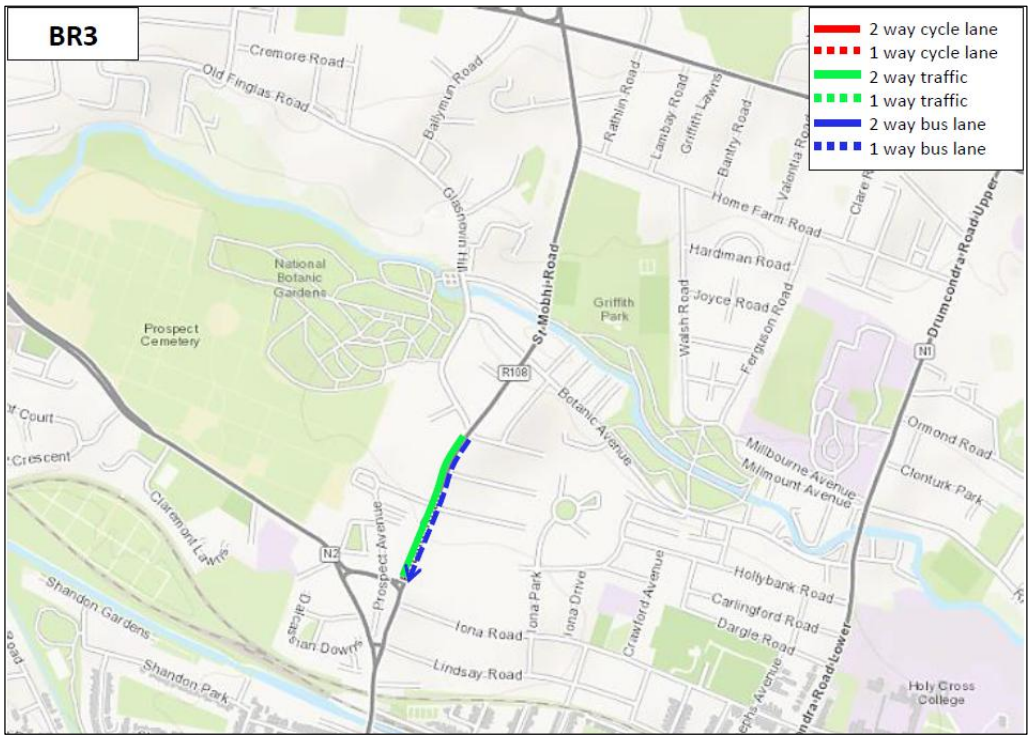


Figure 8.41: Route Sub - Option BR3 Proposals

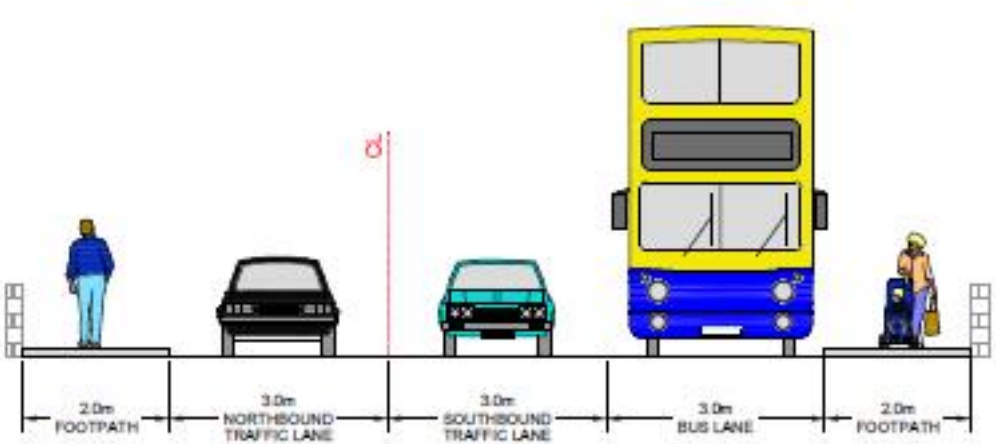


Figure 8.42: Route Sub - Option BR3 Typical Cross Section (North facing) Botanic Road

The main constraint of this option is that any improvements to bus services will be in the inbound direction.

It is anticipated that this option would cost approximately €1.6 million (all infrastructure costs, no land acquisition costs).

8.4.14 Route Sub - Option BR4: Botanic Road (R108)

Route option BR4 follows the same outbound and inbound route as BR1 via Botanic Road, as presented in **Figure 8.36.**

The journey time for this route option is 2 minutes outbound direction and 3 minutes in the inbound direction over a distance of approximately 350m.

Option BR4 proposes to remove the existing cycle lanes and provide a single bus lane in the outbound direction whilst also maintaining two-way traffic as presented in Figure 8.43 and 8.44. This option could be constructed within the existing road space and would not require any land / property acquisition. Importantly a potential advantage of this option over BR3 is that through the use of ITS techniques (Bus Gate) at upstream junction inbound bus priority could be maintained through queue relocation.

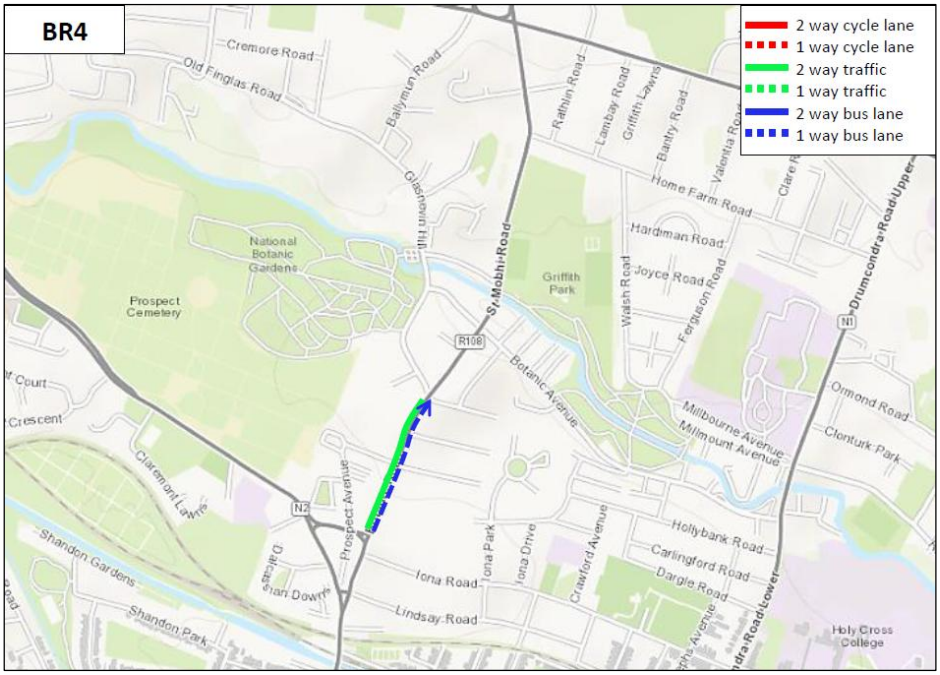


Figure 8.43: Route Sub - Option BR4 Proposals

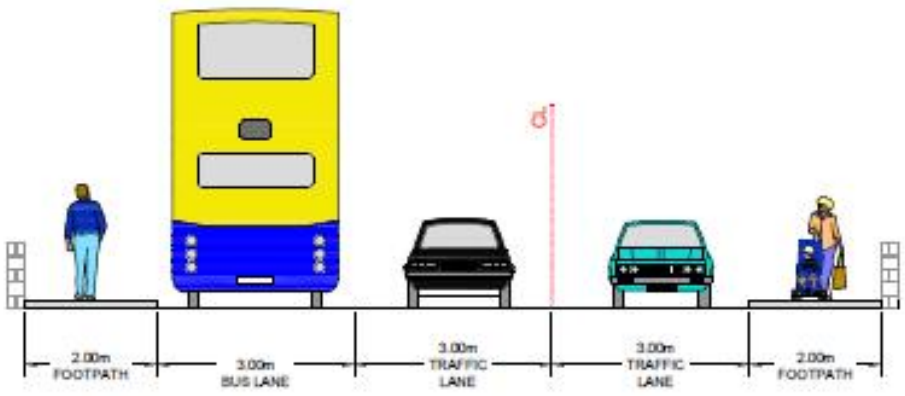


Figure 8.44: Route Sub - Option BR4 Typical Cross Section (North facing) Botanic Road

The main constraint of this option is that any improvements to bus services will be in the outbound direction.

It is anticipated that this option would cost approximately €1.6 million (all infrastructure costs, no land acquisition costs).

8.4.15 Route Sub - Option BR5: Botanic Road (R108)

Route option BR5 follows the same outbound and inbound route as BR1 via Botanic Road, as presented in **Figure 8.36.**

The journey time for this route option is 4 minutes in both the outbound and inbound direction a distance of approximately 350m.

It is proposed as part of Option BC5 to maintain the existing cycle lane, two-way traffic and the existing inbound bus lane between Marguerite Road and Prospect Road.

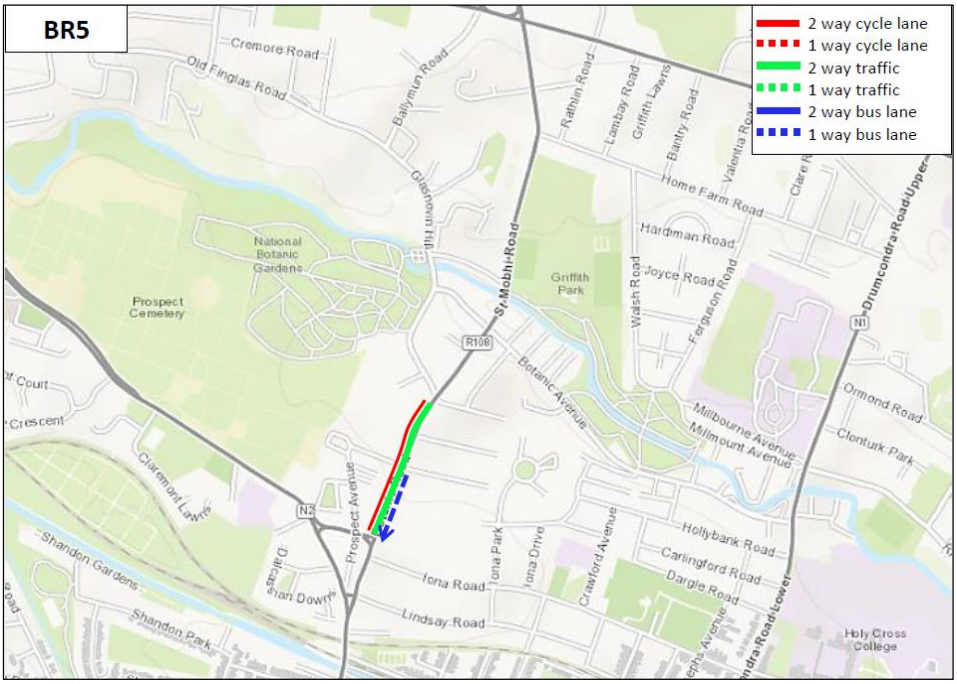


Figure 8.45: Route Sub - Option BR5 Proposals

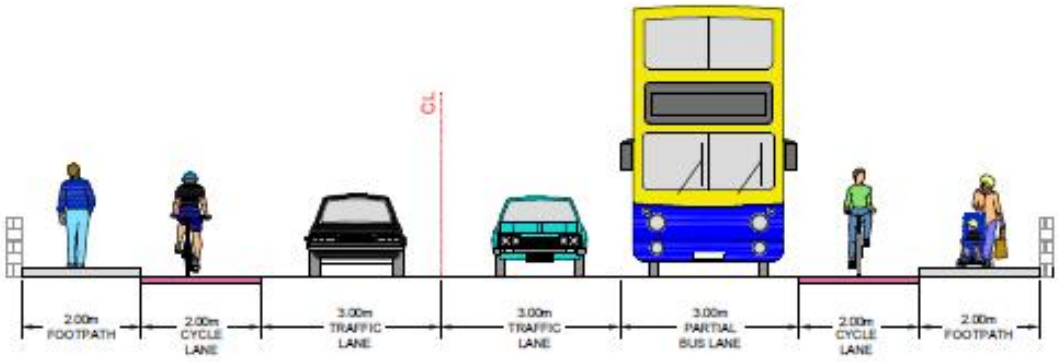


Figure 8.46: Route Sub - Option BR5 Typical Cross Section (North facing) Botanic Road

The main constraint of this option is that any improvements to bus services will be in the inbound / inbound direction for only part of the route i.e. between Marguerite Road and Prospect Avenue.

It is anticipated that this option would cost approximately €0.5 million (all infrastructure costs, no land acquisition costs).

8.4.16 Route Options Assessment

The Stage 2 route options assessment summary table for the Botanic Road options is presented in Table 4 **Appendix A.**

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 8.3.**

Table 8.3: Botanic Road sub – section BR Route Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	BR1	BR2	BR3	BR4	BR5
Economy	Capital Cost					
	Transport Reliability and Quality of Service					
Integration	Land Use Integration					
	Residential Population and Employment Catchments					
	Transport Network Integration					
	Cycling Integration					
	Traffic Network Integration					
Accessibility and Social Inclusion	Key Trip Attractors					
	Deprived Geographic Areas					
Safety	Road Safety					
	Pedestrian Safety					

Assessment Criteria	Assessment Sub-Criteria	BR1	BR2	BR3	BR4	BR5
Physical Activity	Physical Activity					
Environment	Archaeology and Cultural Heritage					
	Architectural Heritage					
	Flora and Fauna					
	Soils and Geology					
	Hydrology					
	Landscape and Visual					
	Air Quality					
	Noise and Vibration					
	Land Use Character					

In terms of 'Economy', a differentiator between route options is the capital cost. Route option BR1 would cost considerably more than other options, largely due to the quantity of private land-take required and the length of the route. Conversely, Options BR 3, 4 and 5 would cost less owing to the non – requirement of land acquisition. In terms of transport reliability and quality of service, route option BR1 and 2 will deliver the greatest levels of service as bus lanes are provided in both directions, although BR4 almost provides the same level of service at significantly reduced costs.

In terms of 'Integration', as the options serve the same catchment the only differentiator relates to the integration with cycling. Options BR2, 3 and 4 rank low as they have no provision for cyclists along this section which forms part of Primary Cycle Route 3A. In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as options BR1 and 2. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than options that do not provide for segregated facilities which will require the implementation of ITS measures at junctions to achieve bus priority at the expense of private vehicular traffic capacity and movement. As there is a section of inbound bus lane provided at present on Botanic Road, it is considered that the realignment of Botanic Road to accommodate an outbound bus lane (BR4) will have a similar traffic impact to the current arrangement (switching direction of lane only). Therefore, Option BR3 and 4 ranks lowest under traffic impact.

There is nothing to differentiate between route options in this section of the study area under the 'Accessibility and Social Inclusion' criterion as they serve the same route.

Similarly under 'Safety', all options follow the same straight route with the same number of signalised junctions and pedestrian crossings; although lack of cycle facilities means BR3 and 4 are ranked lower.

In terms of 'Environment', route options BR1 and 2 have the most significant environmental impact with the proposals requiring considerable property acquisition which would have the effect of changing the nature of Botanic Road which contains 3 protected structures. Option BR1 would require the greatest level of land acquisition and alteration to Botanic Road, therefore, this option ranks lowest under 'Environment'.

Based on the assessment undertaken Option BR3 or 4 are emerging as the optimum design option for this constrained, but critical, section of the route, however BR4 should be selected as bus priority can be maintained inbound and outbound with this option due to the use of bus gates and ITS technology (continuous inbound bus lanes on approach to bus gate allows bus to bypass queuing traffic) ; this is not possible for BR3 as the discontinuity of the outbound bus lane approaching this point prevents its effective use.

Therefore BR4 will form part of route CC1.

Section CS –Church Street between Kings Street North and Inns Quay

The section of Church Street between the junction with North King Street and Inns Quay is constrained in width due to the presence of residential property boundaries, commercial properties, protected structures including Churches as well as buildings of national importance such as the Four Courts and the Bridewell Garda Station. There are a number of design options along this section of Church Street which will be addressed individually below.

8.4.17 Route Sub - Option CS1: Church Street (R108)

Route option CS1, via Church Street, is presented in **Figure 8.46.**

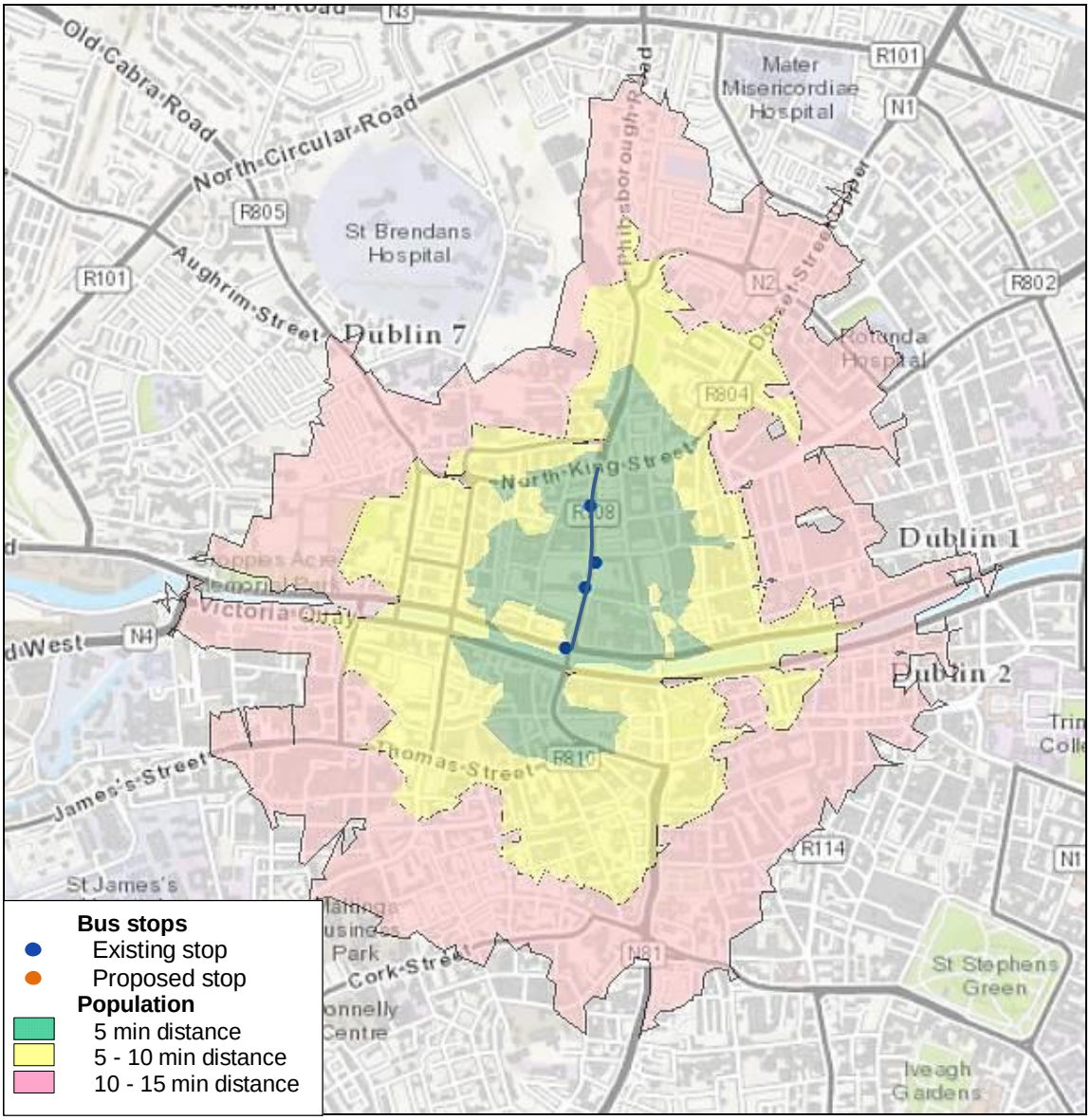


Figure 8.46: Route Sub - Option CS1 Church Street

Outbound: The CBC service will proceed in a northerly direction along Church Street (N1) between the quays (Inns Quay / Arran Quay junction) and North King Street.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there will be a similar number of stops compared to the existing situation (two in each direction).

There are 4 signal controlled junctions (including Luas crossing) along this route as well as 1 signalised pedestrian crossings.

The journey time for this route option between the quays and King Street North is 5 minutes (both directions) over a distance of approximately 500m.

It is proposed as part of option CS1 to provide bus lanes and upgrade the cycle lanes in both directions along Church Street whilst also maintaining two-way traffic as illustrated in Figures 8.47 and 8.48 below. The provision of these facilities would require acquisition of both commercial property and the small front gardens of residential properties which front onto both sides of the roads along part of Church Street. The level of acquisition would require the removal of the gardens entirely and may require the full acquisition of the properties. This would also require the acquisition of commercial property as well as impacting on the curtilage of the Capuchin Friary, St Michan's Church and the Four Courts.

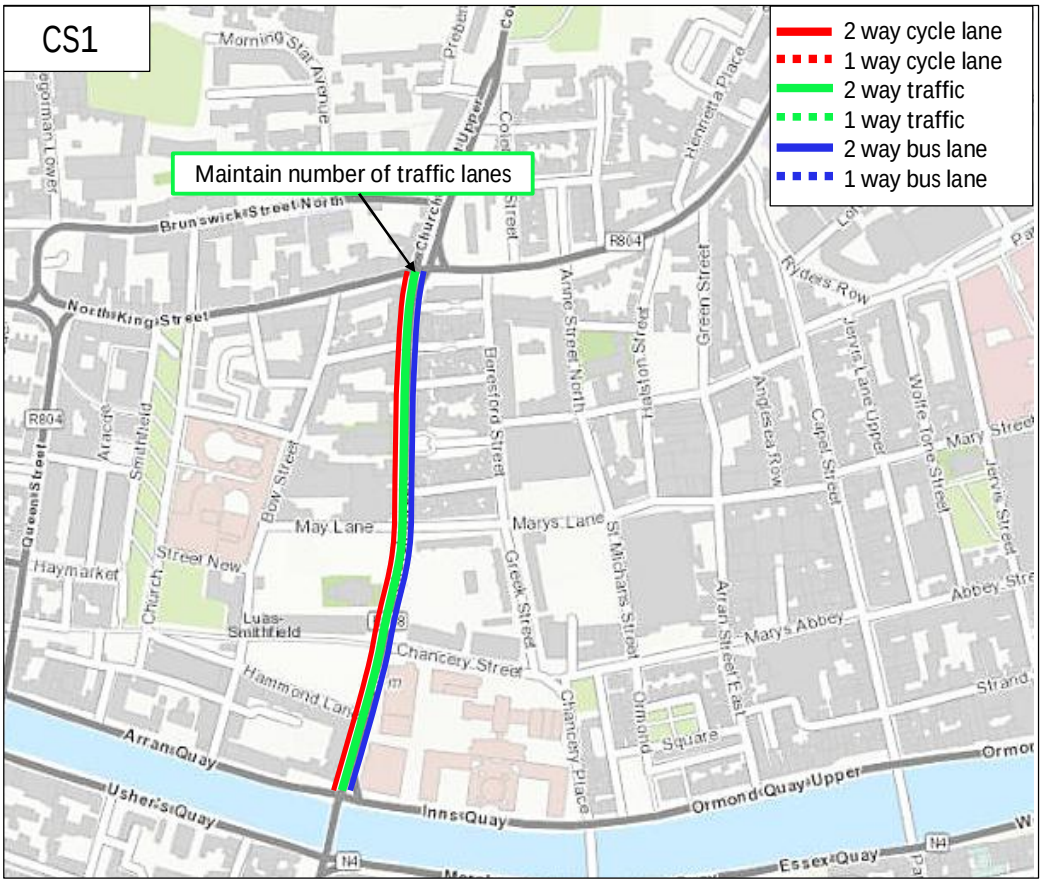


Figure 8.47: Route Sub - Option CS1 Proposals Church Street

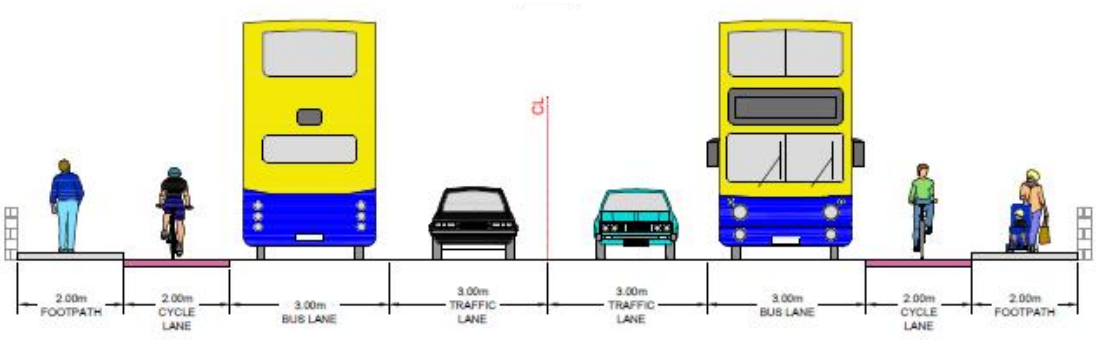


Figure 8.48: Route Sub - Option CS1 Typical Cross Section (North facing) Church Street

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

- The presence of numerous entrances to existing residential properties;
- Crossing of Luas tracks;

- § Capuchin Friary, St Michan's Church, Four Courts and Bridewell Garda Station limit provision of full cross section on Church Street;
- § The replacement of parallel parking serving the Bridewell Garda station;
- § The presence of trees on the footpaths either side of Church Street at the North King Street end of this route; and
- § Segregated bus facilities could be difficult to achieve as significant property acquisition will be required, particularly at the North King Street end of Church Street.

It is anticipated that this option would cost approximately €4.6 million (€3.4 million infrastructure costs, €1.2 million land acquisition costs).

8.4.18 Route Sub - Option CS2: Church Street (R108)

Route option CS2 follows the same outbound and inbound route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option is 5 minutes in the inbound direction and 7 minutes outbound over a distance of approximately 500m.

It is proposed as part of option CS2 to provide a bus lane in the outbound direction and upgrade the existing cycle lanes in both directions along Church Street whilst also maintaining two-way traffic as illustrated in **Figures 8.49 and 8.50** below. The provision of a bus lane would require acquisition of both commercial property and the front gardens of residential properties which front onto both sides of the roads along part of Church Street.

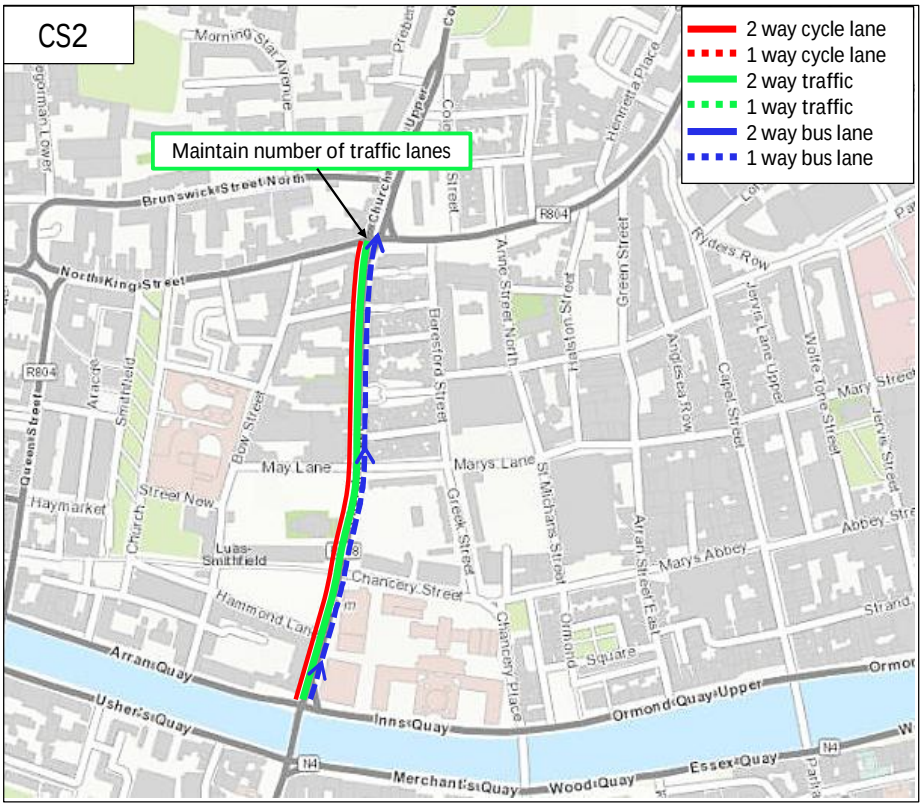


Figure 8.49: Route Sub - Option CS2 Proposals

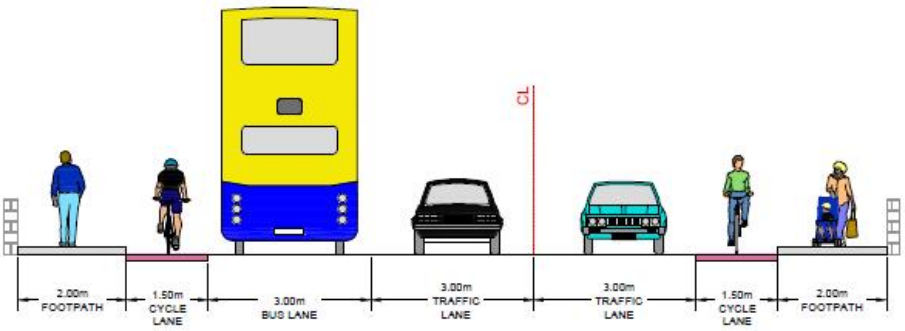


Figure 8.50: Route Sub - Option CS2 Typical Cross Section (North facing) Church Street

The same constraints to CS1 would also need to be considered if this route option is progressed; in terms of entrances to properties, Luas crossing tracks, reduction of parking spaces and the presence of trees on footpaths and significant property acquisition required for segregated bus facilities.

It is anticipated that this option would cost approximately €2.8 million (€2.2 million infrastructure costs, €0.6 million land acquisition costs).

8.4.19 Route Sub - Option CS3: Church Street (R108)

Route option CS3 follows the same route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option is 7 minutes in the outbound direction and 5 minutes inbound over a distance of approximately 500m.

As with Option CS2, it is proposed as part of option CS3 to upgrade cycle lanes in both directions and provide one bus lane, only this time in the inbound direction, whilst also maintaining two-way traffic as illustrated in Figures 8.48 and 8.49 below. The provision of a bus lane would require acquisition of both commercial property and the front gardens of residential properties which front onto both sides of the roads along part of Church Street.

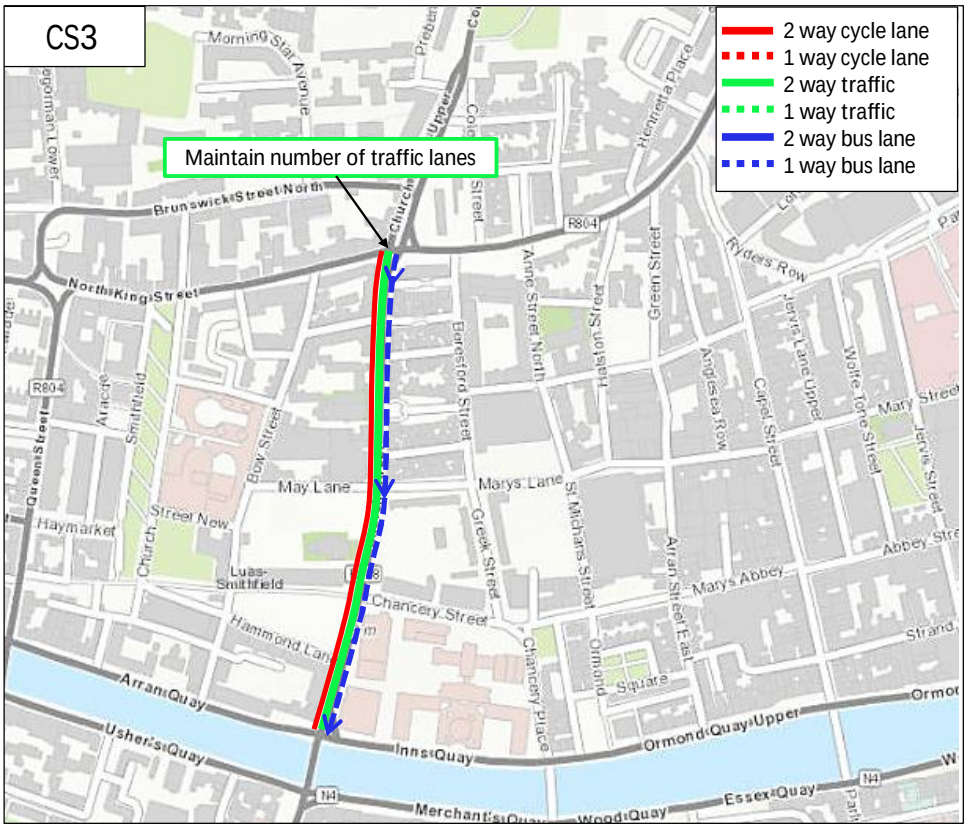


Figure 8.51: Route Sub - Option CS3 Proposals

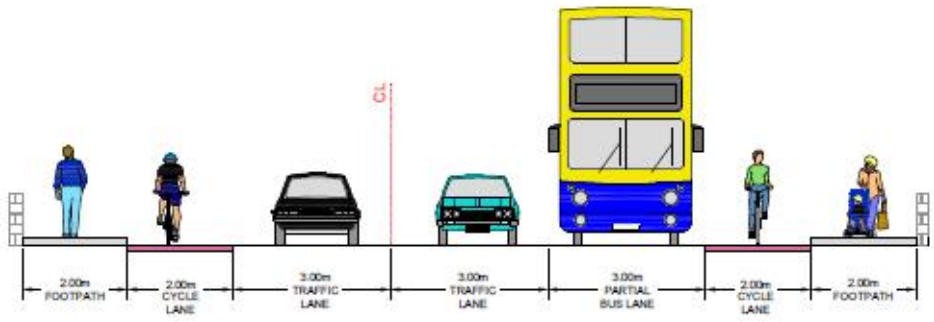


Figure 8.52: Route Sub - Option CS3 Typical Cross Section (North facing) Church Street

The same constraints to CS1 would also need to be considered if this route option is progressed; in terms of entrances to properties, Luas crossing tracks, reduction of parking spaces and the presence of trees on footpaths and significant property acquisition required for segregated bus facilities.

It is anticipated that this option would cost approximately €2.8 million (€2.2 million infrastructure costs, €0.6 million land acquisition costs).

8.4.20 Route Sub - Option CS4: Church Street (R108)

Route option CS4 follows the same outbound and inbound route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option between the quays and King Street North is 7 minutes (both directions) over a distance of approximately 500m.

Option CS4 proposes the removal of existing cycle lanes and the provision of a bus lane (which can be used by cyclists) in both directions whilst also maintaining two-way traffic as illustrated in Figures 8.53 and 8.54 below. There will be a short section at the northern end of Church Street where a southbound bus lane will not be provided owing to land ownership constraints. ITS measures will be implemented at the North King Street/Church Street junction to give buses priority entering Church Street.

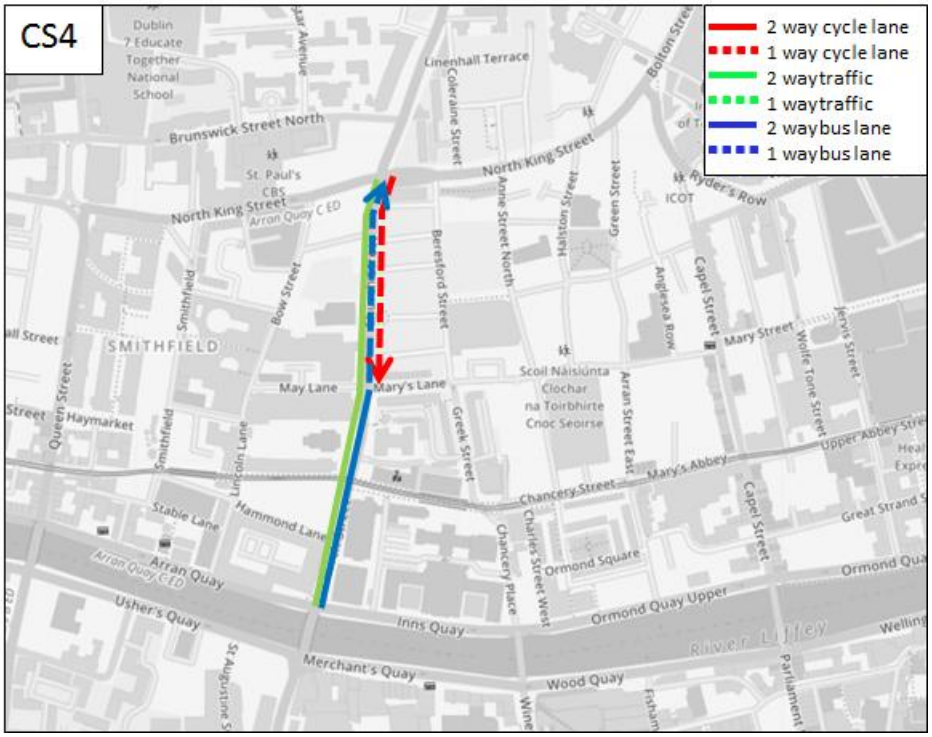


Figure 8.53 Route Sub - Option CS4 Proposals

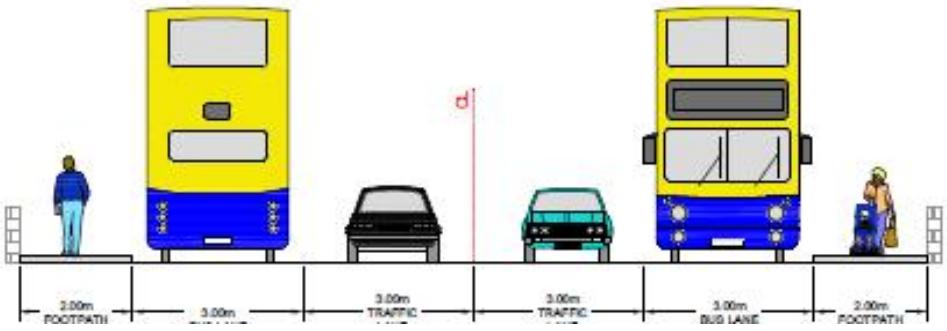


Figure 8.54: Route Sub - Option CS4 Typical Cross Section (North facing) Church Street

The same constraints to CS1 would also need to be considered if this route option is progressed; in terms of entrances to properties, Luas crossing tracks, reduction of parking spaces and the presence of trees on footpaths.

It is anticipated that this option would cost approximately €2.8 million (€2.8 million infrastructure costs, €0.0 million land acquisition costs).

8.4.21 Route Sub - Option CS5: Church Street (R108)

Route option CS5 follows the same outbound and inbound route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option between the quays and King Street North is 5 minutes (both directions) over a distance of approximately 500m.

Option CS5 proposes to remove traffic entirely from Church Street by replacing the existing traffic lanes with bus lanes and upgrading the existing cycle lanes as illustrated in Figures 8.55 and 8.56 below. This option could be constructed within the existing road space and would not require any land / property acquisition.

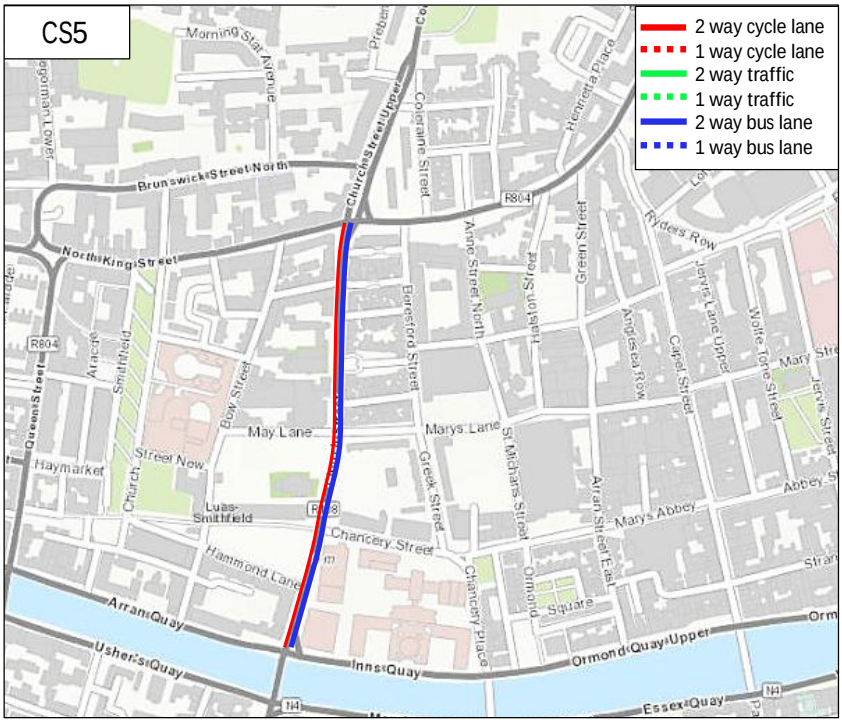


Figure 8.55: Route Sub – Option CS5 Proposals

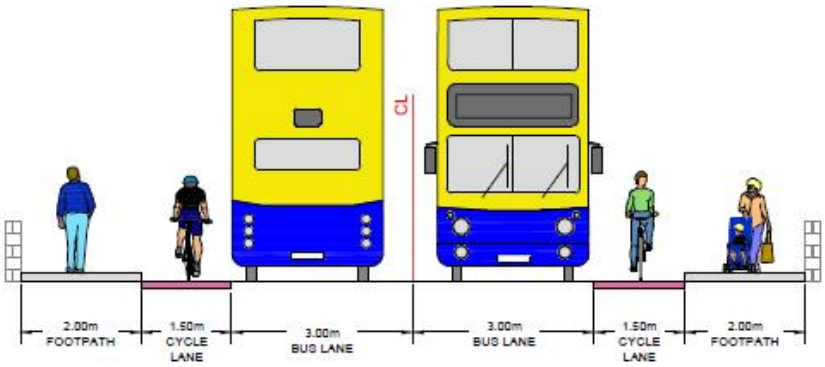


Figure 8.56: Route Sub - Option CS5 Typical Cross Section (North facing) Church Street

The main constraint of this route option is the limited accessibility of Church Street for private vehicles which would not only inconvenience residents but also have a city wide effect on traffic movement in the capital.

It is anticipated that this option would cost approximately €0.6 million (all infrastructure costs, no land acquisition costs).

8.4.22 Route Sub - Option CS6: Church Street (R108)

Route option CS6 follows the same outbound and inbound route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option is 5 minutes in the outbound and inbound direction over a distance of approximately 500m.

It is proposed as part of option CS6 to remove both cycle lanes and the outbound traffic lane from Church Street whilst maintaining the existing inbound traffic lane and providing a bus lane in both directions as illustrated in Figures 8.57 and 8.58 below. This option could be constructed within the existing road space and would not require any land / property acquisition.

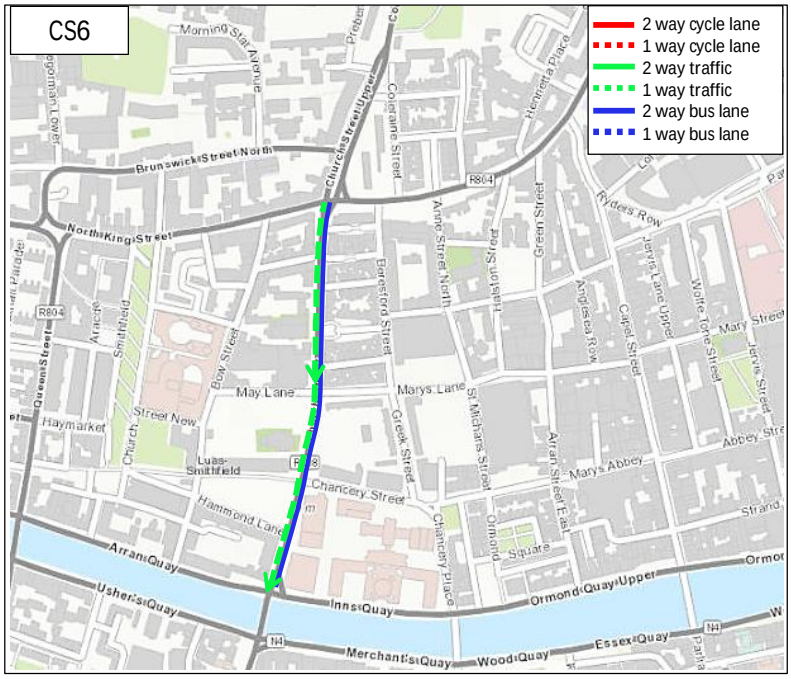


Figure 8.57: Route Sub - Option CS6 Proposals

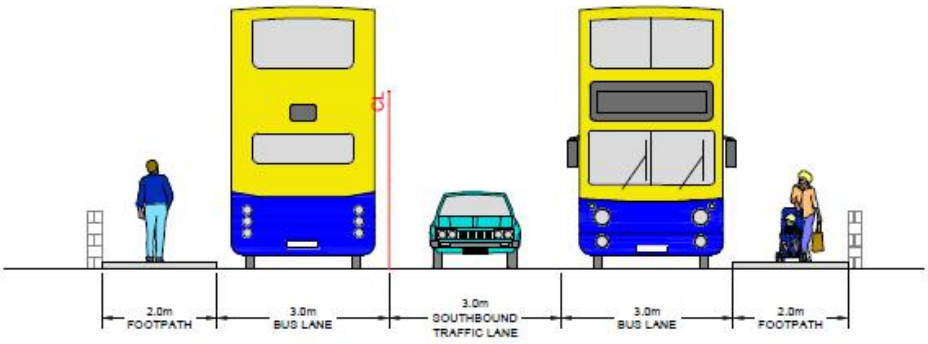


Figure 8.58: Route Sub - Option CS6 Typical Cross Section (North facing) Church Street

The same constraints to CS5 would also need to be considered if this route option is progressed.

It is anticipated that this option would cost approximately €0.7 million (all infrastructure costs, no land acquisition costs).

8.4.23 Route Sub - Option CS7: Church Street (R108)

Route option CS6 follows the same outbound and inbound route as CS1 via Church Street, as presented in **Figure 8.46.**

The journey time for this route option is 5 minutes in both directions over a distance of approximately 500m.

Similar to Option CS6, It is proposed as part of option CS7 to remove both cycle lanes and the inbound traffic lane from Church Street whilst maintaining the existing outbound traffic lane and providing a bus lane in both directions as illustrated in Figures 8.59 and 8.60 below. This option could be constructed within the existing road space and would not require any land / property acquisition.

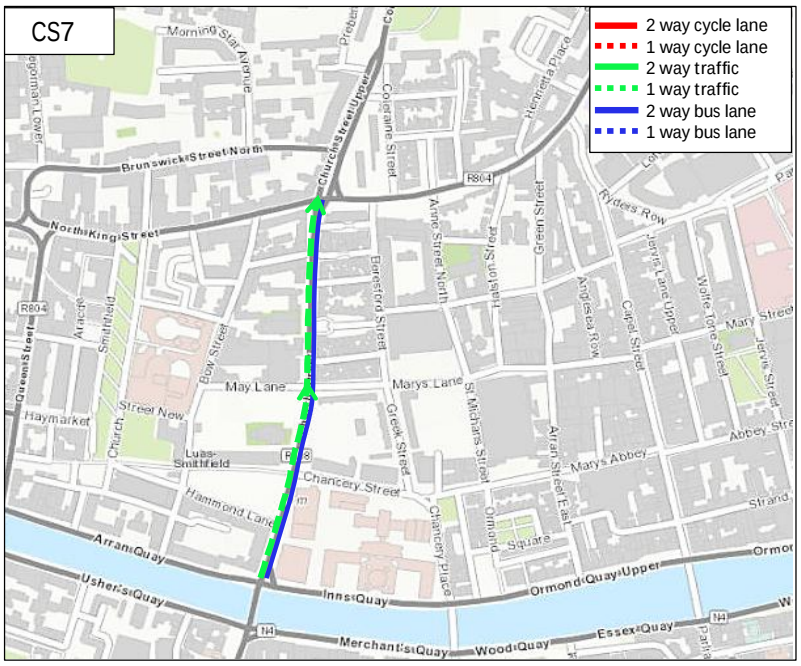


Figure 8.59: Route Sub - Option CS7 Proposals

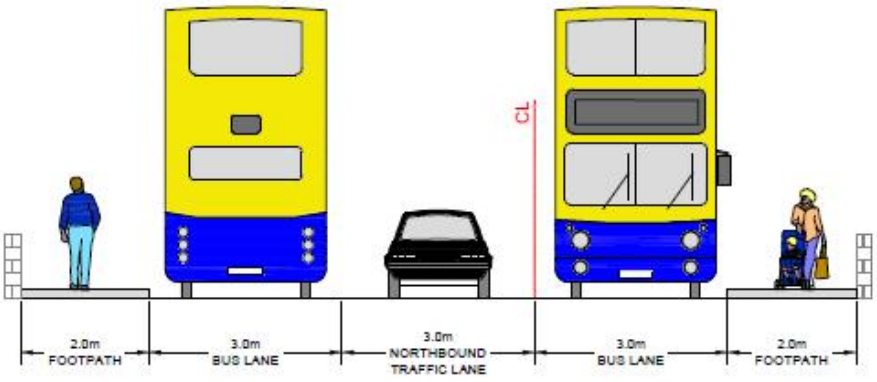


Figure 8.60: Route Sub - Option CS7 Typical Cross Section (North facing) Church Street

The same constraints to CS5 would also need to be considered if this route option is progressed.

It is anticipated that this option would cost approximately €0.7 million (all infrastructure costs, no land acquisition costs).

8.4.24 Route Options Assessment

The Stage 2 route options assessment summary table for the Church Street options is presented in Table 5 **Appendix A.**

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 8.4.**

Table 8.4: Church Street sub – section CS Route Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	CS1	CS2	CS3	CS4	CS5	CS6	CS7
Economy	Capital Cost							
	Transport Reliability and Quality of Service							
Integration	Land Use Integration							
	Residential Population and Employment Catchments							
	Transport Network Integration							
	Cycling Integration							
	Traffic Network Integration							
Accessibility and Social Inclusion	Key Trip Attractors							
	Deprived Geographic Areas							
Safety	Road Safety							
	Pedestrian Safety							
Physical Activity	Physical Activity							
Environment	Archaeology and Cultural Heritage							
	Architectural Heritage							
	Flora and Fauna							
	Soils and Geology							
	Hydrology							
	Landscape and Visual							
	Air Quality							
	Noise and Vibration							
	Land Use Character							

In terms of 'Economy', a differentiator between route options is the capital cost. Route option CS1 would cost considerably more than other options, largely due to the quantity of private land-take required and the length of the route. Conversely, Options CS5, 6 and 7 would cost less owing to the reduced level of land acquisition required. In terms of transport reliability and quality of service, route option CS1 and 4 will deliver the greatest levels of service as bus lanes are provided in both directions.

In terms of 'Integration', as the options serve the same catchment the only differentiator relates to the integration with cycling. Options CS4, 6 and 7 rank low as they have no provision for cyclists along this section. However, it should be noted that Church Street does not form part of the GDA Cycle Network.

In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as options CS1 and CS4. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than options that consider a reduction or removal of traffic such as CS5, 6 and 7. The removal of traffic entirely under CS5 would obviously have the greatest traffic impact. It is also considered that Option CS6 which provides for inbound traffic only would also have a significant effect. Queen Street to the west of Church Street currently accommodates inbound only traffic at present and could accommodate inbound traffic diverted under Option CS7 more readily than outbound traffic diverted under Option CS6, however all of these 3 options are not consistent with City Centre Traffic Management Plan which places greater emphasis on this route as a traffic corridor. As such, Options CS5, 6 and 7 ranks lowest under traffic impact.

There is nothing to differentiate between route options in this section of the study area under the 'Accessibility and Social Inclusion' criterion as they serve the same route.

Similarly under 'Safety', all options follow the same straight route with the same number of signalised junctions and pedestrian crossings.

In terms of 'Environment', route options CS1 has the most significant environmental impact with the proposals requiring considerable property acquisition which would have the effect of changing the nature of Church Street which contains a number of protected structures and is also within the historic core of Dublin City (DU018-020). Option CS1 would require the greatest level of land acquisition and alteration to Church Street, therefore, this option ranks lowest under 'Environment'.

Based on the assessment undertaken Options CS4 and CS5 are emerging as the preferred options. However, CS5 ranks much lower on traffic impact as it proposes to remove traffic entirely from Church Street which is not in line with the City Centre Traffic Plan; therefore CS4 is taken forward for further assessment.

Therefore CS4 will form part of route CC1 and CC2.

8.4.25 Central Area Principal Route Option Assessment

Following the Stage 1 sift, the Stage 2 assessment and assessment of sub options above, two principle route options for the Central Section of the study area were passed to the Stage 2 assessment:

- A route option via Botanic Road/ Phibsborough Road/Church Street (R108) (CC1); and
- A route option via Griffith Avenue (R102)/Drumcondra Road/Dorset Street/Bolton Street/North King Street (N1)/Church Street (CC2).

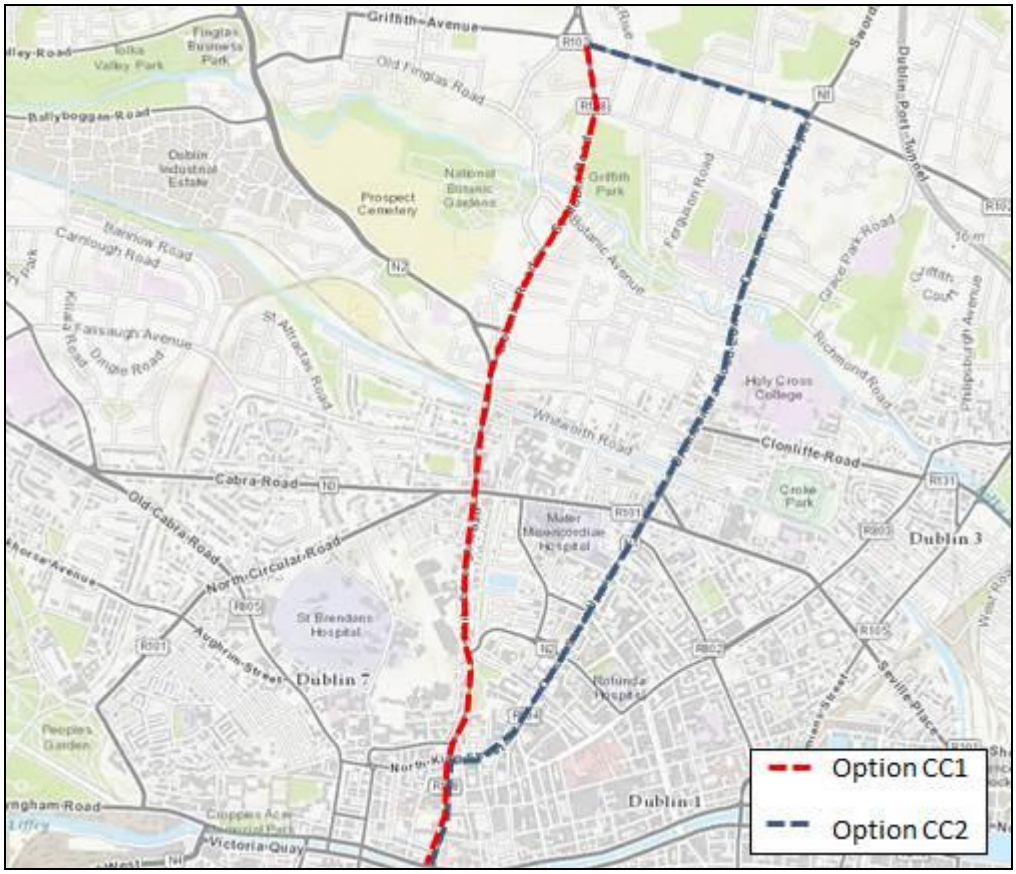


Figure 8.61 Cohesive Principal Route Options in SAS 3

This Section of the report will outline the Stage 2 and transport assessments of these two route options before determining the Emerging Preferred Route option following a holistic consideration of the results of these assessments.

8.5 Stage 2 Assessment

8.5.1 Route Option CC1: Botanic Road / Phibsborough Road / Church Street (R108);

Route option CC1, through Glasnevin and Phibsborough town centres, is presented in Figure 8.62.

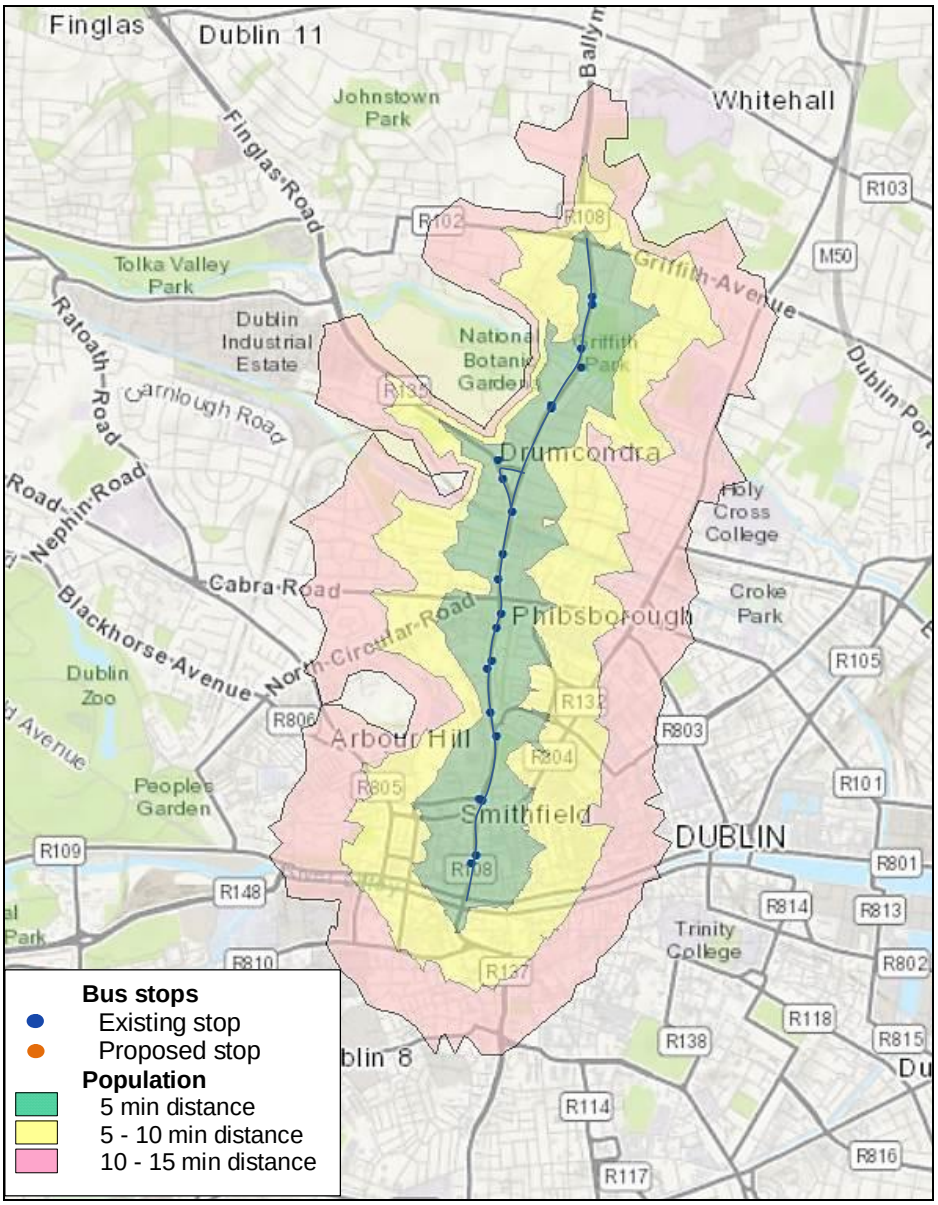


Figure 8.62: Route Option CC1 Botanic Road/ Phibsborough Road/Church Street (R108);

Outbound: The CBC service will proceed in a northerly direction along Church Street/Constitution Hill/Phibsborough Road through Phibsborough and on towards Botanic Road. The bus service will continue on St Mobhi Road (R108).

Inbound: The CBC route will travel directly along St Mobhi Road and Botanic Road and follows the same route as outbound through Phibsborough Road, Constitution Hill and Church Street. Cycle lanes will be provided on both sides of St Mobhi Road.

Stops: It is anticipated that there will be some rationalisation of bus stop numbers particularly at the northern extent of the scheme but generally the number of stops will remain similar to the existing situation.

The route option proposes to maintain the existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue as well as providing an outbound bus lane and segregated cyclist facilities in both directions on St Mobhi Road.

It is proposed to introduce continuous inbound bus lanes on R108 Section between St Mobhi Road/Fairfield Road and Hart's Corner as per option BR4 whilst the junction of R108/R135 (Finglas Road)/Hart's Corner will be realigned. Further route option proposals include:

- Widening of Cross Guns Bridge to include for pedestrian cantilever;
- Provide two way bus lane in Phibsborough with parallel route for cyclists via Royal Canal Bank;
- Introduce bus lanes in both directions on Phibsborough Road by removal of on-street parking between Doyle's Corner and replacing traffic lanes with bus lanes on Constitution Hill between Western Way and North King Street;
- Improve existing cycle lane on Constitution Hill between Western Way and Coleraine Street. Levels of service B as route is identified as secondary route 2B; and
- Provision of greater length of segregated bus facilities on Church Street.

This option would require the acquisition of a small portion of a number of front gardens from the east side of Mobhi Road and also a portion of land from the Na Fianna GAA and Home Farm soccer grounds on this side of the road also. The provision of segregated bus facilities in both directions in Phibsborough would require land acquisition in the vicinity of the Shopping Centre.

There are 22 signalised junctions along the route. The journey time for this route option from St Mobhi Road / Griffith Avenue junction to Church Street is 23 - 24 minutes over a distance of approximately 3.9 km.

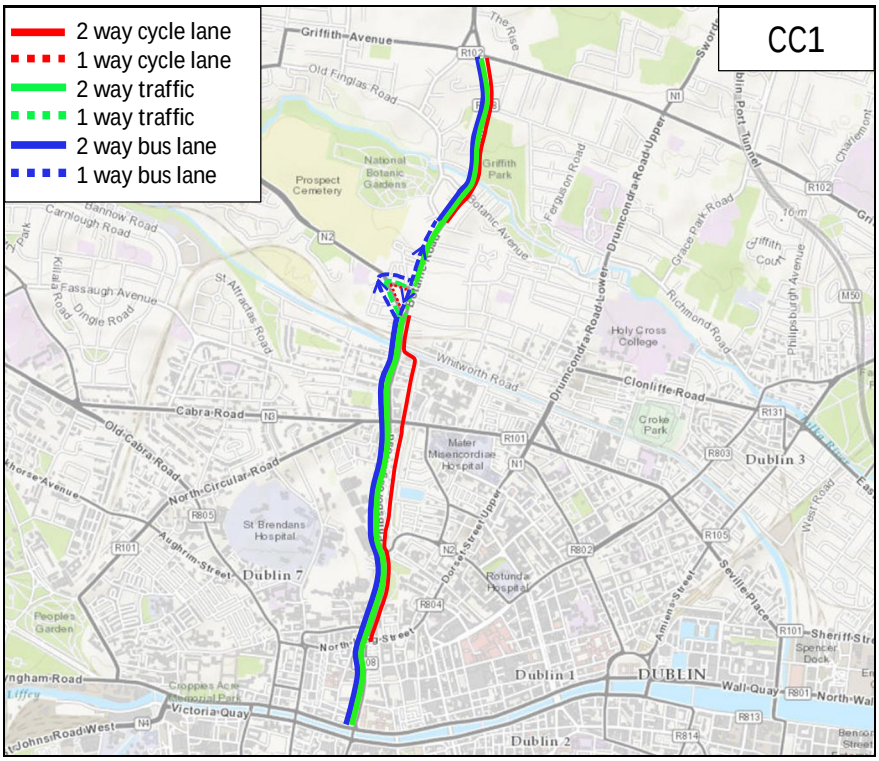


Figure 8.63: Route Option CC1 Proposals

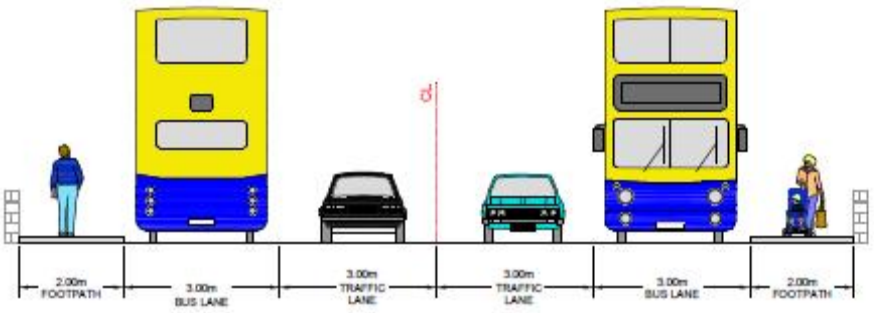


Figure 8.64: Route Option CC1 Typical Cross Section (North facing) Phibsborough Road (with parallel cycle route)

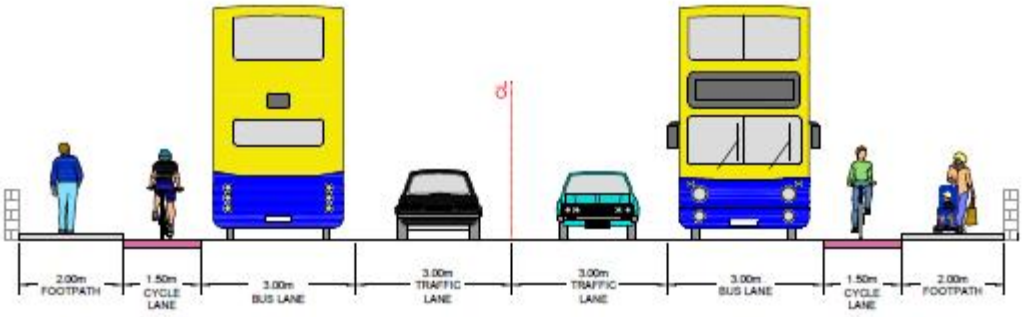


Figure 8.65: Route Option CC1 Typical Cross Section (North facing) Constitution Hill

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

- Trees and property setback required along St Mobhi Road;
- Limited potential for widening along St Mobhi Road/Botanic Road (southern end);
- Limited potential for widening at North Circular Road/Phibsborough Road junction (Doyle's Corner);
- Number of churches, the Four Courts and Bridewell Garda Station on Church Street limiting provision of full cross section (common to both CC1 and 2); and
- Crossing of Luas Red and Cross City lines.

It is anticipated that this option would cost approximately €19 million (€18.6 million infrastructure costs, €0.4 million land acquisition costs).

8.5.2 Route Option CC2: Griffith Avenue (R102)/Drumcondra Road/Dorset Street/Bolton Street/North King Street (N1)/Church Street

Route option CC2 along the R102 Griffith Avenue before turning onto Drumcondra Road / Dorset Street / Bolton Street / North King Street (N1) / before routing on to Church Street and is presented in **Figure 8.66**.

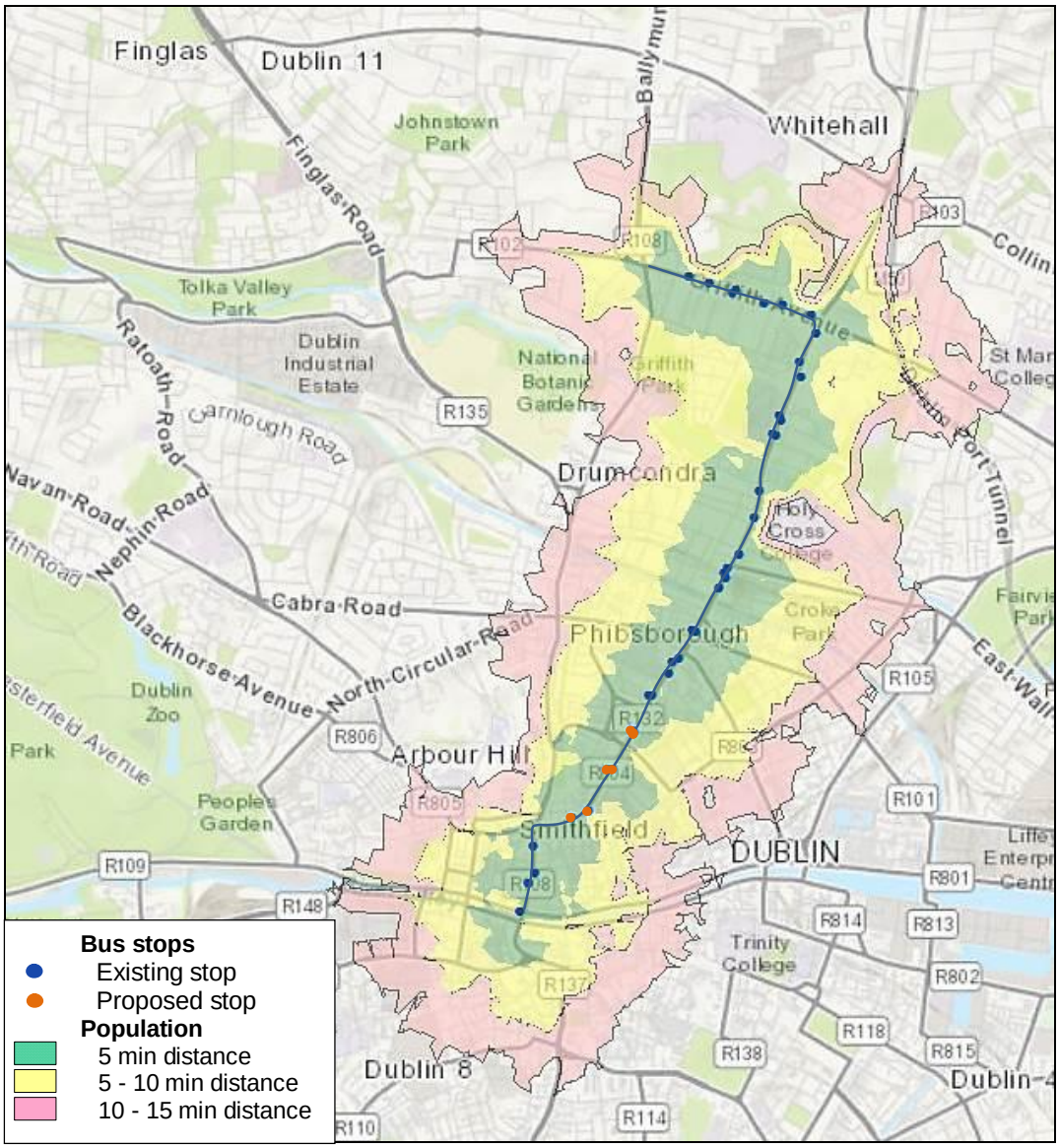


Figure 8.66 *Route Option CC2:* Griffith Avenue (R102)/Drumcondra Road/Dorset Street/Bolton Street/North King Street (N1)/Church Street

Outbound: This route option would proceed outbound on Church Street before turning right and north – west along the N1 (North King Street/Bolton Street/Dorset Street/Drumcondra Road Lower/Upper). The route would then return westwards along Griffith Avenue before making a right turn onto the Ballymun Road. The route essentially mirrors the Swords BRT/CBC route between Griffith Avenue and Dorset Street.

Inbound: The inbound option follows the same route as outbound.

Stops: It is anticipated that there may be some additional stops on Bolton Street/North King Street compared to the existing situation (see orange stops in Figure 8.66).

Specifically, Route Option CC2 proposes the following:

- Introduce bus lanes on R102 Griffith Avenue between St Mobhi Road and Drumcondra Road Upper, requiring the removal of trees;
- Improve existing bus lane on N1 (Drumcondra Road Lower/Dorset Street) to provide continuous segregated facilities as per Swords BRT proposals;
- Improve existing cycle lane on N1 (Drumcondra Road Lower/Dorset Street) to provide continuous segregated facilities (Primary Cycle Route 2A);
- Provision of improved bus facilities will require removal of on street parking and/or private land acquisition on Bolton Street between Frederick Street North and Dominick Street; and
- Provision of greater length of segregated bus facilities on Church Street.

This option would require limited private land acquisition in the vicinity of junctions. However, as mentioned above the removal of a large number of trees along Griffith Avenue would be required.

There are 25 signalised junctions along the route. The journey time for this route option from the Griffith Avenue / Mobhi Road junction to Church Street / Inns Quay is 28 - 30 minutes over a distance of approximately 4.9 km.

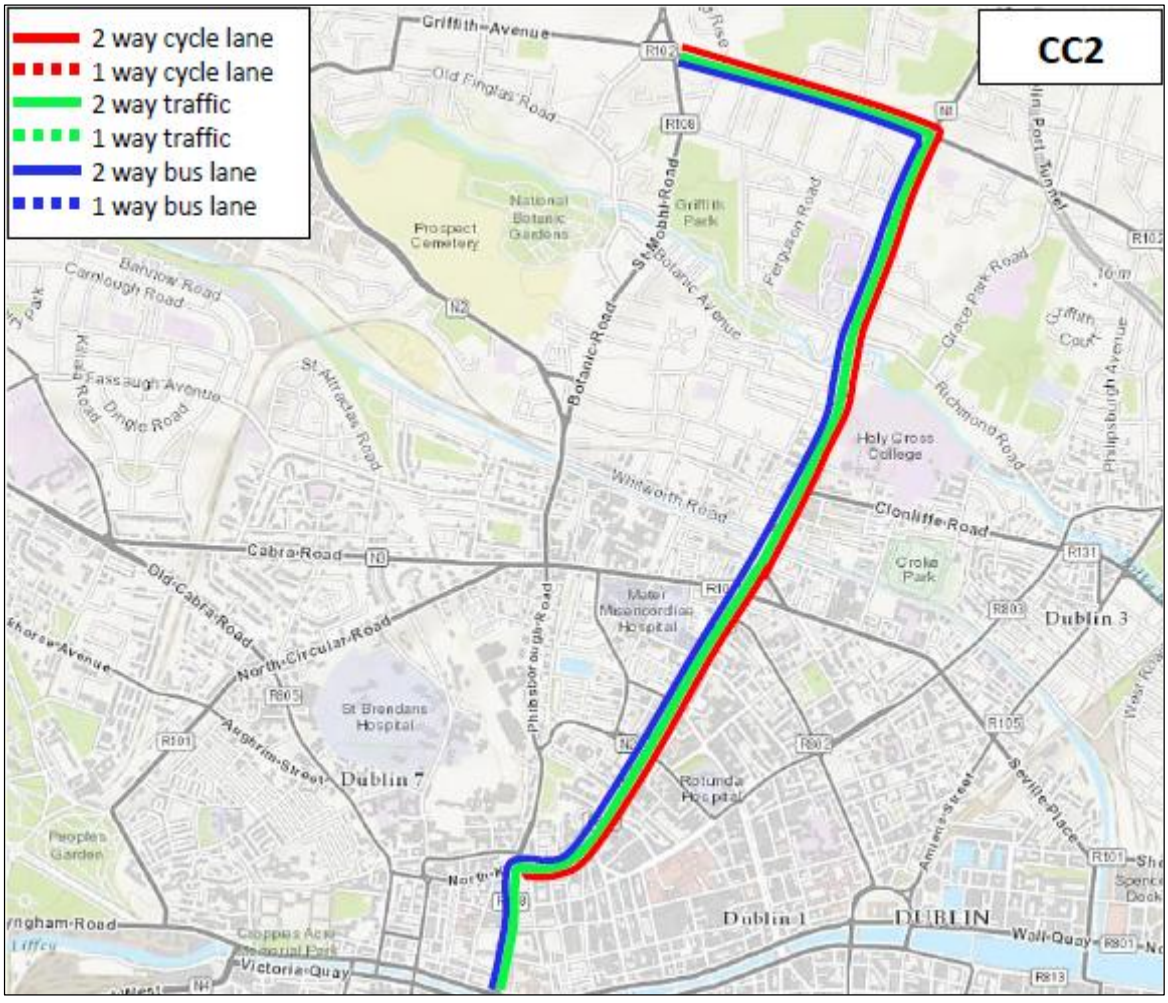


Figure 8.67: Route Option CC2 Proposals

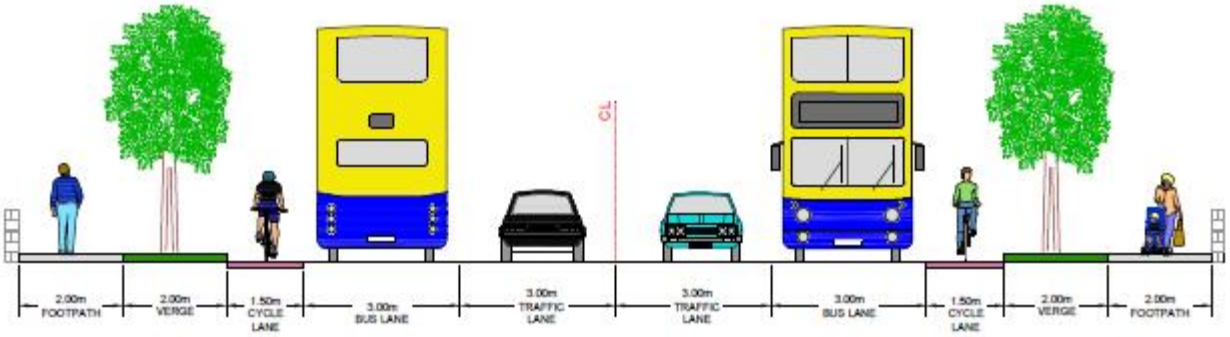


Figure 8.68: Route Option CC2 Typical Cross Section (North facing) Griffith Avenue

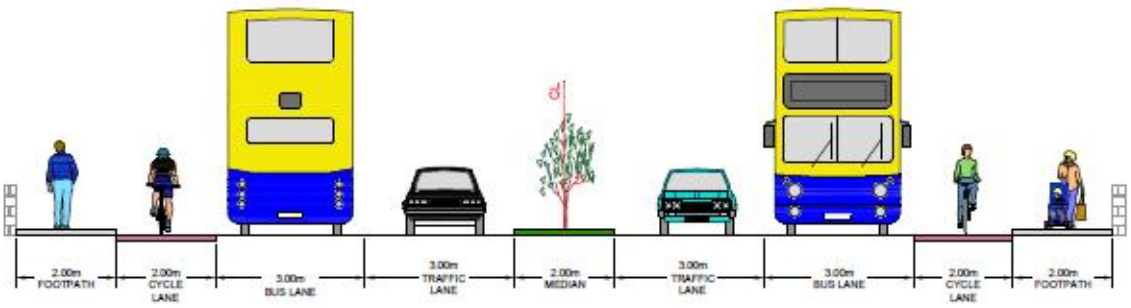


Figure 8.69: Route Option CC1 Typical Cross Section (North facing) Drumcondra Road

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

- Loss of trees along Griffith Avenue;
- Binn's Bridge Drumcondra is a protected structure;
- Route runs along emerging preferred route for Swords BRT (too many buses on BRT corridor will impact on operation);
- Number of churches, the Four Courts and Bridewell Garda Station on Church Street limiting provision of full cross section (common to both CC1 and 2); and
- Crossing of Luas Red line.

It is anticipated that this option would cost approximately €18 million (€17.9 million infrastructure costs, €0.1 million land acquisition costs).

8.5.3 Stage 2 Central Area Route Options Assessment

The Stage 2 route options assessment summary table for the Central area route options is presented in Table 6, Appendix A.

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 8.5**.

Table 8.5: Central Area Route Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	CC1	CC2
Economy	Capital Cost		
	Transport Reliability and Quality of Service		
Integration	Land Use Integration		
	Residential Population and Employment Catchments		
	Transport Network Integration		
	Cycling Integration		
	Traffic Network Integration		
Accessibility and Social Inclusion	Key Trip Attractors		
	Deprived Geographic Areas		
Safety	Road Safety		
	Pedestrian Safety		
Physical Activity	Physical Activity		
Environment	Archaeology and Cultural Heritage		
	Architectural Heritage		
	Flora and Fauna		
	Soils and Geology		
	Hydrology		
	Landscape and Visual		
	Air Quality		
	Noise and Vibration		
	Land Use Character		

In terms of 'Economy', a differentiator between route options is the capital cost. Route option CC1 would cost slightly more than route option CC2, largely due to the fact that CC2 is of a high standard in terms of the existing QBC and would not require as significant investment as CC1. In terms of transport reliability and quality of service, route option CC1 is more attractive than route option CC2 primarily due to its directness and shorter journey time. The Ballymun CBC would also be competing with a number of other services on CC2 for priority and bus stop usage.

In terms of 'Integration', route option CC2 serves a residential and employment catchment already served by the Swords QBC and future BRT. Route option CC1 serves a unique catchment and has the potential to encourage future development in Phibsborough, Glasnevin and also the DIT Grangegorman Development. Both routes rank similarly under cycling integration as the majority of both routes align with Primary and Secondary Routes of the GDA Cycle Network Plan. Therefore CC1 ranks higher under integration. In terms of traffic impact, a differentiator between route options would be that generally bus lanes would be provided for the entire length of CC2 as this is the Drumcondra/Swords corridor. There will be sections on Botanic Road and Hart's Corner where buses may share lanes with traffic in one direction. There may also be restricted movements for vehicular traffic on CC2 at junctions such as Phibsborough Road/North Circular Road (Doyle's Corner). Therefore CC1 ranks lower than CC2 under traffic impact.

Under 'Accessibility', CC1 serves key trip attractors which are not duplicates of the Swords QBC/BRT. Both route options serve RAPID deprived geographic areas. As such, CC1 ranks higher under this criterion.

Under 'Safety', both options rank similarly with a similar number of turning movements required on both routes.

In terms of 'Environment', route option CC1 is marginally less attractive in terms of potential for environmental impacts, although both will have large impacts on trees on their corridor. There is also potential for greater Architectural and Archaeological impacts along CC1. Therefore, both options rank similarly under 'environment'.

Based on the assessment undertaken, CC1, which would route the CBC along the R108, offers the most effective route option for the following reasons:

- The directness of the route;
- The serving of a unique residential and employment catchment; and
- The retention of the QBC/CBC service on the R108 corridor would be consistent with serving future proposed land-use planning objectives, including the redevelopment of Phibsborough and the DIT Grangegorman Campus Development.

Therefore CC1 will form part of the Emerging Preferred Route.

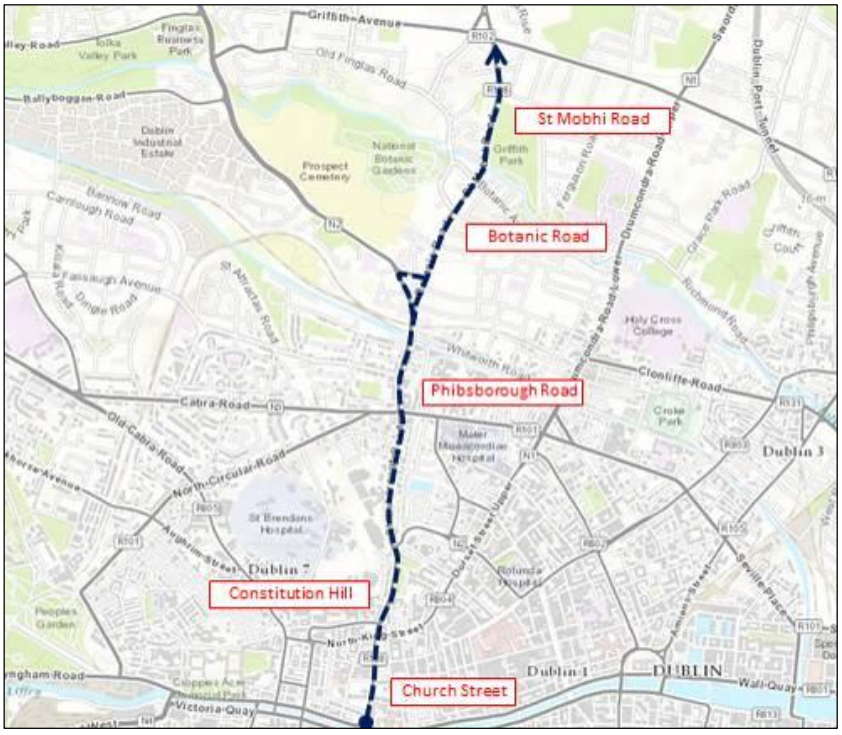


Figure 8.70: Emerging Preferred Scheme for Section 3.

9 Emerging Preferred Route

9.1 Introduction

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

9.2 Route Options Assessment Conclusions

Chapters 6 to 8 of this report presented an appraisal of each of the potential route options for each of the three Study Area Sections identified. Within each Study Area Section, where potential route options were considered to be available, have been assessed in accordance with the methodology set out in Chapter 5 including a 'Multi-Criteria Analysis' under the headings of Economy, Integration, Accessibility and Social Inclusion, Safety, Physical Activity and Environment. Following this appraisal, route options were subjected to a high level transport assessment.

In assessing the route options for the Northern Terminus (SAS 1) and the Ballymun Area (SAS 2), preferred options emerged clearly from the assessment for these sections, namely a terminus on St Margaret's Road with the route then following the existing QBC along the Ballymun Road (R108) as far as Griffith Avenue.

The following Central Section (SAS 3) presented a greater variety of route options for consideration, particularly on more constrained sections such as those on St Mobhi Road, Botanic Road and Church Street. This required an assessment to be undertaken of a number of sub-options ranging from the provision of segregated lanes for both buses and cyclists to traffic engineered options requiring less land take but greater alteration to existing traffic movements.

Following the range of assessments undertaken for SAS 3 it was determined that the preferred route should follow the R108 south to the Liffey, via Glasnevin and Phibsborough, as the other principle alternative route option would converge with the Drumcondra /Swords corridor which is earmarked to serve the Swords BRT scheme. It is considered imperative that key trip attractors such as DIT Grangegorman and more importantly existing communities in the Phibsborough/Glasnevin area are served by a Core Bus Corridor. Further to this the CBC route could also potentially connect with the Finglas CBC, which joins the route at Hart's Corner.

9.3 Emerging Preferred Route

Based on the conclusions from the route options assessment process, as set out in Section 9.2, the recommended preferred route for the proposed scheme is presented in Figure 9.1.

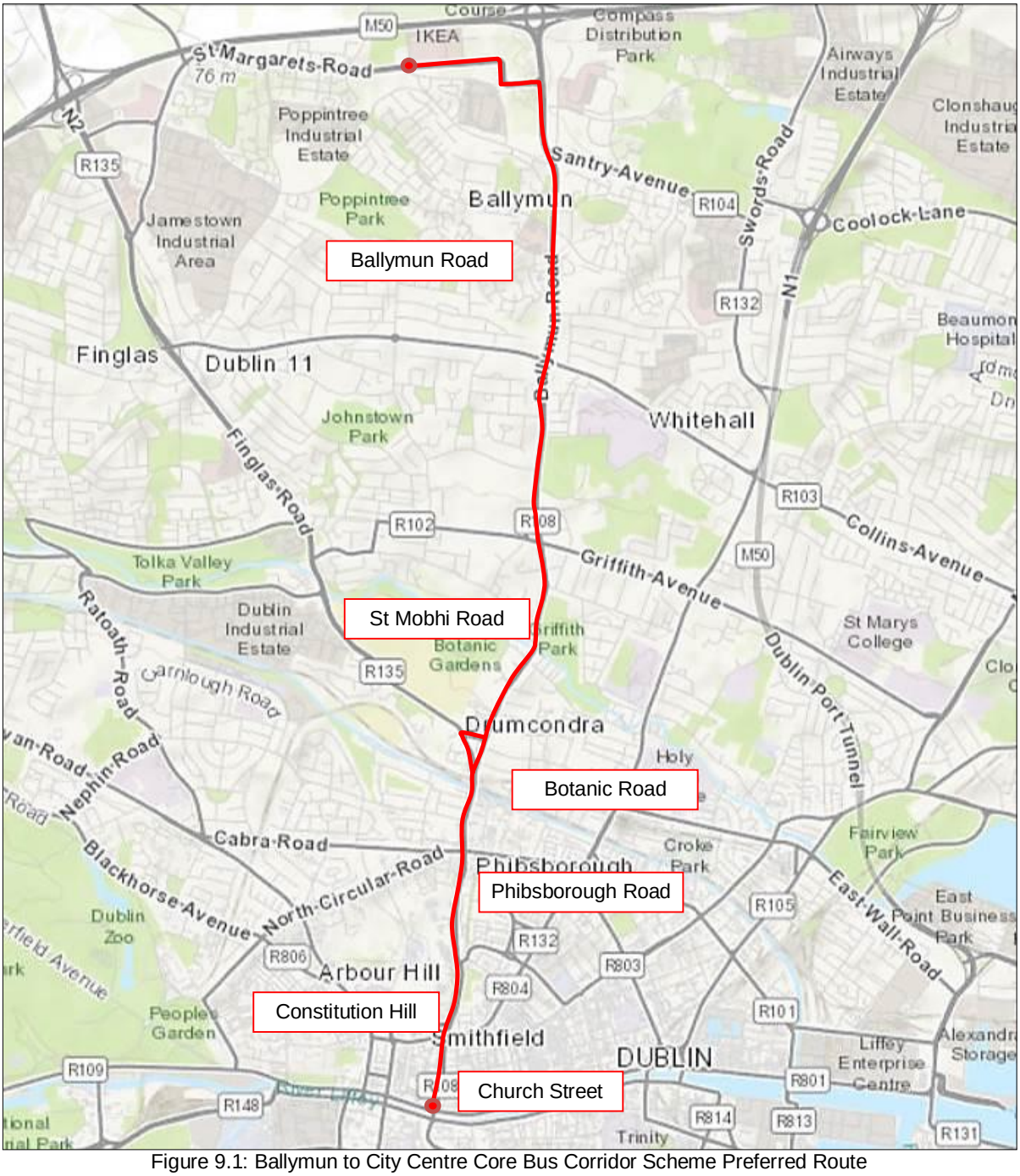


Figure 9.1: Ballymun to City Centre Core Bus Corridor Scheme Preferred Route

9.4 Concept Design

There are 3 distinct sections of the EPR and these are described in turn below and are outlined in the Concept Design Drawings that accompany this study:

Section 1 St Margarets Road (Ikea) to Griffith Avenue

Length of Section: 4km

Indicative Cost Estimate for Section: €6million

Level of segregated Bus Priority provided: >95%.

The Emerging Preferred Route (EPR) for this section will start at a new terminus to be located immediately south of the Ikea Store on St Margaret's Road, north of Ballymun. The route will make maximum use of the existing Bus Lanes which run the full length of St Margaret's Road and Ballymun Road, with enhancements mainly located at junctions where priority has been maximised. In addition the number of bus stops has been reviewed with some removed where there was a significant overlap of stops, in this case mainly around Ballymun town centre.

As part of this scheme the existing cycle lanes along this road will be upgraded in line with current best practise as will the pedestrian crossing facilities at junctions.

Overall the EPR for this section requires an upgrade of existing facilities along its length.

Figure 9.2 Existing Bus and Cycle Lanes on the Ballymun Road (R108).

Section 2 Griffith Avenue to Phisborough (Doyles Corner)

Length of Section: 2km

Indicative Cost Estimate for Section: €13.5million

Level of segregated Bus Priority provided: >85%.

The EPR for this section follows the existing Ballymun Quality Bus Corridor routeing as far as Whitworth Road, where it is now proposed to continue straight to Phibsborough. As this section currently has bus lanes in one direction only a significant upgrade of the existing facilities has been required to bring it in line with the requirements of the Core Bus Corridor infrastructure. This has required widening the existing road over some sections, including on Mobhi Road where the existing mature trees will need to be removed to facilitate the provision of an outbound bus lane. As part of any implementation plan for this corridor locations for planting new trees will be identified and it is proposed that a proportionally higher number of trees will be provided where any mature trees are removed.

Figure 9.3 Mobhi Road showing existing Mature Trees.

In addition some property boundaries will need to be set back a small amount to allow the provision of cycle tracks in both directions. It is not envisaged that this setback is significant and the use of the driveways for parking vehicles will not be impacted.

South of Fairfield Road on the Botanic Road it was not possible to provide an inbound bus lane due to the space restrictions and the limited scope to widening this road due to the differing ground levels between the street and the houses. In order to provide bus priority a Virtual Bus Lane will be created through the use of an inbound bus gate at the Fairfield Road junction, where traffic into the following section will be metered so as the inbound queue length never exceeds the length of the subsequent section of bus lane. This is only possible because there is effectively a continuous section of bus lane approaching Fairfield Road which allows the bus to bypass queuing traffic.

Figure 9.4 Properties on Botanic Road (Note steps to entrances)

Through Phibsborough the proposed CBC works will be integrated within any future upgrade of the Village. As part of the scheme development additional pedestrian crossings and upgrading of existing crossings is proposed.

Cycle facilities are being proposed over much of this section, however there is not sufficient space to provide facilities in line with current design standards for a distance of approximately 0.5km on Botanic Road due to the lack of available space and the geometric constraints mentioned above. In Phibsborough the cycle route is rerouted to an adjoining parallel route in line with the GD Cycle Network Plan. This route uses Royal Canal Bank to provide facilities for cyclists along quite mainly residential streets.

Figure 9.5 Properties on Botanic Road (Note steps to entrances)

Section 3 Phibsborough (Doyles Corner)to Arran Quay

Length of Section: 1.7km

Indicative Cost Estimate for Section: €5.5million

Level of segregated Bus Priority provided: >90%.

The EPR for this section follows The R108, via Phibsborough Road, Constitution Hill, and Church Street. Between Doyles Corner and North King Street the carriageway is sufficiently wide enough to provide an inbound and outbound bus lane with little or no modifications to the existing cross-section. In addition cycle facilities are generally provided along the adjoining Royal Canal Bank route as far as Western Way where they join the R108 again. At Western Way this CBC corridor will provide linkage to both the Luas CrossCity and the new Dublin Institute of Technology campus at Grangegorman. There will be a small loss in on street car parking on this initial section although it is noted that off-street parking is available for most residents and side streets also appear to have sufficient capacity to accommodate more vehicles.

On Constitution Hill one of the traffic lanes in each direction will be replaced with a bus lane in each direction. This short section of four lanes has little impact on the overall traffic capacity of this route so their removal is not expected to have a significant impact on traffic capacity.

In order to reduce the impact of queuing traffic impacting on the reliability of outbound bus journey times at King Street North, the existing permitted right turn movement will be banned at this location and will be relocated to a purpose built right turn facility at

the top of Coleraine Street. The small number of vehicles turning right to North King Street will now enter Coleraine Street and follow it back to King Street. In order to minimise the impact on local residents it will be necessary to provide additional traffic calming on this road so as vehicle speeds remain low. Cyclists will also be guided to this route to follow an alternative route to Church Street via Beresford Street.

Figure 9.6 Coleraine Street (looking north towards Constitution Hill) (Source Google Earth)

The Church Street section of the EPR is one of the more constrained with limited scope to provide the full CBC cross-section (Bus, Traffic and Cycle Lanes). For the Concept Design an option which includes traffic lanes in both direction and bus lane in the northbound direction is proposed. For bus priority in the southbound direction, a bus gate at North King Street will meter the traffic into the following section and will allow the CBC buses to pass the queuing traffic. Cyclists are provided with a cycle lane where space is available, however over most of this 0.5km section they will need to share with buses within the bus lanes, or use the alternative route via Beresford Street.

Figure 9.7 Church Street looking south (Father Mathew Square opposite)

9.5 Proposed Stop Locations

The proposed stop locations are indicated in **Figure 9.8.** The residential catchment within 5, 10 and 15 minutes walking distance of the proposed stops is also illustrated on this Figure**.** The outermost isochrones defines the perimeter within which the stop can be reached by pedestrians in 15 minutes or less at a typical walking pace. The population residing within each of the isochrones areas is summarised below:

- Ø 0-5 minutes walking distance – 16,524 residents
- Ø 5-10 minutes walking distance – 32,095 residents
- Ø 10-15 minutes walking distance – 43,703 residents
- Ø Total catchment within 15 minutes walking distance – 92,600 residents

These figures are based on the Census 2011 Small Area Population Statistics (SAPS). Furthermore, there are a total of 83,664 people working or attending an educational institution within the 15 minute walking catchment of the CBC stops i.e. 58,950 in employment and 24,714 in education.

In general the areas surrounding this corridor are linked together through series of interconnecting streets, resulting in a fairly permeable environment. The few exceptions are Glasnevin Cemetery and various sports grounds, which do not require additional permeability from this corridor.

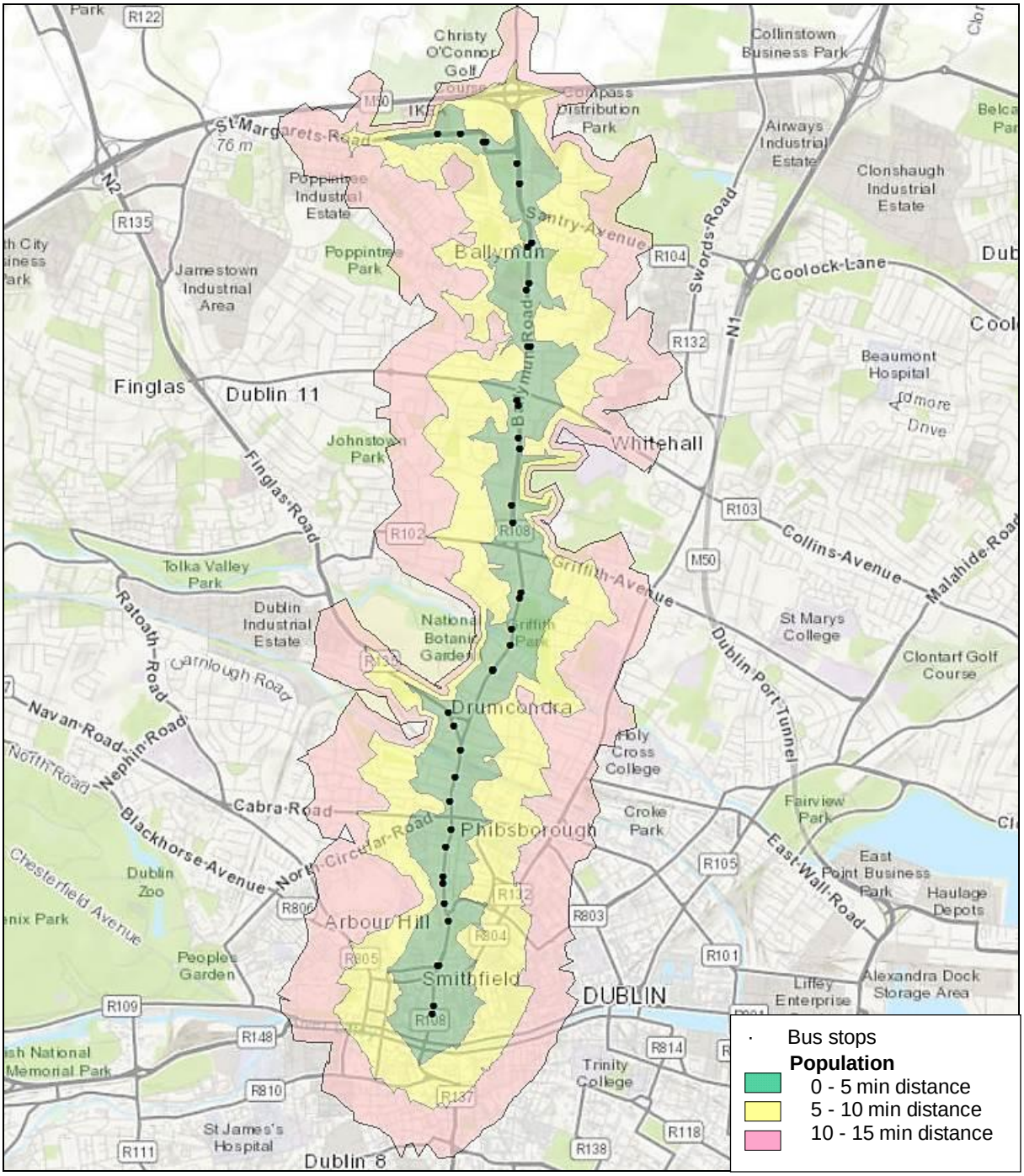


Figure 9.8: Preferred route walk catchments

9.6 Scheme Benefits

Through the provision of a high level of segregation (>90% dedicated bus lanes in both directions), the proposed scheme would improve both the overall journey times for buses along the route and more importantly the journey time reliability. The concept design is aimed at delivering bus speeds of over 20kph (average) over the full length of the corridor.

As there is no equivalent existing route following the full length of the EPR it has not been possible to predict journey times along the complete corridor accurately, however an estimate has been made using the information available. The estimated journey time along the CBC with the proposed bus lanes is approximately 44 minutes in both the inbound and outbound direction. With the existing bus lanes, the estimated journey time along the proposed CBC is 57 minutes inbound and 56 minutes outbound. Hence, the proposed bus lanes would achieve journey time savings of approximately 12 minutes in each direction along the corridor In the next stage of design development it will be necessary to undertake a detailed modelling exercise to predict accurately the journey time savings and level of demand.

While detailed information is not available it can be concluded that providing a high level of bus priority, coupled with the introduction of cashless fares, the risk of turbulence to buses would be significantly reduced, allowing buses to move along the route more quickly and with more consistent journey times. The extent of these benefits will be confirmed and quantified at the next design stage.

9.7 Next Stages of Design Development

This report has identified an emerging preferred route for the bus infrastructure along this Core Bus Corridor for which a concept design has been developed. The next project stage (The development of a Preliminary Design) will further refine and update the initial 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, taking into account more detailed studies of constraints, impacts and environmental assessment required at a local level.

Prior to finalisation of the Ballymun CBC scheme design, a public consultation process will be undertaken, with inputs and feedback received incorporated where practical and appropriate to do so. 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.

9.8 Summary

The following summarises the main features of the proposed EPR:

Table 9.1: Summary table of preferred route

Route length	7.9 km
Length of bus lane (outbound)	7.5 km
Length of bus lane (inbound)	7.1 km
Length of two-way dedicated cycle lane	7.1 km
Catchment area (within 15 mins walking distance)	92,600 residents
Number of people working or attending an educational institution within the catchment area	83,600 people
Journey Time (single direction)	44 minutes

10 Cost Estimate of Preferred Scheme

A cost estimate for the Emerging Preferred Option has been developed for the scheme and is indicated in Table 10.1 below. This was developed primarily for comparative purposes based on standard rates that AECOM-ROD have available to us from similar types of projects in Dublin. This includes high level information on the typical urban streetscape construction including:

- Preliminaries;
- Site Clearance;
- Earthworks;
- Pavement;
- Kerbs and Footways;
- Traffic Signs and Markings;
- Other Items (Ramps, Traffic Signals, Pedestrian Crossings, Street Lights, Landscaping, Boundary);
- Design and Construction Supervision Costs; and
- High Level Land Acquisition Costs.

This however cannot be relied on as a detailed cost estimate and significant further work would be required to provide a more accurate cost at the subsequent stage of development. This detailed estimate would need to allow for Risk, Contingencies and future inflation etc.

Table 10.1 Feasibility Stage

Cost Estimate for EPR (not for reliance)

Total Capital Cost Estimate	*(excluding VAT)*
SAS 1 (NT1)	€1 million
SAS 2 (BN1)	€5 million
SAS 3 (CC1)	€19 million
Total	**€25 million**

The above cost estimate works out at approximately €3.5m/km, which compares with 2015 prices for similar type of work in Dublin.

Appendix A – Multi Criteria Assessment Tables

Table 1: SAS 1 – Northern Terminus Options Multi Criteria Assessment

	Assessment Sub-Criteria	Route Option NT1	Route Option NT2
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	€1.0m ***Indicative Scheme Infrastructure* Works Cost** (€1.0m): - Introduce bus lanes on Ballymun Road (R108) Section between Santry Avenue and St Margaret's Road within existing road reservation - Improve road markings on existing St Margaret's Road - Construct layby including shelter, RTPI etc. at terminus ***Land Acquisition Cost*** (€0m) - 480 sqm Public Land - 0 sqm Private Land - 0 private properties affected	€1.2m ***Indicative Scheme Infrastructure* Works Cost** (€0.5m): - Introduce bus lanes on Ballymun Road (R108) Section between Santry Avenue and Northwood within existing road reservation - Construct layby including shelter, RTPI etc. at terminus ***Land Acquisition Cost*** (€0.7m) - 0 sqm Public Land - 480 sqm Private Land 0 private properties affected
	Rank		
	Transport Reliability and Quality of Service	Journey Time: 7-8 mins Length: 1.5km No. of Junctions: 5 No. of pedestrian crossings: 0 Full priority could be achieved along this route option with the addition of bus lanes on R108.	Journey Time: 6-7 mins Length: 1km No. of Junctions: 3 No. of pedestrian crossings: 3 Full priority could be achieved along this route option with the addition of bus lanes on R108. The addition of bus lanes between the R108 and Gulliver's Retail Park may be difficult to achieve.
	Rank		
Integration	Land Use Integration	Potential to serve the future development of the north Ballymun Lands directly.	Integrates with existing residential, medical and leisure uses in the Northwood area.
	Rank		
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 300 - 10 minute walk catchment of approximately 2,300 - 15 minute walk catchment of	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,000 - 10 minute walk catchment of approximately 3,400 - 15 minute walk catchment of approximately

	Assessment Sub-Criteria	Route Option NT1	Route Option NT2
		approximately 8,500 ***Employment catchments*** 15 minute walk catchment of approximately 3,000	8,800 ***Employment catchments*** 15 minute walk catchment of approximately 4,000
	Rank		
	Transport Network Integration	Potential for interchange with bus services from Finglas (BAC140) at IKEA.	The proposed route does not meet another public transport route, thus there is no potential to interchange. In addition the subsequent roads are within private property, thus extending the route will be complex.
	Rank		
	Cycling integration	Forms a secondary and feeder route in the GDA Cycle Network Plan. Existing cycle facilities are of a good standard.	Forms a secondary and feeder route in the GDA Cycle Network Plan. Existing cycle facilities are of a good standard.
	Rank		
	Traffic Network Integration	Bus lanes would be provided for the entire length of NT1. Neither option would be more restrictive than the other in terms of traffic movements.	There would be sections within Northwood Avenue (NT2) that buses will share with traffic. Buses pulling in and out of the proposed layby in Northwood would also have greater potential to impact on traffic capacity. Neither option would be more restrictive than the other in terms of traffic movements.
	Rank		
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/ Commercial /Employment)	***Education*** ***Retail / Leisure*** - Ikea - Musgrave Marketplace - Poppintree Youth Centre - Metro Hotel ***Employment*** - Ikea - Musgrave Marketplace - Poppintree Youth Centre - Metro Hotel	***Education*** ***Retail / Leisure*** - Gulliver's Retail Park - Santry Demesne - Metro Hotel - Crowne Plaza Hotel - Holiday Inn Hotel - Ben Dunne Gym ***Employment*** - Northwood business campus - Sports Surgery Clinic - Gulliver's Retail Park

	Assessment Sub-Criteria	Route Option NT1	Route Option NT2
			- Metro Hotel - Crowne Plaza Hotel - Holiday Inn Hotel - Ben Dunne Gym
	Rank		
	Deprived Geographic Areas	This route option skirts a greater proportion of the Ballymun RAPID Area.	This route option skirts a smaller proportion of the Ballymun RAPID Area.
	Rank		
Safety	Road Safety	No. of Junctions: 5 2 turn movements required in each direction (1 left turn and 1 right/U turn).	No. of Junctions: 3 2 turn movements required in each direction (1 left turn and 1 right /U turn).
	Rank		
	Pedestrian Safety	Pedestrian crossings located within 50m of most stops and footpaths provided on both sides of the road	Pedestrian crossings located within 50m of most stops and footpaths provided on both sides of the road
	Rank		
Physical Activity	*Physical Activity*	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.
	Rank		
Environment	Archaeology and Cultural Heritage	A Recorded Monument (DU14-022) is located adjacent to the route however following investigation it was surmised that the site was non-archaeological – now in Ikea grounds. No further Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.
	Rank		
	Architectural Heritage	No recorded architectural heritage sites were identified within the assessment area.	No recorded architectural heritage sites were identified within the assessment area.
	Rank		

	Assessment Sub-Criteria	Route Option NT1	Route Option NT2
	Flora and Fauna	No appreciable impacts	No appreciable impacts
	Rank		
	Soils and Geology	No appreciable impacts	No appreciable impacts
	Rank		
	Hydrology	No appreciable impacts	No appreciable impacts
	Rank		
	Landscape and Visual	No appreciable impacts	Potential localised negative impact associated with the removal of areas of grass for the construction of a stop.
	Rank		
	Air Quality	No appreciable impacts	No appreciable impacts
	Rank		
	Noise and Vibration	No appreciable impacts	No appreciable impacts
	Rank		
	Land Use Character	No appreciable impacts	No appreciable impacts
	Rank		

Table 2: SAS 2 – Ballymun Area Options Multi Criteria Assessment

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
Economy (Cost Assessment and Transport Economic Indicators) Integration	Capital Cost	€4.9m ***Indicative Scheme Infrastructure* Works Cost** (€4.6m): - Introduce bus lane on R108 Section between Northwood and Santry Avenue. - Minor realignment of R108/Collins Avenue junction. - Minor realignment of R108/St Pappin Road junction. - Realignment of inbound and outbound sections of R108 which adjoin Griffith Avenue (R103) which require private land acquisition and removal of trees. - Provision of improved cycle tracks and improved pedestrian facilities along route option - Realign kerb lines/footways to facilitate these works ***Land Acquisition Cost*** (€0.3m) - 15,594 sqm Public Land - 187 sqm Private Land - 11 private properties affected	€28.5m ***Indicative Scheme Infrastructure* Works Cost** (€22.9m): - Introduce bus lane on R108 Section between Northwood and Santry Avenue. - Minor realignment of R108/Collins Avenue junction. - Realign Glasnevin Avenue to provide segregated facilities for bus, cyclist and pedestrian. - Upgrade Glasnevin Avenue/Beneavin Drive roundabout to signalised junction ***Land Acquisition Cost*** (€5.7m) - 28,361sqm Public Land - 3,781 sqm Private Land - 134 private properties affected
	Rank		
	Transport Reliability and Quality of Service	Journey Time: 12 -13 mins Length: 2.5km No. of Junctions: 7 No. of pedestrian crossings: 7 Full priority provided along entire length of R108 resulting in good journey time reliability for bus services.	Journey Time: 14 - 16 mins Length: 4.3km No. of Junctions: 6 No. of pedestrian crossings: 9 Full priority provided between Northwood and Collins Avenue (R103) junction resulting in good journey time reliability for Bus services. Priority for inbound right turn at Collin's Avenue to Glasnevin Avenue will be difficult to achieve because of significant opposing traffic flows. Priority for right turn from Beneavin Drive to

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
			Glasnevin Avenue will also pose challenges. This will have an adverse effect on journey time reliability.
	Rank		
	Land Use Integration	Potential to facilitate and encourage development in Ballymun in accordance with the principles of the upcoming Ballymun LAP. Also facilitates any future development of the DCU campus.	Potential to facilitate and encourage development in Ballymun in accordance with the principles of the upcoming Ballymun LAP.
	Rank		
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,800 - 10 minute walk catchment of approximately 11,300 - 15 minute walk catchment of approximately 23,800 ***Employment catchments*** 15 minute walk catchment of approximately 8,000	***Residential Population Catchments*** - 5 minute walk catchment of approximately 5,800 - 10 minute walk catchment of approximately 17,300 - 15 minute walk catchment of approximately 31,300. ***Employment catchments*** 15 minute walk catchment of approximately 7,500
	Rank		
	Transport Network Integration	Potential for interchange with local bus services and possible interchange with the future Metro North rail service. Provision of cycle parking may be more difficult in constrained areas.	Potential for interchange with local bus services and possible interchange with the future Metro North rail service. Provision of cycle parking may be more difficult in constrained areas.
	Rank		
	Cycling integration	Existing cycle facilities would be enhanced and full segregation should be achievable. This route option is identified as Dublin primary route 3A in the GDA cycle network plan. Route	Segregated cycle facilities could be provided in each direction along the length of Glasnevin Avenue/Ballygall Road but will require removal of trees. Will also require a level of residential land acquisition in the form of gardens is some

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
		option would also intersect with routes NO3, NO4, NO5	sections Glasnevin Avenue is identified as orbital route NO4 in the GDA cycle network plan. Beneavin Drive/Ballygall Road East is identified as secondary route 3D in the GDA cycle network plan. Likely that cyclist would not be attracted to this route as it is less direct and would require a number of right turns against heavy volumes of opposing traffic.
	Rank		
	Traffic Network Integration	There are existing bus lanes along the majority of the length of BN1. BN1 is effectively the existing Ballymun QBC and as such a high volume of buses currently share the route with traffic. Further to this, the majority of signalised junctions along Ballymun Road (BN1) have a bus priority provision. Whilst the level of bus priority at junctions may be increased as part of the scheme this will not be as difficult to achieve for straight through movements under BN1.	BN2 will result in a significant change to roads such as Glasnevin Avenue and Ballygall Road with a greater volume of buses affecting traffic capacity at junctions. Bus priority may be difficult to achieve for the turning movements required under BN2 such as at the Collins Avenue/Glasnevin Avenue/Ballymun Road junction. It would be expected that BN2 will more restrictive in terms of traffic movements particularly on the minor roads such as Glasnevin Avenue and Ballygall Road.
	Rank		
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/ Commercial /Employment)	***Education*** - Trinity Comprehensive School - Scoil an Tseachtar Laoch - Our Lady of Victories National School - Dublin City University Campus - St Michaels House Special Education ***Retail / Leisure*** - Metro and Travel Lodge Hotels - DCC Sports and Swimming Pool - DCC Public Library	***Education*** - Trinity Comprehensive School - Scoil an Tseachtar Laoch - St Kevin's College ***Retail / Leisure*** - Metro and Travel Lodge Hotels - DCC Sports and Swimming Pool - DCC Public Library

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
		- Ballymun Main Street - Ballymun Civic Centre/Axis - Glasnevin Lawn Tennis Club - Terrace of local shops at St Pappin Road junction ***Employment*** - Ballymun Town Centre - Dublin City University	- Ballymun Main Street - Ballymun Civic Centre/Axis - Terrace of local shops at Fitzmaurice Road - Autobahn Bar ***Employment*** - Ballymun Town Centre
	Rank		
	Deprived Geographic Areas	Route option serves Ballymun which is a RAPID area.	Route option serves Ballymun which is a RAPID area.
	Rank		
Safety	Road Safety	No. of Junctions: 11 0 turn movements required in each direction	No. of Junctions: 14 2 turn movements required in each direction (1 left turn and 1 right turn in each direction)
	Rank		
	Pedestrian Safety	Pedestrian crossings located within 50m of stops and footpaths provided on both sides of the road.	Pedestrian crossings located within 50m of most stops and footpaths provided on both sides of the road
	Rank		
Physical Activity	Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were	No Recorded Monuments or sites of archaeological and cultural heritage merit were

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
		identified within the assessment area.	identified within the assessment area.
	Rank		
	Architectural Heritage	Three Protected Structures are located to the immediate east of the Ballymun Road.	Two Protected Structures are located to the immediate east of the Ballymun Road. One Protected Structure is located to the immediate west of the Ballygall Road.
	Rank		
	Flora and Fauna	No appreciable impacts, as existing street is already of sufficient standard for CBC quality.	Possible land take at junctions may impact on existing green areas. The installation of bus lanes would require the removal of existing trees. The area is not believed to be of importance for bats.
	Rank		
	Soils and Geology	No appreciable impacts	No appreciable impacts
	Rank		
	Hydrology	No appreciable impacts	No appreciable impacts
	Rank		
	Landscape and Visual	No appreciable impacts – existing route is to CBC standard	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.
	Rank		
	Air Quality	No appreciable impacts – existing route is to CBC standard	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.

	Assessment Sub-Criteria	Route Option BN1	Route Option BN2
	Rank		
	Noise and Vibration	No appreciable impacts – existing route is to CBC standard	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.
	Rank		
	Land Use Character	No appreciable impacts – existing route is to CBC standard. Possible minor local pockets of land acquisition that would not significantly affect the character of the area.	Possible impacts if road widening for the accommodation of bus lanes is required. Possible impacts associated with land acquisition on approaches to junctions for additional bus priority.
	Rank		

Table 3: SAS 3 – Central Area BCSub-Options (Griffith Avenue to Botanic Road) Multi Criteria Assessment

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	€11.4m *Indicative Scheme Infrastructure* Works Cost (€7.2m): - Introduce bus lanes on St Mobhi Road between Griffith Avenue and Fairfield Road. - Provision of segregated bus facilities will require significant land acquisition (residential and land of National interest (Botanic Gardens) and loss of on street parking. - Provide Primary cycle route 3A on Mobhi Road	€15.3m *Indicative Scheme Infrastructure* Works Cost (€13.2m): - Introduce bus lanes on Botanic Road/Glasnevin Hill and Old Ballymun Road. - Provision of segregated bus facilities will require significant land acquisition (residential and land of National interest (Botanic Gardens) and loss of on street parking. - Provide Primary cycle route 3A on Mobhi Road	€14.6m *Indicative Scheme Infrastructure* Works Cost (€13.3m): - Introduce bus lanes on Botanic Road/Glasnevin Hill, Old Finglas Road, Cremore Villas and Griffith Avenue. - Provision of segregated bus facilities will require significant land acquisition (residential and land of National interest (Botanic Gardens) along the	€22.7m *Indicative Scheme Infrastructure* Works Cost (€19.7m): - Introduce bus lanes on Botanic Road/Glasnevin Hill, Old Finglas Road, Tolka Estate Road and Griffith Avenue. - Provision of segregated bus facilities will require significant land acquisition (residential and land of National interest (Botanic Gardens) along the	€8.5m *Indicative Scheme Infrastructure* Works Cost (€6.4m): - Maintain existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue. - Provision of segregated cyclist facilities in both directions on St Mobhi Road - Introduce outbound bus lane on Botanic Road/Glasnevin Hill and Old Ballymun Road. - Removal of outbound traffic lane on Botanic Road/Glasnevin Hill - Outbound local	€8.5m *Indicative Scheme Infrastructure* Works Cost (€6.4m): - Revise bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue to outbound direction - Provision of segregated cyclist facilities in both directions on St Mobhi Road - Introduce inbound bus lane on Botanic Road/Glasnevin Hill and Old Ballymun Road. - Removal of inbound traffic lane on Botanic Road/Glasnevin Hill	€11.4m *Indicative Scheme Infrastructure* Works Cost (€8.6m): - Provide bus lanes in both directions on Mobhi Road whilst retaining two-way traffic. - Provision of segregated cyclist facilities in both directions on Botanic Road/Glasnevin Hill	€8.5m *Indicative Scheme Infrastructure* Works Cost (€6.4m): - Maintain existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue. - Introduce inbound bus lane on St Mobhi Road between Botanic Avenue and Farfield Road. - Introduce outbound bus lane on St Mobhi Drive, Glasnevin Hill and on St Mobhi Road between Farfield Road an St Mobhi Drive. - Provide Primary cycle route 3A on Mobhi Road	€6.4m *Indicative Scheme Infrastructure* Works Cost (€6.4m): - Provide bus lanes in both directions on Mobhi Road whilst retaining inbound traffic lane. - Outbound traffic will be redirected up Botanic Road/Glasnevin Hill and Old Ballymun Road.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		Land Acquisition Cost (€5.7m) - 4,000 sqm Public Land - 3,800 sqm Private Land - 119 private properties affected	*Land Acquisition Cost* (€2.1m) - 5,173 sqm Public Land - 1,406 sqm Private Land - 70 private properties affected	route with loss of on street parking in sections also. - Provide Primary cycle route 3A on Mobhi Road *Land Acquisition Cost* (€1.3m) - 11,082 sqm Public Land - 846 sqm Private Land - 84 private properties affected	route with loss of on street parking in sections also. - Provide Primary cycle route 3A on Mobhi Road *Land Acquisition Cost* (€3m) - 15,548 sqm Public Land - 2,005 sqm Private Land - 83 private properties affected	access only and bus outbound at Old Ballymun Road *Land Acquisition Cost* (€2.1m) - 5,034 sqm Public Land - 1,400 sqm Private Land - 47 private properties affected	- Inbound local access only and bus inbound at Old Ballymun Road *Land Acquisition Cost* (€2.1m) - 5,034 sqm Public Land - 1,400 sqm Private Land - 47 private properties affected	Land Acquisition Cost (€2.8m) - 1,000 sqm Public Land - 1,900 sqm Private Land - 47 private properties affected	Land Acquisition Cost (€2.1m) - 5,573 sqm Public Land - 1,400 sqm Private Land - 47 private properties affected	Land Acquisition Cost (0)
	Rank									
	Transport Reliability and	Journey Time: 5 mins	Journey Time: 4 - 6 mins	Journey Time: 10 mins	Journey Time:13 mins	Journey Time: 5 mins inbound and	Journey Time: : 6 mins inbound and	Journey Time: 5 mins	Journey Time: : 6 mins inbound and 5	Journey Time: 5 mins

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
	Quality of Service	Length: 1 km No. of Junctions: 4 No. of pedestrian crossings: 2 Full priority provided along route in good journey time reliability for Bus services.	Length: 1.1 km No. of Junctions: 3 No. of pedestrian crossings: 1 Priority at junction between Old Ballymun Road and Glasnevin Hill/Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Old Ballymun Road and Griffith Avenue. This will have an adverse effect on journey time reliability.	Length: 2.0 km No. of Junctions: 4 No. of pedestrian crossings: 2 Priority at junction between Cremore Villas and Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Griffith Avenue and Cremore Villas as well as the junction of Ballymun Road and Griffith Avenue. This will have an adverse effect on journey	Length: 2.6 km No. of Junctions: 6 No. of pedestrian crossings: 2 Priority at junction between Tolka Estate and Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Griffith Avenue and Tolka Estate as well as the junction of Ballymun Road and Griffith Avenue. This will have an adverse effect on journey time reliability.	6 mins outbound Length: 1 km inbound and 1.1km outbound No. of Junctions: 4 inbound and 2 mins outbound No. of pedestrian crossings: 2 Priority at junction between Old Ballymun Road and Glasnevin Hill/Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Old Ballymun Road and Griffith Avenue. This will have an adverse effect on journey time reliability.	5 mins outbound Length: 1.1 km inbound and 1km outbound No. of Junctions: 3 inbound and 6 mins outbound Priority at junction between Old Ballymun Road and Glasnevin Hill/Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Old Ballymun Road and Griffith Avenue. This will have an adverse effect on journey time reliability.	Length: 1 km No. of Junctions: 4 No. of pedestrian crossings: 2 Full priority provided along route in good journey time reliability for Bus services.	mins outbound Length: 1.1 km inbound and 1km outbound No. of Junctions: 3 inbound and 6 mins outbound Priority at junction between Old Ballymun Road and Glasnevin Hill/Old Finglas Road will be difficult to achieve because of opposing traffic flows. A similar situation arises at the junction between Old Ballymun Road and Griffith Avenue. This will have an adverse effect on journey time reliability.	Length: 1 km No. of Junctions: 4 No. of pedestrian crossings: 2 Full priority provided along route in good journey time reliability for Bus services.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
				time reliability.						
	Rank									
Integration	Land Use Integration	Integrates with existing residential, educational and leisure uses in this established area.	Integrates with existing residential, educational, medical and leisure uses in this established area.	Integrates with existing residential, educational, medical and leisure uses in this established area.	Integrates with existing residential, educational, medical and leisure uses in this established area.	Integrates with existing residential, educational, medical and leisure uses in this established area.	Integrates with existing residential, educational, medical and leisure uses in this established area.	Integrates with existing residential, educational and leisure uses in this established area.	Integrates with existing residential, educational and leisure uses in this established area.	Integrates with existing residential, educational and leisure uses in this established area.
	Rank									
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,700 - 10 minute walk catchment of approximately 4,700 - 15 minute	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,200 - 10 minute walk catchment of approximately 3,300 - 15 minute	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,300 - 10 minute walk catchment of approximately 6,300 - 15 minute	***Population Catchments*** - 5 minute walk catchment of approximately 3,200 - 10 minute walk catchment of approximately 6,600 - 15 minute walk	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,100 - 10 minute walk catchment of approximately 5,300 - 15 minute walk catchment of approximatel	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,100 - 10 minute walk catchment of approximately 5,300 - 15 minute walk catchment of approximatel	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,700 - 10 minute walk catchment of approximately 4,700 - 15 minute	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,100 - 10 minute walk catchment of approximately 5,300 - 15 minute walk catchment of approximately 13,900.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,700 - 10 minute walk catchment of approximately 4,700 - 15 minute walk catchment of approximately

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		walk catchment of approximately 12,100. ***Employment catchments*** 15 minute walk catchment of approximately 5,500	walk catchment of approximately 9,800. ***Employment catchments*** 15 minute walk catchment of approximately 4,000	walk catchment of approximately 13,200. ***Employment catchments*** 15 minute walk catchment of approximately 4,500	catchment of approximately 14,100. ***Employment catchments*** 15 minute walk catchment of approximately 4,500	y 13,800. ***Employment catchments*** 15 minute walk catchment of approximately 4,400	y 13,800. ***Employment catchments*** 15 minute walk catchment of approximately 4,400	walk catchment of approximately 12,100. ***Employment catchments*** 15 minute walk catchment of approximately 5,500	***Employment catchments*** 15 minute walk catchment of approximately 4,500	12,100. ***Employment catchments*** 15 minute walk catchment of approximately 5,500
	Rank									
	Transport Network Integration	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Limited potential for interchange.	Limited potential for interchange.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.	Potential for interchange with Core Orbital Corridor on Griffith Avenue.
	Rank									
	Cycling integration	This route option is identified primary route 3A in the GDA Cycle Network Plan. Both	This route was identified as a Feeder route in the GDA Cycle Network Plan connecting	This route was identified as a Feeder route in the GDA Cycle Network Plan connecting	This route was identified as a Secondary and Feeder route in the GDA Cycle	This route option is identified primary route 3A in the GDA Cycle Network Plan. One direction of	This route option is identified primary route 3A in the GDA Cycle Network Plan. One direction of	The proposed cycle facilities do not align with the GDA Cycle Network Plan	This route option is identified primary route 3A in the GDA Cycle Network Plan. One direction of CBC	The proposed cycle facilities do not align with the GDA Cycle Network Plan

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		directions of CBC align with route 3A.	secondary route NO3 and primary route 3A.	secondary route NO3 (on Griffith Avenue) and primary route 3A.	Network Plan.	CBC aligns with route 3A.	CBC aligns with route 3A.		aligns with route 3A.	
	Rank									
	Traffic Network Integration	BC1 involves the retention of CBC/QBC along the R108 therefore this will not have any traffic impact on other roads such as Botanic Road/Glasnevin Hill, Old Finglas Road and Cremore Villas. Option BC1 may impact on left turning capacity at junctions but there is potential for similar restrictions along other route	BC2 involves the retention of the same number of traffic lanes along the route therefore this will not have any significant traffic impact on roads such as Botanic Road/Glasnevin Hill, Old Finglas Road and Cremore Villas. Option BC2 may impact on left turning capacity at junctions but there is potential for similar restrictions along other route	BC3 will route additional buses via Cremore Villas which will impact on traffic capacity along the route. Option BC3 may also result in turning restrictions along the route.	BC4 will route additional buses via Tolka Estate Road which will impact on traffic capacity along the route. Option BC4 may also result in turning restrictions along the route.	BC5 will result in the implementation of traffic management measures on St Mobhi Road, Botanic Road, Glasnevin Hill and Old Ballymun Road. It is considered that Option BC6 whereby inbound traffic is restricted along Botanic Road/Glasnevin Hill will have the greater impact as generally the removal of inbound traffic is	BC6 will result in the implementation of traffic management measures on St Mobhi Road, Botanic Road, Glasnevin Hill and Old Ballymun Road. It is considered that Option BC6 whereby inbound traffic is restricted along Botanic Road/Glasnevin Hill will have the greater impact as generally the removal of inbound traffic is	BC7 involves the retention of CBC/QBC along the R108 therefore this will not have any traffic impact on other roads such as Botanic Road/Glasnevin Hill, Old Finglas Road and Cremore Villas. Option BC7 may impact on left turning capacity at junctions but there is potential for similar restrictions along other route	BC8 involves the retention of the same number of traffic lanes along the route therefore this will not have any significant traffic impact on roads such as Botanic Road/Glasnevin Hill, Old Finglas Road and Cremore Villas. Option BC8 may impact on left and right turning capacity at junctions but there is potential for similar restrictions along other route options.	Option BC9 may impact on left turning capacity at junctions but there is potential for similar restrictions along other route options . Traffic journey times will be increased, particularly in the outbound direction. In addition, long detours will result from the introduction of the gyratory for traffic, with some vehicles having to travel an additional 1km to reach key destinations such

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		options	options			considered to have the most pronounced traffic impact particularly in the critical AM peak period. Traffic surveys undertaken in March 2016 indicated that the inbound flows on Botanic Road were slightly higher (290 PCU) in the AM peak than the outbound flows recorded in the PM peak (265 PCU). It is also considered that Botanic Avenue, St Mobhi Drive and Griffith Avenue will operate more effectively in providing a loop back to sections	considered to have the most pronounced traffic impact particularly in the critical AM peak period. Traffic surveys undertaken in March 2016 indicated that the inbound flows on Botanic Road were slightly higher (290 PCU) in the AM peak than the outbound flows recorded in the PM peak (265 PCU). It is also considered that Botanic Avenue, St Mobhi Drive and Griffith Avenue will operate more effectively in providing a loop back to sections	options		as the schools.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
						of Botanic Road, Glasnevin Hill and Old Ballymun Road from St Mobhi Road for outbound traffic which has been removed from these sections under Option BC5. Therefore, Option BC5 ranks slightly higher than BC6 under traffic impact.	of Botanic Road, Glasnevin Hill and Old Ballymun Road from St Mobhi Road for outbound traffic which has been removed from these sections under Option BC5. Therefore, Option BC5 ranks slightly higher than BC6 under traffic impact.			
	Rank									
Accessibility and Social Inclusion	Key Trip Attractors (Education/ Health/ Commercial / Employment)	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education	***Education*** - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	***Education*** - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	***Education*** - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School - Glasnevin Educate	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School - Glasnevin Educate	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School - Glasnevin Educate Together	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		Retail / Leisure - Na Fianna GAA Club - Home farm Soccer Club ***Employment*** - Scoil Chatriona	***Retail / Leisure*** - National Botanic Gardens - Local shops and Public House on Glasnevin Hill ***Employment*** - Bon Secours Hospital - National	- St Brigid's primary School ***Retail / Leisure*** - National Botanic Gardens - Local shops and Public House on Glasnevin Hill - Tolka Rovers Soccer Club ***Employment***	- St Brigid's primary School ***Retail / Leisure*** - National Botanic Gardens - Local shops and Public House on Glasnevin Hill - Tolka Rovers Soccer Club ***Employment*** - Bon	Together - St Mary's Secondary School - DCU Innovation Campus ***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club - National Botanic Gardens - Local shops and Public House on Glasnevin Hill ***Employment*** - Scoil Chatriona - Scoil Mobhi	Together - St Mary's Secondary School - DCU Innovation Campus ***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club - National Botanic Gardens - Local shops and Public House on Glasnevin Hill ***Employment*** - Scoil Chatriona - Scoil Mobhi	***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club ***Employment*** - Scoil Chatriona - Scoil Mobhi	- St Mary's Secondary School - DCU Innovation Campus ***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club - Local shops and Public House on Glasnevin Hill ***Employment*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Bon Secours	***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club ***Employment*** - Scoil Chatriona - Scoil Mobhi

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		- Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School	Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	- Bon Secours Hospital - National Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondar y School - DCU Innovation Campus - St Brigid's primary School	Secours Hospital - National Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus - St Brigid's primary School	- Whitehall College of Further Education - Bon Secours Hospital - National Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	- Whitehall College of Further Education - Bon Secours Hospital - National Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	- Whitehall College of Further Education - Glasnevin National School	Hospital - National Botanic Gardens - Met Éireann - Dalkia - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus	- Whitehall College of Further Education - Glasnevin National School
	Rank									

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
	Deprived Geographic Areas	Route option serves area of Marginally Above Average means from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves disadvantaged area as well a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves disadvantaged area as well a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index	Route option serves a mixture of Marginally Above and Marginally Below Average area from the Pobal Deprivation Index
	Rank									
Safety	Road Safety	No. of Junctions: 4 0 turn movements required in each	No. of Junctions: 3 2 turn movements required in each direction (1 right turns/ 1 Left turn in each direction)	No. of Junctions: 4 3 turn movements required in each direction (2 right turns and 1 left turn/2left turns and 1 right turn in each direction)	No. of Junctions: 6 3 turn movements required in each direction (2 right turns and 1 left turn/2left turns and 1 right turn in each direction)	No. of Junctions: 4 inbound 0 turn movements required inbound No. of Junctions: 2 2 turn movements required outbound (1 right turn/ 1 Left turn)	No. of Junctions: 3 0 turn movements required inbound No. of Junctions: 6 outbound 2 turn movements required inbound (1 right turn/ 1 Left turn)	No. of Junctions: 4 0 turn movements required in each	No. of Junctions: 3 inbound 0 turn movements required inbound 6 turn movements required outbound (2 right turn/ 1 Left turn)	No. of Junctions: 4 0 turn movements required in each. Many cyclists will continue to use bus lanes along eth direct route, increasing likelihood of accidents.
	Rank									

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
	Pedestrian Safety	Two pedestrian crossings located approximately 50m from existing stops. Footpaths provided on both sides of the road.	One mid - block pedestrian crossing located adjacent to St Mobhi Drive not necessarily serving particular bus stops. Footpaths provided on both sides of the road.	One mid - block pedestrian crossing located adjacent to St Mobhi Drive not necessarily serving particular bus stops. No mid - block crossings on remaining section of route. Footpaths provided on both sides of the road.	One mid - block pedestrian crossing located adjacent to St Mobhi Drive not necessarily serving particular bus stops. No mid - block crossings on remaining section of route. Footpaths provided on both sides of the road.	Two pedestrian crossings located approximately 50m of existing stops Footpaths provided on both sides of Mobhi Road. One mid - block pedestrian crossing located adjacent to St Mobhi Drive junction on Botanic Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road.	Two pedestrian crossings located approximately 50m of existing stops Footpaths provided on both sides of Mobhi Road. One mid - block pedestrian crossing located adjacent to St Mobhi Drive junction on Botanic Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road.	Two pedestrian crossings located approximately 50m of existing stops Footpaths provided on both sides of the road	Two pedestrian crossings located approximately 50m from existing stops. Footpaths provided on both sides of the road.	Two pedestrian crossings located approximately 50m of existing stops Footpaths provided on both sides of the road
	Rank									
Physical Activity	Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such,	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus).	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such,	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such,

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.
	Rank									
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	A section of this option runs through the zone of archaeological potential recorded as DU018-005. This zone is associated with an ecclesiastical foundation possibly dating from the early medieval period. There are 11 recorded sub-constraints within this	A section of the southeast part of the option is located within the zone of archaeological potential recorded as DU018-005. This zone is associated with an ecclesiastical	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area beyond common sections identified in BC2 and 3.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified on Mobhi Road. Botanic Road section of this option runs through the zone of archaeological	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified on Mobhi Road. Botanic Road section of this option runs through the zone of archaeological potential recorded as	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
			area, one of which is located in immediate proximity to the route – DU018-005011 (settlement cluster)	foundation possibly dating from the early medieval period. The zone contains 11 archaeological sub-constraints		potential recorded as DU018-005. This zone is associated with an ecclesiastical foundation possibly dating from the early medieval period. There are 11 recorded sub-constraints within this area, one of which is located in immediate proximity to the route – DU018-005011 (settlement cluster)	DU018-005. This zone is associated with an ecclesiastical foundation possibly dating from the early medieval period. There are 11 recorded sub-constraints within this area, one of which is located in immediate proximity to the route – DU018-005011 (settlement cluster)			
	Rank									
	Architectural Heritage	No recorded architectural heritage sites were identified within the assessment area.	No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate northeast of the option. The option is located to the immediate east of the boundary wall that surrounds the	The Holy Faith Convent is a protected structure located to the immediate south of the scheme along Glasnevin Hill.	No recorded architectural heritage sites were identified within the assessment area beyond common sections identified in BC2 and 3.	No recorded architectural heritage sites were identified within Mobhi Road. No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate	No recorded architectural heritage sites were identified within Mobhi Road. No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate northeast of the option.	No recorded architectural heritage sites were identified within Mobhi Road. No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate	No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate northeast of the option. The Holy Faith Convent is a protected structure located to the immediate south of the scheme along Glasnevin Hill.	No recorded architectural heritage sites were identified within Mobhi Road. No. 12 Ballymun Road is a protected structure located to the immediate east of the option. 49 Glasnevin Hill is a protected structure located to the immediate northeast of the option.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
			Botanic Gardens. Three structures within the garden are protected.			northeast of the option. The option is located to the immediate east of the boundary wall that surrounds the Botanic Gardens. Three structures within the garden are protected. However, this option will not encroach on property boundaries along this section.	The option is located to the immediate east of the boundary wall that surrounds the Botanic Gardens. Three structures within the garden are protected. However, this option will not encroach on property boundaries along this section.	northeast of the option. The option is located to the immediate east of the boundary wall that surrounds the Botanic Gardens. Three structures within the garden are protected. However, this option will not encroach on property boundaries along this section.		The option is located to the immediate east of the boundary wall that surrounds the Botanic Gardens. Three structures within the garden are protected. However, this option will not encroach on property boundaries along this section.
	Rank									
	Flora and Fauna	Possible land take may impact on existing green areas which are the subject of Z9 ('To preserve, provide and improve recreational amenity and open space and green networks') The installation of bus lanes would	Possible land take at junctions may impact on existing green areas. The installation of bus lanes would require the removal of existing trees. The area is not believed to be of importance for bats.	Road widening would be required which would impact on existing tree lines. The tree's present along this route however are not present in the same density or of the same maturity as those present on BC1	Possible land take at junctions may impact on existing green areas. The installation of bus lanes would require the removal of existing trees. The area is not believed to be of importance for bats.	Possible land take may impact on existing green areas which are the subject of Z9 ('To preserve, provide and improve recreational amenity and open space and green networks') The installation of bus lanes would require the removal	Possible land take may impact on existing green areas which are the subject of Z9 ('To preserve, provide and improve recreational amenity and open space and green networks') The installation of bus lanes would require the removal of existing trees on one side of	Possible land take may impact on existing green areas which are the subject of Z9 ('To preserve, provide and improve recreational amenity and open space and green networks') The installation of bus lanes would	Possible land take may impact on existing green areas which are the subject of Z9 ('To preserve, provide and improve recreational amenity and open space and green networks') The installation of bus lanes would require the removal of existing trees on one side of Mobhi Road. The area is not	Impact on trees on Mobhi Road minimised.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
		require the removal of existing trees on both sides. The area is not believed to be of importance for bats.		or BC2 and therefore less of an impact is expected. The area is not believed to be of importance for bats.		of existing trees on one side of Mobhi Road. The area is not believed to be of importance for bats.	Mobhi Road. The area is not believed to be of importance for bats.	require the removal of existing trees on one side of Mobhi Road. The area is not believed to be of importance for bats.	believed to be of importance for bats.	
	Rank									
	Soils and Geology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank									
	Hydrology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank									
	Landscape and Visual	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts, but to a lesser extent than option BC1 and BC5 -7.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts, but to a lesser extent than option BC1 and	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts, but to a lesser extent than option BC1 and BC5 -7.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	Existing cross-section and streetscape more or less maintained.

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
				BC5 -7.						
	Rank									
	Air Quality	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options except BC6.	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options except BC5.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options except BC5 and BC6.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.
	Rank									
	Noise and Vibration	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed.	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options.	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other	Inbound and outbound bus services split, as such potential for reduced impacts compared with other options except BC5 and BC6.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other

	Assessment Sub-Criteria	Route Option BC1 St Mobhi Road	Route Option BC2 Old Ballymun Road	Route Option BC3 Cremore Villas	Route Option BC4 Tolka Estate Road	Route Option BC5 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC6 Outbound Bus on Mobhi Road/Inbound Bus on Old Ballymun Road (Split Routing)	Route Option BC7 St Mobhi Road with Cycle Route on Old Ballymun Road	Route Option BC8 Inbound Bus on Mobhi Road/Outbound Bus on Old Ballymun Road (Split Routing)	Route Option BC9 Two-way Bus Lanes and Inbound Traffic on Mobhi Road with Northbound traffic on Glasnevin Hill
	Rank									
	Land Use Character	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Road widening would be required for this option, which would impact adversely on the character of the street. There would also be impacts on existing on-street parking provision.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 – 4	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 – 4	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 – 4	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 – 4
	Rank									

Table 4: SAS 3 – Central Area Botanic Road (BR) Sub-Options (St Mobhi Road to Prospect Road) Multi Criteria Assessment

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	€5.9m ***Indicative Scheme Infrastructure* Works Cost** (€3.2m): - Introduce outbound bus lane on Botanic Road between Prospect Road junction and St Mobhi Road/Fairfield Road junction. - Provide continuous inbound bus lane - Provide	€2.6m ***Indicative Scheme Infrastructure* Works Cost** (€2.0m): - Introduce outbound bus lane on Botanic Road between Prospect Road junction and St Mobhi Road/Fairfield Road junction. - Provide continuous inbound bus lane - Provide improved	€1.6m ***Indicative Scheme Infrastructure* Works Cost** (€1.6m): - Provide continuous inbound bus lane. - Provide improved 2.0m wide footpaths. - Maintain existing traffic lanes - No Cycle lanes provided	€1.6m ***Indicative Scheme Infrastructure* Works Cost** (€1.6m): - Provide continuous inbound bus lane. - Provide improved 2.0m wide footpaths. - Maintain existing traffic lanes - No Cycle lanes provided	€0.5m ***Indicative Scheme Infrastructure* Works Cost** (€0.5m): - Maintain existing situation whereby a 110m section of inbound bus lane is only provided - Maintain existing traffic lanes, cycle lanes and footpaths.

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		improved 2.0m wide cycle lanes and footpaths. - Maintain existing traffic lanes ***Land Acquisition Cost*** (€2.7m) - 0 sqm Public Land - 1,781 sqm Private Land - 79 private properties affected	2.0m wide footpaths. - Maintain existing traffic lanes - No Cycle lanes provided ***Land Acquisition Cost*** (€0.6m) - 0 sqm Public Land - 381 sqm Private Land - 24 private properties affected	***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land - 0 private properties affected	***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land - 0 private properties affected	***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land - 0 private properties affected
	Rank					
	Transport Reliability and Quality of Service	Journey Time: 2 mins	Journey Time: 2 mins	Journey Time: 2 mins	Journey Time: 2 mins	Journey Time: 4 mins

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		Length: 350m No. of Junctions: 2 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services.	Length: 350m No. of Junctions: 2 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services. .	Length: 350m No. of Junctions: 2 No. of pedestrian crossings: 1 Full priority provided along route inbound, good journey time reliability for Bus services. No segregated facilities outbound, therefore journey time suffers as a result.	Length: 350m No. of Junctions: 2 No. of pedestrian crossings: 1 Full priority provided along route outbound, good journey time reliability for Bus services. Inbound priority provided through Bus Gate and provision of virtual bus lane.	Length: 350m No. of Junctions: 2 No. of pedestrian crossings: 1 Partial segregation provided for 110m inbound (as per existing situation). This will continue to have an adverse effect on journey time reliability.
	Rank					
	Land Use Integration	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.
Integration	*Rank*					
	Residential Population and	***Residential***	***Residential***	***Residential***	*Residential*	***Residential***

	Assessment Sub-Criteria	**Route Option BR1** **Two Way Bus, Cycle and Traffic - Botanic Road**	**Route Option BR2** **Two Way Bus and Traffic - Botanic Road**	**Route Option BR3** **Continuous Inbound bus Lane and two way traffic – Botanic Road**	**Route Option BR4** **Continuous Outbound bus Lane and two way traffic – Botanic Road**	**Route Option BR5** **Partial Inbound bus Lane and two way traffic – Botanic Road**
	Employment Catchments	***Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	*Population Catchments* - Identical Catchment served *Employment catchments* - Identical Catchment served	***Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served
	Rank					
	Transport Network Integration	Identical potential to interchange with Finglas CBC at Hart's Corner.	Identical potential to interchange with Finglas CBC at Hart's Corner.	Identical potential to interchange with Finglas CBC at Hart's Corner.	Identical potential to interchange with Finglas CBC at Hart's Corner.	Identical potential to interchange with Finglas CBC at Hart's Corner.
	Rank					
	Cycling integration	This route option is identified primary route 3A in the GDA Cycle Network Plan. The proposed	The proposed removal of segregated cycle facilities and sharing of bus lane does not	The proposed removal of segregated cycle facilities and sharing of bus lane in one direction does not	The proposed removal of segregated cycle facilities and sharing of bus lane in one direction does not	The proposal to maintain existing cycle facilities which are below standard for a primary cycle

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		cycle facilities align with the Plan.	align with the GDA Cycle Network Plan proposals for primary route 3A.	align with the GDA Cycle Network Plan proposals for primary route 3A.	align with the GDA Cycle Network Plan proposals for primary route 3A.	route do not align as well with the GDA Cycle Network Plan as Option BR1.
	Rank					
	Traffic Network Integration	In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as option BR1. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than options that do not provide for	In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as option BR2. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than options that do not provide for	The traffic impact, in terms of congestion and movement restrictions, of option BC3 would be greater than options that provide for segregated facilities as they may require the implementation of ITS measures at junctions to achieve bus priority at the expense of private vehicular traffic capacity and	The traffic impact, in terms of congestion and movement restrictions, of option BC4 would be greater than options that provide for segregated facilities as they may require the implementation of ITS measures at junctions to achieve bus priority at the expense of private vehicular traffic capacity and	BR5 is essentially the existing situation and as such the traffic impact would be negligible but not as effective as the provision of fully segregated facilities under BR1 and BR2.

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		segregated facilities.	segregated facilities.	movement. As there is a section of inbound bus lane provided at present on Botanic Road,	movement. As there is a section of inbound bus lane provided at present on Botanic Road,	
Accessibility and Social Inclusion	*Rank*					
	Key Trip Attractors (Education/ Health/ Commercial / Employment)	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.
	Rank					
	Deprived Geographic	Does not serve	Does not serve	Does not serve	Does not serve	Does not serve

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
	Areas	any deprived or RAPID areas	any deprived or RAPID areas	any deprived or RAPID areas	any deprived or RAPID areas	any deprived or RAPID areas
	Rank					
Safety	Road Safety	No. of Junctions: 2 0 turn movements required in each	No. of Junctions: 2 0 turn movements required in each. Lack of cycle facilities.	No. of Junctions: 2 0 turn movements required in each. Lack of cycle facilities.	No. of Junctions: 2 0 turn movements required in each. Lack of cycle facilities.	No. of Junctions: 2 0 turn movements required in each
	Rank					
	Pedestrian Safety	One mid - block pedestrian crossing located adjacent to Marguerite Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road .	One mid - block pedestrian crossing located adjacent to Marguerite Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road.	One mid - block pedestrian crossing located adjacent to Marguerite Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road.	One mid - block pedestrian crossing located adjacent to Marguerite Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road	One mid - block pedestrian crossing located adjacent to Marguerite Road not necessarily serving particular bus stops. Footpaths provided on both sides of the road
	Rank					
Physical Activity	Physical Activity	This criterion relates to the health benefits derived from using	This criterion relates to the health benefits derived from using	This criterion relates to the health benefits derived from using	This criterion relates to the health benefits derived from using	This criterion relates to the health benefits derived from using

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.
	Rank					
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the assessment area.

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
	Rank					
	Architectural Heritage	Protected structures are located immediately adjacent to the proposed route section between Fairfeld Road and Prospect Road, two the east and one to the west on Botanic Road. As this option involves significant land take, this will result in the maximum impact of all options.	Protected structures are located immediately adjacent to the proposed route section between Fairfeld Road and Prospect Road, two the east and one to the west on Botanic Road. As this option involves some land take, this will result in the second greatest impact of all options.	Protected structures are located immediately adjacent to the proposed route section between Fairfeld Road and Prospect Road, two the east and one to the west on Botanic Road. As this option involves no land take, this will result in little impact.	Protected structures are located immediately adjacent to the proposed route section between Fairfeld Road and Prospect Road, two the east and one to the west on Botanic Road. As this option involves no land take, this will result in little impact.	Protected structures are located immediately adjacent to the proposed route section between Fairfeld Road and Prospect Road, two the east and one to the west on Botanic Road. As this option involves no land take, this will result in little impact.
	Rank					
	Flora and Fauna	Possible land take may impact on existing green areas. The installation of bus lanes would require the	Possible land take may impact on existing green areas. The installation of bus lanes would require the	As this option involves no land take, this will result in little impact	As this option involves no land take, this will result in little impact	As this option involves no land take, this will result in little impact

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		substantial removal of front gardens on Botanic Road. Very little potential to impact on street trees, as there are very few trees within the route option.	substantial removal of front gardens on Botanic Road. Very little potential to impact on street trees, as there are very few trees within the route option.			
	Rank					
	Soils and Geology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank					
	Hydrology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank					
	Landscape and Visual	Potential negative impacts associated with the re-engineering of mature housing and associated front gardens.	Potential negative impacts associated with the re-engineering of mature housing and associated front gardens.	As this option involves no land take, this will result in little impact	As this option involves no land take, this will result in little impact	Potential negative impacts associated with the re-engineering road approaching junction (at development site)

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
	Rank					
	Air Quality	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is lower than other options.	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.
	Rank					
	Noise and Vibration	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.	Existing route carries bus traffic already and these will not travel as close in proximity as options BR1 and 2 so potential for impacts is lower than these options.

	Assessment Sub-Criteria	Route Option BR1 Two Way Bus, Cycle and Traffic - Botanic Road	Route Option BR2 Two Way Bus and Traffic - Botanic Road	Route Option BR3 Continuous Inbound bus Lane and two way traffic – Botanic Road	Route Option BR4 Continuous Outbound bus Lane and two way traffic – Botanic Road	Route Option BR5 Partial Inbound bus Lane and two way traffic – Botanic Road
		impacts is lower than other options.	impacts is lower than other options.			
	Rank					
	Land Use Character	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 and 2.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 and 2.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options BC1 and 2.
	Rank					

Table 5: SAS 3 – Central Area Church Street (CS) Sub-Options (North King Street to Inns Quay) Multi Criteria Assessment

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
conomy (Cost Assessment and Transport Economic Indicators)	Capital Cost	€4.57m ***Indicative Scheme Infrastructure* Works Cost** (€3.35m): - Maintain existing two-way traffic lanes. - Provide continuous inbound and outbound bus lane. - Provide improved 2.0m wide cycle lanes and footpaths. ***Land Acquisition Cost*** (€1.22m) - 0 sqm Public Land - 815 sqm Private Land - 43 private properties	€2.81m ***Indicative Scheme Infrastructure* Works Cost** (€2.19m): - Maintain existing two-way traffic lanes. - Provide continuous outbound bus lane. - Provide improved 2.0m wide cycle lanes and footpaths. ***Land Acquisition Cost*** (€0.62m) - 0 sqm Public Land	€2.81m ***Indicative Scheme Infrastructure* Works Cost** (€2.19m): - Maintain existing two-way traffic lanes. - Provide continuous inbound bus lane. - Provide improved 2.0m wide cycle lanes and footpaths. ***Land Acquisition Cost*** (€0.62m) - 0 sqm Public	€2.79 ***Indicative Scheme Infrastructure* Works Cost** (€2.79m): - Maintain existing two-way traffic lanes. - Provide continuous outbound bus lane. - ITS measures will be implemented at the North King Street/Church Street junction to give buses priority entering Church Street. - Remove existing cycle lanes. ***Land Acquisition Cost*** (€0.0) - 0 sqm Public Land - 0 sqm Private Land - 0 private properties	€0.6m ***Indicative Scheme Infrastructure* Works Cost** (€0.6m): - Remove existing two-way traffic lanes. - Provide continuous inbound and outbound bus lane. - Provide improved 2.0m wide cycle lanes and footpaths. ***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land - 0 private	€0.7m ***Indicative Scheme Infrastructure* Works Cost** (€0.7m): - Remove outbound traffic lane. - Provide continuous inbound and outbound bus lane. - Remove existing cycle lanes ***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land	€0.7m ***Indicative Scheme Infrastructure* Works Cost** (€0.7m): - Remove inbound traffic lane. - Provide continuous inbound and outbound bus lane. - Remove existing cycle lanes ***Land Acquisition Cost*** (€0) - 0 sqm Public Land - 0 sqm Private Land - 0 private properties affected

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
		affected	- 413 sqm Private Land - 24 private properties affected	Land - 413 sqm Private Land - 24 private properties affected	affected	properties affected	- 0 private properties affected	
	Rank	-	-	-	-	-	-	-
	Transport Reliability and Quality of Service	Journey Time: 5 mins (both directions) Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services.	Journey Time: 5 mins with bus lane, 7 mins without bus lane Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route outbound, good journey time reliability for Bus services. No segregated facilities inbound; therefore journey time suffers	Journey Time: 5 mins with bus lane,7 mins without bus lane Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route inbound, good journey time reliability for Bus services. No segregated facilities outbound; therefore journey	Journey Time: 7 mins (both directions) Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route good journey time reliability for Bus services. Segregated facilities inbound slightly shorter; therefore journey time suffers as a result.	Journey Time: 5 mins (both directions) Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services.	Journey Time: 5 mins (both directions) Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services.	Journey Time: 5 mins (both directions) Length: 500m No. of Junctions: 4 No. of pedestrian crossings: 1 Full priority provided along route in good journey time reliability for Bus services.

	Assessment Sub-Criteria	Route Option CS1 Two-way bus, cycle and traffic lanes	Route Option CS2 Continuous outbound bus lane and two-way traffic and cycle lanes	Route Option CS3 Continuous inbound bus lane and two-way traffic and cycle lanes	Route Option CS4 Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic	Route Option CS5 Continuous inbound and outbound bus lane and two-way cycle lanes	Route Option CS6 Continuous inbound and outbound bus lane and inbound traffic lane	Route Option CS7 Continuous inbound and outbound bus lane and outbound traffic lane
			as a result.	time suffers as a result.				
	Rank							
Integration	Land Use Integration	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.	Integrates with existing and proposed residential, uses in this established area.
	Rank							
	Residential Population and Employment Catchments	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served	***Residential Population Catchments*** - Identical Catchment served ***Employment catchments*** - Identical Catchment served
	Rank							
	Transport Network Integration	Identical potential to interchange with Luas red line on Church Street.	Identical potential to interchange with Luas red line on	Identical potential to interchange with Luas red line on	Identical potential to interchange with Luas red line on Church	Identical potential to interchange with Luas red line on Church	Identical potential to interchange with Luas red line	Identical potential to interchange with Luas red line on Church

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
			Church Street.	Church Street.	Street.	Street.	on Church Street.	Street.
	Rank							
	Cycling integration	This route option is not identified as a route in the GDA Cycle Network Plan. However, there is a proposal to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan. However, there is a proposal to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan. However, there is a proposal to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan and does not propose to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan. However, there is a proposal to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan and does not propose to provide cycle facilities.	This route option is not identified as a route in the GDA Cycle Network Plan and does not propose to provide cycle facilities.
	Rank							
	Traffic Network Integration	In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as options CS1. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than other options	Two way traffic maintained but segregated bus lane only provided in outbound direction. Therefore sharing of inbound traffic lanes will result in a greater traffic impact than fully segregated facilities.	Two way traffic maintained but segregated bus lane only provided in inbound direction. Therefore sharing of inbound traffic lanes will result in a greater traffic impact than fully segregated facilities	In terms of traffic impact, a differentiator between route options involves the provision of bus lanes in both directions along a straight section of road such as options CS4. As such, the traffic impact, in terms of congestion and movement restrictions, of these options would be lower than other options	Removal of traffic entirely from Church Street will have a drastic impact on this key traffic link for the City.	It is considered that Option CS6 which provides for inbound traffic only would also have a significant effect. Queen Street to the west of Church Street currently accommodates inbound only traffic at present and could accommodate inbound traffic diverted under Option CS7 more readily than outbound traffic diverted under Option CS6. Queen Street already accommodates	It is considered that traffic diverted under Option CS7 could impact on the proposed City Centre Traffic Management Plan for removing much of the traffic from the City Centre; therefore the impact could be significant relative to other options.

	Assessment Sub-Criteria	Route Option CS1 Two-way bus, cycle and traffic lanes	Route Option CS2 Continuous outbound bus lane and two-way traffic and cycle lanes	Route Option CS3 Continuous inbound bus lane and two-way traffic and cycle lanes	Route Option CS4 Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic	Route Option CS5 Continuous inbound and outbound bus lane and two-way cycle lanes	Route Option CS6 Continuous inbound and outbound bus lane and inbound traffic lane	Route Option CS7 Continuous inbound and outbound bus lane and outbound traffic lane
							inbound traffic diverted from Blackhall Place in a similar manner	
	Rank							
Accessibility and Social Inclusion	Key Trip Attractors (Education/ Health/ Commercial / Employment)	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.	***Education*** - Identical Facilities served. ***Retail / Leisure*** - Identical Facilities served. ***Employment*** - Identical Facilities served.
	Rank							
	Deprived Geographic Areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas	Does not serve any deprived or RAPID areas
	Rank							
Safety	Road Safety	No. of Junctions: 4	No. of Junctions: 4	No. of Junctions: 4	No. of Junctions: 4	No. of Junctions: 4	No. of Junctions: 4	No. of Junctions: 4

	Assessment Sub-Criteria	Route Option CS1 **Two-way bus, cycle and traffic lanes**	Route Option CS2 **Continuous outbound bus lane and two-way traffic and cycle lanes**	Route Option CS3 **Continuous inbound bus lane and two-way traffic and cycle lanes**	Route Option CS4 **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	Route Option CS5 **Continuous inbound and outbound bus lane and two-way cycle lanes**	Route Option CS6 **Continuous inbound and outbound bus lane and inbound traffic lane**	Route Option CS7 **Continuous inbound and outbound bus lane and outbound traffic lane**
		0 turn movements required in each	0 turn movements required in each	0 turn movements required in each	0 turn movements required in each	0 turn movements required in each	0 turn movements required in each	0 turn movements required in each
	Rank							
	Pedestrian Safety	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.	One pedestrian crossing located in front of St Mary of the Angels Church. Footpaths provided on both sides of the road.
	Rank							
Physical Activity	Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
				– Benefit Analysis.			– Benefit Analysis.	
	Rank							
Environment	Archaeology and Cultural Heritage	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves significant land take, this will result in the greatest impact of all options.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option As this option involves a small amount of land take, this will result a greater impact than options CS4-CS7.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves a small amount of land take, this will result a greater impact than options CS4-CS7.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves no land take, this will result in little impact.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves no land take, this will result in little impact.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves no land take, this will result in little impact.	The section of the route between King Street and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option. As this option involves no land take, this will result in little impact.
	Rank							

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
	Architectural Heritage	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves significant land take, this will result in the greatest impact of all options.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves a small amount of land take, this will result a greater impact than options CS4-CS7.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves a small amount of land take, this will result a greater impact than options CS4-CS7.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves no land take, this will result in little impact.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves no land take, this will result in little impact.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves no land take, this will result in little impact.	There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: As this option involves no land take, this will result in little impact.
	Rank							
	Flora and Fauna	Possible land take may impact on existing green areas. The installation of bus lanes would require the removal of existing trees either side of Church Street. The area is not believed to be of importance for bats.	Possible land take may impact on existing green areas. The installation of bus lanes would require the removal of existing trees either side of Church Street. The area is not believed to be of importance for bats.	Possible land take may impact on existing green areas. The installation of bus lanes would require the removal of existing trees either side of Church Street. The area is not believed to be of importance for bats	As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
	Rank							
	Soils and Geology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank							
	Hydrology	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank							
	Landscape and Visual	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts. As this option involves significant land take, this will result in the greatest impact of all options.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts. As this option involves a small amount of land take, this will result in the third greatest impact of all options.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts. As this option involves a small amount of land take, this will result in the third greatest impact of all options.	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts. As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.	As this option involves no land take, this will result in little impact.
	Rank							
	Air Quality	Possible impacts due to increased trafficking of	Possible impacts due to increased	Possible impacts due to increased	Possible impacts due to increased trafficking of	This option would have a positive impact	Possible impacts due to increased	Possible impacts due to increased trafficking of

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
		road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lane installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lane installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	on the route due to reduced trafficking by replacing the existing traffic lanes with bus lanes.	trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.
	Rank							
	Noise and Vibration	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with increased	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lane installed. Existing route carries bus traffic already so potential for impacts is not	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lane installed. Existing route carries bus traffic already so potential for	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with	This option would have a positive impact on the route due to reduced trafficking by replacing the existing traffic lanes with bus lanes.	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for	Possible impacts due to increased trafficking of road networks and increased proximity of vehicles to houses and gardens if bus lanes installed. Existing route carries bus traffic already so potential for impacts is not significant. Possible impacts associated with

	Assessment Sub-Criteria	**Route Option CS1** **Two-way bus, cycle and traffic lanes**	**Route Option CS2** **Continuous outbound bus lane and two-way traffic and cycle lanes**	**Route Option CS3** **Continuous inbound bus lane and two-way traffic and cycle lanes**	**Route Option CS4** **Inbound bus lane for majority of Church Street and continuous outbound bus lane and two-way traffic**	**Route Option CS5** **Continuous inbound and outbound bus lane and two-way cycle lanes**	**Route Option CS6** **Continuous inbound and outbound bus lane and inbound traffic lane**	**Route Option CS7** **Continuous inbound and outbound bus lane and outbound traffic lane**
		proximity of traffic lanes to frontage properties.	significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	increased proximity of traffic lanes to frontage properties.		impacts is not significant. Possible impacts associated with increased proximity of traffic lanes to frontage properties.	increased proximity of traffic lanes to frontage properties.
	Rank							
	Land Use Character	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street. This option would have the greatest the impact.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options CS1.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street but this option would not have as great an impact as Options CS1.	Existing landscaping would not be reconfigured to any significant extent.	Existing landscaping would not be reconfigured.	Existing landscaping would not be reconfigured to any significant extent.	Existing landscaping would not be reconfigured to any significant extent.
	Rank							

Table 6: SAS 3 – Central Area Main Option Multi Criteria Assessment

	Assessment Sub-Criteria	**Route Option CC1**	**Route Option CC2**
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	€19.0m ***Indicative Scheme Infrastructure* Works Cost** (€18.6m): - Maintain existing inbound bus lane on St Mobhi Road between Griffith Avenue and Botanic Avenue. - Provision of outbound bus lane and segregated cyclist facilities in both directions on St Mobhi Road - Introduce continuous inbound bus lanes on R108 Section between St Mobhi Road/Fairfield Road and Hart's Corner - Realignment of R108/R135 (Finglas Road) junction at Hart's Corner. - Widening of Cross Guns Bridge to include for pedestrian cantilever - Opportunity for section of inbound bus lane opposite Phibsborough Shopping Centre - Reduction in number of general traffic lanes at Doyle's' Corner (North Circular Road/Phibsborough Road) with Bus Lanes provided up to stop line in outbound and inbound direction - Provision of outbound cycle lane on R108 between St Mobhi Road/Fairfield Road and Cross Guns Bridge. Parallel cycle route provided between Cross Guns Bridge and Western Way via Royal Canal Bank. - Introduce bus lanes in both directions on Phibsborough Road by removal of on street parking between Doyle's Corner and replacing traffic lanes with bus lanes on Constitution Hill between Western Way and North King Street - Improve existing cycle lane on Constitution Hill between Western Way and Coleraine Street. Los B service as route is identified as secondary route 2B. - Additional length of discontinuous bus lane on Church Street between North King Street and Inns Quay due to considerable constraints. - Provision of bus facilities will require rationalisation of on street parking adjacent to Bridewell Garda Station ***Land Acquisition Cost*** (€0.4m) - 7,000 sqm Public Land - 240 sqm Private Land	€18.0m ***Indicative Scheme Infrastructure* Works Cost** (€17.9m): - Introduce bus lanes on R102 Section between St Mobhi Road and Drumcondra Road Upper. - Provision of continuous segregated bus facilities as well as cyclist facilities will require removal of significant volume of trees on Griffith Avenue (R102). One row of trees on either side will require removal to achieve desirable cross section. - Provision of 1.5m wide cycle tracks along Drumcondra Road would require reduction in existing lane widths from 3.75m to 3.0m for the 4 existing lanes if existing trees are to be retained. - Improve existing bus lane on N1 (Drumcondra Road Lower/Dorset Street) to provide continuous segregated facilities as per Swords BRT proposals - Improve existing cycle lane on N1 (Drumcondra Road Lower/Dorset Street) to provide continuous segregated facilities (Primary Cycle Route 2A). - Provision of improved facilities will require removal of on street parking and/or private land acquisition on Bolton Street between Frederick Street North and Dominick Street - Segregated facilities will require the loss of a traffic lane in either direction on North king Street between Dominick Street and Church Street. - Additional length of discontinuous bus lane on Church Street between North King Street and Inns Quay due to considerable constraints. - Provision of bus facilities will require rationalisation of on street parking adjacent to Bridewell Garda Station ***Land Acquisition Cost*** (€0.14m) - 11,214 sqm Public Land - 92 sqm Private Land

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
	Rank		
	Transport Reliability and Quality of Service	Journey Time: 17 - 25 mins Length: 3.9km No. of Junctions: 22 Full priority provided along majority of length of R108. It is expected that priority will be balanced with that of the Finglas CBC at Hart's Corner and Orbital CBC at North Circular Road (Doyle's Corner). Full priority could be achieved between Western Way and North King Street. However, services will be competing with Luas Cross City and Red Line Services on Constitution Hill and Church Street. As such, an average speed of greater than 15 km/h will be difficult to achieve particularly between North King Street and Inns Quay.	Journey Time: 20- 30 mins Length: 4.9km No. of Junctions: 25 Full priority provided along Griffith Avenue resulting in good journey time reliability for Bus services. Priority for inbound right turn at Griffith Avenue junction with Drumcondra Road Upper will be difficult to achieve because of significant opposing traffic flows including buses using the Swords Road CBC/BRT. This will have an adverse effect on journey time reliability. Full priority provided along majority of length of N1. However, an average speed of 20 km/h will be difficult to achieve owing to the number of bus routes and Swords BRT using the Drumcondra route with delays expected at bus stops. As such, an average speed of greater than 15 km/h will be difficult to achieve between Griffith Avenue and Church Street
	Rank		
Integration	Land Use Integration	Potential to facilitate and encourage development in Phibsborough in accordance with the principles of the upcoming Phibsborough LAP as well as the development of Grangegorman Strategic Development Zone.	Integrates with existing residential, educational, medical and leisure uses in this established area which are already served by the Swords/Drumcondra bus corridor.
	Rank		
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 12,100 - 10 minute walk catchment of approximately 34,800 - 15 minute walk catchment of approximately 64,000 ***Employment catchments*** 15 minute walk catchment of approximately 49,000.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 19,800 - 10 minute walk catchment of approximately 46,800 - 15 minute walk catchment of approximately 75,300 - Excluding duplication of Swords BRT/ Drumcondra CBC catchment ***Employment catchments***

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
			15 minute walk catchment of approximately 60,500 While the catchment area has a larger population, the full corridor is a duplication of the Swords BRT/ Drumcondra CBC catchment and thus will be served in any case. Therefore CC2 will serve far lower population in comparison to CC1 which does not duplicate any other CBC or BRT corridors.
	Rank		
	Transport Network Integration	Potential for interchange with bus Core Orbital Corridor on Griffith Avenue. Potential for interchange with CBC bus services running along the Finglas Core Radial Corridor as well as the North Circular Orbital Corridor. Interchange with the future Luas Cross City at Western Way/Constitution Hill. Provision of cycle parking may be more difficult in constrained areas. Potential for interchange with Luas Red Line and Cross City Services. Interchange with Radial and Regional bus corridors running along the quays.	Potential for interchange with bus Core Orbital Corridor on Griffith Avenue. Potential for interchange with regional bus services running along the M1 Core Regional Corridor and possible interchange with the future Swords BRT in Drumcondra. Interchange with Irish Rail Services at Drumcondra Station. Provision of cycle parking may be more difficult in constrained areas. Potential for interchange with Luas Cross City Services. Interchange with Radial and Regional bus corridors running along the N1 corridor as well as Swords BRT.
	Rank		
	Cycling integration	The majority of the route aligns with Primary Route 3A and Secondary Route 9B of the GDA Cycle Network Plan	The majority of the route aligns with Primary Route 2A and Secondary Route 2C of the GDA Cycle Network Plan
	Rank		
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/ Commercial /Employment)	***Education*** - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus - St Vincent's Secondary School - Grangegorman	***Education*** - St Patricks College - St Patricks Primary School/Drumcondra Education Centre - Dorset College - Kings Inns

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
		- Kings Inns - ***Retail / Leisure*** - Na Fianna GAA Club - Home farm Soccer Club - National Botanic Gardens - Local shops and Public House on Glasnevin Hill - St Vincent's Basketball - The Sunnybank Hotel - Terrace of shops, bars, restaurants and local businesses (banks etc.) between junction with Prospect Road (Hart's Corner) and PhibsboroughTown Centre. - Phibsborough Shopping Centre - St Peter's Church - All Saints Church ***Employment*** - Glasnevin National School - Glasnevin Educate Together - St Mary's Secondary School - DCU Innovation Campus - Scoil Chatriona - Scoil Mobhi - Whitehall College of Further Education - Glasnevin National School - Local businesses listed above - Phibsborough Shopping Centre - St Vincent's Secondary School - Grangegorman/DIT - Society of King's Inns - Dublin Bus/Bus Éireann Depots at Broadstone - City Centre generally	***Retail / Leisure*** - Gate Theatre Parnell Square - Ambassador Theatre Parnell Square - Dublin City Gallery, Hugh Lane - City Centre generally ***Employment*** - Mater Hospital more proximate - Temple Street Hospital - Croke Park - Rotunda Hospital - City Centre generally All of the above will be served by bus services/BRT running along the Swords CBC/BRT.
	Rank		
	Deprived Geographic Areas	This route option skirts RAPID Area in Dublin South Inner City	This route option skirts North East Inner City RAPID Area
	Rank		

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
Safety	Road Safety	No. of Junctions: 22 2 turn movements required in outbound direction (1 left turn and 1 right turns). 0 turn movements in inbound direction.	No. of Junctions: 25 3 turn movements required in each direction (2 left turn and 1 right turn inbound/ 2 right turn and 1 left turn outbound).
	Rank		
	Pedestrian Safety	Pedestrian crossings located within 50m of most stops and footpaths provided on both sides of the road	Pedestrian crossings located within 50m of most stops and footpaths provided on both sides of the road
	Rank		
Physical Activity	Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options. The physical benefits associated with the scheme will be quantified as part of a future Cost – Benefit Analysis.
	Rank		
Environment	Archaeology and Cultural Heritage	A section of Botanic Road runs through the zone of archaeological potential recorded as DU018-005. This zone is associated with an ecclesiastical foundation possibly dating from the early medieval period. There are 11 recorded sub-constraints within this area, one of which is located in immediate proximity to the route – DU018-005011 (settlement cluster) No Recorded Monuments or sites of archaeological heritage merit were identified within the assessment area between Fairfield Road and Western Way. The section of the route between Western Way and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified within the Griffith Avenue and Drumcondra Road Upper section of the route option. One recorded monument is located to the immediate west of the R132/N1. This consists of the site of an undated house. The section of the route between King Street North and Inns Quay is entirely located within the zone of archaeological potential that surrounds the historic core of Dublin City (DU018-020). In addition, there are 14 recorded sub-constraints located along the path or immediately adjacent to the route option.
	Rank		
	Architectural Heritage	Multiple protected structures are located immediately adjacent to the proposed route section between Fairfield Road and Western Way: Botanic Road: Two the east and one to the west.	A protected structure is located to the immediate north of the option at the junction of Griffith Avenue and the Swords Road. Two protected structures are located immediately

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
		Phibsborough Road: Seven to the east and 25 to the west. In addition 18 structures included within the NIAH survey are located immediately adjacent to the option. There are multiple protected structures located immediately adjacent to this route section between Western Way and Inns Quay: Constitution Hill/ Church St: Three to the east and nine to the west. Inns Quay: Four Courts to the immediate north. There are a total of 86 structures that are included within the NIAH survey located along the path of or immediate adjacent to the route option.	adjacent to the option on Drumcondra Road Upper (37 and 94). The option passes to the immediate east of St. Patrick's College, where the original house, tower, fountain, quadrangle and former church (now library) and gate lodge are all protected structures. The demesne wall, which is a curtilage structure, flanks the route option Multiple protected structures are located immediately adjacent to the proposed route section between Botanic Avenue and Frederick Street North. Drumcondra Rd Lower: 20 the east and seven to the west. Binn's Bridge is a protected structure. Dorset St Lower = Four to the east and one to the west. Dorset St Upper = Three to the east and nine to the west. In addition 43 structures included within the NIAH survey are located immediately adjacent to the option.
	Rank		
	Flora and Fauna	Possible land take may impact on existing green areas. The installation of bus lanes would require the substantial removal of existing trees on Mobhi Road. The area is not believed to be of importance for bats Very little potential to impact on street trees, as there are very few trees within the remainder of the route option. Both routes have equally negative impact.	Possible land take may impact on existing green areas. The installation of bus lanes and cycle lanes on Griffith Avenue would require the removal of existing trees. The area is not believed to be of importance for bats. However, the density and quality of the existing vegetation on this street is such that any impacts would be significant. Both routes have equally negative impact.
	Rank		
	Soils and Geology	No appreciable impacts	No appreciable impacts

	Assessment Sub-Criteria	Route Option CC1	Route Option CC2
	Rank		
	Hydrology	No appreciable impacts	No appreciable impacts
	Rank		
	Landscape and Visual	Potential negative impacts associated with the re-engineering of mature housing estate roads. Removal of existing trees within road reservation would have adverse impacts.	The tree lines on Griffith Avenue are particularly significant, as this is the only street in Dublin with a double line of trees on each side. Any impacts on these trees would be significantly detrimental to the character of the area.
	Rank		
	Air Quality	No appreciable differences.	No appreciable differences.
	Rank		
	Noise and Vibration	No appreciable differences.	No appreciable differences.
	Rank		
	Land Use Character	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street. Both routes have equally negative impact.	Any reconfiguration of the existing mature landscaping would have an adverse impact on the character of the street. Both routes have equally negative impact.
	Rank		

Appendix B – Data Collected

1. Study area visit

Each of the route sections were visited / driven, photographed and audited to identify any constraints which may not have been evident from maps and drawings. The site visits enabled a comprehensive evaluation of the route options in terms of their capacity to accommodate of a core bus corridor.

2. Architectural and Archaeological information

Irish Archaeological Consultancy (IAC) and Roughan & O' Donovan (ROD) provided an environmental assessment of the different route options under the following criteria:

- Archaeology and Cultural Heritage
- Architectural Heritage
- Flora & Fauna
- Soils and Geology
- Hydrology
- Landscape and Visual
- Air Quality
- Noise & Vibration
- Land Use Character

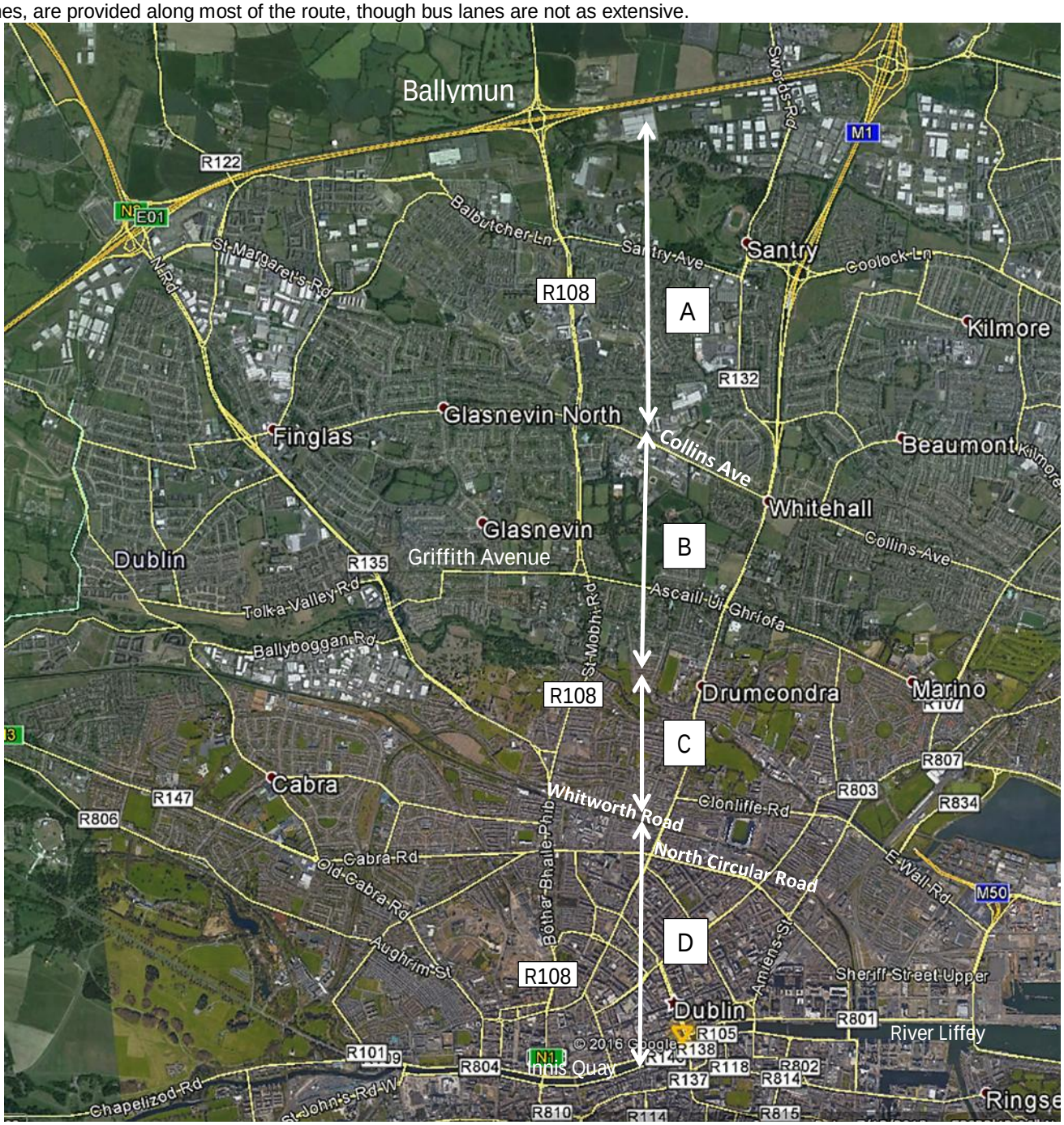
The architectural and archaeological assessment results are presented in the MCA tables in Appendix A.

3. Land Use

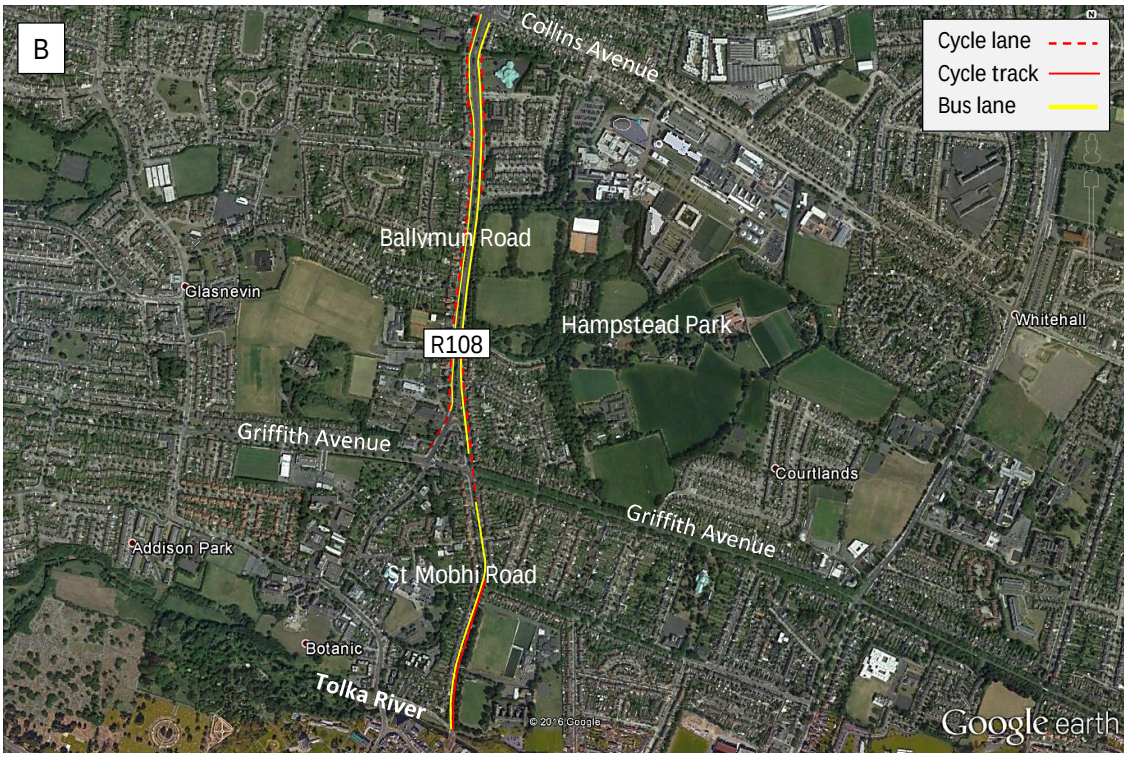
The land use assessment was carried out using GIS and examined private and public land along the different route options. This information was used for developing cost estimates for each of the route options, based on the area and nature (public or private) of the land acquisition required. The land use assessment results are presented in the MCA tables in Appendix A.

4. Bus and bicycle facilities

Maps inidcating the existing bus and bicycle facilities along the CBC were prepared to highlight sections of the corridor most in need of an upgrade / bus and cycle infrastructure. Segregated cycle facilities, in the form off-road cycle tracks or on-road cycle lanes, are provided along most of the route, though bus lanes are not as extensive.




A
Cycle lane
Cycle track
Bus lane
Poppintree
Balcurris
Hampton Wood
Gulliver's Retail Park
North Wood
Santry Avenue
Poppintree
Santry
Coultry
Ballymun
R108
Ballymun
Ballymun Road
Glasnevin North
Glasnevin Avenue
© 2016 Google
Google earth


B
Cycle lane
Cycle track
Bus lane
Collins Avenue
Ballymun Road
Glasnevin
Hampstead Park
Whitehall
R108
Griffith Avenue
Courtlands
Griffith Avenue
Addison Park
St Mobhi Road
Botanic
Tolka River
© 2016 Google
Google earth


C
Cycle lane
Cycle track
Bus lane
Tolka River
National Botanic Gardens
Botanic Road
Griffith Park
R108
Finglas Road
Botanic Road
Iona Road
Lindsay Road
Prospect Road
Royal Canal
Whitworth Road
Google earth


D
Cycle lane
Cycle track
Bus lane
Whitworth Road
Royal Canal
Cabra East
Philsborough Road
Cabra Road
North Circular Road
Phibsborough
Ballybough
Blessington Street Basin
Inns Quay
Mountjoy
St Brendans Hospital
Rotunda
Stoneybatter
Bolton Street
Philsborough Road
R108
Arran Quay
Smithfield
Church Street
Arran Quay
Innis Quay
River Liffey
Google earth

5. Bus Journey times

The bus travel times for each route option along the CBC were estimated based on a number of criteria, including;

- Length of segregated bus lane (suburban)
- Length of shared bus / traffic lane (urban / city centre)
- Number of signalised junctions with no turning lane and good priority
- Number of signalised junctions with no turning lane and poor priority
- Number of signalised junctions with right turning lane and good priority
- Number of signalised junctions with right turning lane and poor priority
- Number of signalised junctions with left turning lane and good priority
- Number of signalised junctions with left turning lane and poor priority
- Number of pedestrian crossings
- Number of busy bus stops
- Number of average use bus stops
- Number of lightly used bus stops

Due to the large number of route options and calculations, the results of the bus journey time estimates are contained in a separate document.

6. Bus speed and dwell times

The Dublin Bus route 4 was tested between O' Connell Street and Ballymun during the peak morning period (8-9am) to measure the average travel speed (using Strava) between stops as well as dwell times at each stop i.e. the time between the doors opening and closing. The Strava results show that the average 'moving time' speed was 10.4mph in the inbound direction (towards City Centre) and 11.7mph in the outbound direction.

Excluding the bus stops where no passengers alighted or boarded, the average dwell was approximately 16 seconds in the inbound direction and 8 seconds in the outbound direction. The following maps indicate the recorded bus speeds in between stops along the CBC during the AM period.

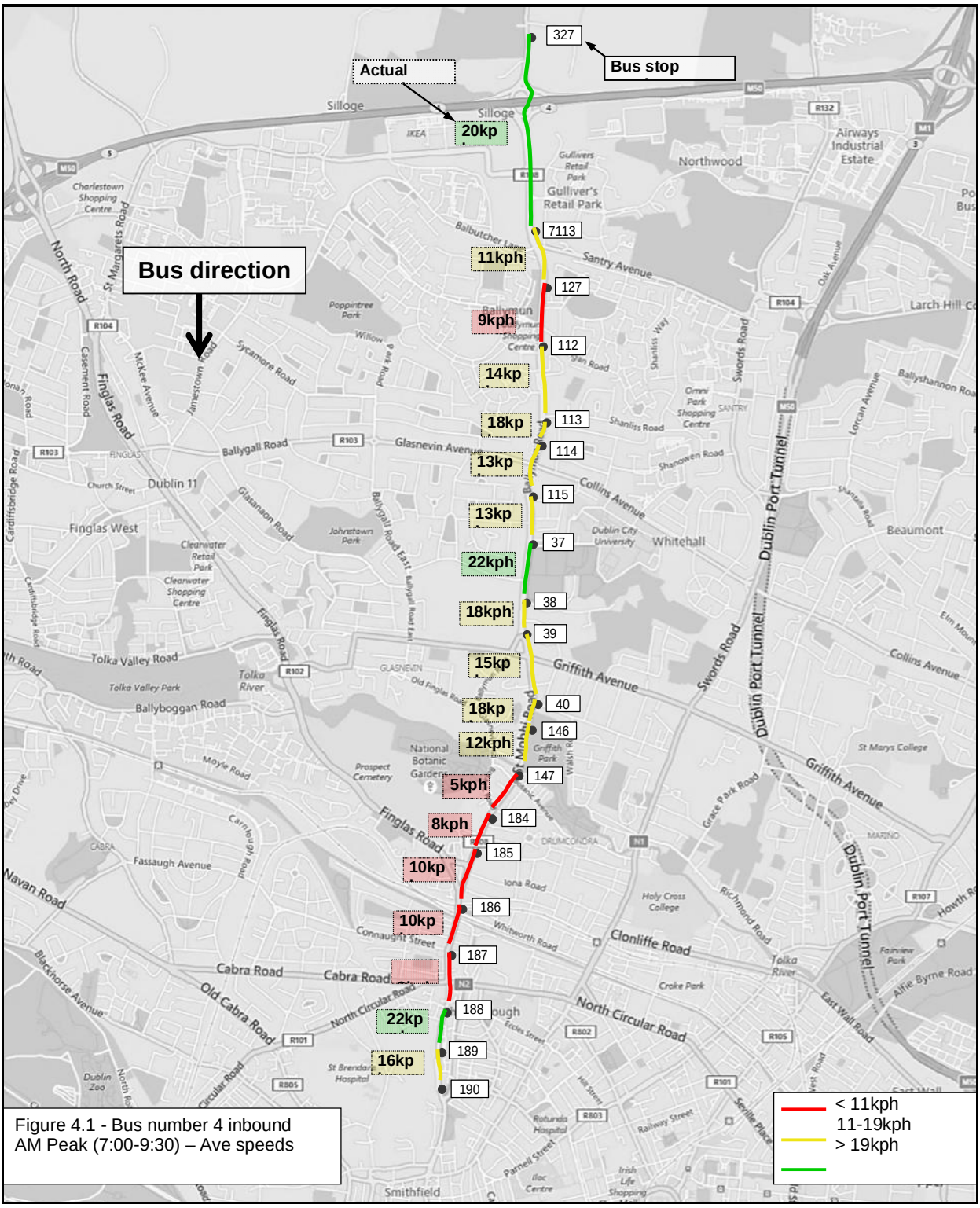


Figure 4.1 - Bus number 4 inbound AM Peak (7:00-9:30) – Ave speeds

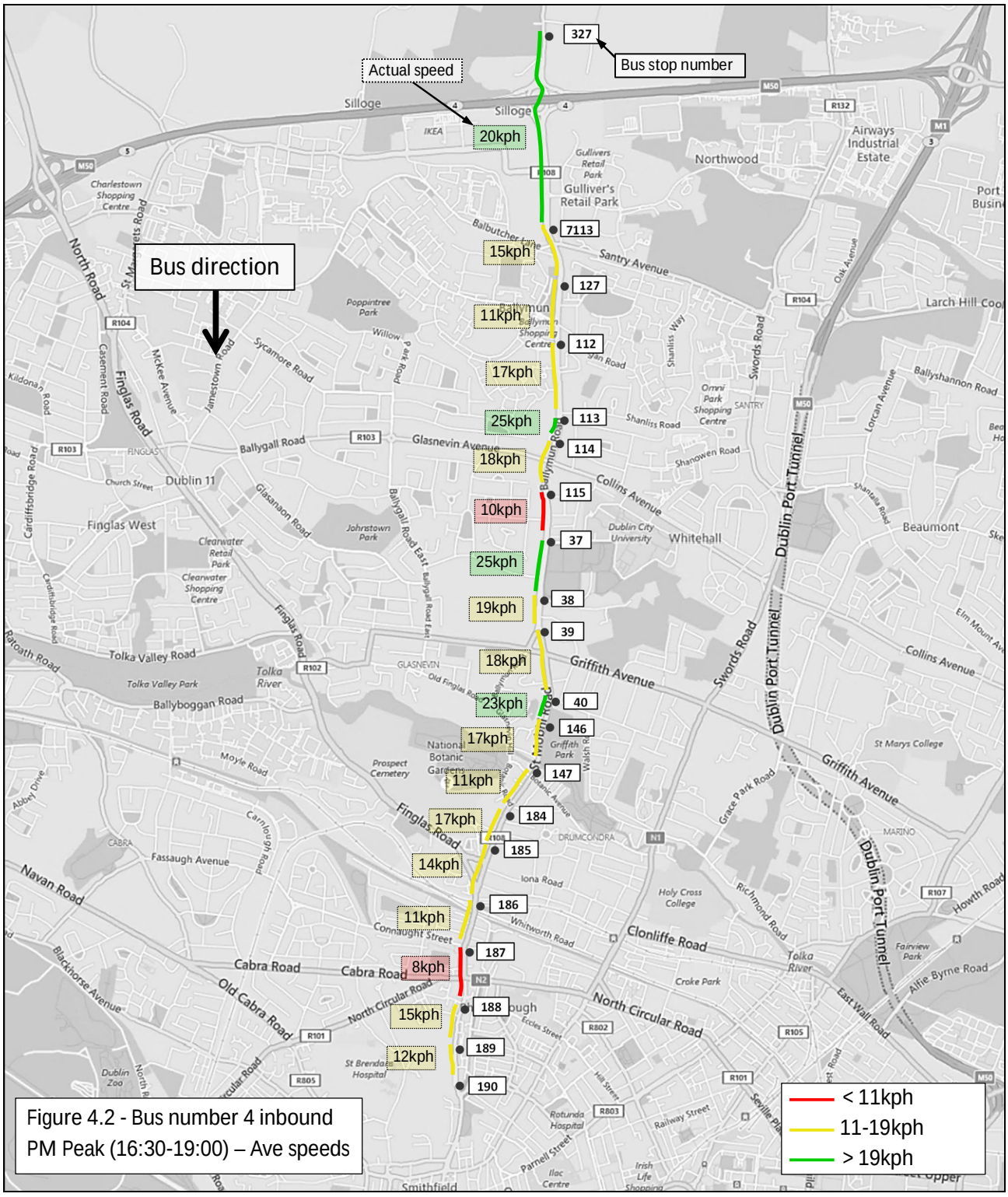
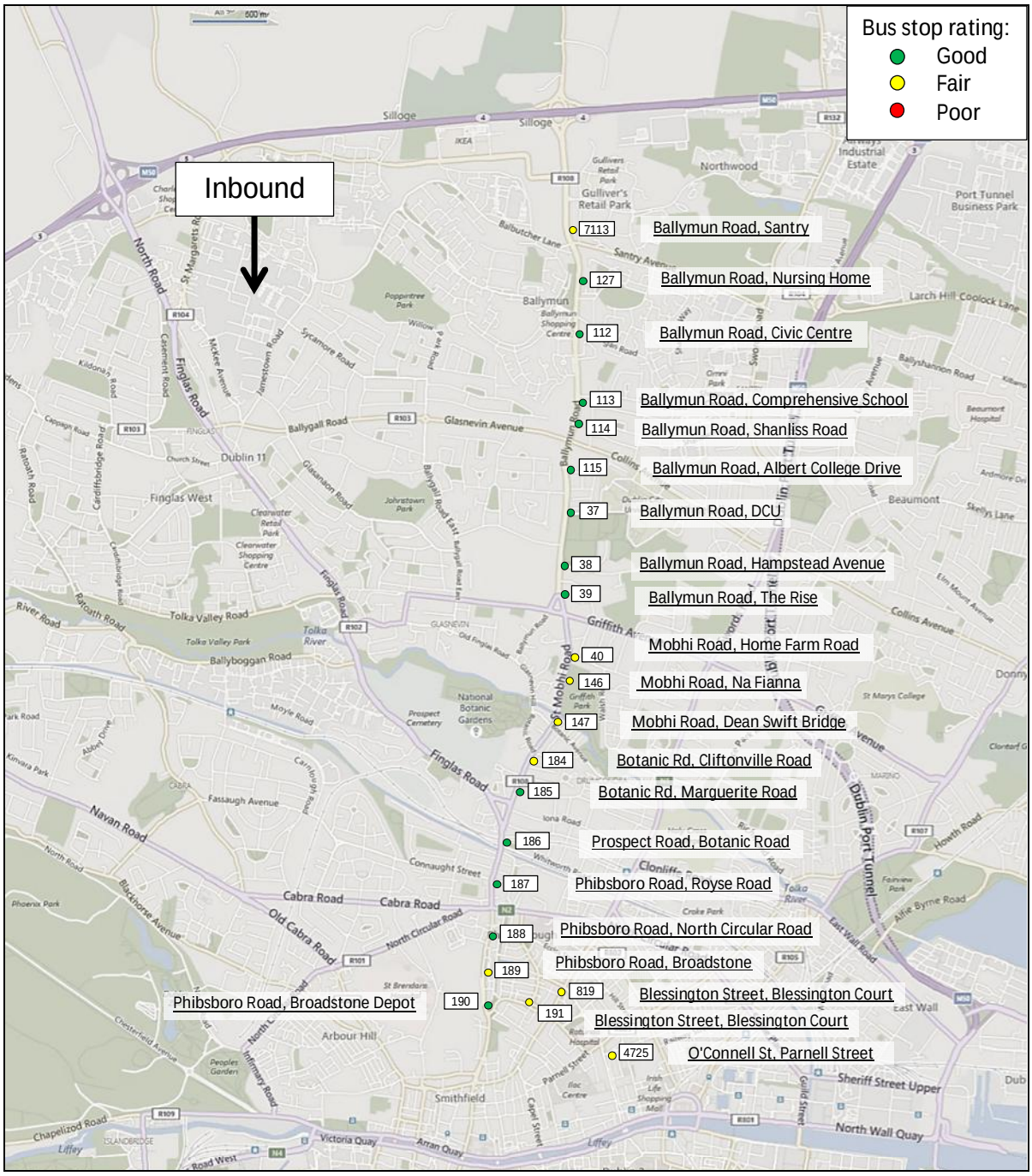
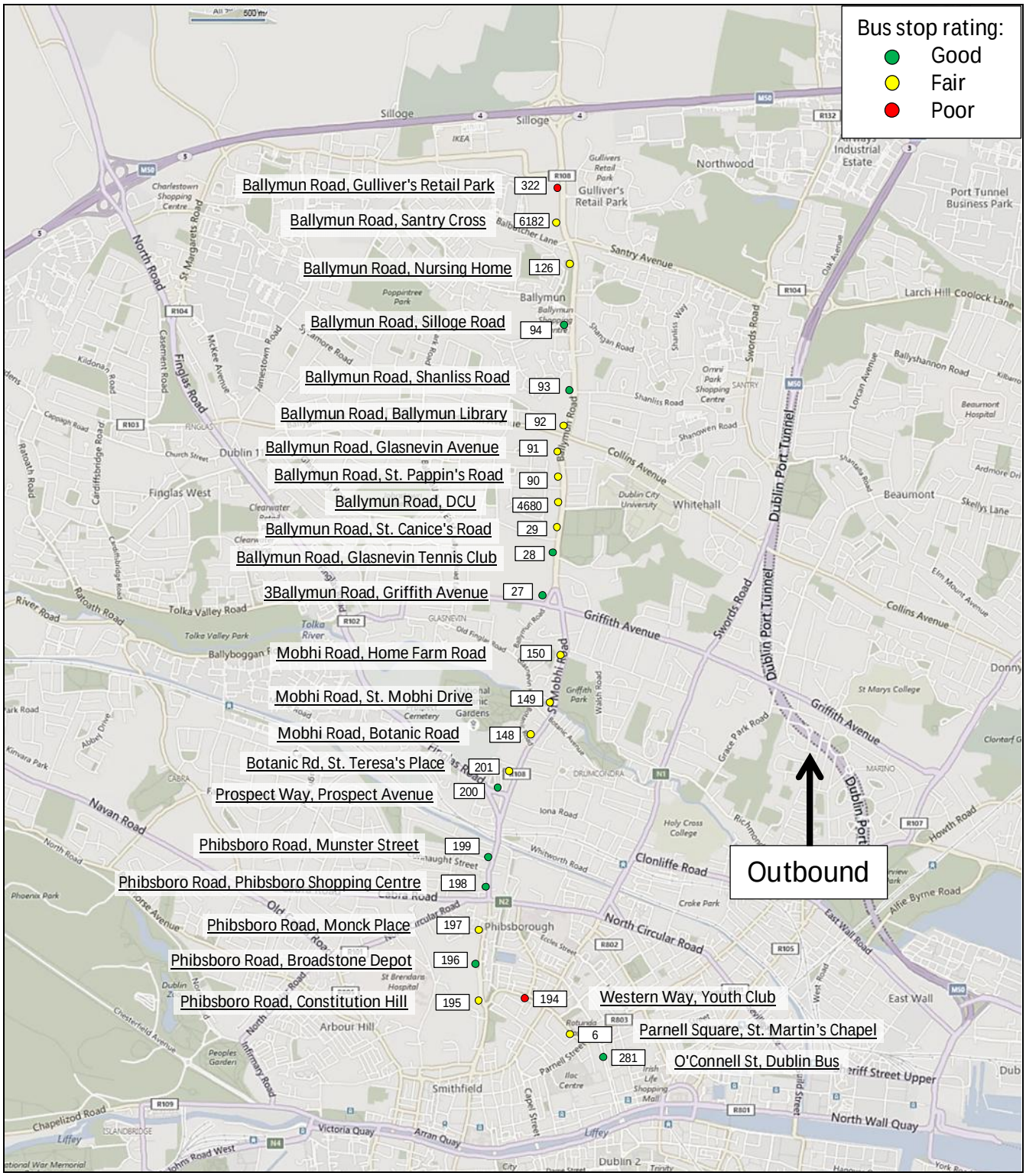


Figure 4.2 - Bus number 4 inbound PM Peak (16:30-19:00) – Ave speeds

7. Bus stop audit

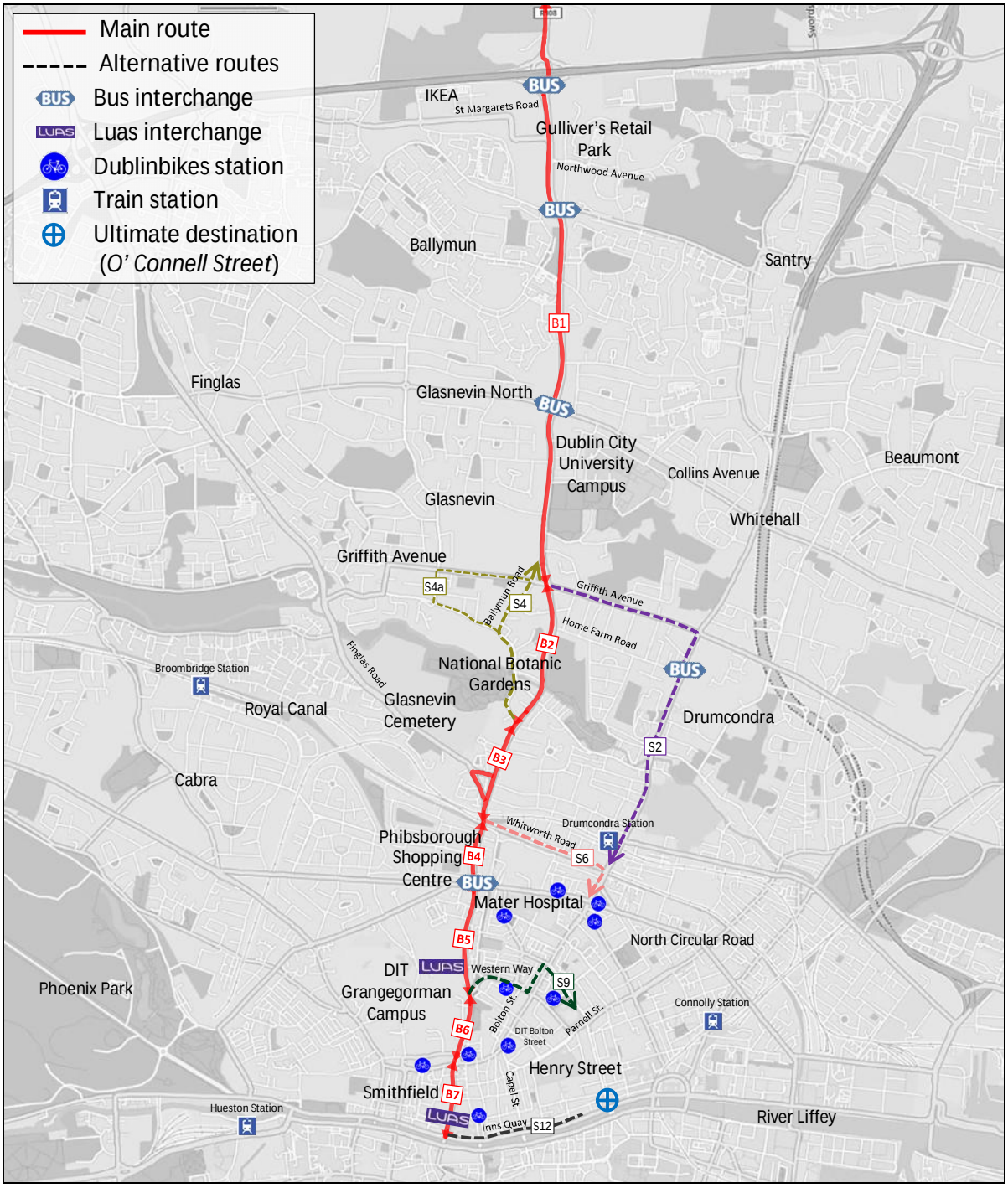
A site visit was required to visually inspect each bus stop along the corridor. A number of criteria were examined in terms of facilities (e.g. Real Time Information, timetables, shelter, bins) and bus stop positioning (e.g. visibility from stop, lighting) in order to award each stop a rating of either poor, fair or good. The audit was used to identify stops in need of an upgrade to improve the quality of the bus service. The maps below illustrate the location and overall ranking of each bus stop




Bus stop rating:
Good
Fair
Poor
Ballymun Road, Gulliver's Retail Park 322
Ballymun Road, Santry Cross 6182
Ballymun Road, Nursing Home 126
Ballymun Road, Silloge Road 94
Ballymun Road, Shanliss Road 93
Ballymun Road, Ballymun Library 92
Ballymun Road, Glasnevin Avenue 91
Ballymun Road, St. Pappin's Road 90
Ballymun Road, DCU 4680
Ballymun Road, St. Canice's Road 29
Ballymun Road, Glasnevin Tennis Club 28
3Ballymun Road, Griffith Avenue 27
Mobhi Road, Home Farm Road 150
Mobhi Road, St. Mobhi Drive 149
Mobhi Road, Botanic Road 148
Botanic Rd, St. Teresa's Place 201
Prospect Way, Prospect Avenue 200
Phibsboro Road, Munster Street 199
Phibsboro Road, Phibsboro Shopping Centre 198
Phibsboro Road, Monck Place 197
Phibsboro Road, Broadstone Depot 196
Phibsboro Road, Constitution Hill 195
194 Western Way, Youth Club
6 Parnell Square, St. Martin's Chapel
281 O'Connell St, Dublin Bus
Outbound
Silloge
Northwood
Industrial Estate
Port Tunnel Business Park
Santry Avenue
Ballymun
Larch Hill
Coolock Lane
Ballyshannon Road
Beaumont Hospital
Finglas Road
North Road
Dublin Port Tunnel
Swords Road
Collins Avenue
Whitehall
Beaumont
Griffith Avenue
Finglas West
Tolka Valley Road
River Road
Navan Road
Clonliffe Road
North Circular Road
Phibsborough
Arbour Hill
Smithfield
Victoria Quay
Arran Quay
North Wall Quay
East Wall
Howth Road
Alfie Byrne Road
Dublin 2

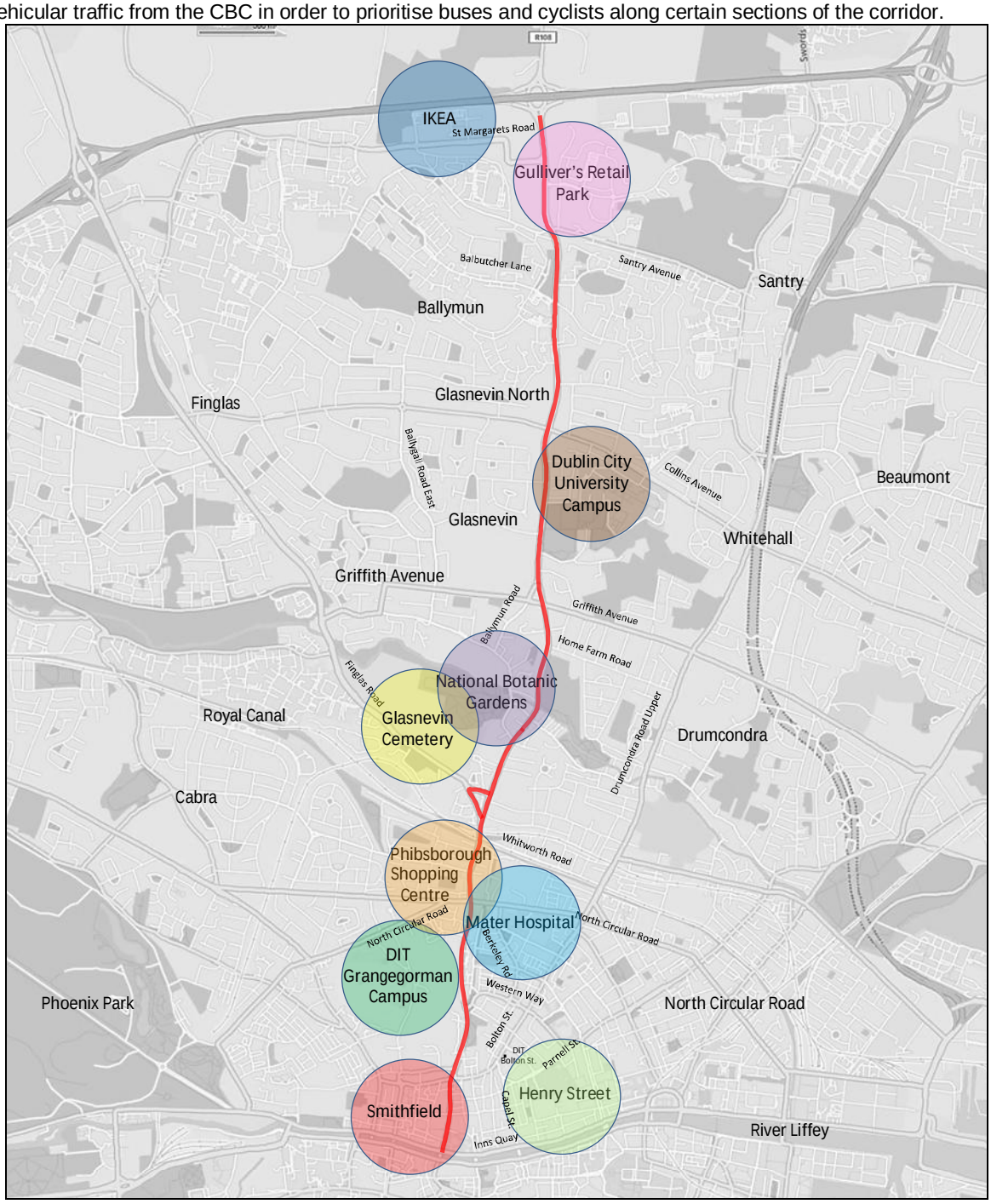
8. Interchange map

A map was produced to illustrate where the CBC crosses bus and rail routes i.e. interchange locations for public transport. It is important that the CBC is designed to facilitate easy interchange for commuters between different transport systems along its route.



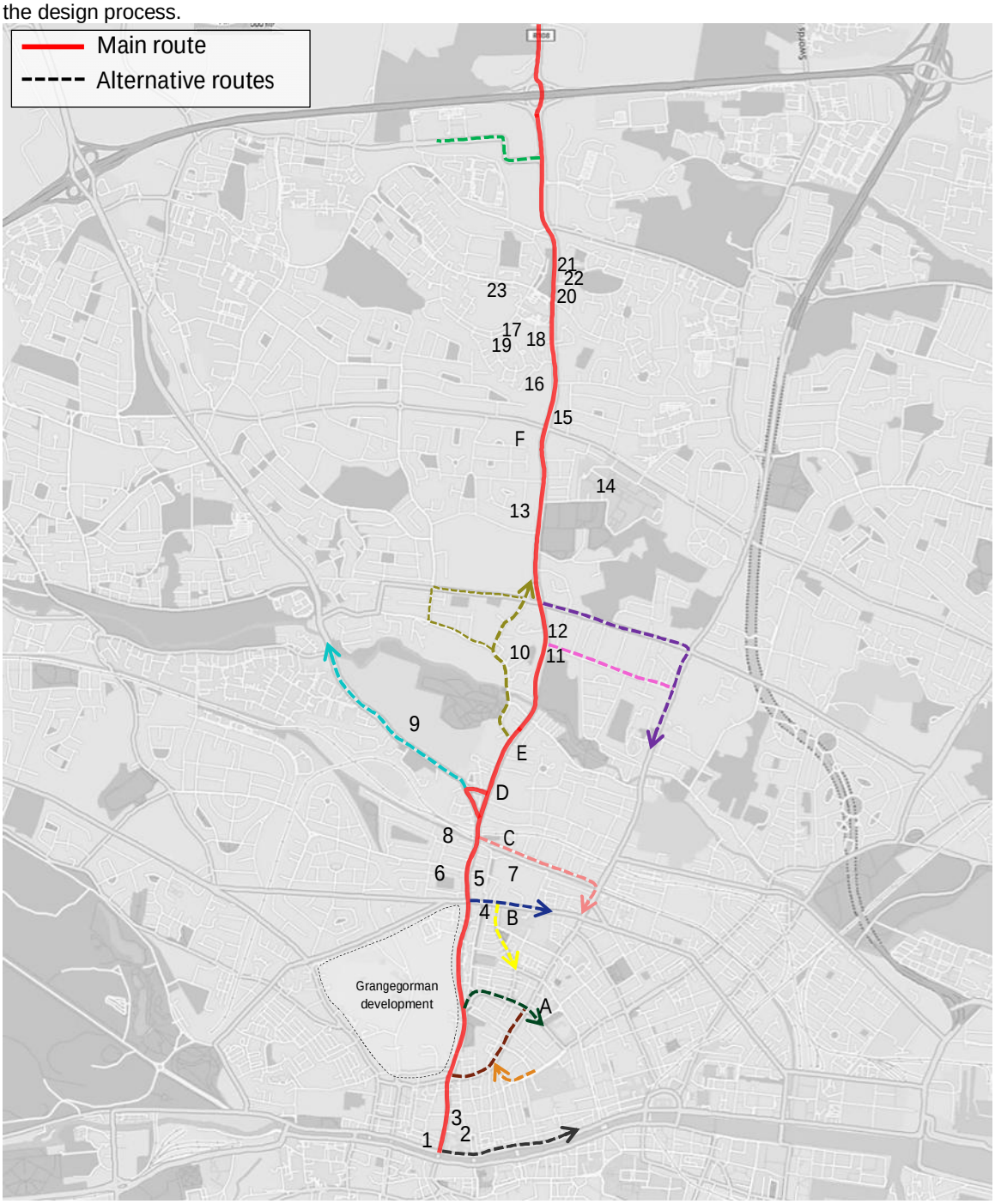
9. Trip attractors

A map was produced to illustrate the location of the main trip destinations along the CBC, including IKEA, Gulliver's Retail Park, Dublin City University campus, National Botanic Gardens, Glasnevin Cemetery, Phibsborough Shopping Centre, Mater Hospital, DIT Grangegorman campus, Smithfield and Henry Street. This map could be used to identify alternative 'spiderweb' routes to redirect vehicular traffic from the CBC in order to prioritise buses and cyclists along certain sections of the corridor.



10. Planning application search (Spring 2016)

To take into consideration third-party construction works and projects which could interfere with the CBC design, a planning application search was required. Information on granted and pending planning applications in the last 6 years was retrieved from the Dublin City Council website. A map was then produced to show all the applications within the vicinity of the CBC which may impact on the design process.



There are multiple granted and pending planning applications for the new Grangegorman development – none of the applications for this development site are listed on the following pages.

Granted permission: 1-23
Pending permission: A-F

Planning granted

1. 2011 (3692/11) - PROTECTED STRUCTURE: Known as the Quill Pub building, a 3-storey over basement end of terrace, at the corner of Arran Quay and Church Street: a) the removal of existing double pitched slate roof (constructed in 1990 approx.) and construction of 1 no. additional storey for use as offices to existing 3-storey building, to create a four-storey building in total.
2. 2010 (2999/10) - The proposed development will consist of the demolition of the existing 6 storey office building and the erection of a new 7 storey office building.
3. 2014 (2990/14) – Permission granted for the development of a student accommodation & cafe
4. 2010 (2501/10) – Granted permission for a new 579 sq.m internal first floor retail space plus first floor extension
5. 2011 (3026/11) - Granted permission to demolish existing two storey and single storey construction to rear of house and full planning permission is sought to construct replacement two storey extension incorporating additional living and sanitary accommodation from that previously submitted under planning reference no. 4129/10.
6. 2012 (3266/12) Granted permission for the retention/ continuation of previously approved temporary car park use at Dalymount Park with access from Saint Peters Road.
7. 2015 (3177/15) - Landscaping & planting of convent garden & additional works.
8. 2014 (2402/14) - Granted permission for the demolition of existing buildings on site and the construction of a predominantly residential development with some commercial use, giving an approximate total gross floor area of 3979sqm (260sqm commercial & 3719sqm residential). The proposed development will provide for 21 no dwelling units, 8 no. apartments and 2 no. commercial units.
9. 2014 (2439/14) - Granted development will consist of widening of both historic vehicular gates at the main entrance by moving one pier at each gate and modification of railings, plinth wall and gate ironwork.
10. 2015 (3274/15) - Granted permission for the retention of a two storey temporary structure for a period of three years.
11. 2015 (WEB1119/15) - The granted development will consist of: Alterations to and modification to the existing rear single storey extension. Part demolition and alignment of external walls with an additional 3 sq.m. new construction, including all associated site works.
12. 2010 (2385/10) – Granted permission for formation of 2 storey extension to side including balcony to rear at first floor top master bedroom and construction of new two storey dwelling house attached to that extension and associated site works including off street parking to existing house and proposed dwelling to corner site.
13. 2014 (3108/14) – Granted planning permission for the demolition of existing fire damaged dwelling house and replacement with new two storey plus attic storeyed dwelling house, car port and all associated site works.
14. 2015 (2031/15) - Dublin City University wishes to apply for permission to erect a new DCU sign and logo on the East elevation of the previously approved four storey over basement science research building (Planning Reference: 3804/11 and 3386/14) at DCU, Glasnevin, Dublin 9.
15. 2014 (3021/14) - Permission for construction of residential development to complete partly constructed scheme (ref no.: 3209/06) to include: a 3 & 4 storey block fronting Ballymun Road containing 31no. apartments
16. 2013 (2729/13) – Permission granted for the construction of a single storey extension to the rear (west) of the existing school, removal of existing prefabricated buildings at rear of existing school (west) including all associated site works.
17. 2013 (2844/13) - Permission and retention permission for development on a site area of 0.69ha. The development will consist of: Permission for demolition of partially constructed two/three storey Block A accommodating 20 no. residential units (as permitted under 2877/04and 1923/06) in its entirety and reinstatement of site as landscaped open space. Site to be bound by new 1.5 metre high boundary fence and wall.

18. 2013 (3019/13) – Permission granted for the change of use from 3no. surplus car parking spaces to construct an 80 sq.m 3m high centralised refuse area at basement level in lieu of current ad hoc bin storage arrangement, New refuse area is centralised as per Fire Officers Request Bins will be manually brought to the top of the exit ramp during collection and b) All associated site works.
19. 2015 (2661/15) –This granted development will consist of a new 2 storey (Part 3) Residential Block (block A) including 7 no (1 Bed) Apartments and 1 no (2 Bed) Duplex Apartment, all totalling 639 sqm.
20. 2010 (2085/10) – Permission granted for the demolition by mechanical means of the controlled use of explosives of no's 1-93 Coultry Road, Ballymun, Dublin 9. The existing development comprises an eight storey over basement flat block containing 96 no. units (48 no. 3-bed, 24 no. 2-bed and 24 no. 1-bed), on a site measuring approx. 0.5 ha.
21. 2011 (3657/11) – Granted planning permission for the demolition by mechanical means of nos. 26-41 Coultry Gardens, which comprises 2no. terraces of 8 units each, and for the removal of waste material on site, on a site measuring 367.5sqm.
22. 2010 (2591/10) – Granted planning permission for the demolition by mechanical means of nos. 62-65 Coultry Gardens (a terrace of 4no. 2-storey houses) and for the removal of waste material on site.
23. 2013 (2909/13, 2908/13, 2907/13) – Permission granted for the demolition of a two 8 storey flat blocks (2909/13 and 2908/13) and a 15 storey flat block (2907/13).

Planning pending

A. 2015 (4247/15) - Planning permission for three dwelling units at Parnell Court, 1 Granby Row, (Protected Structure), Dublin 1, a three storey building previously in office/ educational use.
B. 2016 (2107/16) - A Wastewater Treatment Plant and associated infrastructure to treat waste and wastewater for an estimated to 4,000 Population Equivalent (PE) on a 0.08 Ha site.
C. 2016 (WEB1392/15) - Internal alterations and a two-storey extension to the rear of existing two-storey dwelling/house along with all associated siteworks.
D. 2015 (3665/15) - The proposed development consists of the construction of a residential scheme comprising 131 residential units, together with a café, childcare facility and ancillary development above and below ground (c. 17,644 sq.m gross floor area plus a semi-basement car-park of c. 2,525 sq.m). The proposed development comprises the demolition and removal/ reuse of all remaining structures/ hard-standing on site and construction of 43 houses.
E. 2015 (4034/15) - The construction of a total of 6 no. residential units.
F. 2015 (3595/15) - Demolition of existing single storey sheds & construct 2 new houses.

11. Traffic surveys

Tracsis were commissioned to carry out junction turning counts and queue length surveys at the main junctions along the route. These surveys were carried out in March 2016 on a neutral day of the week within the school term. The survey sites are listed below.

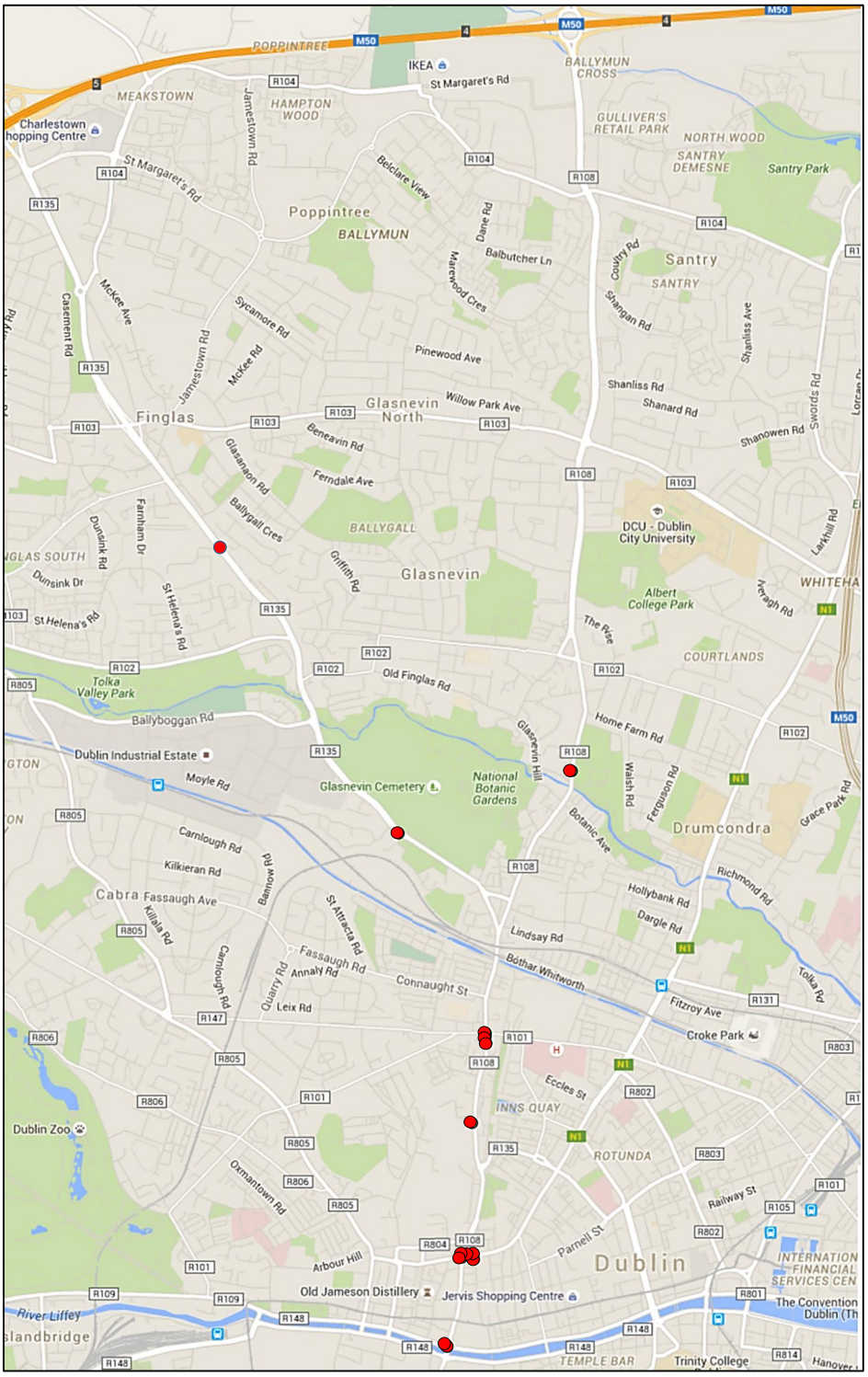
1. Ballymun Road / Santry Avenue / Balbutcher Lane
2. Ballymun Road / Collins Avenue
3. Ballymun Road / Mobhi Road / Griffith Avenue
4. Mobhi Road / Botanic Road
5. Botanic Road / Prospect Way/Finglas Road
6. Phibsborough Road / Whitworth Road
7. Phibsborough Road / Connaught Street
8. Phibsborough Road / North Circular Road
9. Phibsborough Road / Western Way / Constitution Hill

12. Road collision history

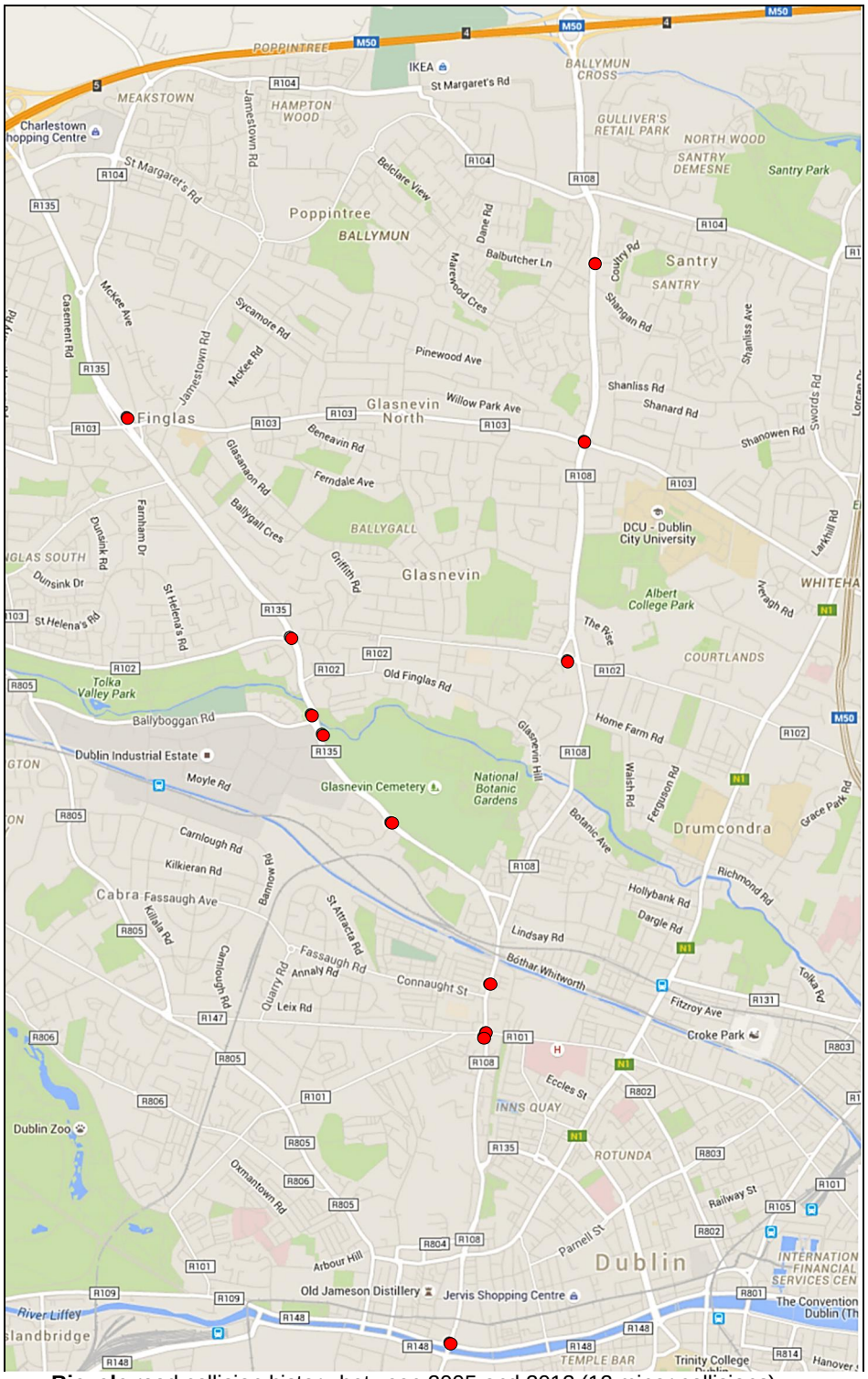
The Road Safety Authority database of personal injury accidents was examined to establish if there are any existing safety issues in the study area that were not evident from the site visit. The database provides accident records for the period 2005 to 2013; in terms of location, year, road user type involved (pedestrian, car, cyclist, motorcyclist, bus etc.), circumstances and severity of collision (minor, serious or fatal). An examination of the collision information along the CBC route found that the majority of traffic collisions along the corridor occur at the following sections:

· Ballymun Road between the Santry Avenue and Collisions Avenue junctions;
· Phibsborough Road between the Royal Canal and the Western Way junction; and
· Church Street between the Quays and North King Street.

The following bus and cyclist collision history maps indicate the location of incidents



Bus road collision history between 2005 and 2012 (14 minor collisions)



Bicycle road collision history between 2005 and 2012 (12 minor collisions)

13. Traffic signal information

Traffic signal information has been requested from Dublin City Council for several of the main junctions along the route.

14. Utility information

Utility information, including water, gas and electricity, has been requested for all the nearby buildings along the CBC.

15. Tree survey

Dr. Phillip Blackstock was commissioned to carry out a detailed and high-level tree survey along the route options. The tree survey assessment identified the number and approximate location of all roadside trees along the route options, as well as trees and hedges growing on adjoining grounds where their canopy extends over the carriageway. It also noted the location of those trees that have trunks or limbs close to and or within 5.1m above the carriageway.