Non-Technical Summary

Contents

1. Introduction

This document is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) for the Bray to City Centre Core Bus Corridor Scheme (referred to as the Proposed Scheme throughout this NTS). The Proposed Scheme will support integrated sustainable transport usage through infrastructure improvements for active travel (both walking and cycling), and the provision of enhanced bus priority measures for existing (both public and private) and all future services who will use the corridor.

The Proposed Scheme has an overall length of approximately 18.5km. It will commence at the junction of Leeson Street Lower and Earlsfort Terrace on St. Stephen's Green. It will run along Leeson Street Lower and Upper, and Sussex Road. It will continue along Morehampton Road and Donnybrook Road, through Donnybrook Village and on to the Stillorgan Road, serving the University College Dublin (UCD) Interchange via the Stillorgan Road Overbridge at Belfield.

The Proposed Scheme will then continue on the Stillorgan Road, which carries on to the Bray Road to Loughlinstown Roundabout. From Loughlinstown Roundabout it will run along the Dublin Road to St. Anne's Church and then continue south through Shankill village. It will then pass through Wilford Junction and along the Dublin Road until it terminates on Castle Street in Bray, on the north side of the River Dargle crossing.

The route of the Proposed Scheme is presented in Image 1.1, and general arrangement drawings of the Proposed Scheme are appended to this NTS.

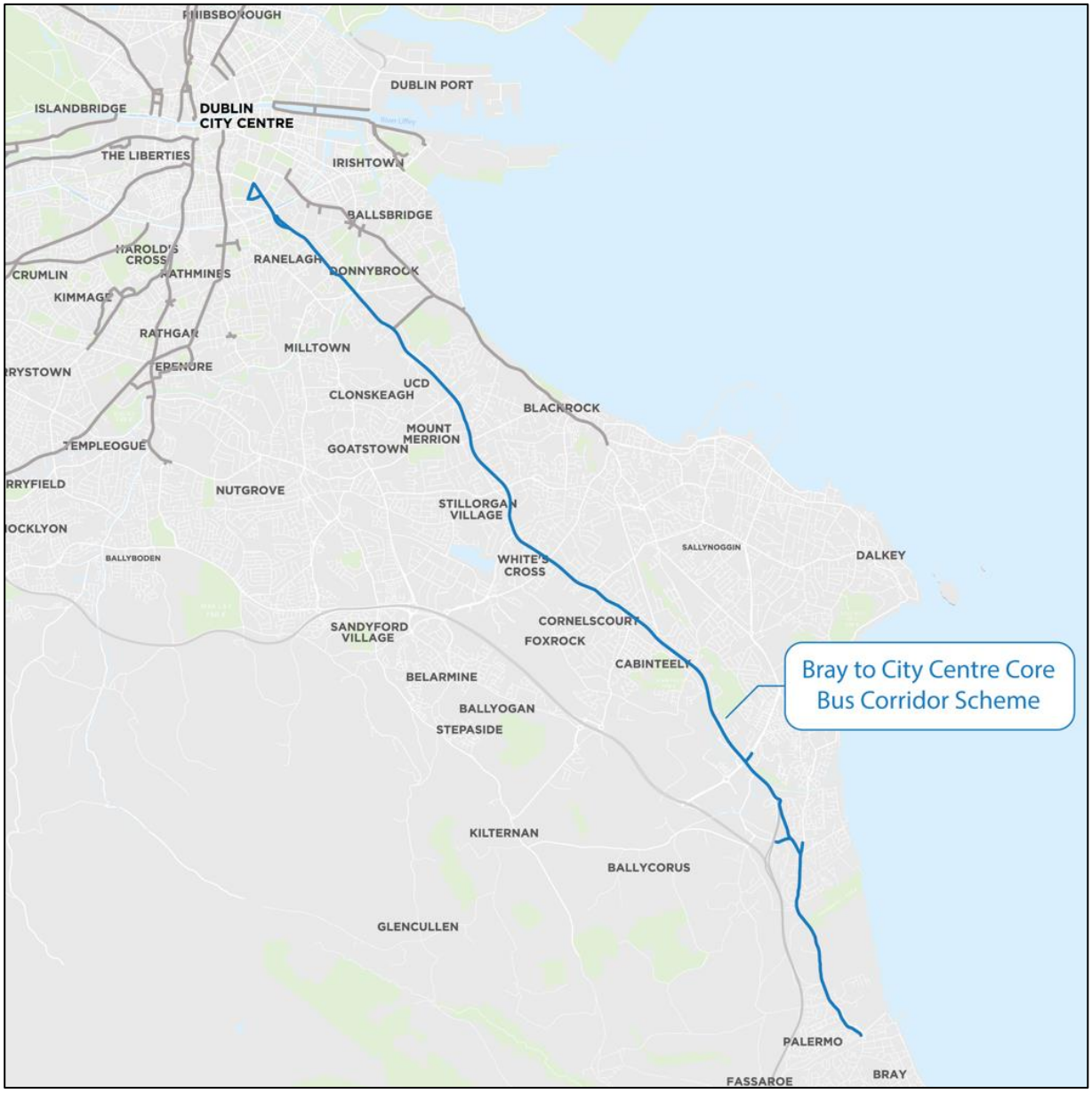

Image 1.1: Route of the Proposed Scheme

The Proposed Scheme would significantly enhance travel by public transport by providing bus priority as well as improved pedestrian and cycling infrastructure. Currently this access corridor is characterised by traffic congestion and while there are existing bus lanes on parts of the route, buses and cyclists are competing for space with general traffic for most of the journey, making it less attractive for pedestrians, cyclists and bus users.

Through the provision of increased bus priority infrastructure, the Proposed Scheme will improve both the overall journey times for buses along the route and their journey time reliability.

In addition to the improvements to bus journey times and journey time reliability, the Proposed Scheme will provide benefits for cyclists and pedestrians. The scheme design has been developed having regard to the relevant accessibility guidance and universal design principles to provide access for all users.

The provision of dedicated cycling infrastructure along the Proposed Scheme will make cycling trips safer and more attractive. In this regard, the Proposed Scheme delivers substantial elements of the National Transport Authority (NTA) Greater Dublin Area Cycle Network, much of which does not currently have adequate provision -

as well as linking with other existing and proposed cycling schemes and sustainable transport modes, contributing towards the development of a comprehensive cycling network for Dublin.

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

The primary objective of the Proposed Scheme, therefore, is the facilitation of modal shift from car dependency through the provision of walking, cycle, and bus infrastructure enhancements thereby contributing to an efficient, integrated transport system and facilitating a shift to a low carbon and climate resilient city.

The Proposed Scheme is one of 12 schemes to be delivered under the BusConnects Dublin - Core Bus Corridors Infrastructure Works (hereafter called the CBC Infrastructure Works). The CBC Infrastructure Works is one of the initiatives within the NTA's overall BusConnects Programme. The BusConnects Programme seeks to greatly improve bus services in Irish cities, including Dublin, so that journeys by bus will be fast, reliable, punctual, convenient, and affordable. The proposed CBC Infrastructure Works are illustrated in Image 1.2.

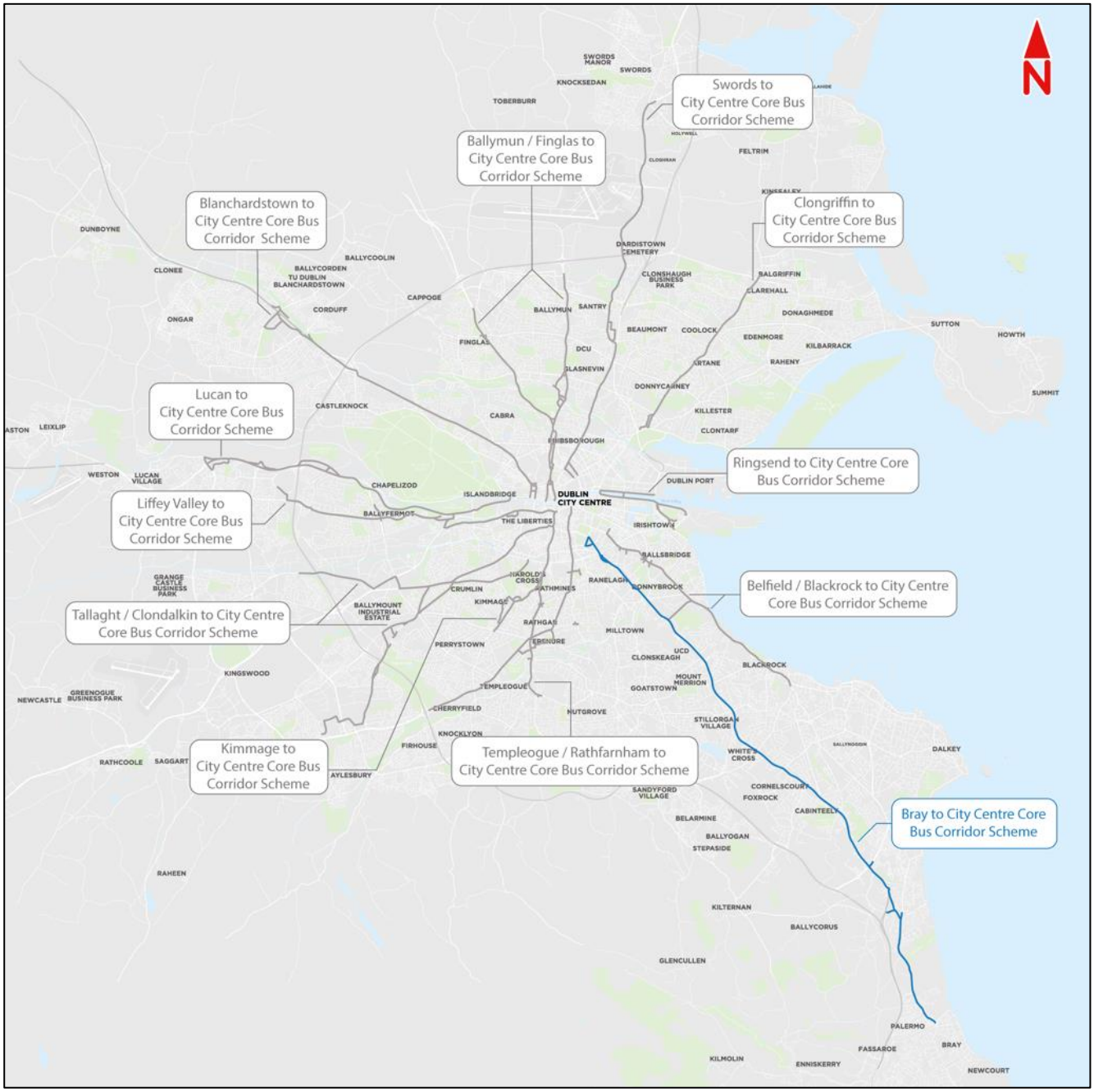

Image 1.2: CBC Infrastructure Works

It is envisaged that the CBC Infrastructure Works, once completed, will deliver the radial Core Bus Corridors identified in the NTA's Transport Strategy for the Greater Dublin Area 2022-2042 (referred to as the GDA Transport Strategy) (NTA 2022).

1.1 Aims and Objectives

The aim of the Proposed Scheme is to provide improved walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor. The objectives of the Proposed Scheme are to:

- Enhance the capacity and potential of the public transport system by improving bus speeds, reliability and punctuality through the provision of bus lanes and other measures to provide priority to bus movement over general traffic movements;

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

The planning and design of the Proposed Scheme has been guided by these aims and objectives.

The outcomes achieved from delivering the Proposed Scheme will be:

- An attractive, resilient, equitable public transport network better connecting communities and improving access to work, education and social activity;
- To facilitate a transport infrastructure network that prioritises walking and cycling and a mode shift to public transport; and
- To support increased economic and social potential through integrated land-use and transport planning to reduce the time burden of travel.

1.2 Role of the National Transport Authority

The NTA is a statutory non-commercial body, which operates under the aegis of the Department of Transport. The NTA was established on foot of the Dublin Transport Authority Act 2008 (as amended) (the '2008 Act').

In the case of the Proposed Scheme, the functions of the NTA include undertaking the design and planning process, seeking (and obtaining) all development consents including related compulsory acquisition approvals from An Board Pleanála, and construction of the Proposed Scheme (if approved).

2. Environmental Impacts Assessment Process

2.1 EIA Process

Environmental Impact Assessment (EIA) is a systematic and an iterative process that examines the potential environmental impacts of a proposed scheme and establishes appropriate design and mitigation measures to avoid, reduce or offset impacts.

The EIAR reports the findings of an assessment of the environmental impacts of the Proposed Scheme. The purpose of the EIAR is to:

- Describe the baseline conditions before any work on the Proposed Scheme has commenced;
- Describe the Proposed Scheme;
- Describe the assessment methodologies used to assess the potential environmental impacts of the Proposed Scheme;
- Describe environmental issues and any likely significant impacts which may arise during the Construction and Operational Phases of the Proposed Scheme;
- Consider the potential cumulative impacts as a result of potential impacts from other schemes in combination with the predicted impacts of the Proposed Scheme;
- Propose mitigation measures to reduce or avoid these impacts; and
- Identify the significant residual impacts which occur after the proposed mitigation measures have been implemented.

All assessments have been carried out in accordance with best practice and applicable guidelines. Some chapters of the EIAR use specific guidelines related purely to that particular discipline.

This NTS is Volume 1 of the EIAR and presents a summary of the EIAR, including key aspects of the Proposed Scheme and the associated beneficial and adverse impacts of importance.

The EIAR documents have been divided into the following Volumes for ease of use:

- Volume 1 – NTS (this document);
- Volume 2 - Main Report;
- Volume 3 – Figures; and
- Volume 4 – Appendices.

3. Need for the Proposed Scheme

3.1 Context

Private car dependence causes significant congestion, affecting our quality of life, our urban environment, and road safety. As the population of the Greater Dublin Area is projected to rise to almost 1.5 million by 2040, there will be an increased demand for travel on roads which currently do not have the capacity for more traffic. Therefore, enhanced sustainable transport options are needed. Without intervention, traffic congestion will lead to longer and less reliable pedestrian, cycle, and bus journeys throughout the region and this will affect the quality of people's lives. On the other hand, sustainable transport infrastructure helps create more sustainable communities and healthier places, while also stimulating our economic development. It contributes to good health and well-being when delivered effectively.

3.2 Project Ireland 2040 – National Development Plan 2021-2030

Under the heading 'Major National Infrastructure Projects' the National Development Plan 2021-2030 sets out a selection of 'Sustainable Mobility' projects included in the Plan as 'Strategic Investment Priorities'. The Proposed Scheme, forming part of the Core Bus Corridors Infrastructure Works within the overall BusConnects Programme is identified as a component of a Strategic Investment Priority, with an associated investment commitment, which has been determined as central to the delivery of the National Planning Framework vision. Delivering the Proposed Scheme will provide the infrastructure needed to help us move from excessive dependence on private car to walking, cycling and public transport.

3.3 Climate Action Plan 2023

Climate Action Plan 2023 is the second annual update to Ireland's Climate Action Plan 2019. This plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and following the introduction, in 2022, of economy-wide carbon budgets and sectoral emissions ceilings. The plan implements the carbon budgets and sectoral emissions ceilings and sets a roadmap for taking decisive action to halve Irelands emissions by 2030 and reach net zero no later than 2050.

The Climate Action Plan 2023 calls for a significant cut in transport emissions by 2030 in order to meet the sectoral emission ceiling, with the transport sector having an aim of a 50% reduction in emissions by 2030. The 'Avoid' (reduce or avoid the need for travel – land use planning), 'Shift' (Shift to more environmentally friendly modes – public transport, active travel), 'Improve' (Improve the energy efficiency of vehicle technology – vehicle efficiency, clean fuels) approach has been adopted to help achieve these targets. The targets from the previous plan (Climate Action Plan 2021) have been updated to include '*a 20% reduction in total vehicle kilometres, a reduction in fuel usage, and significant increases to sustainable transport trips and modal share'*.

One of the key actions to deliver abatement in transport identified in the Plan is the advancement of the BusConnects Programme in five cities (which includes Dublin).

The delivery of the Proposed Scheme will provide the transport infrastructure required to deliver sustainable transport options that will support the key actions set out in the Climate Action Plan 2023. The Proposed Scheme will expand, enhance and connect to pedestrian and cycle networks and will assist in facilitating modal shift. It is clear that the targets set out within Climate Action Plan 2023 are closely linked to the delivery of key transport infrastructure projects, such as the BusConnects Programme and therefore the Proposed Scheme.

3.4 Greater Dublin Area Transport Strategy

The Greater Dublin Area Transport Strategy 2022-2042 has replaced the previous transport strategy (for the period 2016 to 2035). The overall aim of the strategy is '*To provide a sustainable, accessible and effective transport system for the Greater Dublin Area which meets the region's climate change requirements, serves the needs of urban and rural communities, and supports the regional economy'*. A key focus of the strategy is to enable increased use of other transport modes to meet environmental, economic and social objectives related to emissions, congestion and car dependency. It sets a clear direction towards a 50% reduction in CO_2 emissions within the Greater Dublin Area by 2030.

Similar to the approach adopted under the Climate Action Plan 2023, the Transport Strategy references the 'Avoid', 'Shift' and 'Improve' concept / principles in integrated land use and transport planning and the measures within the Transport Strategy have been categorised under these three headings / themes.

The Transport Strategy considers the road user hierarchy to encourage the use of sustainable transport, with pedestrians and cyclists placed at the top of the hierarchy. Due to the larger number of users that can use public transport, it needs to be prioritised over the private car in the design of the transport networks. The GDA Transport Strategy 2022 - 2042 puts the delivery of Dublin BusConnects, of which the Proposed Scheme is part, at the heart of its objectives. There is added emphasis on the delivery of public transport, active travel and enhanced accessibility to sustainable modes of transport, all of which the Proposed Scheme will help to deliver.

The Proposed Scheme supports the implementation of the Transport Strategy in regard to improving the active travel environment along the Proposed Scheme, while taking cognisance of and supporting pedestrian and public realm planning objectives locally. In addition, the Proposed Scheme will improve the existing streetscape / urban realm setting along the corridor. This will include the provision of significantly enhanced crossing facilities, and the introduction of new and improved landscaping provisions along the corridor, and complimentary planting regime and streetscape improvements at key locations will also enhance the character of the surrounding built environment along the corridor.

To inform the preparation of the previous Greater Dublin Area Transport Strategy (2016 – 2035), the NTA prepared the Core Bus Network Report 2015 for the Dublin Metropolitan Area, which identified those routes on which there needed to be a focus on high capacity, high frequency and reliable bus services, and where investment in bus infrastructure should be prioritised and concentrated.

The Bray to City Centre route was identified as one of the radial bus routes on the Core Bus Network. Parts of this route along the extent of the Proposed Scheme are lacking in inbound and outbound bus-lane infrastructure. Therefore, the quality of service is poor in places due to discontinuities of various types, with parts of the route lacking a dedicated bus lane. At key locations along the corridor the existing bus lanes are shared, with the designation of shared cycle / bus lanes along parts of the route where no segregated cycling infrastructure is available. This has the effect of slowing down bus journeys.

Based on the need to address the resulting service deficiencies along the route and the need to serve significant demand and a high level of scheduled bus services along this entire corridor, the Core Bus Network study included a recommended route from Bray to the City Centre.

The Greater Dublin Area Transport Strategy 2022 – 2042 states that subject to obtaining statutory planning approvals, the NTA will proceed to implement the 12 Core Bus Corridors as set out in the Dublin Bus Connects programme (which includes the Proposed Scheme). They will facilitate faster and more reliable bus journeys on the busiest bus corridors in the Dublin region, making the overall bus system more convenient and useful for more people. This in turn will support the potential to increase the bus network capacity of services operating along the corridor and thereby further increasing the attractiveness of public transport.

In addition, the Transport Strategy states that key elements of the Cycle Network Plan for the Greater Dublin Area will be delivered as part of the Core Bus Corridor schemes. The Proposed Scheme supports the implementation of the Cycle Network Plan as it will provide infrastructure that will support and enhance cycling as a transport mode, including the delivery of infrastructure for specific routes identified as part of the cycle network plan. The segregation and safety improvements to walking and cycling infrastructure that is a key feature of the Proposed Scheme will further maximize the movement of people travelling sustainably along the corridor and will therefore cater for higher levels of future population and employment growth.

In the absence of the Proposed Scheme bus services will be operating in a more congested environment, leading to higher journey times for bus and lower reliability which will lead to reduced levels of public transport use, making the bus system far less attractive and less resilient to higher levels of growth. The absence of walking and cycling measures, provided in the Proposed Scheme, will significantly limit the potential to grow those modes into the future. Overall, the Proposed Scheme will make a significant contribution to the overall aims and objectives of BusConnects, the Greater Dublin Area Transport Strategy 2022 – 2042 and allow the city to grow sustainably into the future, which would not be possible in the absence of the Proposed Scheme.

4. Consultation

Public participation has been an integral part of the development of the Proposed Scheme from the outset. Non-statutory consultation was carried out, in three phases (one in relation to the Emerging Preferred Route (EPR) and two in relation to the Preferred Route Option (PRO)), to inform the public and stakeholders of the development of the Proposed Scheme from an early stage and to seek feedback and participation throughout its development.

The primary objective of the non-statutory public consultation process was and is to provide opportunities for members of the public and interested stakeholders to contribute to the planning and design of the Proposed Scheme and to inform the development process. Public participation in the planning and design of the Proposed Scheme was encouraged from an early stage through on-the-ground engagement and information and media campaigns.

The non-statutory consultation process assisted in:

- The establishment of a sufficiently strong environmental baseline for the Proposed Scheme and its surroundings;
- The identification, early in the process, of specific concerns and issues relating to the Proposed Scheme so that they could be appropriately accounted for in the design and assessment scope; and
- Ensuring the appropriate involvement of the public and stakeholders in the design and assessment process.

These consultations are briefly described below.

4.1 EPR Option Consultation

The first phase of public consultation carried out was based on the EPR and this ran from 26 February 2019 to 31 May 2019.

The issues raised during the first non-statutory public consultation process were considered as part of the route options assessment process and in determining the preferred route. The EPR proposals were amended to address the issues raised in submissions where possible, incorporating suggestions and recommendations from residents, community groups and stakeholders, where appropriate. These amendments were incorporated into the design and informed the PRO design-development which was subsequently also published for non-statutory public consultation.

At the initiation of the public consultation process a Community Forum was established with the aim of facilitating communication between community representatives, elected representatives and the BusConnects Infrastructure team. Community Forum meetings took place, where the Community Forum was provided with an update on the

design for the Proposed Scheme and given the opportunity to ask questions of the project team and provide feedback.

4.2 PRO Consultations

The PRO non-statutory public consultation took place from 4 March 2020 to 17 April 2020. The public were invited to make written submissions in relation to the published proposals to the BusConnects Infrastructure team either through an online form, by email or by post. Due to the COVID-19 pandemic all further planned events scheduled after 12 March 2020 were postponed. In deference to the submissions which had already been received, the decision was made not to cancel the consultation.

The NTA held a third round of public consultation prior to finalising the PRO in November 2020 and this took place from 4 November 2020 to 16 December 2020. This third round was carried out using virtual consultation rooms, offering a 'call-back' facility along with descriptions, supporting documentation and mapping of the draft PRO as well as information on all revisions, if any, made since the second round of non-statutory public consultation.

The issues raised during the second and third rounds of public consultation have been considered as part of the final PRO and formed the basis of the preliminary design.

4.3 Consultation with Prescribed Bodies and Other Consultees

In addition to the public consultation on the Proposed Scheme, the NTA undertook consultation during the preparation / development of the EIAR with certain prescribed bodies and relevant non-statutory consultees.

During the development of the EIAR, prescribed bodies (including the Department of Communications, Climate Action and the Environment, the Department of Transport, Dublin City Council, Dún Laoghaire-Rathdown County Council, Wicklow County Council and the Heritage Council) and relevant non-statutory consultees were provided with a report outlining the proposed approach to the environmental assessment and were invited to comment. Feedback from this consultation was also used to inform the EIAR and the preliminary design proposals.

4.4 Consultation with Landowners

There has been ongoing engagement with landowners whose properties will be impacted, or potentially affected, as the design development for the Proposed Scheme has progressed, from the earliest stages of the project in 2018 through to May 2023. This engagement has overlapped with the public consultations (in January 2019, March 2020 and November 2020). A letter drop was also carried out in Summer 2020 to request access to properties to undertake more detailed surveys. Most recently during February to April 2023, letters have been issued to properties likely to be the subject of the Proposed Scheme Compulsory Purchase Order (CPO) process seeking to engage with them to ascertain ownership details. Over the course of the engagements, affected property owners have had the opportunity to discuss different aspects of the Proposed Scheme with the design team. Follow-up conversations have been facilitated as a result of these letters on request. In addition, a further attempt was made to contact those occupiers that had yet to make contact by visiting each property during May 2023. Where no one answered the door, a letter was placed through the letterbox again requesting the occupiers to contact the NTA.

4.5 Consultation with Local Residents and Business Groups

Throughout the design development of the Proposed Scheme, from the initiation of the first non-statutory public consultation, the NTA facilitated consultation on request with small local resident groups and with business interests on / adjacent to the route. Similar to the Community Forum meetings, such events facilitated discussion on the design for the Proposed Scheme and attendees were given the opportunity to ask questions of the BusConnects Infrastructure team and provide feedback.

5. Alternatives Considered

5.1 Strategic Alternatives

The Proposed Scheme has been developed following careful consideration of alternatives. The GDA Transport Strategy 2016 – 2035, and its associated Strategic Environmental Assessment, considered several strategic options relevant to the Proposed Scheme. The Transport Strategy for the Greater Dublin Area 2022-2042 (Transport Strategy) replaces the prior transport strategy for the period 2016 to 2035.

The consideration of alternative options included a 'Do Nothing' Scenario. This is a scenario where the Proposed Scheme would not be progressed. This option was deemed to be unacceptable as traffic congestion throughout the GDA is particularly high, with the number of cars on the road increasing and significant daily traffic delays. Without intervention, potential impacts could worsen for the region, including:

- Continued growth of traffic congestion;
- Impacts on the ability of the region to grow economically due to increased traffic congestion;
- Longer journey times and increased travel stress will diminish quality of life; and
- Environmental emissions targets will not be met.

The NTA carried out a review of the existing transport network and future forecasts of travel demand in Dublin. This review was further broken down into an assessment of existing and future land use and travel patterns and identified trends and issues within eight transport corridors. Based on these assessments, the most practical set of transport service proposals was set out for each of the eight corridors, combining to form the overall integrated transport system for the GDA up to 2035 in the GDA Transport Strategy.

Through the work undertaken in the preparation of the GDA Transport Strategy, including its supporting studies, various alternatives to deal with the transport needs which are intended to be addressed by the Proposed Scheme were identified and considered.

Other strategic alternatives considered included:

- Bus Rapid Transit;
- Light Rail;
- Metro;
- Heavy Rail;
- Demand Management; and
- Technological Alternatives.

The Proposed Scheme has been developed to provide a level of service similar to Bus Rapid Transit. The GDA Transport Strategy 2016 – 2035 has concluded that new heavy rail (DART south-eastern line upgrades including a new station between Bray and Shankill) and light rail (Luas Green Line extension to Bray) / metro (upgrade of Luas Green Line to metro standard as far as Bride's Glen) alternatives should be supplemented by a high quality bus-based transport system. The challenges outlined in the GDA Transport Strategy 2016 - 2035 and identified need for BusConnects Dublin as determined in the preparation of that prior strategy remain, and the evidence from the detailed corridor studies undertaken in the preparation of the prior strategy is still valid and robust.

Demand management and technological alternatives, such as congestion charges, road pricing, electric vehicles on their own would not remove the need for additional bus transport or cycling infrastructure along the route of the Proposed Scheme.

5.2 Route Alternatives

Alternative route options have been extensively considered during the design development of the Proposed Scheme. The development of the design has also been informed by a review of feedback and new information received during each stage of public consultation and as the level of data, such as surveys, transport and environmental data was collected and assessed.

Development of the Proposed Scheme has evolved in the following stages:

1) **Feasibility and Options Report** was concluded in 2018, setting out the initial route options and concluding with the identification of the Emerging Preferred Route;
2) A first round of non-statutory **Public Consultation** was undertaken on the Emerging Preferred Route from 26 February 2019 to 31 May 2019;
3) Development of **Draft Preferred Route Option** (May 2019 to March 2020). Informed by feedback from the first round of public consultation, stakeholder and community engagement and the availability of additional design information, the design of the Emerging Preferred Route evolved with further alternatives considered;
4) A second round of non-statutory **Public Consultation** was undertaken on the Draft Preferred Route Option from 04 March 2020 to 17 April 2020. Due to the introduction of COVID-19 restrictions, some planned in-person information events were cancelled, leading to a decision to hold a third consultation later in the year;
5) Further development of an updated **Draft Preferred Route Option** was undertaken subsequent to the second round of public consultation, which took account of submissions received, continuing stakeholder engagement and additional design information;
6) A third round of non-statutory **Public Consultation** was undertaken on the updated Draft Preferred Route Option from 04 November 2020 to 16 December 2020; and
7) Finalisation of **Preferred Route Option**. Informed by feedback from the overall public consultation process, continuing stakeholder engagement and the availability of additional design information, the Preferred Route Option, being the Proposed Scheme, was finalised.

The initial route alternatives considered covered a network of roads between Bray and the City Centre. These were narrowed down using a high-level qualitative method based on professional judgement and a general appreciation for existing physical conditions / constraints including environmental considerations within the study area.

The alternative route options were then evaluated under the following criteria:

- Economy;
- Safety;
- Integration;
- Accessibility and Social Inclusion; and
- Environment.

Careful consideration for alternative cycling route options was also fundamental in the process of defining the EPR.

Informed by the appraisal of alternative route options, the EPR was identified. That EPR is summarised as follows:

> '*The Bray Core Bus Corridor (CBC) commences at Nassau Street and progresses through Kildare Street to St Stephen's Green North and East, turning south on Leeson Street Lower. The corridor runs along Leeson Street Lower and Upper including the existing oneway system on Sussex Road. It continues on Morehampton Road and Donnybrook Road through Donnybrook Village, and on to the Stillorgan Road, intersecting with the UCD to City Centre Core Bus Corridor at Nutley Lane and the Belfield Interchange entrance to University College Dublin (UCD). It continues south on Stillorgan / Bray Road as far as the Loughlinstown Roundabout. The route then proceeds along the R837 Dublin Road through Shankill and on to the R119 Dublin Road. The route continues along R119 through the M11 access roundabout and onto the R761 Dublin Road north of Bray. The route terminates at the Dargle River Crossing and ties into Bray Main Street current road layout.'*

5.3 Design Alternatives

Following the completion of the public consultation process in relation to the EPR, various amendments were made to the scheme proposals to address some of the issues raised in submissions, including incorporating suggestions and recommendations from residents, community groups, businesses, elected representatives, and

stakeholders, and/or arising from the availability of additional information. These amendments were incorporated into the designs and informed a Draft PRO. Alternatives considered during the development of the Draft PRO included the following:

- Following publication of the EPR, the design of the UCD bus interchange facility was further developed. It became apparent that additional bus interchange capacity would be required at UCD. Detailed liaison with UCD has taken place to develop an interchange facility that serves the Proposed Scheme requirements while also supporting UCD's sustainable transport objectives and to ensure tie-in with the UCD Future Campus Masterplan. The proposed facility will be located adjacent to UCD's proposed arrival plaza at the Stillorgan Road entrance and will act as a gateway for pedestrian and cyclist access to the campus;
- In response to a number of public consultation submissions on the cycle provision between Loughlinstown Roundabout and Crinken Lane the design was reinvestigated. To reduce the impact on the environment and to respond to the concerns of the local community the design was amended. It was decided to not provide segregated cycle tracks between Loughlinstown Roundabout and Stonebridge Road with cyclists having to share the bus lanes or general traffic lanes. Between Stonebridge Road and Crinken Lane it was decided to provide a short section of two-way cycle track to link the junction at Corbawn Lane to Stonebridge Road, with a toucan crossing provided to cross the Dublin Road at the Stonebridge Road junction. Between the St. Anne's Church junction and Crinken Lane cyclists would share the carriageway with general traffic, with a 30kph speed limit imposed; and
- The EPR was reviewed between Crinken Lane and Wilford Roundabout with a view to minimising the impacts on trees and heritage walls. A number of amendments were made to reduce impacts including extension of the signal controlled priority measures through Shankill Village for southbound buses as far as Shanganagh Castle, local shortening of the northbound bus lane from the Wilford junction, and repositioning of proposed footpath and cycle tracks to behind roadside tree lines where suitable to maintain the existing roadside tree canopy (e.g. at Shanganagh Park and Cemetery).

Furthermore, the Proposed Scheme includes other localised design changes which were made based on feedback received during the second round of public consultation, dialogue with stakeholders and further design review. For example, a new option was considered for the length between the Hatch Street Lower / Pembroke Street Upper junction and St Stephen's Green. Cross sections along Leeson Street Lower were assessed to minimize impact on the heritage kerbs and to improve safety for cyclists. This assessment led to the inclusion of a bus gate, diverting northbound general traffic off Leeson Street Lower along Hatch Street and Earlsfort Terrace.

The assessment of alternatives took account of environmental impacts, alongside other relevant factors including the economy, safety and accessibility, to arrive at the Proposed Scheme.

6. Description of the Proposed Scheme

The Proposed Scheme has an overall length of approximately 18.5km. It will commence at the St. Stephen's Green / Leeson Street Lower Junction and will run along the R138 (Leeson Street Lower / Leeson Street Upper / Sussex Road / Morehampton Road / Donnybrook Road / Stillorgan Road), and includes a bus interchange facility at the Stillorgan Road entrance to UCD. It continues along the N11 (Stillorgan Road / Bray Road), R837 Dublin Road, R119 Dublin Road and R761 (Dublin Road / Castle Street), ending at the northern side of the Fran O'Toole Bridge in Bray, where it will tie into the proposed Bray Bridge Improvement Scheme.

The design of the Proposed Scheme has evolved through comprehensive design iteration with particular emphasis on minimising the potential for environmental impacts, where practicable, whilst ensuring the objectives of the Proposed Scheme are attained. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and design development process has been incorporated where appropriate.

The Proposed Scheme has been developed to ensure that the principles of universal design are integrated fully in the design, providing access for all users, and eliminating barriers to disabled people.

A typical BusConnects road layout is shown in Image 6.1.

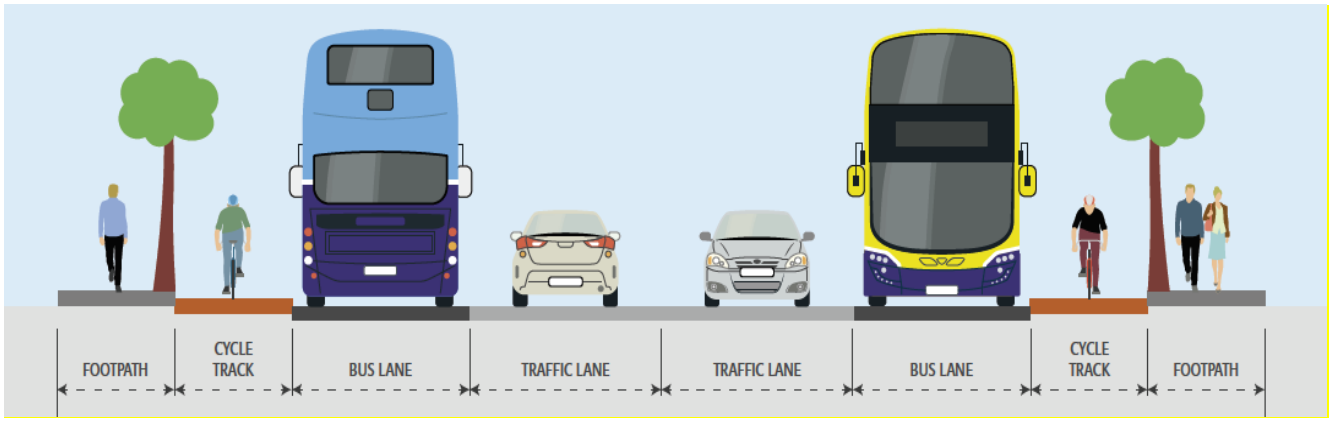

Image 6.1: Typical BusConnects Road Layout

The Proposed Scheme will make significant improvements to pedestrian and cycling facilities and to bus priority. Some of the key changes that will be made to the existing corridor as a result of the Proposed Scheme are the following:

- The number of pedestrian signal crossings will increase by 60% from 106 to 170 as a result of the Proposed Scheme;
- The proportion of segregated cycle facilities will increase from 47% on the existing corridor to 91% on the Proposed Scheme;
- The proportion of the route having bus priority measures will increase from 69% on the existing corridor to 99.6% on the Proposed Scheme.

The Proposed Scheme is described in the following geographical sections:

- Section 1: Leeson Street to Donnybrook (Anglesea Road Junction);
- Section 2: Donnybrook (Anglesea Road Junction) to Loughlinstown Roundabout;
- Section 3: Loughlinstown Roundabout to Bray North (Wilford Roundabout); and
- Section 4: Bray North (Wilford Roundabout) to Bray South (Fran O'Toole Bridge).

6.1 Section 1: Leeson Street to Donnybrook (Anglesea Road Junction)

The section runs along Leeson Street Lower and Upper from the junction with St Stephen's Green, providing continuous bus priority and segregated cycle tracks in each direction. A bus gate will be located on Leeson Street Lower at the Hatch Street Lower junction. General inbound traffic will be directed from Leeson Street Lower on to Hatch Street Lower, and then on to Earlsfort Terrace in order to reach St Stephen's Green. There will be two-way general traffic introduced on Earlsfort Terrace between the Hatch Street Lower Junction and St. Stephen's Green to facilitate this. This will require the northbound bus lane on Earlsfort Terrace to be made a general traffic lane. The existing left turning ban at Earlsfort Terrace towards St. Stephen's Green North will be removed to facilitate the general traffic movement.

The one-way system on Sussex Road and the adjacent section of Leeson Street Upper have been retained, with a reduced number of general traffic lanes in each direction to allow for full bus and cycle lane provision and retain existing parking. The proposed junction at Fitzwilliam Place and Leeson Street Lower from the Fitzwilliam Cycle Route (Dublin City Council) has been incorporated into the Proposed Scheme, while revised junction layouts at Appian Way, Waterloo Road, and Wellington Place have been designed to improve road user throughput and safety.

The full cycle track and bus lane provision will continue along Morehampton Road, where in places the cycle tracks will be brought behind the tree line. This will impact a number of on-street parking bays between Wellington Place and Belmont Avenue. A 'No Right Turn' restriction will be added from Morehampton Road onto Auburn Avenue to reduce crossing point conflicts.

From Mulberry Lane to Rampart Lane the northbound bus lane has been removed to allow for two reduced width segregated cycle tracks in both directions, while the southbound bus lane has been retained along this narrow section. Signal-controlled priority at the Eglinton Terrace junction on Donnybrook Road will provide northbound bus priority over this length. The perpendicular parking spaces south of Mulberry Lane will be converted to parallel spaces, while the echelon parking spaces on the other side of the road will be retained. This is all shown in Image 6.2. From Eglinton Terrace southwards to Eglinton Road a dedicated bus lane, segregated cycle track, and general traffic lane will be provided in each direction. The tie in for the proposed Dodder Greenway, designed and built by others, has been included in the design at the Eglinton Road junction on Donnybrook Road.

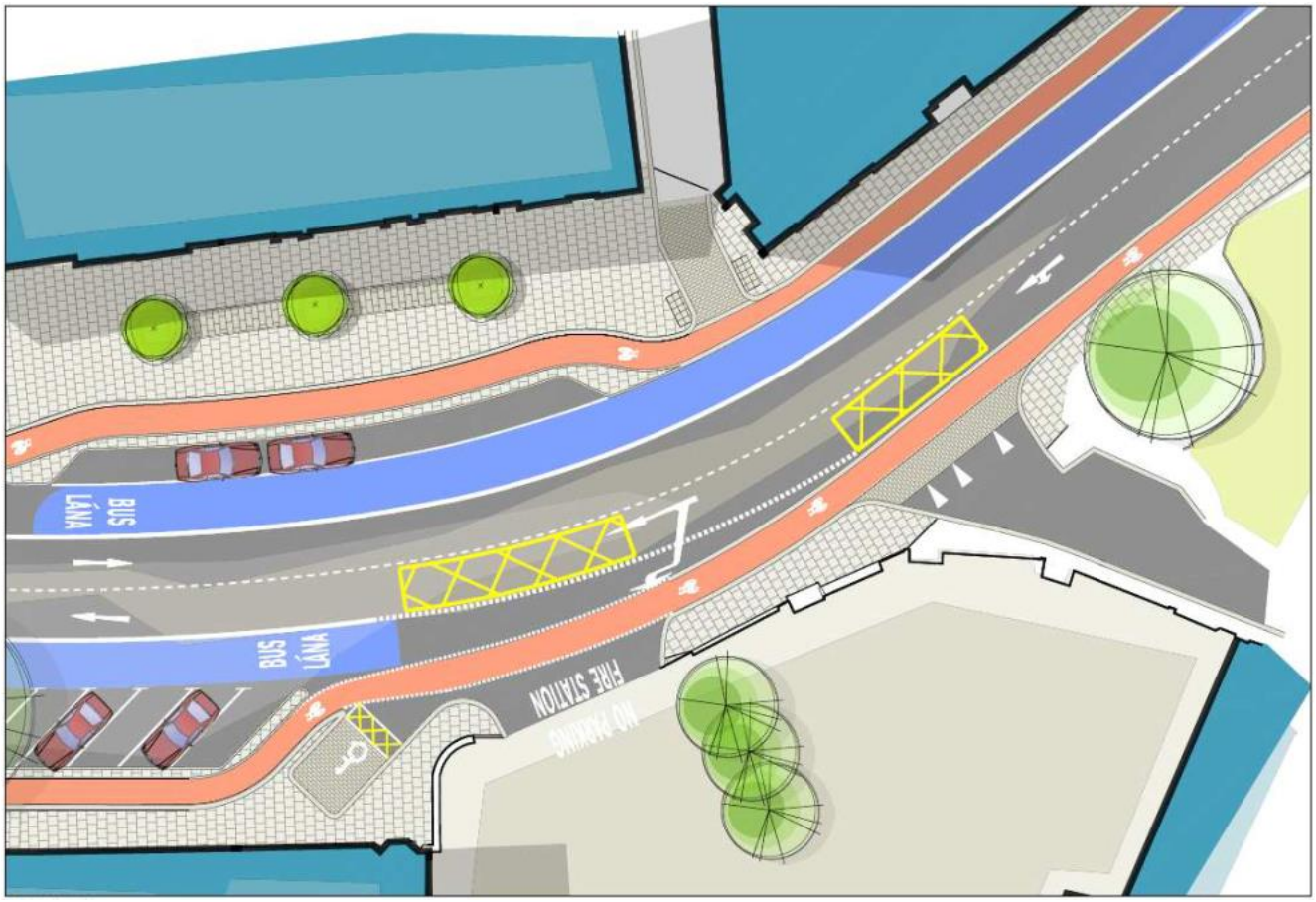

Image 6.2: Donnybrook Retail Area, Mulberry Lane

On Donnybrook Road between Eglinton Road and Anglesea Road in the southbound direction, there will be a straight ahead and left-turn lane, a straight ahead general traffic lane, a bus lane, and a cycle track provided. The northbound approach on the Stillorgan Road towards Beaver Row will have a cycle track, bus lane, a combined left and ahead general traffic lane, and a right-turn lane to Ailesbury Road. Between Beaver Row and Eglinton Road there will be a cycle track, bus lane, and a combined left and ahead traffic lane.

Coach laybys have been proposed at certain locations to reduce instances of loading coaches blocking the bus lane.

It is proposed that, where possible along Section 1 of the Proposed Scheme, existing kerb lines will be retained and the BusConnects Design Guide will be adhered to. Signal-controlled priority shall be employed at certain locations where full segregated bus lane provision has not been possible due to space constraints.

6.2 Section 2: Donnybrook (Anglesea Road Junction) to Loughlinstown Roundabout

The existing lane configuration will be maintained on the Stillorgan Road between the Beaver Row / Anglesea Road junction and Foster's Avenue, apart from the southbound on-slip at Belfield, where a continuous bus lane will now be provided from the slip road to the Stillorgan Road. To achieve this, the existing southbound bus lane on the Stillorgan Road will be truncated and will require coaches, buses, and taxis using it to merge with the adjacent general traffic lane as they pass under the Belfield flyover. New continuous bus lanes will be provided on the southbound off-slip, and across the Belfield flyover. It is intended to provide segregated cycle tracks on each slip road and a two-way segregated cycle track on the Belfield flyover. A separate cycle link will be provided to the adjacent sideroad to the east of the southbound slip roads.

On the Stillorgan Road between Seafield Road and Foster's Avenue it is intended to provide a bus lane, a one-way segregated cycle track, and two general traffic lanes in each direction. A short length of two-way segregated cycleway will be provided on each side in this area due to the proximity to UCD. This will run from Woodbine Road to Merrion Grove by the southbound carriageway, and from Foster's Avenue to the newly constructed cycle entrance into UCD opposite Seafield Road by the northbound carriageway. A short new two-way cycle track connection will be provided southbound from Merrion Grove which will improve access from Coláiste Eoin / Coláiste Íosagáin to the N11 junction with Merrion Grove.

In addition, new junction layouts have been provided at RTÉ and Nutley Lane to improve road user throughput and safety. Bus stop locations and layouts have been reviewed, and in certain areas adjusted, to ensure optimum integration with interfacing services. Coach laybys have been proposed at certain locations to reduce instances of loading coaches blocking the bus lane.

The bus interchange proposals at UCD (see Image 6.3) have been developed in collaboration with UCD and are coordinated with the UCD Future Campus masterplan. The proposed UCD interchange is located adjacent to the Belfield interchange on the R138 Stillorgan Road (at Chainage A 4000 of the Proposed Scheme) and consists of two main operation zones. The main interchange plaza adjacent to the N11 northbound slip road will accommodate high frequency bus routes. The interchange bus islands located south of the UCD veterinary building, to the northwest of the main plaza and existing woodland, will be used for lower frequency and regional bus routes, as well as to provide overflow for the main plaza services. The interchange proposals also capture upgrade works for a shared pedestrian and cyclist commuter route along a naturally developed route through the existing woodland area. The overall site will provide 20 bus stop locations with 12 standard NTA / UCD bus shelters with no advert and finish to match UCD street furniture. Two landmark bus shelters are proposed with passenger seating area.

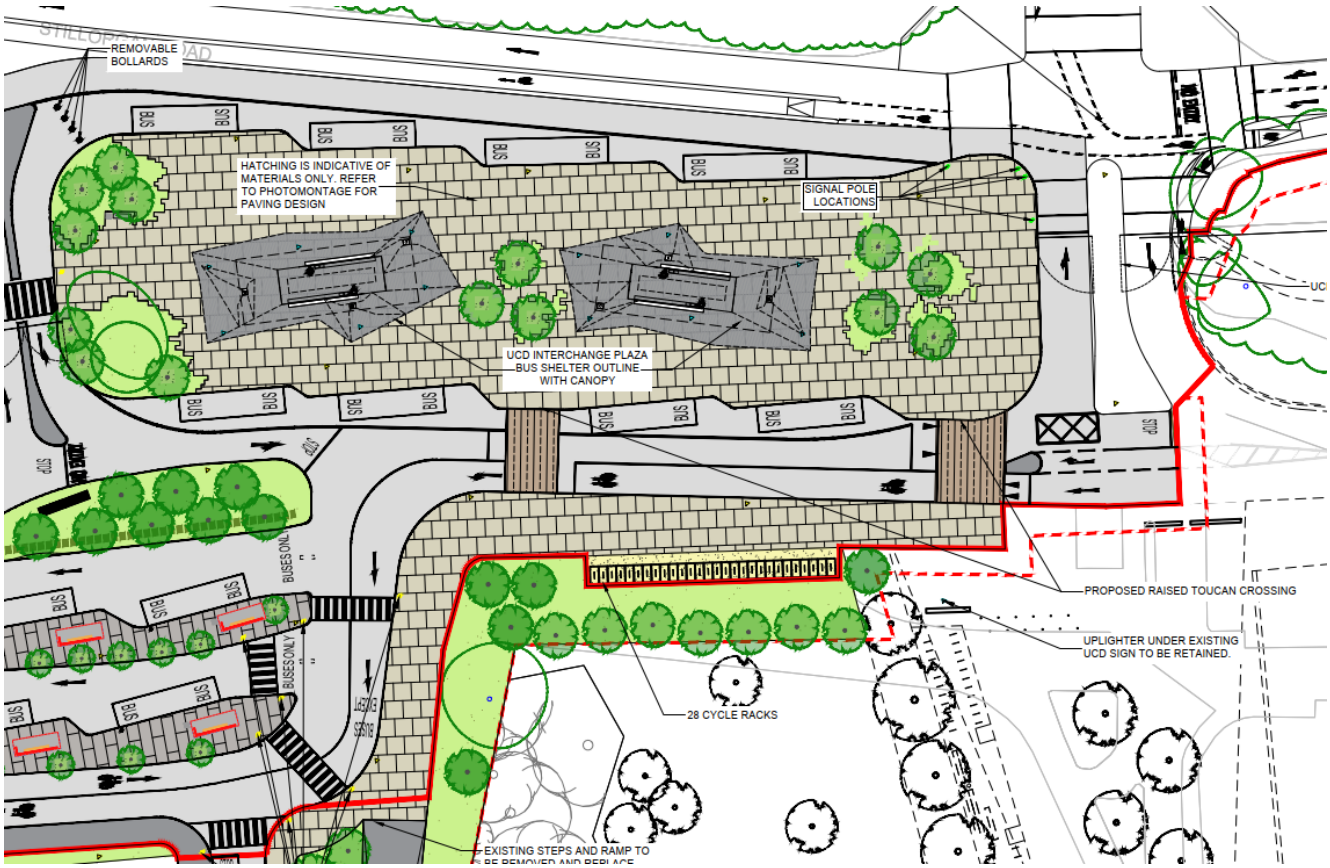

Image 6.3: UCD Bus Interchange Plaza

The existing lane configuration between Foster's Avenue and Wyattville Road will for the most part be retained. Junction designs along the route have been reviewed in an attempt to remove left turn filter lanes crossing cycle lanes where possible.

Between Merrion Grove and Lower Kilmacud Road it is proposed to provide a bus lane and two general traffic lanes plus a one-way segregated cycle track in each direction. A new dedicated footpath is to be provided between the Lower Kilmacud Road and the Old Dublin Road (Stillorgan), and the Old Dublin Road (Stillorgan) and Trees Road Lower junctions on both sides of the Stillorgan Road. The new southbound footpath at this location will require an extension to the existing St Laurence's Park subway, where a new toucan crossing will also be provided across the Stillorgan Road. The slip road from the Stillorgan Road on to The Hill at Stillorgan is proposed to be closed.

The northbound cycle track north of Brewery Road will be diverted on to St Brigid's Church Road. Additional traffic calming and footway improvement measures are proposed along the St. Brigid's Church Road to accommodate this. A section of southbound cycle track will also be diverted on to Belmont Terrace at Galloping Green. A new pedestrian link is proposed to South Park from Bray Road in Cornelscourt, and to Shanganagh Vale from the Bray Road.

It is proposed to maintain one bus lane and two general traffic lanes in each direction between Wyattville Road and Loughlinstown Roundabout. Widening of the carriageway and a setback of existing vehicle restraint systems in front of the pedestrian footbridge will be provided on the southbound carriageway to ensure a continuous southbound bus lane through the Loughlinstown Roundabout.

Footpaths are not proposed as per existing infrastructure between the Old Bray Road and Cornelscourt Shopping Centre pedestrian bridge, between Clonkeen Road and Johnstown Road junctions, and between Johnstown Road junction and the new junction at Druid's Glen Road, as alternative walking routes exist on adjacent quieter roads.

A new footpath is proposed on either side of the Stillorgan Road at the new junction on the N11 at Druid's Glen Road which tie-in with the existing footpath towards Wyattville Road. Improvements will be made to cycle track provisions at the Wyattville Road Junction. The existing adjacent northbound Bray Road slip towards Cherrywood Road will be retained in its current two-way layout.

At the Loughlinstown Roundabout it is proposed to signalise the existing roundabout on three arms and to provide a continuous bus lane southbound through the junction towards Shankill.

In addition, new junction layouts have been proposed at all major junctions along this section to remove existing left turn slips and to provide improved cycle movements. The northbound U-turn lane will be removed at the Westminster Road junction in order to facilitate a toucan crossing.

It is proposed that existing kerb lines will be retained and that the BusConnects Design Guide will be adhered to where possible along Section 2 of the scheme.

6.3 Section 3: Loughlinstown Roundabout to Bray North (Wilford Roundabout)

Between Loughlinstown Roundabout and Stonebridge Road it is intended to provide a bus lane and general traffic lane in both directions. Where bus lanes are not continuous, Signal Controlled Bus Priority will be provided. South of Stonebridge Road up to Crinken Lane, where bus lanes are not proposed to be continuous in both directions due to existing constraints, Signal Controlled Priority has been proposed to ensure bus priority. Signal Controlled Bus Priority has been proposed between the St. Anne's Church / Corbawn Lane Junction and Rathmichael Woods in the northbound direction.

Segregated cycle tracks are not proposed to be provided between Loughlinstown Roundabout and Stonebridge Road along the Proposed Scheme. It is intended to provide a two-way cycle track from Stonebridge Road on the Dublin Road as far as the Shanganagh Road junction, and on Stonebridge Road as far as Stonebridge Lane to provide a cycle link to the two schools on Stonebridge Road.

The roundabout between the Dublin Road, Corbawn Lane, and Shanganagh Road is proposed to be upgraded to a signalised junction with new pedestrian crossing facilities and signal-controlled priority for buses. Corbawn Lane is to be an exit only junction on to Shanganagh Road. A dedicated right-turn lane is proposed from Shanganagh Road on to Beechfield Manor. A dedicated left turn lane from Shanganagh Road into Beechfield Manor is also to be provided.

The proposed design between the Shanganagh Road junction and Crinken Lane retains the existing general traffic lanes with no bus or cycle lanes, apart from a section of the northbound carriageway where a bus lane is to be provided from Crinken Lane to a new junction at the entrance to Olcovar. Signal-controlled priority will be provided along this section. The Quinn's Road roundabout is to be upgraded to a signalised junction, and an upgraded signalised junction is proposed at the entrance to the Olcovar development. Footpaths along the Dublin Road at Cherrington Drive and Beech Road are to be retained at their roadside location.

From Crinken Lane to the Wilford Roundabout it is proposed to provide northbound and southbound bus lanes, segregated cycle tracks and general traffic lanes. Signal-controlled priority will be used northbound from Wilford Junction for a short distance as far as Woodbrook College. Where appropriate, roadside trees shall be retained by locating the proposed footpaths and cycle tracks behind the tree line. Improved lighting and crowning of trees will be provided to enhance visibility.

New pedestrian crossings are proposed at the new junction outside Olcovar, south of Crinken Lane, south of Allies River Road, and by Crinken Church. The existing pedestrian crossing at Woodbrook College is to be moved southwards to provide a crossing point close to the relocated southbound bus stop.

At Shanganagh Park and Shanganagh Cemetery, the northbound and southbound cycle track are proposed to be diverted into the park, alongside the southbound footpath, and behind green space and existing trees to the eastern side of the carriageway between two Toucan Crossings, with a newly proposed cemetery boundary wall set back to enable the retention of the roadside tree line. New lighting and crowned trees will be provided to

ensure through visibility. Playground areas will be retained in their current existing location as part of BusConnects proposals. Their final future location will be confirmed as part of the Shanganagh Park and Cemetery Masterplan (Dún Laoghaire-Rathdown County Council).

Two new residential developments are currently under construction at Shanganagh Castle and the Woodbrook Estate. The proposed signalised junctions for these developments and bus stops have been co-ordinated with the development proposals and incorporated within the design (see Image 6.4).

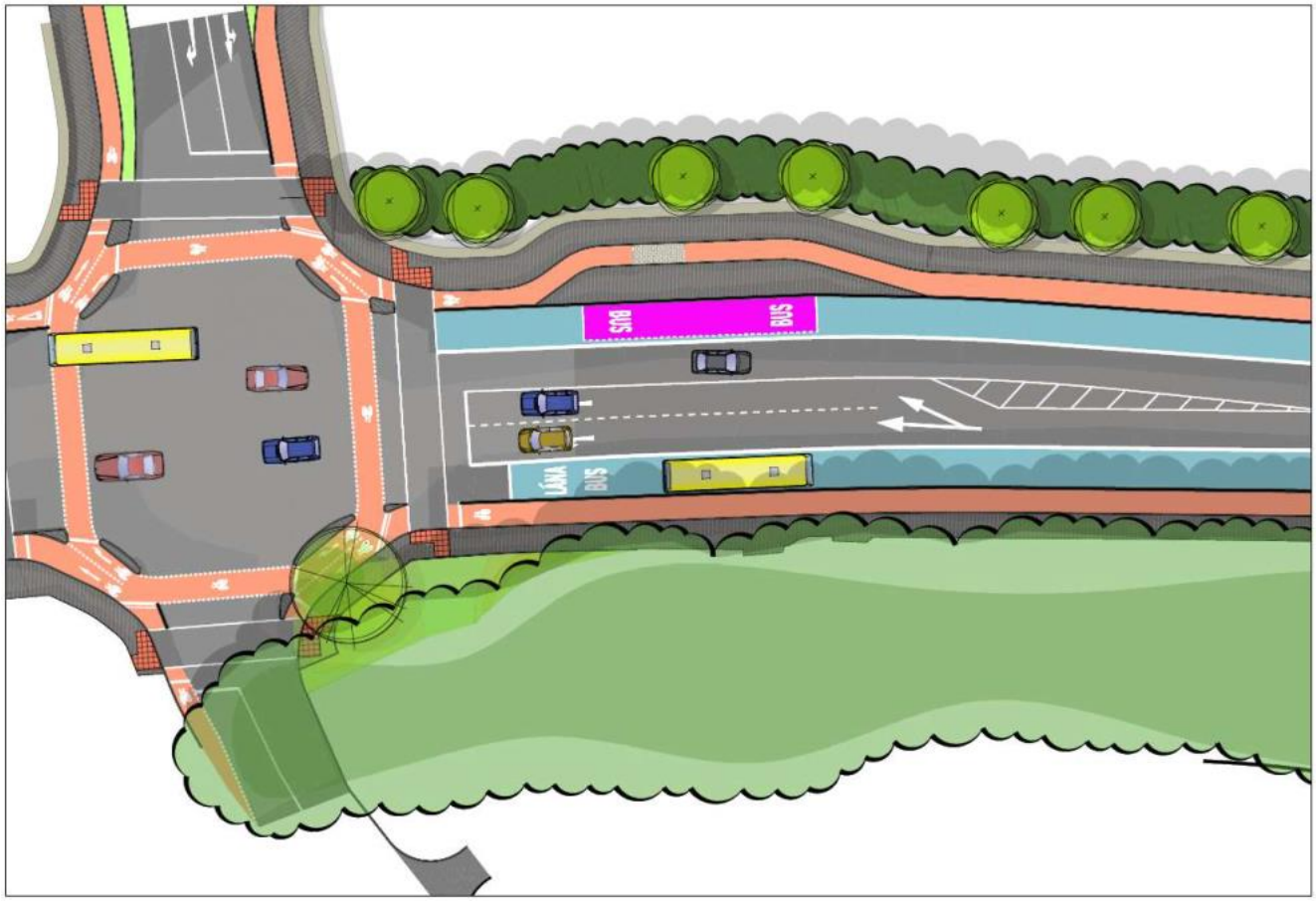

Image 6.4: New Woodbrook Estate Junction with New Landscape Treatment Along the East Side of the Carriageway

It is proposed that existing kerb lines will be retained and that the BusConnects Design Guide will be adhered to where possible along Section 3 of the scheme. Bus stop locations and layouts have been reviewed, and in certain areas adjusted, to ensure optimum spacings. Coach laybys have been proposed at certain locations along the route to reduce instances of loading coaches blocking the bus lane. Coach laybys have been proposed at certain locations to reduce instances of loading coaches blocking the bus lane.

6.4 Section 4: Bray North (Wilford Roundabout) to Bray South (Fran O'Toole Bridge)

From the M11 junction (Wilford Roundabout) to the Lower Dargle Road, it is proposed to continue with a bus lane, general traffic lane and a segregated cycle track in each direction. All junctions have been developed further to provide improved cycle movements. It is proposed to replace the Wilford Roundabout with a new signalised junction. The Corke Abbey Avenue / Old Connaught Avenue junction with the Dublin Road has been designed to cater for the proposed bus and cycle lanes, and to remove the left turn slips in and out of Corke Abbey Avenue. The design for the Upper Dargle Road junction with the Dublin Road has removed the northbound left turn slip from the Dublin Road. The junction with the new road at Chapel Lane will also be upgraded to a signalised junction, including improved cycle and pedestrian movements.

The proposed works will impact the existing Woodbrook Side Lodge, which is a heritage structure located at the southern end of the Woodbrook Estate in Bray. It is proposed to rebuild the impacted Woodbrook Side Lodge residential property.

At the end of the Proposed Scheme at the tie-in to the Fran O'Toole Bridge, the northbound bus lane starts just after the Lower Dargle Road junction so the tie-in at the Proposed Scheme termination consists of a southbound bus lane and two general traffic lanes and cycle track in both directions, on the immediate Castle Street approach to the Fran O'Toole Bridge, where the Proposed Scheme will end. This layout has been developed to coordinate with the proposed Bray Bridge Improvement Scheme.

It is proposed to retain the existing kerb lines wherever possible and adhere to the design standards from the Preliminary Design Guidance Booklet along Section 4 of the Scheme. Bus stop locations have been reviewed, and in certain areas adjusted, to ensure optimum spacings. Coach laybys have been proposed at certain locations along the route to reduce instances of loading coaches blocking the bus lane.

7. Construction

The Construction Phase for the Proposed Scheme is anticipated to take approximately 36 months to complete. It will be constructed based on individual sectional completions that will individually have shorter durations typically ranging between nine to 18 months.

The construction of the Proposed scheme will include the following activities:

- Site preparation and clearance works, including:
  - Land acquisition where temporary or permanent land take is required;
  - Installation of fencing and signage;
  - Protection of trees and vegetation to be retained;
  - Vegetation clearance and treatment of non-native invasive plant species;
  - Archaeological investigations;
  - Ground investigations;
  - Set up of Construction Compounds;
  - Installation of temporary lighting; and
  - Demolition of items such as walls, gates, fencing, lighting poles and bus stops.
- Road and street upgrades, including:
  - Alterations to parking and access;
  - Implementation of pedestrian and cyclist safety measures;
  - Implementation of road closures or diversions;
  - Topsoil and subsoil excavation;
  - Works to cellars;
  - Adjustment or upgrades to drainage;
  - Realignment, replacement or protection of utilities and services;
  - Construction of pavement, including carriageway, kerbs; changing roundabouts to signalised junctions; modifications to parking and loading bays; upgrades to footpaths; installation of cycle tracks; improvements covering existing and new bus stops (island, shared landing area, inline, layby types, plus shelters, CCTV and information displays) etc.;
  - Upgrade of road furnishings (including street furniture, signage, lighting, and communication systems); and
  - Boundary treatment and landscaping.
- Construction site decommissioning, including the removal of all construction facilities and equipment.

The Construction Phase of the Proposed Scheme will also include the following:

- Construction of a number of retaining walls;

- Construction of the UCD Bus Interchange facility;
- Extension of the existing St Laurence's Subway structure; and
- Demolition of the Woodbrook Side Lodge, and construction of a replacement lodge in a new location.

Construction Compounds along the Proposed Scheme will be located as follows:

- Construction Compound BR1 at the Wilford Junction; and
- Construction Compound BR2 at Fosterbrook.

Construction Compounds will be used as the primary location for the storage of materials, plant and equipment, site offices, worker welfare facilities and limited car parking. They will be secured, to ensure the safe storage of all on-site material and machinery. Temporary fencing will be erected, and site security will be employed. The Construction Compounds are shown in Image 7.1 and Image 7.2.

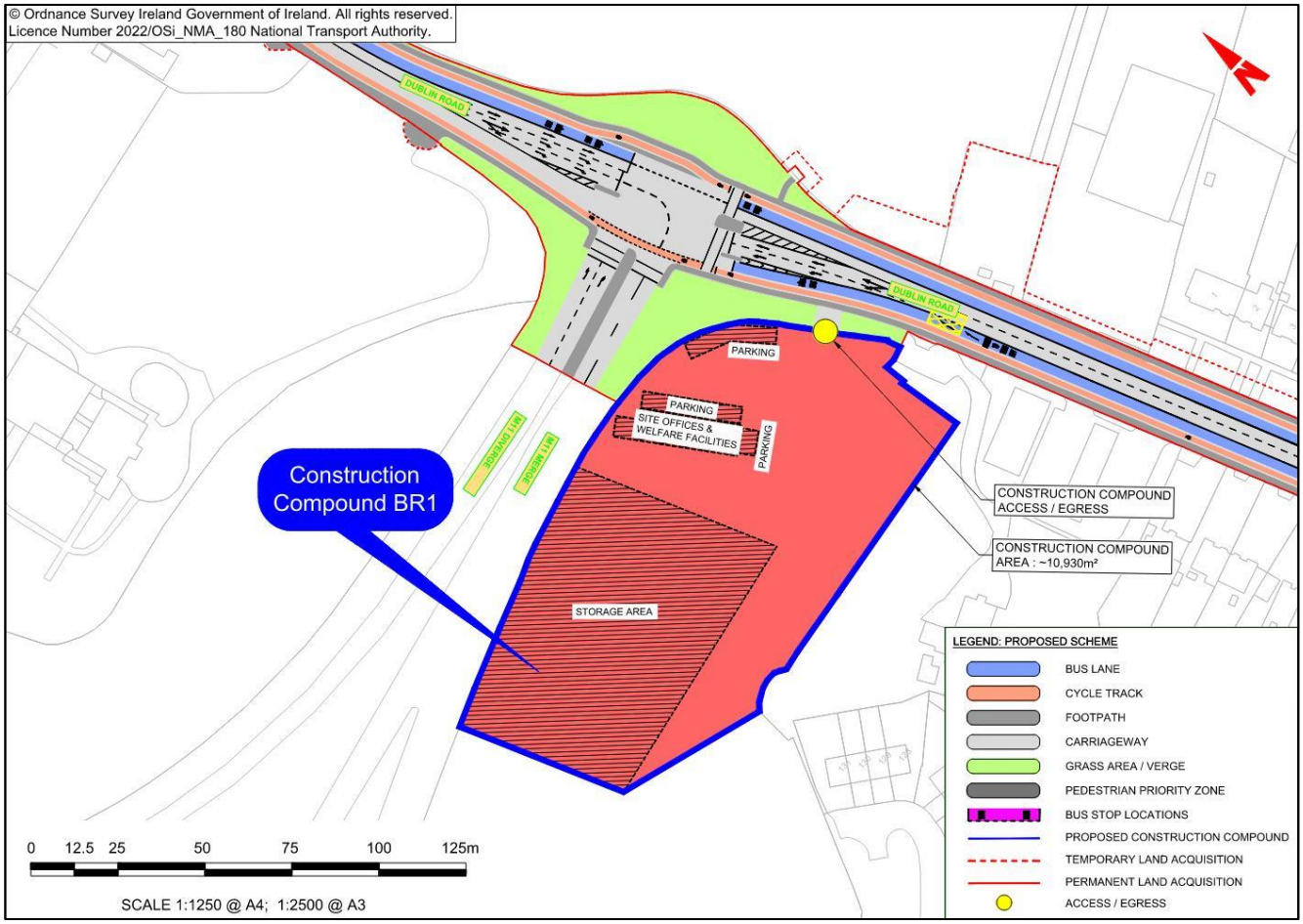

Image 7.1: Location and Extent of Construction Compound BR1

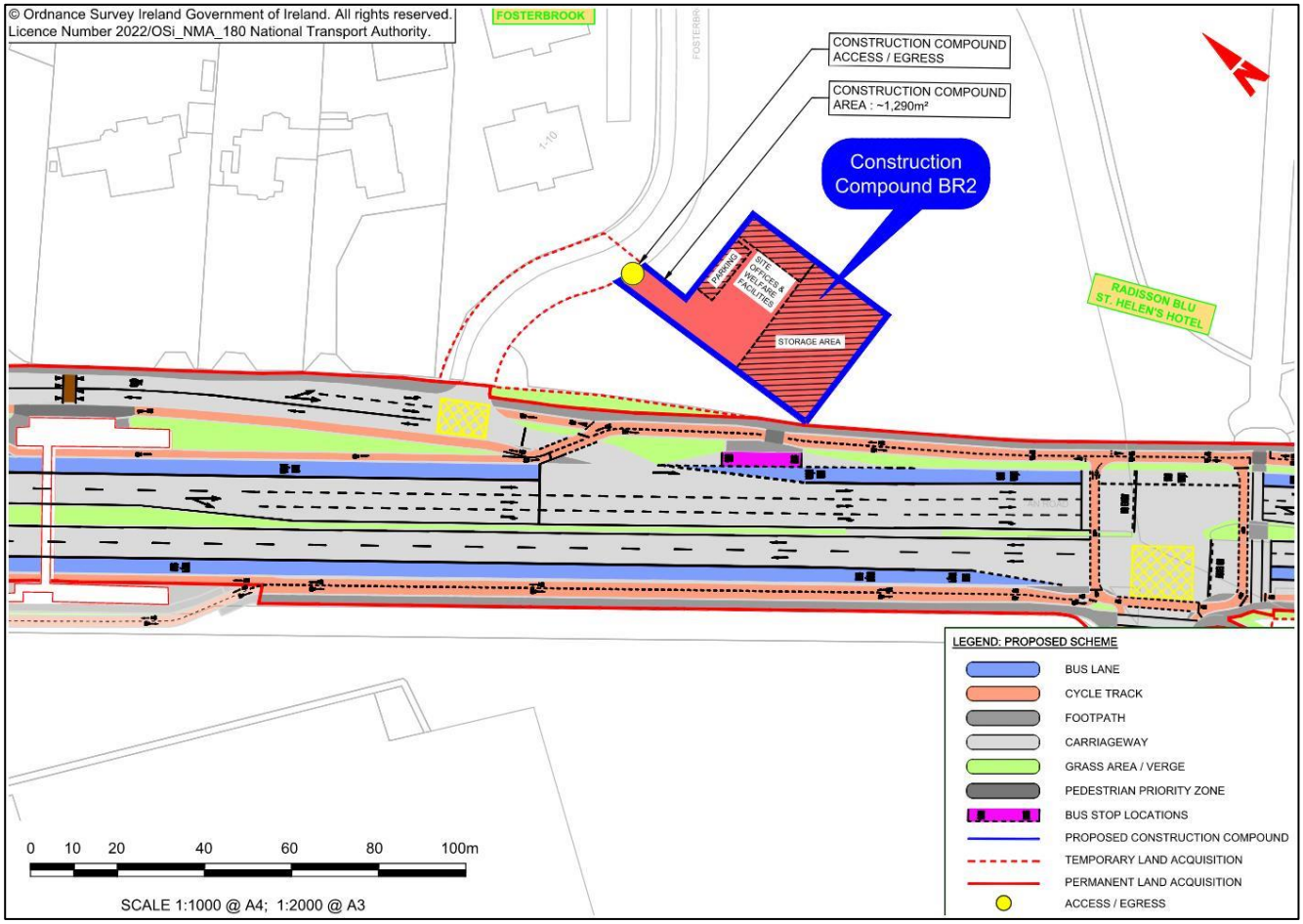

Image 7.2: Location and Extent of Construction Compound BR2

7.1 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) has been prepared which describes the overall environmental management strategy that will be implemented during the Construction Phase of the Proposed Scheme. The CEMP includes the mitigation measures which will be implemented to provide environmental protection during the Construction Phase of the Proposed Scheme. The CEMP addresses construction traffic management, resource and waste management, invasive species management, surface water management and environmental incident response measures.

The CEMP will be updated by the NTA (the Employer for the construction works) prior to the commencement of the Construction Phase, so as to include any additional measures required pursuant to conditions attached to any decision to grant approval. The NTA shall set out the Employer's Requirements in the Construction Contract including all applicable mitigation measures identified in this EIAR, as well as additional measures required pursuant to conditions attached to any decision to grant approval.

The CEMP has regard to the guidance contained in the Transport Infrastructure Ireland (TII) Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan, and the handbook published by Construction Industry Research and Information Association (CIRIA) in the UK, Environmental Good Practice on Site Guide, 4th Edition.

7.2 Construction Traffic Management Plan

A Construction Traffic Management Plan (CTMP) has been prepared to demonstrate the manner in which the interface between the public and construction-related traffic will be managed and how vehicular movement will be controlled.

The roads and streets along the Proposed Scheme that will be upgraded will remain open to traffic, wherever practicable, during the Construction Phase. To maintain traffic movements, it will be necessary, in limited instances, to undertake some traffic diversions or lane restrictions locally to complete particular elements of the works.

Access to properties will be maintained as far as reasonably practicable. While there may be temporary constraints to access during the normal hours of work these will be communicated and arranged in consultation with the impacted users. Access for emergency vehicles will be maintained at all times.

Wherever possible, cycle and pedestrian routes will be maintained along the route throughout the duration of the construction works. If necessary, alternative routes will be provided to facilitate both pedestrian and cycle movements. Bus services will be maintained, however some existing bus stop locations will need to be temporarily relocated to accommodate the works.

The works will be completed on a sectional basis along the corridor such that no areas will experience an extended period of construction disruption over the approximate 30-month duration. NTA will facilitate pro-active communication of the scheduled planned works by the appointed contractor to ensure that impacted individuals, businesses and communities are kept aware of upcoming likely temporary disruptions.

8. Environmental Impacts and Mitigation

The EIA process provides a valuable opportunity to reduce potential environmental impacts through design refinement, and this has formed an integral part of the design process for the Proposed Scheme, whilst ensuring the objectives of the Proposed Scheme are attained. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and design development process has been incorporated where appropriate.

The design of the Proposed Scheme has been developed to a stage where all potential environmental impacts can be identified, and a fully informed environmental impact assessment can be carried out.

The NTA (the Employer for the construction works) shall set out the Employer's Requirements in the Construction Contract and will ensure that all applicable mitigation measures identified in the EIAR, as well as additional measures required in any conditions attaching to An Bord Pleanála's decision to grant approval are adhered to. The procurement of the construction contractor will involve the determination that the appointed contractor is competent to carry out the works, including the effective implementation of the mitigation measures. The appointed contractor will be required to plan and construct the Proposed Scheme works in accordance with the Employer's Requirements, and the NTA will employ an Employer's Representative team with appropriate competence to administer and monitor the construction contract for compliance with the Employer's Requirements, which in turn shall contain all mitigation measures detailed in this EIAR and the relevant documentation appended thereto.

The following sections provide a summary of the assessments for each environmental topic and sets out the likely significant residual effects as a result of the construction and operation of the Proposed Scheme. The following environmental topics are described:

- Traffic and Transport;
- Air Quality;
- Climate;
- Noise & Vibration;
- Population;

- Human Health;
- Biodiversity;
- Water;
- Land Soils Geology & Hydrogeology;
- Archaeological & Cultural Heritage;
- Architectural Heritage;
- Landscape (Townscape) & Visual;
- Waste & Resources;
- Material Assets;
- Risk of Major Accidents and/or Disasters; and
- Cumulative Impacts and Environmental Interactions.

8.1 Traffic & Transport

The traffic and transport impact assessment has two distinct parts: the physical changes to transport networks; and the traffic modelling.

The traffic and transport impacts have been broken down into the following assessment topics for both the Construction and Operational Phases:

- The assessment of physical changes:
  - **Pedestrian Infrastructure:** The changes to the quality of the pedestrian infrastructure as a result of the Proposed Scheme;
  - **Cycling Infrastructure:** The changes to the quality of the cycling infrastructure as a result of the Proposed Scheme;
  - **Bus Infrastructure:** The changes to the quality of the bus infrastructure as a result of the Proposed Scheme; and
  - **Parking / Loading:** The changes to the availability of parking and loading as a result of the Proposed Scheme.
- The modelling-based assessment:
  - **People Movement:** An assessment has been carried out to determine the potential impact that the Proposed Scheme will have on the projected volume of people (by mode – Walking, Cycling, Bus and General Traffic) moving along the Proposed Scheme during the Operational Phase;
  - **Bus Performance Indicators:** The changes to the projected journey times and reliability for buses as a result of the Proposed Scheme; and
  - **General Traffic:** The direct and indirect impacts on general traffic using the Proposed Scheme and surrounding road network.

For the Construction Phase temporary traffic management arrangements will be prepared in accordance with Department of Transport's 'Traffic Signs Manual, Chapter 8 Temporary Traffic Measures and Signs for Roadworks'. Measures to minimise the impacts associated with the Construction Phase will be implemented. A Construction Stage Mobility Management Plan, as described in the CEMP, will be prepared by the appointed contractor to encourage its personnel to travel to site by sustainable modes.

The assessment concludes that the impact during the Construction Phase will be Negative, Slight to Moderate and Temporary in nature, and with the application of the proposed mitigation measures described above, the impact on traffic and transport will not be significant.

The impacts assessed for the Operational Phase determines how the Proposed Scheme integrates within the existing network and changes to traffic flows in the direct and indirect study area. The assessment demonstrates the following:

- **Pedestrian Infrastructure:** Overall, the quality of the pedestrian infrastructure will improve along all sections. The scale of improvements are as follows:

    - Positive, Significant and Long-Term in Sections 1 and 2;
    - Positive, Moderate and Long-Term in Section 3; and
    - Positive, Very Significant and Long-Term in Section 4.
- **Cycling Infrastructure:** Given the quality of the existing cycling infrastructure along the Proposed Scheme, the improvements to the quality of the infrastructure along the Proposed Scheme will be as follows:
    - Positive, Moderate and Long-Term in Sections 1, 2 and 4; and
    - Not Significant in Section 3.
- **Bus Infrastructure:** The results of the assessment demonstrate that the improvements to the quality of the bus infrastructure will vary as follows:
    - Positive, Very Significant and Long-Term in Sections 1 and 2;
    - Positive. Moderate and Long-Term in Section 3; and
    - Positive, Profound and Long-Term in Section 4.
- **Parking and Loading:** Given the nature of the loss in parking and the availability of alternative spaces in the indirect study area, the impact is expected to be as follows:
    - Negative, Moderate and Long-Term in Sections 1 and 4;
    - Negative, Slight and Long-Term in Section 2; and
    - Negligible in Section 3.
- **People Movements:** Overall, it is anticipated that the increases to the total number of people travelling along the Proposed Scheme will have a Positive, Very Significant and Long-Term effect.
- **Bus Network Performance Indicators:** Overall it is anticipated that the improvements to the network performance indicators for bus users along the Proposed Scheme will be Positive, Significant and Long-Term.
- **General Traffic Network Performance Indicators:** Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be Positive, Significant and Long-Term, whilst the impact of the redistributed general traffic along the surrounding road network will be Negative, Moderate and Long-Term.

The Proposed Scheme will deliver strong positive impacts to the quality of pedestrian, cycling and bus infrastructure during the Operational Phase, improving people movement in line with the schemes objectives. These improvements will help to provide attractive alternatives to the private car and promote changes from the use of private cars to walking, cycling and public transport, allowing for greater capacity along the corridor to facilitate the sustainable movement of people as population and employment levels grow in the future. The scheme design has been developed with cognisance of the relevant accessibility guidance and universal design principles so as to provide access for all users.

Given that the Proposed Scheme results in a positive impact for walking, cycling, bus and people movements, mitigation and monitoring measures have not been considered beyond those already incorporated as part of the Proposed Scheme.

The impacts to general traffic and parking / loading, including the mitigation measures are incorporated into the Proposed Scheme and no further mitigation measures are required to be considered.

Additional analysis undertaken using the Proposed Scheme models has shown that the new bus infrastructure facilitates a significant level of resilience for bus services that will use the Proposed Scheme, from implementation into the future. The Proposed Scheme will provide a higher level of protection to bus journey time consistency and reliability and will allow the service pattern and frequency of bus services to be increased into the future to accommodate additional demand without having a significant negative impact on bus journey time reliability or the operation of cycle and pedestrian facilities.

8.2 Air Quality

The air quality assessment involved a review of available published data, a review of applicable guidelines, air quality monitoring at sensitive locations along the Proposed Scheme and calculations to assess air quality impacts that are predicted to occur as a result of the Proposed Scheme.

The existing air quality along most parts of the Proposed Scheme meets National and European Union air quality standards. However, the annual mean limit value for nitrogen dioxide (NO_2) was exceeded in 2019 at a monitoring location on Leeson Street / Morehampton Road.

The impacts assessed for the Construction Phase include dust emissions from activities such as site clearance and preparation, utility diversions, road and junction construction works, and landscaping. Appropriate mitigation measures to ensure that construction dust nuisance is minimised will be implemented for the duration of the Construction Phase.

Air quality impacts associated with Construction Phase traffic and changes in traffic flows have also been assessed. The assessment concluded that Construction Phase traffic emissions will be overall Neutral and Short-Term in nature across the study area.

The assessment of potential air quality impacts associated with Construction Phase activities concludes that the works will be temporary and/or short-term in nature, and with the application of the proposed mitigation measures, the impact on air quality will not be significant.

The impacts assessed for the Operational Phase include the potential air quality impacts associated with changes to traffic flows along the Proposed Scheme and realigned traffic lanes and traffic flows. No mitigation measures will be required during the Operational Phase as all ambient air pollutant levels are predicted to comply with air quality standards. The assessment identifies a generally Neutral impact on air quality as a result of the Operational Phase of the Proposed Scheme.

8.3 Climate

Climate is defined as the average weather over a period of time. Climate change is a significant change to the average weather, and while climate change is a natural phenomenon, human activities are negatively impacting on the climate, through the release of greenhouse gases.

The climate assessment involved a review of greenhouse gas emissions, a review of applicable guidelines and predictive calculations to assess climate impacts. The Proposed Scheme was also assessed in terms of its vulnerability to climate change.

The impacts assessed during the Construction Phase included emissions from activities such as site clearance, utility diversions, road widening and excavation works (where required), works at junctions and landscaping. Construction traffic routes are also assessed as part of the assessment. Construction traffic and the embodied carbon (i.e. the total energy required to make / produce a product or services) for any construction materials required will be the main sources of greenhouse gas emissions during construction.

Mitigation measures have been incorporated into the construction design with the goal of reducing the embodied carbon associated with the Construction Phase of the Proposed Scheme. These mitigation measures include the replacement, where feasible, of concrete containing Portland cement with concrete containing ground granulated blast furnace slag.

The Proposed Scheme is estimated to result in total Construction Phase greenhouse gas emissions of approximately 15,652 tonnes of embodied CO_2eq for materials over the approximate 36-month construction period, equivalent to an annualised total of 0.014% of Ireland's non-Emission Trading Scheme 2020 target and 0.087% of the 2030 Transport Emission Ceiling.

Following the application of mitigation measures, it is expected that there will be a Short-Term, Negative, Minor residual impact on climate as a result of the Construction Phase of the Proposed Scheme.

The Proposed Scheme is estimated to result in no increase in the Maintenance Phase GHG emissions as there is no overall increase in road widening as a result of the Proposed Scheme compared to the existing road infrastructure. The predicted impact to climate during the Maintenance Phase is therefore Negligible and Permanent.

The operational traffic greenhouse gas emissions associated with the Operational Phase of the Proposed Scheme is predicted to be Negative, Minor and Permanent as the percentage change in CO_{2eq} will be between ±0.01% and ±0.5% of the Transport Emissions Ceiling. It will result in an increase in CO_{2eq} emissions equivalent to an increase in approximately 9,300 to 7,140 car trips per weekday on the road network in 2028 and 2043 respectively.

The Proposed Scheme will be an enabler to allow for further reductions in car mode share with corresponding transfer to public transport, walking and cycling modes. This can be achieved through signal optimisation, increased bus frequency, further growth in cycling and demand management measures. A greater increase in sustainable mode share will in turn lead to reductions in GHG emissions. Even though the net GHG emissions will be Negative, Minor and Permanent, the Proposed Scheme has the potential to reduce GHG emissions equivalent to the removal of approximately 6,030 and 9,140 car trips per weekday from the road network in 2028 and 2043 respectively based on the traffic optimisation analysis and the bus frequency resilient analysis. This has the effect of a reduction in total vehicle kilometres, a reduction in fuel usage, and increases to sustainable transport trips and modal share in accordance with the 2023 Climate Action Plan (CAP).

The CBC Infrastructure Works will also support the delivery of government strategies outlined in the Climate Action Plan and the 2021 Climate Act by enabling sustainable mobility and delivering a sustainable transport system, aligning with aims to provide enhanced walking, cycling and bus infrastructure on key access corridors in the Dublin Region. This will subsequently enable and deliver integrated sustainable transport movement along these corridors. The CBC Infrastructure Works will provide connectivity and integration with other public transport services leading to more people availing of public transport.

By creating a resilient, accessible public transport network, BusConnects will provide an attractive alternative to private car travel, encouraging more passenger travel by more sustainable modes. As a result, a greater share of the demand will be by sustainable modes (public transport, walking and cycling).

8.4 Noise & Vibration

The noise and vibration assessment involved a review of available published baseline noise data, the completion of baseline noise and vibration monitoring to establish the current background levels, and a detailed noise and vibration impact assessment associated with the Construction and Operational Phases.

The baseline surveys determined that currently the main source of noise within the study area is road traffic with a small contribution from local urban and suburban sources such as pedestrian movements and commercial activities. There are no notable sources of vibration in the surrounding environment. Road traffic along the existing road network generates a negligible level of vibration that would not be perceptible to building occupants.

The impacts assessed for the Construction Phase included the generation of noise and vibration from general road works including road and junction reconfiguration and resurfacing works, and where required, road widening works, utility diversions, bus gate construction, quiet street treatment, urban realm improvements including landscaping, boundary wall construction and other ancillary works. Construction traffic routes were also assessed as part of the assessment.

For the duration of the Construction Phase, appropriate mitigation measures will be implemented, including the appropriate use of acoustic enclosures or screens where required, and the monitoring of vibration at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values.

Following the application of these mitigation measures, it is expected that there will be no significant residual noise or vibration impacts, as a result of the Construction Phase of the Proposed Scheme.

The impacts assessed during the Operational Phase relate to changes in traffic noise levels along the Proposed Scheme as a result of reconfigured cross sections to include new or upgraded bus lanes and predicted changes

in traffic movement. The Proposed Scheme aligns with policy objectives to reduce populations exposure to traffic noise across the city through the incorporation of improved public transport, and increasing bus, train and bicycle journeys.

The results of the noise assessment for the design year (2043) Operational Phase have determined that long-term changes in traffic noise levels will result in Positive, Moderate and Long-Term to Negative, Not Significant to Not Significant and Long-Term impacts along the Proposed Scheme. Along the surrounding road network, very small changes in traffic noise levels will occur as a result of traffic redistribution off the Proposed Scheme during daytime periods only. These impacts will range from Positive, Moderate and Long-Term to Negative, Moderate and Long-Term.

8.5 Population

The population assessment considered impacts on residential properties, community facilities, commercial businesses, recreational resources and tourism assets within the study area. The Population study area comprised 19 community areas: Westland Row, University (Newman) Church, Haddington Road, Rathmines, Donnybrook, Merrion Road, Booterstown, Mount Merrion, Blackrock, Kilmacud – Stillorgan, Newtownpark, Foxrock, Cabinteely, Johnstown – Killiney, Ballybrack – Killiney, Loughlinstown, Shankill, Little Bray and Bray.

The Proposed Scheme will commence at the junction of Leeson Street Lower and St. Stephen's Green. The Proposed Scheme will run along Leeson Street Lower and Upper including the existing one-way system on Sussex Road. It will continue on Morehampton Road and Donnybrook Road through Donnybrook Village, and on to the Stillorgan Road. It will intersect with the Belfield / Blackrock to City Centre Core Bus Corridor at Nutley Lane and include the University College Dublin (UCD) Bus Interchange at the entrance to UCD. It will continue south on Stillorgan / Bray Road as far as the Loughlinstown Roundabout. The route will then proceed along the Dublin Road through Shankill and on to Bray through the Wilford Roundabout (M11 Access Roundabout), Dublin Road, and Castle Street. The Proposed Scheme will terminate at the Dargle River Crossing (Fran O'Toole Bridge).

The impacts on population assessed for the Construction and Operational Phases include:

- Indirect amenity impacts on community facilities and commercial businesses from a combination of residual air, noise, traffic and visual impacts. Direct amenity impacts on commercial businesses that may impact on business viability;
- Temporary and permanent land acquisition from residential properties, community facilities and commercial businesses including reduction of front garden areas, driveways, private landings and private parking spaces; and
- Changes in accessibility for walkers, cyclists, bus users and private vehicles along the Proposed Scheme and in the surrounding road network as a result of construction traffic, diversions and traffic management measures during the Construction Phase and redistributed general traffic during the Operational Phase.

The community assessment concluded that during the Construction Phase there will be a Neutral to Negative, Moderate and Temporary / Short-Term impact on community amenity and a Negative, Not Significant to Moderate and Temporary / Short-Term impact on community areas due to land take. However there will be Negative, Significant and Short-Term impacts at a number of community receptors through Shankill and Bray, namely residential properties 4 Beech Road, Beauchamp Lodge, 1 Aughmore Lane, Crinken Lodge and 5-7 Dublin Road; while there will be a Negative, Profound and Short-Term impact on the Woodbrook Side Lodge due to the requirement to demolish it.

The economic assessment concluded that similarly during the Construction Phase there will be a Neutral to Negative, Moderate and Temporary / Short-Term impact across the community areas with respect to commercial amenity, while there will be a Negative, Not Significant to Slight and Short-Term impact on six community areas due to commercial land take. Seven commercial receptors will experience Negative, Significant and Short-Term land take impacts, namely Circle K, First Stop and Fast Fit in Donnybrook, and AXA Insurance, Circle K and Ford Motors (east side of Dublin Road), Dargle Centre and Castle Street Shopping Centre in Bray.

There are also a number of Neutral to Negative, Moderate and Temporary impacts predicted with respect to community and commercial accessibility during the Construction Phase.

During the Operational Phase, impacts are predicted to be Negative, Slight, Short-Term to Positive, Slight, Short-Term on community and commercial amenity. Community land take impacts are predicted to be Negative and Not Significant to Slight in nine community areas. There is predicted to be a Negative, Significant and Long-Term impact on residential receptors 4 Beech Road, Crinken Lodge and 1 Aughmore Land, and a Negative, Moderate and Long-Term impact on four residential properties including at Woodbrook Side Lodge following the construction of a replacement lodge (under a worst-case scenario where the lodge is not replaced the Operational Phase impact would remain Profound). There is predicted to be a Negative, Significant and Long-Term impact on the commercial receptor Circle K in Bray (on the east side of Dublin Road) as a result of permanent land take.

The Proposed Scheme will deliver generally positive impacts in terms of accessibility to community facilities and commercial businesses for pedestrians, cyclists and bus users during the Operational Phase as follows:

- Pedestrian accessibility – Positive, Moderate to Very Significant and Long-Term;
- Cyclist accessibility – Positive, Not Significant to Moderate and Long-Term;
- Bus accessibility – Positive, Moderate to Profound and Long-Term; and
- Private Vehicle accessibility – Positive, Significant and Long-Term to Negative, Moderate and Long-Term.

The exception across all of these categories is in the community areas of Westland Row, Blackrock, Newtownpark, Johnstown – Killiney and Bray which are generally Neutral with respect to pedestrian and cyclist accessibility.

The improvements will help to achieve the aims and objectives of the Proposed Scheme by providing an attractive alternative to the use of private vehicles and promoting a modal shift to walking, cycling and public transport, allowing for greater capacity along the corridor to access residential, community and commercial receptors.

8.6 Human Health

The interaction of factors such as individual characteristics, lifestyle and 'wider determinants of health' (the physical, social and economic environment) have an important influence on the health of a population. These are illustrated in Image 8.1.

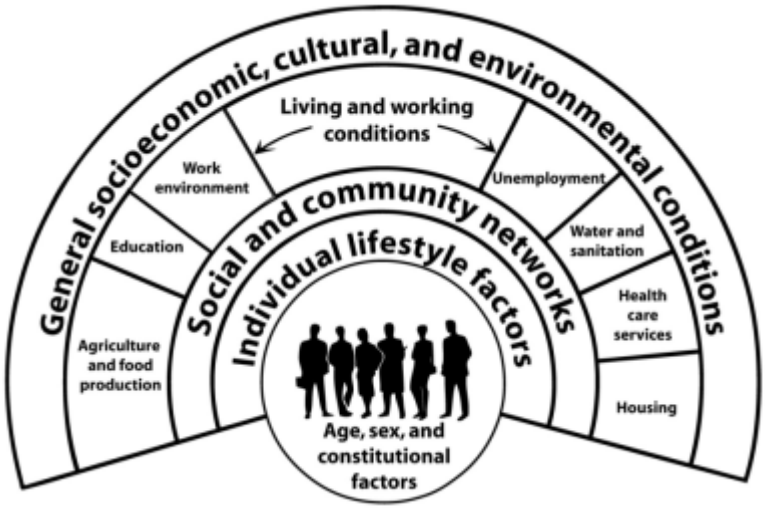

Image 8.1: Wider Determinants of Health

A related issue is that of social inequalities of health, which are the unfair and avoidable differences in health status across groups in society. The aim of this assessment was to identify the wider determinants of health that would likely be affected by the Proposed Scheme and how those impacts are associated with health outcomes.

Currently, Dublin's population has a better overall health status than average for Ireland with lower death rates.

Levels of air pollution within Dublin are almost entirely within the set EU limit values for nitrogen dioxide and particulate matter.

Exposure to traffic noise causes annoyance and, in very high levels of exposure, is linked to several other adverse health outcomes. There is widespread exposure in the study area to noise levels which exceed the levels set by the World Health Organization to prevent adverse health outcomes. However, the noise levels experienced are typical of an urban environment.

Temporarily increased traffic congestion because of traffic management measures and diversions during construction will likely cause frustration and annoyance particularly for commuters and people travelling to appointments. Construction noise and vibration, as well as dust may cause annoyance for some nearby residents and workers. The temporary to short-term nature of these impacts means that no lasting impact on health is likely.

There may be a requirement for some works to take place at night. This will temporarily increase the likelihood of sleep disturbance in the nearby residential population as a result of noise associated with the construction works. During the day there is risk of sleep disturbance for shift workers due to construction noise. Mitigation measures to control and limit noise associated with the construction works are included in the EIAR.

The need for pedestrian and cycle diversions around areas of construction works may increase the risk of collisions, unless appropriately designed and managed. Cyclists and pedestrians are more vulnerable to injury and death in the event of a collision and so need greater protection. Construction traffic management has been considered to outline measures deemed necessary to provide protection for pedestrians and cyclists in each location of the Proposed Scheme. With these measures in place the risks will be mitigated. Since the construction works will be short-term overall and temporary, the Proposed Scheme is not likely to result in any increased exposure to risk for pedestrians and cyclists over and above trends in the current street environment in Dublin.

No other health effects are considered likely from the Construction Phase of the Proposed Scheme.

The Proposed Scheme will create opportunities for building in regular physical activity into daily life through the improved pedestrian and cycling facilities, as well as through walking to and from bus stops. It is predicted that this will result in positive health outcomes as some people will change their travel behaviours and benefit from increased regular physical activity as a result.

With mitigation in place, people living near some of the proposed new bus stops may experience a new noise source. A small proportion of residents may experience an increase in traffic noise from redirected traffic along some side streets. However, for most people, there will be no perceptible change in environmental noise from the Proposed Scheme.

Reductions in general through-traffic, improved pedestrian infrastructure and improvements to the streetscape are likely to encourage more social interaction along the Proposed Scheme, resulting in positive health outcomes such as good mental wellbeing. The new public transport infrastructure is expected to bring improved journey times and improved reliability for public transport journeys, resulting in improved mental health outcomes such as reduced stress, as well as improved access to health, employment, education, and leisure services.

The inclusion of bus priority measures and improvements to pedestrian and cyclist infrastructure will support safer and more equitable access for those who do not or cannot use a car. This is expected to have positive impacts on health, by addressing these wider determinants and health inequalities. In addition, the urban environment would be improved and easier to use for a wider variety of pedestrians, including the visually impaired, wheelchair users and the persons with mobility impairment.

No other health hazards or likely health outcomes have been identified as relevant for the Operational Phase of the Proposed Scheme.

8.7 Biodiversity

The biodiversity (ecology) assessment included a review of available published data to identify any features of ecological value and field surveys of habitats, bats, ground mammals, birds, amphibians (frogs and common newts) and reptiles.

The Proposed Scheme does not overlap with any nature conservation sites of European importance (European site). The nearest European site to the Proposed Scheme is South Dublin Bay and River Tolka Estuary SPA, which is located approximately 900m away. The nearest European sites with a hydrological connection to the Proposed Scheme are South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC, which are located approximately 1.38km downstream of the Proposed Scheme, via the Elm Park Stream (Brewery Stream_010) at UCD.

The main habitats within the Proposed Scheme include mixed broadleaf woodland, hedgerows, treelines, scrub, flower beds and borders, amenity grassland, buildings and artificial surfaces, tidal rivers, spoil and bare ground, recolonising bare ground, depositing / lowland rivers, canals, reed and large sedge swamps, dry meadows and grassy verges, residential, scattered trees and parkland, immature woodlands, and ornamental / non-native scrub. The study identified:

- No protected plant species along the Proposed Scheme;
- Three non-native invasive species (Himalayan balsam, Japanese knotweed and Giant hogweed);
- Three bat species (Leisler's, common pipistrelle, and soprano pipistrelle);
- Potential roost features (locations where bats rest) in 40 locations;
- No evidence of badgers;
- Evidence of an otter sprainting post on the River Dodder located on a rock in the mid-stream of the river, approximately 30m west of Anglesey Bridge, just north of the Dublin Bus Depot in Donnybrook;
- No evidence of amphibians or reptiles; and
- A total of 133 breeding bird species and 21 wintering bird species.

Potential impacts on biodiversity for the Construction Phase may arise from:

- Site preparation and clearance;
- Removal of existing boundaries, pavements, lighting columns, bus stops, and signage;
- Removal of trees and vegetation;
- Protection and/or diversion of buried services;
- Road widening, pavement reconstruction, and kerb improvements;
- Demolition of existing retaining walls;
- Installation of new bus stops and junction / roundabout modification;
- Property boundary reinstatement, signage replacement; installation of lighting columns; and
- Landscaping and tree planting, and reinstatement of temporary land acquisitions.

A range of mitigation measures will be implemented to avoid or reduce negative impacts on biodiversity during the Construction Phase, including retaining trees identified as containing potential roost features for bats (insofar as is possible), and planting new street trees, hedgerows and species-rich grasslands. Invasive species management will be implemented to mitigate any risk of the Proposed Scheme contributing to the spread of invasive species during the Construction Phase.

The assessment concluded that with the application of the proposed mitigation measures, the impact on biodiversity during the Construction Phase will not be significant beyond the local level.

Potential impacts on biodiversity for the Operational Phase may relate to habitat loss, habitat degradation as a result of water quality changes from pollution or accidental spillage and non-native invasive plant species.

The measures proposed to avoid or reduce negative impacts on biodiversity during the Operational Phase will include:

- Planting of treeline, hedgerow and grassland habitats within the Proposed Scheme, as outlined in the design, will provide suitable habitats for breeding birds and foraging / commuting habitat for bats;
- Bat boxes will be installed wherever there is a loss of a potential roost feature for bats; and
- The implementation of sustainable drainage measures will prevent habitat degradation.

The assessment concluded that there will be no significant impacts on habitats, rare and protected plant species, mammals, amphibians, reptiles, and fish during the Operational Phase.

In addition, potential impacts on designated European sites are specifically assessed in the Natura Impact Statement (NIS), which also forms part of this application. The conclusion of the NIS is that the Proposed Scheme will not have any adverse effect on the integrity of any European site.

8.8 Water

The water assessment involved a desk-based study and the completion of field surveys to establish the current surface water conditions to identify the likely impacts of the Proposed Scheme.

The Proposed Scheme will be located within both the Liffey and Dublin Bay catchment (which is mainly urban and industrial in character), and the Ovoca-Vartry catchment (which is both agricultural and urban in character). The waterbodies relevant to the Proposed Scheme are:

- Grand Canal Main Line (Liffey and Dublin Bay) (hereafter referred to as the Grand Canal) is an artificial water body (AWB) which traverses the country from Dublin to Shannon for a distance of approximately 131km. Waterways Ireland are responsible for the monitoring of this waterbody;
- Dodder_050 which is approximately 29.6km and includes the lower segment of the river from Templeogue to where it joins the Liffey Estuary Lower at Ringsend. The River Dodder rises on the northern flanks of the Dublin Mountains, flowing 26km north through the Upper and Lower Glenasmole reservoirs and onward through south Dublin, becoming tidal near Lansdowne Road before entering the Liffey at Ringsend. Dodder_050 flows north towards the Liffey Estuary Lower. The Proposed Scheme crosses it at Donnybrook . Due to its indirect connection to South Dublin Bay SAC via the Liffey Estuary, it is confirmed as High Sensitivity;
- Brewery Stream_010 which is less than 2km and is made up of a number of segments: Brewery Stream, Priory Stream, Booterstown Stream, and Elm Park Stream. Each segment outfalls to Dublin Bay without any hydrological connection to the other segments. The Proposed Scheme crosses the water body at the Stillorgan Road, immediately west of Saint John of God Hospital and Belfield Road, immediately north of UCD campus;
- Dublin Bay is a United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere extending over 300km^2. The core zone of Dublin Bay Biosphere comprises 50km^2 of areas of high natural value. Key areas include the Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, North Bull Island, Dalkey Island and Ireland's Eye;
- Kill of the Grange Stream rises at the Deansgrange Business Park and has a total length of 5.4km. It flows south and to the east, parallel to Bray Road (N11) for most of its extent, crossing Clonkeen Park, Kilbogget Park and Ashlawn Park. Land use along the stream is urban. It outfalls to the Irish Sea at Killiney Bay and is not crossed by the Proposed Scheme, being approximately 200m from it at its closest point;
- Carrickmines Stream_010 rises in Sandyford, near Woodside Road and has a total length of 27.1km. The EPA maps identify five tributaries: The River Barnacullia, River Jamestown, Glenamuck_North, Laughanstown River and Cabinteely Stream. Cabinteely Stream is the only tributary within the 500m study area of the Proposed Scheme. It raises in Cornelscourt Hill Road and flows for 2.5km parallel to the N11 Bray Road before flowing into the main channel of Carrickmines Stream_010. The land use along the Carrickmines Stream_010 is predominantly agricultural and suburban towards the upstream extent with the mid to low stream extents being predominantly urban;
- Shanganagh_010 drains the eastern slopes of the Dublin Mountains, flowing east through South Dublin and into the sea at Killiney Bay. Land use along the Shanganagh_010 is predominantly agricultural and suburban towards the upstream extent with the mid to low stream extents being

predominantly urban. Shanganagh_010 is crossed by the Proposed Scheme at Loughlinstown Commons. Shanganagh_010 then flows east and discharges into the Irish Sea at Killiney Bay, just north of Shanganagh Wastewater Treatment Plant (WwTP);

- Dargle_030 and Dargle_040: Dargle_030 rises on the northern side of Djouce Mountain, Wicklow Mountains National Park, flowing east, over Powerscourt Waterfall and meets the Glencree River from the west. It then continues east, before being joined by the Glencullen River and changing to the Dargle_040, which flows into the sea at Dargle Estuary. The Proposed Scheme ends in Bray on the northern bank of the main Dargle_040 water body, which is a designated salmonid river, flowing east through Bray to the Dargle Estuary which itself is wholly contained within Bray Harbour. The Proposed Scheme crosses another segment of the Dargle_040 which flows under the R119 at Woodbrook College;
- Dargle Estuary is entirely within Bray Harbour. Dargle_040 outfalls into the estuary at the town side of the harbour and the estuary outfalls to Southwestern Irish Sea-Killiney Bay at the opening of the harbour walls. It is bounded by harbour walls and is subject to tidal fluctuations. It is classified as a transitional water body. It is likely that surface water in the town of Bray discharges to the estuary via discharges to Dargle_040; and
- Southwestern Irish Sea – Killiney Bay stretches from 8km south of Wicklow town, to Killiney in the north where it meets Dublin Bay. It receives surface water from several water bodies draining the east Wicklow mountains, which flow directly east to it. Towns along this stretch of coastline include Wicklow, Greystones and Bray.

The current European Union Water Framework Directive (WFD) status of the waterbodies, and their Risk (of not achieving their WFD objectives) status are as follows:

- Grand Canal Main Line (Liffey and Dublin Bay): Good Ecological Potential (GEP), Not At Risk of not being able to maintain GEP;
- Dodder_050: Moderate Status, is At Risk of not achieving Good Ecological Status (GES);
- Brewery Stream_010: Poor status, risk categorisation is Under Review;
- Dublin Bay: Good Status, Not At Risk of not achieving GES;
- Kill of the Grange_010: Poor Status, At Risk of not achieving GES;
- Carrickmines Stream_010: Good Status, At Risk of not achieving GES;
- Shanganagh_010: Good Status, Not At Risk of not achieving GES;
- Dargle_040: Good Status, Not At Risk of not achieving GES; and
- Dargle Estuary: Moderate status, risk categorisation is Under Review; and
- Southwestern Irish Sea – Killiney Bay: High Status, Not At Risk of not achieving GES.

The surface water along the Proposed Scheme corridor discharges to a combination of sewers and surface water sewers which discharge to local water bodies. From the City Centre to Brendan Road, the surface water discharges to combined sewer. Thereafter, it drains to surface water sewers for the entirety of the route. In the northern part of the Proposed Scheme the surface water drains to a combined sewer and on to Ringsend Wastewater Treatment Plant. The main existing pressure on water quality relates to urban runoff and overflows from the foul and combined sewer network.

A Flood Risk Assessment has been completed for the Proposed Scheme which determined that the Proposed Scheme will be located in three Flood Zones, referred to as A, B, and C where the probability of flooding from rivers and the sea is high, moderate and low respectively.

The impacts assessed during the Construction Phase included impacts from construction runoff and watercourse disturbance due to utility diversions, road resurfacing and road realignments.

During the Construction Phase, the water quality of four of the thirteen waterbodies could potentially be impacted by surface water runoff containing fine sediments, accidental spillages and accidental leakages of construction materials via surface water system connections. There is also the potential to disrupt local drainage networks if they require to be diverted to allow construction works to take place.

Surface water management is addressed in the CEMP, which details control and mitigation measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the Construction Phase of the Proposed Scheme. These include a requirement for an environmental incident response plan; the control of runoff of fine sediments; the management of storage of materials / fuels; management of the batching and use of concrete; and the management of vehicles and plant. Additionally, site specific measures are proposed to avoid or reduce negative impacts related to construction activities near the Dargle_040 (both the Rathmichael Stream and the Dargle River segments).

Following the implementation of the mitigation measures no significant impacts are anticipated on any water body as a result of the Construction Phase of the Proposed Scheme.

The impacts assessed during the Operational Phase include the potential surface water impacts associated with areas of impermeability and traffic displacement. During the Operational Phase, the design of the Proposed Scheme will ensure that there will be no net increase in surface water runoff rates to any of the connected waterbodies, using a combination of sustainable drainage systems in the form of filter drains and bioretention systems, which also reduce the potential risks to water quality from routine road contaminants.

In the Operational Phase the infrastructure (including the sustainable drainage systems) will be maintained by the Local Authorities and will be subject to their management procedures. No additional mitigation is required, and no impacts are anticipated on any water body as result of the Operational Phase of the Proposed Scheme.

8.9 Land Soils Geology & Hydrogeology

The land, soils, geology and hydrogeology assessment included a desk-based study of publicly available information, historic ground investigations and a scheme walkover survey.

The geology (soils and rock) beneath the study area of the Proposed Scheme mainly comprises made ground, alluvium and glacial till derived from limestone which are underlain by Carboniferous Limestone. To the south of the region, stretching from Dún Laoghaire on the coast in a south to south-west direction and located beneath much of the Dublin and Wicklow Mountains, are the older Caledonian granites known as the Leinster Granite. The land within the study area is mainly used for urban developments, including but not limited to; industrial, commercial, residential, and recreational.

Aquifers (which store / produce groundwater) within the study area of the Proposed Scheme are classified as ‘Locally Important’ (moderately productive in local zones) or ‘Poor’ (generally unproductive except for local zones) in terms of their ability to produce water.

As the Proposed Scheme is in an urban environment, there is the potential for some contaminated ground in the study area. The assessment of contaminated land focused on the footprint and directly on either side of the Proposed Scheme unless there is likely to be a pathway connecting the possible source of contamination to the footprint of the Proposed Scheme. These potential sources are outlined and assessed.

The impacts assessed during the Construction Phase of the Proposed Scheme include:

- Loss or damage of topsoil;
- Excavation of potentially contaminated ground;
- Loss of future quarry or pit reserves;
- Loss or damage of proportion of Geological Heritage Area;
- Loss or damage / contamination of parts of an aquifer; and
- Change to groundwater flows.

Appropriate mitigation measures will be implemented to avoid or reduce negative impacts on land, soils, geology and hydrogeology during the Construction Phase. It is expected that there will be no residual construction impacts on land, soils, geology and hydrogeology.

The impacts assessed during the Operational Phase include the potential land, soils, geology and hydrogeology impacts associated with changes to water supply and the pollution of groundwater and watercourses.

In the Operational Phase the infrastructure will be maintained by the Local Authority and will be subject to their management procedures to ensure that the correct measures are taken in the event of any accidental spillages and this will reduce the potential for any impact.

It is predicted that there will be no residual operational impacts on land, soils, geology and hydrogeology.

8.10 Archaeological & Cultural Heritage

The archaeological and cultural heritage assessment included a desk-based review of published and unpublished documents, historical mapping, and a field survey, and has been carried out according to best practice and guidelines relating to archaeological and cultural heritage.

The Proposed Scheme will run from St Stephen's Green, through / near the suburbs of Donnybrook, Stillorgan, Cabinteely, Cornelscourt, Loughlinstown, Shankill and Shanganagh, which were on the line of the main coach road from Dublin to Bray and beyond. There is scant evidence for prehistoric activity along the Proposed Scheme. There are several early medieval ecclesiastical sites in the vicinity of the Proposed Scheme that developed into settlements such as Donnybrook and Stillorgan. Other sites failed to develop in the same way (for example at Mount Offaly (Killbogget) and Kiltuck (Shankill)).

Key archaeological sites in this area include St Stephen's Green, a National Monument, which lies just outside the northern end of the Proposed Scheme. Other archaeological heritage features along the route of the Proposed Scheme include sites on the Records of Monuments and Places / Sites and Monuments Record, sites on the Dublin City Industrial Heritage Record, cultural heritage assets, Zones of Archaeological Potential, and one non-designated archaeological site. These have the potential to be impacted within the Proposed Scheme.

The main potential impacts on archaeology and cultural heritage as a result of construction works could arise from:

- Pavement construction, repairs and reconstruction works;
- Road resurfacing works;
- Any excavations of soil, including landscaping works; and
- Any ground disturbance for utility works.

There is the potential for the discovery of previously unknown below ground archaeological features, materials, and deposits along the Proposed Scheme. Such works may also result in temporary negative impacts on the settings of the upstanding national monuments for the duration of the works.

The mitigation measures proposed to avoid or reduce negative impacts on archaeological and cultural heritage during the Construction Phase include the provision for and funding of the necessary archaeological monitoring, inspection and excavation works that will be required prior to and during construction.

There will be no Operational Phase impacts as a result of the Proposed Scheme and no mitigation is required.

With the implementation of the proposed mitigation measures, it is expected that there will be no residual negative impacts on archaeological and cultural heritage. There will be a Positive, Moderate, Long-Term impact on the National Monument St Stephen's Green, following the improvement of the urban realm.

8.11 Architectural Heritage

The architectural heritage assessment included a desk-based study including a review of all available relevant and published and unpublished documents, and field surveys, which were carried out to identify known architectural heritage sites, and to identify any previously unrecorded features.

The Proposed Scheme commences at St Stephen's Green, a National Monument in the ownership of the State (RMP DU018-020334). St Stephen's Green was originally a Medieval common on the edge of the city. The development of the present Square, one of the City's main squares began in 1664 when leases were drawn up for 96 plots located around a green of 27 acres. It remained largely undeveloped until the mid-18th century. The

east and south sides contain 18th and 19th century buildings though some have been replaced by 20th century office blocks. Protected structures include Loreto School (DCC RPS 7786-7788). Granite paving, kerbs and coal holes in addition to street furniture such as lampposts and bollards are present around St Stephen's Green and on Leeson Street Lower. Leeson Street Lower was the road to Donnybrook and although it contained some buildings in the 18th century, it remained largely undeveloped until the 19th Century. It contains a number of protected structures, all of which are houses (DCC RPS 4388 – 4452).

The Proposed Scheme crossed the Grand Canal at Eustace Bridge (DCC RPS 873) which was built in 1790 as part of the construction of the Circular Line of the Grand Canal. Leeson Street Upper and Sussex Road remained largely undeveloped until the 19th century. Sussex Road contains few protected structures as the east side was largely redeveloped in the 20th century when the Mespil Apartments and Burlington Hotel were built on the demesne of Mespil House (NIAH 2383). The west side retains mews buildings associated with the houses on Leeson Street Upper. The only buildings which are protected is the Public House at 8 to 9 Sussex Terrace (DCC RPs 7909). Leeson Street Upper by contrast contains a number of protected structures (DCC RPS 4455 – 4600) the vast majority of which are terraced 19th century houses and a group of shops and public houses near Sussex Road. Morehampton Road (DCC RPS 5286 to 5351) contains a similar mix of houses shops, institutional and religious buildings, a hotel, banks and pubs, particularly in Donnybrook Village. The R138 Donnybrook Road runs through Donnybrook Village which developed around an early medieval ecclesiastical settlement associated with St Brock (RMP DU018-06001). The buildings along the Donnybrook Road are in the main, 19th and 20th century buildings. Few are protected, except the early church site and graveyard (DU018-06001), St Mary's Convent and Laundry (DCC RPS 8713) built between 1877 to 1881 to the design of Byrne and O'Neill, and the Donnybrook Gastropub at 135 Morehampton Road (RMP DU018-061) which was originally an 18th century house which is evident on Rocque's map of 1760. The Proposed Scheme crosses the Dodder River at Anglesea Bridge (RMP DU022-082003) which was built in the 1832.

On the far side of the bridge are the Sacred Heart Catholic Church Donnybrook (DCC RPS 7845) built 1866 to the design of Pugin and Ashlin, and Donnybrook Garage which was designed by Michael Scott in association with Ove Arup in 1953. Continuing along the Stillorgan Road there were a large number of villas, country houses and demesnes, the most notable being the Mount Merrion built in 1710, which was part of the Fitzwilliam and later Pembroke Estate, the lands of which had been in the ownership of the Fitzwilliam family since the 14th Century. Few of the remaining villas retain their demesnes, though demesne features such as entrance gates and lodges survive. Residential development has been built on many of the former demesne landscapes while others have become part of institutional complexes. These include Montrose House (DCC RPS 7847), now located in the grounds of Radio Telifís Éireann (RTÉ). Others include Woodview House (DLR RPS 9), Ardmore (DLR RPS 19), Belfield (DLR RPS 41) and Merville House (DLR RPS 94) all now located within the University College Dublin (UCD) Campus at Belfield. The St. John of God Hospital, Stillorgan was founded by the Hospitaller Brothers of St. John of God in 1882. The present institutional buildings within the St John of God complex are 19th century but built on the site of a 14th century Stillorgan Castle (RMP DU023-071). The grounds also contain Granada House formerly Riversdale (DLR RPS 1420), built c. 1778. St Brigid's Church of Ireland Church in Stillorgan (RMP DU023-011001) was built in 1712 on an early medieval ecclesiastical site. These include the site of the medieval church associated with the Priory of the Holy Trinity in the 13th century. The school in the grounds was built in 1836 and the vicarage is also 19th century. The Italianate Church of Our Lady of Perpetual Succour Foxrock (NIAH 60230099) was built in 1933 to 35 to the design of J. J. Robinson.

The Bray Road contains Cornelscourt House (DLR RPS 1621) built c. 1866, Loughlinstown House, a c.1778 house built on the site of a 17th century house (RMP DU026-029002) and Saint Columcille's Hospital (NIAH 60260099) which contains Rathdown Union Workhouse erected in 1841 for the Rathdown Poor Law Union to a standardised design by George Wilkinson, and a convent and chapel built in 1901 by Patrick Forstall Comber.

The Proposed Scheme then turns on to the R837 Dublin Road in Shanganagh. Protected structures include St Rita's (DLR RPS 1786), Lurganbrae and St Brendan's (DLR RPS 1795) which are 19th century villas and St Anne's (DLR RPS 1800) a modernist movement house built in 1936 to the design of John James Maurice Aylward. Rathmichael Parish Primary School (DLR RPS 1799) was built in 1892 and is under the patronage of the Church of Ireland. St Anne's Church in Shankill was built in 1931 to 1933 to the design of Ashlin and Coleman (RMP DU026-109). Rivendell (DLR RPS 1994) located opposite the church, was built in the 1860s as the station master's house of the Dublin and South Eastern Railway Station in Shankill. The upstanding ruins of Kiltuc Church (RMP DU026-054001 to -054005), the remains of the early medieval ecclesiastical complex at Shanganagh, lie within the boundary of the Shanganagh demesne. It is possible that the site, known as Killtuck, was dedicated to

Toca mAeda mSenaic, brother of Crimthann Cualann, King of Leinster who died in the early 7th century (Corlett 1999, 137). A number of stone monuments identified at the site have since been relocated. One, a small stone cross, is located in the grounds of St. Anne's Church in Shankill. Saint James's Church Crinken, Dublin Road Shankill (DLR RPS 1863) was built in 1840 to a design by William Farrell. Shankill village itself dates to the 1860s (Pearson 1998). The Hackett Memorial Hall (DLR RPS 1858) was built in 1889.

Most of the large houses on the R119 Dublin Road in Shankill are associated with demesnes. These include Shanganagh Castle and demesne (DLR RPS 1845) built 1769 to a design by Sir Richard Morrison on the site of a 15th century tower house. Crinken Cottage (DLR RPS 1850) is one of its many gate lodges. Other houses in the area include Beauchamp House (DLR RPS 1862) built c.1830, Corke Lodge (DLR RPS 1869) built before 1816, Woodbrook House built 1840 and its c1909 gate lodges (DLR RPS 1870, 1871, 1874), Wilford House (DLR RPS 1873) built in the 1790s, Askefield House (DLR RPS 1860) and the Aske House (DLR RPS 1866), both of which are early 19th century.

The Proposed Scheme continues along the Dublin Road into Little Bray which forms the northern portion of Bray. It is of medieval origin. Castle Street is named after a 15th century tower house (WI004-001006) which formerly stood on the street. Little Bray contains a large number of 19th century buildings, but few are protected. St Peter's Church built in 1837 and parish hall built as a schoolhouse in 1864 are included in the RPS (WWC RPS B42). 29 to 30 Dublin Road, Little Bray (WCC RPS B10) are two terraced early 19th century houses. The scheme terminates at Fran O'Toole Bridge (NIAH 16301267) built in 1855. The bridge was renamed in honour of Fran O'Toole a Bray native and member of the Miami Showband who along with two his fellow band members were shot dead by a loyalist paramilitary group on 31 July 1975 in what became known as the Miami Showband Massacre.

The main potential impacts on architectural heritage during the Construction Phase will include:

- Direct impacts to the boundaries (walls, railings etc.) and entrance gates of protected structures and other architectural heritage features where road widening is required;
- Direct impacts to street furniture (i.e. lamp posts, post boxes, statues etc.) due to land acquisition, construction works to pavements, changes in the layout of footpaths and landscaping works;
- Direct impact on the protected structure Woodbrook Side Lodge (DLR RPS 1874), which will be demolished and a replacement lodge constructed at a new location within the same site;
- Indirect impacts as a result of the potential for damage to sensitive structures in areas where the construction works for the Proposed Scheme come into close contact with these structures;
- Indirect impacts as a result of the potential for damage to protected structures due to increased vibration from construction vehicles; and
- Visual impacts on the setting of protected structures or buildings or structures of architectural heritage interest, historic streetscapes and views which will temporarily impact on their settings during the Construction Phase.

The measures proposed to avoid or reduce negative impacts on architectural heritage during the Construction Phase include:

- Appropriate recording, protection, removal, storage and reinstatement of boundaries and street furniture;
- The retention or replacement of trees along the Proposed Scheme;
- Careful consideration of shelter bus stops to avoid impacting on the settings of important architectural heritage features, where possible; and
- With respect to Woodbrook Side Lodge, historic fabric is to be salvaged and reused / reincorporated within the replacement lodge where in suitable condition for reuse.

The main potential impacts on architectural heritage during the Operational Phase will be:

- Impacts associated with visual changes on architectural heritage resources (including from the proposed locations of bus shelters), as well as impacts on the setting of these resources due to traffic changes. New paving, new tree planting and landscaping will generally have a positive impact on the historic environment and character of streets along the Proposed Scheme; and

- Impacts where the Proposed Scheme requires physical changes to, or the repositioning of, heritage features.

With the implementation of the proposed mitigation measures, it is expected that there will be a Negative, Moderate, Permanent residual impact as a result of the demolition and replacement of Woodbrook Side Lodge and its boundary wall and gates. If the proposed replacement of the Side Lodge was not constructed and only the boundary was replaced (a worst-case scenario), there would be a Negative, Significant, Permanent residual impact. With the implementation of the proposed mitigation measures, it is expected that there will be no other residual negative impacts on architectural heritage across the Proposed Scheme.

8.12 Landscape (Townscape) & Visual

The landscape (townscape) and visual assessment included a desk-based review of available information including aerial photography and mapping of the Proposed Scheme. Route walkovers were carried out to verify desk-based findings and this included field surveys and the preparation of photomontages.

Along the section of the Proposed Scheme comprising Leeson Street to Donnybrook (Anglesea Road Junction) the townscape is predominantly straight urban streetscape leading to the outer city centre traditional tree-lined residential streetscape and outer city village with narrow winging alignment and widened streetscape to the south. The street follows the historic corridor of the Dublin - Donnybrook Road, with some widening on the south side of Donnybrook village approaching the dual carriageway. The streetscape is commonly dominated by traffic flow. There is a landmark kiosk on a traffic island at the Adelaide Road junction and a key vista northwest along the Georgian streetscape of Fitzwilliam Place and east and west along Grand Canal. Amenity areas include Belmont Avenue / Mount Eden Road Architectural Conservation Area and River Dodder and Grand Canal Conservation Areas. A Conservation Area also extends along the full extent of Leeson Street to St Stephen's Green.

From Donnybrook (Anglesea Road Junction) to Loughlinstown Roundabout the townscape consists of a major suburban road infrastructure corridor through the outer city suburbs and outer city villages. There is a dual carriageway through the majority of the townscape with large at-grade junctions and grade-separated junctions at Belfield and Wyattville. The road corridor is lined with trees and woodland, most notably at Belfield, the RTÉ Campus, Loughlinstown, Cabinteely, Cornelscourt, Foxrock, Stillorgan, Merrion. There are key institutional land uses at UCD, Belfield, RTÉ Campus, and Donnybrook Bus Garage. There are modern multi-storey apartment developments at Anglesea Bridge, River Dodder corridor, The Grange (Stillorgan), Ashurst and Merrion Hall (Mount Merrion), Booterstown Wood and Thornwood (Mount Merrion). Notable views are present of the RTÉ mast. Amenity Designations consist of open space at the River Dodder Conservation Area, major open space at Loughlinstown Commons (pNHA), Kilbogget Park, and St. Helens. Foxrock Conservation Area, Knocksinna Conservation Area.

From Loughlinstown Roundabout to Bray North the townscape is made up of an outer village with a suburban rural edge. The town edge / rural parkland is located to the south and becomes progressively more suburban north and south of Shankill village. There are a series of attractive secluded parkland properties south of Shankill village from Shanganagh Castle grounds to Askefield, Woodbrook and Wilford. There are remnant features of former parkland properties, now largely developed, including former entrances, boundary walls, mature trees, etc. at Beauchamp Gate Lodge, Crinken Cottage, Sherrington Gate Lodge and entrance, Aubray, Dorney Court Gate Lodge and Entrance, St. Anne's House, Lurganbrae, Kilbrae. Other key properties which enhance the overall character include Rathmichael Parish National School, St. Anne's Church, Shanganagh Park and Cemetery, Hackett Memorial Hall, and St. James' Church and grounds. Locally distinctive features include historic boundary walls, entrances and associated lodges, mature and historic roadside boundary trees and woodlands, and mature street trees and the corridor of the former Dublin and South Eastern Railway with its stone bridges and structures.

From Bray North (Wilford Roundabout) to Bray South (Fran O'Toole Bridge) the townscape consists of a suburban Town Centre to Town Edge. It becomes progressively more commercial towards the southern end, mixed through the middle and is increasingly residential to north. Key townscape features include the River Dargle corridor and Fran O'Toole Bridge, granite stone wall and mature trees at Belton Terrace, granite stone wall bounding 42-43 Castle Street, prominent mature Monterey Pine (TPO) at the entrance to Ravenswell (North Wicklow Educate Together), pair of semi-detached late-Georgian houses at 29-30 Dublin Road (Protected Structures), attractive mix of residential properties with mature gardens to either side of Dublin Road north of Old Connaught Avenue /

Corke Abbey Avenue, and single-storey gate lodge (Woodbrook Side Lodge) in sylvan setting with granite stone entrance piers in boundary wall. There is an Amenity designated area at the Greenbelt, east of the Dublin Road at Wilford Roundabout (Woodbrook).

Consideration of the potential landscape (townscape) and visual impacts have been important in defining the Proposed Scheme design. The Proposed Scheme has undergone iterative design development with the aim of minimising potential negative impacts as far as practicable and this has also helped define suitable improvements to the urban realm. Examples of design changes that have been incorporated into the Proposed Scheme design, and which have led to a reduction in predicted landscape and visual impacts include:

- Changes to the design in order to reduce impacts on trees, specifically through the Shankill area (at Shanganagh Park and Cemetery) and at the Upper Dargle Road junction where there is a significant tree under a Tree Protection Order. A two-way cycle track is to run through Shanghanagh Park and Shanghanagh Cemetery; and
- The design has been further developed between Ravenswell Road and Dwyer Park, at the end of the Proposed Scheme, to provide for continuous cycle lane and bus lane while minimising the impact to properties and the heritage wall on the east side at Belton Terrace and the Castle Street Shopping Centre.

The main potential landscape (townscape) and visual impacts during the Construction Phase will include:

- Site mobilisation and establishment, fencing and hoarding of Construction Compounds and works areas, including within private areas / gardens;
- Site demolition, including demolition and rebuild of Woodbrook Side Lodge, removal of boundaries, kerbs, verges, surfaces, landscape areas, trees and plantings – including boundary fences, walls and plantings within private areas / gardens;
- Site activity and visual disturbance from general construction works and the operation of construction machinery both within the site and at the Construction Compounds;
- Construction works involving diversion of existing underground / overground services and utilities, provision of new services and utilities, drainage features and connections etc.;
- Site activity and construction works involved in the construction of new carriageways, kerbings, footpaths and cycleways, bus stops and signage, reinstatement of boundaries / provision of new boundaries and landscape reinstatement works / provision of new landscape, etc.; and
- Decommissioning of works areas and Construction Compounds.

Construction of the Proposed Scheme will require land acquisition (temporary and/or permanent) from several properties. Temporary fencing / hoarding will be erected and access to property for the owners / occupiers will be maintained as far as reasonably practicable. Works will require removal of existing and reinstatement of existing roadside boundary walls, railings, entrance gates together with areas of existing garden plantings, garden accesses and garden features.

Appropriate measures to avoid or reduce negative landscape (townscape) and visual impacts during the Construction Phase will be implemented, including ensuring that trees and vegetation to be retained within and adjoining the works area will be protected. Works required within the root protection area (RPA) of trees to be retained will follow a project specific arboricultural methodology for such works.

While mitigation for the Construction Phase is focused on protecting any landscape features that are to be kept and providing as much visual screening from construction works as possible, it will not be possible or practical to mitigate against impacts on landscape (townscape) and visual characteristics resulting from the removal of mature trees to facilitate construction.

With the implementation of the proposed mitigation measures, it is expected that there will be Moderate to Profound, Negative, Temporary / Short-Term Construction Phase residual impacts on the townscape and streetscape character remaining as follows:

- Negative, Moderate / Significant, Temporary / Short-Term impacts through the Leeson Street to Donnybrook (Anglesea Road Junction) section;

- Negative, Moderate and Temporary / Short-Term through the Donnybrook (Anglesea Road Junction) to Loughlinstown Roundabout section;
- Negative, Very Significant / Profound, Temporary / Short-Term through the Loughlinstown Roundabout to Bray North section; and
- Negative, Significant, Temporary / Short-Term through the Bray North (Wilford Roundabout) to Bray South (Fran O'Toole Bridge) section.

In addition to these impacts, a range of Negative, Moderate to Very Significant, Temporary / Short-Term residual impacts are predicted on the streetscape characteristics of an ACA, Conservation Areas, Residential Conservation Areas, protected structures, amenity designations, tree preservation orders / objectives, residential and non-residential properties, and trees and vegetation. There will be a Moderate to Very Significant, Negative, Short-Term impact associated with the acquisition of residential property, including the demolition of Woodbrook Side Lodge (a residential property and protected structure).

The main potential landscape (townscape) and visual impacts during the Operational Phase will include:

- Alterations in the corridor of the existing road / street;
- Changes in traffic, pedestrian and cycle movements;
- Modifications of areas of private property / gardens / boundaries; and
- Adjustments to other areas / boundaries.

Alterations in the road corridor and changes in traffic, pedestrian and cycle movements are features of the Proposed Scheme. Changes in road corridors, including in traffic signalisation, signage, and in carriageway / parking allocation and traffic movements are a common and regular aspect of active road and traffic management for urban roads and streets. Therefore, such aspects may be considered as a dynamic part of the receiving streetscape environment.

It is expected that there will be Neutral, Negative and Positive, Moderate to Significant and Long-Term residual impacts on townscape and streetscape character, as follows:

- Negative, Moderate and Long-Term residual impacts are anticipated on the Loughlinstown Roundabout to Wilford Roundabout section; and
- Positive, Moderate and Long-Term residual impacts are anticipated on the Wilford Roundabout to Fran O'Toole Bridge section.

In addition a Negative, Significant, Long-Term impact is anticipated on tree preservation orders / objectives; a Neutral to Negative, Moderate, Long-Term impact is anticipated on properties (including at the Woodbrook Side Lodge following construction of a replacement lodge); and a Negative, Moderate / Significant, Long-Term impact is anticipated on trees and vegetation.

The Proposed Scheme has been subject to an iterative design development process which has sought insofar as practicable to avoid or reduce negative impacts, including landscape (townscape) and visual impacts. Nevertheless, the Proposed Scheme will give rise to some degree of landscape (townscape) and visual effects, most notably during the Construction Phase. These impacts arise especially where there is temporary and/or permanent acquisition of lands associated with residential or other properties including amenities, and where tree removal is required. The Proposed Scheme includes for replacement of disturbed boundaries, reinstatement of the Construction Compound areas, the return of temporary acquisition areas, and for additional tree and other planting where possible along the Proposed Scheme.

In the Operational Phase residual effects will remain for properties experiencing permanent land acquisition, for the impacts on trees including for Tree Preservation Orders / Objectives, particularly through the Loughlinstown Roundabout to Wilford Roundabout section. There will be positive long-term effects for sections of streetscape most notable for areas in Donnybrook and Bray. The Proposed Scheme will also provide for a reduction in the car-centric design of the townscape with an enhanced experience for pedestrians and cyclists through measures such as provision of raised crossing points to side junctions, paving schemes which indicate pedestrian priority and aid in reducing traffic speeds, and shorter or more direct crossing points at junctions.

8.13 Waste & Resources

This waste and resources assessment included identifying the types of waste that could be generated by the Proposed Scheme, as well as the potential for reuse of materials. The assessment included a desk-based review of relevant policy and legislation, and data on waste generation and waste and resources management.

Sustainable waste and resource management principles have been incorporated into the design of the Proposed Scheme and these principles will also be applied in line with the Circular Economy Model (see Image 8.2) throughout the Construction and Operational Phases. This will ensure that waste generation will be minimised.

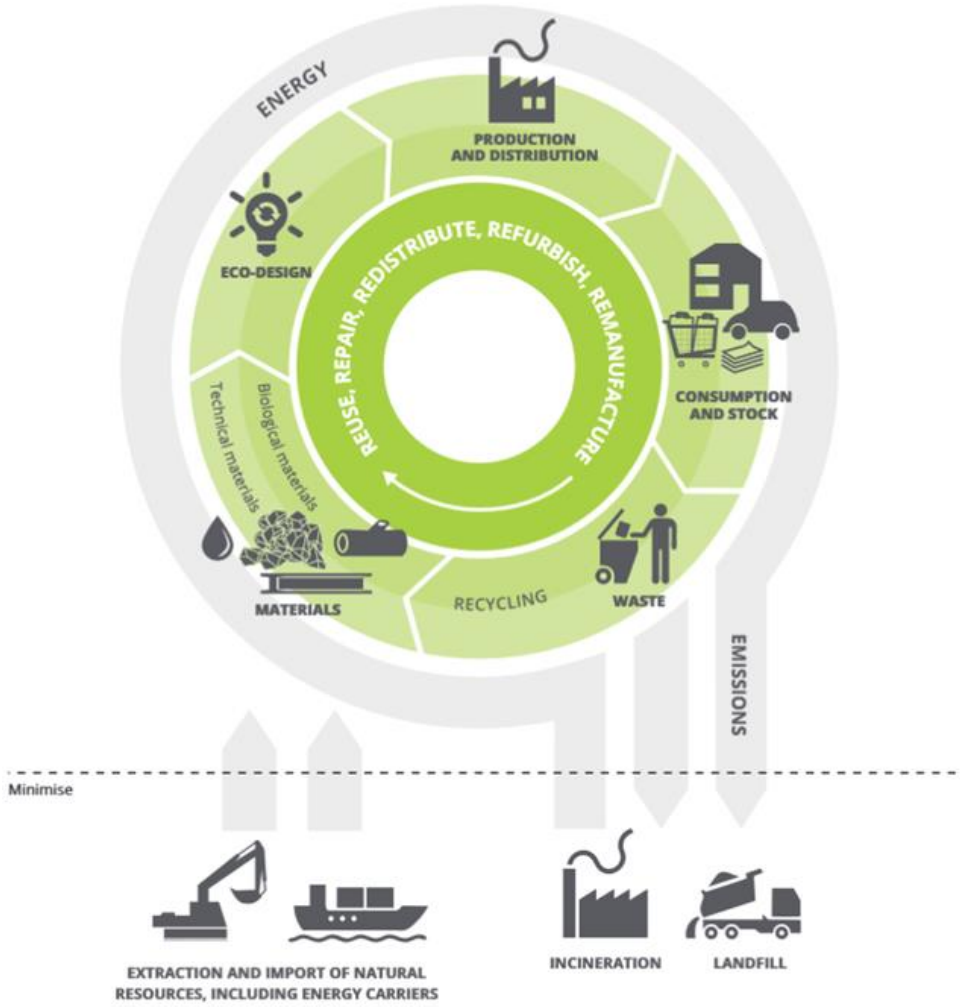

Image 8.2: The Circular Economy Model

In Ireland, the most recently available published data records that 8.2 million tonnes of construction and demolition waste was generated in 2020. This represented a decrease of 0.6 million tonnes from 2019. Of this waste, 7 million tonnes was comprised of soil and stones and these make up 84% of the current construction and demolition waste stream.

In Ireland, municipal waste (i.e. typical household waste types) is made up of household waste as well as commercial and other waste that, because of its type, is similar to household waste. According to the Environmental Protection Agency, Ireland generated 3.2 million tonnes of municipal waste and recycled 30% of this waste in 2020.

The main construction elements that are likely to result in potential impacts on waste and resources will include:

- Construction and reconstitution of cycleways, pathways, road widening and urban realm improvements;
- Removal of trees, concrete kerbs, walls, fences and gates;
- Removal of retaining walls;
- Removal of street furniture, including traffic lights and bus stops, and landscaping works;
- Boundary walls, fences and gates as required;
- Minor utility diversions and / or protections as required; and
- Excavation of pavements and carriageways.

A range of mitigation measures will be implemented to avoid or reduce negative impacts on waste and resources during the Construction Phase, including minimising waste disposal. Opportunities for reuse of materials, by-products and wastes will be sought throughout the Construction Phase of the Proposed Scheme. This will be managed through the Construction Phase by implementing a Construction and Demolition Resource and Waste Management Plan.

Approximately 8,480 tonnes of demolition waste will be generated as a result of the Proposed Scheme, which is equivalent to 0.07% of the C&D waste management baseline in the Eastern-Midlands Waste Region. The predicted impact of Demolition Waste during the Construction Phase is Adverse, Not Significant, and Short-Term. The total forecast of surplus excavation material from the Proposed Scheme will be approximately 181,000 tonnes, and is equivalent to 1.52% of the C&D waste management baseline for the Eastern-Midlands Waste Region. There is potential for incorporating reused aggregates in the Proposed Scheme, and this will be done where practicable. In addition, where practicable the remaining material will be reused. The predicted impact of excavation waste during the Construction Phase, is Adverse, Slight, and Short-Term.

The main potential impacts on waste and resources during the Operational Phase will be waste generated from road maintenance activities following completion of the Construction Phase. Maintenance operations will be undertaken under the jurisdiction of the Local Authority and in accordance with their waste management plans. No additional mitigation or monitoring measures are considered necessary. The quantity of bitumen containing material generated, during the Operational Phase, over the assumed lifetime of the Proposed Scheme (assumed to be 60 years), will decrease by approximately 5,600 tonnes. The predicted impact of operational construction and demolition waste will be Positive, Not Significant and Long-Term.

With the implementation of the proposed mitigation measures, it is expected that there will be no residual significant impacts on waste and resources.

8.14 Material Assets

The material assets assessment was considered in terms of:

- Major utilities (both underground and overground) such as gas, water pipelines (drinking water pipelines and sewers) and storm water networks, electricity transmission lines and telecommunications lines;
- Manmade transport infrastructure such as roads, rail and canals; and
- Raw materials that are required to be imported for the Proposed Scheme.

This assessment involved a desk based review of these material assets. Utility information was requested from relevant organisations and service providers.

Existing material assets within the Proposed Scheme include:

- Electricity Supply Board electricity lines (high, medium and low voltage) and associated infrastructure;
- Gas Networks Ireland gas mains (high, medium and low pressure) and associated infrastructure;
- Uisce Éireann (formerly Irish Water) drinking water mains and associated infrastructure;
- Uisce Éireann (formerly Irish Water) sewer lines (foul and combined sewers) and associated infrastructure;

- Local authority surface water drainage network and associated infrastructure;
- Eir, Enet and Virgin Media telecommunications lines and associated infrastructure;
- Local Authority traffic signal ducting;
- The Grand Canal;
- Bridges (Anglesey Bridge, UCD Flyover Bridge, Wyattville Flyover Bridge, Fran O'Toole Bridge); and
- St. Laurence's Subway.

Within the site of the Proposed Scheme, material is only imported as part of regular maintenance activities which are undertaken on the existing roads, cycle lanes, footpaths, utilities and verges.

The main construction elements that are likely to result in potential impacts on material assets will include:

- Construction Compounds will require electricity to power temporary office and welfare facilities and for temporary lighting which will be required to be supplied via a connection to the grid network or a generator;
- Construction Compounds will require a water supply for welfare facilities and spraying to prevent dust;
- Construction Compounds will require telecommunications access;
- The diversion of electricity lines in areas where there will be interfaces with the Proposed Scheme works;
- The diversion of underground watermains where there will be interfaces with the Proposed Scheme works;
- Upgrade works required to the surface water drainage network to accommodate for new road layouts and increased hardstanding;
- The diversion of gas infrastructure where there will be interfaces with the Proposed Scheme works;
- The diversion of telecommunications infrastructure where there will be interfaces with the Proposed Scheme works;
- Importation of construction materials including concrete, metals, cement, road surface materials and landscaping materials. The amount of materials required for the Proposed Scheme will represent less than 1% of the Irish quantities manufactured per year.

The Proposed Scheme has been designed to minimise the impact on utility infrastructure. This includes avoiding interactions with major utility infrastructure, wherever possible. Where there are interfaces with existing utility infrastructure, these will be protected in place or diverted as necessary to prevent long-term disruption to services. Diversions and changes to the location or layout of any utility infrastructure have been accounted for in the overall design of the Proposed Scheme.

All possible precautions will be taken to avoid unplanned disruptions to any infrastructure or services during the Construction Phase. Proposed utility works are based on available records, and preliminary site investigations. Prior to excavation works being commenced, localised confirmatory surveys will be undertaken to verify the results the pre-construction assessments undertaken and reported in this EIAR.

Consultation has taken place with the major utility companies, and the appointed contractor will continue to consult these companies, in liaison with the NTA. Where diversions are required and service disruptions to the surrounding properties are unavoidable, this will be planned with prior notification given to the impacted property owners.

The Proposed Scheme has also been designed to minimise the amount of major construction works required. When sourcing materials for the Proposed Scheme, the appointed contractor will carefully consider the sustainability of materials. Aspects considered will include the source, the material specification, production and transport costs, and the availability of the material. Construction materials will be managed on-site appropriately to prevent over-ordering and waste.

With the implementation of the proposed mitigation measures there will be no significant residual impacts on material assets as a result of the construction of the Proposed Scheme.

The main operational elements that are likely to result in potential impacts on material assets will include:

- The requirement for electricity connections for new lighting, for bus stop information and for junction signalling; and
- The requirement for telecommunications connections at bus stops which contain real time passenger information, to allow the buses and the real time information to sync up with each other.

There will be no significant Operational Phase impacts on utility infrastructure. Due to the measures included in the design of the Proposed Scheme and the fact that there are minimal impacts predicted during the Operational Phase, no specific mitigation measures are required.

8.15 Risk of Major Accidents and/or Disasters

This assessment considered the potential significant impacts of the Proposed Scheme on the environment, resulting from its vulnerability to risks of major accidents and/or disasters during the Construction Phase and Operational Phase.

The risk assessment:

- Identified major accidents and/or disasters (i.e. unplanned incidents) that the Proposed Scheme may be vulnerable to; and
- Assessed the likely impacts and consequence of such incidents in relation to the environmental, social and economic receptors that may be affected.

A register of all potential risks and the associated potential impacts was developed for the Construction and Operational Phases of the Proposed Scheme. This register assumed a worst-case scenario, before any mitigation measures or emergency plans would be put in place to reduce the likelihood and potential impact of any major accidents and / or disasters.

Risks are rated by multiplying the likelihood rating (likelihood of a risk happening which ranges from extremely unlikely to very likely) with the consequence rating (level of consequences if a major accident and / or disaster occurred, which ranges from minor to catastrophic). This gives a risk score of low, medium or high. Low risk scores do not meet the definition of a major accident and / or disaster and high risk scores would be considered high risk and unacceptable for the development of the Proposed Scheme and would need to be designed out. Medium risk scores would require a level of mitigation that would reduce the level of impact.

For the Construction Phase, there were a number of risks that were deemed low and were not considered further. No high risks were identified and the following medium level risks were identified for the Construction Phase:

- Risk of gas explosion due to striking underground gas mains during excavation works;
- Risk of striking high-voltage overhead power lines during works at St. Laurence Subway;
- Ground collapse during structural works;
- Risk of encountering and mobilising contaminants during construction of road through existing petrol station forecourt in North Bray;
- Risk of pollution occurring to a watercourse or groundwater, most notably associated with the release of fine sediments during construction works; and
- Risk of spread of non-native invasive species during construction works, particularly during site clearance.

The Proposed Scheme complies with relevant design standards, which include measures to reduce the likelihood of risk events occurring.

Appropriate mitigation measures will be implemented during the Construction Phase, including the implementation of a CEMP and Environmental Incident Response Plan. Once these mitigation measures are applied, there are no remaining identified incidents or major accidents and / or disasters risk events that present a level of risk that would lead to significant impacts or environmental effects.

No significant risks were identified as likely to occur during the Operational Phase.

8.16 Cumulative Impacts and Impact Interactions

This assessment considers the potential cumulative impacts and impact interactions as a result of potential impacts from other schemes in combination with the predicted impacts of the Proposed Scheme, and interactions between environmental aspects. The assessment included a consideration of the potential effects of other BusConnects Core Bus Corridor Schemes as well as other projects.

Impact interactions between environmental aspects are generally addressed as part of the individual topic assessments, so for example the Population assessment included effects on community amenity, which relates to the interaction of impacts on air quality, visual amenity, traffic and transport, and noise and vibration.

The following sources were considered in identifying other relevant developments for the assessment of cumulative impacts:

- An Bord Pleanála website – for details of strategic infrastructure developments and strategic housing developments;
- Local Authority websites and the development plans – for details of allocations and areas for regeneration;
- National Planning Application Database – for downloadable list of planning applications sent from Local Authorities;
- National Transport Authority website – for details of major transport programmes. This included a review of the NTA's Transport Strategy for the Greater Dublin Area 2016 – 2035;
- Project Ireland 2040, which combines the National Development Plan and National Planning Framework. and its interactive mapper;
- Transport Infrastructure Ireland website – for details of major transport programmes;
- The EIA Portal maintained by the Department of Housing, Planning and Local Government – for applications for development consent accompanied by an EIAR; and
- The Uisce Éireann (formerly Irish Water) website, which includes a page on its projects.

A combined worst-case scenario was considered, with the simultaneous construction of all the BusConnects Core Bus Corridor Schemes. Traffic modelling of this scenario identified the potential for cumulative impacts on the wider road network, including local and residential roads. For this reason, it is not considered feasible or acceptable to construct all 12 schemes at the same time. Consequently, an alternative scenario was developed to identify a more realistic worst-case scenario for the traffic-related cumulative effects assessment. This scenario proposes a limitation on the number of schemes that can be constructed concurrently. This scenario was considered, in combination with the other identified major infrastructure projects and major developments which could directly interface with the Proposed Scheme with regard to traffic and transport.

No likely significant cumulative effects relating to traffic and transport are predicted, over and above the effects of the Proposed Scheme assessed in isolation.

With regard to air quality, as the cumulative construction traffic effects will be broadly in line with those of the Proposed Scheme in isolation and the associated cumulative air quality effects will not be significant. Dust mitigation at the Construction Phase for the Proposed Scheme, with similar measures in place for other projects, will mean that overall cumulative effects of construction dust will be neutral.

The construction of a wide range of projects in Ireland over the construction period of BusConnects Dublin – Core Bus Corridors Infrastructure Works will result in the generation of embodied carbon. These developments include local planning applications, major projects, and strategic developments with a varying extent of embodied carbon generation. Any increase in carbon emissions is assessed as a minor negative impact. The climate impact assessment of road traffic emissions from the Construction Phase of the Proposed Scheme cumulatively with the 11 other Core Bus Corridor Schemes predicts a temporary overall increase of 2.4% of carbon dioxide-equivalent emissions compared to a scenario without the Core Bus Corridor Schemes. A series of embedded mitigation measures have been incorporated into the design of the Core Bus Corridor Schemes with the goal of reducing the embodied carbon and traffic emissions associated with the Construction Phase of all Core Bus Corridor

Schemes. For example, concrete containing Portland cement will be replaced with concrete containing ground granulated blast furnace slag which will save on embodied carbon across the 12 Core Bus Corridor Schemes.

On the basis that the more realistic worst-case scenario for construction traffic is predicted to result in traffic conditions which are broadly in line with the effect of implementing each of the Proposed Schemes in isolation, there would be no likely significant cumulative effect on traffic related noise over and above the effects of the Proposed Scheme assessed in isolation.

With regard to Biodiversity, the construction of the Proposed Scheme in combination with other projects, will not give rise to cumulative impacts higher than the predicted residual impacts identified for the Proposed Scheme on its own (significant at a local scale).

The Landscape (Townscape) and Visual assessment identified that where the construction of the Proposed Scheme coincides with other developments, or construction is successive, there remains potential for localised Moderate to Significant, Temporary cumulative effects during construction on the townscape / streetscape.

No other significant construction related cumulative effects were identified from the Proposed Scheme in combination with other projects (including the other Core Bus Corridor Schemes) over and above those identified in the standalone assessments.

For Operational Phase effects, the assessments assume all 12 proposed Bus Corridor Schemes would be operational, along with other identified projects and Greater Dublin Area Transport Strategy projects included in the Do Minimum and Do Something scenarios. For traffic and transport, the assessment predicted that the Proposed Scheme and the other 11 Core Bus Corridor Schemes are expected to facilitate a Long-Term, Profound Positive cumulative effect on People Movement by sustainable modes. The Core Bus Corridor Schemes are seen to enable significant improvements in People Movement by sustainable modes along the direct Core Bus Corridor routes, particularly by bus and cycling, with reductions in car mode share due to the enhanced sustainable mode provision. The Proposed Scheme and the other 11 Core Bus Corridor Schemes will provide for enhanced integration and efficiencies for all public transport modes by facilitating substantial increases in public transport average network wide travel speeds.

The climate impact assessment predicts a Negligible and Permanent cumulative impact on climate during the maintenance phase. A Minor and Positive impact is predicted on climate due to the predicted cumulative change in operational traffic and the significant mode shift from car to more sustainable modes (walking, cycling and public transport).

The Core Bus Corridor Infrastructure Works will also support the delivery of government strategies outlined in the Climate Action Plan (DCCAE 2022) and the Climate Action and Low Carbon Development (Amendment) Act 2021 by enabling sustainable mobility and delivering a sustainable transport system. The Core Bus Corridor Infrastructure Works will provide connectivity and integration with other public transport services leading to more people availing of public transport, helping to further reduce greenhouse gas emissions.

Based on the analysis outlined above, it is concluded that the Core Bus Corridor Infrastructure Works achieves the project objectives in supporting the delivery of an efficient, low carbon and climate resilient public transport service, which supports the achievement of Ireland's emission reduction targets. The Core Bus Corridor Infrastructure Works has the potential to reduce GHG emissions equivalent to the removal of approximately 105,500 and 209,100 car trips per weekday from the road network in 2028 and 2043 respectively. This has the effect of a reduction in total vehicle kilometers, a reduction in fuel usage, and increases to sustainable transport trips and modal share in accordance with the 2023 Climate Action Plan (CAP) (DCCAE 2022). It is concluded that, cumulatively, the Core Bus Corridor Infrastructure Works will make a significant contribution to carbon reduction.

The Landscape (Townscape) and Visual assessment identified the potential for long-term impacts on trees as a result of the proposed Luas Green Line extension to Bray, however these impacts are only expected to be significant in the short to medium term. The assessment also identified the potential for Neutral, Moderate, Long-Term cumulative impacts with the Belfield / Blackrock Core Bus Corridor Scheme, both on the Grand Canal and at the intersection between the two schemes.

The only other significant operational cumulative impacts identified over and above the standalone scheme relate to human health. It was assessed that the proposals for the other 11 Core Bus Corridor schemes and the Proposed Scheme are complementary and could have a cumulative beneficial effect by encouraging active travel and increased use of public transport through offering a choice of routes. Due to the substantial size of overall population with the opportunity to benefit from the proposals, the effect is assessed as Positive, Very Significant and Long-term for health.

Significant environmental interactions occur between the topics of population, human health, air quality, noise and vibration, landscape (townscape) and visual, and traffic and transport. The assessments made for each of those topics consider those interactions both directly and indirectly. Some are direct relationships, e.g. population and visual impacts; biodiversity and landscape; land, soils and water and landscape; or the setting around features of cultural heritage etc. Others may be indirect, e.g. human health, air quality and landscape, material assets and landscape and visual aspects. Wherever possible these potential interactions have been incorporated into the relevant assessments.

In brief, the Proposed Scheme will address sustainable mode transport infrastructure deficits while contributing to an overall integrated sustainable transport system as proposed in the GDA Strategy. It will increase the effectiveness and attractiveness of bus services operating along the corridor and will result in more people availing of public transport due to the faster journey times and reliability improvements which the Proposed Scheme provides. This in turn will support the potential to increase the bus network capacity of services operating along the corridor and thereby further increasing the attractiveness of public transport. In addition to this, the significant segregation and safety improvements to walking and cycling infrastructure that is a key feature of the Proposed Scheme will further maximise the movement of people travelling sustainably along the corridor and will therefore cater for higher levels of future population and employment growth.

9. What Happens Next?

The application for consent / approval, this EIAR and the Natura Impact Statement (NIS) may be viewed / downloaded on the following website: www.brayscheme.ie.

The application may also be inspected in person free of charge or purchased on payment of a specified fee (this fee shall not exceed the reasonable cost of making such a copy) for a period of 8 weeks commencing on the date of publication of the Proposed Scheme. Further details of these arrangements can be found at www.brayscheme.ie.

Submissions or observations may be made to An Bord Pleanála (Strategic Infrastructure Division), 64 Marlborough Street, Dublin 1, D01 V902 for a period of 8 weeks commencing on the date of publication of the Proposed Scheme relating to:

- The likely effects on the environment of the Proposed Scheme;
- The implications of the Proposed Scheme for proper planning and sustainable development in the area in which it is proposed to situate the Proposed Scheme; and
- The likely adverse effects of the Proposed Scheme on a European Site.

The Board may, in relation to an application submitted for approval under Section 51 of the Roads Act 1993 (as amended), by order, approve the Proposed Scheme, with or without modifications and subject to whatever environmental conditions it considers appropriate, or may refuse to approve the Proposed Scheme.

NTA

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Building Ireland's Future