



Chapter 06
Traffic &
Transport

Contents

6.	Traffic & Transport	1
6.1	Introduction	1
6.1.1	Aim and Objectives of the Proposed Scheme.....	2
6.1.2	Iterative Design Process and Mitigation by Design.....	4
6.2	Methodology	6
6.2.1	Study Area.....	6
6.2.2	Relevant Guidelines, Policy and Legislations.....	7
6.2.3	Proposed Scheme Impact Assessment Modelling Tools	8
6.2.4	Appraisal Method for the Assessment of Impacts.....	10
6.2.5	Data Collection and Collation	14
6.3	Baseline Environment.....	18
6.3.1	Overview.....	18
6.3.2	Section 1 - Tallaght to Ballymount.....	18
6.3.3	Section 2 - Ballymount to Crumlin	33
6.3.4	Section 3 - Crumlin to Grand Canal	38
6.3.5	Section 4 - Grand Canal to Christchurch.....	52
6.3.6	Section 5 – Woodford Walk (R113) / New Nangor Road (R134) to Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction.....	61
6.3.7	Section 6 – Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh	68
6.4	Potential Impacts	75
6.4.1	Characteristics of the Proposed Scheme	75
6.4.2	'Do Nothing' Scenario.....	75
6.4.3	'Do Minimum' Scenario.....	75
6.4.4	'Do Something' Scenario	76
6.4.5	Construction Phase	76
6.4.6	Operational Phase.....	85
6.5	Mitigation and Monitoring Measures	177
6.5.1	Construction Phase	177
6.5.2	Operational Phase.....	177
6.6	Residual Impacts	178
6.7	References	179

6. Traffic & Transport

6.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) has considered the potential traffic & transport impacts associated with the Construction and Operational Phases of the Tallaght / Clondalkin to City Centre Scheme Bus Corridor Scheme (hereafter referred to as the Proposed Scheme).

The chapter describes the traffic and transport impacts in accordance with the requirements of the relevant Environmental Protection Agency's (EPA) guidance on the information to be contained in EIARs. To accompany this chapter, a Transport Impact Assessment (TIA) has been prepared. The TIA presents a comprehensive review of the traffic and transport impacts associated with the Proposed Scheme, which has informed the production of this EIAR Traffic & Transport chapter. The TIA should be read in conjunction with this EIAR chapter and is included as Appendix A6.1 (Transport Impact Assessment Report) in Volume 4 of this EIAR.

The Proposed Scheme, as described in detail in Chapter 4 (Proposed Scheme Description), measures approximately 15.5 km along the Core Bus Corridor with an additional offline cycling facility approximately 3.9 km in length. The Proposed Scheme consists of two sections that amalgamate the former Greenhills to City Centre CBC (Tallaght to City Centre) and Clondalkin to Drimnagh CBC (Clondalkin to Drimnagh) preferred route Core Bus Corridors.

The first section, the Tallaght to City Centre section, begins at the junction of Blessington Road / Cookstown Way and is routed along Belgard Square West, Belgard Square North, Belgard Square East, Blessington Road to the junction of R819 Greenhills Road and Bancroft Park. From here the Proposed Scheme is routed along the R819 Greenhills Road to Walkinstown Roundabout via new transport link roads; in the green area to the east of Birchview Avenue / Treepark Road; in the green area to the south of Ballymount Avenue, and in the green area to the east of Calmount Road. From Walkinstown Roundabout the main Core Bus Corridor is routed along the R819 Walkinstown Road to the junction with R110 Long Mile Road and Drimnagh Road. The shared spine with the Clondalkin section commences at this junction and the Proposed Scheme is routed along the R110 to the junction of Dean Street and Patrick Street via Drimnagh Road, Crumlin Road, Dolphins Barn, Cork Street, St Luke's Avenue and Dean St. From here the Proposed Scheme is routed along the R137 via Patrick Street to the junction at Winetavern Street and Christchurch Place where the Proposed Scheme terminates within the City Centre. An offline cycle facility is proposed to facilitate cycling between Walkinstown Roundabout and Parnell Road (Grand Canal) where end to end cycle facilities are not feasible along the main corridor and provides a more direct route towards the city centre. This offline section of the Proposed Scheme is routed via Bunting Road, Kildare Road and Clogher Road.

The second section, the Clondalkin to Drimnagh section, begins at the junction of New Nangor Road and Woodford Walk and is routed along the R134 New Nangor Road, R810 Naas Road, R112 Walkinstown Avenue and the R110 Long mile Road to the junction of Walkinstown Road and Drimnagh Road where it is routed towards the city centre along the shared spine section as described above (in terms of traffic).

Throughout the Proposed Scheme bus stops will be enhanced to improve the overall journey experience for bus passengers.

Throughout the Proposed Scheme cycle facilities will be substantially improved with segregated cycle tracks provided along the links and protected junctions with enhanced signalling for cyclists provided at junctions. Where space for a segregated cycle track is not available on the main corridor an alternative cycle route via quiet roads is proposed.

Moreover, pedestrian facilities will be upgraded with additional signalised crossings and side road ramps provided. In addition, public realm works will be undertaken at key locations with higher quality materials, planting and street furniture provided to enhance the pedestrian's experience.

Table 6.1 summarises the changes which will be made to the existing transport environment along the corridor as a result of the Proposed Scheme.

Table 6.1: Summary of Changes as a result of the Proposed Scheme

Total Length of Proposed Scheme	15.5km (+3.9km offline cycling facility)	
Features	Existing (km)	Proposed Scheme (km)
Bus Lanes		
Inbound	5.4	14.2
Outbound	4.5	13.8
Bus Priority through Traffic Management		
Inbound	0.3	0.6
Outbound	0.3	0.6
Total Bus Priority (both directions)	10.5	29.2 (+176%)
Bus Measures		
Proportion of Route with Bus Priority Measures	34% (Core Bus Corridor)	94% (Core Bus Corridor)
Cycle Facilities – Segregated		
Inbound	2.1	16.6
Outbound	1.7	17.4
Cyclist Facilities – Non-segregated (not including un-segregated Bus Lanes)		
Inbound	8.8	0.8
Outbound	9.1	0.8
Cyclist Facilities – Overall		
Total Cyclist Facilities (both directions)	21.7	38.5
Proportion Segregated	17.2%	93%
Other Features		
Number of Pedestrian Signal Crossings	135	181

The Proposed Scheme, as described in Chapter 4 (Proposed Scheme Description) is supported by a series of drawings, which are contained in Volume 3 of the EIAR. The following drawings (listed in Table 6.2) should be read in conjunction with this chapter.

Table 6.2: List of Drawings

Drawing Series Number	Description
BCIDA-ACM-GEO_GA-0809001_XX_00-DR-CR-9001	General Arrangement
BCIDA-ACM-GEO_CS-0809001_XX_00-DR-CR-9001	Typical Cross Sections
BCIDA-ACM-TSM_GA-0809001_XX_00-DR-CR-9001	Traffic Signs and Road Markings
BCIDA-ACM-TSM_SJ-0809001_XX_00-DR-TR-9001	Junction System Design

Cumulative impacts of Traffic and Transport, along with other topics, can be found in Chapter 21 (Cumulative Impacts & Environmental Interactions) of this EIAR, as well as in Appendix A6.1 (Transport Impact Assessment Report) in Volume 4 of this EIAR.

6.1.1 Aim and Objectives of the Proposed Scheme

The aim of the Proposed Scheme is to provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor. The objectives of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment 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 public realm is carefully considered in the design and development of the transport infrastructure and seek to enhance key urban focal points where appropriate and feasible.

The planning and design of the Proposed Scheme has been guided by these aims and objectives, with the need for the Proposed Scheme described in detail in Chapter 2 (Need for the Proposed Scheme) of this EIAR.

6.1.1.1 People Movement

The aims and objectives outlined above are underpinned by the central concept and design philosophy of '**People Movement**'. People Movement is the concept of the optimisation of roadway space and / or the prioritisation of the movement of people over the movement of vehicles along the route and through the junctions along the Proposed Scheme. The aim being the reduction of journey times for higher person carrying capacity modes (bus, walking and cycling), which in turn provides significant efficiencies and benefits to users of the transport network and the environment.

A typical double-deck bus takes up the same road space as three standard cars but typically carries 50-100 times the number of passengers per vehicle. On average, a typical double-deck bus carries approximately 60-70 passengers making the bus typically 20 times more efficient in providing people movement capacity within the equivalent spatial area of three cars. These efficiency gains can provide a significant reduction in road network congestion where the equivalent car capacity would require 50 or more vehicles based on average occupancy levels. Consequently, by prioritising the movement of bus over cars, significantly more people can be transported along the limited road space available. Similarly, cyclists and pedestrians require significantly less roadway space than general traffic users to move safely and efficiently along the route. Making space for improved pedestrian infrastructure and segregated cycle tracks can significantly benefit these sustainable modes and encourage greater use of these modes.

With regards to this traffic and transport chapter, People Movement is the key design philosophy and the Proposed Scheme impacts (both positive and negative) have been assessed on that basis.

6.1.1.2 Preliminary Design Guidelines

To support the 'People Movement' led approach to the design of the Proposed Scheme, the Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors (PDGB) (NTA 2021) (refer to Appendix A4.1 in Volume 4 of this EIAR) was developed. This guidance document was prepared to ensure that a consistent design approach was taken across the various BusConnects Schemes and that the objectives of the project are achieved. A 'People Movement' led design involves the prioritisation of people movement, focusing on maximising the throughput of sustainable modes (i.e. Walking, Cycling and Bus modes) in advance of the consideration and management of general vehicular traffic (private car) at junctions.

In support of this approach, a project specific People Movement at Signal Calculator (PMSC) was developed. The PMSC was applied at the initial design development stage, to provide an initial estimate of green time allocation

for all movements at a typical junction, on the basis that sustainable mode movements should be accommodated foremost to maximise people movement with the remaining green time allocated to general traffic movements. The calculations were underpinned by:

- The number of buses required to be accommodated along the Proposed Scheme, as per the BusConnects Network Re-design proposals;
- The provision of a high Level of Service for cyclists at each junction along the Proposed Scheme; and
- The pedestrian crossing width and crossing timing requirements based on the provision of a high Level of Service for pedestrians at each junction along the Proposed Scheme.

The outputs of the calculator provided an initial estimate of the green times and vehicle capacity movements based on inputs and assumptions for each junction along the Proposed Scheme. The calculator provided an estimate of the People Movement for the junction in question (by mode) and was used to adjust proposals with a view to maximising the total person throughput at each junction along the Proposed Scheme during the iterative design process, described further below in Section 6.2.3. Details on the development of junction designs along the Proposed Scheme are included in Appendix A6.3 (Junction Design Report) in Volume 4 of this EIAR.

The People Movement Calculation and the identification of available general traffic capacity from this initial exercise was enhanced further by the Proposed Scheme Transport Models described in Section 6.2.3 below.

6.1.2 Iterative Design Process and Mitigation by Design

Throughout the development of the Preliminary Design for the Proposed Scheme there have been various design stages undertaken based on a common understanding of the maturity of the design at a given point in time. Part of this process was to ensure the environmental and transport impacts were mitigated to the greatest extent possible during design development and to enable information on potential impacts to be provided from the various Environmental Impact Assessment (EIA) and Transport Impact Assessment (TIA) disciplines back into the design process for consideration and inclusion in the proposals. This resulted in mitigation being embedded into the design process by the consideration of potential environmental impacts throughout the Preliminary Design development. A multi-tiered modelling framework (described in Section 6.2.3) was developed to support this iterative design process,

Diagram 6.1 below illustrates this process whereby the emerging design for the Proposed Scheme have been tested using the transport models as part the iteration. The transport models provided an understanding of the benefits and impacts of the proposals (mode share changes, traffic redistribution, bus performance etc.) with traffic flow information also informing other environmental disciplines (such as Air Quality, Noise and Vibration, Climate etc.) which in turn allowed feedback of potential impacts into the design process to allow for changes and in turn mitigation to be embedded in the designs. The design process included physical changes (e.g., cycle lane widening) and adjustments to traffic signals including changes to staging, phasing and green times to limit traffic displacement to the greatest extent possible as well as traffic management arrangements and/or turn bans where appropriate. This ensured that any displaced traffic was kept to a minimum and was maintained on higher capacity roads, whilst continuing to meet scheme objectives along the Proposed Scheme.

The iterative process concluded when the design team were satisfied that the Proposed Scheme met its required objectives (maximising the people movement capacity of the Proposed Scheme) and that the environmental impacts and level of residual impacts were reduced to a minimum.

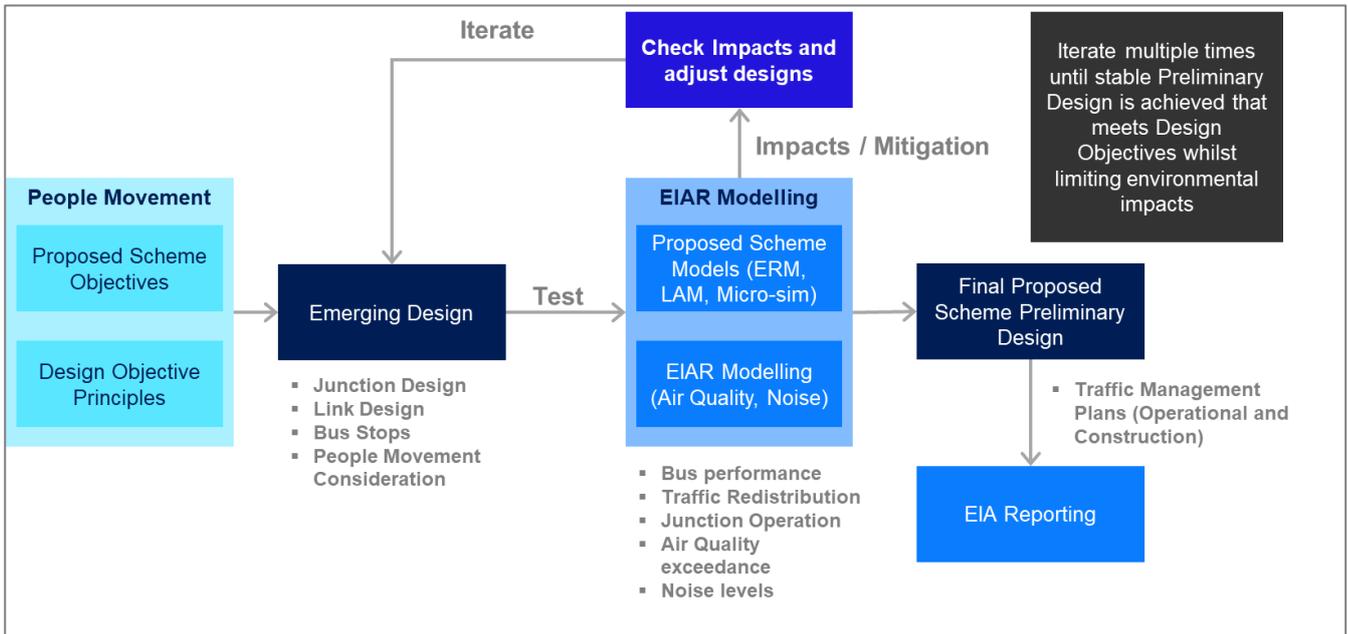


Diagram 6.1 Proposed Scheme Impact Assessment and Design Interaction

The impacts presented in this chapter are based on the final Preliminary Design for the Proposed Scheme which includes the embedded mitigation developed as part of the iterative design process described above.

6.2 Methodology

The methodology for the traffic and transport related impacts of the Proposed Scheme has incorporated a number of key references and inter-related stages, which have been outlined in the following sections.

6.2.1 Study Area

The direct and indirect impacts have been considered with reference to the following study area extents (as shown in Diagram 6.2):

- **Direct Study Area** – The Proposed Scheme (i.e. the transport network within the red line boundary); and
- **Indirect Study Area** – This is the area of influence the Proposed Scheme has on changing traffic volumes above a defined threshold with reference to TII’s Traffic and Transport Assessment Guidelines (May 2014) (see Section 6.4.5.4.6 for further details on the threshold applied in relation to traffic volume changes used in the definition of the indirect study area).

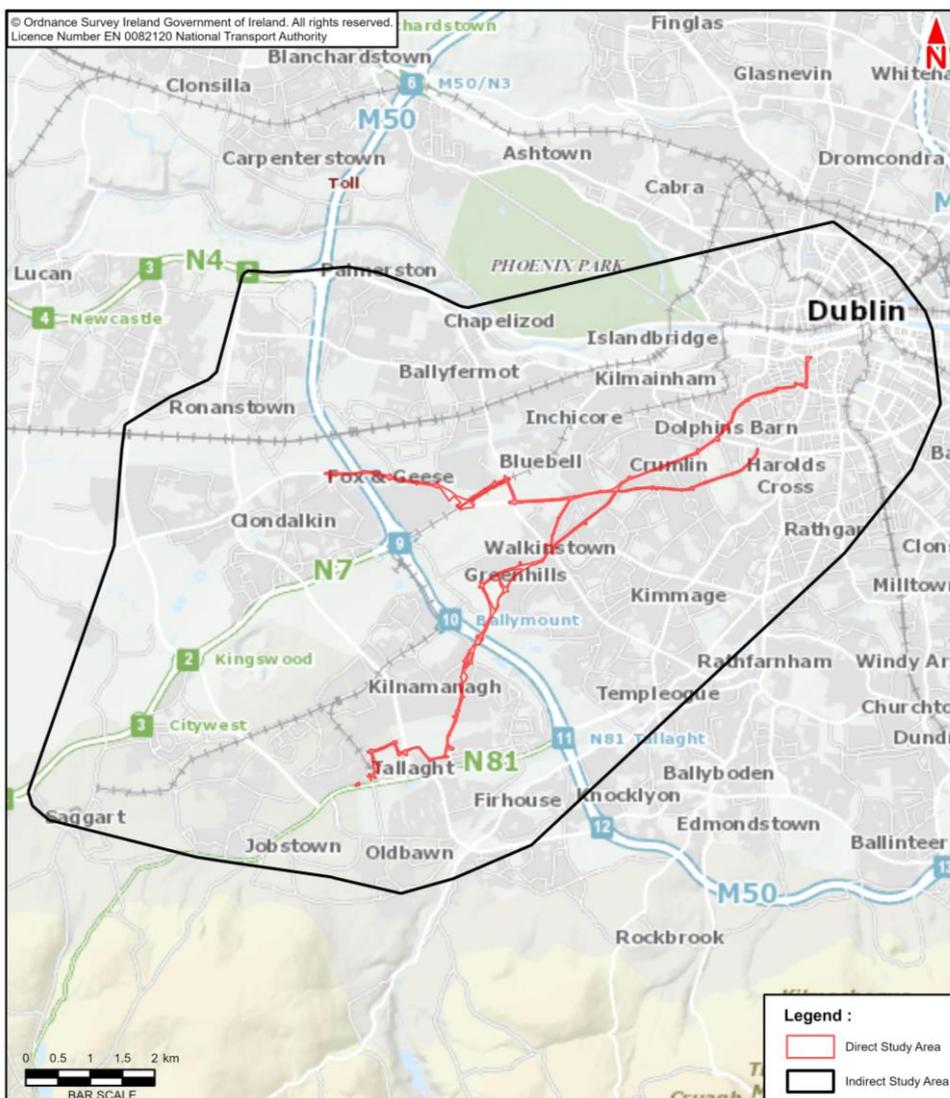


Diagram 6.2: Proposed Scheme Direct & Indirect Study Area

6.2.2 Relevant Guidelines, Policy and Legislations

The policies and legislation which are applicable to the Traffic & Transport chapter are detailed in Chapter 2 (Need for the Proposed Scheme) of the EIAR and in Appendix A6.1 (Transport Impact Assessment Report) in Volume 4 of this EIAR. The specific traffic and transport guidelines which have informed this chapter are detailed in turn below.

6.2.2.1 Traffic and Transport Assessment Guidelines

To determine the traffic and transport impact that the Proposed Scheme has in terms of an increase in general traffic flows on the direct and indirect study areas, a robust assessment has been undertaken, with reference to Transport Infrastructure Ireland's (TII) most recent Traffic and Transport Assessment Guidelines (TII 2014).

This document is considered best practice guidance for the assessment of transport impacts related to changes in traffic flows due to proposed developments and is an appropriate means of assessing the impact of general traffic trip redistribution on the surrounding road network.

According to Section 5.3 of the Traffic and Transport Assessment Guidelines (TII 2014):

'a Traffic and Transport Assessment is a comprehensive review of all the potential transport impacts of a proposed development or re-development, with an agreed plan to mitigate any adverse consequences'.

The guidelines aim to provide a framework to promote an integrated approach to development, ensuring that proposals promote more efficient use of investment in transportation infrastructure which reduces travel demand and promotes road safety and sustainable travel.

The TIA, which supports this EIAR chapter, follows the Traffic and Transport Assessment Guidelines and offers an impartial description of the likely impacts of the Proposed Scheme, outlining both its positive and negative aspects.

6.2.2.2 Design Manual for Urban Roads and Streets

The Design Manual for Urban Roads and Streets (DMURS) (Department of Transport, Tourism and Sport (DTTS) 2019) promotes an integrated street design approach within urban areas (i.e. cities, towns and villages) focused on:

- Influence by the type of place in which the street is located; and
- Balancing the needs of all users.

A further aim of this Manual is to put well designed streets at the heart of sustainable communities to promote access by walking, cycling and public transport.

The principles, approaches and standards set out in this Manual apply to the design of all urban roads and streets (with a speed limit of 60 km/h or less), except: (a) Motorways (b) In exceptional circumstances, certain urban roads and streets with the written consent of Sanctioning Authorities.

The Manual is underpinned by a holistic design-led approach, predicated on a collaborative and consultative design process. There is specific recognition of the importance to create secure and connected places that work for all, characterised by creating new and existing streets as attractive places with high priority afforded to pedestrians and cyclists while balancing the need for appropriate vehicular access and movement.

To achieve a more place-based/integrated approach to road and street design, the following four core principles are promoted within the manual:

- Connected Networks – To support the creation of integrated street networks which promote higher levels of permeability and legibility for all users, and with emphasis on more sustainable forms of transport;
- Multi-Functional Streets – The promotion of multi-functional, place-based streets that balance the needs of all users within a self-regulating environment;
- Pedestrian Focus – The quality of the street is measured by the quality of the environment for the user hierarchy pedestrians considered first; and
- Multi-disciplinary Approach – Greater communication and co-operation between design professionals through the promotion of a plan-led, multidisciplinary approach to design.

The Proposed Scheme has been designed and assessed with reference to these guidelines.

6.2.2.3 Traffic Signs Manual (Chapter 8: Temporary Traffic Measures and Signs for Roadworks)

The Traffic Signs Manual (Department of Transport (DoT), 2019) promotes safety, health and welfare for road workers and users. The manual details the traffic signs which may be used on roads in Ireland, including sign layout, sign symbols, the circumstances in which they are required, and the associated rules for positioning them.

Of direct relevance to the assessment of traffic and transport impacts, Chapter 7 – Road Markings outlines the function of road markings, the legalities of road markings and the application of road markings on roads in Ireland. Chapter 8 – Temporary Traffic Measures and Signs for Roadworks outlines the application of temporary traffic management (TTM) at work sites on public roads; this chapter offers instructions and guidance to road users in relation to the use of TTM and outlines the signs to be used at roadworks.

6.2.2.4 Traffic Management Guidelines

The Traffic Management Guidelines (DoT, 2019) provides guidance on a number of issues including, but not limited to; traffic planning, traffic calming and management, incorporation of speed restraint measures and the provision of suitably designed facilities for public transport users and vulnerable road users.

A core component of the Guidelines is rooted in decision making and balancing priorities, including those that are in conflict with one another. The Guidelines identifies common objectives to be addressed when managing the transport network:

- Environment Improvement;
- Congestion Relief;
- Capacity Improvement;
- Safety;
- Accessibility;
- Economic Vitality; and
- Politics.

The Proposed Scheme has been designed and assessed with reference to these guidelines. In addition to the above key guidelines, the Proposed Scheme has been designed and assessed with reference to a set of policy and guidance documents outlined in Section 6.9 of this chapter.

6.2.3 Proposed Scheme Impact Assessment Modelling Tools

This section summarises the various transport modelling tools that have been developed and used to inform the preparation of the TIA and this chapter of the EIAR. The purpose of each tool has been detailed and its use for each element of the Proposed Scheme assessment has been defined.

The modelling tools that have been developed as part of the assessment, do not work in isolation, but instead work as a combined modelling system driven by the NTA's East Regional Model (ERM) as the primary source for multi-model demand and trip growth. Demand information is passed from the ERM to the cordoned Local Area Model (LAM), corridor micro-simulation models and junction models which have been refined and calibrated to represent local conditions to a greater level of detail than that contained in the ERM.

In summary, there are four tiers of transport modelling which have been used to assess the impacts of the Proposed Scheme:

- **Tier 1 (Strategic Level):** The NTA's East Regional Model (ERM) is the primary tool which has been used to undertake the strategic modelling of the Proposed Scheme and has provided the strategic multi-modal demand outputs for the proposed forecast years;
- **Tier 2 (Local Level):** A Local Area Model (LAM) has been developed to provide a more detailed understanding of traffic movement at a local level. The LAM is a subset model created from the ERM and contains a more refined road network model used to provide consistent road-based outputs to inform the TIA, EIA and junction design models. This includes information such as road network speed data and traffic redistribution impacts for the Operational Phase. The LAM also provides traffic flow information for the micro-simulation model and junction design models and has been used to support junction design and traffic management plan testing;
- **Tier 3 (Corridor Level):** A micro-simulation model of the full 'end to end' corridor has been developed for the Proposed Scheme. The primary role of the micro-simulation model has been to support the ongoing development of junction designs and traffic signal control strategies and to provide bus journey time information for the determination of benefits of the Proposed Scheme; and
- **Tier 4 (Junction Level):** Local junction models have been developed, for each junction along the Proposed Scheme to support local junction design development. These models are informed by the outputs from the above modelling tiers, as well as the junction designs which are, as discussed above, based on people movement prioritisation.

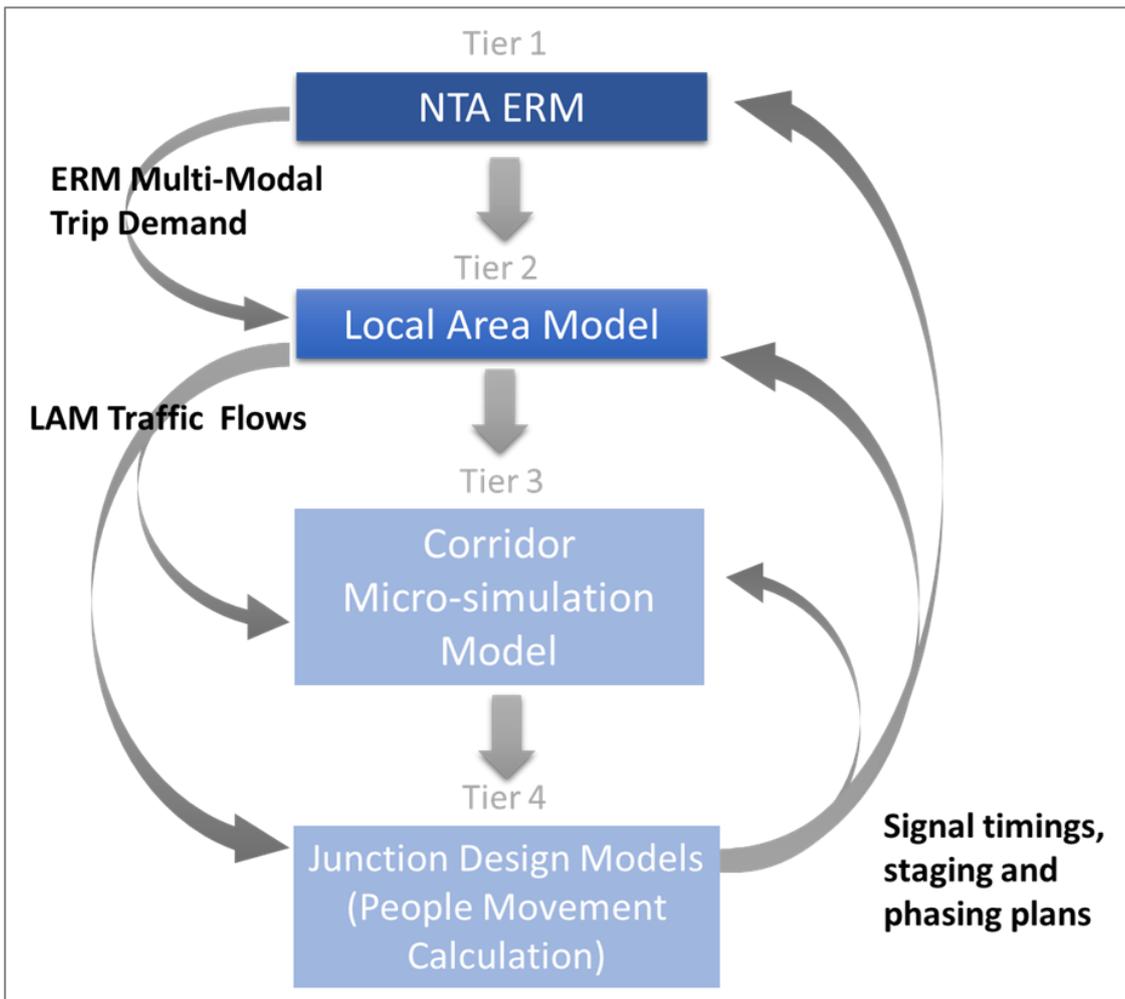


Diagram 6.3: Proposed Scheme Modelling Hierarchy

Further detail on the transport model development process, the traffic data inputs used, the calibration, validation and forecast model development for the suite of transport models can be found in Appendix A6.2 (Transport Modelling Report) and Appendix A6.3 (Junction Design Report) in Volume 4 of this EIAR.

6.2.4 Appraisal Method for the Assessment of Impacts

6.2.4.1 Overview

This section details the methodologies that have been used to assess the potential traffic and transport impacts of the Proposed Scheme during both the Construction and Operational Phases. The assessments have been carried out as follows:

- Outlining the Assessment Topics;
- Determining the Predicted Magnitude of Impacts;
- Defining the Sensitivity of the Environment; and
- Determining the Significance of Effects.

The above approach has been carried out in accordance with procedures described in the Guidelines to be Contained in EIARs (EPA 2022) and methodologies outlined in the 'Traffic and Transport Assessment Guidelines (TII 2014), using a Multi-Modal Level of Service (LoS) approach.

6.2.4.2 Outlining the Assessment Topics

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

- The qualitative assessments:
 - **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 quantitative assessments, which have been undertaken using the Proposed Scheme modelling tools described previously:
 - **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 only;
 - **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.

6.2.4.3 Determining the Predicted Magnitude of Impacts

The methodology used for determining the predicted magnitude of impacts has considered the traffic and transport conditions of the environment before and after the Proposed Scheme is in place.

The impact assessments have been carried out using the following scenarios:

- **‘Do Nothing’** – The ‘Do Nothing’ scenario represents the current baseline traffic and transport conditions of the direct and indirect study areas **without** the Proposed Scheme in place and other GDA Strategy projects, which has been outlined in Section 6.3 (Baseline Environment). This scenario forms the reference case by which to compare the Proposed Scheme (‘Do Something’) for the qualitative assessments only.
- **‘Do Minimum’** – The ‘Do Minimum’ scenario (Opening Year 2028, Design Year 2043) represents the likely traffic and transport conditions of the direct and indirect study areas including for any transportation schemes which have taken place, been approved or are planned for implementation, **without** the Proposed Scheme in place. This scenario forms the reference case by which to compare the Proposed Scheme (‘Do Something’) for the quantitative assessments. Further detail on the scheme and demand assumptions within this scenario are included further below in section 6.4.3.
- **‘Do Something’** – The ‘Do Something’ scenario represents the likely traffic and transport conditions of the direct and indirect study areas including for any transportation schemes which have taken place, been approved or are planned for implementation, **with** the Proposed Scheme in place (i.e. the Do Minimum scenario with the addition of the Proposed Scheme). The Do Something scenario has been broken into two phases:
 - Construction Phase (Construction Year 2024) – This phase represents the single worst-case period which will occur during the construction of the Proposed Scheme.
 - Operational Phase (Opening Year 2028, Design Year 2043) – This phase represents when the Proposed Scheme is fully operational.

The changes between the Do Minimum and Do Something scenarios have been presented in either a positive, negative or neutral magnitude of impact as a result of the Proposed Scheme, depending on the assessment topic. A high, medium, low or negligible rating has been applied to each impact assessment to determine the Magnitude of Impact. Refer to Section 6.4 for further information on the methodology in applying these ratings for each assessment.

6.2.4.3.1 Level of Service Impact Assessment

To outline the changes in conditions between the Do Minimum and Do Something scenarios a Level of Service (LoS) approach has been developed for the impact assessments, where appropriate. This concept allows a straightforward comparison of two differing scenarios using a series of metrics specifically developed for this purpose.

The concept of LoS was originally developed in the United States' Transportation Research Board's (TRB) Highway Capacity Manual (TRB 2000). Under this concept, potential values for a performance measure are divided into six ranges, with each range assigned a letter grade ranging from "A" (highest quality) to "F" (lowest quality). LoS concepts are applied universally throughout the world, and have their basis in Highway Capacity Manual and, particularly for bus network assessments, in the Transit Capacity and Quality of Service Manual (TRB 2003).

LoS concepts are not target based or rigid in their application and bespoke versions are developed to suit the particular receiving environment of the scheme under consideration or the particular user problems that the scheme and/or project is seeking to address. A mix of quantitative and qualitative indicators can be used and summarised as a LoS. The process enables integrated planning and decision making across all modes rather than any specific mode which can create a bias in the assessment process (e.g. focusing on Car Volume over Capacity (V/C)). It is intended that the LoS framework for the Proposed Scheme will provide an easily understandable summary of the impact of each assessment topic, where applied.

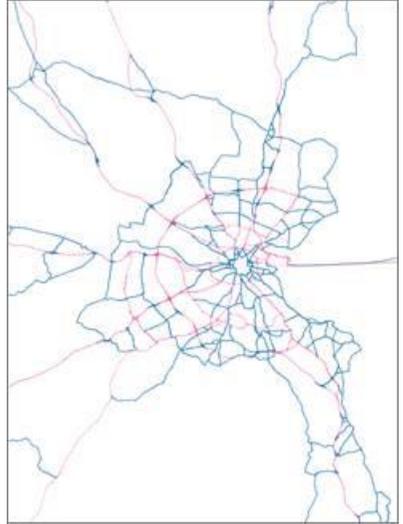
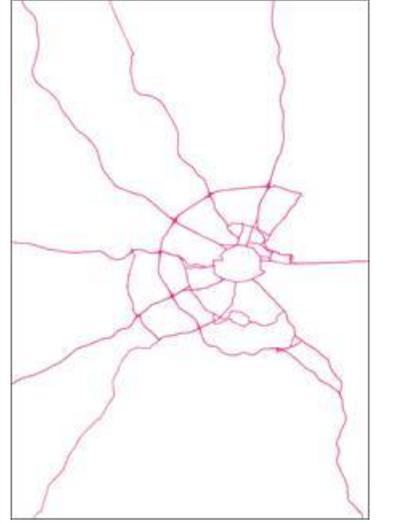
6.2.4.4 Defining the Sensitivity of the Environment

The impact assessment sensitivities established for the Traffic and Transport Chapter have been informed using the following data sources:

- OpenStreet Map – to identify community facilities, and open spaces within 50m of the Proposed Scheme; and
- The LAM (NavStreets) and Google Traffic data – to identify the capability of roads to cater for traffic volumes and existing congested junctions / road links.

The content of Table 6.3 outlines the two sets of sensitivity ratings that have been applied to the impact assessments, depending on whether the assessment location is within the direct or indirect study area.

Table 6.3: BusConnects Traffic and Transport Sensitivities

Assessment Area	Sensitivity			
	High	Medium	Low	Negligible
Proposed Scheme / Direct Study Area Sensitivities	Sections of the Proposed Scheme that are in the vicinity of community facilities such as schools or colleges, neighbourhood centres; AND currently experiencing congestion for pedestrians, cyclists, buses or general traffic	Sections of the Proposed Scheme that currently experience congestion for pedestrians, cyclists, buses or general traffic that have not been identified as high sensitivity	Sections of the Proposed Scheme near public open space, nature conservation areas, residential areas that have not been identified as medium or high sensitivity	Areas of low sensitivity to traffic flows i.e. isolated sites or areas with a high standard road network
Indirect Study Area Sensitivities	Category 5: Low capacity, low operating speeds. Local and minor roads. (shown in grey) 	Category 4: High capacity, moderate operating speeds. Roads connecting between neighbourhoods. (shown in green) 	Category 3 roads: <i>High capacity, high operating speeds</i> (less than Category 2). Roads connecting Category 2 roads. (shown in blue) 	Category 1: High capacity, high operating speeds. Roads connecting between major cities or urban areas; and Category 2: Roads connecting Category 1 roads, enabling high capacity through and between cities (shown in red) 

6.2.4.5 Determining the Significance of Effects

The Significance of Effects rating has been established using Table 6.4, which was derived from Figure 3.5 of the EPA Guidelines on EIARs. This enables the sensitivities and magnitudes of impact to determine the significance of a particular impact. For example, a section of a Proposed Scheme with a high sensitivity and a long-term medium positive impact would have a predicted 'Positive, Very Significant and Permanent' impact. A section of a Proposed Scheme with a low sensitivity and a short-term low negative impact would have a predicted 'Negative, Slight and Temporary' impact.

Table 6.4: Significance of Effects Matrix for Traffic and Transport Chapter

		Sensitivity of Existing Environment			
		High	Medium	Low	Negligible
Description Impact	High	Profound	Very Significant	Moderate	Slight
	Medium	Very Significant	Significant	Moderate	Not Significant
	Low	Moderate	Moderate	Slight	Not Significant
	Negligible	Not Significant	Not Significant	Not Significant	Imperceptible

The definitions for the Significance of Effects ratings for the Proposed Scheme ranging from Imperceptible to Profound are outlined in Table 6.5.

Table 6.5: EIAR Impact Significances

Significance of Effects (EPA)	Typical Criteria Descriptors
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics

Potential mitigation and monitoring measures have been considered for assessments that result in a negative impact of significant or higher (i.e. significant, very significant or profound).

6.2.5 Data Collection and Collation

The assessment of the Traffic & Transport impacts of the proposed scheme has two distinct parts namely, qualitative methods which consider the physical changes to transport networks and quantitative methods which are based upon traffic modelling. The following sections describe the data collection and collation for each method of assessment.

6.2.5.1 Qualitative Assessment Data Collection

This section discusses the data collection undertaken to inform the qualitative assessment metrics set out in Section 6.2.4.

6.2.5.1.1 Site Surveys

A walkover of the route of the Proposed Scheme was undertaken and photographs were used to record locations of particular importance. This ensures an up to date record of the existing environment was used to complete the qualitative assessment. The surveys focussed on the following aspects which are relevant to the assessment:

- Provision for the movement of pedestrians, cyclists and vehicles;
- Location of, and facilities at, bus stops; and
- Existing parking and loading facilities.

These surveys were supplemented by specially commissioned aerial orthophotography along the full length of the Proposed Scheme.

6.2.5.1.2 Mapping Data

Three sources of mapping data have been used to inform the analysis, Ordnance Survey Mapping (OSM), NavStreets and OpenStreet Map.

OSM is created by Ordnance Survey Ireland which provides detailed mapping for a variety of uses. For the Traffic and Transport Chapter, OSM has been used to establish accurate road naming and the location of physical highway features.

NavStreets is a street-level GIS dataset which covers the Republic of Ireland, including the Greater Dublin Area. Two sets of data from this dataset have been used to inform the EIAR:

- **Road Network:** Functional Class of each road link in the road network, which is a road type indicator, reflecting traffic speed and volume, as well as the importance and connectivity of the road. The Functional Class information has been used to help inform the metrics for identifying the sensitivities of roads in the indirect study area.
- **Points of Interest:** NavStreets contains information on a wide range of “points of Interest”. This has been referred to when identifying sensitive community receptors, such as schools, healthcare facilities, places of worship, retail clusters, etc, when determining how sensitive a particular location is to changes in terms of traffic and transport facilities.

OSM and NavStreets have been supplemented by OpenStreet Map which is an open-source database of geographic data (i.e. Points of Interest, Land Use and Places of Worship). This has been used to further identify community facilities and open spaces in proximity to the Proposed Scheme.

6.2.5.2 Quantitative Assessment Data Collection

This section discusses the data collection undertaken to inform the quantitative assessment metrics set out in Section 6.2.4. Further detail can be found in Appendix A6.2 (Transport Modelling Report) in Volume 4 of this EIAR.

6.2.5.2.1 Existing Data Review (Gap Analysis)

A review of existing traffic survey data available for the area of interest was undertaken from the following sources:

- **NTA Traffic Count Database:** A mixture of Automatic Traffic Counts (ATC) and Junction Turning Counts (JTC) from previous studies covering a range of years; and
- **TII Counters:** Permanent TII ATCs located on national strategic roads across the network with data publicly available online.

The NTA, Dublin City Council and the other local authorities undertake periodic counts within their administrative areas in connection with their own local schemes. These surveys are conducted throughout the year and a limited set of data was available within the area of the Proposed Scheme.

Information on bus passenger volumes was already available and included in the modelling process as part of the ERM base model calibration and validation, which includes the annual canal and M50 cordon counts as well as ticketing data.

6.2.5.2.2 Commissioned Traffic Survey Data

Due to the scale of the CBC Infrastructure Works, the Proposed Scheme required a full set of consistent updated traffic counts for a neutral period e.g. November / February when schools, colleges were in session. Traffic surveys were undertaken in November 2019 and February 2020 (Pre-Covid) with the surveyed counts used as inputs to the model calibration and validation process of the strategic model and micro-simulation model. The two types of counts used in the study are Junction Turning Counts (JTCs) and Automatic Traffic Counts (ATCs).

6.2.5.2.2.1 Junction Turning Counts (JTCs)

The JTCs are 24-hour counts broken down into 15-minute segments over a full day. All main junctions along the Proposed Scheme have been included and provide information on the volume, and types of vehicles, making turning movements at each location. This data is utilised within the models to ensure that the flow of vehicles through the main junctions on the network is being represented accurately.

6.2.5.2.2.2 Automatic Traffic Counts (ATCs)

The ATC data provides information on:

- The daily and weekly profile of traffic along the Proposed Scheme; and
- Busiest time periods and locations of highest traffic demand on the network.

The ATCs were taken for an entire week. A summary of the collected data can be found in Appendix A6.1 (Transport Impact Assessment Report) in Volume 4 of this EIAR.

6.2.5.2.3 Road and Bus Journey Time Data

6.2.5.2.3.1 Bus Journey Time Data

Bus Journey time data for the Proposed Scheme was provided by the NTA from the Automatic Vehicle Location (AVL) dataset used to monitor bus performance. The data provides information on bus travel time and dwell times at existing bus stops and has been used to inform the development of the transport models used to assess the impacts of the Proposed Scheme.

6.2.5.2.3.2 TomTom Road Journey Time Data

Road Journey time data for the Proposed Scheme models has been sourced from TomTom, who calculate journey times using vehicle position data from GPS-enabled devices and provide this on a commercial basis to a number of different users. The NTA purchased a license to access the anonymised Custom Area Analysis dataset through the TomTom TrafficStats portal. The NTA has an agreement with TomTom to provide travel time information covering six areas of Ireland and for certain categories of road.

Data is provided based on the area specified by the agreement; however, the date and time range of the data can be specified by the user. For the development of the strategic model and micro-simulation models the following query on the data was applied:

- 2019 weekdays (Monday to Thursday) from mid-January until end of November, excluding all bank holidays and days close to those dates.

The data is provided in the form of a GIS shapefile and accompanying travel time database file. The shapefile contains topographical details for each road segment, which is linked to the travel time database via a unique link ID. The database file then contains average and median travel time, average and median speed, the standard deviation for speed, the number of observations and percentile speeds ranging from 5 to 95 for each link.

6.2.5.2.3.3 TomTom Data Processing

In order to compare the journey times of specific links and routes between the TomTom data and the road assignment models, the two datasets were linked. After importing both the road assignment model and TomTom networks into the GIS environment, ensuring both datasets are in the same coordinate system, the selected routes were then linked using a spatial join functionality.

Before applying the data to the models, it was checked to ensure that it was fit for purpose. The review included checks of the number of observations that form the TomTom average and median times and checks of travel times against Google Maps travel times.

The TomTom Custom Area Analysis dataset was processed to provide observed journey times against which the strategic and micro-simulation models could be validated along the Proposed Scheme route.

6.2.5.2.3.4 TomTom Data Application

The processed journey time data was used to validate the LAM and the micro-simulation models at an end-to-end travel time level, with intermediate segment travel times used to inform the calibration of both models. Further information about the journey time validation process can be found in Appendix A6.2 (Transport Modelling Report) in Volume 4 of this EIAR.

6.3 Baseline Environment

6.3.1 Overview

This Section provides an overview of the existing traffic and transport conditions within the redline boundary of the Proposed Scheme. The baseline conditions have been informed by several site visits of the local environment, comprehensive traffic surveys, and a desktop review of the most recent aerial photography.

Only 12.5% of the existing route provides segregated cycle tracks and 58% of the existing route is non-segregated cycle lanes. In terms of inbound and outbound provisions on the existing route (main corridor):

- Non-segregated cycling facilities are currently provided along approximately 59% (outbound) and 57% (citybound);
- Segregated cycling facilities are currently provided along approximately 11% (outbound) and 13% (citybound); and
- The remaining extents of the existing route have no dedicated cycle provision or cyclists must cycle on the bus lanes where provided.

Bus services along the Proposed Scheme currently operate within a constrained and congested environment, with 31% priority outbound, 37% priority inbound, cumulatively equating to 34% of the length of the route (for 15.5km core bus corridor route). There are sections along the route of the Proposed Scheme with poor bus priority resulting in poor journey time reliability particularly at peak times. Automatic Vehicle Locator (AVL) data from existing bus services operating along the Proposed Scheme corridor has been used to examine the current standard deviation for bus services along the corridor. The AVL data indicates that current bus journey times have a standard deviation of approximately 12 minutes along the route of Proposed Scheme and with any further increases in traffic levels these issues are expected to be exacerbated. In addition to impacting on bus passengers, longer and less reliable bus services also require operators to use additional buses to maintain headways to fill gaps in the timetable. Aligned to this, the remaining sections of un-prioritised bus network can lead to bunching of buses which, in turn, means stops can become overcrowded, creating delays in boarding and alighting and the imbalanced use of bus capacity.

In describing the baseline conditions, the Proposed Scheme has been divided into six sections as follows:

- Section 1 – Tallaght to Ballymount;
- Section 2 – Ballymount to Crumlin;
- Section 3 – Crumlin to Grand Canal;
- Section 4 – Grand Canal to Christchurch;
- Section 5 – Woodford Walk (R113) / New Nangor Road (R134) to Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction; and
- Section 6 – Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh.

6.3.2 Section 1 - Tallaght to Ballymount

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 1 of the Proposed Scheme.

The section begins at the junction of Blessington Road / Cookstown Way, and routes north around the perimeter of The Square, Tallaght. Travelling via Blessington Road and Main Road, the route then joins the southern end of R819 Greenhills Road at Bancroft Park junction. The route extends along the R819 Greenhills Road as far as Mayberry Road junction where a new bus only route will be constructed which re-joins the R819 Greenhills Road south of the M50 Bridge at Tymon Lane.

6.3.2.1 Pedestrian Infrastructure

Belgard Square West and the western half of Belgard Square North benefit from footways of approximately 6.0m in width, and up to 7.0m in places. The footways on both sides of the highway narrow however on the approach to the Tallaght Hospital roundabout, with each footway being approximately 2.0m in width. On Belgard Square East and Blessington Road respectively, the eastern and northern footways are approximately 4.5m to 7.0m in width, compared to 2.0m to 3.0m for the western and southern footways. For Blessington Road between Belgard Road and Main Road footway widths narrow to less than 2.0m in some sections. On Main Road, the north footway is nominally 2.0m wide but there are some areas where the footway width is below 2.0m, the southern footway has some wide areas of footway but generally the footway width is 2.0m – 3.0m.

After passing the Bancroft Park junction, there are shared pedestrian and cyclist facilities on both sides of the carriageway, which continue to the Airton Park junction. The shared surface is between 3.0m to 5.0m in width.

Between Airton Park and Mayberry Road, there are footways either side of the carriageway. At this point, pedestrians must cross to the western footway along R819 Greenhills Road. Between this point and the northernmost extent of Tymonville Crescent, only the western footway is available, from this location to the M50 bridge, the footways continue on both sides of the carriageway.

Whilst there are some instances of grassed areas being provided to create a path segregated from the main road, much of the footway is immediately adjacent to the carriageway.

Throughout this section, there is good provision of segregation between pedestrians and road traffic, with grassed areas, bollards and stepped tracks providing physical barriers at various stages. Guardrails are found at some crossings in this section, along with tactile paving and dropped kerbs. Furthermore, much of the paving appears to be smooth, even and modern, particularly near Belgard Square.

There are several pedestrian crossings along Section 1 of the Proposed Scheme, the majority of which are signalised. Pedestrian crossing facilities can be found at the following locations:

- The four-arm Blessington Road / Cookstown Way junction has signalised crossings on all arms. The crossings contain dropped kerbs and tactile paving;
- On Belgard Square West, near The Square Tallaght car park (signalised Pelican crossing). The crossing contains dropped kerbs and tactile paving;
- The four-arm Belgard Square West / Blessington Road junction has signalised crossings on the north, east and south arms, near the tram stop. The crossings contain dropped kerbs and tactile paving;
- Courtesy raised table pedestrian crossing on Belgard Square West near Broadfield Hall building. The crossing contains tactile paving;
- A pelican crossing 20m from the eastern arm of the three-arm Belgard Square West / Belgard Square North roundabout. The crossing contains dropped kerbs and tactile paving;
- The three arm Belgard Square North / Exchange Hall Access signalised junction has signalised crossings on all arms. The crossings contain dropped kerbs and tactile paving;
- The four-arm Belgard Square East / Blessington Road junction has signalised crossings on all four arms. The crossings contain dropped kerbs and tactile paving;
- The four-arm Blessington Road / Belgard Road signalised junction has signalised crossings on all four arms. The crossings contain dropped kerbs and tactile paving;
- The three-arm Blessington Road / Main Road signalised junction has signalised crossings on all three arms. The crossings contain both raised table and dropped kerbs with tactile paving;
- At the junction of Main Road / Old Greenhills Road dropped kerbs and buff tactile paving are provided, no road marking is provided for pedestrians;
- At the junction of R819 Greenhills Road and Bancroft Park (signalised Pelican crossing). The crossing contains dropped kerbs and tactile paving;
- Approximately 15m north of the TUD access road on R819 Greenhills Road (signalised Pelican crossing) The crossing contains dropped kerbs and tactile paving;

- The three-arm R819 Greenhills Road / Airton Road signalised junction has signalised crossings on the western and southern arms along with right turn pocket into Airton Road for vehicles travelling south on the R819 Greenhills Road. The crossings contain dropped kerbs and tactile paving;
- The four-arm R819 Greenhills Road / Harvey Norman Store / Hibernian Industrial Estate signalised junction has signalised crossings on both minor arms and the southern arm. The crossings contain dropped kerbs and tactile paving;
- The three-arm R819 Greenhills Road / Mayberry Road junction has signalised crossings on the western and southern arms. The crossings contain dropped kerbs and tactile paving;
- The three-arm R819/ Greenhills Road / Castletymon Road junction has signalised crossings on the northern and eastern arms. The crossings contain dropped kerbs and tactile paving; and
- At the junction of R819 Greenhills Road and Temple Woods (signalised Pelican crossing). The crossing contains dropped kerbs and tactile paving.

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The location of pedestrian crossings is illustrated in Figure 6.3a in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 1 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.2.2 Cycling Infrastructure

The cycle facilities along Section 1 of the Proposed Scheme comprise on-road and off-road cycle tracks on both sides of the carriageway, except for certain lengths where there are bus lanes or restricted road widths.

Heading eastbound towards the City Centre, cycle facilities in this section commence on Belgard Square North after the pedestrian crossing approximately 20m east of Tallaght University Hospital entrance, here an on-road advisory cycle lane in both directions extends just beyond the Exchange Hall junction. From there the eastbound cycle track is level and bollard segregated, the westbound cycle lane continues to the entrance to The Dublin Climbing Centre where the westbound cycle lane is level segregated from the road as far as the Belgard Square North / Belgard Square East junction. There are Sheffield bicycle stands located adjacent to commercial buildings on Belgard Square West and along the first 200m of Belgard Square North.

The cycle track continues along Belgard Square East up to the junction with Blessington Road, with the exception of a 20m length on the western side of the highway where there is a conflict with a discontinued lay-by bus stop. Along Blessington Road, the cycle track / zipway is present on the northern side of the road only up to the junction with Belgard Road. After passing this junction, the cycle track / zipway on the northern side continues up to the Metro Café Bar on Main Street.

From this point, there is no cycling provision for approximately 500m, until an on-road cycle lane at the junction of Main Road and Old Greenhills Road. The lane is for eastbound cyclists only and continues until the junction with R819 Greenhills Road.

Heading northbound of R819 Greenhills Road, cycling provision can be found just after passing the junction with Bancroft Park, where a shared surface for pedestrians and cyclists is provided on both sides of the carriageway. The width of the cycle track is approximately 1.8m and continues for approximately 440m until the junction with Airton Road is reached.

At the Airton Road junction, cyclists on each side of the carriageway join on-road cycle lanes. The lanes run continuously from this point up to the M50 bridge (approximately 1.3km).

The existing cycle facilities along Section 1 of the Proposed Scheme is illustrated in Figure 6.4a in Volume 3 of this EIAR.

Further details of the baseline cycling facilities (i.e. level of segregation from vehicles, capacity for cycling two abreast and / or overtaking, and junction treatment) along the length of Section 1 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.2.3 Bus Infrastructure

6.3.2.3.1 Bus Priority Measures

Bus lanes are provided on Section 1 of the Proposed Scheme at the following locations:

- 'Bus Only' eastbound on Blessington Road at Blessington Road / Cookstown Way junction;
- 'Bus Only' access from Belgard Square West onto Cookstown Way; and
- A bus gate that only allows only buses to travel east-west and west-east along Blessington Road between Belgard Road and Main Road.

6.3.2.3.2 Bus Stop Facilities

There are currently 16 bus stops along Section 1 of the Proposed Scheme. The inbound stops are as follows:

- Stop 4348 on Belgard Square West;
- Stop 4646 at Tallaght Hospital / Belgard Square North;
- Stop 4647 on Belgard Square North, 80m west of Belgard Square East; and
- Stops 4435, on Main Street 140m north of Old Bawn Road;
- Stop 2633 on R819 Greenhills Road, 50m north of Airton Road;
- Stop 2369 on R819 Greenhills Road, 30m north of Mayberry Road;
- Stop 2370 on R819 Greenhills Road, at Park View; and
- Stop 2371 on R819 Greenhills Road, 40m north of Temple Woods.

The outbound stops are:

- Stop 2339 on R819 Greenhills Road, 30m south of Temple Woods;
- Stop 2340 on R819 Greenhills Road, 30m south of Parkview;
- Stop 2601 on R819 Greenhills Road, 80m south of Mayberry Road; and
- Stop 4446 on R819 Greenhills Road, 40m north of Airton Road;
- Stop 2557 on Blessington Road, 120m north of Main Road;
- Stop 4436 on Blessington Road, 40m east of Belgard Road;
- Stop 4640 on Belgard Square North at Tallaght Hospital; and
- Stop 4347 at The Square, Tallaght (Belgard Square West).

There are some areas of this section where there is a sizeable gap (600m – 700m) between stops, such as between South Dublin County Council offices (Tallaght Hospital stop 4640) and Tallaght, Blessington Road (4436); or Belgard Square North (4647) and Tallaght Village (4435).

The majority of bus stops provide timetable information, and under half provide shelter and seating. Nine bus stops have an indented drop-off area, with all others situated in line with bus lanes.

Table 6.6 outlines the availability of bus stop facilities at the existing sixteen bus stops along Section 1 of the Proposed Scheme.

Table 6.6: Section 1 – Availability of Bus Stop Facilities (of a Total 16no. Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI	7	44%
Timetable information	13	81%
Shelter	7	44%
Seating	7	44%
Accessible Kerbs	5	31%
Indented Drop Off Area	9	56%

The existing bus facilities along Section 1 of the Proposed Scheme are illustrated in Figure 6.5a in Volume 3 of this EIAR. The bus services which operate along Section 1 are outlined in Table 6.7.

Table 6.7: Section 1 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
27	Jobstown - Tallaght (The Square) - Walkinstown Cross (The Kestrel) - Dolphin's Barn Cross - Eden Quay - Fairview - Artane Roundabout - Clare Hall	10 minutes	10-15 minutes
49	Tallaght (The Square) - The Mill / Old Bawn Rd. - Templeogue Village - Pearse Street	30 minutes	30-60 minutes
27	Clare Hall – Artane Roundabout – Fairview – Dolphin's Barn Cross – Walkinstown Cross – Tallaght (The Square) - Jobstown	10 minutes	10–15 minutes
54a	Ellensborough / Kiltipper Way - Old Blessington Rd. (The Square) - Spawell - Harold's Cross Green - Pearse Street	30 minutes	30-60 minutes
65	Blessington / Ballymore - Cross Chapel - Tallaght (The Square) - Templeogue - Terenure - Rathmines - Camden St - Poolbeg St.	120 minutes	120 minutes
75/75a	Tallaght - Dundrum - Stillorgan - Dun Laoghaire	30 minutes	30 minutes
76	Tallaght (The Square) – Clondalkin Village – Neilstown Road (Coldcut Road) – Ballyfermot - Chapelizod	20 minutes	30 minutes
76a	Tallaght (The Square) – Clondalkin Village – Neilstown Road (Coldcut Road) – Ballyfermot – Chapelizod – Blanchardstown Centre	50 minutes	No Services
77a	Citywest - Tallaght (The Square) - Balrothery - Walkinstown Cross - Dolphin's Barn - Ringsend Rd.	15-20 minutes	20-30 minutes
77x	Citywest - Ellensborough - Kiltipper Way - Cuckoo's Nest - Dolphin's Barn - Fleet St. - UCD Belfield	Once a day (07:20)	No service
132	Bushras - Main Street - Water Street - Dwyer Square - Main Street - Redmond Place	180 minutes	180 minutes
175	Monaghan - Cootehill - Cavan	120 minutes	180 minutes

6.3.2.4 General Traffic

The roads within Section 1 of the Proposed Scheme are mostly single carriageway, with the exception of 100m of dual carriageway on Blessington Road between the junctions with Belgard Square East and Belgard Road. Generally, there is one operating lane in each direction for general traffic, although on the approach to some junctions and along the aforementioned section of Blessington Road, the number of lanes increases.

The width of the carriageway varies between different points of this section. At some points (particularly Belgard Road West and Main Street), the carriageway is as narrow as 7.0m in places. By contrast, some sections, such as on Blessington Road, the highway is as wide as 17m (including median). The R819 Greenhills Road is approximately 8.0m in width. This portion of the Proposed Scheme is subject to a speed limit of 50 km/h.

The existing major junction arrangements along the section are as follows:

- Blessington Road / Cookstown Way four-arm signalised junction;
- Belgard Square South / Belgard Square West three-arm roundabout;
- Belgard Square West / Old Blessington Road four-arm signalised junction;
- Belgard Square West / Belgard Square North / Tallaght Hospital access four-arm roundabout;
- Belgard Square North / Exchange Hall Access signalised junction
- Belgard Square North / Belgard Square East four-arm roundabout;
- Belgard Square East / Blessington Road four-arm signalised junction;
- Blessington Road / Belgard Road four-arm signalised junction;
- Blessington Road / Main Road three-arm signalised junction
- Main Road / Old Greenhills Road three-arm priority junction;
- R819 Greenhills Road / Airton Road three-arm signalised junction;
- R819 Greenhills Road / Harvey Norman Retail Park four-arm signalised junction;

- R819 Greenhills Road / Broomhill Road three-arm priority junction;
- R819 Greenhills Road / Hibernian Industrial Estate three-arm priority junction;
- R819 Greenhills Road / Mayberry Road three-arm signalised junction; and
- R819 Greenhills Road / Castletymon Road three-arm signalised junction.

The characteristics of each major junction are described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

Blessington Road / Cookstown Way four-arm signalised junction: The northern arm of this junction has a one lane approach, and the southern arm a two-lane approach, alongside a left turning slip lane. The eastern arm has a bus only lane approach. The western arm has a bus only approach lane with a left turn slip lane onto Cookstown Way (northbound) for general traffic. This junction is illustrated in Image 6.1.

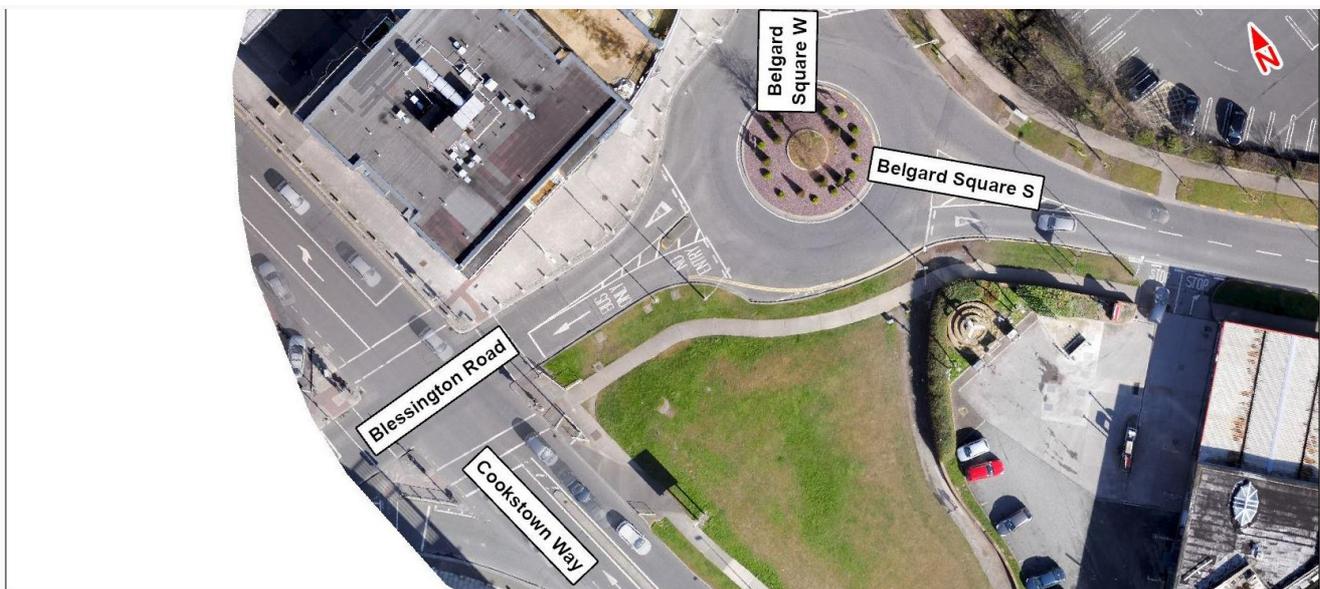


Image 6.1: Blessington Road / Cookstown Way Signalised junction

Belgard Square South / Belgard Square West three-arm roundabout: This roundabout has an inscribed circle diameter of approximately 16.0m. Each arm of this priority roundabout comprises an entry and exit lane. The exit arm onto Cookstown Way is for buses only. This junction is illustrated in Image 6.2.



Image 6.2: Belgard Square South / Belgard Square West Roundabout junction

Belgard Square West / Old Blessington Road four-arm signalised junction: Vehicles crossing the northern arm of this junction must pass over the tram line (Tallaght Luas Stop). Consequently, there is a yellow box at this arm to ensure vehicles do not enter the junction unless this exit is free.

The Belgard Square West north arm has a single approach lane for straight ahead movements only (no left or right turn allowed) controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane.

The Old Blessington Road east arm has a single approach lane for straight ahead and right turn movements only (no left turn allowed) controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane.

The Belgard Square West south arm has two approach lanes, one lane for straight ahead and left turning movements and one lane for right turn movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane.

The Old Blessington Road west arm has two approach lanes, one lane for straight ahead only (no left turn allowed) and one lane for right turn movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane. This junction is illustrated in Image 6.3.

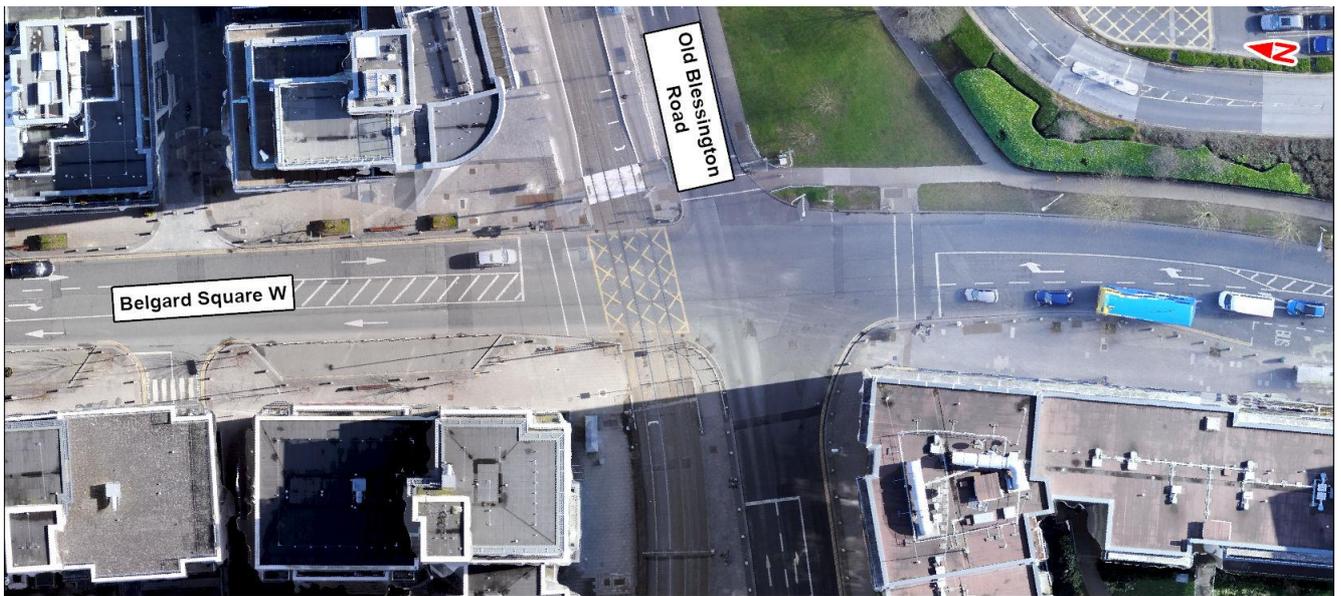


Image 6.3: Belgard Square West / Old Blessington Road Signalised Junction

Belgard Square West / Belgard Square North / Tallaght University Hospital access four-arm roundabout:
This junction provides access to Tallaght University Hospital (TUH).

The north arm (TUH entrance) has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane.

The east arm (Belgard Square North) has two yield approach lanes, one lane for straight ahead and left turn movements and one lane for right turn movements. Exit onto this arm comprises a single traffic lane.

The south arm (Belgard Square West) has two yield approach lanes, one lane for straight ahead and left turn movements and one lane for right turn movements. Exit onto this arm comprises a single traffic lane.

The west arm has two yield approach lanes, one lane for left turn movements and one lane for right turn and straight ahead movements. Exit onto this arm comprises a single traffic lane.

This junction is illustrated in Image 6.4.

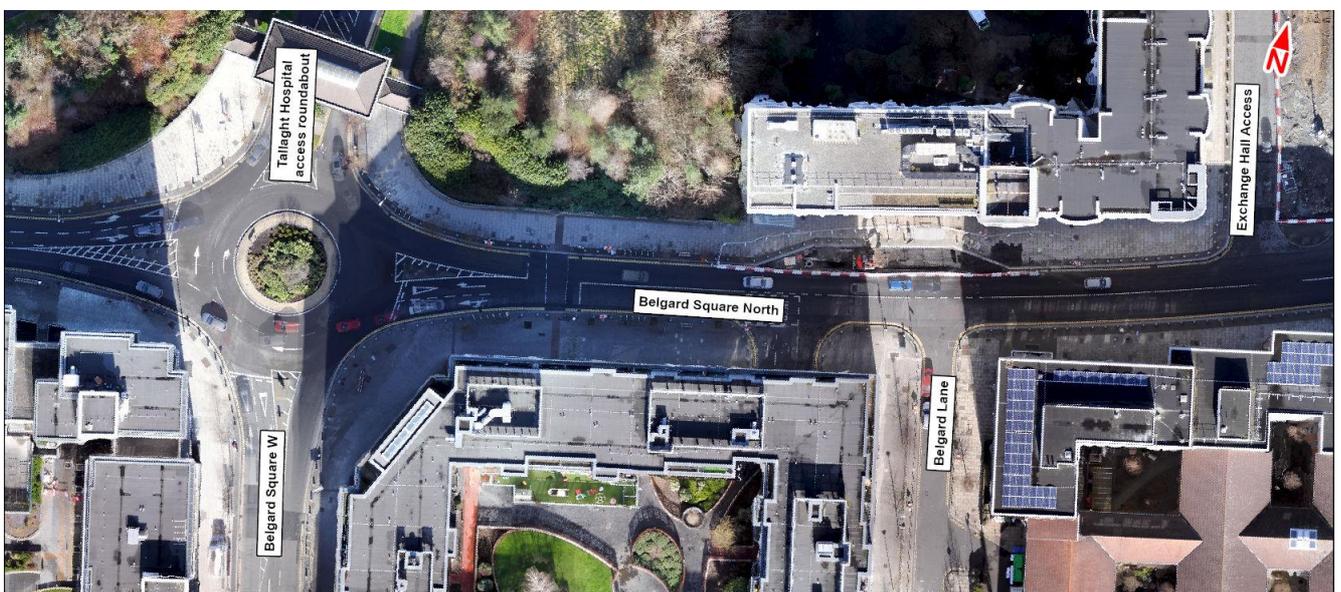


Image 6.4: Belgard Square West / Belgard Square North / Tallaght Hospital Roundabout

Belgard Square North / Exchange Hall Access three-arm signalised junction:

The north arm, Belgard to Cookstown Link Road (Exchange Hall Access) has a single approach lane and a segregated cycle track for all movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane and an advisory on-road cycle lane.

The east arm (Belgard Square North) has two approach lanes and an advisory on-road cycle lane, one traffic lane is for straight ahead movements and one traffic lane is for right turn movements only controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane with advisory on-road cycle lane.

The west arm (Belgard Square North) has a single approach lane and an advisory on-road cycle lane for all movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane and an advisory on-road cycle lane. The junction image is shown in **Image 6.5**.

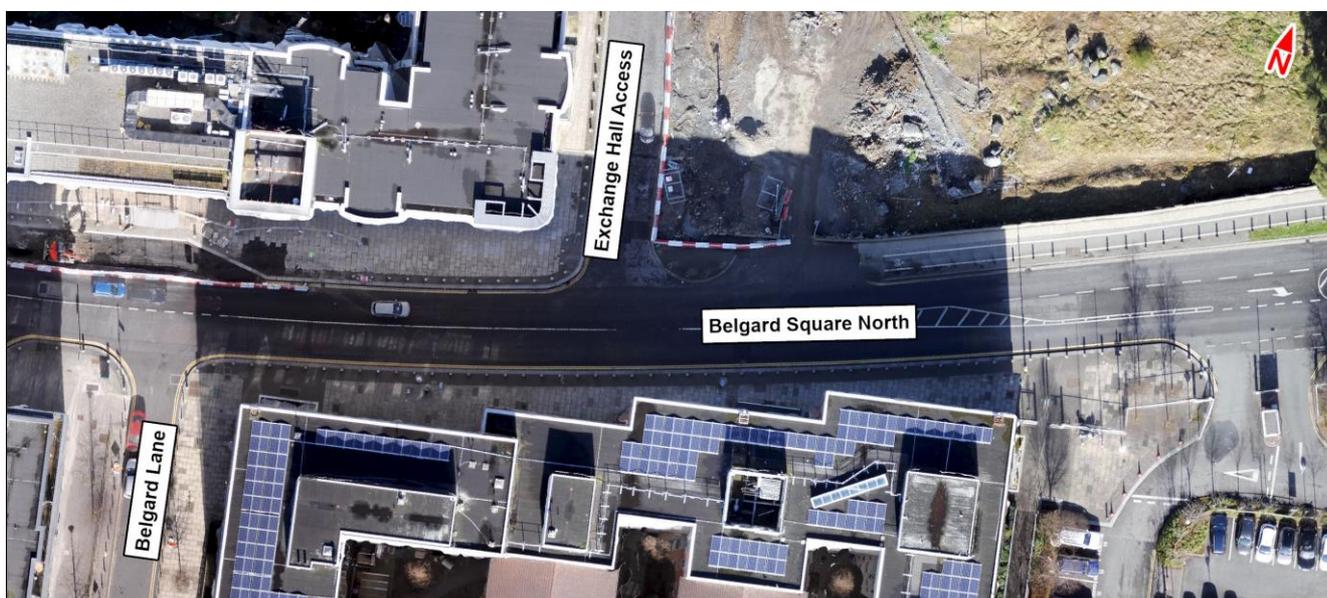


Image 6.5: Belgard Square North / Exchange Hall Access Signalised Junction

Belgard Square North / Belgard Square East four-arm roundabout:

The north arm has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane. The only road markings at this private access arm are for a cycle track / footway crossing. The east arm has a single yield approach lane and segregated cycle track. Exit onto this arm comprises a single traffic lane and off-road cycle track.

The south arm (Belgard Square East) has a single yield approach lane and segregated cycle track. Exit onto this arm comprises a single traffic lane and off-road cycle track.

The west arm (Belgard Square North) has a single yield approach lane and segregated cycle track. Exit onto this arm comprises a single traffic lane and segregated cycle track. This junction is shown in **Image 6.6**.

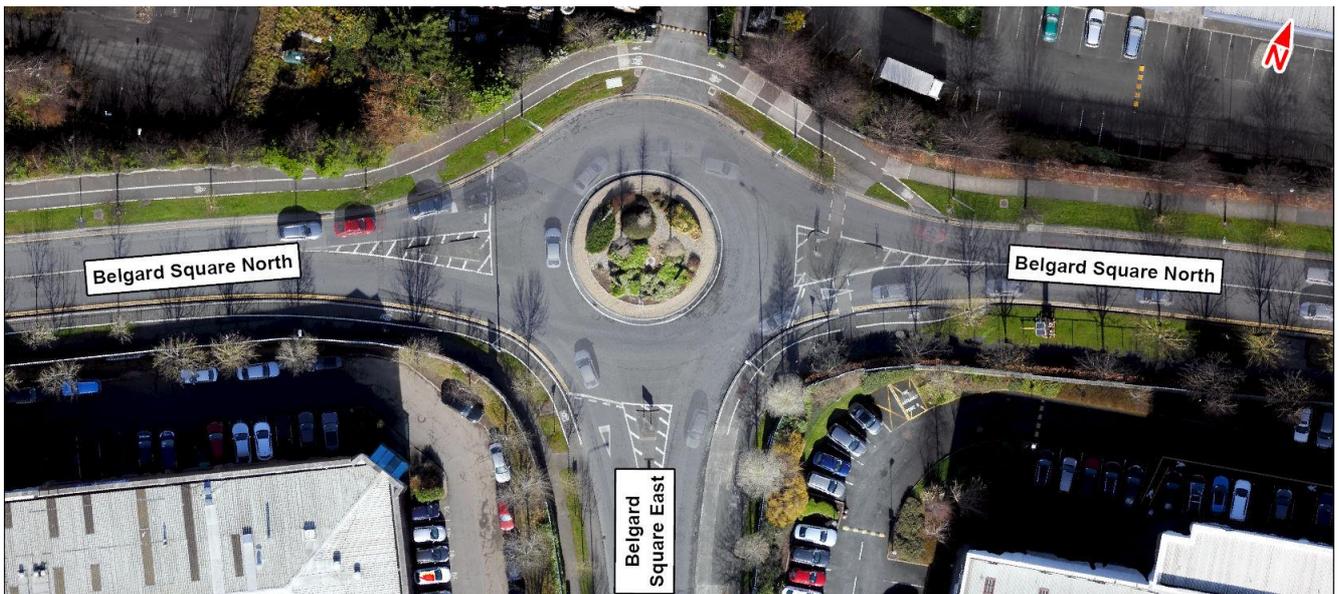


Image 6.6: Belgard Square North / Belgard Square East Roundabout

Belgard Square East / Blessington Road four-arm signalised junction: At the centre of the junction is a yellow box which ensures vehicles do not enter the junction unless their exit is clear.

The north arm has a single approach lane and an off-road cycle track for all movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane and a segregated cycle track. A raised cycle / pedestrian crossing is present on this arm.

The east arm has two approach lanes, one lane for straight ahead and left turning movements and one lane for right turn movements controlled by a set of signal heads. Exit onto this arm comprises two traffic lanes with segregated cycle track (Zipway).

The south arm has a single approach lane for straight ahead and left turn movements only (no right turn allowed) controlled by a set of signal heads. Exit onto this arm comprises single traffic lane.

The west arm has a single approach lane for all movements controlled by a set of signal heads. There is also a segregated cycle track (Zipway) on this arm. Exit onto this arm comprises single traffic lane.

This junction is shown in Image 6.7.



Image 6.7: Belgard Square East / Blessington Road Signalised Junction

Blessington Road and Belgard Road four-arm signalised junction: This is the largest signalised junction in this section of the Proposed Scheme. The north arm (R113 Belgard Road) has two approach lanes, one for straight ahead and left turn movements and one for right turn movements and an advisory on-road cycle lane controlled by a set of signal heads. Exit onto this arm comprises two traffic lanes and an advisory on-road cycle lane. A raised cycle / pedestrian crossing is present on this arm.

The east arm (Blessington Road) has a single approach lane for all traffic movements controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane.

The south arm (R113 Belgard Road) has two approach lanes and a slip lane, the slip lane is for left-turn movements, one approach lane for straight movements and one approach lane for right-turn movements, on approach there is also an advisory on-road cycle lane and a segregated cycle track all controlled by a set of signal heads. Exit onto this arm comprises a single traffic lane and segregated cycle track.

The west arm (Blessington Road) has two approach lanes, one for straight ahead and left-turn movements and one for right-turn movements only controlled by a set of traffic signals and a segregated cycle track (Zipway). Exit onto this arm consists of two traffic lanes and yield slip lane. This junction is shown in Image 6.8.



Image 6.8: Blessington Road / Belgard Road Signalised Junction

Blessington Road / Main Road three-arm signalised junction: The north arm (Blessington Road) has two approach lanes, one for left-turn movements and one for right/straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane.

The east arm (Main Road) has two approach lanes, one for right-turn movements and one for left-turn movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane.

The south arm has a single approach lane for straight ahead and right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane. This junction is shown in Image 6.9.



Image 6.9: Blessington Road / Main Road Signalised Junction

Main Road / Old Greenhills Road three-arm priority junction: The north arm has a single lane for all traffic movements, priority is given to traffic on Main Road. Exit onto this arm consists of a single traffic lane.

The east arm has a single lane for all traffic movements with priority over traffic exiting from Old Greenhills Road.

The west arm has a single lane and on-road advisory cycle lane for all traffic movements with priority over traffic exiting from Old Greenhills Road. This junction is shown in Image 6.10.

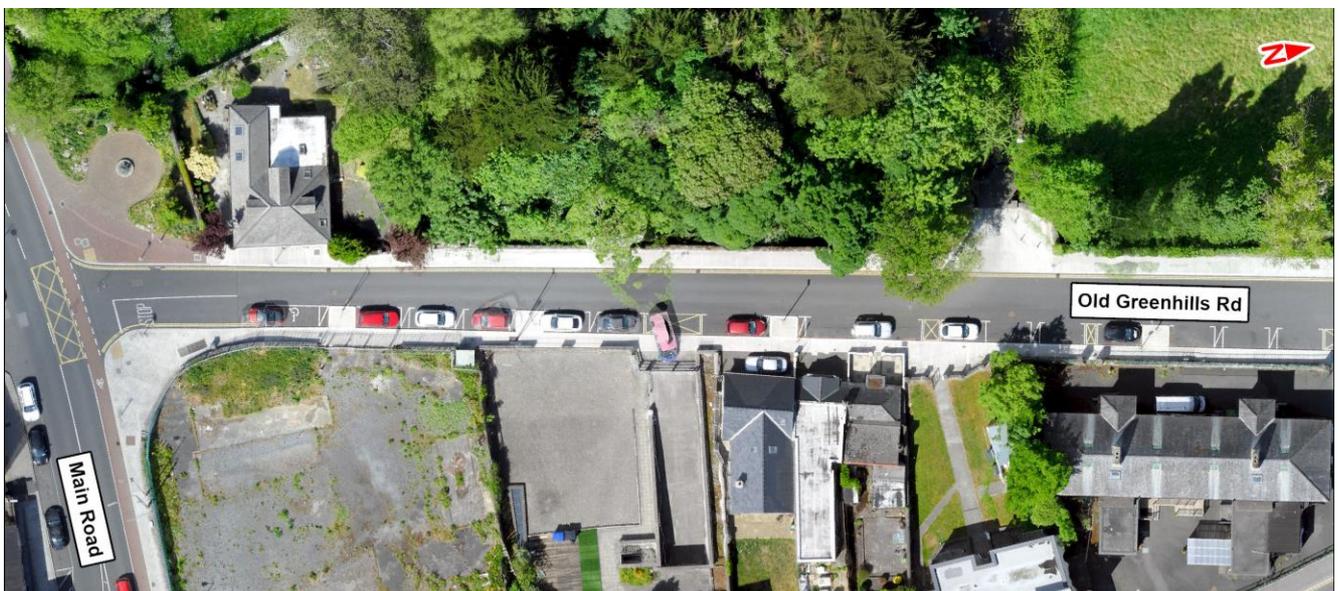


Image 6.10: Main Road / Old Greenhills Road Priority Junction

R819 Greenhills Road / Airton Road three-arm signalised junction: The north (R819 Greenhills Road) arm has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for right-turn movements and one traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The south (R819 Greenhills Road) arm has a single traffic lane for left-turn and straight ahead movements and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and a segregated cycle track.

The west arm (Airton Road) has two traffic lanes and an advance stop line for cyclists, one traffic lane for left turn traffic movements and one traffic lane for right-turn traffic movements controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane. This junction is shown in Image 6.11.



Image 6.11: R819 Greenhills Road / Airton Road Signalised Junction

R819 Greenhills Road / Harvey Norman Retail four-arm signalised junction: The north arm (R819 Greenhills Road) has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for right-turn movements and one traffic lane for straight ahead and left-turn movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The west arm (Harvey Norman Retail) has two approach lanes, one for left-turn movements and one for straight ahead and right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south arm (R819 Greenhills Road) has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for right-turn movements and one traffic lane for straight ahead and left-turn movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The east arm has two approach lanes, one for left-turn movements and one for straight ahead and right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single lane. This junction is shown in Image 6.12.



Image 6.12: R819 Greenhills Road / Harvey Norman Retail Access Signalised Junction

R819 Greenhills Road / Broomhill Road three-arm priority junction: The north arm (R819 Greenhills Road) has a single approach lane for all movements and advisory on-road cycle lane with priority over traffic exiting Broomhill Road. Exit onto this arm consists of a single lane and advisory on-road cycle lane.

The south arm (R819 Greenhills Road) has a single approach lane for all movements and advisory on-road cycle lane with priority over traffic exiting Broomhill Road. Exit onto this arm consists of a single lane and advisory on-road cycle lane.

The west arm (Broomhill Road) has a single approach lane for all movements with priority is given to traffic on R819 Greenhills Road. Exit onto this arm consists of a single traffic lane. This junction is shown in Image 6.13



Image 6.13: R819 Greenhills Road / Broomhill Road Priority Junction

R819 Greenhills Road / Hibernian Industrial Estate three-arm priority junction: The north arm has a single approach lane for all movements and advisory on-road cycle lane with priority over traffic exiting Hibernian Industrial Estate. Exit onto this arm consists of a single lane and advisory on-road cycle lane.

The east arm has a single approach lane for all movements with priority is given to traffic on R819 Greenhills Road. Exit onto this arm consists of a single traffic lane.

The south arm has a single approach lane for all movements and advisory on-road cycle lane with priority over traffic exiting Hibernian Industrial Estate. Exit onto this arm consists of a single lane and advisory on-road cycle lane. This junction is shown in Image 6.14.



Image 6.14: R819 Greenhills Road / Hibernian Industrial Estate Priority Junction

R819 Greenhills Road / Mayberry Road three-arm signalised junction: The north arm (R819 Greenhills Road) has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for right-turn movements and one traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The south arm (R819 Greenhills Road) has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for left-turn movements and one traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The east arm (Mayberry Road) has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for left-turn movements and one traffic lane for right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and advisory on-road cycle lane. This junction is shown in Image 6.15.



Image 6.15: R819 Greenhills Road / Mayberry Road Signalised Junction

R819 Greenhills Road / Castletymon Road three-arm signalised junction: The north (R819 Greenhills Road) arm has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for left-turn movements

(no markings) and one traffic lane for straight ahead movements (no markings) controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane.

The east arm (Castletymon Road) has two approach lanes, one for left-turn movements and one for right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south (R819 Greenhills Road) arm has two approach traffic lanes and an advisory on-road cycle lane, one traffic lane for right-turn movements and one traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of single traffic lane and advisory on-road cycle lane. This junction is shown in Image 6.16.



Image 6.16: R819 Greenhills Road / Castletymon Road Signalised Junction

6.3.2.5 Existing Parking / Loading

There is parking directly on Section 1 of the Proposed Scheme at the following locations:

- There are seven informal parking spaces on the west side of Blessington Road, to the north of the junction with Main Road, where vehicles park perpendicular to the kerb;
- There are currently thirty-four pay & display spaces and two disabled spaces, Main Street and Old Greenhills Road; and
- There are currently three hundred and forty-five parking spaces associated with a range of commercial entities (car sales) on Greenhills Road, to the west of the M50 bridge.

Large nearby car parks (adjacent parking) close to Section 1 of the Proposed Scheme route can be found at:

- Service Station, Belgard Square South – approximately 80 spaces;
- The Square, Tallaght: Belgard Square West – approximately 2,500 spaces;
- Tallaght Cross East: Belgard Square West – approximately 445 spaces;
- Tallaght Cross West: Belgard Square West – approximately 1,600 spaces;
- Tallaght University Hospital: Belgard Square North – approximately 165 spaces;
- Exchange Hall, Belgard Square North – approximately 593 spaces; and
- A number of other off-street private car parks – approximately 1,739 spaces.

6.3.3 Section 2 - Ballymount to Crumlin

The following section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 2 of the Proposed Scheme.

Section 2 commences on R819 Greenhills Road, south of the M50 overbridge. The route then branches north-west via Ballymount Avenue and north-east via Calmount Road, before re-joining R819 Greenhills Road at the Greenhills Industrial Estate to the south of Walkinstown Roundabout.

6.3.3.1 Pedestrian Infrastructure

Passing over the M50 bridge, there are footways of approximately 1.5m – 2.0m in width on both sides of the carriageway. The footways are separated from the road by a small grassed verge, until the R819 Greenhills Road, Ballymount Road Upper bus stop (no. 2337) is reached.

Ballymount Avenue is currently only accessed from R819 Greenhills Road via Ballymount Road Upper, and has a footway along the western side of the carriageway only, separated by a grassed bank. Calmount Road has footways of 2.0m in width along both sides of the carriageway which are also separated from the road by grassed banks. Calmount Road currently leads to a Cul-de-Sac, with no access to R819 Greenhills Road.

From the Upper Ballymount Road bus stop (no. 2337), the western footway of R819 Greenhills Road is approximately 1.5m - 2.0m width and immediately adjacent to the road, while the eastern footway (1.8m width) is set back and segregated by a grassed verge. This layout continues for approximately 450m, until the junction with Kilakee Drive. At this point, footway is only available on the west side of the road, pedestrians using the eastern footway must either cross over to the west (no crossing provided) or take a 200m detour via Kilakee Drive before they re-join R819 Greenhills Road.

An informal footway is currently provided near the R819 Greenhills Road (Calmount Avenue) bus stop (no. 2335), to enable pedestrian access from R819 Greenhills Road onto Calmount Avenue. Calmount Avenue has footways of approximately 2.0m width along both sides of the carriageway, separated via a grassed bank.

Continuing on R819 Greenhills Road, the footways on the northern side of the road narrow to 1.5m in width (immediately adjacent to the road) until the access road to Greenhills Industrial Estate. From this point, despite there being a footway provided on both sides of the road, there are typically vehicles parked on the south-eastern footway, obstructing pedestrian movements.

Pedestrian crossing facilities can be found at these locations:

- R819 Greenhills Road 70m north of Ballymount Road Upper junction near Tymon Park (signalised Pelican crossing);
- R819 Greenhills Road (signalised Pelican crossing), 75m south of Walkinstown Roundabout; and
- R819 Greenhills Road (courtesy crossing), 10m south of Walkinstown Roundabout.

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The location of pedestrian crossings is illustrated in Figure 6.3b in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 2 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.3.2 Cycling Infrastructure

The cycle facilities along Section 2 of Proposed Scheme comprise of advisory on-road cycle lanes on both sides of the carriageway, except for certain lengths where there are bus lanes or restricted road widths.

Heading northbound from the M50 bridge on R819 Greenhills Road, on-road advisory cycle lanes run continuously until where the new junction with Calmount Avenue will be constructed. There are currently no cycling facilities on Calmount Avenue and Calmount Road. Re-joining R819 Greenhills Road, the on-road advisory cycle lanes resume and continue until approximately 40m short of the southern arm of the Walkinstown roundabout.

There is no formal cycle parking, or designated cycle hire parking racks, along this section of the route.

The existing cycle facilities along Section 2 of the Proposed Scheme is illustrated in Figure 6.4b in Volume 3 of this EIAR.

Further details of the baseline cycling facilities (i.e. level of segregation from vehicles, capacity for cycling two abreast and / or overtaking, and junction treatment) along the length of Section 2 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.3.3 Bus Infrastructure

6.3.3.3.1 Bus Priority Measures

There are currently no designated bus lanes along Section 2 of the Proposed Scheme.

6.3.3.3.2 Bus Stop Facilities

There are currently eight bus stops along Section 2 of the Proposed Scheme. The inbound stops are as follows:

- Stop 2372 on R819 Greenhills Road at Old Tymon Lane, 300m north-west of the M50 overbridge;
- Stop 2373 on R819 Greenhills Road, 100m south of the Lidl access; and
- Stop 2377 R819 Greenhills Road, 115m south of Walkinstown Roundabout.

The outbound stops are:

- Stop 2337 on R819 Greenhills Road, at Old Tymon Lane;
- Stop 2336 to south of the Greenhills Road / Killakee Road junction;
- Stop 2335 on R819 Greenhills Road, 25m north of the Lidl access;
- Stop 4662 on R819 Greenhills Road, opposite Tyremaster retail service; and
- Stop 2334 on R819 Greenhills Road, 170m south of Walkinstown Roundabout.

Of the eight bus stops along Section 2 of the Proposed Scheme, three are intended whilst the other bus stops are inline along the carriageway. Over half of bus stops provide timetable information, whilst just under half provide shelter and seating.

The contents of Table 6.8 outlines the availability of bus stop facilities at the existing eight bus stops along Section 2 of the Proposed Scheme.

Table 6.8: Section 2 – Availability of Bus Stop Facilities (of a Total 5no. Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI	0	0%
Timetable information	6	75%
Shelter	2	25%
Seating	2	25%
Accessible Kerbs	0	0%
Indented Drop Off Area	3	38%

The existing bus facilities along Section 2 of the Proposed Scheme are illustrated in Figure 6.5b in Volume 3 of this EIAR. The bus services which operate along Section 2 are outlined in Table 6.9.

Table 6.9: Section 2 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
27	Jobstown - Tallaght (The Square) - Walkinstown Cross (The Kestrel) - Dolphin's Barn Cross - Eden Quay - Fairview - Artane Roundabout - Clare Hall	10 minutes	10-15 minutes
77a	Citywest - Tallaght (The Square) - Balrothery - Walkinstown Cross - Dolphin's Barn - Ringsend Rd.	15-20 minutes	20-30 minutes
77x	Citywest - Ellensborough - Kiltipper Way - Cuckoo's Nest - Dolphin's Barn - Fleet St. - UCD Belfield	Once a day (07:20)	No service

6.3.3.4 General Traffic

R819 Greenhills Road within this section of Proposed Scheme is single carriageway, operating primarily with one northbound and one southbound lane, and is approximately 8.0m in width for the majority of the route. The main exceptions to this are at the approach to junctions, where the road widens, and the number of lanes increases. This section is subject to a 50km/h speed limit.

The existing major junction arrangements along Section 2 of the Proposed Scheme are as follows:

- Ballymount Avenue / Calmount Road four-arm roundabout; and
- Walkinstown six-arm roundabout.

The characteristics of each major junction are described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

Ballymount Avenue / Calmount Road four-arm roundabout: The north (Ballymount Avenue) arm has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane. The east arm (Calmount Road) has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane.

The south arm (Ballymount Avenue) has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane. The west arm (Calmount Road) has a single yield approach lane for all movements. Exit onto this arm comprises a single traffic lane. This junction is shown in Image 6.17.



Image 6.17: Ballymount Avenue / Calmount Road Roundabout

Walkinstown Roundabout six-arm roundabout: The R819 Greenhills Road arm has three yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane.

The Ballymount Road Lower arm has two yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane.

The R112 Walkinstown Avenue arm has three yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane.

The R819 Walkinstown Road arm has three yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane.

The Cromwellsfort Road arm has three yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane.

The St. Peter's Road arm has three yield approach lanes without lane direction arrow markings. Exit onto this arm comprises a single wide traffic lane. The junction is shown in Image 6.18 and Image 6.19



Image 6.18: Walkinstown Roundabout (Northern Section)



Image 6.19: Walkinstown Roundabout (Southern Section)

6.3.3.5 Existing Parking / Loading

There is parking directly on Section 2 of the Proposed Scheme at the following locations:

- Informal parking on both sides of Calmount Road, between Ballymount Avenue and Calmount Avenue, with potential estimated space for approximately 35 vehicles.

Nearby car parks close to Section 2 of the Proposed Scheme can be found at:

- Maxol Greenhills Road – approximately 15 spaces;
- Lidl Car Park – 160 spaces;
- Bloomfield Garage – 11 spaces;
- Various Adjacent parking spaces on R819 Greenhills Road – approximately 441 spaces;
- Weirs Motors commercial parking – 20 spaces; and
- Walkinstown Roundabout – 88 (adjacent), 31 (informal) and 9 Taxi spaces.

6.3.4 Section 3 - Crumlin to Grand Canal

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 3 of the Proposed Scheme.

After Walkinstown Roundabout, the Proposed Scheme passes north along R819 Walkinstown Road to the Long Mile Road / Walkinstown Road junction. After travelling east along R110 Drimnagh Road for approximately 800m, buses heading towards the City Centre will bear left at the junction of Drimnagh Road / Kildare Road / St Mary's Road. From here, the route continues in a north-east direction on R110 Crumlin Road for approximately 1.75km, until the junction with R111 Parnell Road is reached. As part of the Proposed Scheme, an alternative route for cyclists is provided along Bunting Road, St Mary's Road, Kildare Road and Clogher Road to link into the Grand Canal cycle route at R111 Parnell Road.

6.3.4.1 Pedestrian Infrastructure

Throughout Section 3, the footways on each side of the carriageway are generally 2m to 3m in width. Along R819 Walkinstown Road the footways widen to 3m and continue up to the junction with R110 Long Mile Road. However, vehicles are commonly parked on the footways throughout this section of route, with this issue being particularly prevalent within 150m north of the Walkinstown roundabout. There are some instances where the footways widen, such as near Crumlin Children's Hospital, where the footway widens to 4.5m. However, there are numerous instances throughout this section where vehicles are parked on the footways, obstructing the flow of pedestrians.

Bunting Road has continuous footways on both sides of the road between R818 Cromwellsfort Road and Kildare Road. These are typically 2m in width. The paved area available to pedestrians is actually much wider, typically around 6m in width, but the section nearest the carriageway is typically taken up by illegally parked vehicles, and bisected by an avenue of planted trees.

Kildare Road has footways along both sides of the road throughout. These are generally between 1.5m to 3m in width, however on the northern side of Kildare Road, vehicles park alongside the footways off the carriageway. This parking is uncontrolled, with only a change in pavement colouring indicating where vehicles should park. Evidence of parked vehicles reducing the effective footway width, has been observed in this section.

The western section of Clogher Road (between its junctions with Kildare Road and Sundrive Road) also has footways on both sides of the carriageway which are used for off-street parking, and the effective width is at times reduced to less 1m because of this. After the Sundrive Road junction, the presence of parking alongside the footways ceases, and the footways widen to approximately 3m on both sides of the road. The footways continue on both sides of Clogher Road until the junction with Parnell Road, at widths of approximately 3.0-4.0m despite some off-street parking.

There are several pedestrian crossings along Section 3 of the Proposed Scheme. Pedestrian crossing facilities can be found at the following locations:

- On R819 Walkinstown Road, 50m north of Walkinstown roundabout (signalised Pelican crossing);
- The four-arm R819 Walkinstown Road / Kilnamanagh Road signalised junction has signalised crossings on all arms;
- The three-arm R110 Long Mile Road / R819 Walkinstown Road signalised junction has signalised crossings on two arms;

- The four-arm R110 Drimnagh Road /Slievebloom Road / Balfe Road signalised junction has signalised crossings on three arms;
- The three-arm R110 Drimnagh Road / Errigal Road signalised junction has signalised crossings on two arms;
- The four-arm R110 Drimnagh Road / Kildare Road signalised junction has signalised crossings on all arms;
- The three-arm R110 Crumlin Road / Cooley Road signalised junction has a signalised crossing on one arm;
- On R110 Crumlin Road, 20m to the east of Rafters Road (signalised Pelican crossing);
- On R110 Crumlin Road, at the junction with Iveagh Gardens (signalised Pelican crossing);
- On R110 Crumlin Road, 20m to the east of Clonard Road (signalised Pelican crossing);
- On R110 Crumlin Road, 15m to the west of Ardagh Road (signalised Pelican crossing);
- On R110 Crumlin Road, 40m to the west of Old County Road, at Crumlin Shopping Centre (signalised Pelican crossing);
- The four-arm R110 Crumlin Road / Sundrive Road / Herberton Road signalised junction has signalised crossings on all arms;
- On R110 Crumlin Road, near Loreto Primary School (Pelican crossing);
- The four-arm R110 Crumlin Road / R110 Dolphin's Barn / R111 Dolphin Road / Parnell Road signalised junction has signalised crossings on the western, southern and eastern arms;
- The four-arm Kildare Road / Windmill Road signalised junction has a signalised crossing on one arm;
- The four-arm Kildare Road / Bangor Road signalised junction has signalised crossings on three arms;
- The four-arm Clogher Road / Sundrive Road signalised junction has signalised crossings on two arms;
- Across Clogher Road outside Pearse College (Toucan crossing); and
- Across Clogher Road east of the junction with Rutland Avenue (Pelican crossing).

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The location of pedestrian crossings is illustrated in Figure 6.3c in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 3 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.4.2 Cycling Infrastructure

The cycle facilities along this section of the Proposed Scheme comprise on-road cycle lanes (frequently shared with bus lanes) throughout the entire length of the carriageway. There are no cycle facilities along R819 Walkinstown Road, until 160m from the junction with R110 Long Mile Road, where there is a shared bus and cycle lane.

A shared bus and cycle lane is in operation for approximately 280m on R110 Drimnagh Road (after the Balfe Road bus stop) up to St Mary's Drive. At this junction, a cycle-only lane is provided, but after negotiating the junction, cyclists are required to share with buses once again until the Crumlin Hospital bus stop (stop 1424). At this point, an on-road cycle lane 1.3m in width is provided once more and remains present on both sides of the carriageway with some shared bus lane sections until the junction with Sundrive Road and Herberton Road (approximately 1.2km). Advanced stop line stacking locations are provided for cyclists travelling east-west at this junction. Between the junctions with Sundrive Road and Herberton Road to Dolphin's Barn, the facilities consist of a shared bus and cycle lane.

Bunting Road / St Mary's Street, which is off the proposed bus route for the corridor, but part of the Proposed Scheme, has on-road cycle lanes for its full extent between R818 Cromwellsfort Road and Kildare Road. There are no cycle facilities on Kildare Road or Clogher Road.

There is no formal cycle parking, or designated cycle hire parking racks, along this section of the route.

The existing cycle facilities along Section 3 of the Proposed Scheme is illustrated in Figure 6.4c in Volume 3 of this EIAR.

Further details of the baseline cycling facilities (i.e. level of segregation from vehicles, capacity for cycling two abreast and / or overtaking, and junction treatment) along the length of Section 3 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR

6.3.4.3 Bus Infrastructure

6.3.4.3.1 Bus Priority Measures

Bus lanes along Section 3 of the Proposed Scheme are present at the following locations:

- A northbound bus lane of 160m in length on Walkinstown Road, on the approach to R110 Long Mile Road;
- A southbound bus lane of 60m in length, which terminates 50m to the north of Walkinstown Roundabout;
- Largely continuous bus lanes in both directions on R110 Long Mile Road and Drimnagh Road, between Slievebloom Park and Cooley Road. The eastbound bus lane continues for approximately 50m beyond Cooley Road; and
- Largely continuous bus lanes in both directions on R110 Crumlin Road, between Sundrive Road and R111 Parnell Road / Grand Canal. The bus lanes typically terminate 50m-80m before major junctions and recommence approximately 50m afterwards.

6.3.4.3.2 Bus Stop Facilities

There are currently forty-six bus stops along Section 3 of the Proposed Scheme. The inbound stops are as follows:

- Stop 2378 on R819 Walkinstown Road, 90m north of Walkinstown Roundabout;
- Stop 2183 on R819 Walkinstown Road, 50m north of Kilnamanagh Road;
- Stop 2184 on R819 Walkinstown Road, 140m south of R819 Drimnagh Road;
- Stop 2185 on R110 Drimnagh Road, at Slievebloom Road;
- Stop 1421, 1423 and 7043 on R110 Drimnagh Road, 35m - 150m east of Errigal Road;
- Stop 1424 on R110 Drimnagh Road, 55m east of Kildare Road;
- Stop 2186 on R110 Crumlin Road, 30m west of Raphoe Road;
- Stop 2187 on R110 Crumlin Road, 70m west of Clonard Road;
- Stop 2188 on R110 Crumlin Road, at Ardagh Road;
- Stop 2189 on R110 Crumlin Road, 70m west of Old County Road;
- Stop 1436 on R110 Crumlin Road, 130m north-east of Herberton Road;
- Stop 3952 on R110 Crumlin Road, 50m west of Rutland Avenue;
- Stop 2331, on St. Mary's Road, opposite Fernvale Drive;
- Stop 1397 on Kildare Road, 95m to the west of Kildare Park;
- Stop 1398 on Kildare Road, 95m to the west of Windmill Road;
- Stop 1399 on Kildare Road, 60m to the east of Clonard Road;
- Stop 5148 on Kildare Road, 60m to the east of Bangor Road;
- Stop 1401 on Clogher Road, 80m east of Saul Road;
- Stop 1402 on Clogher Road, 50m east of Sundrive Road;
- Stop 1403 on Clogher Road, 50m east of Rutland Avenue;
- Stop 1404 on Clogher Road, 70m north-east of Aughavannagh Road; and
- Stop 1405 on Clogher Road, 70m south of R111 Parnell Road.

The outbound stops are:

- Stop 2333 on R819 Walkinstown Road, 70m north of Walkinstown Roundabout;
- Stop 2332 on R819 Walkinstown Road, 40m south of Kilnamanagh Road;
- Stop 2103 on R819 Walkinstown Shopping Centre;
- Stop 2102 on R110 Drimnagh Road, 70m east of Balfe Road;
- Stop 2101 on R110 Drimnagh Road, 50m west of Kildare Road;
- Stop 2099 on R110 Crumlin Road, 60m north-east of Kildare Road;
- Stop 2097 on R110 Crumlin Road, 70m west of Windmill Road;
- Stop 2096 on R110 Crumlin Road, 40m west of Clonard Road;
- Stop 2095 on R110 Crumlin Road, 50m north-east of Ardagh Road;
- Stop 1409 on R110 Crumlin Road, 60m north-east of Herberton Road;
- Stop 1407 on R110 Crumlin Road, 50m south-west of Rutland Avenue;
- Stop 2317 on St. Mary's Road at St. Mary's Parish Church;
- Stop 1396 on Kildare Road, 160m to the east of St Mary's Road.
- Stop 7414 on Kildare Road, 90m to the east of Kildare Park;
- Stop 1442 on Kildare Road, 50m to the west of Clonard Road;
- Stop 1441 on Kildare Road, 70m to the west of Bangor Road;
- Stop 3356 on Kildare Road, 75m to the east of Bangor Road;
- Stop 3355 on Clogher Road at Slane Road junction;
- Stop 1389 on Clogher Road, 50m east of Sundrive Road;
- Stop 1388 on Clogher Road, 70m west of Rutland Avenue;
- Stop 1387 on Clogher Road, 50m north-east of Aughavannagh Road; and
- Stop 1386 on Clogher Road, 110m south of R111 Parnell Road.

Near three quarters of bus stops provide timetable information, with nearly half providing shelter and accessible kerbs. Real time passenger information is also provided at fifteen stops.

Table 6.10 outlines the availability of bus stop facilities at the existing forty-six bus stops along Section 3 of the Proposed Scheme.

Table 6.10: Availability of Bus Stop Facilities (of a Total 46no. Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI	15	33%
Timetable information	33	72%
Shelter	22	48%
Seating	18	39%
Accessible Kerbs	22	48%
Indented Drop Off Area	1	2%

The existing bus facilities along Section 3 of the Proposed Scheme are illustrated in Figure 6.5c in Volume 3 of this EIAR. The bus services which operate along Section 3 are outlined in Table 6.11.

Table 6.11: Section 3 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
17 / 17d	Blackrock Rail Station - UCD Belfield - Churchtown Rd - Kimmage Rd. - Rialto	20 minutes	30 minutes
18	Newgrove Avenue - Burlington Road - Sundrive Road - Kylemore Road - Hollyville Lawn	15-20 minutes	20-30 minutes

Service	Route	Typical Service Frequency	
		Weekday	Weekend
27	Jobstown - Tallaght (The Square) - Walkinstown Cross (The Kestrel) - Dolphin's Barn Cross - Eden Quay - Fairview - Artane Roundabout - Clare Hall	10 minutes	10-15 minutes
56a	Tallaght (The Square) - Cookstown Rd. - Walkinstown Cross - Dolphin's Barn - Ringsend Rd.	75 minutes	75 minutes
77a	Citywest - Tallaght (The Square) - Balrothery - Walkinstown Cross - Dolphin's Barn - Ringsend Rd.	15-20 minutes	20-30 minutes
77N	R110 Cork Street - Dolphin's Barn - R110 Crumlin Road - Walkinstown Roundabout - R819 Greenhills Road - Tallaght Village - Blessington Road - Tallaght (Westbrook Estate)	Friday / Saturday 00:00; 02:00; 04:00	
77x	Citywest - Ellensborough - Kiltipper Way - Cuckoo's Nest - Dolphin's Barn - Fleet St. - UCD Belfield	Once a day (07:20)	No service
122	Drimnagh Rd. (Our Lady's Hospital) - Kelly's Corner - O'Connell St. - St. Peter's Church (Cabra Rd.) - Ashington	15 minutes	20 minutes
123	Walkinstown (Kilnamanagh Rd.) - St. James's Hospital - O'Connell St. - Ballybough Rd. (Clonliffe Rd.) - Marino (Griffith Ave.)	12 minutes	15-20 minutes
151	Foxborough - Parkwest - Drimnagh Rd. - Dolphin's Barn - Dame St. / Ormond Quay - Docklands (East Rd.)	Peak: 15 minutes / Off-peak 20-30 minutes	20-30 minutes

6.3.4.4 General Traffic

R819 Walkinstown Road is 8m - 9m wide, with a single carriageway in both directions. It has a speed limit of 50km/h. It is mostly residential with properties bordering both sides of the road. There is a small retail mall and a large shopping centre on R819 Walkinstown Road. There is an outbound bus lane for approximately 60m on approach to Walkinstown Roundabout and an inbound bus lane for approximately 160m on approach to the R110 Long Mile Road / Walkinstown Road junction, there are no cycle lanes.

R110 Long Mile Road / R110 Drimnagh Road is dual carriageway between Slievebloom Park and Slievebloom Road thereafter R110 Drimnagh Road is a single carriageway, 50km/h road. The width of the carriageway is typically 14.0m but does increase to up to 17.0m on the approach to some junctions. The carriageway has two lanes operating in each direction: one lane dedicated for buses (with cyclists permitted to use this lane) and one for general traffic; although there are some exceptions on the approach to junctions. The area is busy with traffic, and is largely residential, with many driveways, parks and amenities available.

R110 Crumlin Road is a single carriageway, 50km/h road. The width of the carriageway is typically 14.0m but does increase to up to 17.0m on the approach to some junctions. The carriageway has two lanes operating in each direction: one lane dedicated for buses (with cyclists permitted to use this lane) and one for general traffic; although there are some exceptions on the approach to junctions. Bus lanes in both directions are not available between Cooley Road and Herberton Road / Sundrive Road junction, over this length on-road cycle lanes are provided. The area is busy with traffic, and is largely residential, with many driveways, parks and amenities available.

Bunting Road runs between R818 Cromwellsfort Road and St Agnes Terrace and has a single lane in either direction. The width of the carriageway is typically 7 – 7.5m wide. It has a speed limit of 50km/h, and there are speed cushions at regular intervals along its whole length. Although on a bus route, there are no bus priority features. On-road cycle lanes commence 60m to the east of Cromwellsfort Road and run on both sides of the carriageway along the full extent of Bunting Road.

St Mary's Road is an extension of Bunting Road and runs from St Agnes Terrace to Kildare Road. It is 6m wide and has a single lane in either direction. It has a speed limit of 50km/h, but unlike Bunting Road there are no speed reduction measures in place. Although on a bus route, there are no bus priority features. The cycle lanes on Bunting Road continue on St Mary's Road, terminating 40m to the south-west of the Kildare Road junction.

Kildare Road runs in an east-west between R110 Drimnagh Road and Clogher Road. It has a speed limit of 50km/h, and there are regular speed cushions along the section. Kildare Road is typically 9m wide and has a single lane in either direction. Although on a bus route, there are no bus priority features, and there is no cycle provision.

Clogher Road runs north-east from Kildare Road towards R111 Parnell Road. It is typically 9m wide (except for a short section between Kildare Road and Sundrive Road where it is 6m wide) and has a single lane in either direction. It has a speed limit of 50km/h, and there are speed cushions at regular intervals along its length. Although on a bus route, there are no bus priority features, and there is no cycle provision.

The existing major junction arrangements along Section 3 of the Proposed Scheme are as follows:

- R819 Walkinstown Road / Kilnarnagh Road four-arm signalised junction;
- R110 Long Mile Road / R819 Walkinstown Road three-arm signalised junction;
- R110 Drimnagh Road / Slievebloom Road / Balfe Road four-arm signalised junction;
- R110 Drimnagh Road / Errigal Road three-arm signalised junction;
- R110 Drimnagh Road / St. Mary's Road / Kildare Road four-arm signalised junction;
- R110 Crumlin Road / Cooley Road three-arm signalised junction;
- R110 Crumlin Road / Herberton Road / Sundrive Road four-arm signalised junction;
- R110 Crumlin Road / R111 Dolphin Road / Parnell Road four-arm signalised junction;
- Kildare Road / Windmill Road four-arm signalised junction;
- Kildare Road / Clonard Road four-arm roundabout junction;
- Kildare Road / Bangor Road four-arm signalised junction;
- Clogher Road / Sundrive Road four-arm signalised junction;
- Clogher Road / Rutland Avenue four-arm priority junction; and
- Clogher Road / R111 Parnell Road four-arm signalised junction.

The characteristics of each major junction is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

R819 Walkinstown Road / Kilnarnagh Road four-arm signalised junction: The north arm (R819 Walkinstown Road towards Tallaght) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The east arm (Walkinstown Shopping Centre) has a single approach lane (no lane markings) for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane (no lane markings).

The south arm (R819 Walkinstown Road towards City Centre) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm (Kilnarnagh Road) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane. This junction is shown in Image 6.20.



Image 6.20 R819 Walkinstown Road / Kilnamanagh Road Signalised Junction

R110 Long Mile Road / R819 Walkinstown Road three-arm signalised junction: The east arm has two approach lanes for straight ahead movements towards the M50 / N7 and a left-turn slip lane towards Tallaght controlled by a set of signal heads. Exit onto this arm consists of two lanes, a central median separates inbound and outbound traffic lanes.

The south arm has two approach lanes for right-turn movements only towards the City centre (left-turn movements not permitted) controlled by a set of signal heads. Exit onto this arm consists of a single lane and a merge slip lane from the east.

The west arm has three approach lanes, one for buses only, one for general traffic straight ahead movements and one right-turn lane controlled by a set of signal heads. Exit onto this arm consists of two lanes, a central median separates inbound and outbound traffic lanes.

This junction is shown in Image 6.21.



Image 6.21: R110 Long Mile Road / R819 Walkinstown Road Signalised Junction

R110 Drimnagh Road /Slievebloom Road / Balfe Road four-arm signalised junction: The north arm (Slievebloom Road) is a one-way southbound only, single approach lane for left and right-turning traffic onto R110 Drimnagh Road controlled by a set of signal heads.

The east arm (R110 Drimnagh Road) has three approach lanes for straight ahead movements towards the M50 / N7 and Tallaght controlled by a set of signal heads. The left approach lane is for traffic turning left onto Balfe Road or onto the left-turn slip lane for R819 Walkinstown Road at the next junction towards Tallaght. Exit onto this arm consists of two lanes for City Centre bound traffic, a central median separates inbound and outbound traffic lanes.

The south arm (Balfe Road) has a single approach lane for left and right-turn movements westbound and eastbound controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm has two approach lanes and a bus stop lane for City Centre bound traffic (right-turn movements onto Balfe Road is not permitted) controlled by a set of signal heads. Exit onto this arm consists of three lanes, two straight ahead lanes towards the M50 /N7 and a left-turn lane towards Tallaght via R819 Walkinstown Road. A central median separates inbound and outbound traffic lanes. This junction is illustrated in Image 6.22.



Image 6.22: R110 Drimnagh Road / Slievebloom Road / Balfe Road Signalised Junction

R110 Drimnagh Road / Errigal Road three-arm signalised junction: The north arm (Errigal Road) has a single approach lane with cyclist advance stop line for left-turn and right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The east arm (R110 Drimnagh Road) has three approach lanes with cyclist advance stop line, two lanes for straight ahead movements and one right-turn lane onto Errigal Road controlled by a set of signal heads. Exit onto this arm consists of one bus lane and one general traffic lane for City Bound traffic.

The west arm (R110 Drimnagh Road) has two approach traffic lanes and a single advisory on-road cycle lane, one traffic lane for left-turn traffic movements onto Errigal Road and the other traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and one advisory on-road cycle lane. This junction is shown in Image 6.23.



Image 6.23: R110 Drimnagh Road / Errigal Road Signalised Junction

R110 Drimnagh Road / St Mary's Road / Kildare Road four-arm signalised junction: The north-east arm (R110 Drimnagh Road) has three approach lanes and an advisory on-road cycle lane, one traffic lane for left-turn onto Kildare Road and straight ahead for St. Mary's Road, one bus lane and one traffic lane for straight ahead continuing on R110 Drimnagh Road. Exit onto this arm consists of one general traffic lane and one bus lane for City Centre bound traffic controlled by a set of signal heads, a central median separates inbound and outbound traffic lanes.

The east arm (Kildare Road) has a single approach lane for traffic towards M50 / N7 (bus only right turn to City Centre) and a single left-turn slip lane for traffic onto St. Mary's Road controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south arm (St. Mary's Road) has a single approach lane and an on-road cycle lane with advance stop line for all movements. Exit onto this arm consists of a single lane.

The south-west arm (R110 Drimnagh Road) has three approach lanes, one straight ahead bus lane, one straight ahead traffic lane and one right-turn lane for Kildare Road and St. Mary's Road controlled by a set of signal heads. Exit onto this arm consists of a single bus lane and a single traffic lane, a central median separates inbound and outbound traffic lanes. This junction is shown in Image 6.24.



Image 6.24: R110 Drimnagh Road / St Mary's Road / Kildare Road Signalised Junction

R110 Crumlin Road / Cooley Road three-arm signalised junction: The north-west arm (Cooley Road) has a single approach lane for left-turn and right-turn traffic movements onto R110 Crumlin Road with a stop line set-

back for vehicle turning movements onto Cooley Road controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The north-east arm (R110 Crumlin Road) has three approach lanes and an on-road advisory cycle lane with advance cycle stop line, traffic lanes consist of one left-turn lane for traffic turning left at the next junction, one straight ahead lane and one right-turn lane onto Cooley Road controlled by a set of signal heads. Exit onto this arm consists of one bus lane and one general traffic lane.

The south-west arm (R110 Crumlin Road) has two approach lanes and an on-road advisory cycle lane, one traffic lane for left-turn and straight ahead movements and one traffic lane for straight ahead movements controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and one on-road advisory cycle lane. This junction is shown in Image 6.25.



Image 6.25: R110 Crumlin Road / Cooley Road Signalised Junction

R110 Crumlin Road / Herberton Road / Sundrive Road four-arm signalised junction:

The north arm (Herberton Road) has two approach lanes, one lane for right-turn movements and one lane for straight ahead movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The north-east arm (R110 Crumlin Road) has three approach lanes, one for straight ahead and left-turn movements, one for straight ahead movements, one for right-turn movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The south arm (Sundrive Road) has two approach lanes, one lane for right-turn movements and one lane for straight ahead movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The south-west arm (R110 Crumlin Road) has three approach lanes, one for straight ahead and left-turn movements, one for straight ahead movements, one for right-turn movements and an advisory on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane. This junction layout is shown in Image 6.26.



Image 6.26: R110 Crumlin Road / Sundrive Road / Herberton Road Signalised Junction

R110 Crumlin Road / R111 Dolphin Road / Parnell Road four-arm signalised junction: The north-east arm (R110 Dolphin's Barn) has two approach lanes for straight ahead movements only (left-turn and right-turn movements not permitted) and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of one bus lane and one general traffic lane.

The east arm (R111 Parnell Road) has a single approach lane for left-turn and straight ahead movements (no right-turn permitted) and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and on-road cycle lane.

The south-west arm (R110 Crumlin Road) has two approach lanes for straight ahead movements only (left-turn and right-turn movements not permitted) controlled by a set of signal heads. Exit onto this arm consists of a wide single lane.

The west arm (R111 Dolphin Road) has a single approach lane for all movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and on-road cycle lane. This junction is shown in Image 6.27.



Image 6.27: R110 Crumlin Road / R111 Parnell Road / Dolphin Road Signalised Junction

Kildare Road / Windmill Road four-arm signalised junction: All arms at the junction have a single lane approach, with the exception of Windmill Road south, which has a short, segregated left-turn lane, with an exit width of approximately 8.5m. This segregation is via a refuge island. The junction is shown in Image 6.28



Image 6.28: Kildare Road / Windmill Road Signalised Junction.

Kildare Road / Clonard Road four-arm priority roundabout: This mini-roundabout has an 18m inscribed diameter, with a painted, rather than kerbed, central island. Each arm has a single lane on approach. Pedestrian refuge splitter islands are present on the Kildare Road approaches. The junction is shown in Image 6.29

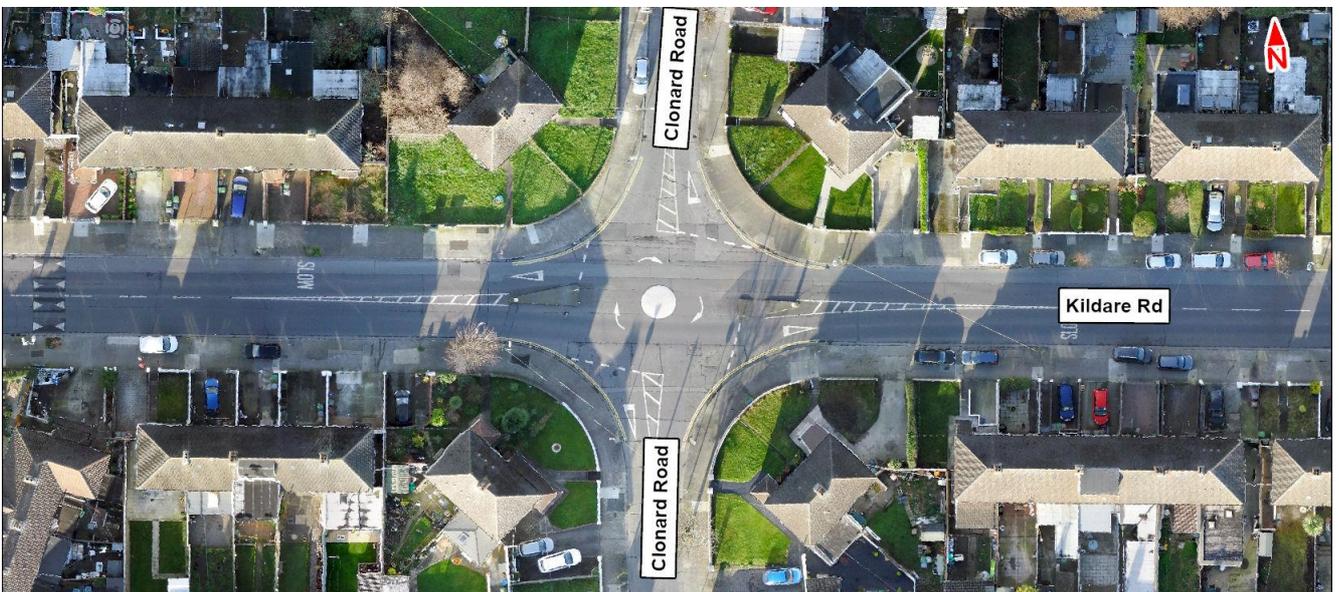


Image 6.29: Kildare Road / Clonard Road Priority Roundabout.

Kildare Road / Bangor Road four-arm signalised junction: Each arm of the signalised junction has a single lane on approach. Signalised pedestrian crossings, with dropped kerbs and tactile paving are provided across both Bangor Road arms and Kildare Road west arm. The approach road width is approximately 3.5m-4m on all arms. The junction is shown in Image 6.30.



Image 6.30: Kildare Road / Bangor Road Signalised Junction

Clogher Road / Sundrive Road four-arm signalised junction: Each arm of the signalised junction has a single lane on approach. Signalised pedestrian crossings, with dropped kerbs and tactile paving are present on Clogher Road west and Sundrive Road north. The remaining arms have dropped kerb crossings, which are not signalised. The junction is shown in Image 6.31.

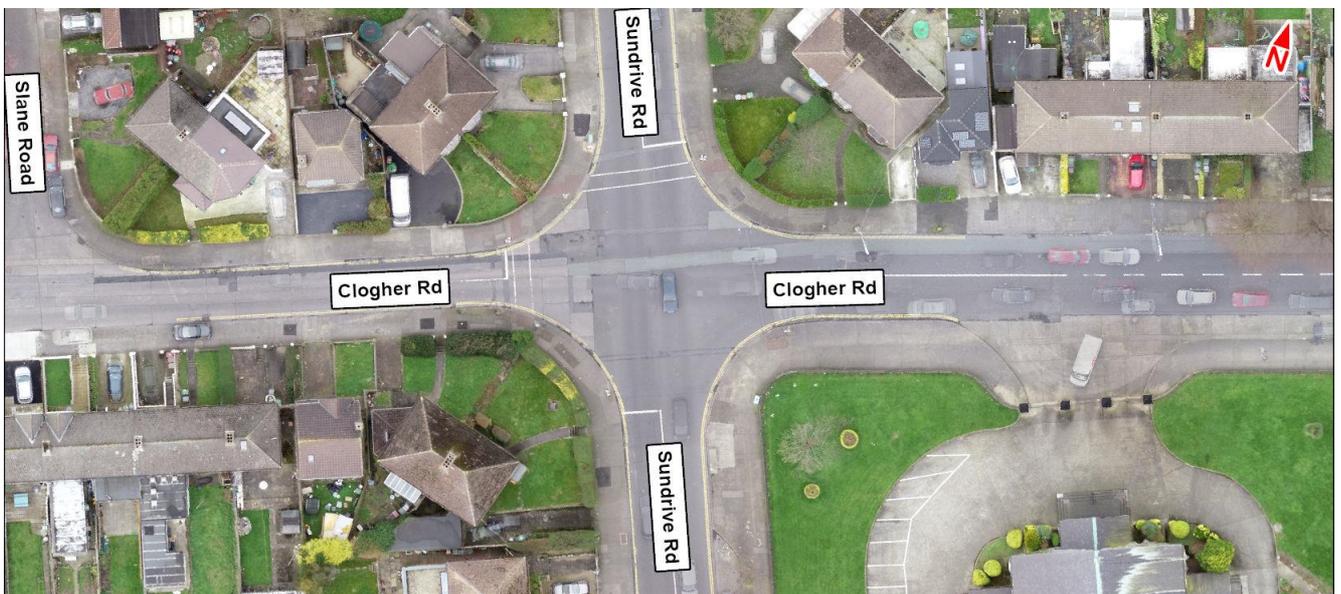


Image 6.31: Clogher Road / Sundrive Road Signalised Junction

Clogher Road / Rutland Avenue four-arm priority junction: Clogher Road forms the major arms at this priority crossroads and has a single lane in either direction. A pelican crossing 20m to the east of the junction provides a controlled crossing point for pedestrians. Both of the Rutland Avenue arms have a single lane on approach to the junction. The junction is shown in Image 6.32.

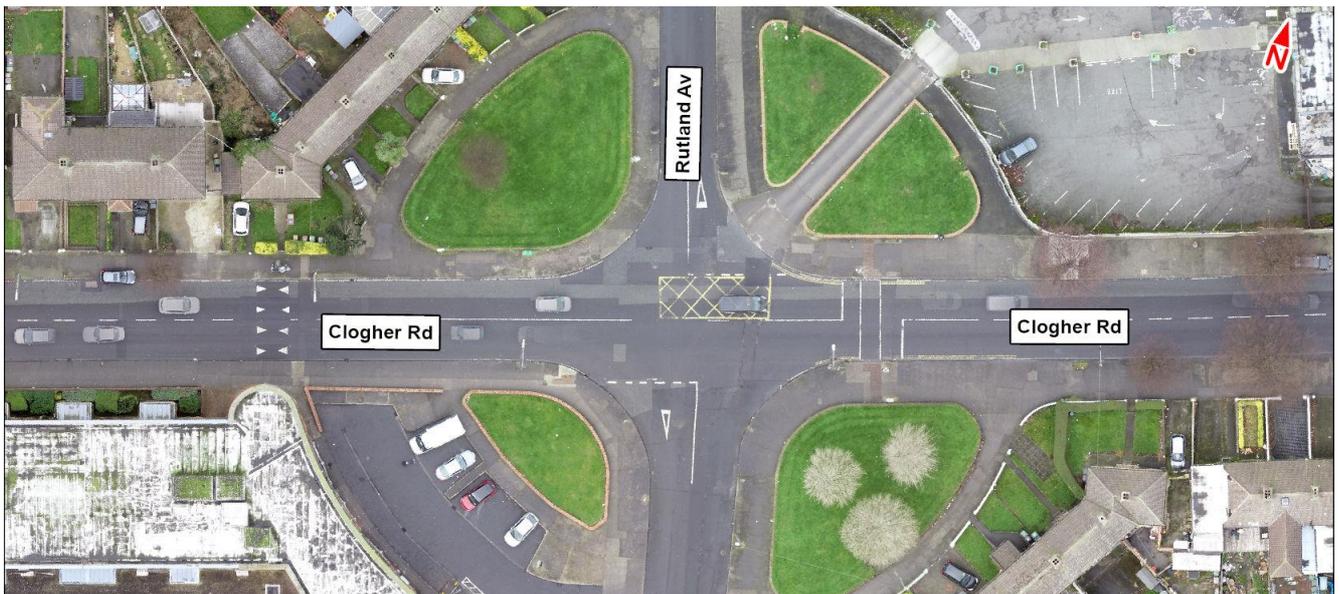


Image 6.32: Clogher Road / Rutland Avenue Priority Junction

Clogher Road / R111 Parnell Road four-arm signalised junction: R111 Parnell Road forms the major arm of this junction and has a single lane with on-road cycle lane in both directions. A pelican crossing 10m to the west of the junction provides a controlled crossing point for pedestrians. Clogher Road joins from the south and has a single lane approach. The junction is shown in Image 6.33.



Image 6.33: Clogher Road / R111 Parnell Road signalised Junction

6.3.4.5 Existing Parking / Loading

The existing conditions for parking and loading for this Section 3 of the Proposed Scheme are as follows

- 47 adjacent parking spaces on R819 Walkinstown Road at Walkinstown Medical Centre and Walkinstown Mall;
- On R819 Walkinstown Road, 174 adjacent parking spaces at SuperValu (Walkinstown Shopping Centre), including those at Walkinstown Road Car Park.
- On R110 Drimnagh Road, 2 taxi parking bays, 40 informal parking spaces, 20 commercial parking spaces and 21 adjacent parking spaces;
- On R110 Crumlin Road, 12 taxi parking bays, 1 loading bay, 37 informal parking spaces and 983 adjacent parking spaces;
- On Bunting Road / St. Mary's Road, 52 informal parking spaces, 19 paid parking spaces and 5 adjacent parking spaces; and

- On Kildare Road / Clogher Road, 59 informal parking spaces.

6.3.5 Section 4 - Grand Canal to Christchurch

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 4 of the Proposed Scheme.

Section 4 commences at the R111 Dolphin Road / Parnell Road and R110 Dolphin's Barn Street junction. The corridor then routes in a north-easterly along R110 Cork Street, St Luke's Avenue, Dean Street, R137 Patrick Street, Nicholas Street and Christchurch Place.

6.3.5.1 Pedestrian Infrastructure

Footways are provided on both sides of the carriageway along the entirety of the section. A paved footway approximately 2.5m wide is provided on both sides of the street along Dolphin's Barn and R110 Dolphin's Barn Street. At the junction with R811 South Circular Road on the eastern side, the footway crosses through a small car park. No physical separation is provided between the parking area and the footway. Footways are provided along both sides of the road along R110 Cork Street, St Luke Avenue and Dean Street. The width varies between 2.5m and 3.5m approximately. On some sections, bollards are provided to increase the degree of separation between the footway and the road.

St Patrick's Road, between Dean Street and Bull Alley Street, benefits from a wide paved footway, the width of which varies between 4.0m to 8.5m wide on the east of the carriageway. The footway provided on the western side of the carriage is narrower (approximately 2.5m).

There are several pedestrian crossings along Section 4 of the Proposed Scheme, the majority of which are signalised. Pedestrian crossing facilities can be found at the following locations:

- The four-arm R811 South Circular Road / R110 Dolphin's Barn Street signalised junction has signalised crossings on all four arms. The crossings on the R110 Dolphin's Barn Street are staggered due to the presence of a refuge island;
- Across Dolphin's Barn 15m to the south of Emerald Square (signalised Pelican crossing);
- The four-arm R110 Cork Street / Marrowbone Lane / Donore Avenue signalised junction has signalised crossings on all four arms;
- Across R110 Cork Street in front of Weaver Park (signalised Pelican crossing);
- The four-arm R110 Cork Street / Ardee Street signalised junction has signalised crossings on all four arms;
- Across R110 St Luke's Avenue, 15m to the west of Brabazon Street (signalised Pelican crossing);
- The three-arm R110 St Luke's Avenue / Dean Street signalised junction has signalised crossings on all three arms;
- The four-arm Dean Street / New Street / Kevin Street Upper / R137 Patrick Street signalised junction has signalised crossings on three arms;
- Across R137 St. Patrick Street just north of Bull Alley Street (signalised Pelican crossing); and
- Across R137 St. Patrick Street 5m to the south of Bride Road (signalised Pelican crossing).

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The location of pedestrian crossings is illustrated in Figure 6.3d in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 4 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.5.2 Cycling Infrastructure

The cycle facilities along Section 4 of the Proposed Scheme primarily comprise on-road cycle lanes located on both sides of the carriageway, with widths between 1.2m and 1.5m. On the R110 Dolphin's Barn Street / R110

Cork Street / St Luke's Avenue / Dean Street / R137 Patrick Street and R137 Nicholas Street, advisory cycle lanes are provided on both sides of the road throughout, with an exception between R111 Parnell Street and R811 South Circular Road junctions where the outbound cycle lane is replaced with a bus lane for part of this section.

Advanced stacking locations for cyclists are provided in several places along this section of the Proposed Scheme, including on the R110 Dolphin's Barn at its junction with the R811 South Circular Road, Marrowbone Lane, Ardee Street and The Coombe, and the R137 at its junctions with The Coombe, Bride Road, and R108 High Street.

Cycle parking stands are provided at the following locations in the vicinity of the Proposed Scheme:

- Three Sheffield stands (accommodating 6 bicycles) on the R110 Dolphin's Barn Street near the junction with Reuben Street and a further three Sheffield stands (accommodating six bicycles) on Reuben Street;
- Five Sheffield stands (accommodating 10 bicycles) on Cameron Street near its junction with R110 Cork Street;
- Four Sheffield stands (accommodating 8 bicycles) on R110 Cork Street south-west of Donore Avenue;
- Six cycle stands (accommodating 12 bicycles) on R110 Cork Street south of Robinson's Court junction;
- Five Sheffield stands (accommodating 10 bicycles) on Ormand Street near the junction with R110 Dolphin's Barn Street;
- Fourteen Sheffield stands (accommodating 28 bicycles) on R110 Dean Street opposite the junction with New Row South;
- Five Sheffield stands (accommodating 10 bicycles) on R137 Patrick Street at the junction with R110 Kevin Street Upper;
- Five Sheffield stands (accommodating 10 bicycles) on R137 Patrick Street adjacent to St Patrick's Cathedral;
- Five Sheffield stands (accommodating 10 bicycles) on R137 Patrick Street adjacent to St Patrick's Park;
- Six Sheffield stands (accommodating 12 bicycles) and a further two Sheffield stands (accommodating four bicycles) on R137 Patrick Street between the junctions with Dillon Place South and Bride Road;
- Four Sheffield stands (accommodating eight bicycles) on R137 Nicholas Street near the junction with R137 Christchurch Place; and
- Six Sheffield stands on R137 Christchurch Place near the junction with Werburgh Street.

The existing cycle facilities along Section 4 of the Proposed Scheme is illustrated in Figure 6.4d in Volume 3 of this EIAR.

Further details of the baseline cycling facilities (i.e. level of segregation from vehicles, capacity for cycling two abreast and / or overtaking, and junction treatment) along the length of Section 4 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.5.3 Bus Infrastructure

6.3.5.3.1 Bus Priority Measures

Bus lanes along Section 4 of the Proposed Scheme are present at the following locations:

- Northbound and Southbound bus lane on R110 Dolphin's Barn Street / Cork Street / St Luke's Avenue between R111 Dolphin Road and Dean Street. The bus lanes terminates approximately 50m-80m ahead of major junctions, and commences approximately 50m afterwards; and
- A short, northbound bus lane of approximately 200m in length on R137 Patrick Street, running from St Patrick's Road to Bride Road.

6.3.5.3.2 Bus Stop Facilities

There are currently 13 bus stops along Section 4 of the Proposed Scheme. The inbound stops are as follows:

- Stop 2190 on R110 Dolphin's Barn Street, 80m north of R111 Dolphin Road;
- Stop 4434 on R110 Cork Street, 15m north of Boardman's lane;
- Stop 2379 on R110 Cork Street at Marion Villas;
- Stop 2382 on R110 St Luke's Avenue, 40m west of Brabazon Place;
- Stop 5099 on R110 St Luke's Avenue, 90m south of Dean Street; and
- Stop 2383 on R137 Patrick Street, 40m north of Dean Street.

The outbound stops are:

- Stop 2385 on R137 Nicholas Street, 35m north of Ross Road;
- Stop 2312 on R110 St Luke's Avenue, 75m south of Dean Street;
- Stop 2313 on R110 St Luke's Avenue, 35m west of Brabazon Place;
- Stop 2314 on R110 St Luke's Avenue, 60m east of Ormond Street;
- Stop 2315 on R110 St Luke's Avenue, 70m east of Donore Avenue;
- Stop 2094 on R110 Dolphin's Barn Street, at The Coombe Hospital; and
- Stop 1406 on R110 Dolphin's Barn Street, 40m south of R811 South Circular Road.

The majority of bus stops along Section 4 of the Proposed Scheme have timetable information, with half containing real time passenger information. One bus stop has an intended drop of area, with the rest inline with the bus stop.

The contents of Table 6.12 outlines the availability of bus stop facilities at the existing 13 bus stops along Section 4 of the Proposed Scheme.

Table 6.12: Section 4 – Availability of Bus Stop Facilities (of a Total 13no. Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI	7	54%
Timetable information	10	77%
Shelter	8	61%
Seating	8	61%
Accessible Kerbs	5	39%
Indented Drop Off Area	1	7%

The existing bus facilities along Section 4 of the Proposed Scheme are illustrated in Figure 6.5d in Volume 3 of this EIAR. The bus services which operate along Section 4 are outlined in Table 6.13.

Table 6.13: Section 4 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
27	Jobstown - Tallaght (The Square) - Walkinstown Cross (The Kestrel) - Dolphin's Barn Cross - Eden Quay - Fairview - Artane Roundabout - Clare Hall	10 minutes	10-15 minutes
49	Pearse Street - Leonard's Corner - Templeogue Village - The Mill / Old Bawn Rd. - Tallaght (The Square)	15 minutes	30 minutes
54a	Pearse Street - Harold's Cross Green - Spawell - Old Blessington Rd. (The Square) - Ellensborough / Kiltipper Way	30 minutes	30-60 minutes
56a	Ringsend Rd. - Dolphin's Barn - Walkinstown Cross - Cookstown Rd. - Tallaght (The Square)	75 minutes	75 minutes
77a	Citywest - Tallaght (The Square) - Balrothery - Walkinstown Cross - Dolphin's Barn - Ringsend Rd.	15-20 minutes	20-30 minutes
77x	Citywest - Ellensborough - Kiltipper Way - Cuckoo's Nest - Dolphin's Barn - Fleet St. - UCD Belfield	Once a day (07:20)	No service
150	Hawkins St. - Kevin St. (Patrick St.) / Patrick St. (Dean St.) - Donore Ave. (South Circular Rd.) - St. Agnes Rd. - Rossmore	20 minutes	20-30 minutes
151	Docklands (East Rd.) - Dame St. / Ormond Quay - Dolphin's Barn - Drimnagh Rd. - Parkwest - Foxborough	20 minutes	20-30 minutes

6.3.5.4 General Traffic

R110 Dolphin's Barn Street is a dual carriageway road operating with two southbound and two northbound lanes, including one dedicated bus lane and on-road cycle lane inbound and partial dedicated bus lane and partial on-road cycle lane outbound. The road is approximately 17.0m wide. After the Dolphin's Barn Street / South Circular Road junction, the road becomes a four lane carriageway including one dedicated bus lane and on-road cycle lane in both directions with an approximate total width of 15.0m. A 50km/h speed limit is in enforcement along this road.

R110 Cork Street within this section of the Proposed Scheme is a four-lane carriageway road operating with two southbound and two northbound lanes, including one dedicated bus lane and on-road cycle lane in each direction. The road is approximately 15.0m wide. A 50km/h speed limit is in enforcement along this road.

R110 St Luke's Avenue is a four-lane carriageway road operating with two southbound and two northbound lanes, including one dedicated bus lane and on-road cycle lane in each direction. The road is approximately 15.0m wide, with the exception of the approach to main junctions. A 50km/h speed limit is in enforcement along this road.

Dean Street is a short section of road (approximately 150m) linking St Luke's Avenue to Patrick Street. It is a single carriageway approximately 11.0m wide, providing three lanes mostly at either end and an on-road cycle lane. It becomes wider (approximately 17m) in proximity with the junction with Patrick Street, where it accommodates three eastbound lanes and one westbound lane. A 50km/h is in enforcement along this road.

The R137 Patrick Street / Nicholas Street within this section of the Proposed Scheme is a four-lane carriageway over most of its length with five lanes at either end with on-road cycle lanes in both directions. The first section of road, between Dean Street and Bull Alley Street, is approximately 13m wide. It has a northbound bus lane. After Bull Alley Street, the road splits into a dual carriageway (approximately 18.5m wide in total) with four lanes, two northbound and two southbound including a northbound bus lane until Bride Road, where the road enters Nicholas Street and widens to accommodate five lanes (three northbound and two southbound). No bus lane is provided in this last section of road. The road width in this section varies between 19.5m and 25.0m where a bus layby is provided. A 50km/h speed limit is in enforcement along this road.

The existing major junction arrangements along Section 4 of the Proposed Scheme are as follows:

- R110 Dolphin's Barn Street, R811 South Circular Road four-arm signalised junction;
- R110 Cork Street / Marrowbone Lane / Donore Avenue four-arm signalised junction;
- R110 Cork Street / Ardee Street/ R110 St Luke's Avenue four-arm signalised junction.
- R110 St Luke's Avenue / The Coombe / Dean Street three-arm signalised junction.

- Dean Street / New Street / Kevin Street Upper / Patrick Street four-arm signalised junction.
- R137 Patrick Street / Bride Road three-arm Signalised Junction;
- R137 Nicholas Street / Christchurch Place / Winetavern Street / High Street four-arm signalised junction.

The characteristics of each major junction is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

R110 Dolphin's Barn Street / R811 South Circular Road four-arm signalised junction: The north-east arm (R110 Dolphin's Barn Street) has two approach lanes, one for straight ahead and left-turn movements and one for right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The east arm (R811 South Circular Road) has two approach lanes, one for straight ahead and left-turn movements and one for right-turn movements and a left-turn slip road controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south-west arm (R110 Dolphin's Barn Street) has two approach lanes, one for straight ahead and left-turn movements and one for right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The west arm (R811 South Circular Road) has two approach lanes, one for straight ahead and left-turn movements and one for right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single lane. This junction is shown in Image 6.34.



Image 6.34: R110 Dolphin's Barn Street / R811 South Circular Road Signalised Junction

R110 Cork Street / Marrowbone Lane / Donore Avenue four-arm signalised junction: The north-east arm (R110 Cork Street) has two approach lanes, one for straight ahead and left-turn movements and one for straight ahead and right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The east arm (Donore Avenue) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south-west arm (R110 Cork Street) has two approach lanes, one for straight ahead and left-turn movements and one for straight ahead movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The west arm (Marrowbone Lane) has a single approach lane for all movements and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of a single lane and on road-advisory cycle lane. This junction is shown in Image 6.35.



Image 6.35: R110 Cork Street / Marrowbone Lane / Donore Avenue Signalised Junction

R110 Cork Street / Ardee Street / R110 St Luke's Avenue four-arm signalised junction: The east arm (R110 St. Luke's Avenue) has two approach lanes, one for straight ahead and left-turn movements and one for straight ahead and right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The south arm (Ardee Street) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm (R110 Cork Street) has two approach lanes, one for straight ahead and left-turn movements and one for straight ahead and right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The north arm (Ardee Street) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane. This junction is shown in Image 6.36.

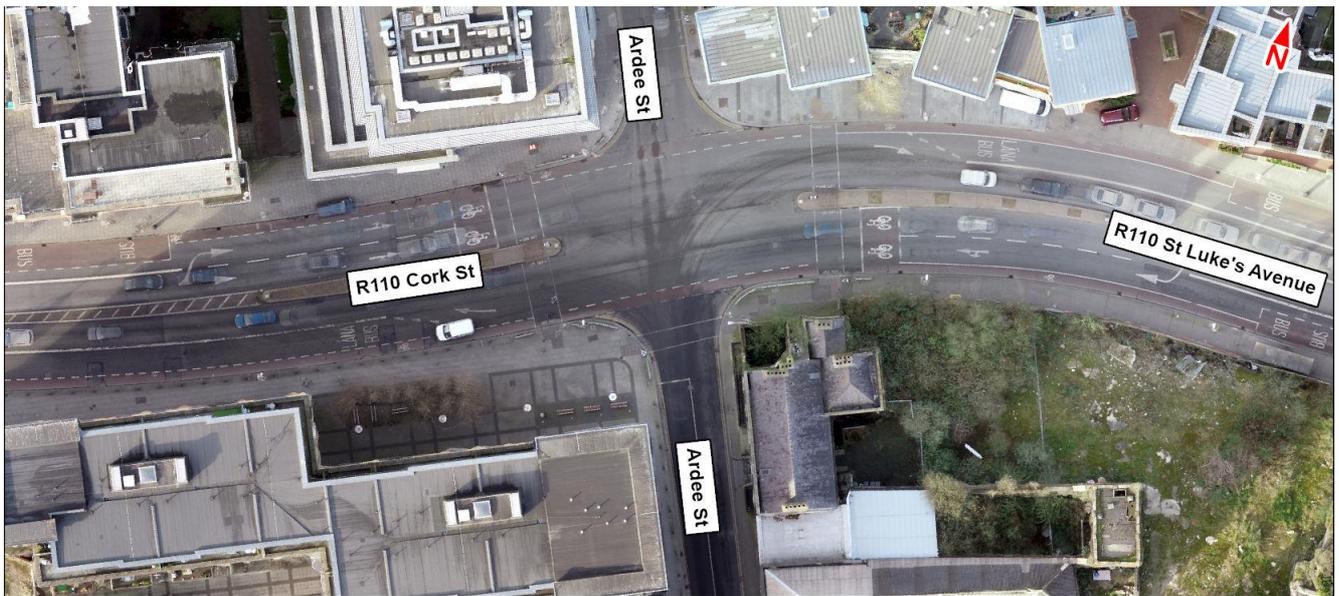


Image 6.36 R110 Cork Street / Ardee Street/ R110 St Luke's Avenue Signalised Junction

R110 St Luke's Avenue / The Coombe / Dean Street three-arm signalised junction: The east arm (Dean Street) has two approach lanes, one for straight ahead movements and one for left-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide lane and on-road cycle lane.

The south arm (R110 St. Luke's Avenue) has two approach lanes, one bus lane for right-turn movements and one traffic lane for right-turn movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane and on-road cycle lane.

The west arm (The Coombe) has a single approach lane for all movements controlled by a set of signal heads. Exit onto this arm consists of a single lane. This junction is shown in Image 6.37.

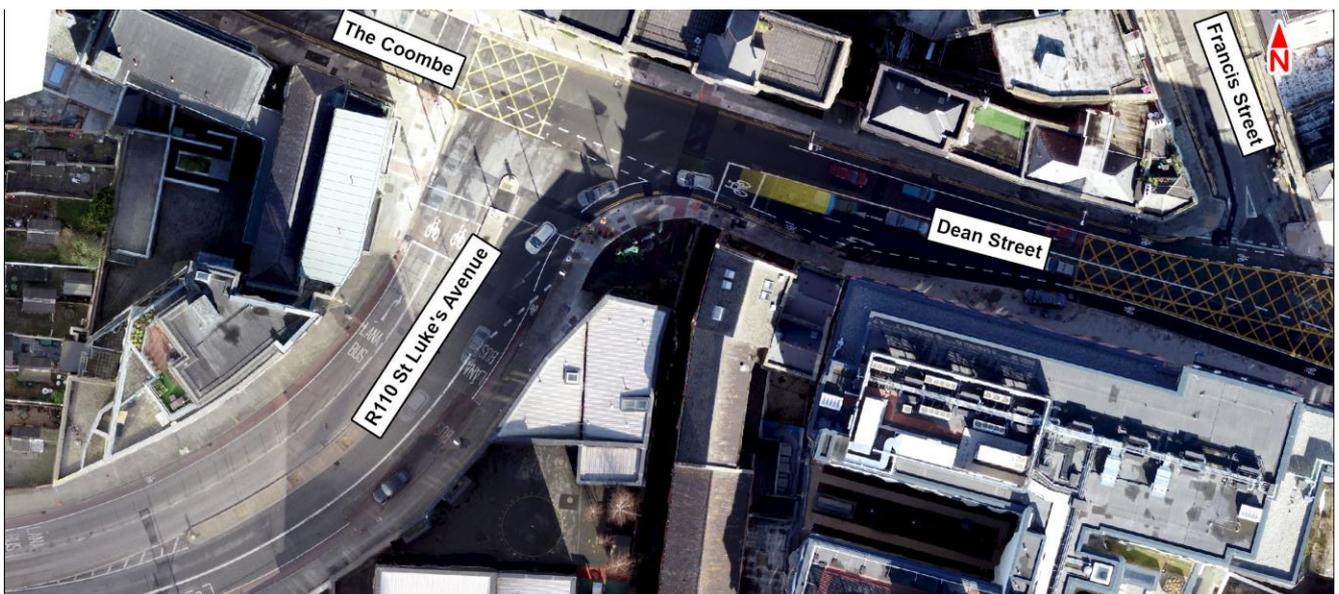


Image 6.37 R110 St Luke's Avenue / The Coombe / Dean Street Signalised Junction

R110 Dean Street / R137 New Street South / R110 Kevin Street Upper / R137 Patrick Street four-arm signalised junction: The north arm (R137 Patrick Street) has three approach lanes, one for straight ahead and left-turn movements, one for straight ahead movements and one for straight ahead and right-turn movements and

an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road advisory cycle lane.

The east arm (Kevin Street Upper) has a single approach lane for all movements and an on-road cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south arm (R137 New Street South) has three approach lanes, one for straight ahead and left-turn movements, one for straight ahead movements and one for right-turn movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road cycle lane.

The west arm (Dean Street) has two approach lanes for straight ahead movements (no right-turn permitted) and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and an on-road cycle lane. This junction is shown in Image 6.38.

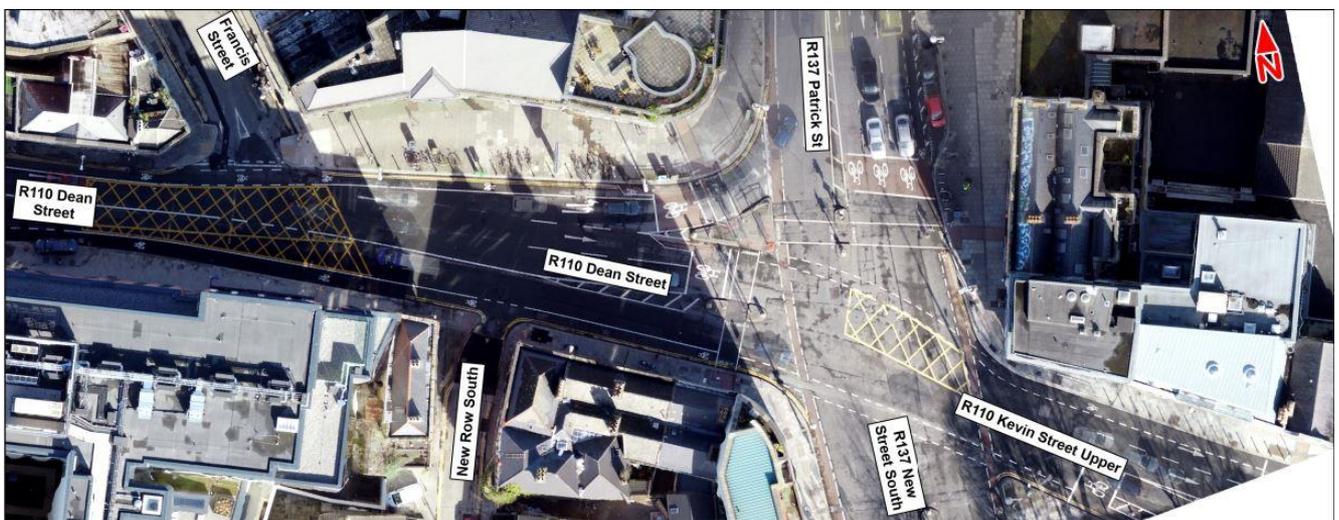


Image 6.38: Dean Street / New Street / Kevin Street Upper / Patrick Street Signalised Junction

R137 Patrick Street / Bride Road / R137 Nicholas Street three-arm signalised junction: The north arm (R137 Nicholas Street) has two approach lanes for straight ahead movements only and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road cycle lane.

The east arm (Bride Road) is one-way westbound only and has two approach lanes, one for right-turn movements, one for left-turn movements and an on-road advisory cycle lane controlled by a set of signal heads.

The south arm (R137 Patrick Street) has two approach lanes for straight ahead movements only and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road cycle lane. This junction is shown in Image 6.39.



Image 6.39: R137 Patrick Street / Bride Road / Nicholas Street Signalised Junction

R137 Nicholas Street / Christchurch Place / Winetavern Street / High Street four-arm signalised junction:
The north arm (Winetavern Street) is one-way only northbound and has a wide single lane and on-road advisory cycle lane.

The east arm (Christchurch Place) has three approach lanes, one for left-turn movements, one for straight ahead movements, one for straight ahead and right-turn movements and two on-road advisory cycle lanes with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road advisory cycle lane.

The south arm (R137 Nicholas Street) has three approach lanes, one for straight ahead movements, one for straight ahead and right-turn movements, one for right-turn movements and a left turn slip lane, there are also two on-road advisory cycle lanes with cycle advance stop lines controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road advisory cycle lane.

The west arm (High Street) has three approach lanes, one for straight ahead and left-turn movements, one for straight ahead and right-turn movements, one for right-turn movements and an on-road advisory cycle lane with cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and an on-road advisory cycle lane. This junction is shown in Image 6.40.

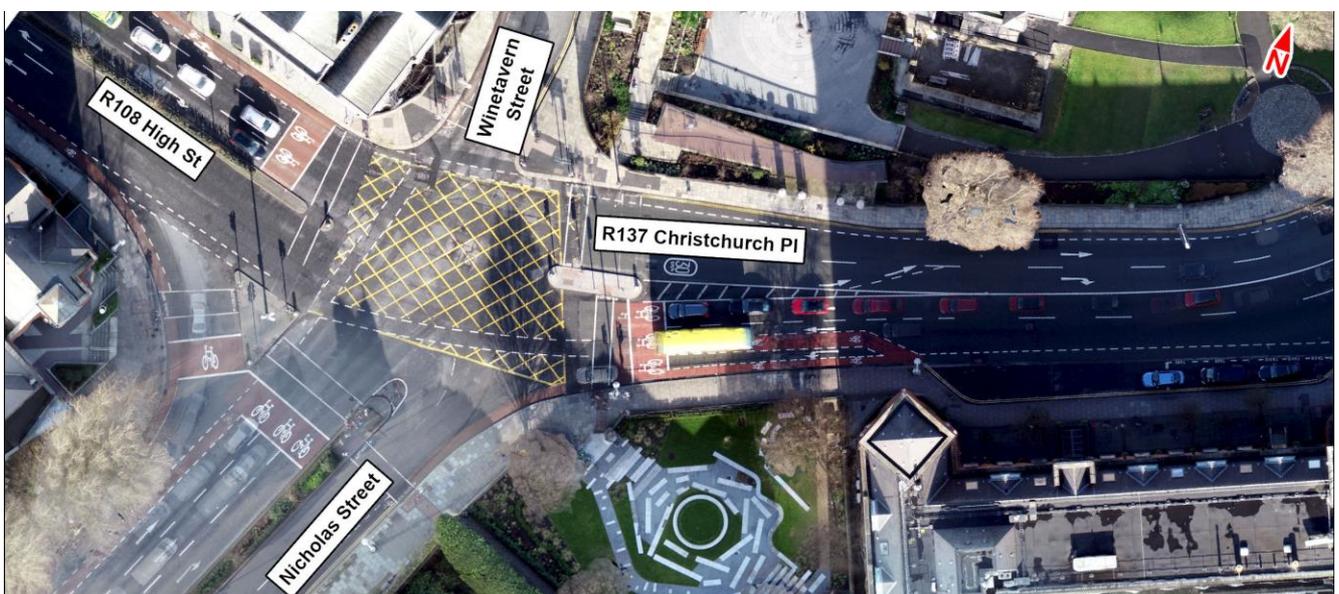


Image 6.40: R137 Nicholas Street / Christchurch Place / Winetavern Street / High Street Signalised Junction

6.3.5.5 Existing Parking / Loading

The existing conditions for parking and loading for this Section 4 of the Proposed Scheme are as follows:

- On R110 Dolphin's Barn Street and Cork Street 12 retail parking spaces, 317 adjacent parking spaces and 51 paid parking spaces (07:00 -19:00 Monday to Saturday); and
- On R137 Patrick Street and Nicholas Street 10 loading bays.

6.3.6 Section 5 – Woodford Walk (R113) / New Nangor Road (R134) to Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction

This Section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 5 of the Proposed Scheme.

This section commences on R134 New Nangor Road at the junction with Woodford Walk. Heading east along R134 New Nangor Road, the scheme progresses underneath the M50 bridge and passes through the Riverview Business Park, Western Industrial Estate, and John F Kennedy Industrial Estate, until the junction with R810 Naas Road.

6.3.6.1 Pedestrian Infrastructure

R134 New Nangor Road benefits from footways of approximately 2.0m in width, with street lighting columns situated along both sides of the carriageway. Passing through the industrial estates, areas of the footways are separated from the main carriageway by grassed areas.

There are several pedestrian crossings along R134 New Nangor Road, both signalised and uncontrolled. Pedestrian crossing facilities can be found at the following locations:

- The three-arm Woodford Walk / R134 New Nangor Road signalised junction has signalised crossings on southern and western arms. The crossings benefit from tactile paving and dropped kerbs. The crossings allow pedestrians to cross in stages with traffic islands providing pedestrian refuge at slip lanes;
- The four-arm R134 New Nangor Road / Oak Road signalised junction has signalised crossings on all four arms. The crossings benefit from tactile paving and dropped kerbs. The crossings allow pedestrians to cross in stages with traffic islands providing pedestrian refuge at slip lanes;
- The four-arm R134 New Nangor Road / Willow Road junction has crossings on the northern, eastern and southern arms. The crossings benefit from tactile paving and dropped kerbs;
- The three-arm R134 New Nangor Road / Killeen Road (north) signalised junction has signalised crossings on the R134 New Nangor Road and on Killeen Road. The crossings benefit from tactile paving and dropped kerbs. The crossings allow pedestrians to cross in stages with traffic islands providing pedestrian refuge at slip lanes;
- The three-arm R134 New Nangor Road / Killeen Road (south) signalised junction has a signalised crossing on Killeen Road. The crossing benefits from tactile paving and dropped kerbs; and
- The four-arm signalised junction at R134 New Nangor Road / R810 Naas Road / R110 Long Mile Road provides signalised crossings for the New Nangor Road arm, the Naas Road east arm and the Long Mile Road arm of the junction. These crossings comprise guard railings, dropped kerbs, tactile pavements and traffic island refuge areas.

Uncontrolled crossings at the roundabout at Nangor Business Park / Riverview Business Park benefit from dropped kerbs. The locations of the pedestrian crossings are illustrated in Figure 6.3e in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 5 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.6.2 Cycling Infrastructure

There is a link to the Grand Canal Greenway at the Woodford Walk / New Nangor Road junction but there are no cycle-specific facilities within this section. Cyclists are permitted to cycle within the bus lanes, which are present for the majority of the carriageway in this section, but there is no physical segregation from motor vehicles, and no provisions for cyclists at junctions. There is also no formal cycle parking, or designated cycle hire parking racks, along this section of the route.

6.3.6.3 Bus Infrastructure

6.3.6.3.1 Bus Priority Measures

Bus lanes along Section 5 are present at the following locations:

- A continuous eastbound bus lane on R134 New Nangor Road, which runs from the start of the Proposed Scheme (to the west of Woodford Walk) to R110 Naas Road. This bus lane does not run continuously through the main junctions on the route, but typically terminates 60-80m short of these junctions, and restarts 50m downstream of the junctions. The exception is at the R134 New Nangor Road / Woodford Walk signalised junction, where a bypass lane is provided.
- A continuous westbound bus lane on R134 New Nangor Road, which runs from R110 Naas Road to the end of the Proposed Scheme (to the west of Woodford Walk) to. As per the eastbound direction, this bus lane does not run continuously through the main junctions on the route, but typically terminates 60-80m short of these junctions and restarts 50m downstream of the junctions. The exception is at the R134 New Nangor Road / Killeen Road signalised junction, where a bypass lane is provided.
- Due to width restrictions, there is no bus lane in either direction for a 200m section where New Nangor Road passes underneath the M50.

6.3.6.3.2 Bus Stop Facilities

There are currently nine bus stops along Section 5 of the Proposed Scheme. The inbound stops are as follows:

- Stop 6152 on R134 New Nangor Road, to the west of Woodford Walk;
- Stop 6153 on R134 New Nangor Road, 70m west of the Business Park roundabout;
- Stop 6243 on R134 New Nangor Road, 130m west of Willow Road;
- Stop 6154 on R134 New Nangor Road, 90m west of L1014 Killeen Road; and
- Stop 6155 on R134 New Nangor Road, 220m north-west of R810 Naas Road.

The outbound stops are:

- Stop 6145 on R134 New Nangor Road, 220m north-west of R810 Naas Road;
- Stop 6146 on R134 New Nangor Road, 90m west of L1014 Killeen Road;
- Stop 6147 on R134 New Nangor Road, 130m west of Willow Road; and
- Stop 6149 on R134 New Nangor Road, 70m west of the Riverview Business Park roundabout.

All bus stops are situated inline with bus lanes and are without facilities, they are identified with a bus stop pole.

The existing bus facilities along Section 5 of the Proposed Scheme are illustrated in Figure 6.5e in Volume 3 of this EIAR. The bus services which operate along Section 5 are outlined in Table 6.14.

Table 6.14: Section 5 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
68x	Greenogue Business Park - Peamount - New Nangor Rd. - Naas Rd.- Robinhood Industrial Estate - Oblates Church - James St. (St. James's Hospital) - Thomas St. / Bridgefoot St.- Lord Edward St. / Fishamble St.- Dame St. / Central Bank - Hawkins St	Once a day (07:30)	No service
151	Foxborough - Parkwest - Drimnagh Rd. - Dolphin's Barn - Dame Street / Ormond Quay - Docklands (East Road)	Peak: 15 minutes / Off-peak 20-30 minutes	20-30 minutes
860	Park West Avenue - Kylemore Road - Sarsfield Quay - Arran Quay - Ormond Quay Upper - Parliament Street - Dame Street - 14-18 Aston Quay	20-30 minutes	No service

6.3.6.4 General Traffic

R134 New Nangor Road is a two-way single carriageway, with vehicles travelling in an east-west direction. Generally, there is one lane in each direction for general traffic, with a separate bus lane operating in each direction. On the approach to larger junctions, such as Oak Road and Willow Road, one side of the carriageway splits into two or three lanes to provide additional capacity. The carriageway has a broadly straight alignment, save for the slight curve on the approach to R110 Naas Road.

This section of the Proposed Scheme is subject to a 60km/h speed limit, and has one bridge above the carriageway, which carries traffic along the M50. The carriageway is bounded by a footway for pedestrians, with pedestrians occasionally afforded greater segregation through the presence of grass verges.

The major junctions along this section of R134 New Nangor Road are:

- R134 New Nangor Road / Woodford Walk three-arm signalised junction;
- R134 New Nangor Road / Nangor Road Business Park four-arm roundabout;
- R134 New Nangor Road / Oak Road four-arm signalised junction;
- R134 New Nangor Road / Willow Road four-arm signalised junction;
- R134 New Nangor Road / Killeen Road (north) signalised junction;
- R134 New Nangor Road / Killeen Road (south) signalised junction; and
- R134 New Nangor Road / R110 Naas Road / R110 Long Mile Road four-arm signalised junction.

The characteristics of each major junction is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

R134 New Nangor Road / Woodford Walk three-arm signalised junction: The east arm (R134 new Nangor Road) has two straight ahead approach lanes, one for bus only, one for general traffic and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of one general traffic lane and one bus lane.

The south arm (Woodford Walk) has one right-turn approach lane and one left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The west arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements, one for right-turn movements onto Woodford Walk controlled by a set of signal heads and an island segregated bus lane for straight ahead movements. Exit onto this arm consists of a single wide merge lane. This junction is shown in Image 6.41.



Image 6.41: R134 New Nangor Road / Woodford Walk Signalised Junction

R134 New Nangor Road / Nangor Road Business Park four-arm priority roundabout: The north arm (Nangor Road Business Park) has two yield approach lanes. Exit onto this arm consists of a single lane. The east arm (R134 New Nangor Road) has two yield approach lanes, one for left-turn movements and one for straight ahead and right-turn movements. Exit onto this arm consists of a single wide merge lane. The south arm (Riverview Business Park) has a single wide approach lane for all movements. Exit onto this arm consists of a single lane. The west arm (R134 New Nangor Road) has two yield approach lanes, one for left-turn movements and one for straight ahead and right-turn movements. Exit onto this arm consists of a single wide merge lane. This junction is shown in Image 6.42.



Image 6.42: R134 New Nangor Road – Nangor Road Business Park Priority Roundabout

R134 New Nangor Road / Oak Road four-arm signalised junction: The north arm (Park West Avenue) has two approach lanes, one for straight ahead movements, one for right-turn movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The east arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements, one for right-turn movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The south arm (Oak Road) has two approach lanes, one for straight ahead movements, one for right-turn movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements, one for right-turn movements and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane. This junction is shown in Image 6.43.

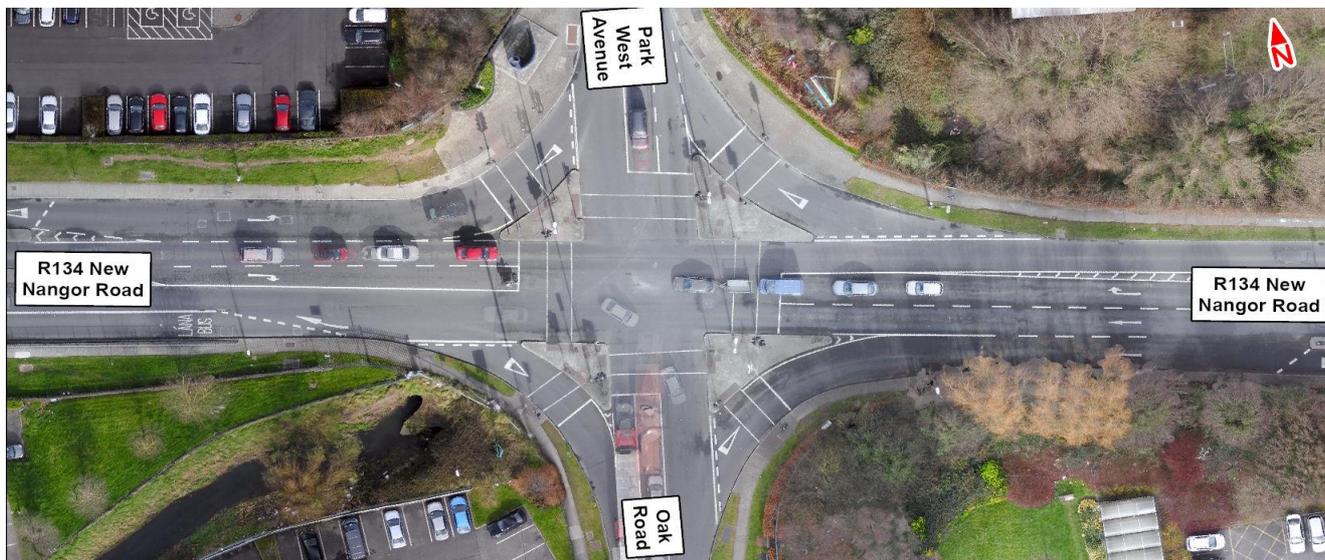


Image 6.43: R134 New Nangor Road / Oak Road Signalised Junction

R134 New Nangor Road / Willow Road four-arm signalised junction: The north arm (Diageo Baileys) has a single approach lane managed by camera-controlled signalling and is restricted for HGV access only. Exit onto this arm consists of a single lane.

The east arm (R134 New Nangor Road) has two approach lanes, one for straight ahead and left-turn movements, one for straight ahead and right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane.

The south arm (Willow Road) has two approach lanes, one for straight ahead and left-turn movements, one for right-turn movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements and one for right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single wide merge lane. This junction is shown in Image 6.44.



Image 6.44: R134 New Nangor Road / Willow Road Signalised Junction

R134 New Nangor Road / Killeen Road (north) three-arm signalised junctions: The north arm (Killeen Road) has a single approach lane and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The east arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements, one for right-turn movements onto Killeen Road controlled by a set of signal heads and a straight ahead bus lane segregated by a traffic island. Exit onto this arm consists of two lanes.

The west arm (R134 New Nangor Road) has two approach lanes for straight ahead movements and a left-turn slip lane onto Killeen Road controlled by a set of signal heads. Exit onto this arm consists of a single wide lane and a bus lane. This junction is shown in Image 6.45.



Image 6.45: R134 New Nangor Road / Killeen Road (north) signalised Junction

R134 New Nangor Road / Killeen Road (south) signalised junction: The east arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements, one for left-turn movements (except buses) onto Killeen Road controlled by a set of signal heads and straight-ahead bus lane segregated by a traffic island. Exit onto this arm consists of a single wide merge lane.

The south arm (Killeen Road) has two approach lanes, one for left-turn movements and one for right-turn (time restricted Mon – Fri) movements controlled by a set of signal heads. Exit onto this arm consists of a single lane.

The west arm (R134 New Nangor Road) has two approach lanes, one for straight ahead movements and one for right-turn movements onto Killeen Road controlled by a set of signal heads. Exit onto this arm consists of two traffic lanes and a bus lane. This junction is shown in Image 6.46.

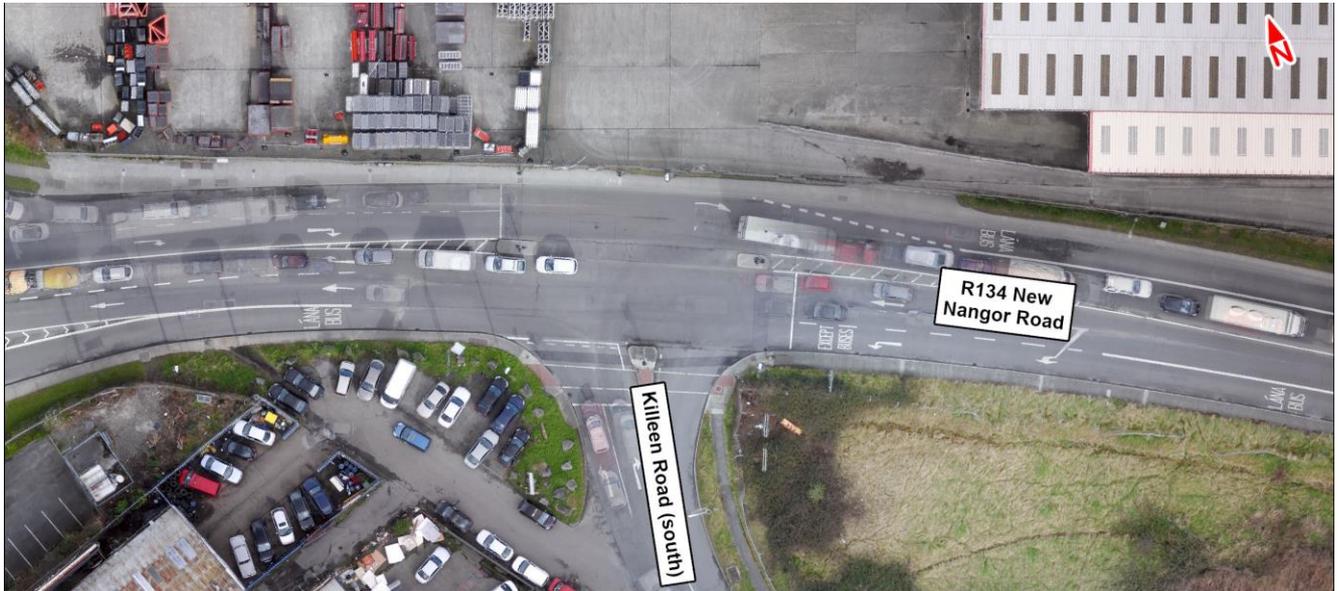


Image 6.46: R134 New Nangor Road / Killeen Road (south) Signalised Junctions

R110 Naas Road / R134 New Nangor Road / R110 Long Mile Road four-arm signalised junction: The north-west arm (R134 New Nangor Road) has three approach lanes expanding to four lanes (two for straight ahead movements towards the R110 Long Mile Road, two for right-turn movements towards the N7 / M50) and a left turn slip lane towards the R810 Naas Road controlled by a set of signal heads. Exit onto this arm consists of two lanes and a merge lane.

The east arm (R810 Naas Road dual carriageway) has three straight ahead approach lanes and two slip lanes (one for right-turn movements towards R134 New Nangor Road, one for left turn movements towards R110 Long Mile Road) and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of three lanes and a merge slip lane. The LUAS light rail is within the central median.

The south-east arm (R110 Long Mile Road) has three lanes (two for straight ahead towards the R134 New Nangor Road, one for straight ahead / left-turn towards N7 / M50) and a left-turn slip lane towards N7 / M50 controlled by a set of signal heads. Exit onto this arm consists of two lanes.

The west arm (R810 Naas Road dual carriageway) has three straight ahead approach lanes and two slip lanes (one for movements towards R134 New Nangor Road / R110 Long Mile Road, one for movements towards R110 Long Mile Road) and an on-road advisory cycle lane controlled by a set of signal heads. Exit onto this arm consists of three lanes and a merge slip lane. The LUAS light rail is within the central median. This junction is shown in Image 6.47.

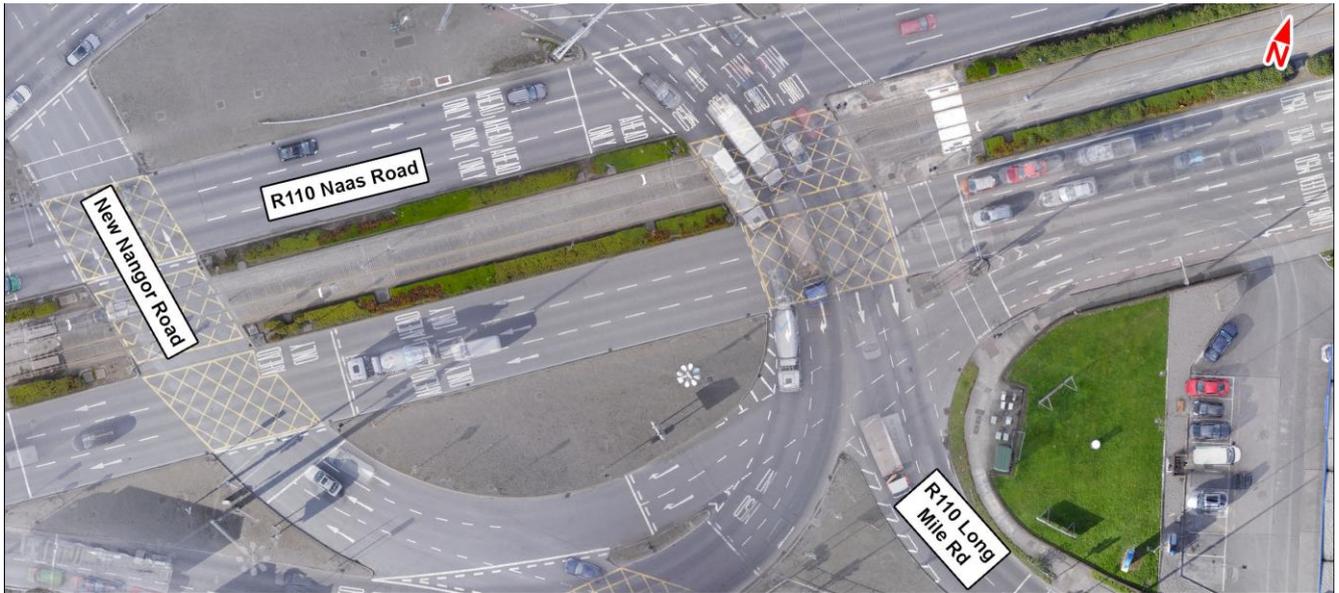


Image 6.47: R110 Naas Road / R134 New Nangor Road / R110 Long Mile Road Signalised Junction

6.3.6.5 Existing Parking / Loading

There are currently no on-street parking spaces or loading bays along R134 New Nangor Road, between Woodford Walk and R110 Naas Road. The road is subject to “no waiting at any time” restrictions, preventing parking along its whole length.

Any parking, loading or servicing associated with the existing businesses along this section of road is undertaken within the side roads or designated areas on private premises. Two of the largest of these private car parking areas are:

- Between M50 overbridge and Park West Avenue, 458 adjacent parking spaces;
- Between Park West Avenue and Willow Road, 454 and 10 HGV adjacent parking spaces; and
- Between Willow Road and New Nangor Road / Naas Road junction, 1,688 and 167 HGV adjacent parking spaces, 7 informal parking spaces, 90 commercial spaces.

6.3.7 Section 6 – Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 6 of the Proposed Scheme, between Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh.

Section 6 routes east along R810 Naas Road which runs along the south-eastern edge of John F Kennedy Industrial Estate as far as R112 Walkinstown Avenue. From the junction with R112 Walkinstown Avenue, the scheme is routed southbound until the junction with R110 Long Mile Road. This section of the Proposed Scheme continues along R110 Long Mile Road for approximately 0.85km, before merging with Tallaght to City Centre section at the junction of Walkinstown Road and Drimnagh Road.

6.3.7.1 Pedestrian Infrastructure

Footways and public lighting are provided on both sides of the carriageway on R110 Naas Road and R112 Walkinstown Avenue. In relation to its surrounding land use, the walking facilities along this section are considered to be adequate.

The footway provision generally provides adequate space for much of the length of the section, with footway widths being approximately 2.0m, with dropped kerbs and tactile paving in place, in addition to guardrails at the major junction with R134 New Nangor Road at the beginning of the section. There are some pinch points along

the southern footway on R110 Naas Road near the junction with Robinhood Road; not just due to a narrower footway (1.5m), but also due to obstructions from street furniture such as lighting.

Signalised pedestrian crossing facilities on R110 Naas Road can be found at the following locations:

- A staggered pelican crossing located on R110 Naas Road, 25m west of the junction with Robinhood Road on the westbound carriageway and 30m west of the Old Naas Road junction on the eastbound carriageway. This crossing also incorporates guard railings, dropped kerbs, tactile paving and a traffic island refuge at the carriageway median where the LUAS light rail is located;
- The four-arm signalised junction at Naas Road / Kylemore Road / Walkinstown Avenue, there are two staggered, signalised crossings, on the west and north arms of the junction. At the western arm, the crossing provides access to the Kylemore LUAS stop which runs through the central median of the two carriageways;
- At the junction of R112 Walkinstown Avenue and R110 Long Mile Road, there are three signalised crossings, at the west, north and south arms of the junction. At the western arm, the crossing has a traffic island refuge area at the centre of the carriageway;
- Near Drimnagh Castle Secondary School, there is a staggered, signalised Pelican crossing with a traffic island refuge area at the centre of the carriageway; and
- Near Drimnagh Castle Primary School, there is a non-signalised crossing with a traffic island refuge area at the centre of the carriageway.

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The location of pedestrian crossings is illustrated in Figure 6.3f in Volume 3 of this EIAR.

Further details of the baseline pedestrian facilities (i.e. routing, directness, accessibility, crossing and footway widths) at each junction along Section 6 of the Proposed Scheme is included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.7.2 Cycling Infrastructure

The cycle facilities along R810 Naas Road comprise of on-road and off-road cycle tracks on both sides of the carriageway, apart from short sections where there are bus lanes or restricted road widths. There are no cycle facilities along R112 Walkinstown Avenue in this section.

Travelling eastbound along R810 Naas Road, there is a one-way cycle track immediately adjacent to the carriageway, which begins at the junction with R134 New Nangor Road. This continues for approximately two-thirds of this section of R110 Naas Road with a section of full segregation at the bus stop bypass at the John F Kennedy Drive stop, cyclists are required to join the main carriageway, sharing a bus lane between the junctions of John F Kennedy Drive / Old Naas Road and Kylemore Road / Walkinstown Avenue.

Travelling westbound along R810 Naas Road, there is a one-way on-road cycle lane throughout the length of the road delineated by road markings and partially with coloured tarmac. However, the cycle lane is subject to potential illegal parking adjacent to Naas Road Autos at the junction with Robinhood Road. This would result in cyclists having to merge onto the main carriageway.

There are few cycle-specific facilities at the signalised junctions within this section. There are advanced stacking locations for cyclists along R112 Walkinstown Avenue at the junctions with R810 Naas Road and R110 Long Mile Road.

On R110 Long Mile Road, there is a one-way cycle lane on both sides of the carriageway which runs continuously from the junction with R110 Long Mile Road / R112 Walkinstown Avenue to the junction with R110 Long Mile Road / Slievebloom Park. The lanes are approximately 1.8m in width, and are on-road, delineated by road markings and coloured tarmac.

There are a number of locations, in both directions, where vehicles are required to cross cycle lanes if turning left at junctions, such as at the Walkinstown Avenue / Long Mile Road junction. There is also a potential point of conflict at the Slievebloom Park bus stop and the Bluebell (Dublin City) Drimnagh Castle School stop, where buses are required to cross the cycle lanes.

There is no formal cycle parking, or designated cycle hire parking racks, along Section 6 of the Proposed Scheme.

The existing cycle facilities along Section 6 of the Proposed Scheme is illustrated in Figure 6.4f in Volume 3 of this EIAR.

Further details of the baseline cycling facilities (i.e. level of segregation from vehicles, capacity for cycling two abreast and / or overtaking, and junction treatment) along the length of Section 6 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.7.3 Bus Infrastructure

6.3.7.3.1 Bus Priority Measures

Bus lanes along Section 6 are present at the following locations:

- A north-eastbound bus lane on R810 Naas Road which commences approximately 180m to the north-east of R134 New Nangor Road and runs for approximately 500m to the Walkinstown Avenue junction. This bus lane is not continuous, as it terminates early at the approaches to both the John F Kennedy Drive and Walkinstown Avenue junctions.
- A south-westbound bus lane on R810 Naas Road which commences approximately 80m to the south-west of the Robinhood Road junction and runs for 250m before terminating 170m to the north-east of Long Mile Road.

6.3.7.4 Bus Facilities

6.3.7.4.1 Bus Stop Facilities

There are currently 13 bus stops along Section 6 of the Proposed Scheme. The inbound stops are as follows:

- Stop 1980 on R810 Naas Road, 220m north-east of R134 New Nangor Road;
- Stop 1981 on R810 Naas Road, 130m south-west of R112 Walkinstown Avenue;
- Stop 2787 on Walkinstown Avenue, 150m north of R110 Long Mile Road;
- Stops 2181 on R110 Long Mile Road, 110m east of R112 Walkinstown Avenue;
- Stop 2182 on R110 Long Mile Road, 15m west of Walkinstown Parade; and
- Stop 2778 on R110 Long Mile Road, 130m west of Slievebloom Park.

The outbound stops are:

- Stop 2726 on R110 Long Mile Road, 20m west of Slievebloom Park;
- Stop 2727 on R110 Long Mile Road, 120m east of Walkinstown Parade;
- Stop 2105 on R110 Long Mile Road, 180m west of Walkinstown Parade;
- Stop 2780 on R112 Walkinstown Avenue, 120m south of R810 Naas Road;
- Stop 1956 on R810 Naas Road, at Kylemore Luas Stop;
- Stop 1957 on R810 Naas Road, 90m west of Robinhood Road; and
- Stop 1958 on R810 Naas Road, 170m east of Long Mile Road.

Of the 13 bus stops along Section 6 of the Proposed Scheme, two are indented whilst all other stops are inline along the carriageway.

All bus stops provide timetables, with the majority providing seating, shelter and accessible kerbs. The content of Table 6.15 outlines the availability of bus stop facilities at the existing 13 bus stops along Section 6 of the Proposed Scheme.

Table 6.15: Section 6 – Availability of Bus Stop Facilities (of a Total 13 no. Bus Stops)

Bus Stop Facility	Number of bus stops in baseline with Facility	Percentage of Bus Stops in baseline with Facility
RTPI	0	0%
Timetable information	13	100%
Shelter	12	92%
Seating	12	92%
Accessible Kerbs	11	85%
Indented Drop Off Area	2	15%

The existing bus facilities along Section 6 of the Proposed Scheme are illustrated in Figure 6.5f in Volume 3 of this EIAR. The bus services which operate along Section 6 are outlined in Table 6.16.

Table 6.16: Section 6 – Bus Service Frequency

Service Route	Route	Typical Service Frequency	
		Weekday	Weekend
13	Grange Castle - Clondalkin Village - Naas Rd. (John Sisk and Sons) - Tyrconnell Rd. (Blacklion) - St. James's Hospital - O'Connell St. - Drumcondra Rail Station - Main St. Ballymun - Harristown	10-15 minutes	15-20 minutes
18	Newgrove Avenue - Burlington Road - Sundrive Road - Kylemore Road - Hollyville Lawn	15-20 minutes	20-30 minutes
68	Hawkins St. - Camden Street - Bulfin Road - Clondalkin Village - Cherrywood Villas - Newcastle / Greenogue Business Park	60 minutes	60-75 minutes
69	Rathcoole - Green Isle Hotel - Clondalkin Village - Naas Rd. (John Sisk and Sons) - Tyrconnell Road - Parkgate Street - Hawkins Street.	60 minutes	60-75 minutes
69x	Rathcoole - Hawkins St.	Once a day each direction (07:30 / 17:45)	No service
126 / 126a / 126d	Rathangan - Kildare - Newbridge - Naas - Dublin	30 minutes	30 minutes
130	Castle Ave. - Mount Prospect Ave. - Vernon Ave. - Fairview - Lower. Abbey Street	10 minutes	15 – 20 minutes
860	Temple bar, Central Bank – Parkwest, Park West Hotel	30 minutes	n/a
27	Jobstown - Tallaght (The Square) - Walkinstown Cross (The Kestrel) - Dolphin's Barn Cross - Eden Quay - Fairview - Artane Roundabout - Clare Hall	10 minutes	10-15 minutes
56a	Tallaght (The Square) - Cookstown Rd. - Walkinstown Cross - Dolphin's Barn - Ringsend Road.	75 minutes	75 minutes
151	Foxborough - Parkwest - Drimnagh Rd. - Dolphin's Barn - Dame St. / Ormond Quay - Docklands (East Road.)	Peak: 15 minutes / Off-peak 20-30 minutes	20-30 minutes

6.3.7.5 General Traffic

R810 Naas Road is a dual carriageway traveling east to west, which is subject to a speed limit of 60km/h. The Luas line runs along the centre of R810 Naas Road between the two carriageways. Each of the two carriageways is typically 11.0m in width, but in places the carriageway widens to approximately 17.0m in width (for instance, travelling westbound at the junction with R134 New Nangor Road).

Travelling eastbound along R810 Naas Road, there are three lanes predominantly, with two of these lanes designated for general traffic, with one for bus priority. Travelling westbound, the carriageway is slightly narrower between the junction with Kylemore Road / Walkinstown Avenue and Robinhood Road, at just two lanes for

general traffic. However, after passing Robinhood Road, the road mirrors the eastbound carriageway for the most part, with three lanes (two for general traffic and one bus lane).

R112 Walkinstown Avenue is a two-way single carriageway which travels in a relatively straight alignment north - south and varies in width between 11.0m – 13.0m. The road is generally to a speed limit of 60 km/h, although the speed limit is decreased to 50 km/h on the approach to R110 Long Mile Road.

The southbound arrangement consists of a single carriageway between R810 Naas Road and the access point with Agnelli House. Following this access point, vehicles begin to diverge into two lanes, until the junction with R110 Long Mile Road is reached, which has three lanes. Travelling northbound, the road layout is largely the same, with a wide single lane from the junction with R110 Long Mile Road until approximately 80m ahead of the R810 Naas Road junction where this side of the carriageway splits into two lanes. Despite two bus stops on this road, there are no dedicated bus lanes.

R110 Long Mile Road comprises of a two-way carriageway with a 60km/h speed limit, until the junction with R110 Drimnagh Road, where the speed limit reduces to 50km/h. Each carriageway is approximately 8m in width with some sections increasing to 17m wide at the junction of R110 Long Mile Road / R112 Walkinstown Avenue. There are many access points along the road to various shops and businesses operating along R110 Long Mile Road.

For much of its length, the carriageway consists of a cycle lane, a dedicated bus lane, and one lane for general traffic. The exceptions to this are on the approach to the signalised junctions with other roads.

The existing major junction arrangements along Section 6 of the Proposed Scheme are as follows:

- R110 Naas Road / Kylemore Road / R112 Walkinstown Avenue four-arm signalised junction; and
- R112 Walkinstown Avenue / R110 Long Mile Road four-arm signalised junction.

The characteristics of each major junction is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of this EIAR.

R810 Naas Road / R112 Kylemore Road / R112 Walkinstown Avenue four-arm signalised Junction: The north arm (R112 Kylemore Road) has two straight ahead approach lanes and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The east arm (R810 Naas Road) has four approach lanes, one for left-turn movements, two for straight ahead movements and one for right-turn movements controlled by a set of signal heads. Exit onto this arm consists of a single traffic lane and a bus lane. The LUAS light rail is within the central median.

The south arm (R112 Walkinstown Avenue) has two approach lanes, one for straight ahead and left-turn movements, one for straight ahead and right-turn movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The west arm (R810 Naas Road) has three approach lanes, one straight ahead bus lane, one straight ahead traffic lane, one right-turn lane and a left-turn slip lane controlled by a set of signal heads. Exit onto this arm consists of two lanes. The LUAS light rail is within the central median. This junction is shown in Image 6.48.



Image 6.48: R110 Naas Road / Kylemore Road / R112 Walkinstown Avenue Signalised Junction

R112 Walkinstown Avenue / R110 Long Mile Road four-arm signalised junction: The north arm (R112 Walkinstown Avenue) has three approach lanes, one slip lane for left-turn movements, one for straight ahead movements, one for right-turn movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a wide lane.

The east arm (R110 Long Mile Road) has four approach lanes, one for general traffic left turn movements, one bus lane, one for general traffic straight ahead movements, one for general traffic right-turn movements, an on-road advisory cycle lane and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two lanes, one straight ahead lane and one merge lane.

The south arm (R112 Walkinstown Avenue) has two approach lanes, one for left-turn and straight ahead movements, one for right-turn and straight ahead movements and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of a single wide lane.

The east arm (R110 Long Mile Road) has four approach lanes, one for general traffic left turn movements, one bus lane, one for general traffic straight ahead movements, one for general traffic right-turn movements, an on-road advisory cycle lane and a cycle advance stop line controlled by a set of signal heads. Exit onto this arm consists of two lanes, one straight ahead lane and one bus lane. This junction is shown in Image 6.49.

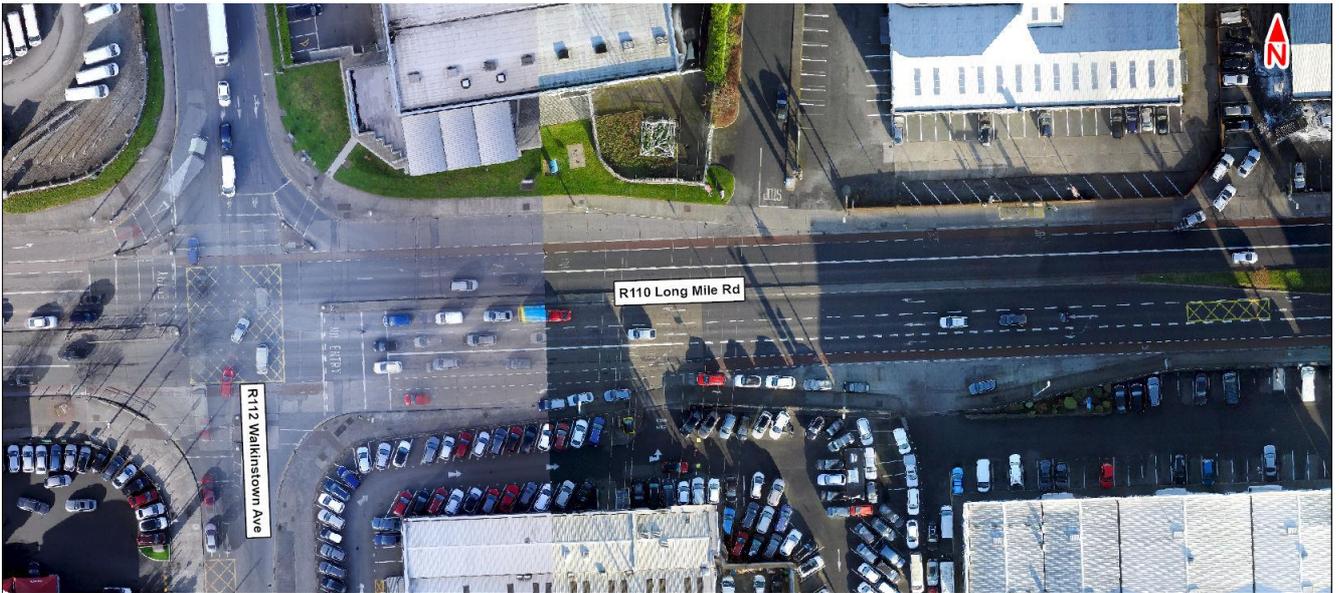


Image 6.49: R112 Walkinstown Avenue / R110 Long Mile Road Signalised Junction

6.3.7.6 Existing Parking and Loading

The existing conditions for parking and loading for this Section 6 of the Proposed Scheme are as follows:

- On R810 Naas Road, 280 commercial spaces (car sales) and 115 adjacent parking spaces;
- On R112 Walkinstown Avenue, approximately 1000 spaces (Southwest Gate development); and
- On R110 Long Mile Road, 250 + 94 HGV commercial spaces (car sales), 22 informal spaces and 509 adjacent spaces.

Illegal parking has been observed in several locations on Long Mile Road, including on the westbound carriageway at the corner of the Long Mile Road / Walkinstown Avenue junction, and on both sides of the road in the vicinity of the Drimnagh Castle Secondary and Primary Schools.

6.4 Potential Impacts

6.4.1 Characteristics of the Proposed Scheme

The characteristics of the Proposed Scheme are described in detail in Chapter 4 (Proposed Scheme Description) of this EIAR.

6.4.2 'Do Nothing' Scenario

With regards to this Traffic and Transport chapter, the 'Do Nothing' scenario means there would be no changes to existing transport infrastructure, so infrastructure provision for buses, pedestrians and cyclists would remain the same. The streetscape would continue to be based around the movement and parking requirements of private cars instead of people. High levels of traffic are associated with discouraging pedestrian and cyclist activity and this activity would be further discouraged as traffic congestion remains the same or increases. The baseline situation of congestion and journey time reliability issues for buses would also continue, and potentially be exacerbated over time as traffic congestion increases in line with travel demand growth.

6.4.3 'Do Minimum' Scenario

The 'Do Minimum' scenario represents the likely traffic and transport conditions of the direct and indirect study areas **without** the Proposed Scheme in place. This scenario forms the reference case by which to compare the Proposed Scheme ('Do Something'). The opening year for the Proposed Scheme is assumed to be 2028, with a design assessment year (opening + 15 years) assumed to be 2043.

For the qualitative analysis, the assessment is in relation to the conditions of the existing transport network, which have been outlined in Section 6.3 (Baseline Environment) corresponding with a Do Nothing scenario. As a result of the COVID-19 pandemic a number of temporary transport mobility measures have been implemented. Due to their temporary status, the measures are not considered a permanent long-term feature of the receiving environment and as such have not been considered in the impact assessments.

For the quantitative analysis (i.e. the transport modelling elements of the impact assessment), the Do Minimum scenario is based on the 'likely' conditions of the transport network and includes for any known permanent improvements or changes to the road or public transport network that have taken place, been approved or are planned for implementation. The transport schemes and demand assumptions within the Do Minimum scenario are detailed below.

6.4.3.1 Do Minimum Transport Schemes

The core reference case (Do Minimum) modelling scenarios (Opening year - 2028 and Design year - 2043) are based on the progressive roll-out of the Greater Dublin Area (GDA) Transport Strategy 2022-2042 (GDA Strategy), with a partial implementation by 2028, in line with National Development Plan (NDP) investment priorities and the full implementation by 2043.

The GDA Strategy provides an appropriate transport receiving environment for the assessment of the Proposed Scheme for the following reasons:

- The GDA Strategy is the approved statutory transportation plan for the region, providing a framework for investment in transport within the region up to 2042;
- The GDA Strategy provides a consistent basis for the 'likely' future receiving environment that is consistent with Government plans and Policies National Planning Framework (NPF) and National Development Plan (NDP); and
- Schemes within the GDA Strategy are a means to deliver the set of objectives of the GDA Strategy. The sequencing and delivery of the strategy is defined by the implementation plan, but the optimal outcome of aiming to accommodate all future growth in travel demand on sustainable modes underpins the Strategy.

The Do Minimum scenarios (in both 2028 and 2043) include all other elements of the BusConnects Programme of projects (apart from the CBC Infrastructure Works elements) i.e. the new BusConnects routes and services (as part of the revised Dublin Area bus network), new bus fleet, the Next Generation Ticketing and integrated fare structure proposals are included in the Do Minimum scenarios.

In 2028, other notable Do Minimum transport schemes include; the roll out of the DART+ Programme, Luas Green Line capacity enhancement and the Greater Dublin Area Cycle Network Plan implementation (excluding BusConnects CBC elements). As outlined above, the 2043 Do Minimum scenario assumes the full implementation of the GDA Strategy schemes, so therefore assumes that proposed major transport schemes such as MetroLink, Luas line extensions to Lucan, Finglas, Poolbeg and Bray are all fully operational

Appendix A6.2 (Transport Modelling Report) in Volume 4 of this EIAR contains further information on the modelling assumptions contained within the Do Minimum scenario including the full list of transport schemes included.

6.4.3.2 Do Minimum Transport Demand

The transport demand changes for the 2028 and 2043 assessment years have been included in the analysis contained within this chapter, using travel demand forecasting, which accounts for increases in population and economic activity, in line with planned growth contained within the NPF, Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland region and the local development plans for the GDA local authorities.

It is envisaged that the population will grow by 11% up to 2028 and 25% by 2043 (above 2016 census data levels). Similarly, employment growth is due to increase by 22% by 2028 and 49% by 2043 (Source: NTA Reference Case Planning Sheets 2028, 2043). The assessment also assumes that goods vehicles (HGVs and LGVs) continue to grow in line with forecasted economic activity with patterns of travel remaining the same. For example, the assessment assumes a 45% and 77% increase in goods traffic versus the base year in 2028 and 2043, respectively.

The GDA Strategy (along with existing supply side capacity constraints e.g., parking availability, road capacity etc.) has the effect of limiting the growth in car demand on the road network into the future. Total trip demand will increase into the future in line with demographic growth (population and employment levels etc.). To limit the growth in car traffic and to ensure that this demand growth is catered for predominantly by sustainable modes, a number of measures will be required, that include improved sustainable infrastructure and priority measures delivered as part of the NDP/GDA Strategy. In addition to this, demand management measures will play a role in limiting the growth in transport demand, predominantly to sustainable modes only. The result will be only limited or no increases in overall demand for travel by private car. The Proposed Scheme will play a key role in this as part of the wider package of GDA Strategy measures.

In general, total trip demand (combining all transport modes) will increase into the future in line with population and employment growth. A greater share of the demand will be by sustainable modes (Public Transport (PT), Walking, Cycling). Private car demand may still grow in some areas but not linearly in line with demographics, as may have occurred in the past.

6.4.4 'Do Something' Scenario

The Do Something scenario represents the likely conditions of the direct and indirect study areas with the Proposed Scheme in place. The traffic and transport elements of the Proposed Scheme are presented in detail in Chapter 4 (Proposed Scheme Description)

6.4.5 Construction Phase

This section considers the potential temporary traffic and transport impacts that construction of the Proposed Scheme will have on the direct and indirect study areas during the construction phase.

Chapter 5 (Construction) has been prepared to demonstrate the likely approach that will be taken to construct the Proposed Scheme, while it also provides an overview of the construction activities necessary to undertake the

works, including information on a proposed Construction Compound, construction plant and equipment. This assessment, as outlined herein, provides an overview of the potential traffic and transport impacts of the Construction Phase based on the information set out in Chapter 5 (Construction).

A Construction Environmental Management Plan (CEMP) has been prepared and is included as Appendix A5.1 in Volume 4 of this EIAR. The CEMP which will be updated and finalised by the appointed contractor prior to construction commencing. The CEMP comprises the construction mitigation measures, which are set out in this EIAR, and will be updated with any additional measures which may be required by the conditions attached to An Bord Pleanála's decision. Implementation of the CEMP will ensure disruption and nuisance are kept to a minimum during the Construction Phase. The CEMP has regard to the guidance contained in the 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 (CIRIA 2015).

All of the content provided in the CEMP will be implemented in full by the appointed contractor and its finalisation will not affect the robustness and adequacy of the information presented and relied upon in this EIAR.

As with any construction project, the appointed contractor will be obliged to prepare a comprehensive Construction Traffic Management Plan (CTMP). In preparing the CTMP for the proposed works, the appointed contractor will be required to give consideration where practicable to facilitate and identify opportunities for the maximum movement of people during the construction period through implementing the following hierarchy of transport mode users:

- Pedestrians;
- Cyclists;
- Public Transport; and
- General Traffic.

Access will be maintained for emergency vehicles along the Proposed Scheme, throughout the Construction Phase.

6.4.5.1 Description of Construction Works

The Proposed Scheme has been divided into six principal sections. The division line between sections has been determined by grouping similar carriageway types together. These sections have been further subdivided into 45 sub-sections, according to the types of construction works required. The sections / sub-sections are the following (as shown in Diagram 6.4):

- **Section 1:** Tallaght to Ballymount:
 - **Section 1a:** Old Blessington Road / Belgard Square South Junction / Belgard Square West Roundabout;
 - **Section 1b:** Tallaght Bus Interchange;
 - **Section 1c:** Old Blessington Road;
 - **Section 1d:** Belgard Square West;
 - **Section 1e:** Belgard Square West / Belgard Square North Junction;
 - **Section 1f:** Belgard Square North;
 - **Section 1g:** Belgard Square North / Belgard Square East Junction;
 - **Section 1h:** Belgard Square East;
 - **Section 1i:** Belgard Square East / Blessington Road Junction;
 - **Section 1j:** Blessington Road;
 - **Section 1k:** Belgard Road / Blessington Road Junction;
 - **Section 1l:** Blessington Road – St. Maelruain's Church to Courthouse Square Apartments;
 - **Section 1m:** Main Road;
 - **Section 1n:** Old Greenhills Road;
 - **Section 1o:** Greenhills Road, Tallaght; and

- **Section 1p:** Bus Route, Parkview.
- **Section 2:** Ballymount to Crumlin:
 - **Section 2a:** Greenhills Road, Ballymount;
 - **Section 2b:** Ballymount Avenue;
 - **Section 2c:** Calmount Road / Ballymount Avenue Junction;
 - **Section 2d:** Calmount Road;
 - **Section 2e:** Greenhills Road and Calmount Avenue;
 - **Section 2f:** Greenhills Road, Greenhills;
 - **Section 2g:** Walkinstown Roundabout (including Ballymount Road Lower And St. Peter's Road);
 - **Section 2h:** Link Road between St. Peter's Road to Greenhills Road;
 - **Section 2i:** Cromwellsfort Road; and
 - **Section 2j:** Walkinstown Avenue.
- **Section 3:** Crumlin to Grand Canal:
 - **Section 3a:** Walkinstown Road;
 - **Section 3b:** Drimnagh Road;
 - **Section 3c:** Bunting Road / St Mary's Road;
 - **Section 3d:** Drimnagh Road / Crumlin Road / Kildare Road / St. Mary's Road Junction;
 - **Section 3e:** Crumlin Road;
 - **Section 3f:** Kildare Road;
 - **Section 3g:** Sundrive Road Junction; and
 - **Section 3h:** Clogher Road.
- **Section 4:** Grand Canal to Christchurch:
 - **Section 4a:** Dolphins' Barn Street, Cork Street, and St. Luke's Avenue;
 - **Section 4b:** Dean Street;
 - **Section 4c:** Patrick Street / Kevin Street Upper / New Street South / Dean Street Junction;
 - **Section 4d:** Patrick Street and Nicholas Street; and
 - **Section 4e:** Christchurch Cathedral / Nicholas Street Junction.
- **Section 5:** Woodford Walk / New Nangor Road to Long Mile Road / Naas Road) / New Nangor Road junction.
 - **Section 5a:** New Nangor Road; and
 - **Section 5b:** Naas Road / Long Mile Road junction.
- **Section 6:** Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh:
 - **Section 6a:** Naas Road;
 - **Section 6b:** Naas Road / Walkinstown Avenue Junction;
 - **Section 6c:** Walkinstown Avenue;
 - **Section 6d:** Walkinstown Avenue / Long Mile Road Junction; and
 - **Section 6e:** Long Mile Road.

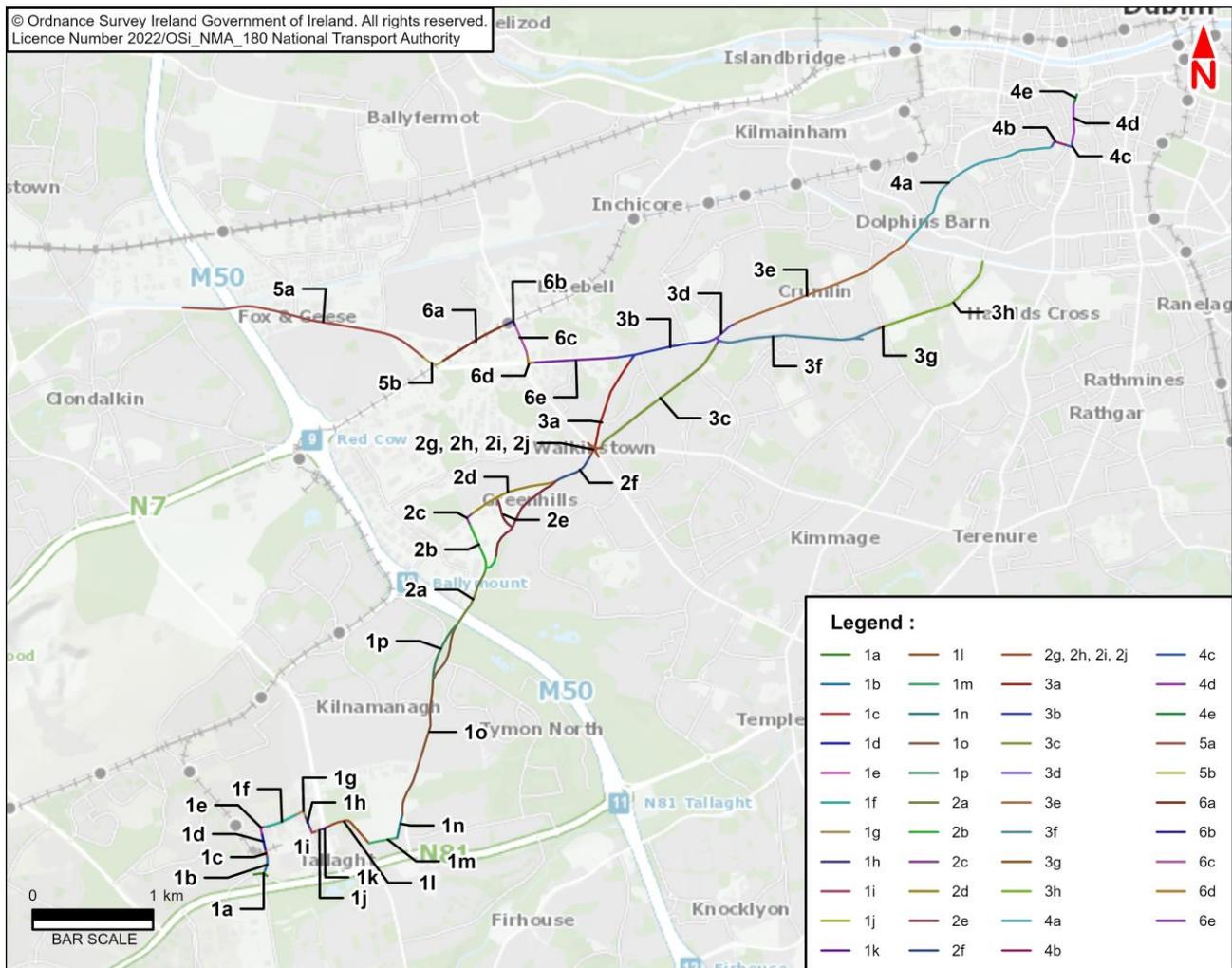


Diagram 6.4: Proposed Subsections of Construction Phase

6.4.5.2 Construction Programme

An indicative programme for the Proposed Scheme is provided in Chapter 5 (Construction) of this report. The Proposed Scheme is estimated to require some 36 months (approximately) to complete, however, individual activities will have shorter durations. Works are envisaged to proceed concurrently on multiple work-fronts to minimise the overall construction duration.

6.4.5.3 Construction Route

Access to and egress from the construction compounds is permitted via dedicated construction vehicles routes. The haulage of material on site is anticipated to be minimal. There will however be the removal of excavated material and the delivery of construction materials to site. It is anticipated that the exporting and delivery of materials will be executed as efficiently as possible using dedicated Construction Access Routes. Construction vehicles will be directed to access work sections via the Proposed Scheme and dedicated routes on the National and Regional Road Network where practicable, to minimise use of the local road network.

The locations for the Construction Compounds are identified in Diagram 6.5. The appointed contractor's CTMP shall include measures for managing traffic in and out of the compound. Access to and egress from the Construction Compounds will be permitted via temporary access points directly from:

- Old Blessington Road for TC1;
- R819 Greenhills Road for TC2;
- R819 Greenhills Road for TC3;

- R819 Greenhills Road for TC4;
- Tymon Lane / R819 Greenhills Road for TC5;
- R819 Greenhills Road for TC6;
- Ballymount Avenue / R819 Greenhills Road for TC7;
- Bunting Road for TC8;
- Crumlin Road for TC9;
- Crumlin Road / Parnell Road for TC10
- Dean Street for TC11;
- Killeen Road / New Nangor Road for TC12;
- R110 Long Mile Road for TC13.

The appointed contractor will be responsible for developing the final layout and use of the Construction Compound within the framework set out within the EIAR. The Contractor may identify other (or additional) Construction Compound locations, subject to gaining all necessary approvals. In addition to the Construction Compound, temporary / portable welfare facilities will be provided along the Proposed Scheme.

The haulage of material on site is anticipated to be minimal. There will however be the removal of excavated material and the delivery of construction materials to site. It is anticipated that the exporting and delivery of materials will be executed as efficiently as possible using dedicated Construction Access Routes. Construction vehicles will be directed to access work sections via the Proposed Scheme and dedicated routes on the National and Regional Road Network where practicable, to minimise use of the local road network. The following National and Regional roads are envisaged to form dedicated Construction Access Routes for construction vehicles to travel to and from the construction works (as shown in Diagram 6.5):

- N7;
- M50 Motorway; and
- N81.

The following regional roads are expected to be used as Construction Access Routes during the Construction Phase of the Proposed Scheme:

- R110;
- R112;
- R134;
- R137;
- R810; and
- R819.

The Proposed Scheme includes construction related activities on Calmount Road, Bunting Road and Kildare Road (Crumlin). These local roads are expected to be used as Construction Access Routes during the Construction Phase of the Proposed Scheme.

Given the length and varying nature of each subsection it is proposed to establish 13 construction compounds for the duration of the works. These are:

- **Construction Compound TC1:** Old Blessington Road / N81;
- **Construction Compound TC2:** R819 Greenhills Road / Bancroft Park
- **Construction Compound TC3:** Birchview Avenue / Greenhills Road
- **Construction Compound TC4:** Green space along Greenhills Road, between Treepark Road and Old Greenhills Road;
- **Construction Compound TC5:** Green space along Greenhills Road, to the north of Tymon Lane
- **Construction Compound TC6:** R819 Greenhills Road, outside Tallaght Truck Dismantlers, north-east of the M50 Motorway;
- **Construction Compound TC7:** Green space at New Ballymount Avenue / Greenhills Road junction
- **Construction Compound TC8:** Bunting Park, along Bunting Road;
- **Construction Compound TC9:** Green space at Rafters Road / Crumlin Road;

- **Construction Compound TC10:** Parnell Road / Rutland Avenue;
- **Construction Compound TC11:** Dean Street / Patrick Street;
- **Construction Compound TC12:** Green area between New Nangor Road and Killeen Road; and
- **Construction Compound TC13:** Along the Long Mile Road, south of the New Nangor Road / Naas Road / Long Mile Road junction.

The appointed contractor will be responsible for developing the final layout and use of the Construction Compound within the framework set out within the EIAR. The Contractor may identify other (or additional) Construction Compound locations, subject to gaining all necessary approvals. In addition to the Construction Compound, temporary / portable welfare facilities will be provided along the Proposed Scheme.

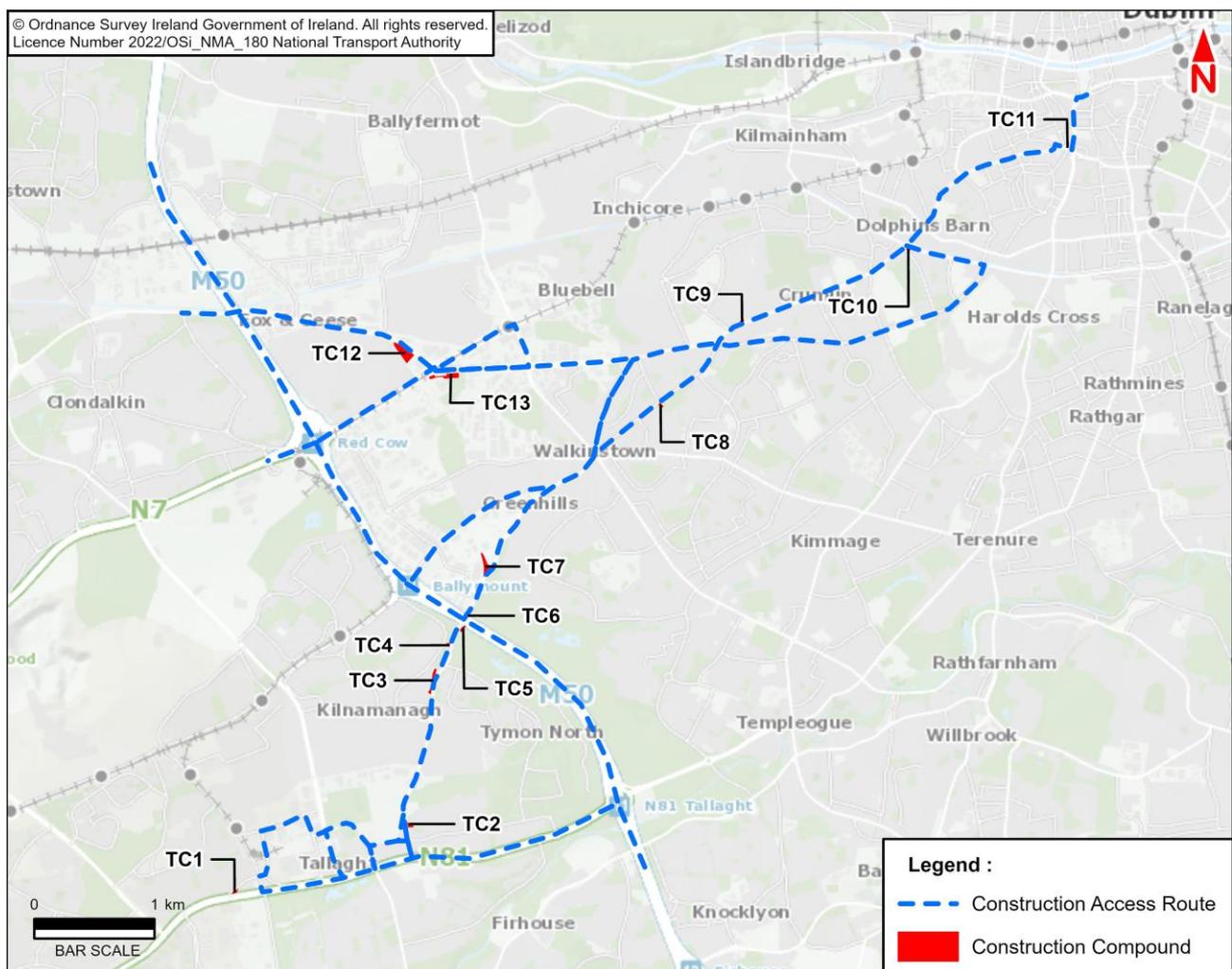


Diagram 6.5: Proposed Construction Routes and Compound Location

6.4.5.4 Predicted Construction Impact

6.4.5.4.1 Overview

Construction of the Proposed Scheme has the potential to impact people's day-to-day activities along the corridor while the works are underway. Chapter 5 (Construction) and the CEMP (Appendix A5.1 in Volume 4 of this EIAR), identify impactful activities, considers their effect, and identifies mitigation measures to reduce or remove their impact insofar as practicably possible.

For construction activities on or adjacent public roads, all works will be undertaken in accordance with Department of Transport's 'Traffic Signs Manual, Chapter 8 Temporary Traffic Measures and Signs for Roadworks' and

associated guidance. Chapter 5 (Construction) contains temporary traffic management proposals for the Proposed Scheme. These proposals maintain safe distance between road users and road workers, depending on the type of construction activities taking place and existing site constraints. Temporary diversions, and in some instances temporary road closures, may be required where a safe distance cannot be maintained to undertake works necessary to complete the Proposed Scheme. All road closures and diversions will be determined by the NTA, who may liaise with the local authority and An Garda Síochána, as necessary. The need for temporary access restrictions will be confirmed with residents and businesses prior to their implementation.

6.4.5.4.2 Pedestrian Infrastructure

As described in Chapter 5 (Construction), pedestrians may be temporarily impacted by construction activities along the Proposed Scheme corridor. Pedestrian diversions and temporary surface footways will be used to facilitate pedestrian movements around work areas. Access to local amenities, such as to bus stops, traffic crossings, private dwellings, and businesses, may be temporarily altered but access will be maintained.

Due consideration will be given to pedestrian provisions in accordance with Section 8.2.8 of the DTTS Chapter 8, Temporary Traffic Measures and Signs for Roadworks of the Traffic Signs Manual (DTTS 2019a) and the DTTS Temporary Traffic Management Design Guidance (DTTS 2019b), to ensure the safety of all road users, in particular pedestrians (including able-bodied pedestrians, wheel-chair users, mobility impaired pedestrians, pushchair users etc.). Therefore, where footways are affected by construction, a safe route will be provided past the works area, and where practicable, provisions for matching existing facilities for pedestrians. Due consideration will also be given to the need for temporary ramps, and measures for accessible users, where changes in elevation are temporarily introduced to facilitate works and footway diversions. Entrance points to the construction zone will be controlled as required. The impact is considered to have a **Negative, Slight and Temporary effect** to pedestrians.

6.4.5.4.3 Cycling Infrastructure

Cyclists may be temporarily impacted by construction activities along the Proposed Scheme corridor. As part of Temporary Traffic Management arrangements, the appointed Contractor will give due consideration to cyclist provision in accordance with Section 8.2.8 of the DTTS Chapter 8, Temporary Traffic Measures and Signs for Roadworks of the Traffic Signs Manual (DTTS 2019a) and the DTTS Temporary Traffic Management Design Guidance (DTTS 2019b), including the use of site-based risk assessments. Therefore, where cycle tracks are affected by construction, a safe route will be provided past the work area, and where practicable, provisions for matching existing facilities for cyclists will be made. The impact is considered to have a **Negative, Moderate and Temporary effect** to cyclists.

6.4.5.4.4 Public Transport Provisions

Existing public transport routes will be maintained throughout the duration of the Construction Phase of the Proposed Scheme (notwithstanding potential for occasional road closures / diversions as described in Chapter 5 (Construction) of this EIAR. Wherever practicable, bus services will be prioritised over general traffic. However, the temporary closure of sections of existing dedicated bus lanes may be required to facilitate the construction of new bus priority infrastructure that is being developed as part of the Proposed Scheme. It is also likely that some existing bus stop locations may need to be temporarily relocated to accommodate the works. In such cases operational bus stops will be safely accessible to all users. The impact is considered to have a **Negative, Slight and Temporary effect** to public transport users.

6.4.5.4.5 Parking and Loading

Parking and loading locations may be temporarily impacted by construction activities along the Proposed Scheme corridor. There may be temporary restrictions to on-street parking and loading facilities. The appointed contractor will discuss temporary traffic management measures with the road authority and directly affected residents/business with the aim of minimising disruption. The impact is considered to have a **Negative, Slight and Temporary effect** to parking and loading.

6.4.5.4.6 General Traffic

The Proposed Scheme will be constructed to ensure the mitigation of disturbance to residents, businesses and existing traffic. The roads and streets along the Proposed Scheme, will remain open to general traffic, wherever

practicable, during the Construction Phase. However, lane closures, road closures and diversions will be necessary to facilitate construction.

Where necessary, road closures and diversions will take into consideration the impact on road users, residents, businesses, etc. Road closures and diversions will be carried out with regard to the Traffic Signs Manual. All road closures and diversions will be determined by the NTA, in consultation with the local authority and An Garda Síochána, as necessary. Access will be maintained for emergency vehicles along the Proposed Scheme, throughout the Construction Phase.

6.4.5.4.6.1 General Traffic Redistribution

Significant impacts due to general traffic redistribution away from the direct study area are not anticipated during the Construction Phase based on the intended nature of the progressive works along the corridor whereby traffic flows, in general, are to be maintained in both directions. There may be a requirement for some localised temporary lane closures during the day, which will involve consultation between the appointed contractor and relevant authorities. Access for general traffic to existing residential and commercial units immediately adjacent to the Proposed Scheme is to be accommodated throughout the Construction Phase.

It is noted that a full night-time closure of the M50 mainline in both directions is required to install a pedestrian and cycle bridge between New Nangor Road, Naas Road, and the Long Mile Road. (Structure Reference: ST-02). The NTA and the appointed contractor will liaise with Transport Infrastructure Ireland (TII) in advance of the works taking place. It is expected that each bridge structure will be lifted into place over one night. During the temporary night-time road closure, traffic will be diverted at Junctions 10 and 11 via the N81, R113 and R838. Analysis of TII Traffic monitoring Unit (TMU) data between these junctions indicates that this period (10pm-6am) represents approximately 5-6% of total 24hr demand with on average approximately 1,000 vehicles per hour would be required to divert during this period. This period represents the least trafficked time on the M50 and a single night-time closure is considered acceptable to facilitate the bridge construction.

The appointed contractor will develop a CTMP that gives due consideration to provision of local access requirements and designates appropriate diversion routes in the case where localised temporary closures are required. Overall, for these reasons, the impact on general traffic redistribution is anticipated to be **Negative, Moderate and Short Term** due to the temporary nature of any restrictions.

For the purpose of Air Quality (Chapter 7), Climate (Chapter 8) and Noise & Vibration (Chapter 9) impacts assessments, a worst-case scenario for construction activities was considered for assessment purposes and has been modelled in the LAM based on a notional stage of construction whereby Sections 1a, 1f, 1j, 1k, 1m, 1o, 2f, 3b, 3e, 6a and 6c were under construction concurrently. Further details on the impacts assessment can be found within these chapters.

6.4.5.4.6.2 Construction Traffic Generation

Site Operatives: As described in Chapter 5 (Construction) of this EIAR, it is expected that there will be approximately 250 to 270 personnel directly employed across the Proposed Scheme, rising to 300 personnel at peak construction.

Typical work hours on site are between 07:00 and 23:00 with staff working across early and late shifts, with these hours to be agreed with DCC/SDCC. The adopted shift patterns help minimise travel by personnel during the peak hour periods of 08:00 to 09:00 and 17:00 to 18:00.

The appointed contractor will prepare a Construction Stage Mobility Management Plan (CSMMP) which will be developed prior to construction, as described in Appendix A5.1 CEMP in Volume 4 of this EIAR, to actively discourage personnel from using private vehicles to travel to site. The CSMMP will promote the use of public transport, cycling and walking by personnel. Private parking at the Construction Compound will be limited. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity e.g., for transporting heavy equipment. A combination of CSMMP measures, as well as work shift patterns, means that fewer than 10 trips by private vehicle are envisaged to and from site during peak periods.

Heavy Goods Vehicles (HGVs): Additional construction traffic will be generated during the Construction Phase of the Proposed Scheme, for the purpose of the following:

- Clearance of existing site material and waste;
- Deliveries of construction material; and
- Removal of construction waste material.

Chapter 5 (Construction) of this report provides a breakdown of the expected operation for the construction of the Proposed Scheme during each subsection. It should be noted that the CTMP will control vehicular movement along the construction route, including restrictions on the number of HGVs accessing and egressing the construction works throughout the day to mitigate the impacts to general traffic on the surrounding road network.

Based on construction activities associated with the Proposed Scheme, the maximum number of HGVs expected to be in operation across the Proposed Scheme during peak haulage activities is 28 vehicles.

In a typical hour during peak haulage activity of the Proposed Scheme, 40% of lorries are anticipated to be in operation on the public road network which equates to approximately 11 lorries. A total of 11 two-way lorry movements are therefore expected in a typical hour during peak haulage activity of the Proposed Scheme.

Overall Peak Hour Impacts: The contents of Table 6.17 outline the anticipated maximum construction traffic generation by site operatives and HGVs during the AM and PM Peak Hours.

Table 6.17 Anticipated Maximum Construction Traffic Generation during Construction Phase

Peak Hour	Arrivals		Departures		Total Two-Way Traffic Flows (pcu)
	Car / Van (1 pcu)	HGV (2.3 pcu)	Car / Van (1 pcu)	HGV (2.3 pcu)	
AM Peak Hour	10	26	0	26	62
PM Peak Hour	0	26	10	26	62

Given that the above impacts are minimal and comfortably below the thresholds set out in TII's Guidelines for Transport Assessments, it is considered appropriate to define the general traffic impacts of the Construction Phase to have a **Negative, Slight and Short-term effect**. Therefore, no further analysis is required for the purpose of this assessment.

It should be noted that further detail on the restrictions to construction vehicle movements during the peak periods of the day will be contained within the appointed contractor's CTMP prior to construction.

6.4.5.5 Construction Phase Summary

The contents of Table 6.18 present a summary of the potential impacts of the Proposed Scheme during Construction Phase.

Table 6.18 Summary of Potential Construction Phase Impacts

Assessment Topic	Effect	Potential Impact
Walking	Restrictions to pedestrians along Proposed Scheme.	Negative, Slight and Temporary
Cycling	Restrictions to cyclists along Proposed Scheme	Negative, Moderate and Temporary
Bus	Restrictions to public transport along Proposed Scheme.	Negative, Slight and Temporary
Parking and Loading	Restrictions to parking / loading along Proposed Scheme.	Negative, Slight and Temporary
General Traffic	Restrictions to general traffic along Proposed Scheme	Negative, Moderate and Temporary
	Additional construction traffic flows upon surrounding road network	Negative, Slight and Temporary

6.4.6 Operational Phase

The impact assessment for the Operational Phase has been outlined in terms of a qualitative (walking, cycling, bus infrastructure and parking / loading) and quantitative (bus journey times / reliability, general traffic and people movement) impact analysis, which are outlined in the following sections.

6.4.6.1 Qualitative Assessment

6.4.6.1.1 Qualitative Assessment Methodology

The structure of the qualitative assessment is consistent with the Baseline Environment (Section 6.3) where the Proposed Scheme has been split into six sections. This has allowed for a more detailed analysis of the quality of the infrastructure proposals per section. The approach for each qualitative assessment is outlined below.

6.4.6.1.1.1 Pedestrian Infrastructure

The impacts to the quality of the Pedestrian Infrastructure as a result of the Proposed Scheme have been considered with reference to any changes to the existing pedestrian facilities along footways and crossing locations within the direct study area. Reference has been made to the overall changes along the full length of the Proposed Scheme and the impact assessment primarily focuses only on the pedestrian facilities at junctions to provide a direct comparison between the Do Minimum and Do Something scenarios.

Where the Proposed Scheme introduces a change to a junction layout, the impact on pedestrians has been assessed using a set of criteria which has been derived from guidance listed in Section 4.9. The contents of Table 6.19 outline the assessment criteria for each junction.

Table 6.19: Pedestrian Junction Assessment Criteria

Aspect	Indicator
Routing	Are pedestrian crossings (signalised or uncontrolled) available on all arms?
Directness	Where crossings are available, do they offer direct movements which do not require diversions or staggered crossings i.e., no or little delay required for pedestrians to cross in one direct movement?
Vehicular speeds	Are there measures in place to promote low vehicular speeds, such as minimally sized corner radii and narrow carriageway lane widths?
Accessibility	Where crossings exist, are there adequate tactile paving, dropped kerbs and road markings for pedestrians (including able-bodied, wheelchair users, mobility impaired and pushchairs)?
Widths	Are there adequate footway and crossing widths in accordance with national standards?

The LoS rating demonstrated in Table 6.20 has been applied to each junction for both the Do Minimum and Do Something scenarios based on whether the above indicators have been met.

Table 6.20: Pedestrian Junction Assessment LoS

LoS	Indicators Met (of a total of 5)
A	5
B	4
C	3
D	2
E	1
F	0

When comparing the Do Minimum and Do Something scenarios for pedestrians, the terms outlined in Table 6.21 have been used to describe the impact, based on the changes in the Qualitative Pedestrian LoS rating.

Table 6.21: Description of Impact for Pedestrian Qualitative Assessment

Magnitude of Impact	Change in LoS Rating
High	4 to 5
Medium	2 to 3
Low	1
Negligible	0

To establish the Significance of Effect for the impacts of the Pedestrian Infrastructure, as a result of the Proposed Scheme, a sensitivity rating has been applied to each junction in accordance with the methodology set out in Section 6.2.4.

6.4.6.1.1.2 Cycling Infrastructure

The impacts to the quality of the cycling infrastructure as a result of the Proposed Scheme have been considered with reference to the changes in physical provision for cyclists provided during the Do Minimum and Do Something scenarios. The NTA's National Cycle Manual's Quality of Service (QoS) Evaluation criteria have been adapted for use in assessing the cycling qualitative impact along the Proposed Scheme. The refined cycling facilities criteria are as follows:

- **Segregation:** a measure of the separation between vehicular traffic and cycling facilities;
- **Number of adjacent cyclists / width:** the capacity for cycling two abreast and / or overtaking ('2+1' accommodates two abreast plus one overtaking); and
- **Junction Treatment:** a measure of the treatment of cyclist traffic at existing junctions.

The contents of Table 6.22 outline the assessment criteria with reference to the corresponding LoS ratings.

Table 6.22: Cycling Assessment Criteria

LoS	Segregation	No. of adjacent cyclists/width		Junction treatment
A+	High degree of separation. Minimal delay	2+1	2.5m	Cyclists get green signal priority at signalised junctions / has priority across uncontrolled junctions
A	Well separated at mid-link with some conflict at intersections	1+1	2.0m	Toucan crossings at signalised junctions for cyclists along CBC / Protected junctions not already classified as A+ for junction treatment
B	On-road cycle lanes or carriageway designated as 'quiet cycle routes'	1+1	1.75m	Cyclists share green time with general traffic and cycle lanes continue through the junction, for junctions not already classified as A or A+ for junction treatment
C	Bicycle share traffic or bus lanes	1+0	1.25m	Cyclists share green time with general traffic with cycle facilities (advanced stacking locations / cycle lanes) available up to the junction but don't continue through
D	No specific bicycle facilities	1+0	0.75m	No specific bicycle facilities

As the cycle provision varies along the corridor, each section of the Proposed Scheme has been further separated into smaller subsections in order to apply the cycling assessment criteria appropriately.

When comparing the Do Minimum and Do Something scenarios for cyclists, the terms outlined in Table 6.23 have been used to describe the impact, based on the changes in the Qualitative Cycling LoS rating.

Table 6.23: Description of Impact for Cycling Qualitative Assessment

Magnitude of Impact	Change in LoS Rating
High	3 to 4
Medium	2
Low	1
Negligible	0

To establish the Significance of Effect for the impacts of the cycling infrastructure, as a result of the Proposed Scheme, a sensitivity rating has been applied to each assessed section in accordance with the methodology set out in Section 6.1.1.

6.4.6.1.1.3 Bus Infrastructure

The implementation of the Proposed Scheme will result in changes in the quality of bus infrastructure provision along the route, including dedicated bus lanes and bus stop upgrades / relocations. Improvement in bus priority measures will reduce the interaction between buses and general traffic and reduce the likelihood of delays.

The qualitative impact assessment has been undertaken based on the following factors:

- Provision of bus lanes;
- Bus stop provision; and
- Changes to the existing bus stop facilities:
 - Real-time information;
 - Timetable information;
 - Shelters;
 - Seating;
 - Accessible kerbs; and
 - Removal of indented drop off areas, where appropriate.

The magnitude of impact of the Proposed Scheme, applied to the qualitative review of the above factors, is set out in Table 6.24.

Table 6.24: Magnitude of Impact for Bus Users Qualitative Assessment

Impact	Description of Impact / Proposed Changes
High positive	Significant benefit for bus users with no disbenefits
Medium positive	Positive impact for bus stop users with benefits outweighing any minor disbenefits.
Low positive	Slight benefit for users with benefits outweighing any disbenefits.
Negligible impact	Marginal impact to user buses where any benefits or disbenefits are offset.
Low negative	Slight negative impact for users with disbenefits marginally outweighing benefits.
Medium negative	Negative impact for bus users with benefits not outweighing any disbenefits.
High negative	Complete removal of provision.

To establish the Significance of Effect for the impacts of the bus infrastructure, as a result of the Proposed Scheme, a sensitivity rating has been applied to each assessed section in accordance with the methodology set out in Section 6.2.4.

6.4.6.1.1.4 Parking and Loading

The impacts of the Proposed Scheme on parking and loading provision have been assessed through a comparison of the availability of spaces or lengths of bay in the Do Minimum (baseline environment) and Do Something scenarios. The assessment has taken the parking information and considers the impact of any changes on the general availability of parking and loading in the vicinity of the Proposed Scheme. It classifies parking into the following categories:

- Designated Paid Parking;
- Permit Parking;
- Disabled Permit Parking;
- Loading / Unloading (in designated Loading Bays)
- Loading / Unloading (outside designated Loading Bays)
- Taxi Parking (Taxi Ranks);
- Commercial vehicles parked for display (car sales); and
- Informal Parking (i.e. parking alongside the kerb which is unrestricted).

This qualitative assessment has also taken account of adjacent parking on side streets which is defined as alternative parking locations along side roads within 200 – 250m of the Proposed Scheme.

Significance ratings for the impacts of any changes in parking provision have been generated for each specific instance of change and for each section of the Proposed Scheme. The ratings are based upon professional judgement and experience and consider:

- The magnitude of change in parking availability;
- The availability of alternative parking; and
- Nearby land uses, such as businesses.

Note that the parking and loading assessment has been undertaken as a qualitative analysis based on the above criteria and does not generate a resulting LoS rating.

6.4.6.1.2 Section 1 – Tallaght to Ballymount

6.4.6.1.2.1 Pedestrian Infrastructure

The key infrastructural changes to the pedestrian link along Section 1 of the Proposed Scheme are the following:

- Upgrade of existing signalised crossing and removal of left-turn slip-lane on the south-western arm of the Cookstown Way/ Blessington Road junction;
- Conversion of roundabout at the Belgard Square South / Belgard Square West junction into a signalised junction, providing signalised pedestrian crossing facilities where none currently exist;
- Conversion of roundabouts on Belgard Square North at Belgard Square West and Belgard Square East junctions into signalised junctions, providing signalised pedestrian crossing facilities on all arms;
- Provision of new signalised pedestrian crossings at the junction of Main Road / Old Greenhills Road;
- Upgrade of existing signalised crossing and removal of left-turn slip lane on the western arm of the Belgard Road/ Blessington Road junction;
- Provision of new signalised pedestrian crossing on R819 Greenhills Road north of the junction with Broomhill Road and Hibernian Industrial Estate;
- Provision of raised table crossing intersecting with bus lanes, to the south of Treepark Road, opposite the R819 Greenhills Road / Castletymon Road junction;
- Provision of raised table crossings at R819 Greenhills Road / Parkview accesses;
- Provision of raised table crossings at commercial access between the R819 Greenhills Road/ Temple Woods junction and the R819 Greenhills Road / Tymon Lane junction; and

- Provision of a Toucan crossing intersecting with bus lanes to the south of Treepark Road, opposite the R819 Greenhills Road/ Temple Woods junction.

The assessment of the qualitative impacts on the Pedestrian Infrastructure for Section 1 of the Proposed Scheme are summarised in Table 6.25 along with the accompanying sensitivity for each junction and the resultant significance of effect. A detailed breakdown of the assessment at each junction can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.25: Section 1 - Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
Blessington Road / Cookstown Way signalised junction	A0	C	A	Medium	Medium	Positive Significant
Belgard Square South / Belgard Square West roundabout (to signalised junction)	A0	E	A	High	High	Positive Profound
Belgard Square West / Old Blessington Road signalised junction	A175	D	B	Medium	High	Positive Very Significant
Belgard Square West / Belgard Square North / Tallaght Hospital access roundabout to signalised junction	A400	D	A	Medium	High	Positive Very Significant
Belgard Square North / Belgard Square East roundabout to signalised junction	A775	D	A	Medium	Medium	Positive Significant
Blessington Road / Belgard Road signalised junction	A1075	C	B	Low	Medium	Positive Moderate
Main Road / Old Greenhills Road signalised junction	A1775	B	A	Low	Medium	Positive Moderate
R819 Greenhills Road / Bancroft Park priority junction	A1975	C	A	Medium	High	Positive Very Significant
R819 Greenhills Road / Airton Road signalised junction	A2450	D	A	Medium	High	Positive Very Significant
R819 Greenhills Road / Harvey Norman Retail Park signalised junction	A2550	D	B	Medium	High	Positive Very Significant
R819 Greenhills Road / Broomhill Road priority junction	A2725	D	B	Medium	Medium	Positive Significant
R819 Greenhills Road / Hibernian Industrial Estate priority junction	A2775	D	A	Medium	Medium	Positive Significant
R819 Greenhills Road / Mayberry Road signalised junction	A2950	C	A	Medium	Medium	Positive Significant
R819 Greenhills Road / Castletymon Road signalised junction	B225	C	A	Medium	Low	Positive Moderate
R819 Greenhills Road / Temple Woods priority junction	B425	B	A	Low	Medium	Positive Moderate
R819 Greenhills Road / Tymon Lane priority junction	B551	F	C	Medium	Medium	Positive Significant
Section Summary		D	B	Medium	High	Positive Very Significant

The contents of Table 6.25 demonstrate that the Proposed Scheme will have a positive long-term impact on the quality of the pedestrian infrastructure between Tallaght to Ballymount during the Operational Phase.

The LoS during the Do Minimum scenario ranges between F and C, with two out of the 16 impacted junctions along this section given the low E / F ratings. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A or B rating at 15 of the impacted junctions

in the Do Something scenario and a C rating at one of the impacted junctions in the Do Something scenario. This is as a result of the proposed improvements to the existing pedestrian facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased footway and crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and the National Disability Authority (NDA) 'Building for Everyone: A Universal Design Approach' (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Very Significant and Long-term effect** to the quality of the pedestrian infrastructure along Section 1 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.2.2 Cycling Infrastructure

The key cycling improvements along Section 1 of the Proposed Scheme can be summarised as follows:

- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lanes through major signalised junctions with hard island segregation for left-turn movements and right-turn movements;
- Provision of a continuous 2.0m wide cycle tracks on both sides of Belgrade Square North between Tallaght Hospital (TUH) and Belgard Square East;
- Provision of a continuous 2.0m wide cycle tracks on both sides of Belgrade Square East;
- Upgrade of existing signalised crossing to a Toucan crossing on the western arm of the Belgard Road/ Blessington Road junction;
- Provision of a 2.0m wide cycle track in both directions on the R819 Greenhills Road;
- Upgrade of existing signalised crossing on Bancroft Park south of the Greenhills Road junction to a Toucan Crossing.
- Provision of a 2.0m wide cycle tracks inbound and outbound on R819 Greenhills Road and the green space east of Treepark Road between Mayberry Road and M50 overbridge, inbound and outbound east/west two-way cycle track links also provided between R819 Greenhills Road and Treepark Road;
- Upgrade of existing signalised crossings on the R819 Greenhills Road arms of the R819 Greenhills Road / Airton Road signalised junction to Toucan crossings;
- Upgrade of existing signalised crossings to Toucan crossings on the R819 Greenhills Road / Castletymon Road junction;
- Provision of a Toucan crossing intersecting with bus lanes to the south of Treepark Road, opposite the R819 Greenhills Road/ Temple Woods junction.
- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lane; and
- Upgrade of existing signalised crossing on R819 Greenhills Road north of Temple Woods junction to a Toucan Crossing.

Along Section 1, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation (as is the case for most of the baseline environment) is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle track kerb will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.26 outline the cycling qualitative assessment along Section 1 of the Proposed Scheme, with reference to the accompanying sensitivity for each section and the resultant Significance of Impact.

Table 6.26: Section 1 - Cycling Impact during Operational Phase

Locations	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
Belgard Square South to Tallaght Hospital	A0 – A400	D	B	Medium	High	Positive Moderate
Tallaght Hospital to Belgard Square East	A400 – A750	B	A	Low	High	Positive Moderate
St Maelruain's Church to Greenhills Road	A1250 – A2000	D	C	Low	High	Positive Moderate
R819 Greenhills Road between Bancroft Park junction and Castletymon Road	A2000 – A3350	C	A	Medium	High	Positive Very Significant
Castletymon Road to M50 overbridge	A3350 / B250 - A3700 / B551	C	A	Medium	Low	Positive Moderate
Section Summary		C	B	Low	High	Positive Moderate

The contents of Table 6.26 demonstrate that the scheme will have a positive long-term impact on the cycling environment between Belgard Square South and the R819 Greenhills Road.

The LoS rating of the cycling facilities range from D to B in the Do Minimum, with two of the five impacted junctions having a low D rating. The LoS rating will improve to a C in one of the impacted junctions, a B to one of the impacted junctions and an A to three of the impacted junctions in the Do Something scenario respectively. These ratings have been determined using the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

Overall, it is anticipated that there will be a **Positive, Moderate and Long-term effect** to the quality of the cycling infrastructure along Section 1 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to 'Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable'.

6.4.6.1.2.3 Bus Infrastructure

It is proposed that there will be a total of 16 bus stops along Section 1 of the Proposed Scheme – eight inbound and eight outbound, alongside a new eight-stance bus interchange will also be created at The Square, which will be accessed from Belgard Square East and Old Blessington Road. This represents a significant 'step-change' in the bus services provided locally. The layout of new bus stops is considered to better serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.27 outline a summary of the changes to the bus stop infrastructure along Section 1 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios. Note, this does not include the eight-stance bus interchange where all stops will contain all facilities and be within a bus only / pedestrianised area.

Table 6.27: Section 1 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	7	44%	16	100%	It is proposed that all bus stops provide real-time information.
Timetable information	13	81%	16	100%	It is proposed that all bus stops provide timetable information.
Shelter	7	44%	14	88%	It is proposed that all but two bus stops along this section is to be provided with shelter
Seating	7	44%	14	88%	It is proposed that all but two bus stops along this section will provide seating.
Accessible Kerbs	5	31%	16	100%	Full provision.
Indented Drop Off Area	9	56%	1	6%	One bus stop will be indented. All other proposed bus stops will be located inline within bus lanes.
Total Stops	16		16		An eight-stance bus interchange also added to this section.

The contents of Table 6.27 indicates that there are significant improvements to the bus stop facilities along Section 1 of the Proposed Scheme. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 1 of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, Table 6.28 below outlines the bus qualitative assessment along Section 1 of the Proposed Scheme.

Table 6.28: Section 1 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Magnitude of Impact	Sensitivity	Significance of Effect
Tallaght to Ballymount	A0 – A3700	<ul style="list-style-type: none"> Provision of a new eight stance bus interchange at The Square; Access to bus stops improved, particularly at the pedestrianised interchange; and Moderate improvements to bus stop facilities. 	Medium	High	Positive Very Significant

As indicated in Table 6.28, the Proposed Scheme improves the quality of existing bus infrastructure along Section 1 of the Proposed Scheme, which will provide long-term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is Medium Positive. The sensitivity of environment rating is predominately categorised as 'high'. This results in a **Positive, Very Significant and Long-term effect** on this section.

6.4.6.1.2.4 Parking and Loading

The proposals will impact on existing parking along Section 1 of the Proposed Scheme and the main changes are as follows:

- The removal of 65 spaces at The Square Tallaght car park, currently comprising 2500 spaces. This is associated with off-street private parking and therefore is considered to have a **Negligible and Long-term effect**.

- The reinstatement of 3 loading bay spaces on Belgard Square West is considered to have a **Positive, Slight and Long-term effect**.
- The removal of 21 permit / pay & display spaces and one disabled space on Old Greenhills Road, between Main Street and Greenhills Road. Alternative pay & display parking is available within 200m on Main Street, and privately within The Village Green Shopping Centre car park. The impact of removing 21 spaces and one disabled space is considered to have a **Negative, Slight and Long-term effect**.
- The removal of 12 private parking spaces in a 120 space car park at West Park Fitness, which is located to the east of Greenhills Road, just to the north of the TUD access junction. This is to provide sufficient carriageway width to provide two traffic lanes, two bus lanes, eastbound and westbound cycle tracks and footways in this location. The parking spaces are located on private land and potential mitigation for this area would be to extend and redesign the Athletics Club car park to provide additional car parking, therefore the loss of 12 spaces is considered to have a **Negligible and Long-term effect**.

Table 6.29: Section 1 – Overall Changes in Parking/Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
Belgard Square	Adjacent Parking (Car Park)	6000	5935	-65
	Loading Bay	0	3	3
Main Street / Old Greenhills Road	Designated Paid Parking	34	14	-20
	Disabled Parking	2	1	-1
	Informal Parking	7	7	0
Greenhills Road – west of M50 bridge	General Commercial	345	345	0
	Adjacent Parking (Car Park)	920	908	-12
Total		7308	7213	-95

As shown in Table 6.29 there are approximately 7308 current parking spaces affected within the area of the Section 1 of the Proposed Scheme. Under the proposals, 3 loading bays will be provided and 95 parking spaces will be lost, the majority being private car parking spaces. This change is considered to have a **Negative, Slight and Long-term effect**, due to the low numbers of non-private spaces lost and the presence of a large number of similar types of spaces within proximity to the affected locations. This effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.3 Section 2 – Ballymount to Crumlin

6.4.6.1.3.1 Pedestrian Infrastructure

The key infrastructural changes to the pedestrian link along Section 2 of the Proposed Scheme are the following:

- Footways with a minimum running width of 2.0m;
- Pedestrianisation of Ballymount Road Upper;
- Provision of new signalised crossing on Calmount Road, 100m north of the road merging with the R819 Greenhills Road;
- Closure of the R819 Greenhills Road at the new Calmount Road / R819 Greenhills Road intersection, allowing pedestrian access only; and
- Provision of signalised pedestrian crossings on all arms of Walkinstown Roundabout.

The assessment of the qualitative impacts on the pedestrian infrastructure for Section 2 of the Proposed Scheme is summarised in Table 6.30 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.30: Section 2: Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R819 Greenhills Road / Ballymount Road Upper priority junction	A3950	D	A	Medium	Medium	Positive Significant
New junction: Ballymount Avenue / R819 Greenhills Road priority junction	A4200	-	B	-	Low	-
New junction: Ballymount Avenue / Ballymount Avenue priority junction	A4400	-	B	-	Medium	-
Ballymount Avenue / Calmount Road signalised junction	A4650	C	A	Medium	Low	Positive Moderate
New junction: Calmount Avenue / R819 Greenhills Road roundabout	C425	-	A	-	Low	-
Calmount Road / Calmount Avenue priority junction	A4950	D	A	Medium	Medium	Positive Significant
R819 Greenhills Road / B&G Ltd priority junction	A5650	F	B	High	Medium	Positive Very Significant
Walkinstown Roundabout	A5900	E	A	High	High	Positive Profound
Section Summary		E	A	High	Medium	Positive Very Significant

The contents of Table 6.30 demonstrate that the Proposed Scheme will have a positive long-term impact on the quality of the pedestrian infrastructure between Ballymount to Crumlin during the Operational Phase.

The LoS during the Do Minimum scenario ranges between F and C, with two of the eight impacted junctions along this section given the low E / F ratings. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A rating at five of the impacted junctions, a B rating at three of the impacted junctions Do Something scenario. Of these, it is noted three are new junctions along Section 2. The LOS increase is as a result of the proposed improvements to the existing pedestrian facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased footway and crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and the National Disability Authority (NDA) 'Building for Everyone: A Universal Design Approach' (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Very Significant and Long-term effect** to the quality of the pedestrian infrastructure along Section 2 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.3.2 Cycling Infrastructure

The key cycling improvements along Section 2 of the Proposed Scheme can be summarised as follows:

- Provision of a 2.0m wide cycle track in both directions on the R819 Greenhills Road, Ballymount Avenue, Calmount Avenue and Calmount Road;
- Provision of new Toucan crossing on the eastern arm of the new Ballymount Avenue / R819 Greenhills Road priority junction
- Provision of new Toucan crossing on the southern arm of the Calmount Road / Calmount Avenue junction; and

- Provision of upgraded cycling facilities at signalised junctions and Walkinstown Roundabout to provide a continuous cycle lane.

Along Section 2, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation (as is the case in some areas of the baseline environment) is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle track kerb will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.31 outline the cycling qualitative assessment along Section 2 of the Proposed Scheme, which sets out the overall Do Minimum LoS and the Do Something LoS and the description of impact. Please refer to Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR which outlines in further detail the methodology behind each LoS rating given to the Do Minimum and Do Something scenarios.

Table 6.31: Section 2 Cycling Impact during Operational Phase

Locations	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
M50 Overbridge to Calmount Road / Ballymount Avenue roundabout	A4150 - A4700	C	A	Medium	High	Positive Very Significant
Calmount Road to Walkinstown Roundabout	A4700- A5900	B	A	Low	Medium	Positive Moderate
Greenhills Road / Ballymount Avenue to Greenhills Road / Greenhills Road green space	C50 - A5500	C	A	Medium	Medium	Positive Significant
Calmount Road/ Calmount Avenue to Calmount Avenue / Greenhills Road proposed roundabout	A4950- C425	D	A	Medium	Medium	Positive Significant
Section Summary		C	A	Medium	Medium	Positive Significant

The contents of Table 6.31 demonstrate that the scheme will have a positive long-term impact on the cycling environment between the R819 Greenhills Road and Walkinstown Roundabout

The LoS rating of the cycling facilities will improve from a D to A in one subsection, C to A in two subsections and from a B to an A in one subsection in the Do Minimum compared to the Do Something, determined using the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the cycling infrastructure along Section 2 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to 'Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable'.

6.4.6.1.3.3 Bus Infrastructure

It is proposed that there will be a total of 10 bus stops along Section 2 of the Proposed Scheme - five inbound and five outbound. This is two more than in the Do Minimum scenario, a number of bus stops have been removed in certain locations, and a number of bus stops proposed. The layout of new bus stops is considered to better

serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.32 outline a summary of the changes to the bus stop infrastructure along Section 2 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.32: Section 2 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	0	0%	10	100%	It is proposed that all bus stops provide real-time information.
Timetable information	6	75%	10	100%	It is proposed that all bus stops provide timetable information.
Shelter	2	25%	10	100%	It is proposed that all bus stops along this section is to be provided with shelter.
Seating	2	25%	10	100%	It is proposed that all bus stops along this section will provide seating.
Accessible Kerbs	0	0%	10	100%	Full provision.
Indented Drop Off Area	3	38%	1	10%	One bus stop (no. 2334) will be indented. All other proposed bus stops will be located in line with bus lanes.
Total Stops	8		10		Increase in 4 bus stops compared to the Do Minimum.

The contents of Table 6.32 indicate that there are significant improvements to the bus stop facilities along Section 2 of the Proposed Scheme. One bus stop will have an indented drop off area, allowing no delay in general traffic flow. All other bus stops will be provided inline within dedicated bus lanes along the the corridor, meaning that buses will not incur delay when setting off after picking up passengers. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 2 of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, Table 6.33 below outlines the bus qualitative assessment along Section 2 of the Proposed Scheme.

Table 6.33: Section 2 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Magnitude of Impact	Sensitivity	Significance of Effect
Ballymount to Crumlin	A2700 - A5970	<ul style="list-style-type: none"> Number of bus stops increased, some stops removed or relocated, and new stops added; Bus stops are located in more convenient locations for communities and access to signalised crossings; Moderate improvement to existing bus stop facilities, mainly through provision of shelters and seating. 	High	Medium	Positive Very Significant

As indicated in Table 6.33, the Proposed Scheme improves the quality of existing bus infrastructure along Section 2 of the Proposed Scheme, which will provide long-term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is High Positive. The sensitivity of environment rating is predominately categorised as ‘medium’. This results in a **Positive, Very Significant and Long-term effect** on this section.

6.4.6.1.3.4 Parking and Loading

The Proposed Scheme will impact on existing parking along Section 2. The areas of parking changes are as follows:

- The removal of parking capacity for 35 vehicles on both sides of Calmount Road, between Ballymount Avenue and Calmount Avenue, to allow for bus lanes and cycle lanes on either side of the road. Whilst there is limited opportunity for alternative parking in the vicinity, the 35 parking spaces are not associated with commercial premises and therefore are not expected to have an impact on local business, with private parking accesses located within the vicinity. Therefore, this is considered to have a **Negative, Moderate and Long-term effect**.
- The reduction of 61 spaces at the DPD Depot, B&Q and Parts for Cars car park on Greenhills Road to accommodate road widening. This is private land and is therefore expected to have a **Negligible and Long-term effect**.
- The removal of 35 adjacent spaces, 5 taxi spaces and two informal spaces at Walkinstown roundabout to allow for road widening and cycle tracks. This is considered to have a **Negative, Slight and Long-term effect**.
- Two loading bays have been provided on Walkinstown Avenue to mitigate design impacts at Walkinstown Roundabout. This is considered to have a **Positive, Slight and Long-term effect**.

Table 6.34: Section 2 – Overall Changes in Parking / Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
Calmount Road: Between Ballymount Avenue and Calmount Avenue	Informal Parking	35	0	-35
Greenhills Road: Between Calmount Road and Walkinstown Roundabout	Adjacent Parking (Car Parks)	450	389	-61
	Commercial Parking	20	20	0
Walkinstown Roundabout	Informal Parking	30	28	-2
	Adjacent Parking	88	53	-35
	Taxi Parking	9	4	-5
	Loading Bay	0	2	2
Total		632	496	-136

As shown in Table 6.34 there are approximately 632 current parking spaces affected within the area of the Section 2 of the Proposed Scheme. Under the proposals, 136 parking spaces will be lost, 96 of these private parking spaces. Possible mitigation may include the reconfiguration of existing parking spaces to minimise any loss of spaces required to improve the environment, particularly for pedestrians and cyclists. The overall parking impact of the loss in parking is considered to have a **Negative, Slight and Long-term effect**. This effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.4 Section 3 – Crumlin to Grand Canal

6.4.6.1.4.1 Pedestrian Infrastructure

The key infrastructural changes to the pedestrian link along Section 3 of the Proposed Scheme are the following:

- Proposed speed limit reduction from 50km/h to 30 km/h between Cooley Road junction and R111 Parnell Road (Grand Canal) junction;
- A shared pedestrian and cycle landing zone is provided to the rear of the bus stop (chainage E800) on Kildare Road;
- Provision of raised table crossings at side roads;

- One -way access onto Clonard Road and Bangor Drive from Crumlin Road, fully pedestrianising the left hand lane, on approach to the junction;
- Pelican crossing at the Crumlin Road/ Crumlin College junction moved approximately 50m east, outside the Crumlin Road/ Brickfield Drive bollards; and
- Removal of left-turn slip lanes on Sundrive Road and Herberton Road at R110 Crumlin Road junction.

The assessment of the qualitative impacts on the Pedestrian Infrastructure for Section 1 of the Proposed Scheme are summarised in Table 6.35 along with the accompanying sensitivity for each junction and the resultant significance of effect. A detailed breakdown of the assessment at each junction can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.35: Section 3 – Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R819 Walkinstown Road / Walkinstown Drive priority junction	A6100	B	A	Low	Medium	Positive Moderate
R819 Walkinstown Road / Thomas Moore Road priority junction	A6150	B	A	Low	Medium	Positive Moderate
R819 Walkinstown Road / Kilnamanagh Road signalised junction	A6400	B	A	Low	Low	Positive Slight
R110 Long Mile Road / R819 Walkinstown Road signalised junction	F4225	D	B	Medium	High	Positive Very Significant
R110 Drimnagh Road / Slievebloom Road / Balfe Road priority junction	A6750 - A6850	D	B	Medium	High	Positive Very Significant
R110 Drimnagh Road / Boots Access priority junction	A7100	C	A	Medium	High	Positive Very Significant
R110 Drimnagh Road / St Mary's Drive priority junction	A7200	D	A	Medium	Low	Positive Moderate
R110 Drimnagh Road / St. Mary's Road / Kildare Road signalised junction	A7450	C	A	Medium	Low	Positive Moderate
R110 Crumlin Road / Cooley Road / R110 Crumlin Road / Crumlin Park priority junction	A7625	C	B	Low	Low	Positive Slight
R110 Crumlin Road / Rafters Road priority junction	A7775	C	A	Medium	Low	Positive Moderate
R110 Crumlin Road / Raphoe Road priority junction	A7875	D	B	Medium	Low	Positive Moderate
R110 Crumlin Road / Iveagh Gardens priority junction	A8000	C	A	Medium	Medium	Positive Significant
R110 Crumlin Road / Windmill Road priority junction	A8125	B	A	Low	Medium	Positive Moderate
R110 Crumlin Road / Clonard Road priority junction	A8300	D	A	Medium	Low	Positive Moderate
R110 Crumlin Road / Bangor Drive priority junction	A8400	D	B	Medium	Low	Positive Moderate
R110 Crumlin Road / Ardagh Road priority junction	A8525	D	A	Medium	Low	Positive Moderate
R110 Crumlin Road / Dunnes Stores priority junction	A8650	C	B	Low	Low	Positive Slight
R110 Crumlin Road / Old County Road priority junction	A8800	C	A	Medium	Medium	Positive Significant

Junctions	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R110 Crumlin Road / Herberton Road / Sundrive Road signalised junction	A8900	D	B	Medium	Low	Positive Moderate
R110 Crumlin Road / Rutland Avenue priority junction	A9240	C	A	Medium	Low	Positive Moderate
R110 Crumlin Road / R111 Dolphin Road / Parnell Road signalised junction	A9275	E	B	Medium	Medium	Positive Significant
Cromwellsfort Road / Bunting Road priority junction	D0	D	A	Medium	Low	Positive Moderate
Bunting Road / Wallace Road / Harty Avenue priority junction	D400 - D450	D	B	Medium	Low	Positive Moderate
Bunting Road / Balfe Road priority junction	D625	C	B	Low	Low	Positive Slight
Bunting Road / St Agnes Terrace priority junction	D1025	C	B	Low	Medium	Positive Moderate
St Mary's Road / Fernvale Drive priority junction	D1250	C	A	Medium	Low	Positive Moderate
Kildare Road / Kildare Park priority junction	E325	D	B	Medium	Low	Positive Moderate
Kildare Road / Windmill Road signalised junction	E550	D	A	Medium	Low	Positive Moderate
Kildare Road / Cashel Road priority junction	E650	E	B	Medium	Low	Positive Moderate
Kildare Road / Clonard Road priority junction	E750	B	A	Low	Low	Positive Slight
Kildare Road / Kildare Road priority junction	E850	C	B	Low	Low	Positive Slight
Kildare Road / Bangor Road priority junction	E1025	C	A	Medium	Low	Positive Moderate
Kildare Road / Clogher Road priority junction	E1175	E	A	High	Low	Positive Moderate
Clogher Road / Slane Road priority junction	E1325	C	B	Low	Low	Positive Slight
Clogher Road / Sundrive Road signalised junction	E1400	D	A	Medium	Low	Positive Moderate
Clogher Road / Clogher Road priority junction	E1750	D	A	Medium	Medium	Positive Significant
Clogher Road / Rutland Avenue priority junction	E1850	C	A	Medium	Medium	Positive Significant
Clogher Road / Aughavannagh Road priority junction	E2050	D	A	Medium	Low	Positive Moderate
Section Summary		D	A	Medium	Low	Positive Moderate

The contents of Table 6.35 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at junctions between Walkinstown Roundabout and Grand Canal.

The LoS during the Do Minimum scenario ranges from E to B, with 18 of the 38 impacted junctions along this section given the low D/E rating. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A rating at 23 of the impacted junctions and a B at 15 junctions in the Do Something scenario. This is as a result of the proposed improvements to the existing pedestrian

facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased footway and crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and Building for Everyone: A Universal Design Approach (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Moderate and Long-term effect** to the quality of the pedestrian infrastructure along Section 3 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.4.2 Cycling Infrastructure

The key cycling improvements along Section 3 of the Proposed Scheme can be summarised as follows:

- Provision of shared bus lanes in both directions on R819 Walkinstown Road between Walkinstown Roundabout and R110 Long Mile Road;
- Provision of 2.0m wide cycle tracks in both directions, segregated from bus lanes on Drimnagh Road;
- Upgrade of pelican crossing to Toucan crossing on the western arm of the Drimnagh Road/ Errigal Road signalised junction;
- Upgrade of pelican crossing to Toucan crossing on the western arm of the Drimnagh Road/ Cooley Road signalised junction;
- Provision of segregated cycle tracks in both directions along Bunting Road / St Mary's Street. Provision of traffic calming measures and raised tables across side streets;
- Tapered cycle lanes provided on Herberton Road and Sundrive Road on approach to the junction with Crumlin Road;
- Provision of segregated wide cycle tracks in both directions on Kildare Road and Clogher Road (with the exception of a section between the Clogher Road/ Saul Road junction and Clogher Road/ Sundrive Road junction). Road markings will indicate that Kildare Road and Clogher Road are 'Quiet Routes' (in traffic terms); and
- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lane.

Along Section 3, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle track kerb will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents Table 6.36 outline the cycling qualitative assessment along Section 3 of the Proposed Scheme, with reference to the accompanying sensitivity for each section and the resultant Significance of Impact.

Table 6.36: Section 3 – Cycling Impact during Operational Phase

Locations	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
Walkinstown Roundabout to R110 Long Mile Road	A5970 – A6750	D	B	Medium	Medium	Positive Significant
R819 Walkinstown Road / Drimnagh Road to R110 Drimnagh Road / Kildare Road / St Mary's	A6750 – A7500	B	A	Low	High	Positive Moderate
Bunting Road to Clogher Road via Kildare Road	D0 - E2447	B	A	Low	Medium	Positive Moderate
Section Summary		C	A	Medium	Medium	Positive Significant

The contents of Table 6.36 demonstrate that the scheme will have positive long-term impact on the cycling environment between the Walkinstown Roundabout and Dolphin Road.

The LoS rating of the cycling facilities will improve from a D to a B in one subsection, from a B to an A in two subsections in Do Minimum compared to the Do Something, determined using the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

The Bunting Road to Clogher Road route is proposed as a quiet cycle route in terms of traffic flows, with cycle tracks provided on both sides of the road and priority of junctions. This provides an alternative route for cyclists using Walkinstown Road, which is proposed to have shared bus and cycle facilities.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the cycling infrastructure along Section 3 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to 'Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable'.

6.4.6.1.4.3 Bus Infrastructure

It is proposed that there will be a total of 36 bus stops along Section 3 with seven fewer inbound and three fewer outbound, than in the Do Minimum. The layout of new bus stops is considered to better serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.37 outline a summary of the improvements to the bus stop infrastructure along Section 3 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.37: Section 3 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	15	33%	36	100%	It is proposed that all bus stops provide real-time information.
Timetable information	33	72%	36	100%	It is proposed that all bus stops provide timetable information, this is consistent with Do Minimum.
Shelter	22	48%	36	100%	It is proposed that all bus stops along this section is to be provided with shelter.
Seating	18	39%	36	100%	It is proposed that all bus stops along this section is to be provided with seating.
Accessible Kerbs	22	48%	36	100%	It is proposed that all bus stops provide timetable information.
Indented Drop Off Area	1	2%	0	0%	All stops inline.
Total Stops	46		36		10 fewer stops along Section 3 compared to the Do Minimum

The contents of Table 6.37 indicate that there are improvements to the bus stop facilities along Section 3 of the Proposed Scheme. All stops along this section will be inline, meaning that buses will not incur delay when setting off after picking up passengers. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 3 of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, Table 6.38 below outlines the bus qualitative assessment along Section 3 of the Proposed Scheme.

Table 6.38: Section 3 - Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Magnitude of Impact	Sensitivity	Significance of Effect
Section 3 – Crumlin and Grand Canal	A5970 - A9250	<ul style="list-style-type: none"> Number of stops rationalised from 46 down to 36, striking balance between bus stop coverage and service journey times; and Moderate improvement in bus stop facilities, which are reasonable at present. 	Medium	Medium	Positive Significant

The contents of Table 6.38 show the Proposed Scheme improves the quality of existing bus infrastructure along Section 3 of the Proposed Scheme, which will provide long-term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is **Medium Positive**. The sensitivity of environment rating is predominately categorised as ‘medium’. This results in a **Positive, Significant and Long-term effect** on this section.

6.4.6.1.4.4 Parking and Loading

The proposals will impact on existing parking along Section 3 of the Proposed Scheme and the main changes are as follows:

The changes to parking and loading in Section 3 have been considered in two parts

- Changes along the proposed CBC itself; and
- Changes along the proposed ‘Quiet Routes’ for cyclists, along the Bunting Road / St Mary’s Road corridor, and the Kildare Road / Clogher Road corridor.

The areas of parking change along the proposed CBC are as follows:

- The Supervalu store on the east side of Walkinstown Road currently has a 174-space car park. Under the proposals, 27 spaces would be removed to widen Walkinstown Road sufficiently to provide a general traffic lane and a bus lane in both directions. As these spaces are on private land, this is considered to be a **Negligible and Long-term effect**. This could be mitigated by the provision of approximately fourteen number parallel car parking spaces in the remaining area.
- The removal of 45 informal spaces on the north side of Long Mile Road and the south side of Drimnagh Road between Slievebloom Park and Kildare Road junction. The Proposed Scheme will provide 18 parking spaces, 2 disabled spaces and two taxi spaces to serve the row of businesses and local shops. The perpendicular parking arrangement is considered to be dangerous, and could lead to conflicts between reversing vehicles and westbound traffic on Drimnagh Road. This loss considered to be a **Negative, Slight and Long-term effect**. Alternative informal parking is available nearby on Hughes Road.
- The removal of two spaces out of seven taxi spaces on the north side of Crumlin Road, immediately to the east of Kildare Road, adjacent to Crumlin Hospital and the removal of all 5 taxi spaces at Crumlin Shopping Centre. This is considered to be a **Negligible and Long-term effect** due to a minor number of spaces being removed and alternative taxi parking mitigation possible at Crumlin Shopping Centre.
- There are currently six informal spaces on Crumlin Road west of the Kildare Road junction which will be removed. Under the Proposed Scheme, two properties have driveways and two new spaces will be provided to formalise parking arrangements. This is considered to be a **Negative, Slight and Long-term effect**.
- There are currently 25 informal spaces on Crumlin Road between Clonard Road and Sundrive Road which appear to be used by businesses. Under the Proposed Scheme, all have driveways / hardstanding which could be provided to formalise parking arrangements. This is considered to have a **Positive, Moderate and Long-term effect**.
- The removal of two adjacent spaces on at the HSE centre on Crumlin Road where mitigation is proposed, therefore considered to have a **Negligible and Long-term effect**.

The areas of parking change along the proposed 'Quiet Routes' for cyclists are as follows:

- There are currently a 111 informal parking spaces on Bunting Street, St. Mary's Road, Kildare Road and Clogher Road. The Proposed Scheme will result in a removal of 44 spaces. However, to mitigate this, 67 parking spaces have been provided on Kildare Road. This is considered to have a **Negligible and Long-term effect** at this location.

The contents of Table 6.39 presents a summary of the proposed changes to parking along Section 3 of the Proposed Scheme.

Table 6.39: Section 3 – Overall Changes in Parking / Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
Walkinstown Road	Adjacent Parking (Car Park)	281	254	-27
Drimnagh Road	Informal Parking	63	18	-45
	Disabled Permit Parking	3	4	+1
Crumlin Road	Informal Parking	54	41	-13
	Adjacent Parking (Car Park)	983	981	-2
	Taxi	12	5	-7
Bunting Road / St Mary's Street / Kildare Road / Clogher Road	Informal Parking	111	67	-44
Total		1507	1370	-137

As shown in Table 6.39, there are approximately 1507 current parking spaces affected within the area of the Section 3 of the Proposed Scheme. Under the proposals, 137 parking spaces will be lost, a mixture of informal parking adjacent parking and taxi spaces. The Proposed Scheme will formalise the parking arrangements at these locations to improve the environment, particularly for pedestrians and cyclists. In one out of four locations impacted by parking changes (Walkinstown Road) the majority of the loss is associated with private land, and therefore it is noted that just over half of the spaces being removed are associated with informal or taxi parking. There is alternative parking available surrounding the corridor, with residents having driveways and with five taxi spaces having already identified alternative parking. Therefore, the overall impact of this loss of parking is considered to have a **Negative, Slight and Long-term effect**. This effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.5 Section 4 – Grand Canal to Christchurch

6.4.6.1.5.1 Pedestrian Infrastructure

The key infrastructural changes to the pedestrian link along Section 4 of the Proposed Scheme are the following:

- Provision of raised table crossings at side roads;
- Provision of raised table junction at South Circular Road / Dolphin's Barn junction; and
- Removal of left-turn slip lane at Dean Street / Patrick Street junction.

The assessment of the qualitative impacts on the Pedestrian Infrastructure for Section 4 of the Proposed Scheme are summarised in Table 6.40 along with the accompanying sensitivity for each junction and the resultant significance of effect. A detailed breakdown of the assessment at each junction can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.40: Section 4 – Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R110 Dolphin's Barn Street, R811 South Circular Road signalised junction	A9475	C	A	Medium	High	Positive Very Significant
R110 Cork Street / Cameron Street priority junction	A9900	C	B	Low	High	Positive Moderate
R110 Cork Street / Marrowbone Lane / Donore Avenue signalised junction	A10025	B	A	Low	High	Positive Moderate
R110 Cork Street / Ormond Street priority junction	A10350	B	A	Low	High	Positive Moderate
R110 Cork Street / Robinson's Court priority junction	A10425	B	A	Low	High	Positive Moderate
R110 Cork Street / Ardee Street / R110 St Luke's Avenue signalised junction	A10510	D	A	Medium	Low	Positive Moderate
R110 St Luke's Avenue / The Coombe / Dean Street signalised junction	A10850	C	A	Low	Medium	Positive Moderate
Dean Street and Francis Street priority junction	A10950	C	B	Low	Medium	Positive Moderate
Dean Street and New Row South priority junction	A10960	B	A	Low	Medium	Positive Moderate
Dean Street / New Street / Kevin Street Upper / Patrick Street signalised junction	A11000	C	B	Low	Medium	Positive Moderate
R137 Patrick Street / St Patrick's Close priority junction	A11050	C	B	Low	Low	Positive Slight
R137 Patrick Street / Bull Alley Street priority junction	A11190	C	B	Low	Medium	Positive Moderate
R137 Patrick Street / Dillon Place South priority junction	A11225	C	B	Low	Low	Positive Slight
R137 Patrick Street / Bride Road priority junction	A11300	B	A	Low	Medium	Positive Moderate
R137 Nicholas Street / Ross Road priority junction	A11340	C	B	Low	Low	Positive Slight
R137 Nicholas Street / Christchurch Place / Winetavern Street / High Street signalised junction	A11450	D	A	Medium	Medium	Positive Significant
Section Summary		C	A	Medium	Medium	Positive Significant

The contents of Table 6.40 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at junctions between Grand Canal and Christchurch.

The LoS during the Do Minimum scenario ranges from B to D, with eleven of the 16 impacted junctions along this section given the low C/ D rating. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A rating at nine of the impacted junctions and a B at seven junctions in the Do Something scenario. This is as a result of the proposed improvements to the existing pedestrian facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased footway and crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and Building for Everyone: A Universal Design Approach (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the pedestrian infrastructure along Section 4 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.5.2 Cycling Infrastructure

This assessment outlines the changes to the quality of cycling provision along Section 4 of the Proposed Scheme.

The key cycling improvements along Section 4 of the Proposed Scheme can be summarised as follows:

- Provision of continuous 2.0m wide cycle tracks on both sides of R110 Dolphin's Barn / Cork Street between R111 Dolphin Road and Cameron Street, replacing primarily 1.5m wide on-road cycle lanes;
- Provision of continuous cycle tracks on both sides of R110 Cork Street between Cameron Street and R137 New Patrick Street, replacing primarily 1.25m-wide on-road cycle lanes along this route; and
- Provision of continuous 2.0m wide cycle tracks on both sides of R137 Patrick Street between Dean Street and Christchurch Place, replacing 1.5m wide on-road cycle lanes.
- Upgrade of signalised crossings to Toucan crossings on the eastern and western arms of the R110 Cork Street / Marrowbone Lane / Donore Avenue junction;
- Upgrade of signalised crossing to Toucan crossing on the northern arm of the R137 Patrick Street / Bull Alley Street priority junction;
- Upgrade of signalised crossings to Toucan crossings on the eastern and western arms of the R110 Cork Street / Ardee Street / R110 St Luke's Avenue junction; and
- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lanes.

Along Section 4, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle track kerbs will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.41 outline the cycling qualitative assessment along Section 4 of the Proposed Scheme, with reference to the accompanying sensitivity for each section and the resultant Significance of Impact.

Table 6.41: Section 4 – Cycling Impact during Operational Phase

Locations	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
R111 Dolphin Road to Ardee Street	A9250 – A10500	B	A	Low	High	Positive Moderate
Ardee Street to R137 Patrick Street / St. Patrick's Close	A10500 – A11050	C	A	Medium	Medium	Positive Significant
R137 Patrick Street / St. Patrick's Close to Christchurch Place	A11050 – A11406	B	A	Low	Low	Positive Slight
Section Summary		B	A	Low	Medium	Positive Moderate

The contents of Table 6.41 demonstrate that the scheme will have a positive long-term impact on the cycling environment between the Grand Canal and Christchurch.

The LoS rating of the cycling facilities will improve from a C to an A in one subsection, from a C to a B in two subsections in the Do Minimum compared to the Do Something, determined using the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the

form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

Overall, it is anticipated that there will be a **Positive, Moderate and Long-term effect** to the quality of the cycling infrastructure along Section 4 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to 'Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable'.

6.4.6.1.5.3 Bus Infrastructure

It is proposed that there will be a total of 14 bus stops along Section 4 of the Proposed Scheme – seven inbound and seven outbound. This is one stop more than the number of bus stops as in the Do Minimum. The layout of new bus stops is amended, and is considered to better serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.42 outline a summary of the changes to the bus stop infrastructure along Section 4 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.42: Section 4 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	7	54%	14	100%	It is proposed that all bus stops provide real-time information.
Timetable information	10	77%	14	100%	It is proposed that all bus stops provide timetable information, this is consistent with Do Minimum.
Shelter	8	61%	13	93%	It is proposed that all but one bus stops along this section is to be provided with shelter.
Seating	8	61%	13	93%	It is proposed that all but one bus stops along this section is to be provided with seating.
Accessible Kerbs	5	39%	14	100%	It is proposed that all bus stops provide timetable information.
Indented Drop Off Area	1	7%	0	0%	All stops inline.
Total Stops	13		14		One more bus stop along Section 2 compared to the Do Minimum.

The contents of Table 6.42 indicate that there are improvements to the bus stop facilities along Section 4 of the Proposed Scheme. All stops along this section will be inline, within dedicated bus lanes along the entirety of the corridor. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 4 (there are no shelters nor seating at one bus stop in Christchurch to maintain existing

heritage realm) of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, the contents of Table 6.43 outlines the bus qualitative assessment along Section 4 of the Proposed Scheme.

Table 6.43: Section 4 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Magnitude of Impact	Sensitivity	Significance of Effect
Section 4 – Grand Canal to Christchurch	A9250 - A11450	<ul style="list-style-type: none"> Significant improvement in the provision of bus stop facilities, mainly through provision of real-time information, shelters, seating and accessible kerbs. Bus stops are located in more convenient locations for communities with improved access to signalised crossings and have been located to optimise bus journey times; 	High	Medium	Positive Very Significant

The Proposed Scheme improves the quality of existing bus infrastructure along Section 4 of the Proposed Scheme, which will provide long term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is High Positive. The sensitivity of environment rating is predominately categorised as ‘medium’. This results in a **Positive, Very Significant and Long-term effect** on this section.

6.4.6.1.5.4 Parking and Loading

The proposals will impact on existing parking along Section 4 of the Proposed Scheme and the main changes are as follows:

- The removal of seven pay and display spaces between Dolphins Barn and Christchurch, aligning with the public realm improvement plan. There are aims to provide alternatives along South Circular Road, therefore this removal has a **Negative, Slight and Long-Term effect**.
- The removal of 12 private parking spaces between Dolphins Barn and Christchurch. There are a plentiful number of other private parking spaces in the vicinity, therefore this is seen to have a **Negligible and Long-term effect**.
- The removal of one loading bay space, with space for one vehicle, located on the west side of Patrick Street between Dillon Place South and Bride Road. The loading bay serves the commercial properties on the west side of the road. This is being removed for the provision of a northbound cycle track. Possible mitigation would be to provide alternative loading bay parking on St Patricks Close, therefore this has a **Negligible and Long-term effect**.

The contents of Table 6.44 present a summary of the proposed changes to parking along Section 4 of the Proposed Scheme between the Do Minimum and Do Something scenarios.

Table 6.44: Section 4 – Overall Changes in Parking / Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
Dolphin’s Barn Street / Cork Street / St Luke’s Avenue	Designated Paid Parking	51	44	-7
	Adjacent Parking (Car Parks)	317	305	-12
Dean Street / Patrick Street / Christchurch	Loading Bay	10	9	-1
Total		378	358	-20

As shown in Table 6.44, there are currently approximately 378 parking spaces affected along Section 4 of the Proposed Scheme and it is proposed that 20 of these spaces are removed. The Proposed Scheme will formalise the parking arrangements at these locations to improve the environment, particularly for pedestrians and cyclists. Given the availability of equivalent types of parking along adjacent streets within 200m of these locations (and typically within under 100m), the overall impact of this loss of parking is considered to have a **Negative, Slight and Long-term effect**. This slight effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.6 Section 5 – Woodford Walk (R113) / New Nangor Road (R134) to Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction

6.4.6.1.6.1 Pedestrian Infrastructure

The key infrastructure changes to pedestrian links along Section 5 of the Proposed Scheme are summarised as follows:

- Footways with a minimum running width of 2.0m;
- Removal of left-turn slip lanes at the R134 New Nangor Road / Oak Road junction;
- Connection from the existing Grand Canal Greenway to the R134 New Nangor Road footway and cycle track east of the M50 overbridge and R134 New Nangor Road Cycle track west of the M50 overbridge;
- Raised table provision added to the Diageo Bailys access junction, off the R134 New Nangor Road;
- Raised table provision added to Toyota access of the R134 New Nangor Road;
- Removal of left-turn slip lanes at the R134 New Nangor Road / Killeen Road (north) junction; and
- Proposed provision of a pedestrian / cycle bridge to provide grade-separated facilities for all pedestrian and cycle movements at the R134 New Nangor Road / R810 Naas Road / R110 Long Mile Road signalised junction.

The assessment of the qualitative impacts on the pedestrian infrastructure for Section 5 of the Proposed Scheme is summarised in Table 6.45 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.45: Section 5 – Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R134 New Nangor Road / Woodford Walk signalised junction	F50	D	A	Medium	Low	Positive Moderate
R134 New Nangor Road / Nangor Road Business Park roundabout	F750	E	A	High	Low	Positive Moderate
R134 New Nangor Road / Oak Road signalised junction	F1000	C	A	Medium	Medium	Positive Significant
R134 New Nangor Road / Diageo Access priority junction	F1200	D	B	Medium	Low	Positive Moderate
R134 New Nangor Road / Willow Road signalised junction	F1400	D	A	Medium	Low	Positive Moderate
R134 New Nangor Road / Killeen Road (north) signalised junction	F1725	E	A	High	Medium	Positive Very Significant
R134 New Nangor Road / Killeen Road (south) signalised	F1825	D	B	Medium	Medium	Positive Significant
R134 New Nangor Road / R110 Naas Road / R110 Long Mile Road signalised junction	F2250	E	B	Medium	High	Positive Very Significant
Section Summary		D	A	Medium	Medium	Positive Significant

The contents of Table 6.45 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at junctions between the Woodford Walk / New Nangor Road junction to the Long Mile Road / Naas Road / New Nangor Road junction.

The LoS during the Do Minimum scenario ranges from E to C, with seven of the eight impacted junctions along this section given the low D/ E rating. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A rating at five of the impacted junctions and a B at three junctions in the Do Something scenario. This is as a result of the proposed improvements to the existing pedestrian facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and Building for Everyone: A Universal Design Approach (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the pedestrian infrastructure along Section 5 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.6.2 Cycling Infrastructure

The key cycling improvements along Section 5 of the Proposed Scheme can be summarised as follows:

- Provision of continuous 2m wide cycle tracks on both sides of R134 New Nangor Road from the New Nangor Road/ Woodford Walk junction to the New Nangor Road / Killeen Road junction;
- Provision of continuous two-way 3.5m wide cycle tracks on the northern side of R134 New Nangor Road, and a continuous 2m wide cycle track on the southern side of New New Nangor Road between the New Nangor Road / Killeen Road junction and the R134 New Nangor Road / R810 Naas Road / R110 Long Mile Road junction;
- Provision of continuous two-way cycle track linking Killeen Road (north) to Killeen Road (south);
- Provision of link between the new cycle track on the north of R134 New Nangor Road and Grand Canal Greenway, in the vicinity of the M50 overbridge;
- Proposed provision of a pedestrian / cycle bridge to provide grade-separated facilities for all pedestrian and cyclist movements at the R134 New Nangor Road / R810 Naas Road / R110 Long Mile Road signalised junction; and
- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lanes.

Along Section 5, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation (as is the case in some areas of the baseline environment) is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle track kerb will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.46 outline the cycling qualitative assessment along Section 5 of the Proposed Scheme, with reference to the accompanying sensitivity for each section and the resultant Significance of Impact.

Table 6.46: Section 5 – Cycling Impact during Operational Phase

Locations	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
Woodford Walk to R810 Naas Road.	F0 – F2300	C	A	Medium	Medium	Positive Significant

The contents of Table 6.46 demonstrate that the scheme will have a positive long-term impact on the cycling environment between the Woodford Walk / New Nangor Road junction and the Long Mile Road / Naas Road / New Nangor Road junction.

The LoS rating of the cycling facilities will improve from a C to an A in the Do Minimum compared to the Do Something, determined using the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the cycling infrastructure along Section 5 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to 'Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable'

6.4.6.1.6.3 Bus Infrastructure

It is proposed that there will be a total of 11 bus stops along Section 5 of the Proposed Scheme – six inbound and five outbound. This is two more stops than in the Do Minimum, one inbound and one outbound. The layout of new bus stops is considered to better serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.47 outline a summary of the changes to the bus stop infrastructure along Section 5 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.47: Section 5 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	0	0%	11	100%	It is proposed that all bus stops provide real-time information.
Timetable information	0	0%	11	100%	It is proposed that all bus stops provide timetable information.
Shelter	0	0%	11	100%	It is proposed that all bus stops along this section is to be provided with shelter. A shelter will be added to inbound Stop 1218.
Seating	0	0%	11	100%	It is proposed that all bus stops along this section will provide seating.
Accessible Kerbs	0	0%	11	100%	Full provision.
Indented Drop Off Area	0	0%	0	0%	All proposed bus stops will be located inline within bus lanes.
Total Stops	9		11		Two more bus stops along Section 5 compared to the Do Minimum.

The contents of Table 6.47 indicate that there are significant improvements to the bus stop facilities along Section 5 of the Proposed Scheme. It is proposed that all bus stops will be provided inline within dedicated bus lanes along the entirety of the corridor, meaning that buses will not incur delay when setting off after picking up passengers. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 5 of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, Table 6.48 below outlines the bus qualitative assessment along Section 5 of the Proposed Scheme.

Table 6.48: Section 5 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Section 5 – Woodford Walk to R110 Naas Road	F0 - F2250	<ul style="list-style-type: none"> Two new stops provided, and three stops relocated closer to pedestrian facilities. Significant improvement in the provision of bus stop facilities. Only pole and flag markers exist at present at all stops. Bus lanes provided along the entirety of the corridor. 	High	Medium	Positive Significant

As indicated in Table 6.48, the Proposed Scheme improves the quality of existing bus infrastructure along Section 5 of the Proposed Scheme, which will provide long-term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is High Positive. The sensitivity of environment rating is predominately categorised as ‘medium’. This results in a **Positive, Significant and Long-term effect** on this section.

6.4.6.1.6.4 Parking and Loading

The proposals will impact on existing parking along Section 5 of the Proposed Scheme and the main changes are as follows:

- The removal of seven informal parking spaces (cars parked on the grass verge) and 10 adjacent car parking spaces at Toyota Ireland. This is seen to have a **Negligible and Long-term effect** due to private parking and essentially non-formal grass verge parking.
- The removal of 140 private spaces and three HGV spaces at the R134 New Nangor Road / Long Mile Road / Naas Road junction due to the proposed pedestrian and cycle bridge. As the change in parking is on private land, with sufficient surrounding parking available, this is considered to have a **Negligible and Long-term effect**.

The contents of Table 6.49 present a summary of the proposed changes to parking along Section 5 of the Proposed Scheme.

Table 6.49: Section 5 – Overall Changes in Parking / Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
R134 New Nangor Road	Adjacent Parking (Car Parks)	831 and 35 HGV	821 and 31 HGV	-10 and -4 HGV
	Informal Parking	7	0	-7
R134 New Nangor Road / Long Mile Road / Naas Road junction	Adjacent Parking (Car Parks)	857 and 157 HGV	745 and 154 HGV	-112 and -3 HGV
Total		1,695 and 192 HGV	1,566 and 185 HGV	-129 and -7 HGV

As shown in Table 6.49, there are approximately 1,695 current parking spaces affected within the area and 192 HGV parking spaces along Section 5 of the Proposed Scheme, nearly all on private land. Under the proposals, 129 parking spaces and 7 HGV spaces will be lost. This change is considered to have a **Negligible and Long-term effect** due to the majority being on private land, and a small loss compared to numbers of parking spaces remaining. Mitigation measures such as extending current private parking spaces are proposed. This effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.7 Section 6 – Long Mile Road (R110) / Naas Road (R810) / New Nangor Road (R134) junction to Drimnagh

6.4.6.1.7.1 Pedestrian Infrastructure

The key infrastructure changes to pedestrian links along Section 6 of the Proposed Scheme are summarised as follows:

- Footways with a minimum running width of 2.0m;
- Reduced carriageway (single lane one-way) with enhanced pedestrian facilities at R810 Naas Road / Old Naas Road junction;
- Removal of left-turn slip lane on R810 Naas Road to Kylemore Road;
- Proposed raised tables added to accesses off Walkinstown Avenue; and
- Proposed raised tables added to a number of accesses off the R110 Long Mile Road.

New Toucan crossing on the R110 Long Mile Road to serve schools. The Toucan crossings on R110 Long Mile Road would be enhanced by the introduction of raised tables to slow vehicle speeds. The assessment of the qualitative impacts on the pedestrian infrastructure for Section 6 of the Proposed Scheme is summarised in Table 6.50 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.50: Section 6 – Significance of Effects for Pedestrian Impact during Operational Phase

Junctions	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R810 Naas Road / Industrial Complex Access priority junction	F2425	E	B	Medium	Low	Positive Moderate
R810 Naas Road / Old Nass Road/ John F Kennedy Drive priority junction	F2750 - F2800	E	A	High	Low	Positive Moderate
R810 Naas Road /Robinhood Road priority junction	F2975	D	A	Medium	Medium	Positive Significant
R810 Naas Road / Kylemore Road / R112 Walkinstown Avenue signalised junction	F3350	F	B	High	High	Positive Profound
R112 Walkinstown Avenue / R110 Long Mile Road signalised junction	F3400	D	A	Medium	High	Positive Very Significant
R110 Long Mile Road / Walkinstown Parade priority junction	F3775	D	C	Low	High	Positive Moderate
R110 Long Mile Road / Slievebloom Park priority junction	F4100	B	A	Low	High	Positive Moderate
Section Summary		E	B	Medium	Medium	Positive Significant

The contents of Table 6.50 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at junctions between the Long Mile Road / Naas Road / New Nangor Road junction to Drimnagh.

The LoS during the Do Minimum scenario ranges from F to B, with three of the seven impacted junctions along this section given the low E/ F rating. These ratings have been determined using the previously referenced assessment criteria set out in Table 6.19. The LoS will improve to an A rating at four of the impacted junctions and a B at two junctions and a C rating at one of the impacted junctions in the Do Something scenario. This is as a result of the proposed improvements to the existing pedestrian facilities in the form of additional crossing locations, increased pedestrian directness, provision of traffic calming measures to reduce vehicle speeds, improved accessibility and increased crossing widths. All proposed facilities have been designed in accordance with the principles of DMURS and Building for Everyone: A Universal Design Approach (NDA 2020) with regards to catering for all users, including those with disabilities.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the pedestrian infrastructure along Section 6 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.4.6.1.7.2 Cycling Infrastructure

The key cycling improvements along Section 6 of the Proposed Scheme can be summarised as follows:

- Provision of cycle tracks and on both sides of R810 Naas Road between R110 Long Mile Road and R112 Walkinstown Avenue, replacing primarily on-road cycle lanes. On the north side of R810 Naas Road there will be a 3.25m wide, two-way cycle track. On the south side only a 2.0m cycle track will be provided;
- Provision of 1.5m – 2.0m wide cycle tracks in both directions on R112 Walkinstown Avenue, where no cycle provision currently exists;
- Provision of 2.0m wide cycle tracks in both directions on R110 Long Mile Road between R112 Walkinstown Avenue and R819 Walkinstown Road, replacing 1.5m-wide on-road cycle lanes;
- Upgrade of existing outbound pelican crossing to a Toucan crossing to the west of the Nass Road / Robinhood Road junction;
- Upgrade of existing inbound pelican crossing to a Toucan crossing to the west of the Nass Road / John F Kennedy Drive junction;
- Upgrade of existing pelican crossing to a Toucan crossing and provision of new Toucan crossing across R110 Long Mile Road to serve schools. The crossings would be enhanced by the introduction of raised tables to slow vehicle speeds; and
- Provision of upgraded cycling facilities at signalised junctions to provide continuous cycle lanes.

Along Section 6, the Proposed Scheme will provide a 60mm set down kerb segregation between the footway and the cycle track. This is of particular importance in the context of providing for pedestrians with visual impairments, whereby the use of white line segregation is not as effective for establishing a clear understanding of the change of pavement use and potential for cyclist / pedestrian interactions. The cycle tracks will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.51 outline the cycling qualitative assessment along Section 6 of the Proposed Scheme, with reference to the accompanying sensitivity for each section and the resultant Significance of Impact.

Table 6.51: Section 6 – Cycling Impact during Operational Phase

Locations	Chainage (m)	Do Minimum LoS	Do Something LoS	Impact	Sensitivity of Environment	Significance of Effect
R110 Long Mile Road to Nass Road / Walkinstown Avenue/ Kylemore Road junction	F2350 – F3000	C	A	Medium	Medium	Positive Significant
R810 Nass Road / Walkinstown Avenue/ Kylemore Road junction to R110 Long Mile Road	A3000 – A3350	C	A	Medium	High	Positive Very Significant
Walkinstown Avenue / R110 Long Mile Road junction to R110 Long Mile Road / Walkinstown Road	A3350 – A4100	B	A	Low	High	Not Moderate
Section Summary:		C	A	Medium	Medium	Positive Significant

The contents of Table 6.51 demonstrate that the scheme will have a positive long-term impact on the cycling environment between the Long Mile Road / Naas Road / New Nangor Road junction to Drimnagh.

The LoS rating of the cycling facilities will improve from a C to an A in two of the impacted junctions and from a B to an A at one of the impacted junctions in the Do Minimum compared to the Do Something, determined using

the previously referenced criteria set out in Table 6.22. This is as a result of improved segregation for cyclists and junction treatment in the form of cycle lanes traversing priority junctions and continuing through signalised junctions with protected treatment as part of the Proposed Scheme.

Overall, it is anticipated that there will be a **Positive, Significant and Long-term effect** to the quality of the cycling infrastructure along Section 6 of the Proposed Scheme, during the Operational Phase. A detailed breakdown of the assessment along each section can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

The findings of the cycling assessment fully aligns with the objective of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment of the Proposed Scheme, to ‘Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable’.

6.4.6.1.7.3 Bus Infrastructure

It is proposed that there will be a total of eight bus stops along Section 6 of the Proposed Scheme – four inbound and four outbound. This is two fewer inbound bus stops and three fewer outbound bus stops than in the Do Minimum. The layout of new bus stops is considered to better serve the existing and future catchment and be closer to existing and new pedestrian crossing facilities for improved convenience.

The contents of Table 6.52 outline a summary of the changes to the bus stop infrastructure along Section 6 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.52: Section 6 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	0	0%	8	100%	It is proposed that all bus stops provide real-time information.
Timetable information	13	100%	8	100%	It is proposed that all bus stops provide timetable information.
Shelter	12	92%	8	100%	It is proposed that all bus stops along this section is to be provided with shelter. A shelter will be added to inbound Stop 1218.
Seating	12	92%	8	100%	It is proposed that all bus stops along this section will provide seating.
Accessible Kerbs	11	85%	8	100%	Full provision.
Indented Drop Off Area	2	15%	2	25%	Two bus stops indented; others located in line within bus lanes.
Total Stops	13		8		Five bus stops removed as part of rationalization of stops along Section 6.

The contents of Table 6.52 indicate that there are significant improvements to the bus stop facilities along Section 6 of the Proposed Scheme. It is proposed that two bus stops will contain an indented drop off area, all other bus stops will be provided inline within dedicated bus lanes along the entirety of the corridor. Improvements in the provision of real-time information, shelters, seating and accessible kerbs at the bus stops throughout Section 6 of the Proposed Scheme are assessed as providing an overall positive impact for bus passengers. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

Taking into account the provision of bus lanes, and bus stop provision and facilities outlined within this section, Table 6.53 below outlines the bus qualitative assessment along Section 6 of the Proposed Scheme.

Table 6.53: Section 6 – Bus Qualitative Impact during Operational Phase

Section	Chainage (m)	Description of Impact	Magnitude of Impact	Sensitivity	Significance of Effect
R110 Naas Road to R819 Walkinstown Road	F2250 – F4100	<ul style="list-style-type: none"> Number of stops rationalised from 13 to 8, to optimise spacing and journey times; Slight improvement in bus stop facilities, mainly through provision of real-time information where none is currently present; and Bus lanes provided along the entirety of the corridor. 	Low	Medium	Positive Moderate

As indicated in Table 6.53, the Proposed Scheme improves the quality of existing bus infrastructure along Section 6 of the Proposed Scheme, which will provide long-term benefits for bus users and aligns with the overarching aim to provide enhanced bus infrastructure on the corridor. The impact for this section of the Proposed Scheme is Low Positive. The sensitivity of environment rating is predominately categorised as ‘medium’. This results in a **Positive, Moderate and Long-term effect** on this section.

6.4.6.1.7.4 Parking and Loading

The proposals will impact on existing parking along Section 6 of the Proposed Scheme and the main changes are as follows:

- The removal of 9 informal parking spaces in hardstanding area outside commercial and car sales commercial units on R110 Long Mile Road outbound carriageway east of Walkinstown Avenue / Long Mile Road junction. The impact of this loss is considered to have a **Negative, Slight and Long term effect**.
- On R110 Long Mile Road west of the Walkinstown Parade junction, the existing informal parking bay will be reduced in length resulting in the loss of 4 spaces to cater for a 2.0m wide cycle track running along the inside kerb. 9 residential properties that front this parking layby have private driveways. The impact of this loss is considered to have a **Negative, Slight and Long term effect**.

The contents of Table 6.54 present a summary of the proposed changes to parking along Section 6 of the Proposed Scheme.

Table 6.54: Section 6– Overall Changes in Parking / Loading Spaces

Location	Parking Type	Do Minimum	Do Something	Change
R110 Long Mile Road	Informal Parking	26	9	-17

As shown in Table 6.54, there are currently approximately 26 parking spaces affected along Section 6 of the Proposed Scheme and it is proposed that 17 of these spaces are removed. Nine of the spaces being removed are associated with private commercial premises. The Proposed Scheme will formalise the parking arrangements at these locations to improve the environment, particularly for pedestrians and cyclists. Given the availability of equivalent types of parking along adjacent streets within 200m of these locations (and typically within under 100m), the overall impact of this loss of parking is considered to have a **Negative, Slight and Long-term effect**. This moderate effect is considered acceptable in the context of the aim of the Proposed Scheme, to provide enhanced walking, cycling and bus infrastructure on this key access corridor.

6.4.6.1.8 Summary of Corridor-Wide Infrastructure Works

6.4.6.1.8.1 Pedestrian Infrastructure

The Proposed Scheme will increase the number of controlled pedestrian crossings from 135 in the Do Minimum to 181 in the Do Something scenario, representing a 34% increase.

6.4.6.1.8.2 Cycling Infrastructure

The Proposed Scheme will provide 16.6km inbound and 17.4km outbound of segregated cycle facilities which is an increase from only 2.1km inbound and 1.7km outbound in the Do Minimum scenario. In turn, there will be a decrease in non-segregated cycle facilities in the Do Something scenario compared to the Do Minimum as these facilities will be upgraded to segregated facilities in most cases with additional Quiet Street treatments.

Overall, cycle facilities in the Proposed Scheme will increase to approximately 85% outbound and 79% inbound, with the majority being segregated. The proportion of the corridor with segregated facilities (including quiet street treatment) will increase from 9.7% in the Do Minimum to 74% in the Do Something scenario.

6.4.6.1.8.3 Bus Priority Infrastructure

The Proposed Scheme will provide 12.4km inbound and 11.4km outbound of bus lanes across the corridor. This will represent an increase from 5.4km inbound and 4.5km outbound in the Do Minimum scenario. Bus priority through traffic management will be increased from 0.3km to 0.6km in the Do Something scenario. This contributes to an increase of 138% in total bus priority measures in both directions in the Do Something scenario compared to the Do Minimum. Overall, the Proposed Scheme will provide bus priority measures along 80% of the corridor.

6.4.6.1.8.4 Parking & Loading

The total parking provision will be reduced along the Proposed Scheme. The majority of this reduction is removal of off-street private parking. A minor number of informal general residential, commercial and taxi spaces are being removed. Aspects of the Proposed Scheme and network proposals are expected to mitigate the reduction in parking by reducing reliance on private cars due to availability of an improved bus network with journey reliability, by availability of improved cycling infrastructure, and by continued and managed use of private off-street parking. Similarly, many properties along the Proposed Scheme have driveways, and residents should be encouraged to utilise their available off-road space for parking (rather than seek to park on-street). Improved compliance with parking and loading bay regulations, and management of loading activities will also assist in offsetting the reduction in on-street parking spaces. It is concluded that the overall impact of loss of parking space on these streets is limited and will be largely offset by the cumulative effect of mitigations.

6.4.6.2 **Quantitative Analysis**

This quantitative assessment has been prepared with reference to the modelling outputs obtained from the four-tiered modelling approach outlined in Section 6.2. The following assessment topics have been considered:

- People Movement:
 - Peak Hour People Movement along the Proposed Scheme;
 - People Movement by Bus; and
 - Bus Boarding.
- Bus Network Performance Indicators:
 - Bus Journey Times; and
 - Bus Journey Time Reliability.
- General Traffic Network Performance Indicators:
 - Junction Capacity Outputs on the Direct Study Area; and
 - Redistributed flows and Junction Capacity Outputs on the Indirect Study Area.

6.4.6.2.1 People Movement Assessment

6.4.6.2.1.1 Overview

In order to understand the benefit of the Proposed Scheme with regards to the Movement of People following the implementation of the proposed infrastructure measures, a quantitative People Movement assessment has been undertaken using outputs from the NTA ERM and LAM and comparing the Do Minimum and Do Something peak hour scenarios for each forecast year (2028, 2043).

The assessment of People Movement includes the following metrics:

- The average number of people moved by each transport mode (i.e., Car, Bus, Walking and Cycling) along the corridor in the inbound and outbound direction. This metric is compared for the Do Minimum and Do Something scenarios in the AM and PM peak hours for each forecast year (2028, 2043). This metric provides an estimate of the modal share changes along the route as a result of the Proposed Scheme measures; and
- People Movement by Bus:
 - AM and PM peak hour Bus Passenger Loadings along the Proposed Scheme for each forecast year (2028, 2043); and
 - Total Passengers Boarding Buses on bus routes that use any part of the Proposed Scheme for each forecast year (2028, 2043).

6.4.6.2.2 Peak Hour People Movement along the Proposed Scheme

To determine the impact that the Proposed Scheme has on modal share in the direct study area as a result of its implementation, the weighted average number of people moved by each mode (Car, Bus, Active Modes) has been extracted from the ERM / LAM. The analysis compares the Do Minimum and Do Something scenarios both in the inbound and outbound direction in the AM and PM peak hours (8-9am, 5-6pm) for each forecast year (2028, 2043).

As outlined previously, the same demographic assumptions (population, employment levels) are included in both the Do Minimum and Do Something scenarios. The bus network and frequency assumptions are also the same in both scenarios and are in line with the BusConnects bus network proposals. It is acknowledged, therefore, that the assessment is conservative in terms of the level of people movement that is predicted in the Do Something scenario. The Do Something scenario will facilitate opportunities to increase bus network capacity operating along the corridor due to the extensive priority provided. 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. In the absence of the delivery of the Proposed Scheme, growth along this key corridor would continue to contribute to increased congestion and operational issues on the road network. The Proposed scheme delivers a reliable alternative to car-based travel that can support future sustainable growth and provide a positive contribution towards reducing carbon emissions.

6.4.6.2.2.1 2028 AM Peak Hour People Movement

Diagram 6.6 illustrates the People Movement by mode travelling along the Proposed Scheme inbound towards the city centre during the AM Peak Hour in 2028.

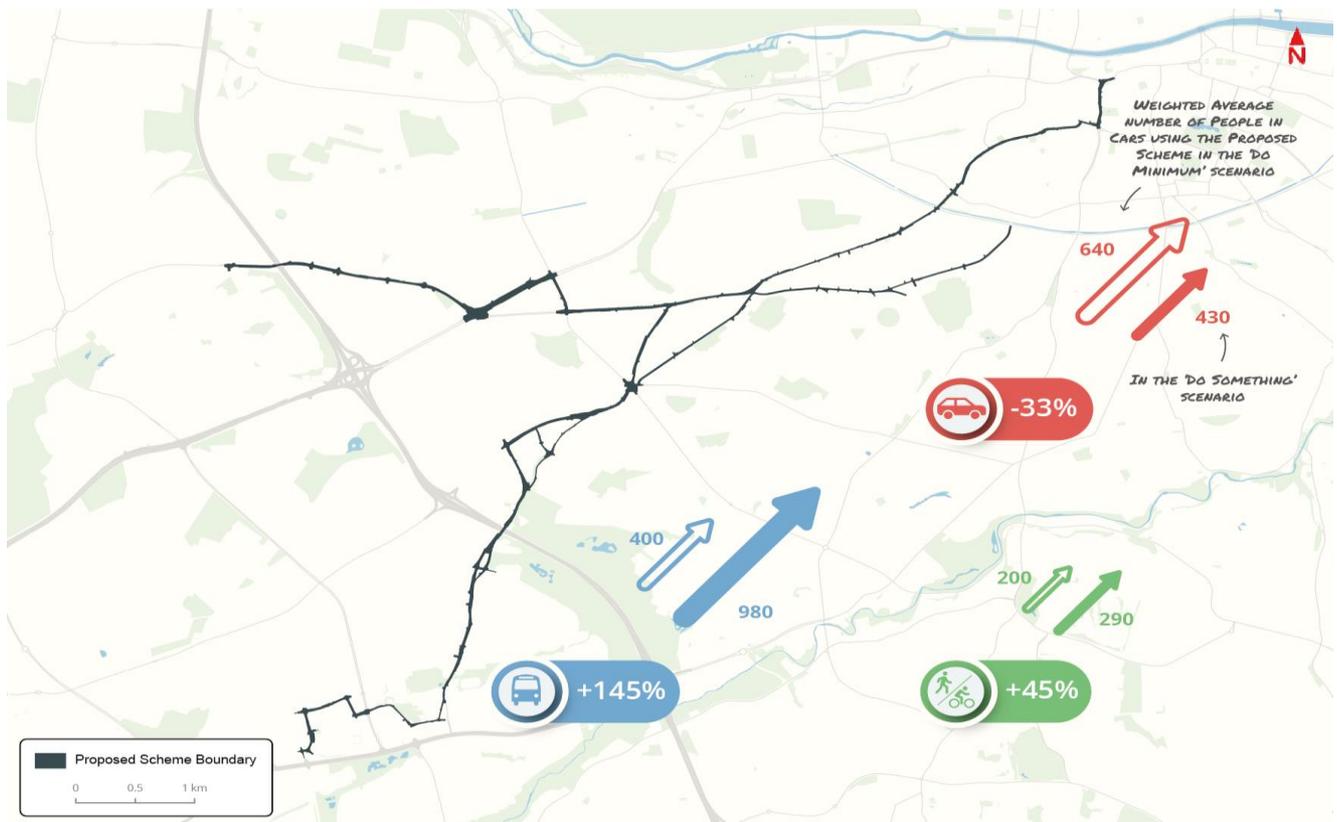


Diagram 6.6: People Movement by Mode travelling along the Proposed Scheme during 2028 AM Peak Hour

As indicated in Diagram 6.6, there is a reduction of 33% in the number of people travelling via car, an increase of 145% in the number of people travelling via bus and an increase of 45% in the number of people walking or cycling along the Proposed Scheme during the AM Peak Hour. It should be noted that the model predicts limited change in total walking trips between each scenario. This is due to the fact that walking trips in the Do Minimum scenario are also transferring to public transport and cycling due to the improved provision with any new walkers transferring from car replacing these trips.

The Proposed Scheme will facilitate a step change in the level of segregated cycling provision in comparison with existing conditions along the entire length of the corridor. The transport modelling undertaken, is therefore conservative in terms of the predicted cycling mode share. The Proposed Scheme has been designed to cater for much higher levels of cycling uptake and this will provide the opportunity for a significant increase in the movement of people travelling sustainably along the corridor, which would otherwise not be achieved in the absence of the Proposed Scheme.

The contents of Table 6.55 outline the difference in modal split between the Do Minimum and Do Something scenarios for each mode of transport in an inbound direction towards the City Centre during the AM Peak Hour. The results indicate a 37% increase in people moved as a result of the Proposed Scheme and a 112% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.55: Modal Shift of 2028 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	General Traffic	640	52%	430	25%	-210	-33%
		Public Transport	400	32%	980	58%	580	145%
		Walking	150	12%	140	8%	-10	-7%
		Cycling	50	4%	150	9%	100	200%
		Combined Walking/Cycling	200	16%	290	17%	90	45%
		Sustainable Modes Total	600	48%	1,270	75%	670	112%
		Total (All modes)	1,240	100%	1,700	100%	460	37%

6.4.6.2.2.2 2028 PM Peak Hour People Movement

Diagram 6.7 illustrates the People Movement by mode travelling along the Proposed Scheme outbound from the city centre during the PM Peak Hour.

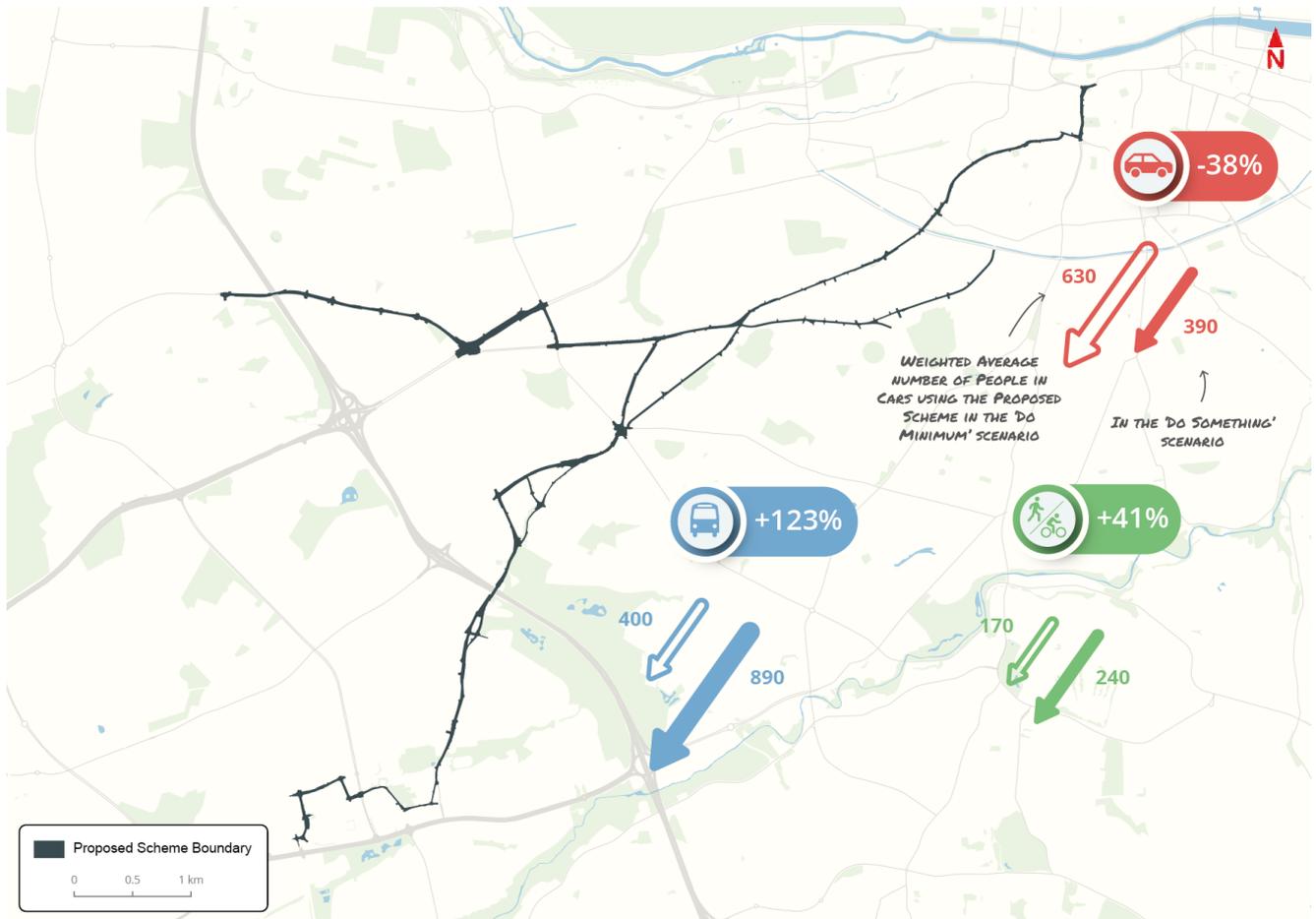


Diagram 6.7: People Movement by Mode travelling along the Proposed Scheme during 2028 PM Peak Hour

As indicated in Diagram 6.7, there is a reduction of 38% in the number of people travelling via car, an increase of 123% in the number of people travelling via bus and an increase in 41% in the number of people walking or cycling along the Proposed Scheme during the PM Peak Hour.

Table 6.56 outlines the difference in modal split between the Do Minimum and Do Something scenarios for each mode of transport in an outbound direction from the City Centre during the PM Peak Hour. The results indicate 27% increase in people moved as a result of the Proposed Scheme and 98% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.56: Modal Shift of 2028 PM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	630	53%	390	26%	-240	-38%
		Public Transport	400	33%	890	59%	490	123%
		Walking	120	10%	110	7%	-10	-8%
		Cycling	50	4%	130	9%	80	160%
		Combined Walking/Cycling	170	14%	240	16%	70	41%
		Sustainable Modes Total	570	48%	1,130	74%	560	98%
		Total (All modes)	1,200	48%	1,520	74%	320	27%

6.4.6.2.2.3 2043 AM Peak Hour People Movement

Diagram 6.8 illustrates the People Movement by mode travelling along the Proposed Scheme inbound towards the City Centre during the AM Peak Hour in 2043.

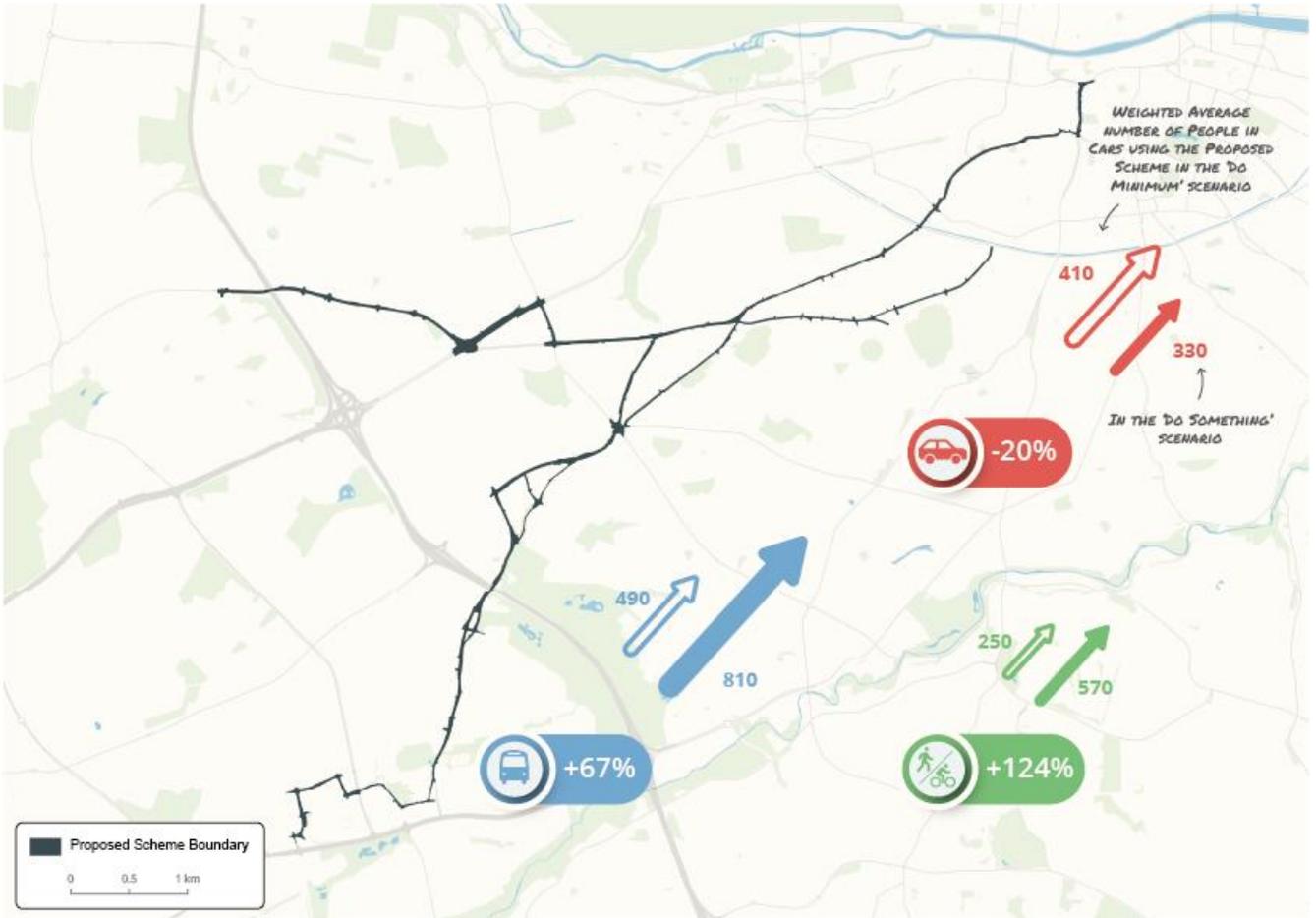


Diagram 6.8: People Movement by Mode travelling along the Proposed Scheme during 2043 AM Peak Hour

As indicated in Diagram 6.8, there is a decrease of 20% in the number of people travelling via car, an increase of 67% in the number of people travelling via bus and an increase of 124% in the number of people walking and cycling along the Proposed Scheme during the AM Peak Hour.

The contents of Table 6.57 outline the difference in modal split between the Do Minimum and Do Something scenarios for each mode of transport in an inbound direction towards the City Centre during the AM Peak Hour. The results indicate a 49% increase in people moved as a result of the Proposed Scheme and 87% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.57: Modal Shift of 2043 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	General Traffic	411	36%	329	19%	-82	-20%
		Public Transport	486	42%	813	48%	327	67%
		Walking	156	14%	191	11%	35	23%
		Cycling	98	9%	377	22%	279	285%
		Combined Walking/Cycling	254	22%	568	33%	314	124%
		Sustainable Modes Total	740	64%	1,381	81%	641	87%

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
		Total (All modes)	1,151	100%	1,711	100%	559	49%

6.4.6.2.2.4 2043 PM Peak Hour People Movement

Diagram 6.9 illustrates the People Movement by mode travelling along the Proposed Scheme outbound from the city centre during the PM Peak Hour in 2043.

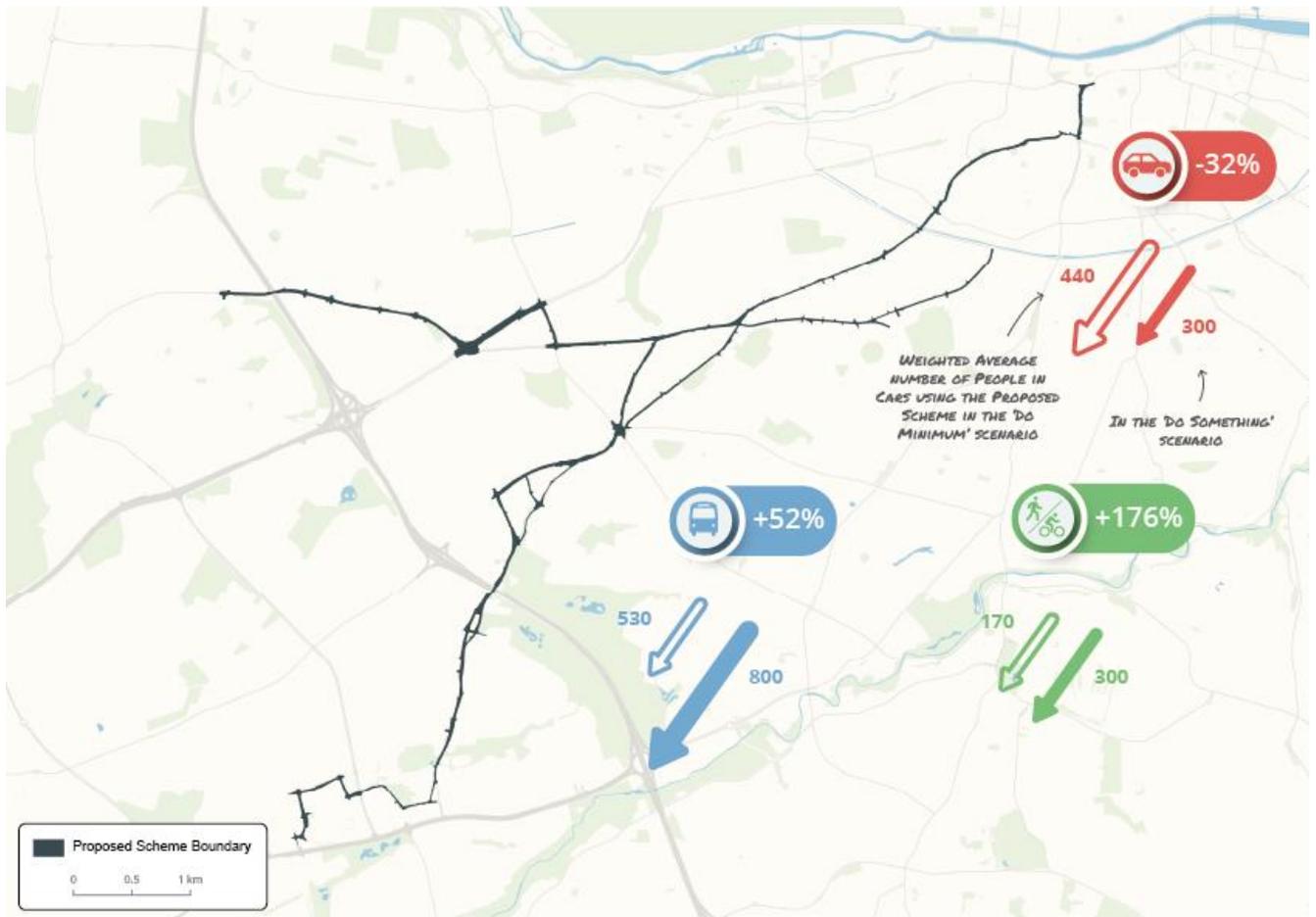


Diagram 6.9: People Movement by Mode travelling along the Proposed Scheme during 2043 PM Peak Hour

As indicated in Diagram 6.9, there is a decrease of 32% in the number of people travelling via car, an increase of 52% in the number of people travelling via bus and an increase of 176% in the number of people walking and cycling along the Proposed Scheme during the PM Peak Hour.

The contents of Table 6.58 outline the difference in modal split between the Do Minimum and Do Something scenarios for each mode of transport in an outbound direction from the City Centre during the PM Peak Hour. The results indicate 38% increase in people moved as a result of the Proposed Scheme and 82% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.58 Modal Shift of 2043 PM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	440	39%	300	19%	-141	-32%
		Public Transport	525	46%	799	51%	274	52%
		Walking	86	8%	147	9%	61	72%
		Cycling	84	7%	320	20%	236	282%
		Combined Walking/Cycling	169	15%	467	30%	297	176%
		Sustainable Modes Total	694	61%	1,266	81%	572	82%
		Total (All modes)	1,134	100%	1,565	100%	431	38%

6.4.6.2.3 People Movements by Bus

The following section presents the ERM demand outputs for People Movement by Bus in terms of passenger loadings along the corridor. The results indicate that the improvements in bus priority infrastructure with the Proposed Scheme in place show a substantial increase in Bus patronage during the peak hours.

6.4.6.2.3.1 2028 AM Peak Hour Bus Passengers

Diagram 6.10 and Diagram 6.11 present the passenger loading profile comparing the Do Minimum and Do Something scenarios in the AM Peak Hour in the inbound direction in 2028.

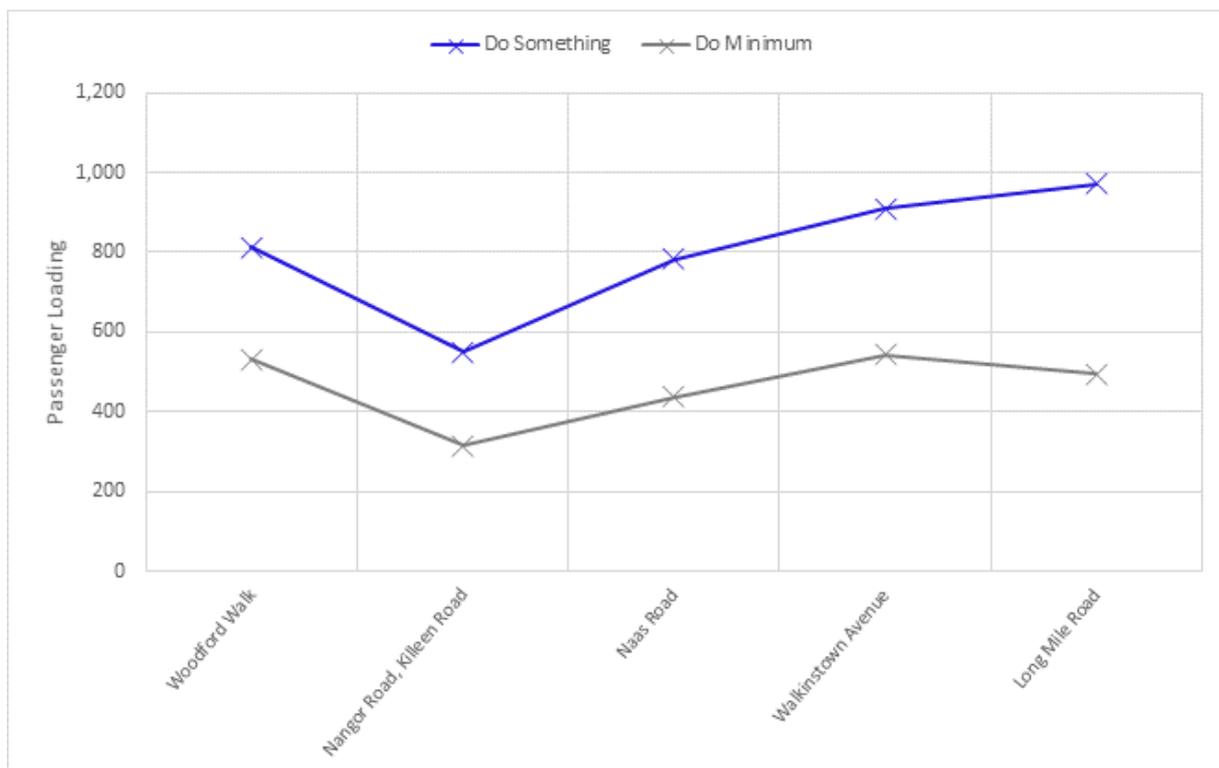


Diagram 6.10: 2028 AM Peak Hour Passenger Volume Along Proposed Scheme (inbound direction – Clondalkin to Drimnagh)

Diagram 6.10 shows higher levels of bus passenger loadings along the Clondalkin to Drimnagh section of the Proposed Scheme with a peak on the Long Mile Road, where the volume of passengers reaches 950 passengers in the AM Peak hour, compared to approximately 500 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 200 to 500 additional users on the corridor, compared to the Do Minimum scenario.

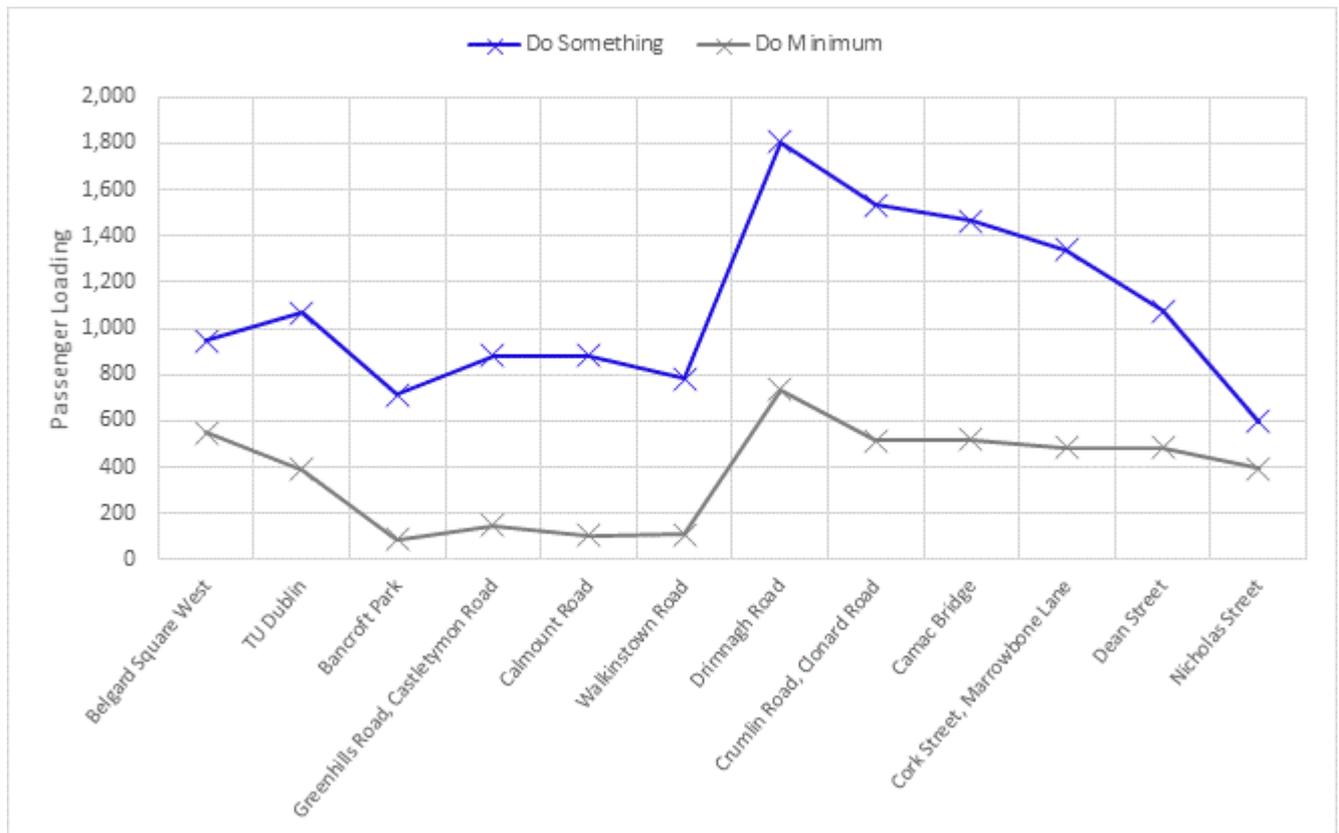


Diagram 6.11: 2028 AM Peak Hour Passenger Volume Along Proposed Scheme (inbound direction – Tallaght to City Centre)

Diagram 6.11 shows higher levels of bus passenger loadings along the Tallaght to City Centre section of the Proposed Scheme with a peak on Drimnagh Road where the two corridors meet and the D Spine services converge (D1 and D3 services combine with the D2, D4 and D5 services from this point). The volume of passengers reaches 1,800 passengers in the AM Peak hour, compared to approximately 700 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 500 to 1,000 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.2 2043 AM Peak Hour Bus Passengers

Diagram 6.12 and Diagram 6.13 present the passenger loading profile comparing the Do Minimum and Do Something scenarios in the AM Peak Hour in the inbound direction in 2043.

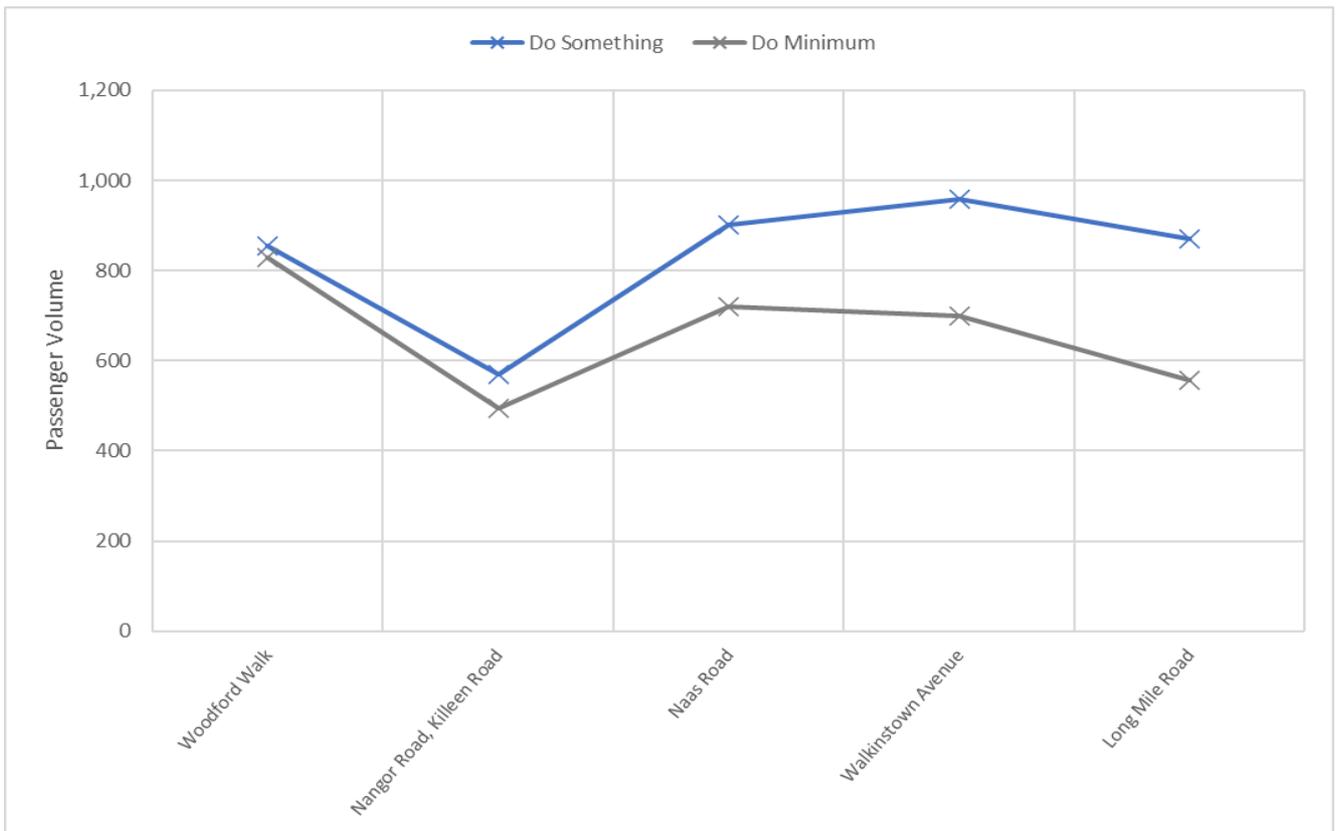


Diagram 6.12: 2043 AM Peak Hour Passenger Volume Along Proposed Scheme (inbound direction – Clondalkin to Drimnagh)

Diagram 6.12 shows higher levels of bus passenger loadings along the Clondalkin to Drimnagh section of the Proposed Scheme with a peak loading on the Long Mile Road, where the volume of passengers reaches 900 passengers in the AM Peak hour, compared to approximately 700 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 200 to 400 additional users on the corridor, compared to the Do Minimum scenario.

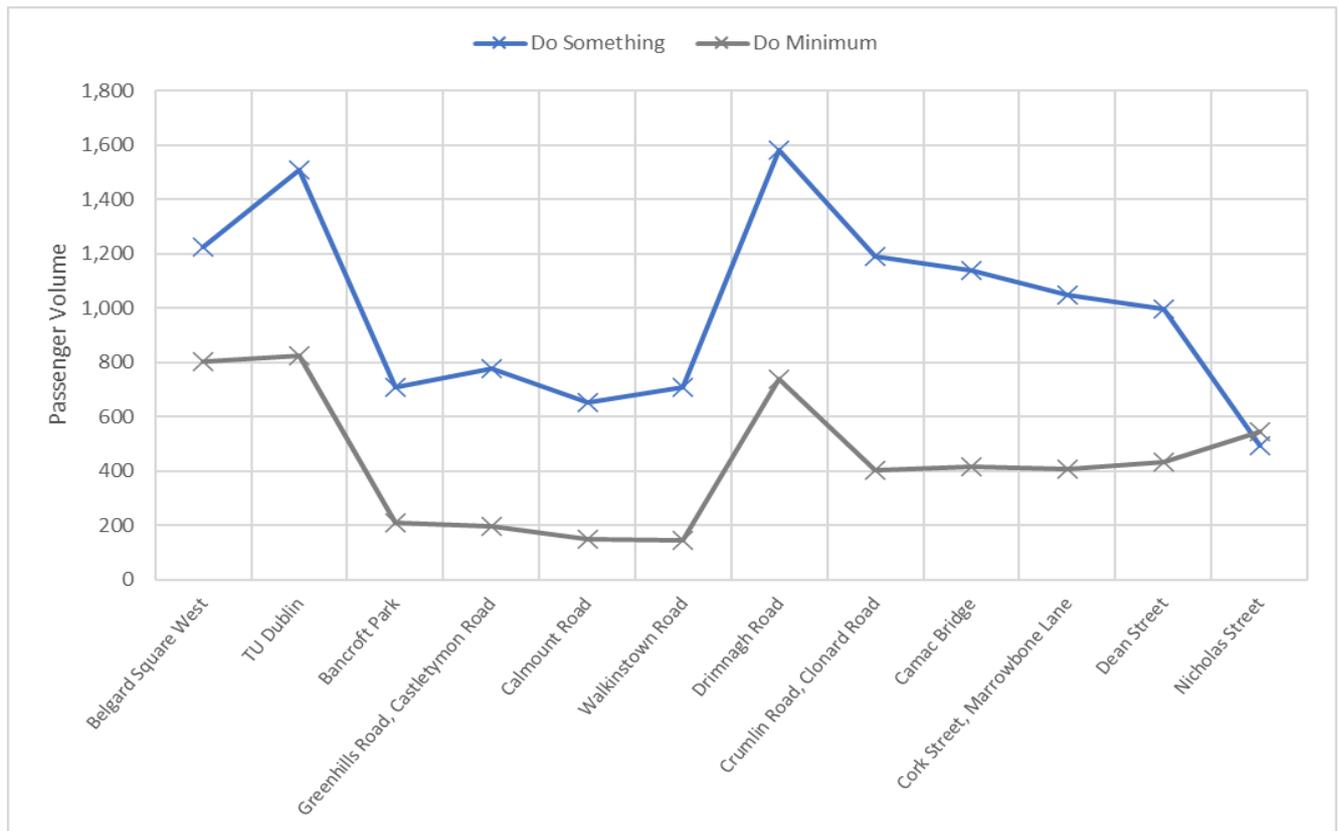


Diagram 6.13: 2043 AM Peak Hour Passenger Volume Along Proposed Scheme (inbound direction – Tallaght to City Centre)

Diagram 6.13 shows higher levels of bus passenger loadings along the Tallaght to City Centre section of the Proposed Scheme with a peak on Drimnagh Road where the two corridors meet and the D Spine services converge (D1 and D3 services combine with the D2, D4 and D5 services from this point). The volume of passengers reaches 1,600 passengers in the AM Peak hour, compared to approximately 850 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 600 to 1,200 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.3 2028 PM Peak Hour Bus Passengers

Diagram 6.14 and Diagram 6.15 present the passenger loading profile comparing the Do Minimum and Do Something scenarios in the PM Peak Hour in the outbound direction in 2028.

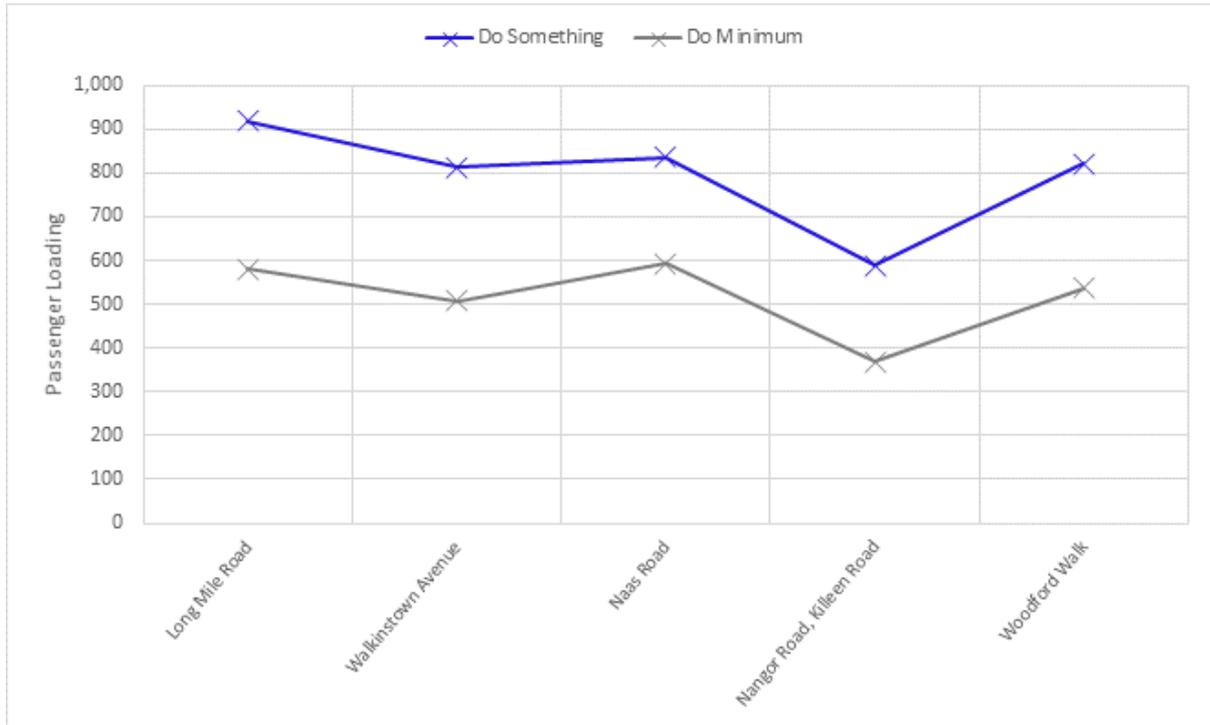


Diagram 6.14: 2028 PM Peak Hour Passenger Volume Along Proposed Scheme (outbound direction – Clondalkin to Drimnagh)

Diagram 6.14 shows higher levels of bus passenger loadings along the Clondalkin to Drimnagh section of the Proposed Scheme with a peak on the Long Mile Road, where the volume of passengers reaches 900 in the PM Peak hour, compared to approximately 600 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 300 to 400 additional users on the corridor, compared to the Do Minimum scenario.

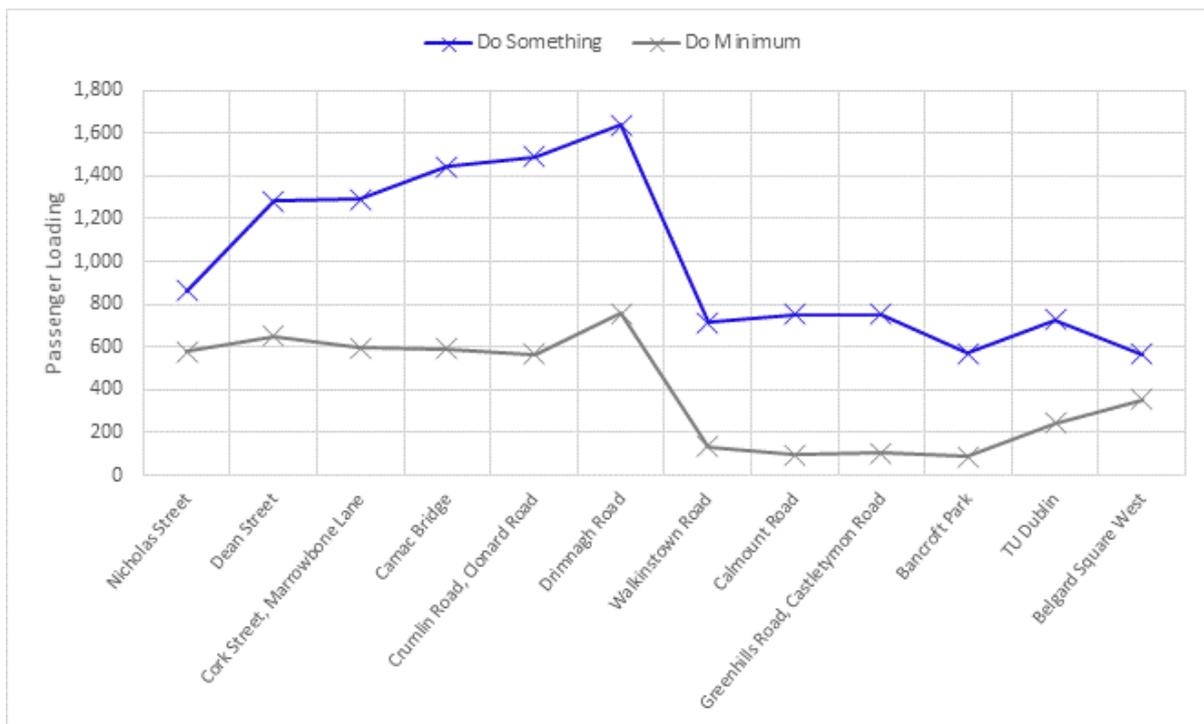


Diagram 6.15: 2028 PM Peak Hour Passenger Volume Along Proposed Scheme (outbound direction – Tallaght to City Centre)

Diagram 6.15 shows higher levels of bus passenger loadings along the Tallaght to City Centre section of the Proposed Scheme with a peak on Drimnagh Road where the two corridors meet and the D Spine services converge (D1 and D3 services combine with the D2, D4 and D5 services from this point). The volume of passengers reaches 1,600 passengers in the PM Peak hour, compared to approximately 750 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 500 to 900 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.4 2043 PM Peak Hour Bus Passengers

Diagram 6.16 and Diagram 6.17 present the passenger loading profile comparing the Do Minimum and Do Something scenarios in the PM Peak Hour in the outbound direction in 2043.

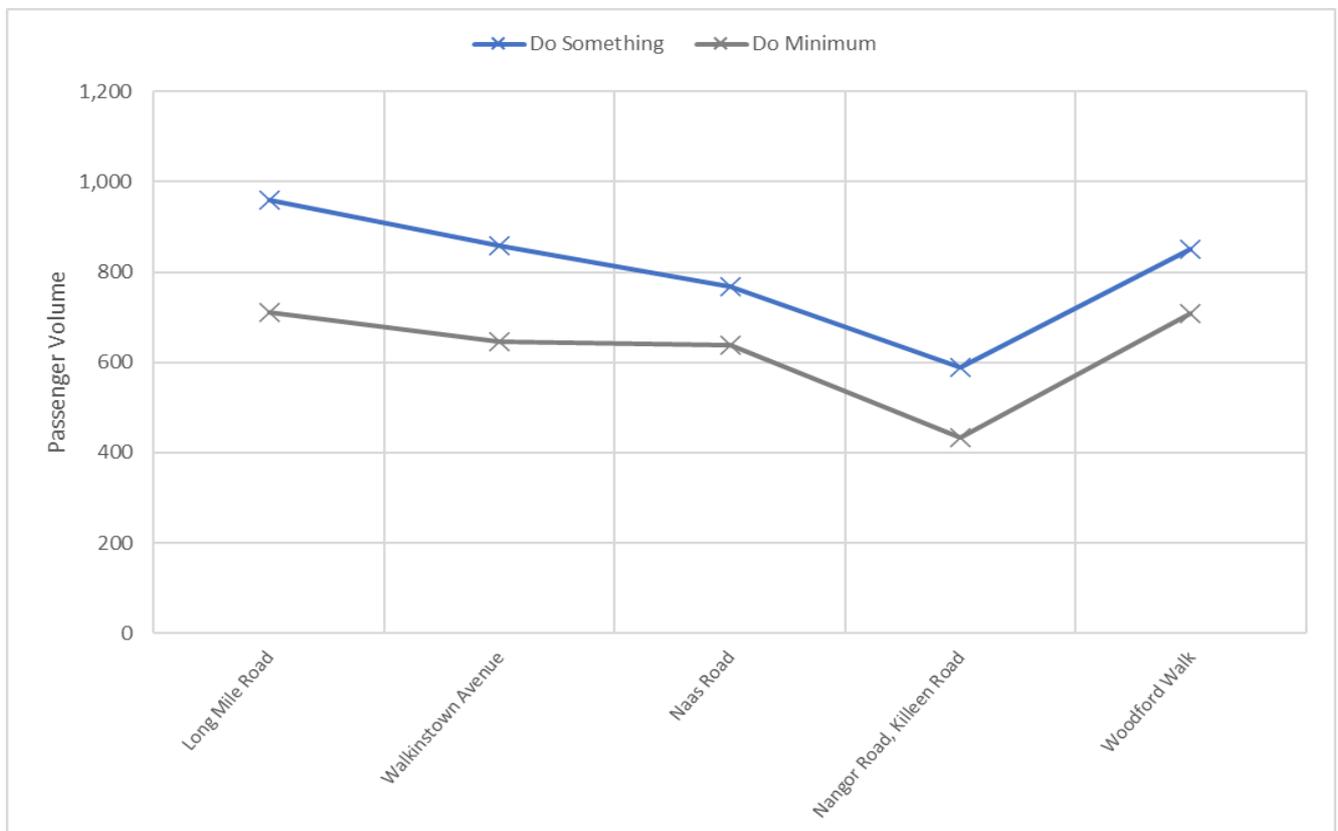


Diagram 6.16: 2043 PM Peak Hour Passenger Volume Along Proposed Scheme (outbound direction – Clondalkin to Drimnagh)

Diagram 6.16 shows higher levels of bus passenger loadings along the Clondalkin to Drimnagh section of the Proposed Scheme with a peak on the Long Mile Road, where the volume of passengers reaches 950 in the PM Peak hour, compared to approximately 700 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 200 to 300 additional users on the corridor, compared to the Do Minimum scenario.

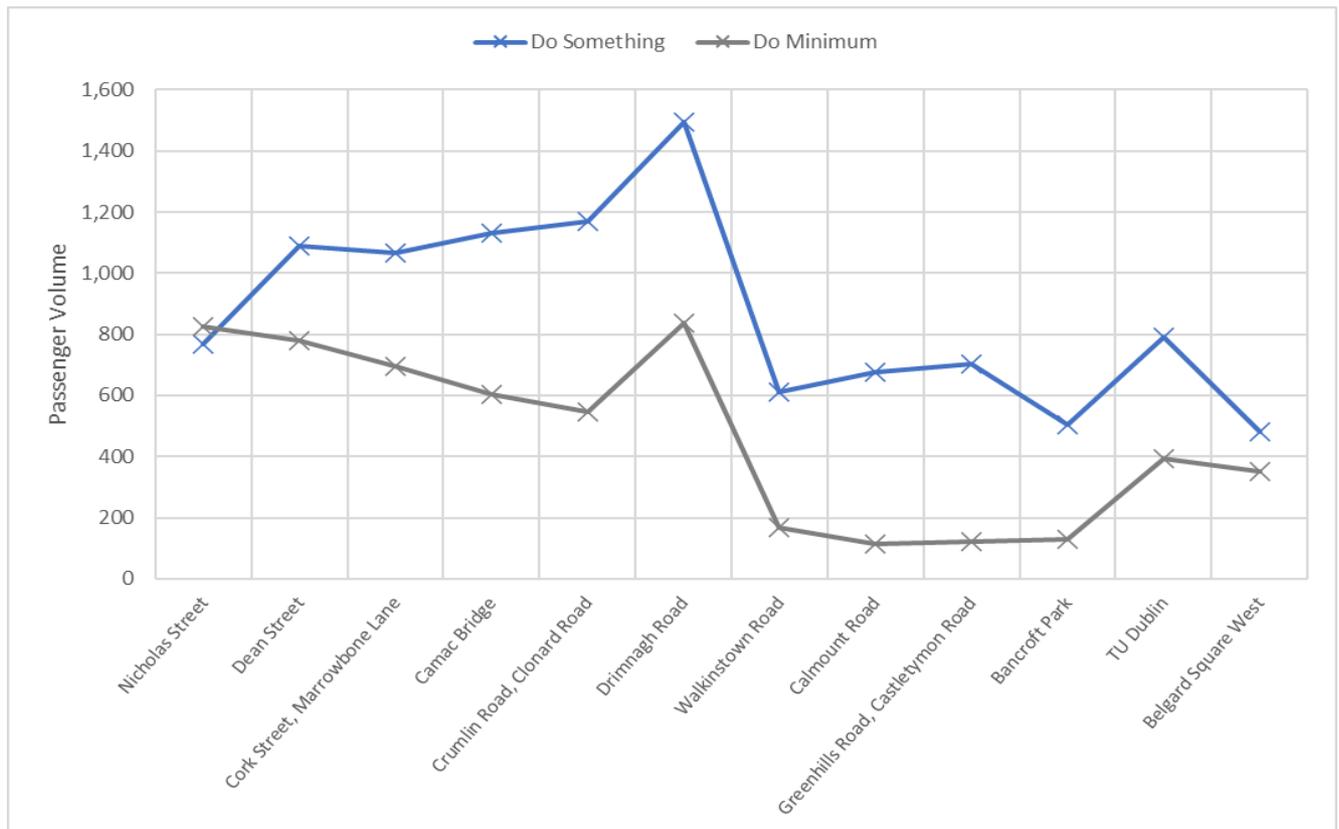


Diagram 6.17: 2043 PM Peak Hour Passenger Volume Along Proposed Scheme (outbound direction – Tallaght to City Centre)

Diagram 6.17 shows higher levels of bus passenger loadings along the Tallaght to City Centre section of the Proposed Scheme with a peak on Drimnagh Road where the two corridors meet and the D Spine services converge (D1 and D3 services combine with the D2, D4 and D5 services from this point). The volume of passengers reaches 1,500 passengers in the PM Peak hour, compared to approximately 900 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 600 to 1,000 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.5 Bus Boardings

Since many bus services commence and end further away from the direct alignment of the Proposed Scheme, an additional assessment has been undertaken to compare the Do Minimum and Do Something total passengers boarding on bus routes that use any part of the Proposed Scheme (including those stops not directly on the Proposed Scheme) in both 2028 and 2043 forecast years. The results for the 2028 Opening Year scenario are indicated in Table 6.59.

Table 6.59: 2028 Peak Hour Bus Boardings on Routes using the Proposed Scheme (inc. boarding at stops outside Proposed Scheme)

Time Period	Do Minimum (no. of boardings)	Do Something (no. of boardings)	Difference in No. of Boardings	Difference (%)
AM Peak Hour	20,730	23,070	2,340	11.3%
PM Peak Hour	17,710	19,710	2,000	11.3%

The contents of Table 6.59 shows that there will be a 11.3% increase in people boarding bus routes which use the Proposed Scheme during the AM Peak Hour. This represents an addition of 2,340 passengers in the AM Peak hour.

In the PM Peak hour, there will be a 11.3% increase in people boarding bus routes which use the Proposed Scheme, representing an additional 2,000 passengers.

The comparison results for the 2043 Design Year scenario are indicated in Table 6.60.

Table 6.60: 2043 Peak Hour Bus Boardings on Routes using the Proposed Scheme (inc. boarding at stops outside Proposed Scheme)

Time Period	Do Minimum (no. of boardings)	Do Something (no. of boardings)	Difference in No. of Boardings	Difference (%)
AM Peak Hour	21,874	23,282	1,409	6.4%
PM Peak Hour	16,549	22,908	6,360	38.4%

The contents of Table 6.60 shows that there will be a 6.4%% increase in people boarding bus routes which use the Proposed Scheme during the AM Peak Hour. This represents an addition of 1,409 passengers in the AM Peak hour.

In the PM Peak hour, there will be a 38.4%% increase in people boarding bus routes which use the Proposed Scheme, representing an additional 6,360 passengers.

6.4.6.2.4 People Movement - Significance of Impact

The significance of impact for the movement of People Movement by sustainable modes with the Proposed Scheme in place has been appraised qualitatively, taking into account the changes in mode share, demand changes by mode along the Proposed Scheme as well as bus usage presented above. The Proposed Scheme has been adjudged to deliver a **Positive, Very Significant and Long-term** impact in terms of People Movement by sustainable modes. The Proposed Scheme can be shown to deliver significant improvements in people movement by sustainable modes along the Proposed Scheme corridor, particularly by bus, with reductions in car mode share due to the enhanced sustainable mode provision.

The findings of the People Movement assessment demonstrate that the Proposed Scheme aligns fully with the aims and objectives of the CBC Infrastructure Works, to 'provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor'.

6.4.6.2.5 Operational Impacts for Bus Passengers and Operators

6.4.6.2.5.1 Overview

The impacts of the Proposed Scheme for Bus Users and Operators have been assessed based on journey times and reliability metrics extracted from the micro-simulation model of the corridor.

Due to the stochastic nature of the micro-simulation software, model outputs based on the average of 20 simulation seed runs (minimum of 5 recommended as per Transport for London (2010) Traffic Modelling Guidelines) have been calculated between the point of Proposed Scheme entry and exit and compared against the corresponding Do Minimum scenarios.

The results for bus services using the Clondalkin to Drimnagh and Tallaght to City Centre sections of the Proposed Scheme have been presented separately so that bus services using the whole length of each section of the Proposed Scheme can be assessed.

Clondalkin to Drimnagh Section

6.4.6.2.5.2 Bus Journey Time and Reliability changes as a result of the Proposed Scheme

To give an overview of how the Proposed Scheme will impact on bus journey times along the corridor, outputs for the D1 service, which traverses the length of the New Nangor Road-Long Mile Road-Walkinstown Avenue-Long

Mile Road section of the Proposed Scheme, have been extracted from the model. As outlined in Section 6.4.3.1, the assessment is based in the context of the full implementation of the BusConnects network re-design in both the Do Minimum and Do Something scenarios, with this section of the Proposed Scheme servicing the D-Spine services.

Inbound Direction

Average journey times for the inbound D1 service in 2028 Opening Year and in 2043 Design Year can be seen in Table 6.61. A breakdown of the changes in average journey times for all other bus services using the Proposed Scheme can be found in Appendix A6.4.3 (Average Bus Journey Times).

Table 6.61: D1 Service Bus Average Journey Times (Inbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	15.6	10.9	-4.7	-30%
2028 PM	15.4	10.7	-4.7	-31%
2043 AM	14.4	10.8	-3.6	-25%
2043 PM	16.0	10.8	-5.2	-33%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for inbound D1 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.62 and Diagram 6.18. Each dot in the diagram represents the journey time for each individual bus in each scenario. A larger range of journey times are an indication of lower levels of reliability in a given scenario.

Table 6.62: D1 Service – Range of Journey Times (Inbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	12.8	18.7	15.6	1.4	9.3	12.8	10.9	0.7
2028 PM	13.1	18.8	15.4	1.3	9.1	12.3	10.7	0.6
2043 AM	12.0	17.3	14.4	1.3	9.0	12.6	10.8	0.7
2043 PM	13.5	20.0	16.0	1.5	9.1	12.6	10.8	0.7

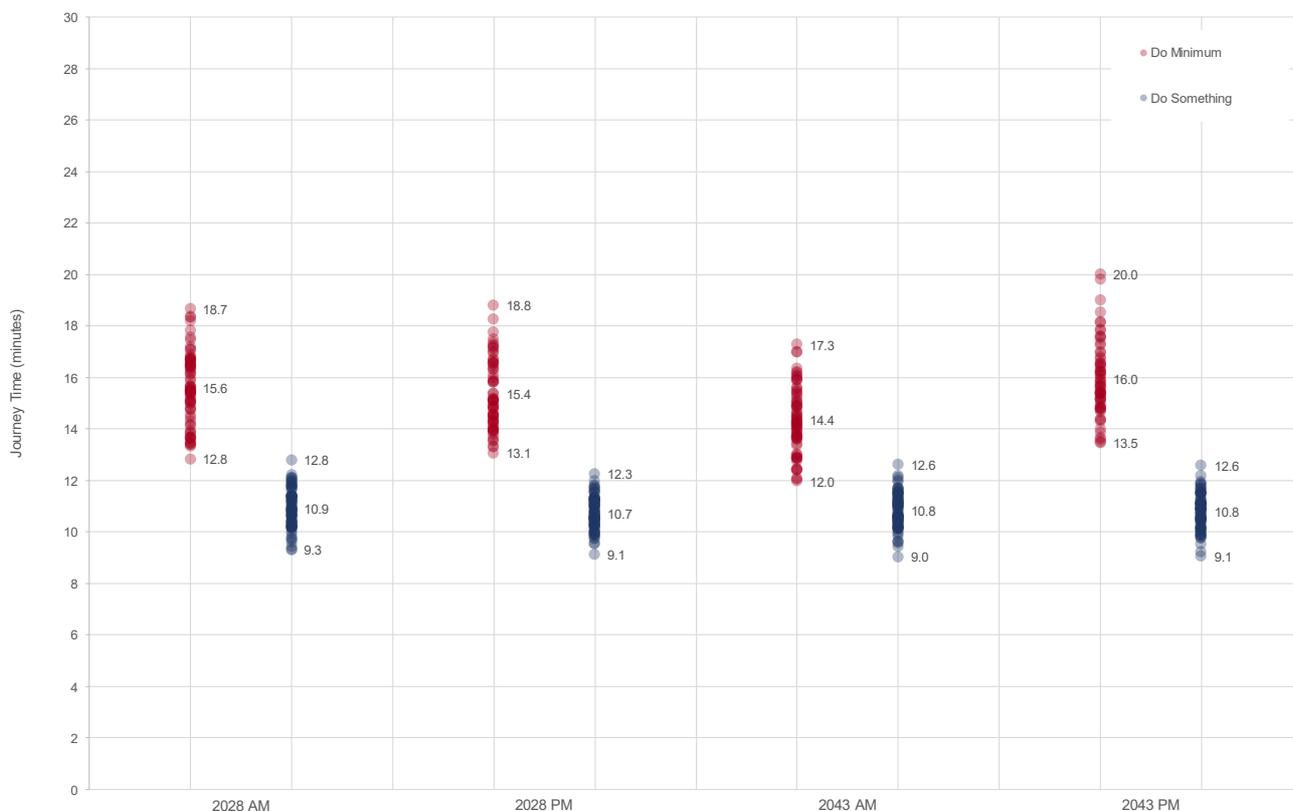


Diagram 6.18: D1 Bus Journey Times (Inbound Direction)

Based on the results presented in Table 6.61 the Proposed Scheme will deliver average inbound journey time savings for D1 service bus passengers of up to 4.7 minutes (30%) in 2028 (AM) and 3.6 minutes (25%) in 2043 (AM). Furthermore, results presented in Diagram 6.18 suggest an improvement in bus journey time reliability in all four scenarios, as indicated by the reduced ranges of journey times achieved with the individual durations focused much closer to the average journey times (lower standard deviation) in the Do Something scenario (blue dots) with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario (red dots).

Note that the variation in journey times shown above are based on one set of predicted flows for the Do Minimum and Do Something scenario. Traffic flows fluctuate daily which would mean that the variation in journey times would be much greater in the Do Minimum with any increases in traffic flows compared to the protection of journey time reliability provided by the bus priority measures that comprise the Proposed Scheme.

A comparison of average Do Minimum and Do Something inbound journey times are also illustrated in the cumulative time-distance graphs shown in Diagram 6.19 to Diagram 6.22. Note that the cumulative time-distance graphs are also based on the D1 service, which captures the full extent of this section of the Proposed Scheme to Walkinstown Road.

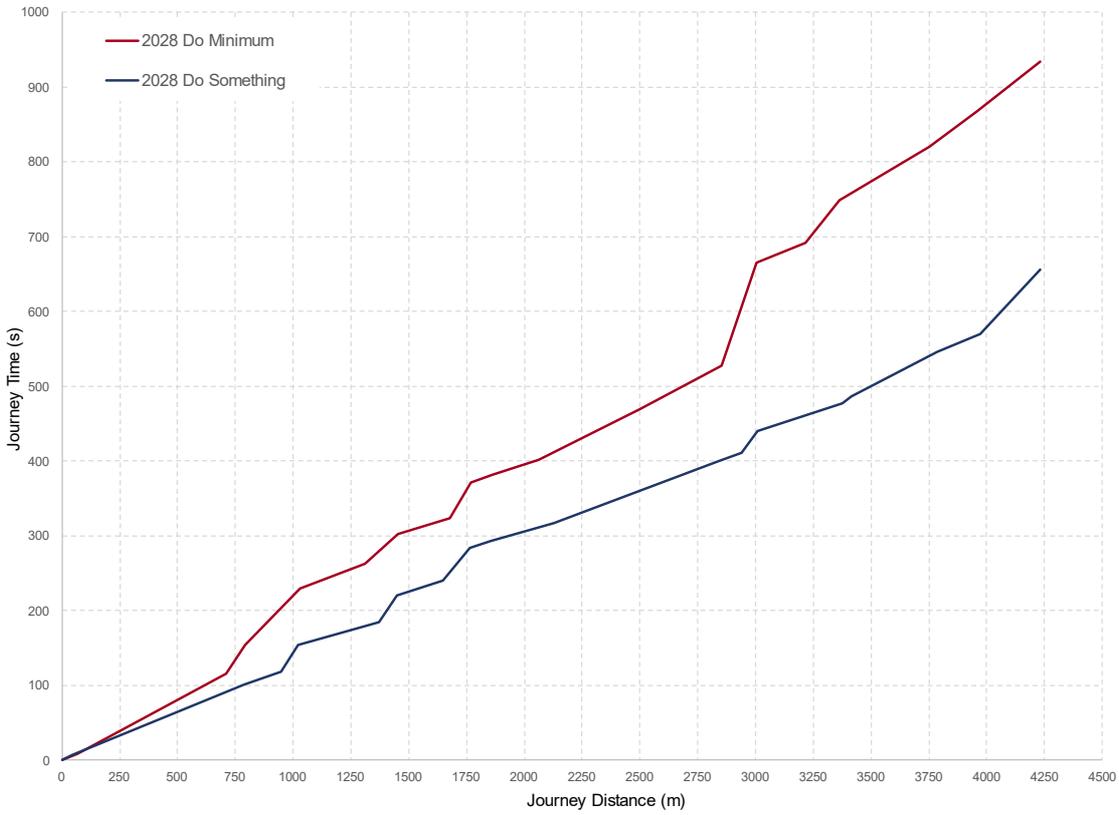


Diagram 6.19: D1 Bus Journey Time (2028 AM, Inbound)

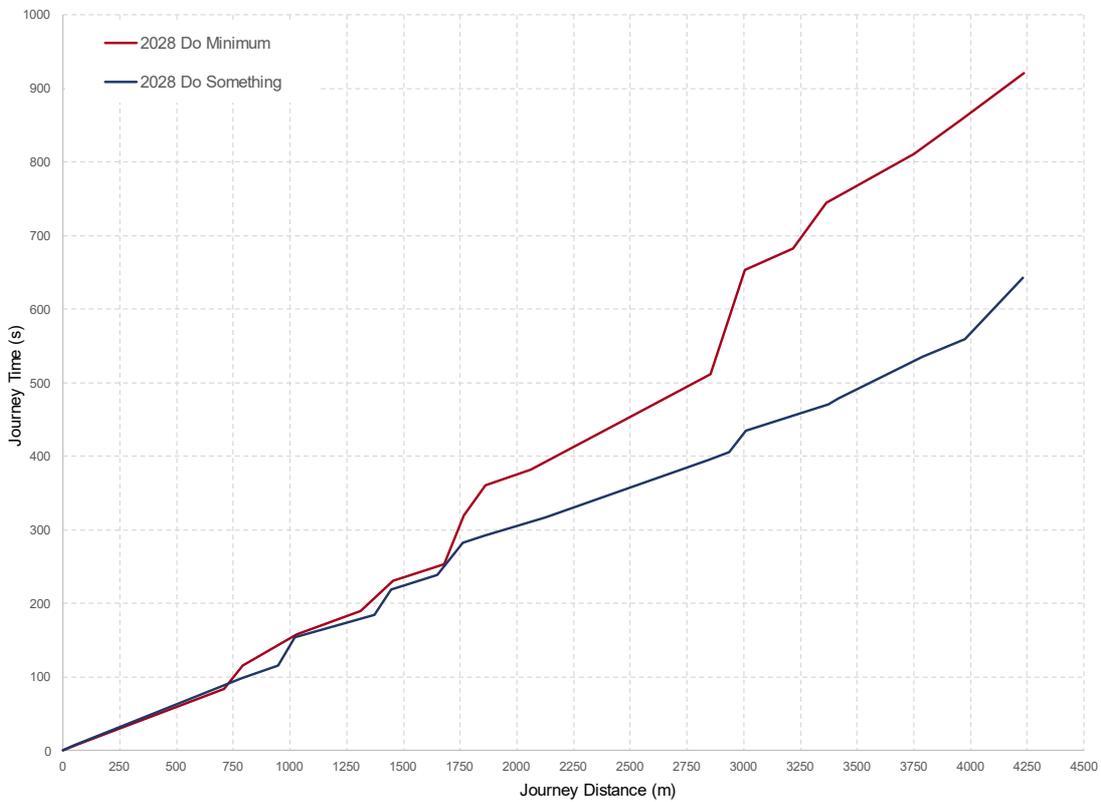


Diagram 6.20: D1 Bus Journey Time (2028 PM, Inbound)

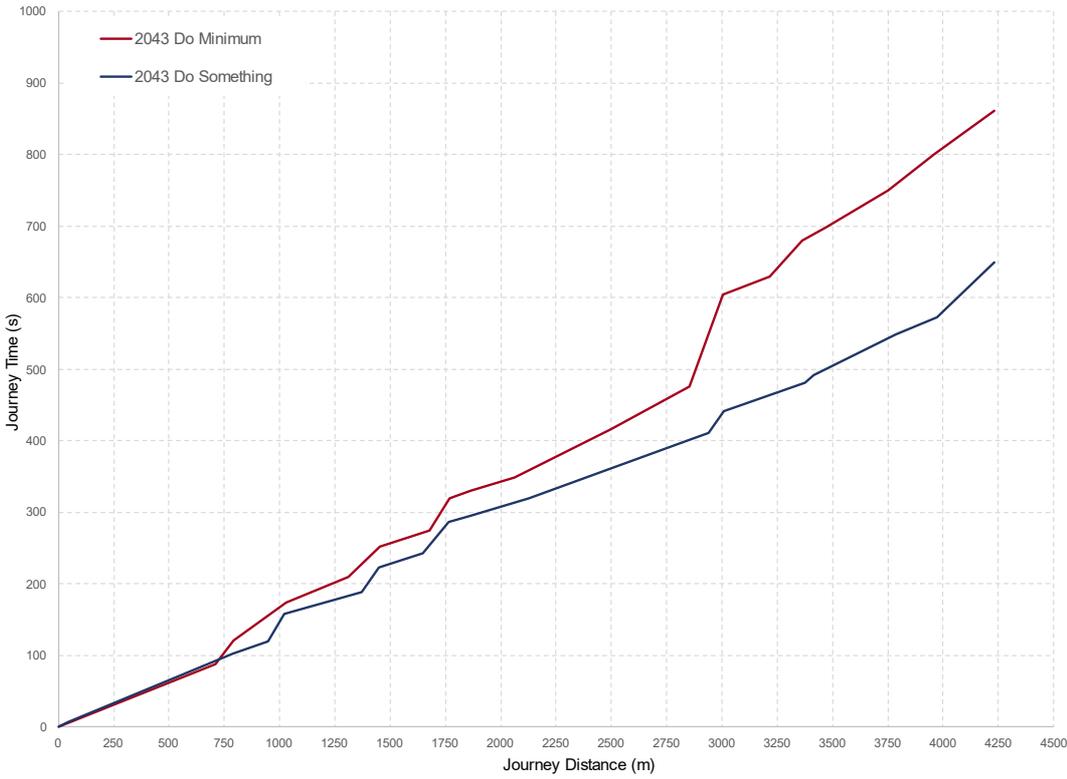


Diagram 6.21: D1 Bus Journey Time (2043 AM, Inbound)

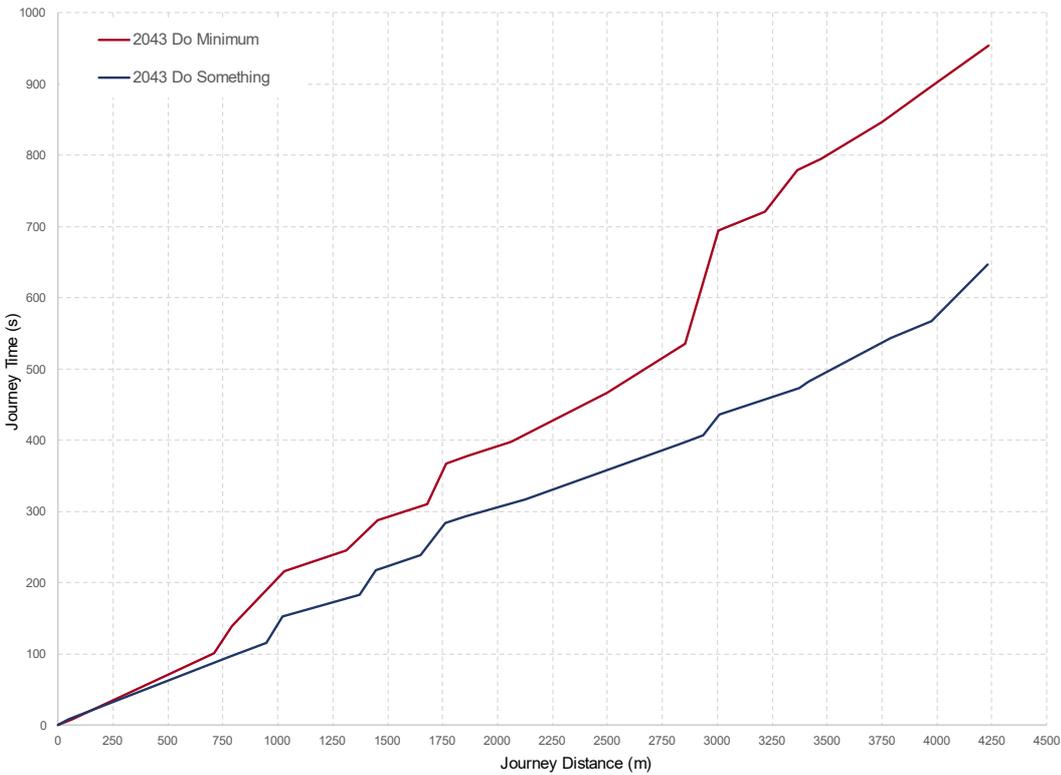


Diagram 6.22: D1 Bus Journey Time (2043 PM, Inbound)

Based on the results presented in Diagram 6.19 to Diagram 6.22 the Proposed Scheme is expected to deliver journey time savings, most notably on the section of New Nangor Road from the Riverview Business Centre junction and Naas Road at the Walkinstown Avenue junction. This is due to the introduction of additional sections of inbound bus lane, for example, on Walkinstown Avenue, that provides an uninterrupted bus lane as well as bus priority 'hurry calls' signalling (use of traffic signal plans to give buses priority ahead of general traffic) offered to mainline buses as part of the Proposed Scheme. Unlike in the existing configuration, the Proposed Scheme offers a dedicated bus lane for buses turning right at the Walkinstown Avenue junction. This coupled with the bus priority 'hurry calls' signalling for this movement, the design offers considerable benefits at this location.

Outbound Direction

Average journey times for the outbound D1 service in 2028 Opening Year and in 2043 Design Year can be seen in Table 6.63. A breakdown of the changes in average journey times for all other bus services using this section of the Proposed Scheme can be found in Appendix A6.4.3 (Average Bus Journey Times).

Table 6.63: D1 Service Bus Journey Times (Outbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	15.0	12.9	-2.1	-14%
2028 PM	15.0	12.9	-2.1	-14%
2043 AM	14.7	13.2	-1.5	-10%
2043 PM	14.5	12.9	-1.6	-11%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for outbound D1 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.64 and Diagram 6.23. Each dot represents the journey time for each individual bus in each scenario. A larger range of journey times are an indication of lower levels of reliability.

Table 6.64: D1 Service – Range of Journey Times (Outbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	12.2	18.1	15.0	1.3	10.5	15.5	12.9	1.0
2028 PM	12.2	18.7	15.0	1.2	10.6	15.2	12.9	0.9
2043 AM	12.1	17.6	14.7	1.2	11.3	15.4	13.2	0.9
2043 PM	12.1	17.3	14.5	1.2	10.5	15.4	12.9	0.9

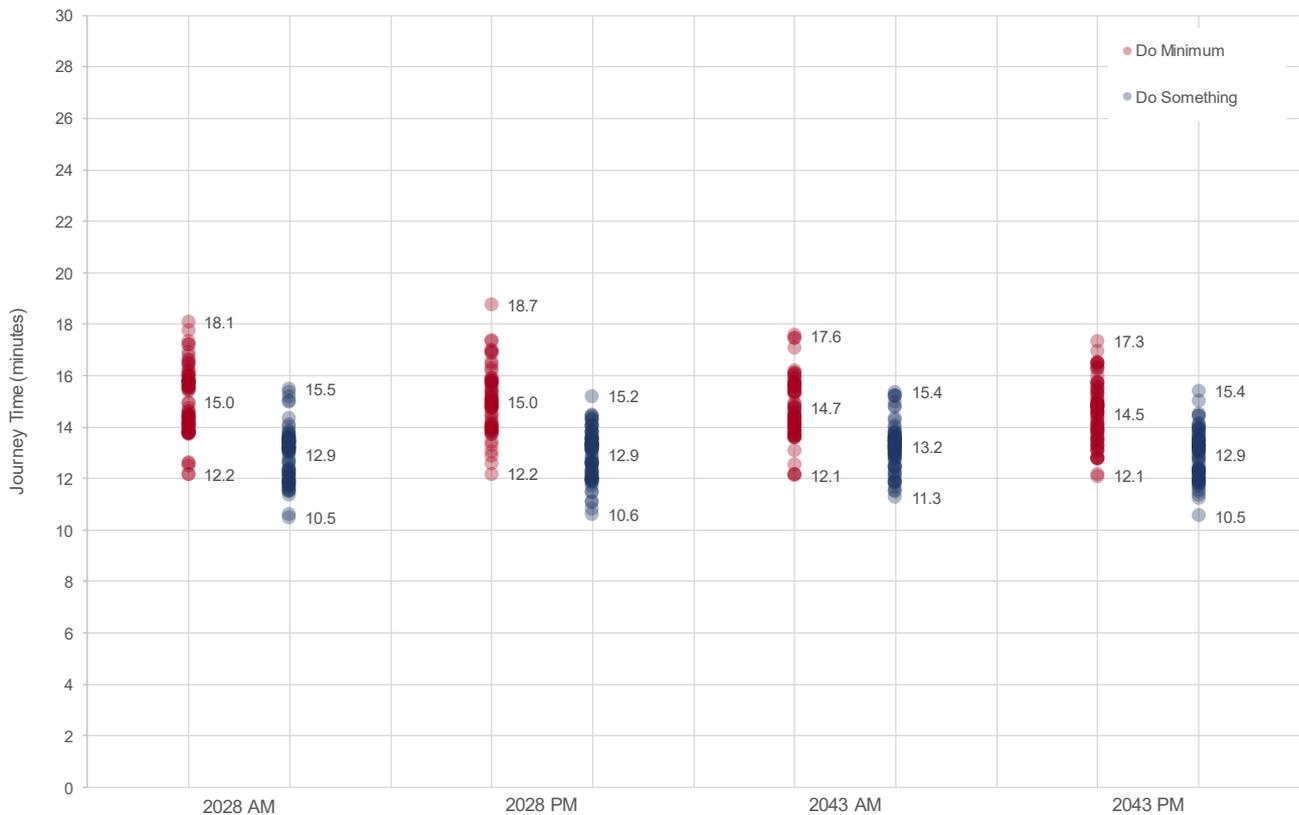


Diagram 6.23: D1 Bus Journey Times (Outbound Direction)

Based on the results presented in Table 6.64, the Proposed Scheme will deliver average outbound journey time savings for D1 service bus passengers of up to 2.1 minutes (14%) in 2028 (PM) and 1.6 minutes (11%) in 2043 (PM). Furthermore, results presented in Diagram 6.23 suggest an improvement in bus journey time reliability in all four scenarios as indicated by the reduced ranges of journey times achieved with the durations focused much closer to the average journey times (lower standard deviation) in the Do Something scenario (blue dots) with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario (red dots).

Note that the variation in journey times shown above are based on one set of predicted flows for the Do Minimum and Do Something scenario. Traffic flows fluctuate daily which would mean that the variation in journey times would be much greater in the Do Minimum with any increases in traffic flows compared to the protection of journey time reliability provided by the bus priority measures that comprise the Proposed Scheme.

A comparison of average Do Minimum and Do Something outbound journey times are also illustrated in the cumulative time-distance graphs shown in Diagram 6.24 to Diagram 6.27. As above, the cumulative time-distance graphs are also based on the D1 service, which captures the full extent of the Proposed Scheme to Woodford Walk.

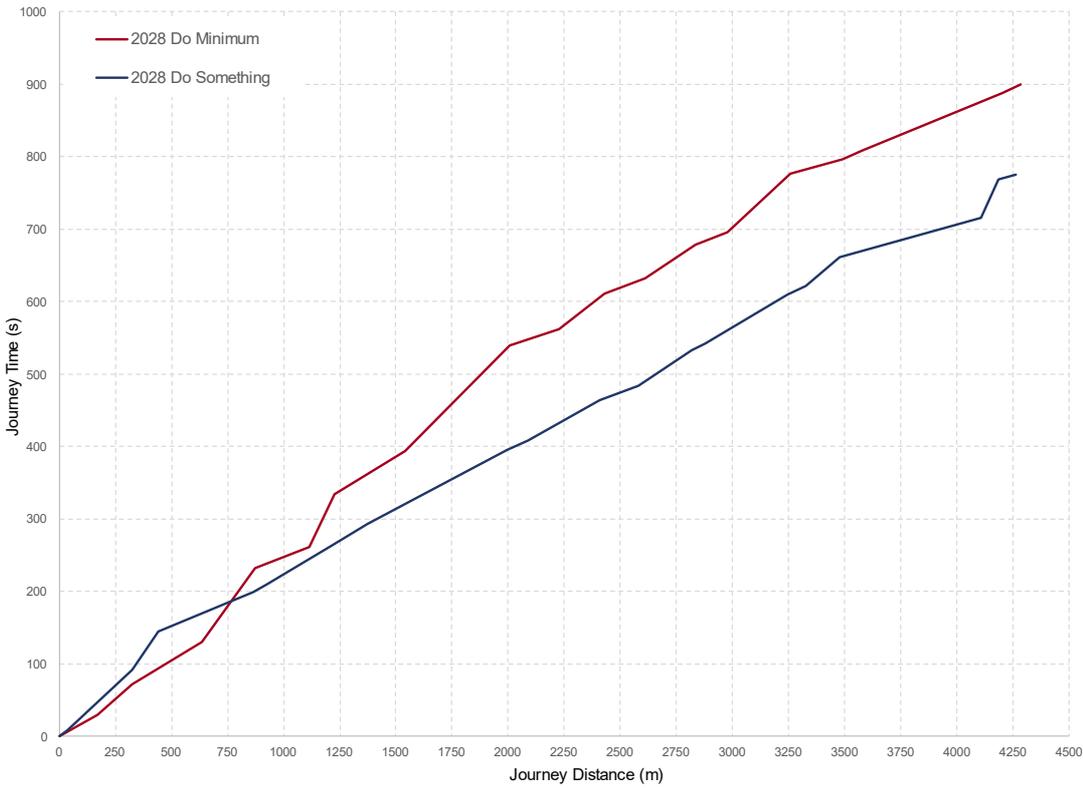


Diagram 6.24: D1 Bus Journey Time (2028 AM, Outbound)

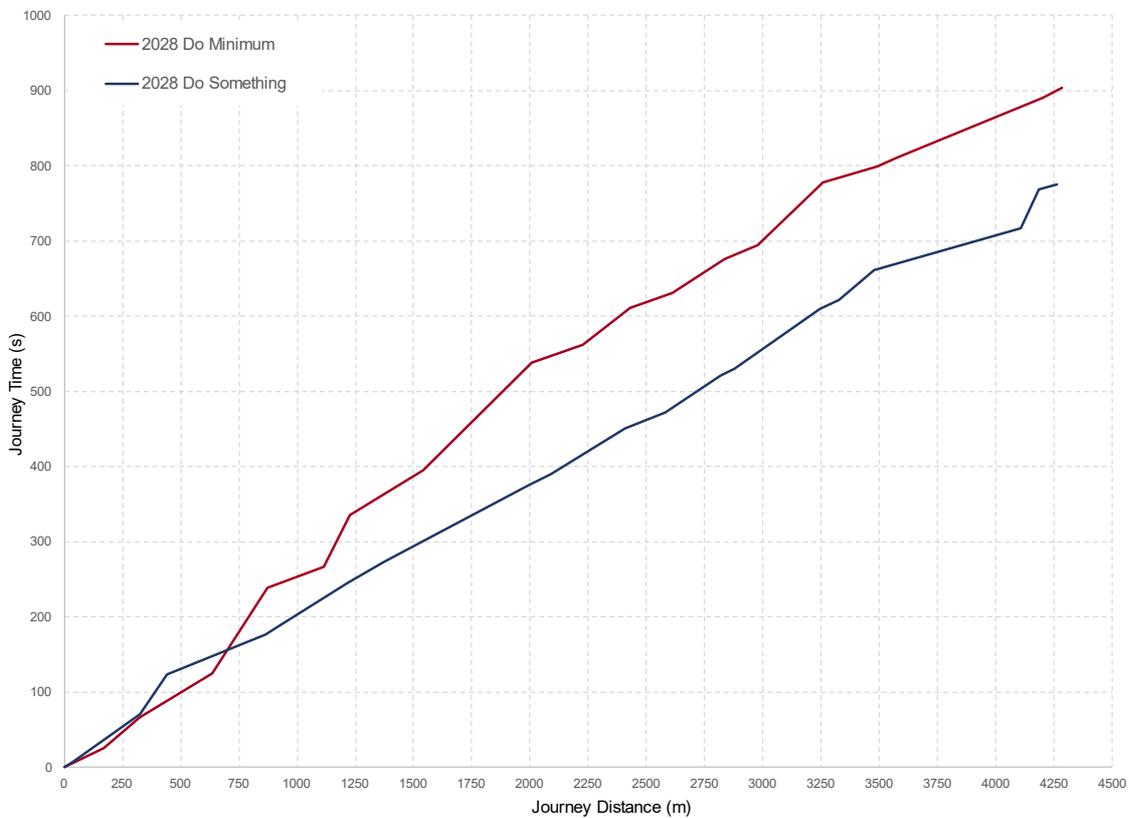


Diagram 6.25: D1 Bus Journey Time (2028 PM, Outbound)

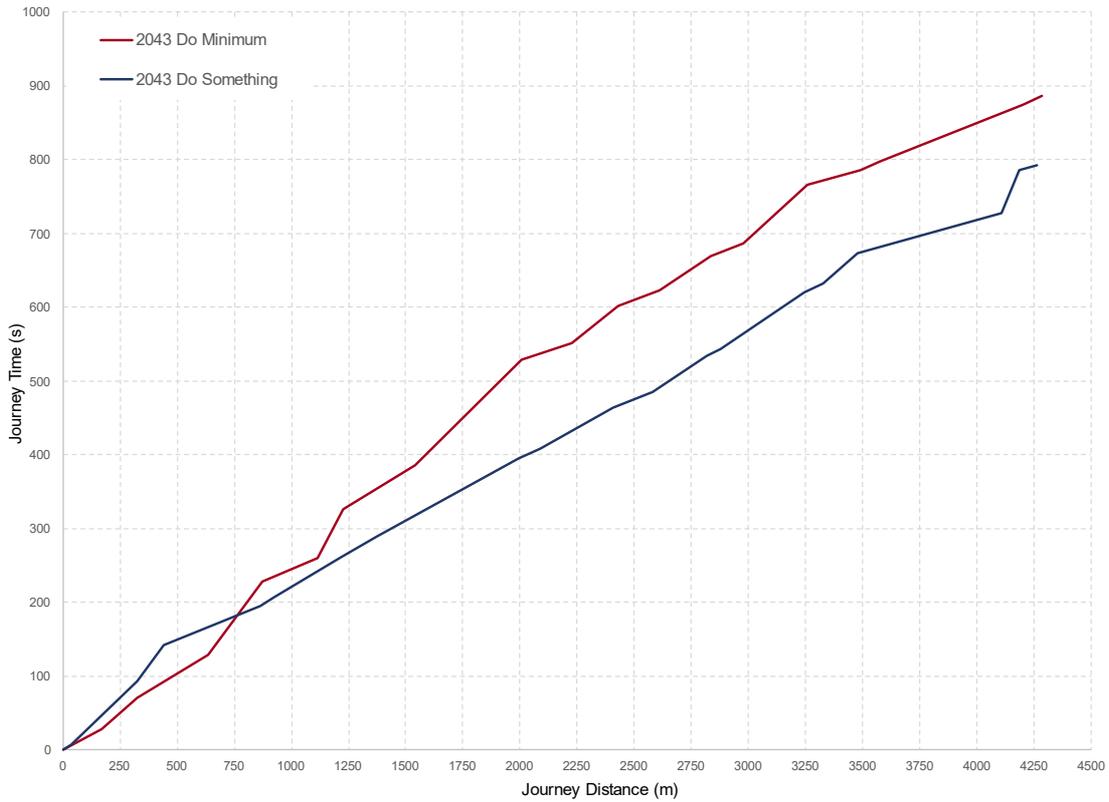


Diagram 6.26: D1 Bus Journey Time (2043 AM, Outbound)

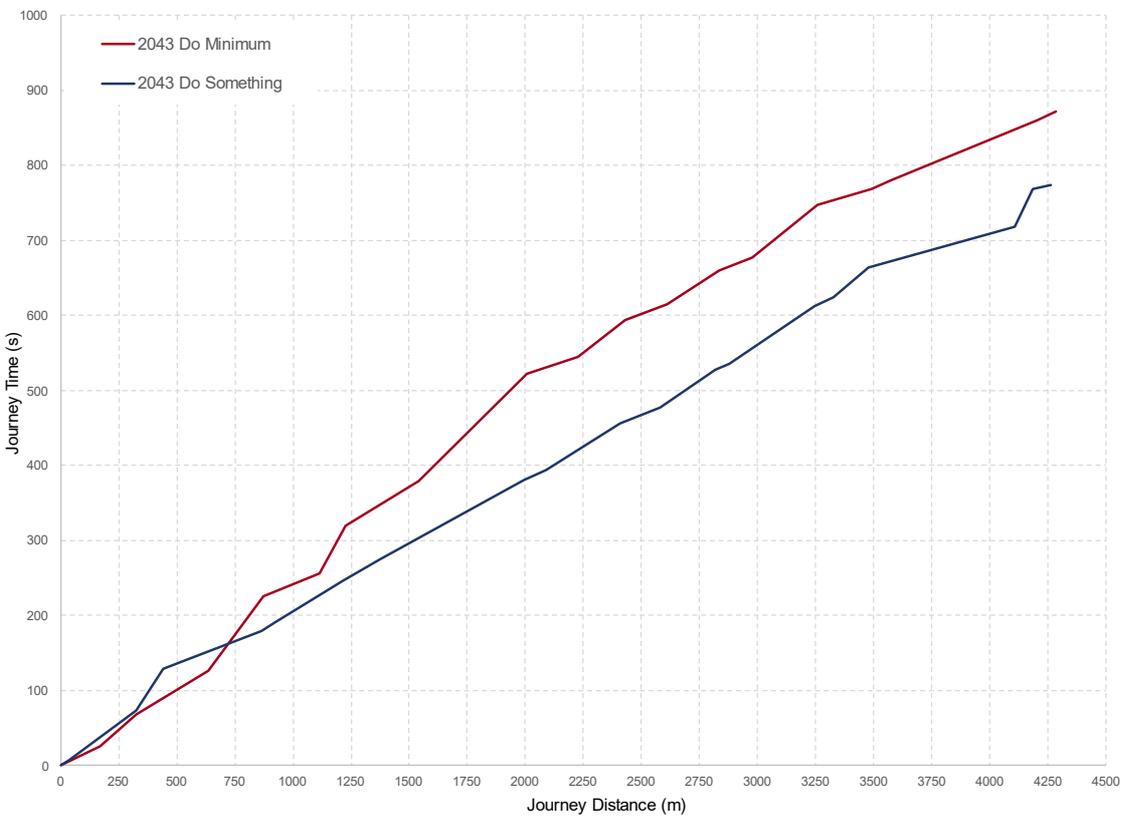


Diagram 6.27: D1 Bus Journey Time (2043 PM, Outbound)

Based on the results presented in Diagram 6.24 to Diagram 6.27 the Proposed Scheme is expected to deliver significant bus journey time savings in the outbound direction, most notably on key sections such as Long Mile Road from Walkinstown Avenue through the Killeen Road interchange and junctions along New Nangor Road. This is due to the introduction of a continuous outbound bus lane, consolidated bus stops, and the provision of bus priority 'hurry calls' signalling as part of the Proposed Scheme.

Tallaght to City Centre Section

6.4.6.2.5.3 Bus Journey Time and Reliability changes as a result of the Proposed Scheme

To give an overview of how the Proposed Scheme will impact on bus journey times along the Tallaght to City Centre section of the Proposed Scheme, outputs for the D2 service, which traverses the entire length of the section, have been extracted from the model. As outlined in Section 6.4 the assessment is based in the context of the full implementation of the BusConnects network re-design in both the Do Minimum and Do Something scenarios, with this section of the Proposed Scheme servicing the D-Spine services.

Inbound Direction

Average journey times for the inbound D2 service in the 2028 Opening Year and in the 2043 Design Year can be seen in Table 6.65. A breakdown of the changes in average journey times for all other bus services using the Proposed Scheme can be found in Appendix A6.4.3 (Average Bus Journey Times).

Table 6.65: D2 Service Bus Average Journey Times (Inbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	52.7	45.7	-7.0	-13%
2028 PM	48.7	44.7	-4.0	-8%
2043 AM	47.4	45.0	-2.4	-5%
2043 PM	48.3	44.9	-3.4	-7%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for inbound D2 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.66 and Diagram 6.28. Each dot in the diagram represents the journey time for each individual bus in each scenario. A larger range of journey times are an indication of lower levels of reliability in a given scenario.

Table 6.66: D2 Service – Range of Journey Times (Inbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	46.7	62.1	52.7	3.1	38.6	51.7	45.7	2.7
2028 PM	43.6	54.5	48.7	2.2	40.2	49.0	44.7	2.1
2043 AM	42.8	51.8	47.4	2.2	41.0	50.8	45.0	2.4
2043 PM	42.5	53.1	48.3	2.3	39.9	50.5	44.9	2.5

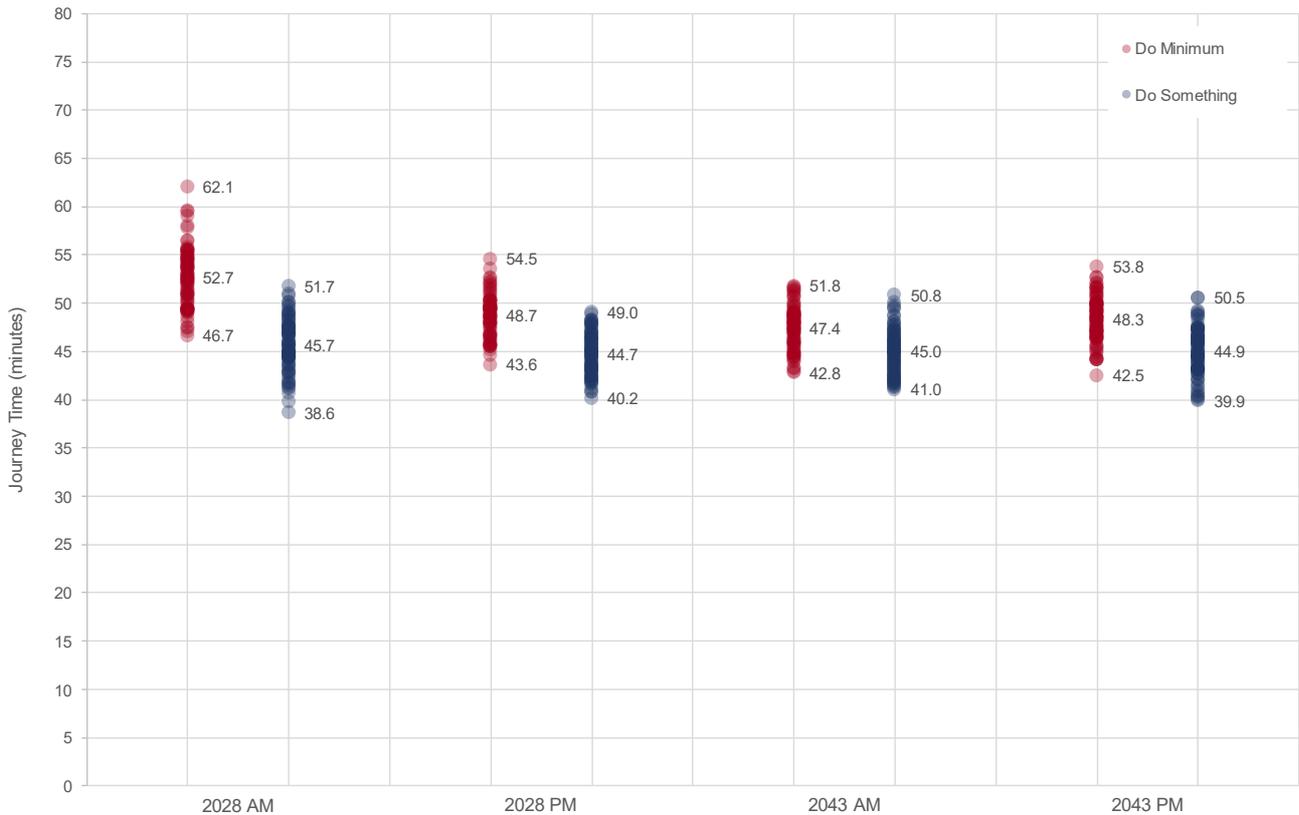


Diagram 6.28: D2 Bus Journey Times (Inbound Direction)

Based on the results presented in Table 6.66, the Proposed Scheme will deliver average inbound journey time savings, in the peak direction of travel, for D2 service bus passengers of up to 7.0 minutes (13%) in 2028 (AM) and 2.4 minutes (5%) in 2043 (AM).

Note that the variation in journey times shown above are based on one set of predicted flows for the Do Minimum and Do Something scenario. Traffic flows fluctuate daily which would mean that the variation in journey times would be much greater in the Do Minimum with any increases in traffic flows compared to the protection of journey time reliability provided by the bus priority measures that comprise the Proposed Scheme.

A comparison of average Do Minimum and Do Something journey times for the inbound D2 service are also illustrated in the cumulative time-distance graphs shown in Diagram 6.29 to Diagram 6.32.

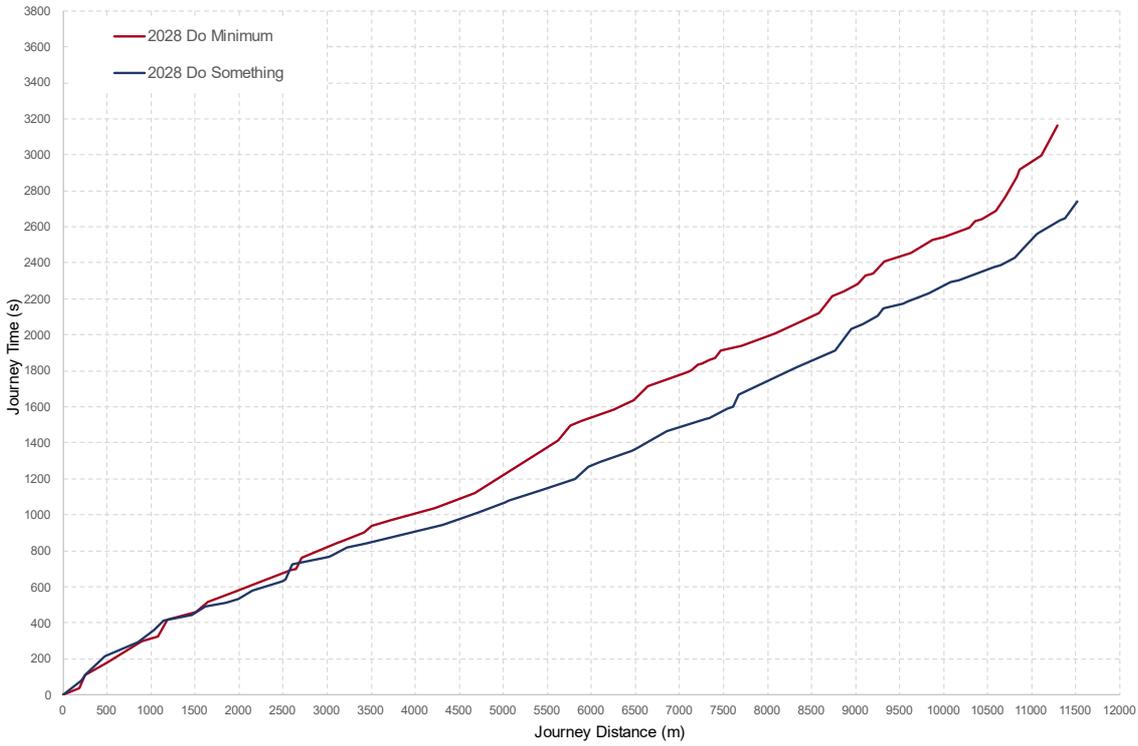


Diagram 6.29: D2 Bus Journey Time (2028 AM, Inbound)

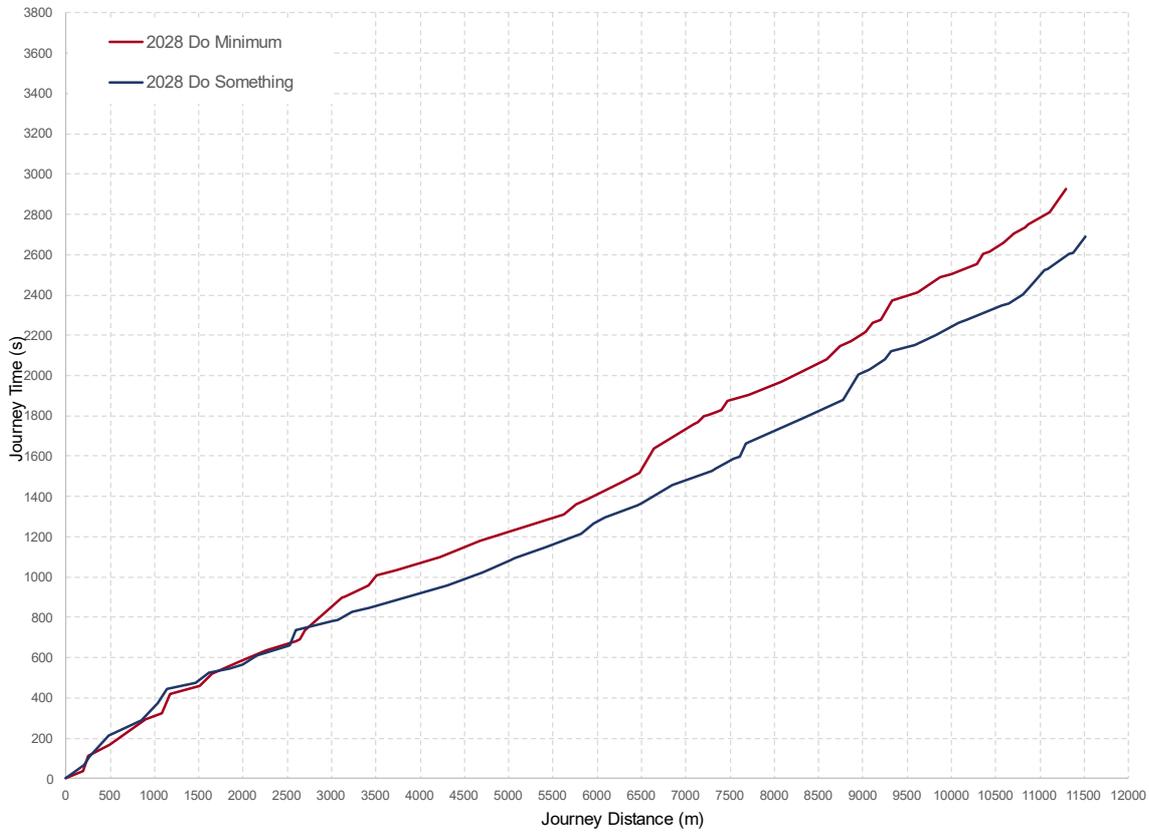


Diagram 6.30: D2 Bus Journey Time (2028 PM, Inbound)

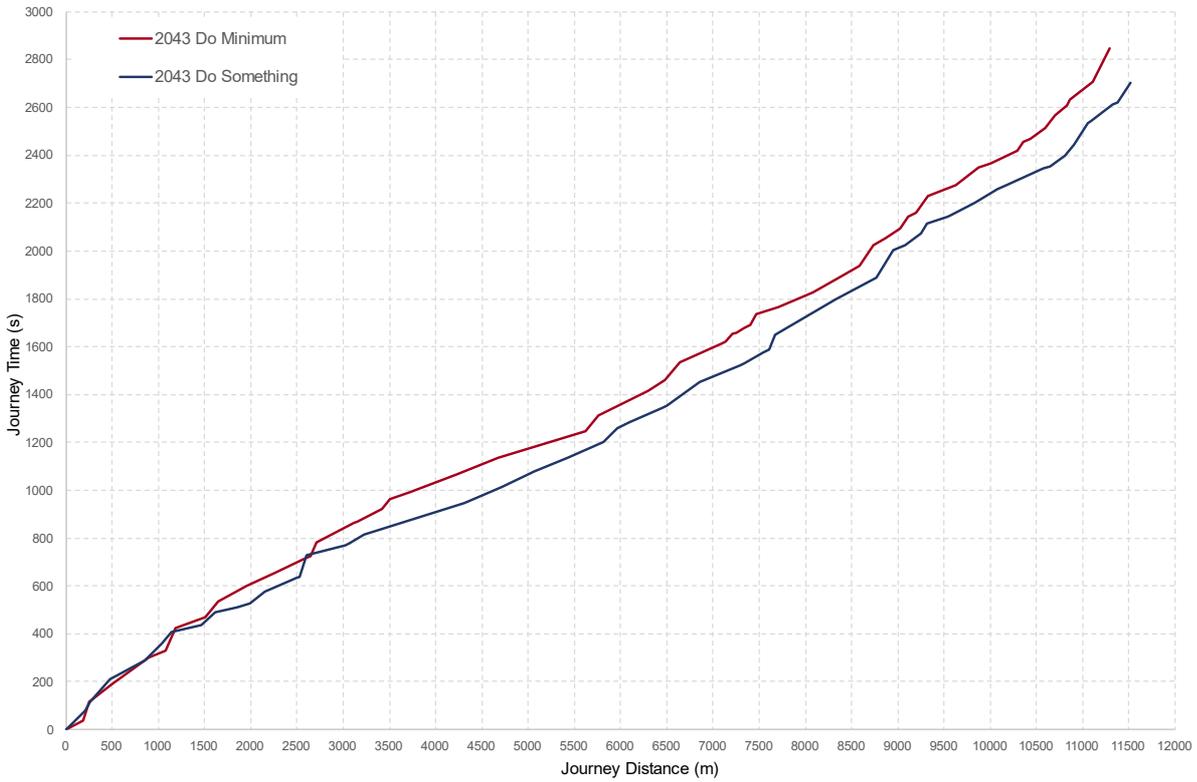


Diagram 6.31: D2 Bus Journey Time (2043 AM, Inbound)

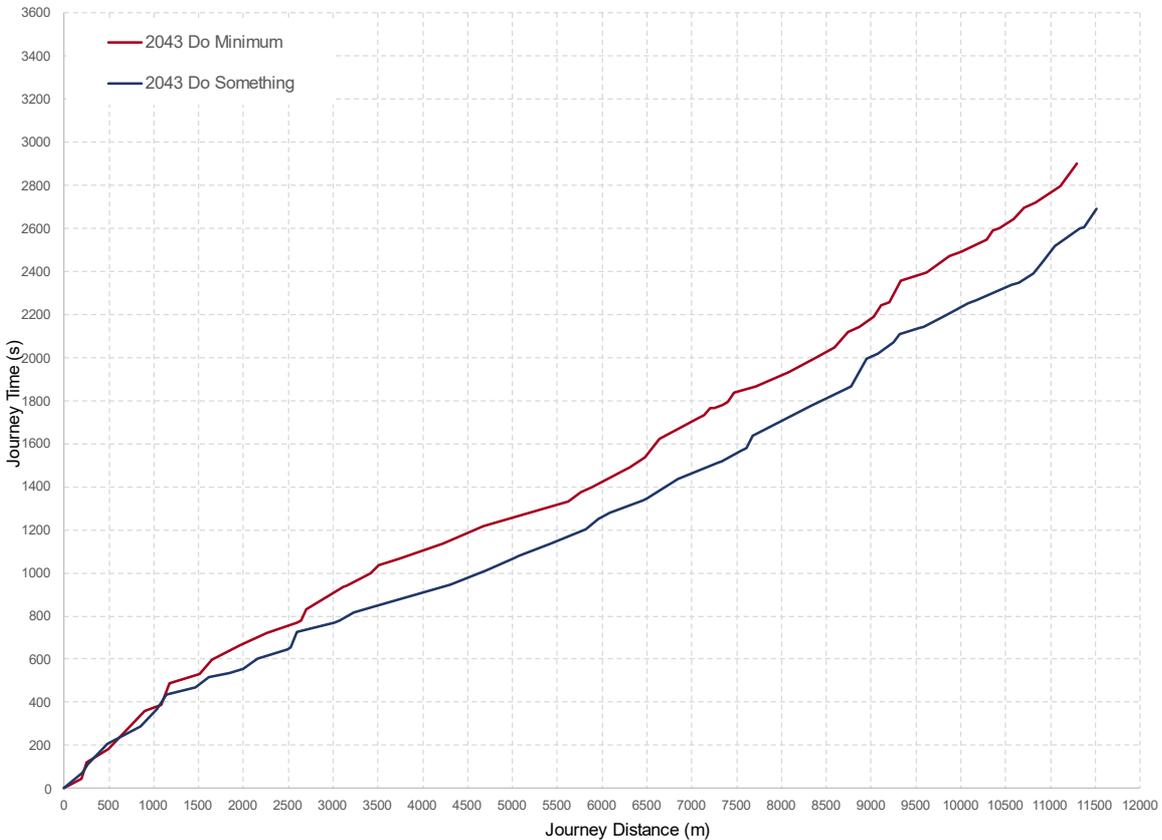


Diagram 6.32: D2 Bus Journey Time (2043 PM, Inbound)

Based on the results presented in Diagram 6.29 to Diagram 6.32, the Proposed Scheme offers average bus journey time savings for the peak period (AM) direction, most notably on the sections of Greenhills Road from Mayberry Road to south of the M50 overpass and the northbound approach to Walkinstown Roundabout. This is due to the introduction of an inbound bus lane along both sections.

In addition, the Proposed Scheme includes the redesign of Greenhills Road north of Mayberry Road to include a fully segregated bus lane running adjacent to the existing Greenhills Road, which bypasses delays originating from Walkinstown Roundabout in the AM peak, and the introduction of bus priority 'hurry calls' signalling where this segregated bus lane connects with the mainline. The bus lane that stops south of the Walkinstown Roundabout allows buses to bypass delays up to this point.

Outbound Direction

Average journey times for the outbound D2 service in 2028 Opening Year and in 2043 Design Year can be seen in Table 6.67. A breakdown of the changes in average journey times for all other bus services using the Proposed Scheme can be found in Appendix A6.4.3 (Average Bus Journey Times).

Table 6.67: D2 Service Bus Journey Times (Outbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	47.9	45.3	-2.6	-6%
2028 PM	56.4	47.1	-9.3	-16%
2043 AM	45.5	45.0	-0.5	-1%
2043 PM	56.8	45.7	-11.1	-24%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for outbound D2 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.68 and Diagram 6.33. Each dot represents the journey time for each individual bus in each scenario. A larger range of journey times are an indication of lower levels of reliability.

Table 6.68: D2 Service – Range of Journey Times (Outbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	41.7	54.9	47.9	2.9	41.5	49.4	45.3	1.6
2028 PM	50.7	64.0	56.4	3.4	41.3	53.1	47.1	2.6
2043 AM	40.0	53.7	45.5	2.4	41.6	50.3	45.0	1.8
2043 PM	50.1	67.0	56.8	3.9	40.5	50.5	45.7	2.2

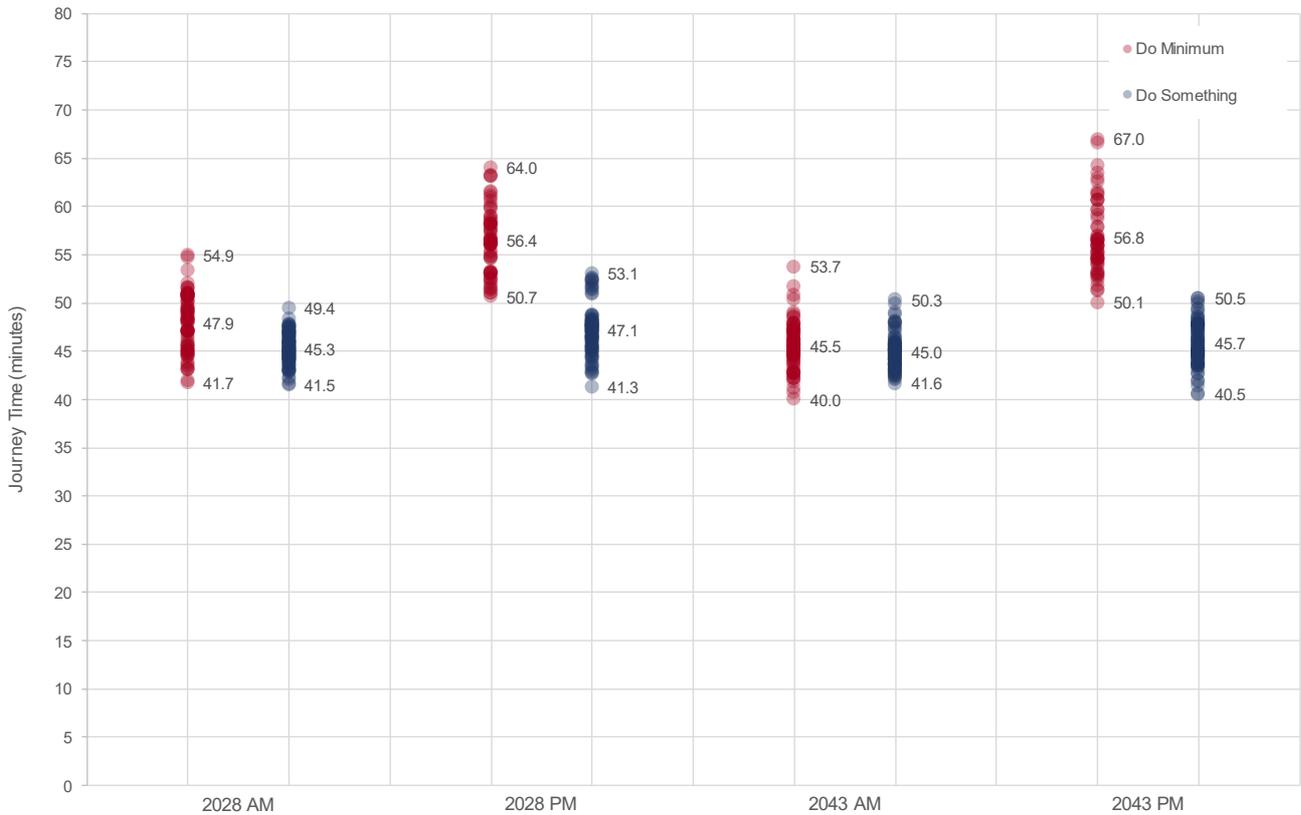


Diagram 6.33: D2 Bus Journey Times (Outbound Direction)

Based on the results presented in Table 6.68, the Proposed Scheme will deliver significant average outbound journey time savings, in the peak direction of travel, for D2 service bus passengers of up to 9.3 minutes (16%) in 2028 (PM) and 11.1 minutes (24%) in 2043 (PM). Furthermore, results presented in Diagram 6.33 suggest an improvement in bus journey time reliability across all 4 core scenarios as indicated by the reduced ranges of journey times achieved with the individual durations focused much closer to the average journey times (lower standard deviation) in the Do Something scenario (blue dots) with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario (red dots).

Note that the variation in journey times shown above are based on one set of predicted flows for the Do Minimum and Do Something scenario. Traffic flows fluctuate daily which would mean that the variation in journey times would be much greater in the Do Minimum with any increases in traffic flows compared to the protection of journey time reliability provided by the bus priority measures that comprise the Proposed Scheme.

A comparison of average Do Minimum and Do Something journey times for the D2 service for the outbound direction of travel illustrated in the cumulative time-distance graphs shown in Diagram 6.34 to Diagram 6.37.

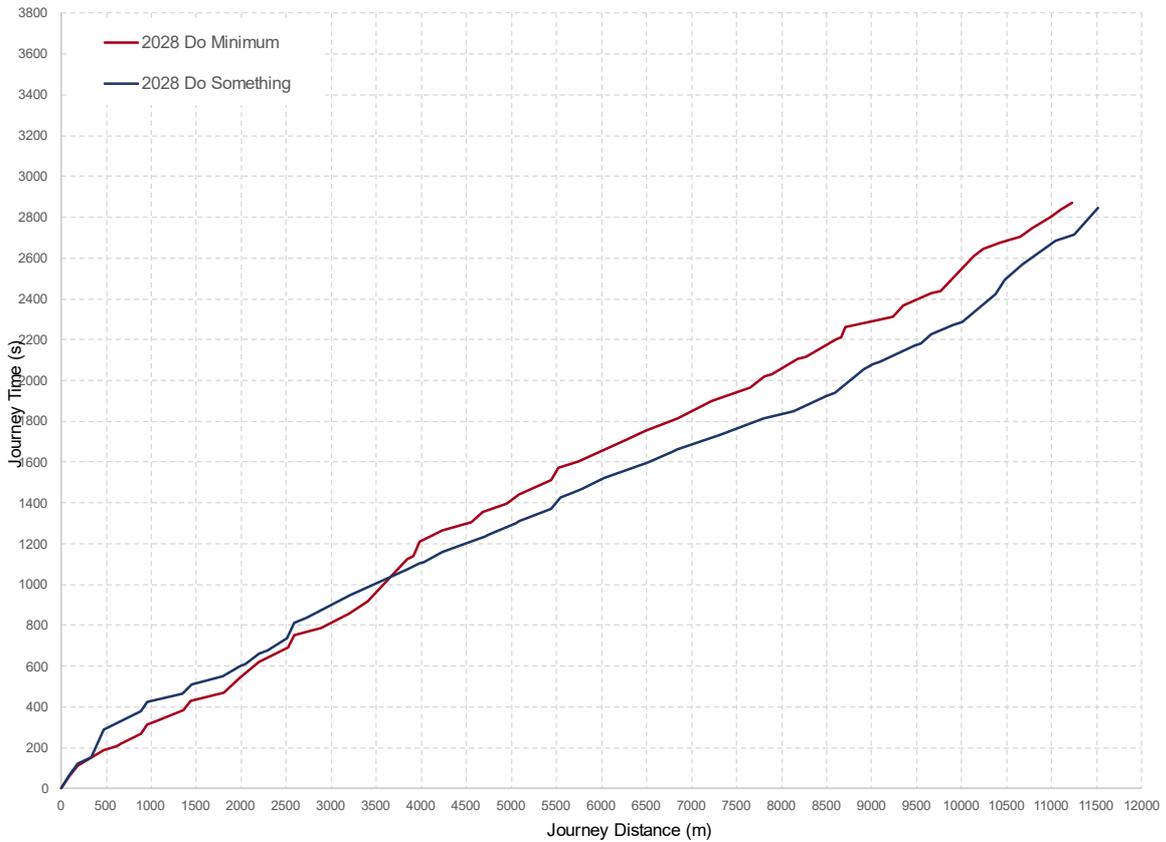


Diagram 6.34: D2 Bus Journey Time (2028 AM, Outbound)

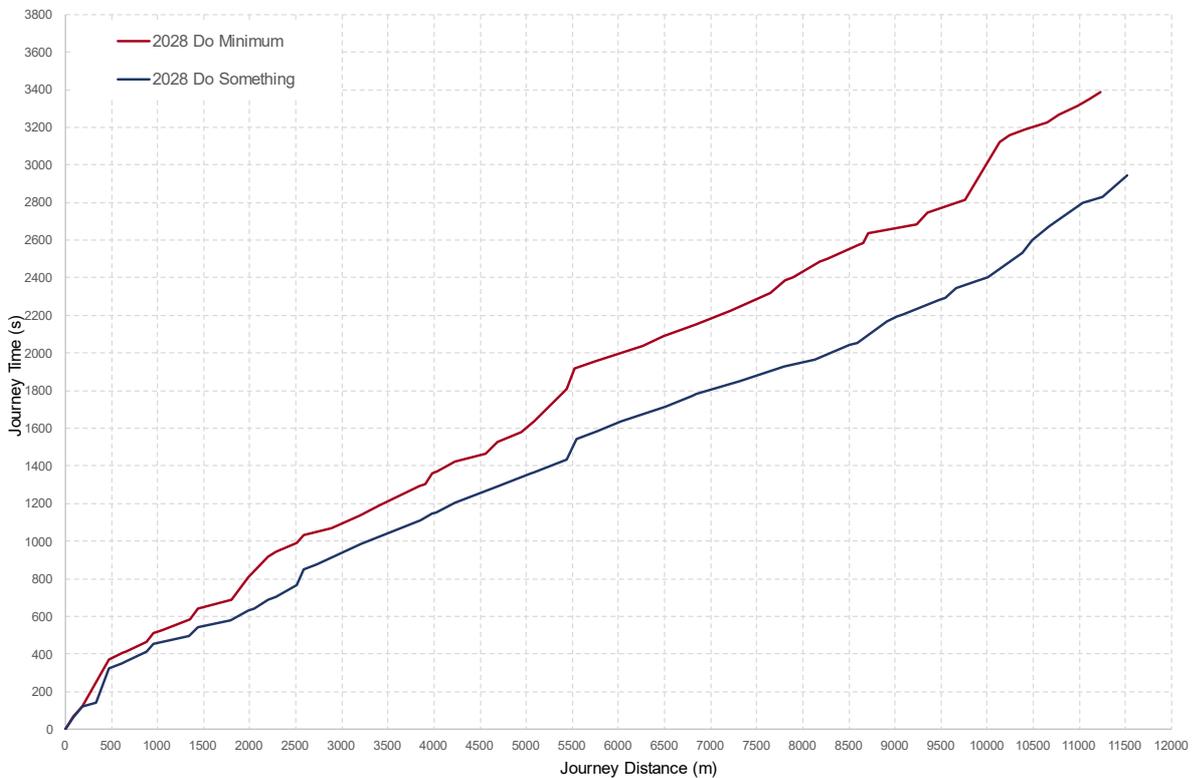


Diagram 6.35: D2 Bus Journey Time (2028 PM, Outbound)

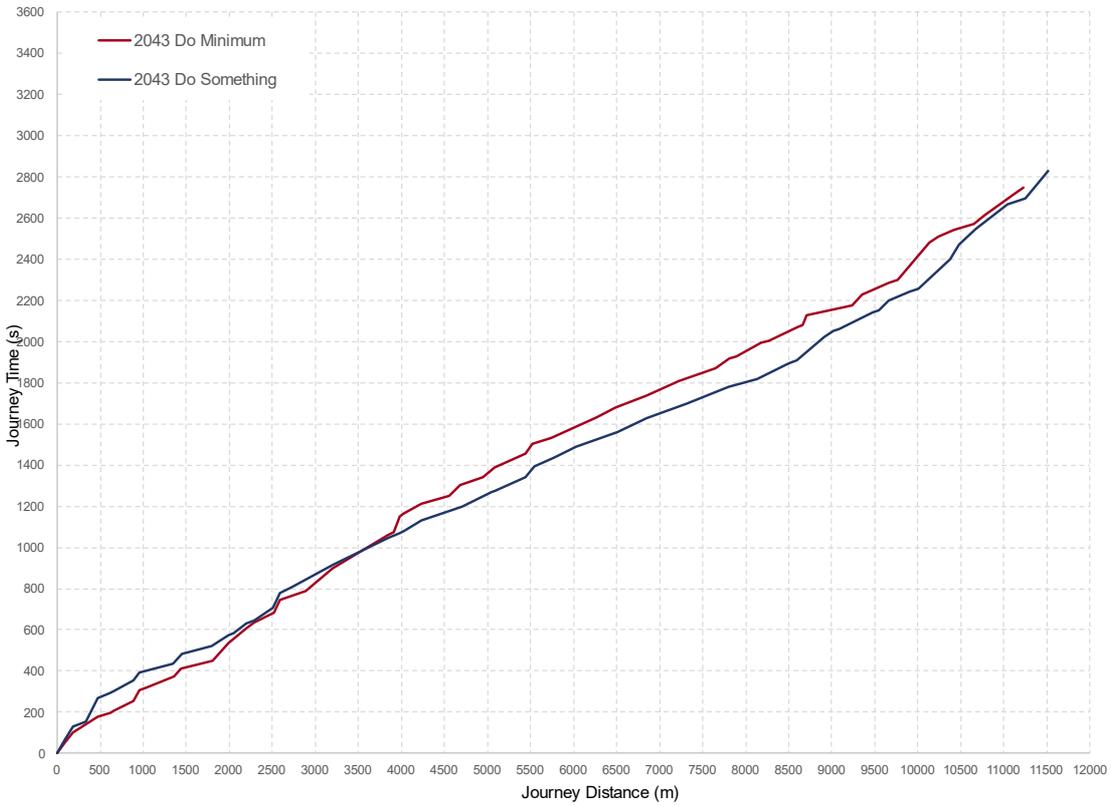


Diagram 6.36: D2 Bus Journey Time (2043 AM, Outbound)

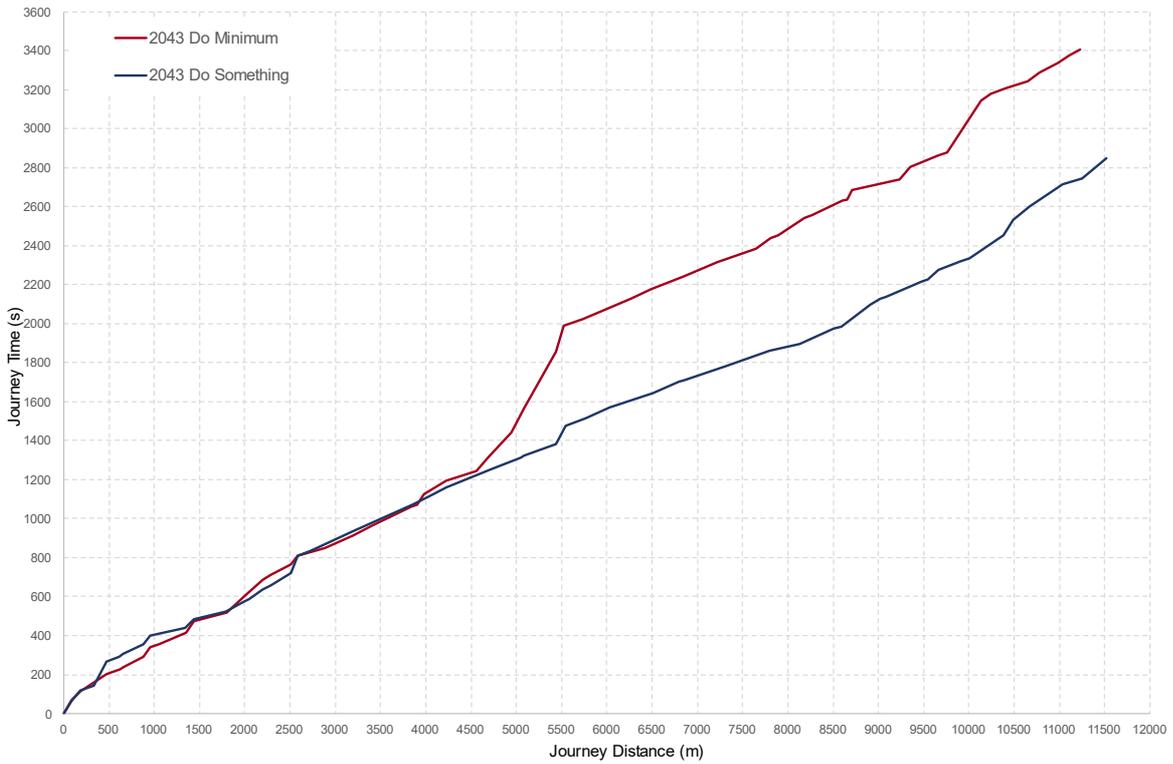


Diagram 6.37: D2 Bus Journey Time (2043 PM, Outbound)

Based on the results presented in Diagram 6.34 to Diagram 6.37, the Proposed Scheme offers considerable outbound average bus journey time savings for the peak period (PM) direction, most notably on Walkinstown Road from Drimnagh Road to north of the Walkinstown Roundabout and at the Mayberry Road and Greenhills Road junction. The Proposed Scheme introduces an outbound bus lane on Walkinstown Road from Drimnagh Road to just short of the Walkinstown Roundabout which contributes greatly to the outbound average bus journey time savings. The Proposed Scheme also introduces a continuous bus lane through the Mayberry Road junction, which along with the bus priority 'hurry calls' signalling leads to further accumulation of average bus journey time savings.

6.4.6.2.6 Total Journey Time Changes for all Proposed Scheme Bus Services

The change in total bus journey time for all buses travelling along both the Clondalkin to Drimnagh and Tallaght to City Centre sections of the Proposed Scheme, is shown in Table 6.69.

Table 6.69: Total Bus Journey Time

Peak Hour	Do Minimum (vehicle.minutes)	Do Something (vehicle.minutes)	Difference (vehicle.minutes)	%Difference
2028 AM	2,072.6	1,845.6	-227.0	-11%
2028 PM	2,107.7	1,843.9	-263.8	-13%
2043 AM	1,929.7	1,830.9	-98.8	-5%
2043 PM	2,073.4	1,811.5	-261.9	-13%

Based on the results presented in Table 6.72 modelling indicates that the Proposed Scheme will reduce total bus journey times along the Proposed Scheme by up to 13% in 2028 and 2043. Based on the AM and PM peak hours alone, this equates to **8.2 hours of savings in 2028 and 6.0 hours in 2043** combined across all buses when compared to the Do Minimum. On an annual basis this equates to approximately 6,150 hours of bus vehicle savings in 2028 and 4,500 hours in 2043, when considering weekday peak periods only.

6.4.6.2.7 Bus Users Assessment Summary

The findings of the Bus User assessment shows that the Proposed Scheme fully aligns with the aims and objectives of the CBC Infrastructure Works, 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'.

The significance of impact on bus users of the Proposed Scheme has been appraised using a qualitative assessment, taking the changes in journey time and journey reliability metrics presented above into consideration. The Proposed Scheme is considered to deliver a **Positive, Very Significant and Long-term** impact overall.

6.4.6.2.8 Increased Bus Frequency - Resilience Sensitivity Analysis

6.4.6.2.8.1 Background

For the purposes of this EIAR and the transport modelling undertaken in support of the EIAR, no increase in bus service frequency beyond that planned under the current Bus Connects Network redesign proposals was assessed. The bus frequencies used in the modelling are based on the proposed service rollout as part of the BusConnects Network Redesign and are the same in both the Do Minimum and Do Something scenarios. This rollout is currently underway. The rationale for undertaking this approach was that the planning consent being sought and which this EIAR supports is solely for the infrastructural improvements associated with providing bus priority and other sustainable modes measures along the Proposed Scheme.

This analysis, however, is conservative as the bus priority infrastructure improvements and indeed the level of protection it will provide to bus journey time consistency and reliability will provide a significant level of resilience for bus services that will use the Proposed Scheme from implementation into the future. The resilience provided by the Proposed Scheme 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. In order to assess this resilience and the potential impacts of this resilience on carbon emissions, an additional analysis has been undertaken, which is detailed below.

6.4.6.2.8.2 Resilience Testing

A key benefit of the provision of a resilient BusConnects Service network, one which can provide reliable and consistent journey times, is that it has potential to cater for further significant transfer from private car travel to more sustainable and environmentally friendly travel via public transport.

To assess the resilience of the Proposed Scheme to cater for additional bus service frequency provision whilst maintaining a high level of bus journey time reliability, a separate analysis was undertaken in the Proposed Scheme micro-simulation model. In this analysis, the service frequency, in both directions of travel, was increased to achieve a 10 buses per hour increase, at the busiest section, to assess whether the Proposed Scheme could cater for this increased service frequency whilst maintaining a high level of journey time reliability. The analysis was undertaken in the 2028 Minimum and Do Something models to assess whether the bus priority infrastructure was having the desired impact of protecting bus journey time reliability.

The bus service frequency, along the busiest section along Drimnagh Road, in the 2028 Do Minimum model and in the 2028 Do Something Resilience testing model is outlined in Table 6.70.

Table 6.70: Resilience Testing Bus Service Frequency Scenario Testing

Scenario	Inbound (Buses per Hour)	Outbound (Buses per Hour)
Do Minimum	33	33
Do Something	33	33
Do Minimum - Additional Services Resilience Test	43	43
Do Something - Additional Services Resilience Test	43	43

Table 6.71 outlines the average journey times for the inbound and outbound D2 service in the 2028 Opening Year scenarios. The D2 service has been chosen for the resilience testing as it represents the bus service which travels the longest distance along the Proposed Scheme.

Table 6.71: D2 Service – Average Bus Journey Times

Direction	Do Minimum (minutes)	Do Minimum (Additional Services) (minutes)	% Difference	Do Something (minutes)	Do Something - Additional Services (minutes)	% Difference
2028 Inbound AM	52.7	59.0	12.0%	45.7	48.0	5.1%
2028 Outbound PM	56.4	62.9	11.5%	47.2	48.3	2.3%

The results of the scenario testing with an additional 10 buses per direction per hour operating along the Proposed Scheme in the 2028 Opening Year are presented graphically in Diagram 6.38. The diagram displays the maximum, minimum and average journey times for each of the D2 bus services modelled.

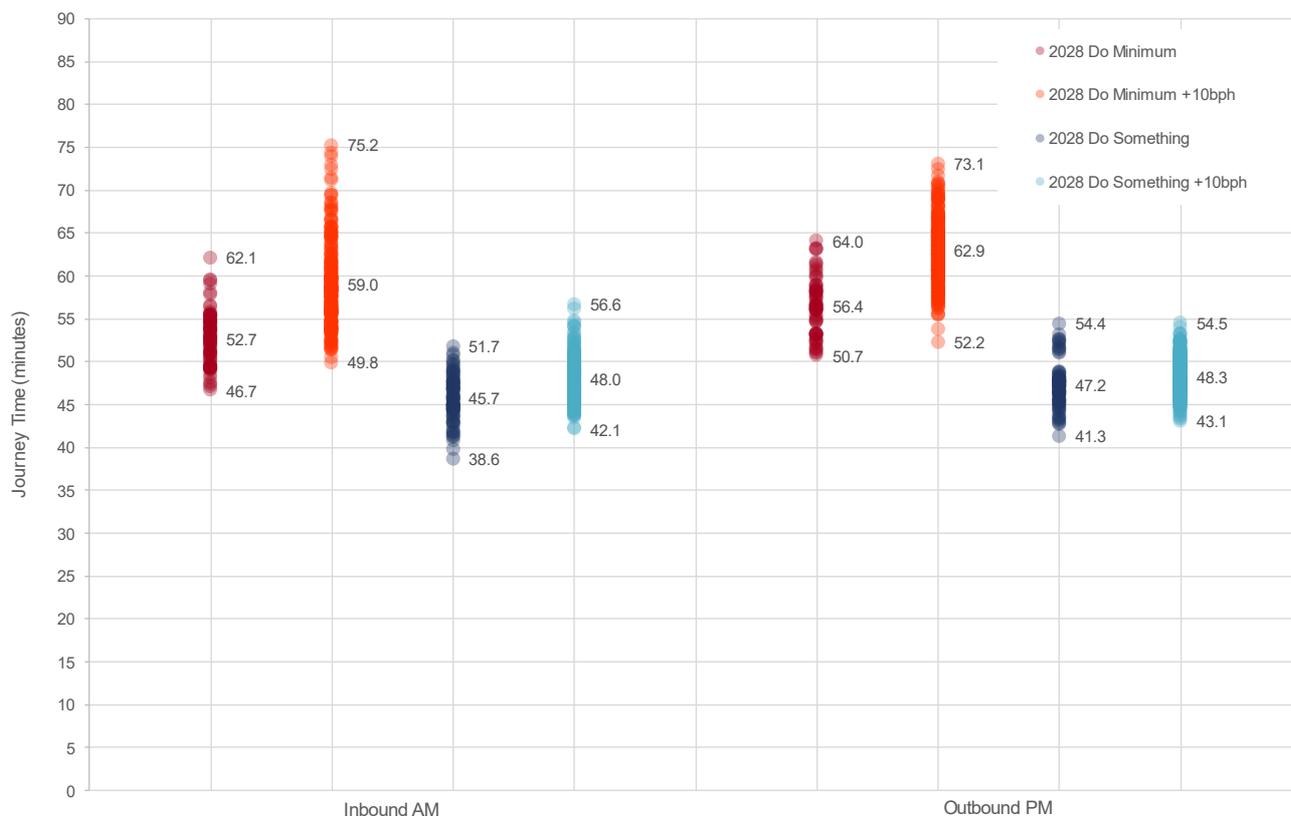


Diagram 6.38: Resilience Testing Bus Journey Time Reliability Indicators - Scenario Testing– Opening Year (2028)

As can be seen from Diagram 6.38 the modelling indicates that even with an additional 10 services operating per direction per hour along the Proposed Scheme, a high level of journey time reliability is maintained in the Do Something scenario, comparable with the 33 buses per direction per hour results. The results indicate limited change in average journey times in the Do Something Resilience sensitivity tests per bus. In the Do Minimum sensitivity test scenario bus journey times are more severely impacted. In the Do Something Resilience sensitivity test bus journey time reliability is maintained with the additional services in place as indicated by the reduced range of journey times compared to the Do Minimum Resilience Test scenario. ***This highlights the benefit that the Proposed Scheme infrastructure improvements can provide in protecting bus journey time reliability and consistency, as passenger demand continues to grow into the future.***

It should be noted that it was assumed the general traffic levels included in each scenario would remain static. If traffic levels were to increase (typical daily variations are in the order of +/- 15%) then the bus priority infrastructure would further protect journey time reliability and resilience in comparison with the Do Minimum scenario.

Further details on the potential additional greenhouse gas (GHG) emissions savings that could occur from this resilience is outlined in Chapter 8 (Climate).

6.4.6.2.9 General Traffic Assessment

6.4.6.2.9.1 Overview

The Proposed Scheme aims to provide an attractive alternative to the private car and promote a modal shift to public transport, walking and cycling. It is, however, recognised that there will be an overall reduction in operational capacity for general traffic along the direct study area given the proposed changes to the road layout and the rebalancing of priority to walking, cycling and bus. This reduction in operational capacity for general traffic along the Proposed Scheme will likely create some level of trip redistribution onto the surrounding road network.

It should be noted that the Do Minimum and Do Something scenarios are based on the assumption that travel behaviour will remain broadly consistent over time and that car demand, used for this assessment, represents a reasonable worst-case scenario. It is possible that societal trends in the medium to long term may reduce car demand further due to the ongoing changes to travel behaviours and further shifts towards sustainable travel, flexibility in working arrangements brought on following COVID-19, and delayed car ownership trends that are emerging.

The assessment also assumes that goods vehicles (HGVs and LGVs) continue to grow in line with forecasted economic activity with patterns of travel remaining the same. For example, the assessment assumes a 45% and 77% increase in goods traffic versus the base year in 2028 and 2043 respectively. This is considered a very conservative assumption. It should be noted, however, that the Climate Action Plan (CAP) (2023) includes reference to DoT's Ireland's Road Haulage Strategy 2022-2031 (RHS) (2023) which will seek to further integrate smart technologies in logistics management and may include the regulation of delivery times as far as practicable to off-peak periods to limit traffic congestion in urban areas. Ireland's RHS outlines measures to manage the increase in delivery and servicing requirements as the population grows. These measures may include the development of consolidation centres to limit the number of 'last-mile' trips made by larger goods vehicles with plans for higher use of smaller electric vans or cargo bikes for 'last-mile' deliveries in urban areas. The purpose of this section is to assess the overall impact that any redistributed general traffic will have on both the direct and indirect study areas. It should be noted that the impacts presented in this chapter are based on the final Preliminary Design for the Proposed Scheme which includes embedded mitigation to limit environmental and traffic and transport impacts to a minimal level as part of the iterative design development work described previously above.

The purpose of this section is to assess the overall impact that any redistributed general traffic will have on both the direct and indirect study areas. It should be noted that the impacts presented in this chapter are based on the final Preliminary Design for the Proposed Scheme which includes embedded mitigation to limit environmental and traffic and transport impacts to a minimal level as part of the iterative design development work described previously above.

6.4.6.2.9.2 Significance of the General Traffic Impact

To determine the impact that the Proposed Scheme has in terms of general traffic redistribution on the direct and indirect study areas, the LAM Opening Year 2028 model results have been used to identify the difference in general traffic flows between the Do Minimum and Do Something scenarios and the associated level of traffic flow difference as a result of the Proposed Scheme. The assessment has been considered with reference to both the reductions and increases in general traffic flows along road links.

Significance of a Reduction in General Traffic: For this assessment, the reductions in general traffic flows have been described as a positive impact to the environment. The significance of this positive impact is outlined by the contents of Table 6.72.

Table 6.72 Significance of the Reduction in General Traffic Flows

Significance of Positive Impact	Description of Impact / Proposed Changes
Profound	< -1000
Very Significant	-1000 to -800
Significant	-800 to -400
Moderate	-400 to -300
Slight	-300 to -100
Not Significant	> -100

The majority of instances where a reduction in general traffic flow occurs are located along or adjacent to the Proposed Scheme (i.e. the direct study area), where there are proposed measures to improve priority for bus, cycle and walking facilities.

Localised junction models have been developed using industry standard modelling packages such as LinSig (a software tool by JCT Consultancy which allows traffic engineers to model traffic signals) and Junctions 9 (a software tool by TRL for the modelling and analysis of roundabout and priority intersections) to determine the appropriate staging, phasing, green times and operational capacity at all junctions along the direct study area. These junction models have been developed using consistent traffic flows as predicted and modelled in the ERM, LAM and micro-simulation models using the iterative traffic modelling process described in Section 6.2.3 of this EIAR. The full outputs of the results are available in the Appendix A6.3 (Junction Design Report) in Volume 4 of this EIAR.

Significance of an Increase in General Traffic: To determine the impact that the Proposed Scheme has in terms of an increase in general traffic flows on the direct and indirect study areas, a robust assessment has been undertaken, with reference to TII’s Traffic and Transport Assessment Guidelines (May 2014).

This document is considered best practice guidance for the assessment of transport impacts related to changes in traffic flows due to proposed developments and is an appropriate means of assessing the impact of general traffic trip redistribution on the surrounding road network.

Diagram 6.39 is a snapshot from the guidance which outlines “Advisory Thresholds for Traffic and Transport Assessment Where National Roads are Affected”.

Where applications affect national roads a Transport Assessment should be requested if the thresholds in Table 2.2, below, are exceeded.

Table 2.2 Advisory Thresholds for Traffic and Transport Assessment Where National Roads are Affected

<i>Vehicle Movements</i>	<i>100 trips in / out combined in the peak hours for the proposed development</i>
	<i>Development traffic exceeds 10% of turning movements at junctions with and on National Roads.</i>
	<i>Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.</i>

Traffic and Transport Assessment Guidelines PE-PDV-02045 May 2014, TII Publications

Diagram 6.39: Extract from the Traffic and Transport Assessment Guidelines (PE-PDV-02045, May 2014)

The basis of the guidance is to assess the impacts of additional trips that have been generated as part of a new development (for example, a new housing estate etc.). Noting that the guidance relates to National Roads only, for the purpose of this assessment, the principles of the guidance have been adapted for the assessment of the Proposed Scheme. This has been achieved by extending the threshold to cover all road types in the vicinity of the Proposed Scheme, not only National Roads. This ensures a robust and rigorous assessment is undertaken and that potential impacts on more localised or residential streets have been captured as part of the assessment.

The impact assessment of increases to the general traffic flows has used the following thresholds based on the above guidelines:

- **Local / Regional Roads:** Traffic redistribution results in an increase above 100 combined flows (i.e. in a two-way direction) along residential, local and regional roads in the vicinity of the Proposed Scheme in the AM and PM peak hours;
 - The threshold aligns with an approximate 1 vehicle per minute increase per direction on any given road. This is a very low level of traffic increase on any road type and ensures that a robust assessment of the impacts of redistributed traffic has been undertaken.
- **National Roads:** Traffic exceeds 5% of the combined turning flows at junctions with/ on/or with national roads in the AM and PM peak hours as a result of traffic redistribution comparing the Do Minimum to the Do Something scenario with the Proposed Scheme in place.
 - The guidelines indicate that a 10% threshold may be used, however, to ensure a rigorous assessment in this instance the lower 5% threshold for turning movements has been utilised.

Where road links have been identified as experiencing additional general traffic flow increases which exceed the above thresholds, a further assessment has been undertaken by way of a traffic capacity analysis on the associated junctions along the affected links.

6.4.6.2.9.3 General Traffic Flow Difference - AM Peak Hour

Diagram 6.40 (extract from Figure 6.7 in Volume 3 of this EIAR) illustrates the difference in traffic flows on the road links in the AM Peak Hour for the 2028 Opening Year. Please see Appendix A6.4.4 (General Traffic Assessment) in Volume 4 of this EIAR for the full LAM outputs.

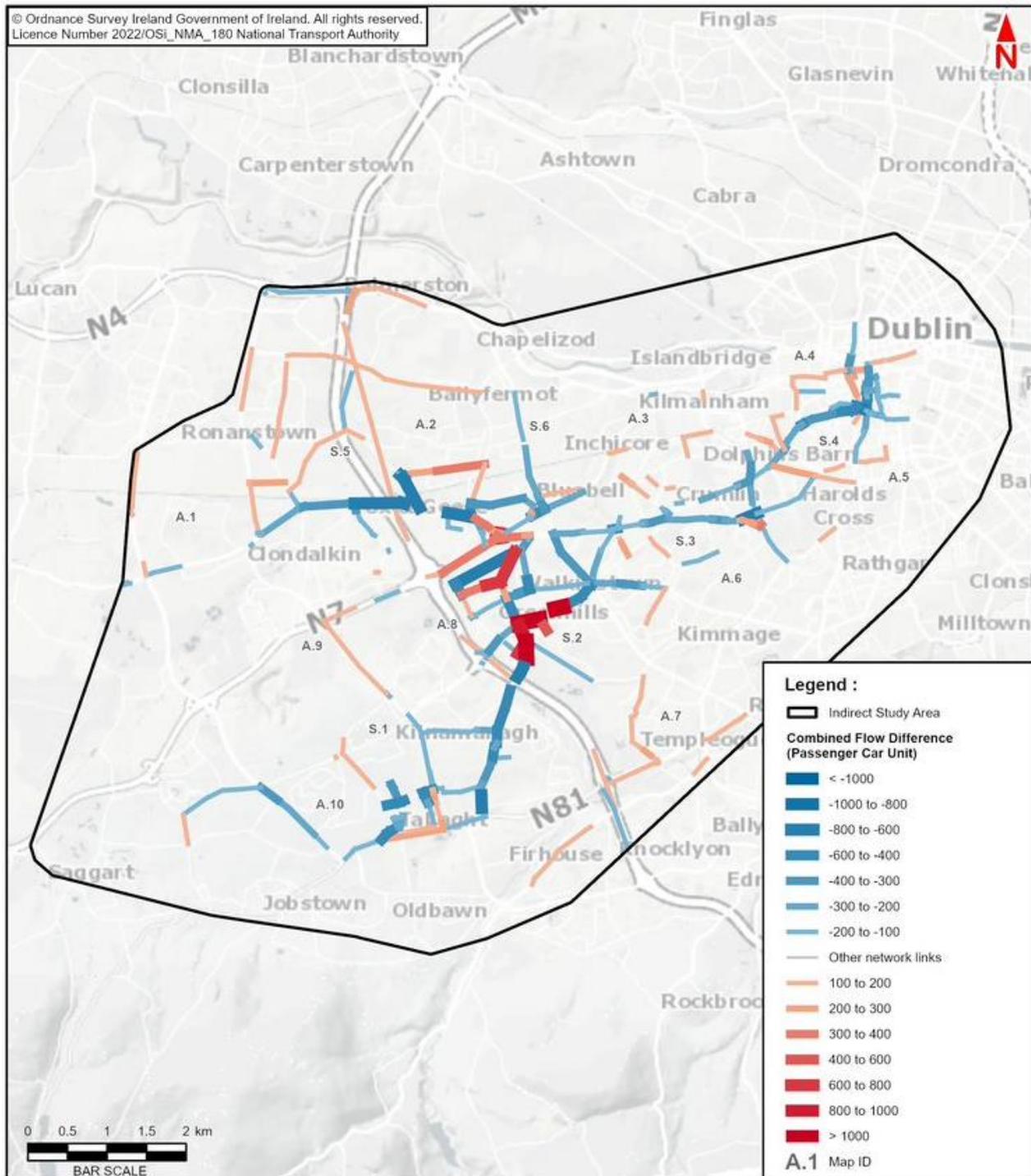


Diagram 6.40: Flow Difference on Road Links (Do Minimum vs. Do Something), AM Peak Hour, 2028 Opening Year

Impact on Direct Study Area (AM Peak Hour)

Direct Reductions in General Traffic: The LAM indicates that, during the 2028 Opening Year scenario, there are reductions in general traffic noted along the Proposed Scheme during the AM Peak Hour, as illustrated by the blue lines in Diagram 6.40, which indicates where a reduction of at least -100 combined traffic flows occur.

The key reductions in traffic flows during the AM Peak Hour are outlined in Table 6.73.

Table 6.73: Road Links that Experience a Reduction of ≥ 100 Combined Flows during AM Peak Hour (Direct Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of N81, West of M50	S1	Belgard Square East	565	126	-439
	S1	Belgard Square West	403	200	-203
	S1	Belgard Square North	1186	648	-537
	S1	Blessington Road	413	297	-116
	S1	Cookstown Way	1311	832	-479
	S1	Greenhills Road	1650	133	-1516
	S1	Old Blessington Road	692	251	-441
East of M50, South of R110	S2	Ballymount Avenue	1031	531	-500
	S2	Calmount Road	4233	3879	-354
South of R111, West of R817	S3	Clogher Road	641	31	-610
	S3	Crumlin Road	1208	903	-305
	S3	Drimnagh Road	2128	1724	-403
	S3	Kildare Road	825	514	-311
North of R111, West of R137	S4	Cork Street	866	371	-495
	S4	Dean Street	1031	671	-360
	S4	Dolphin's Barn Street	1451	1120	-331
	S4	Nicholas Street	654	207	-448
	S4	Patrick Street	787	323	-464
	S4	Saint Luke's Avenue	711	243	-467
North of N7 and R110	S5	Nangor Road	1741	822	-919
East of M50, North-West of R819	S6	Long Mile Road	900	656	-244
	S6	Naas Road	951	524	-427
	S6	Walkinstown Avenue	2005	853	-1151
	S6	Walkinstown Road	1151	816	-335

The contents of Table 6.73 demonstrate that there is a slight to very significant reduction of between -116 and -1,516 general traffic flows along the direct study area during the AM Peak Hour, which is attributed to the Proposed Scheme and the associated modal shift as a result of its implementation. This reduction in general traffic flow has been determined as an overall **Positive, Moderate and Long-term effect** on the direct study area.

Direct Increases in General Traffic: The road links which experience additional traffic volumes of over 100 combined flows are illustrated by the orange / red lines in Diagram 6.40. The road links and associated flow difference between the Do Minimum and Do Something scenarios during the AM Peak Hour are outlined in Table 6.74.

Table 6.74: Road Links that Experience an Increase of ≥ 100 Combined Flows during AM Peak Hour (Direct Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
East of M50, South of R110	S2	Ballymount Avenue (New Link)	0	987	987
	S2	Calmount Road (New Link)	0	1116	1116
	S2	Greenhills Road (New Link)	0	1462	1462
North of N7 and R110	S5	Nangor Road	932	1546	613

The contents of Table 6.74 demonstrate that there is an increase of between +613 and +1,462 general traffic flows along the direct study area during the AM Peak Hour.

When compared to Table 6.73, Table 6.74 shows that the scheme will generally reduce traffic levels along the corridor, with increases in traffic flow only predicted on four links, three of which relate to the closing off of a section of Greenhills Road, and redirection of traffic along Calmount Road via a new link along Ballymount Avenue. Most of this traffic will be transferred from the existing Greenhill Road.

Impact on Indirect Study Area (AM Peak Hour)

Indirect Reductions in General Traffic: In addition to the general traffic flow reductions occurring along the direct study area, there are key reductions in general traffic noted along certain road links within the indirect study area during the AM Peak Hour. The key reductions in traffic flows along the indirect study area during the AM Peak Hour are outlined in Table 6.75.

Table 6.75: Road Links that Experience a Reduction of ≥ 100 Combined Flows during AM Peak Hour (Indirect Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of N81, West of M50	S1	Blessington Road	692	251	-441
	S1	Belgard Road	1438	648	-790
	S1	Cheeverstown Road	1639	1308	-331
	S1	Citywest Avenue	1446	1310	-136
	S1	Mayberry Road	1072	812	-260
	S1	N81	1624	1473	-151
	S1	Tymonville Crescent	1817	1320	-497
East of M50, South of R110	S2	Ballymount Cross	811	606	-205
	S2	Ballymount Road Lower	811	606	-205
	S2	Ballymount Road Upper	788	677	-111
	S2	Limekiln Green	258	104	-154
	S2	Robinhood Industrial Estate Internal Road	917	374	-543
	S2	Saint Peter's Road	1553	1145	-407
	S2	Western Parkway Business Centre	1767	1415	-351
South of R111, West of R817	S2	Whitechurch Hill	4890	4774	-115
	S3	Armagh Road	1009	895	-114
	S3	Cooley Road	985	710	-276
	S3	Cromwellsfort Road	1722	1262	-460
	S3	Grattan Crescent	796	688	-108
	S3	Herberton Road	958	632	-326
	S3	Inchicore Road	796	688	-108
	S3	Slievebloom Road	282	157	-124
	S3	St Agnes Park	968	861	-107

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of R111, West of R137	S3	Sundrive Road	820	588	-232
	S4	Bride Road	674	461	-213
	S4	Bride Street	474	345	-129
	S4	Bridge Street Lower	2586	2225	-361
	S4	Bridge Street Upper	2218	1968	-250
	S4	Christchurch Place	1130	887	-243
	S4	Church Street	1652	1497	-156
	S4	Clanbrassil Street Lower	1175	1023	-152
	S4	Clanbrassil Street Upper	1384	1007	-376
	S4	Cuffe Street	920	810	-110
	S4	Father Mathew Bridge	2163	1858	-305
	S4	Golden Lane	629	519	-110
	S4	High Street	2146	1276	-870
	S4	Kevin Street Lower	949	749	-200
	S4	Kevin Street Upper	966	714	-252
	S4	Longford Street	235	130	-105
	S4	New Street South	1183	929	-254
	S4	Rosedale Terrace	1175	1023	-152
	S4	School Street	613	511	-102
	S4	St Luke's Avenue	674	255	-419
S4	The Coombe	1025	399	-626	
S4	Werburgh Street	714	552	-162	
North of N7 and R110	S4	Winetavern Street	795	450	-344
	S5	Cloverhill Road	1169	1029	-140
	S5	Fonthill Road South	1381	1277	-103
	S5	Knockmitten Lane	500	393	-107
	S5	Lucan Newlands Road	1031	917	-114
	S5	Lucan Road Old	4482	4351	-131
	S5	N4	5286	5068	-218
	S5	N7	5237	5127	-110
	S5	New Nangor Road	1406	1114	-291
	S5	Ninth Lock Road	1516	1384	-132
	S5	Park West Avenue	1495	826	-669
	S5	Peamount Road	538	356	-182
	S5	Turnpike Road	1042	602	-439
	S5	Woodford Walk	731	421	-310
	East of M50, North-West of R819	S6	Camac Park	819	564
S6		John F Kennedy Drive	490	183	-308
S6		John F Kennedy Road	940	556	-384
S6		Killeen Road	1250	677	-574
S6		Kylemore Road	2033	964	-1069
S6		Lucan Road	5300	5090	-211
S6		Rafters Lane	513	403	-110
S6		Robinhood Road	993	233	-760

The contents of Table 6.75 outlines that the traffic reductions within the indirect study area vary between -102 and -1069 combined flows along the surrounding road links.

This reduction in general traffic flow has an average of -285 two-way flows, which has been determined as an overall **Positive, Slight and Long-term effect** on the indirect study area. The most significant effect occurs along Kylemore Road.

Indirect Increases in General Traffic: The road links which experience additional traffic volumes of over 100 combined flows are illustrated by the orange / red lines in Diagram 6.40. These road links have been identified as experiencing traffic volumes above the additional traffic threshold and therefore require further analysis. The road links and associated flow difference between the Do Minimum and Do Something scenarios during the AM Peak Hour are outlined in Table 6.76

Table 6.76: Road Links where the 100 Flow Additional Traffic Threshold is Exceeded (AM Peak Hour)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of R134, West of M50	A1	Fonthill Road	305	509	204
	A1	Fonthill Road North	1812	1936	124
	A1	Grange Castle Road	2541	2734	193
	A1	Neilstown Road	544	682	138
	A1	Station Road	1214	1335	120
North of R134, East of M50	A2	Ballyfermot Road	1417	1585	167
	A2	Cloverhill Road	1375	1560	185
	A2	Coldcut Road	2000	2196	196
	A2	Killeen Road	607	999	392
	A2	Nangor Road	932	1546	613
	A2	Park West Avenue	1485	1637	152
	A2	Park West Road	679	1063	385
North of R110	A3	Balfe Road	152	392	241
	A3	Benbulbin Road	266	406	140
	A3	Chapelizod Bypass	1987	2185	198
	A3	Cooley Road	423	685	263
	A3	Davitt Road	1315	1508	193
	A3	Knocknarea Road	346	451	106
West of R137	A4	Bridgefoot Street	1474	1604	131
	A4	Cook Street	406	615	209
	A4	Cornmarket	805	1057	252
	A4	Essex Quay	776	961	186
	A4	Francis Street	60	351	291
	A4	Heytesbury Street	564	673	109
	A4	New Row South	42	156	113
	A4	Oliver Bond Street	594	764	170
	A4	Pim Street	473	578	105
	A4	St Augustine Street	118	247	129
	A4	James's Street	1290	1449	159
	A4	Thomas Street	1365	1528	163
	A4	Wellington Quay	648	786	138
	A4	Wood Quay	798	910	112
East of R137	A5	Crumlin Village	197	349	152

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
	A5	Echlin Street	515	625	110
	A5	Herberton Walk	171	280	109
	A5	James's Street	1290	1449	159
	A5	Kimmage Road Lower	609	712	102
	A5	Parnell Road	661	931	270
	A5	Reuben Street	392	561	169
	A5	South Circular Road	1020	1248	228
	A5	St James's Walk	472	582	110
South of R110	A6	Sundrive Road	326	632	307
	A6	Kildare Road	279	589	311
	A6	St Agnes Road	253	422	169
	A6	Whitehall Road West	634	745	111
East of M50, South of R819	A7	Firhouse Road	1016	1150	133
	A7	Orwell Park View	1346	1539	193
	A7	Spawell Roundabout	2049	2217	168
	A7	Tallaght Road	1870	2029	159
	A7	Templeogue Road	1131	1233	102
	A7	Wellington Road	1898	2112	214
East of M50, South of R110	A8	Long Mile Road	469	1100	631
	A8	M50	555	757	203
	A8	Naas Road	604	996	392
	A8	Old Naas Road	570	844	273
	A8	Turnpike Road	1218	1399	181
West of M50, South of A9	A9	Belgard Road	339	636	297
	A9	Katherine Tynan Road	353	521	168
	A9	N7	975	1107	132
West of M50, North N81	A10	Belgard Square South	481	715	234
	A10	Citywest Road	1398	1538	139
	A10	Cookstown Way	648	916	268
	A10	N81	1703	1961	259

The contents of Table 6.76 outline that the additional traffic on the key road links within the indirect study area varies between +102 and +631 combined flows during the AM peak hour. Further junction capacity assessment has been undertaken along these road links to determine whether the above road links have the capacity to cater for the additional traffic volumes as a result of the Proposed Scheme.

Operational capacity outputs have been extracted from the LAM at the associated junctions along the subject road links to determine whether there is reserve capacity to facilitate the uplift in traffic. The results are presented in terms of the significance of the impact to the V / C ratio for each junction based on its sensitivity and magnitude of impact.

It should be noted that the worst performing arm of the junction has been used for the purpose of the assessment to ensure a conservative impact assessment is undertaken.

National Roads – 5% Threshold Impact Assessment (AM Peak Hour)

On the basis of the assessment methodology specifically for national roads, whereby traffic exceeding 5% of the combined turning flows at junctions on or with national roads as a result of traffic redistribution associated with

the Proposed Scheme, the junctions and associated flow difference between the Do Minimum and Do Something scenarios during the AM Peak Hour are outlined in Table 6.77.

Table 6.77: National Road Links where the 5% Additional Traffic Threshold is Exceeded (AM Peak Hour)

Junction	Total Do Minimum Turning Flows (PCU)	Total Do Something Turning Flows (PCU)	Turning Flow Difference (PCU)	Percentage Difference
M50 J7	5,680	5,747	67	1.2%
M50 J9	8,178	8,406	229	2.8%
M50 J10	4,195	3,964	-230	-5.5%
M50 J11	5,106	5,078	-28	-0.6%
M50 J7	5,680	5,747	67	1.2%

The contents of Table 6.77 demonstrate that redistributed traffic from the Proposed Scheme will have a less than 5% impact on turning flows at junctions with national roads, therefore, no further assessment of the AM Peak Hour has been undertaken, aside from instances where the 100 combined flow of additional traffic threshold is exceeded, as shown in Table 6.76.

6.4.6.2.9.4 General Traffic Flow Difference – PM Peak Hour

Diagram 6.41 (extract from Figure 6.8 in Volume 3 of this EIAR) illustrates the difference in traffic flows on road links in the PM Peak Hour for the 2028 Opening Year. Appendix A6.4.4 (General Traffic Assessment) in Volume 4 of this EIAR provides further details of the LAM outputs.

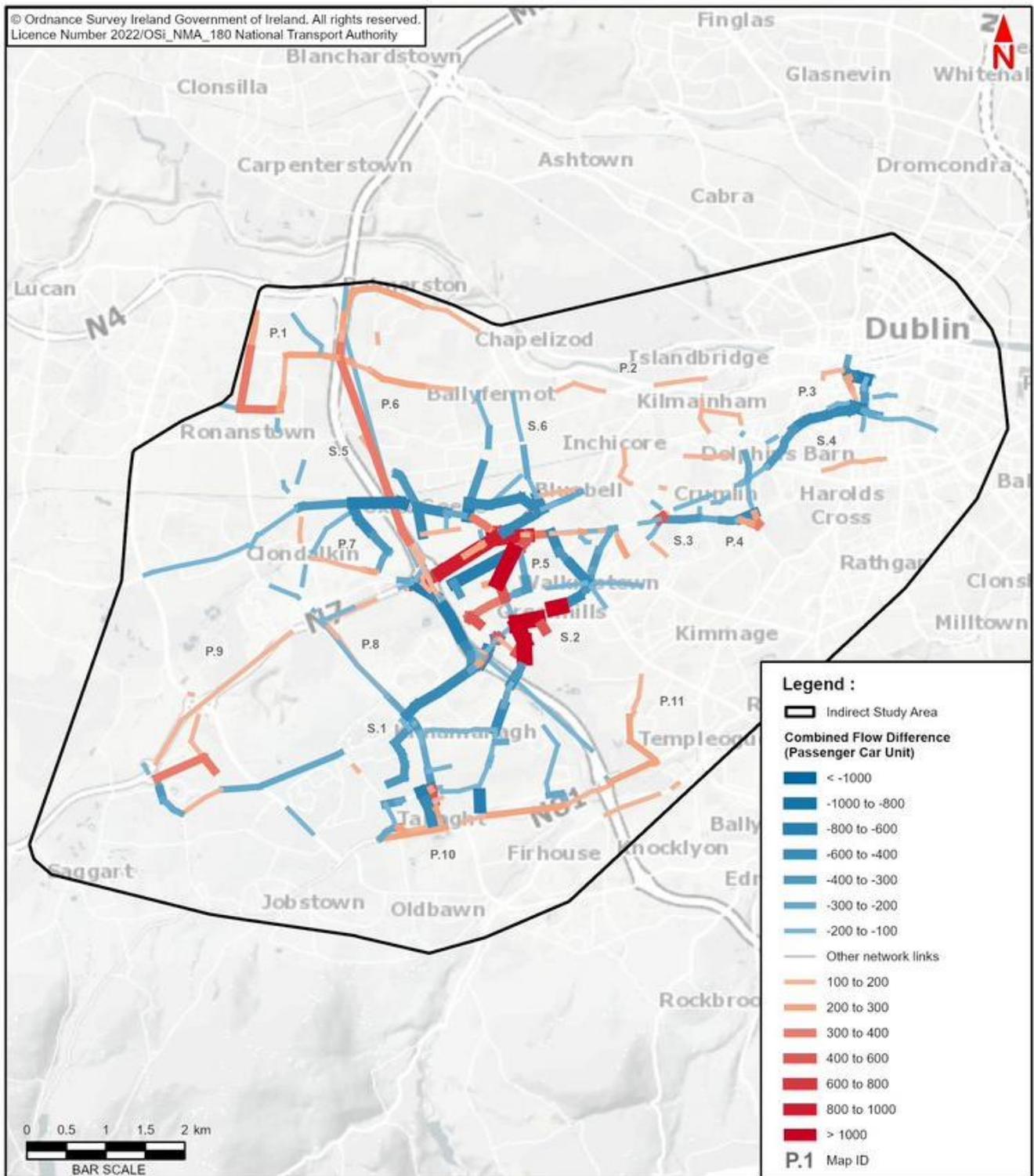


Diagram 6.41: Flow Difference on Road Links (Do Minimum vs. Do Something), PM Peak, 2028 Opening Year

Direct Reductions in General Traffic Flows: The LAM indicates that during the 2028 Opening Year scenario, there are key reductions in general traffic noted along the Proposed Scheme during the PM Peak Hour, as illustrated by the blue lines in Diagram 6.41, which indicates where a reduction of at least -100 combined traffic flows occurs.

The key reductions in traffic flows during the PM Peak Hour are outlined in Table 6.78.

Table 6.78: Road Links that Experience a Reduction of ≥ 100 Combined Flows during PM Peak Hour (Direct Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of N81, West of M50	S1	Belgard Square East	891	145	-746
	S1	Belgard Square South	850	695	-154
	S1	Greenhills Road	1614	106	-1508
	S1	Old Blessington Road	492	216	-276
East of M50, South of R110	S2	Ballymount Avenue	965	806	-159
	S2	Ballymount Avenue	965	806	-159
	S2	Calmount Road	2230	1629	-601
South of R111, West of R817	S3	Clogher Road	639	43	-596
	S3	Crumlin Road	1405	1114	-291
	S3	Drimnagh Road	1875	1622	-253
	S3	Kildare Road	677	348	-328
	S3	St Marys Road	553	412	-141
North of R111, West of R137	S4	Cork Street	837	363	-474
	S4	Dean Street	1067	695	-373
	S4	Dolphin's Barn Street	1448	1072	-376
	S4	Nicholas Street	525	199	-326
	S4	Patrick Street	895	538	-357
	S4	Saint Luke's Avenue	782	276	-506
North of N7 and R110	S5	Nangor Road	2201	1383	-818
East of M50, North-West of R819	S6	Long Mile Road	875	725	-150
	S6	Naas Road	1502	819	-684
	S6	Walkinstown Avenue	2122	675	-1447

The contents of Table 6.78 demonstrate that there is a slight to very significant reduction of between -141 and -1,508 general traffic flows along the direct study area during the PM Peak Hour, which is attributed to the Proposed Scheme and the associated modal shift as a result of its implementation. This reduction in general traffic flow has been determined as an overall **Positive, Significant and Long-term effect** on the direct study area. The most significant effect occurs along Belford Square North.

Increases in General Traffic Flows: The road links which experience additional traffic volumes of over 100 combined flows are illustrated by the orange / red lines in Diagram 6.41. The road links and associated flow difference between the Do Minimum and Do Something scenarios during the PM Peak Hour are outlined in Table 6.79.

Table 6.79: Road Links that Experience an Increase of ≥ 100 Combined Flows during PM Peak Hour (Direct Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
East of M50, South of R110	S2	Ballymount Avenue (New Link)	0	1165	1165
	S2	Calmount Road (New Link)	721	1198	476
	S2	Greenhills Road (New Link)	0	1081	1081
North of N7 and R110	S5	Nangor Road	914	1575	661
East of M50, South of R110 Naas Road	S6	Long Mile Road	509	2072	1563

The contents of Table 6.79 demonstrate that there is a slight to significant increase of between +476 to +1,052 general traffic flows along the direct study area during the PM Peak Hour.

When compared to Table 6.78, Table 6.79 shows that the scheme will generally reduce traffic levels along the corridor, with increases in traffic flow only predicted on four links, three of which relate to the closing off of a section of Greenhills Road, and redirection of traffic along Calmount Road via a new link along Ballymount Avenue. Most of this traffic will be transferred from the existing Greenhill Road.

Impact on Indirect Study Area (PM Peak Hour)

Reductions in General Traffic Flows: In addition to the general traffic flow reductions occurring along the direct study area, there are key reductions in general traffic noted along certain road links within the indirect study area during the PM Peak Hour. The key reductions in traffic flows along the indirect study area during the PM Peak Hour are outlined in Table 6.80.

Table 6.80: Road Links that Experience a Reduction of ≥ 100 Combined Flows during PM Peak Hour (Indirect Study Area)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of N81, West of M50	S1	Airton Road	467	352	-115
	S1	Belgard Road	1447	656	-791
	S1	Bóthar Katharine Tynan	738	517	-221
	S1	Castle Road	950	781	-169
	S1	Castletymon Road	786	612	-174
	S1	Citywest Avenue	862	661	-200
	S1	Cookstown Estate Road	431	66	-365
	S1	Cookstown Way	1189	879	-310
	S1	M50	2169	1492	-678
	S1	Main Road	823	607	-216
	S1	Mayberry Road	1236	1043	-192
	S1	N82	192	86	-106
	S1	Old Belgard Road	311	162	-149
	S1	Belgard Walk	740	574	-166
	S1	Cookstown Road	1161	1059	-102
	S1	Fourth Avenue	431	66	-365
S1	Katherine Tynan Road	1763	1110	-653	
East of M50, South of R110	S2	Ballymount Industrial Estate	978	627	-351
	S2	Ballymount Road Lower	1030	882	-149
	S2	Ballymount Road Upper	1671	1081	-589
	S2	St Peter's Road	1143	1039	-103
	S2	Western Parkway Business Centre	1284	1047	-237
	S2	Saint Peter's Road	1128	715	-414
South of R111, West of R817	S3	Cooley Road	543	392	-152
	S3	Cromwellsfort Road	2165	1643	-522
	S3	Herberton Road	1074	777	-297
	S3	Old County Road	592	395	-197
	S3	Sundrive Road	1039	888	-152
	S3	Walkinstown Embankment Road	2493	1977	-517
	S3	Walkinstown Parade	459	274	-185
	S3	Walkinstown Road	893	534	-359
S3	Windmill Road	512	401	-111	
S4	Bridge Street Lower	2256	1974	-283	

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of R111, West of R137	S4	Bridge Street Upper	1514	1090	-424
	S4	Christchurch Place	943	824	-119
	S4	Clanbrassil Street Upper	1019	851	-168
	S4	Cuffe Street	1288	1109	-180
	S4	Father Mathew Bridge	1762	1528	-234
	S4	Golden Lane	583	448	-136
	S4	Haroldville Avenue	369	209	-159
	S4	High Street	1599	996	-603
	S4	Kevin Street Lower	998	798	-200
	S4	Kevin Street Upper	1012	638	-375
	S4	Longford Street	437	310	-128
	S4	New Street South	1161	968	-194
	S4	St Stephen's Green	1119	954	-165
North of N7 and R110	S5	Balgaddy Road	1560	1446	-114
	S5	Carpenterstown Road	6221	5988	-232
	S5	Convent Road	472	357	-114
	S5	Earlsfort Green	1196	1085	-111
	S5	Fonthill Road South	932	795	-136
	S5	John F Kennedy Drive	517	106	-412
	S5	John F Kennedy Road	703	191	-512
	S5	Monastery Road	2767	2533	-235
	S5	Monksfield Grove	753	514	-239
	S5	N7	1171	988	-183
	S5	Neilstown Road	322	209	-113
	S5	New Nangor Road	1132	966	-165
	S5	Ninth Lock Road	2508	2315	-193
	S5	Noel Casey Roundabout	2120	1439	-682
	S5	Park West Avenue	902	544	-358
	S5	Turnpike Road	1123	767	-356
	S5	Woodford Downs	577	309	-268
	S5	Woodford Heights	690	457	-233
	S5	Woodford Hill	1080	785	-295
	S5	Woodford Walk	1385	787	-598
	S5	Bothar Na Life	527	421	-106
	S5	Fonthill Road	1836	1719	-116
	S5	Killeen Road	856	465	-391
	S5	Lucan Newlands Road	2508	2315	-193
	S5	Oak Road	611	211	-401
S5	Watery Lane	341	198	-143	
East of M50, North-West of R819	S6	Killeen Road	1149	530	-619
	S6	Kilnamanagh Road	245	141	-104
	S6	Kylemore Road	2120	786	-1334
	S6	Le Fanu Road	503	292	-211
	S6	Robinhood Road	807	191	-615

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
	S6	Bluebell Avenue	244	111	-133

The LAM, as demonstrated by the contents of Table 6.80, indicates that during the 2028 Opening Year, there is a reduction in general traffic travelling in the indirect study area PM peak hour, as illustrated by blue links in Diagram 6.41. The traffic flow reduction varies between -102 and -1,334 combined flows, with peak reductions along Greenhills Road (between Main Road and Old Greenhills Road). This reduction in general traffic flow averages at -290 two-way flows which has been determined as an overall **Positive, Slight and Long-term effect** on the indirect study area.

Increases in General Traffic Flows: The road links which experience additional traffic volumes of over 100 combined flows are illustrated by the orange/ red lines in Diagram 6.41. The road links and associated flow difference between the Do Minimum and Do Something scenarios during the PM Peak Hour are outlined in Table 6.81.

Table 6.81: Road Links Where Link Threshold of 100 Combined Flows is Exceeded (PM Peak Hour)

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of R134, West of M50	P1	Fonthill Road	1668	2029	361
	P1	Fonthill Road North	1737	2098	361
	P1	Neilstown Road	899	1179	281
North of R110	P2	Chapelizod Bypass	2582	2835	254
	P2	Con Colbert Road	1502	1609	107
	P2	Sarsfield Road	1157	1286	129
	P2	Suir Road	624	761	137
West of R137	P3	Bridgefoot Street	845	1004	160
	P3	Cornmarket	1100	1305	205
	P3	Francis Street	55	286	232
	P3	Wellington Road	2241	2467	227
South of R110	P4	Crumlin Road	1440	1577	137
	P4	Dromore Road	271	470	199
	P4	Kildare Road	265	595	331
	P4	Mourne Road	265	383	118
	P4	South Circular Road	897	1068	171
	P4	Sundrive Road	1256	1537	281
South of R110, East of M50	P5	Balfe Road	121	345	224
	P5	Ballymount Road Lower	113	1165	1052
	P5	Ballymount Road Upper	358	902	544
	P5	Crumlin Village	353	467	114
	P5	Drimnagh Road	1286	1701	415
	P5	Killeen Road	285	711	426
	P5	Naas Road	1922	2805	883
	P5	Long Mile Road	509	2072	1563
	P5	Old Naas Road	154	431	277
	P5	Oliver Bond Street	530	728	198
	P5	St Agnes Road	419	538	120
	P5	Turnpike Road	380	574	194

Orientation	Map ID	Road Name	Do Minimum Flows	Do Something Flows	Flow Difference
North of R134, East of M50	P6	Ballyfermot Road	1317	1589	272
	P6	Coldcut Road	1516	1777	261
	P6	M50	6171	6536	365
	P6	Nangor Road	914	1575	661
	P6	Park West Avenue	1035	1225	190
North of N7, West of M50	P7	Grange Castle Road	2308	2474	166
	P7	Monastery Road	959	1160	201
	P7	Ninth Lock Road	1311	1421	110
West of M50, South of A9	P8	Belgard Road	288	782	494
	P8	Citywest Avenue	436	628	192
	P8	Cookstown Extension	791	893	101
North of N7, West of R136	P9	Kingswood Road	1223	1615	392
	P9	N7	4111	4906	795
South of N81, West of M50	P10	Belgard Square South	292	516	224
	P10	N81	2521	2813	292
	P10	Old Blessington Road	276	382	106
	P10	The Square Link Road	200	516	316
East of M50, South of R819	P11	Firhouse Road	1301	1414	113
	P11	Spawell Roundabout	1471	1688	217

The contents of Table 6.81 outline that the additional traffic on the key road links varies between +101 to +1,563 combined flows during the PM Peak Hour. As described earlier in Section 6.4.6.2.9.2, these road links have been identified as experiencing additional traffic volumes over the threshold for further assessment.

National Roads – 5% Threshold Impact Assessment (PM Peak Hour)

On the basis of the assessment methodology specifically for national roads, the junctions and associated flow difference between the Do Minimum and Do Something scenarios during the PM Peak Hour are outlined in Table 6.82.

Table 6.82: National Road Links Traffic Threshold Assessment (PM Peak Hour)

Junction	Total Do Minimum Turning Flows (PCU)	Total Do Something Turning Flows (PCU)	Turning Flow Difference (PCU)	Percentage Difference
M50 J7	16,964	17,118	154	0.9%
M50 J9	8,377	8,511	134	1.6%
M50 J10	11,237	10,481	-756	-6.7%
M50 J11	15,624	16,140	516	3.3%

Table 6.82 demonstrates that the highest impact of increased traffic predicted for total turning flows between the Do Minimum and Do Something scenarios in the PM Peak Hour is 3.3% at the M50 Junction 11, which is considered to have a negligible effect. All other junctions have an increase in flows under the 5% thresholds.

Therefore, no further assessment into the junctions with national roads during the AM Peak Hour has been undertaken, aside from instances where the 100 combined flow of additional traffic threshold is exceeded, as shown in Table 6.81.

6.4.6.2.9.5 General Traffic Impact Assessment

Following the above threshold assessment, the following three-step approach has been undertaken to determine the significance of the negative impact as a result of the redistributed general traffic on the indirect study area:

Step 1 - Determination of Junction Sensitivity: Where road links experience additional traffic volumes of above the proposed thresholds, a review has been undertaken of its associated junctions using the following categories:

- **High Sensitivity (Category 5)** – Roads that cater for a lower volume of traffic than Category 4 with a lower speed limit (30km/h);
- **Medium Sensitivity (Category 4)** – Roads that can cater for a high volume of traffic with a moderate speed limit (30km/h – 50km/h), connecting neighbourhoods;
- **Low Sensitivity (Category 3)** – Roads that interconnect Category 2 type roads with a lower level of mobility than national roads; and
- **Negligible Sensitivity (Category 1 and Category 2)** – Roads that can cater for a high volume of traffic with a high speed limit (100km/h - 120km/h), between major metropolitan cities, i.e. national primary and secondary roads.

The above sensitivities / categories establish the characteristics of the surrounding road network impacted by the Proposed Scheme. The road link characteristics of the major arm of a junction has been used to determine the junction sensitivity. This has allowed for the identification of where more sensitive locations, in particular Category 5 roads / junctions, are impacted.

Step 2 – Determination of the Magnitude of Impact using Junction Analysis: To understand the magnitude impact of the redistributed traffic, operational capacities have been extracted from the LAM.

The capacity of junctions within the LAM are expressed in terms of Volume to Capacity ratios (V / C ratios). The V / C ratios represent the operational efficiency for each arm of a junction. For the purpose of this EIAR, operational capacity outputs of a junction have been identified with reference to the busiest arm which experiences the maximum V/C ratio.

A V / C ratio of below 85% indicates that a junction is operating well, with spare capacity, with traffic not experiencing queuing or delays throughout the hour. A value of 85% to 100% indicates that the junction is approaching its theoretical capacity with traffic possibly experiencing occasional queues and delays within the hour. A value of over 100% indicates that a junction is operating above its theoretical capacity and traffic experiences queues and delays regularly within the hour. The junctions have been described in the ranges outlined in Table 6.83.

Table 6.83: Junction Volume / Capacity Ranges

V / C Ratio	Traffic Condition
≤85%	A junction is operating well within theoretical capacity.
85% - 100%	A junction is approaching theoretical capacity and may experience occasional queues and delays within the hour.
≥100%	A junction is operating above its theoretical capacity and experiences queues and delays quite regularly within the hour.

When comparing the V / C ratios during the Do Minimum and Do Something scenarios for the key junctions, the terms outlined in Table 6.84 have been used to describe the impact.

Table 6.84: Magnitude of Impact for Redistributed Traffic

		Do Something		
		≤85%	85% - 100%	>100%
Do Minimum	≤85%	Negligible	Low Negative	High Negative
	85% - 100%	Low Positive	Negligible	Medium Negative
	>100%	Medium Positive	Low Positive	Negligible

As indicated in Table 6.84, the changes in V / C ratios between the Do Minimum and Do Something scenarios result in either a positive, negative or negligible magnitude of impact.

Step 3 – Determination of Significance of Effects: The magnitude of impact has been combined with the sensitivity of the road link to determine the Significance of Effect using the matrix shown in Table 6.4 which is based upon the EPA Guidelines on EIAR.

Potential mitigation measures have been considered at junctions where the Significance of Effect is predicted to be Significant or higher. At junctions where a moderate effect or lower is predicted, further consideration has not been undertaken as moderate effects represent that which effects the ‘character of the environment in a manner that is consistent with existing and emerging baseline trends’ (as per Table 6.5).

The above analysis was carried out on the following scenarios:

- 2028 Opening Year – Do Minimum vs Do Something – AM Peak Hour;
- 2043 Design Year (Opening Year + 15 Years) – Do Minimum vs Do Something – AM Peak Hour;
- 2028 Opening Year – Do Minimum vs Do Something – PM Peak Hour; and
- 2043 Design Year (Opening Year + 15 Years) – Do Minimum vs Do Something – PM Peak Hour.

The AM and PM Peak Hour flows are modelled as occurring between 08:00 to 09:00 and 17:00 to 18:00 respectively. The interpeak periods have not been analysed for this impact assessment as the AM and PM Peak Hour flows present an overall worst-case scenario. The full analysis tables for each scenario, demonstrating the Do Minimum and Do Something Peak Hour traffic flows and maximum V / C ratio for each junction assessed is detailed in Table 20 to Table 23 of Appendix A6.4.4 (General Traffic Assessment) in Volume 4 of this EIAR.

General Traffic Impact Assessment (2028 Opening Year) – Indirect Study Area - AM Peak Hour

The contents of Table 6.85 outline the maximum V / C ratios at the key local / regional road junctions in the AM Peak Hour for the 2028 Opening Year at junctions where the ratio exceeds 100% in the Do Something scenario, or the significance of effect is slight or higher. The location of these junctions and the V / C ratio comparison between the Do Minimum and Do Something scenarios in the 2028 AM Peak Hour are illustrated in Figure 6.9 in Volume 3 of this EIAR.

Table 6.85: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), AM Peak, 2028 Opening Year

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Neilstown Road	Medium	Lucan Newlands Road / Neilstown Road	✓				✓		Low	Moderate
Station Road	Medium	R113 / Station Road / Ninth Lock Road			✓			✓	Low	Moderate
Ballyfermot Road	Low	Clifden Road / Ballyfermot Road / Ballyfermot Road	✓				✓		Low	Slight

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Cloverhill Road	Low	Cloverhill Road / Cedar Brook Avenue	✓				✓		Low	Slight
Killeen Road	Low	Killeen Road / Park West Road / Killeen Road			✓			✓	Negligible	Not Significant
Chapelizod Bypass	Low	Chapelizod Bypass / Kennelsfort Road Lower			✓			✓	Low	Slight
Parnell Road	High	Parnell Road / Grove Road / Harold's Cross Road / Harold's Cross Road	✓				✓		Low	Moderate
Reuben Street	High	Reuben Street / Dolphin's Barn Street / Reilly's Avenue	✓				✓		Low	Moderate
Spawell Roundabout	Negligible	Spawell Roundabout / Spawell Roundabout / Templeogue Road		✓				✓	Medium	Not Significant
Templeogue Road	Negligible	Templeogue Road / Cypress Grove Road / Templeogue Road			✓			✓	Negligible	Imperceptible
Old Naas Road	Low	Naas Road / Old Naas Road	✓				✓		Low	Slight
Citywest Road	Low	Citywest Road / Garter Avenue			✓			✓	Low	Slight
N81	Negligible	Tallaght Bypass / Whitestown Way / Cookstown Way			✓			✓	Negligible	Imperceptible

The results of the junction analysis illustrated in Table 6.85 demonstrate that of the total of 190 junctions assessed, 157 junctions are operating with a maximum V / C ratio of below 85% in the Do Something scenarios in the AM Peak Hour in the 2028 Opening Year. A further 26 junctions are operating with a maximum V / C ratio of between 85% - 100%. Therefore, the majority of junctions continue to operate well within capacity with the Proposed Scheme in place.

Overall, the Proposed Scheme is considered to have a **Not Significant or Imperceptible and Long-term effect** at 176 junctions within the indirect study area. Five of the 190 junctions assessed are shown to have a significance of effect of **Negative, Slight and Long-term**, and four are shown to have **Negative, Moderate and Long-term** effects. Five junctions were assessed to have a **Positive, Moderate and Long-term** effect.

Capacity issues are noted at the following seven junctions (i.e. they are predicted to operate with a V / C ratio of above 100% in the Do Something scenario):

- Station Road / Ninth Lock Road (25236¹);
- Killeen Road / Park West Road (14214);
- Chapelizod Bypass / Kennelsfort Road Lower (22106);
- Spawell Roundabout (9148);
- Templeogue Road / Cypress Grove Road (9178);
- Citywest Road / Garter Avenue (24298); and
- Tallaght Bypass / Whitestown Way / Cookstown Way (24129).

Six out of seven junctions operate with a maximum V / C ratio of above 100% in both the Do Minimum and Do Something scenarios, therefore, the significance of effect is considered to be **Negative, Moderate and Long-term**, at worst. Spawell Roundabout operates with a V / C ratio of 85-100% in the Do Something, however, the

¹ Junction number – refer to Appendix A6.4 Impact Assessments and Figure 6.9 to 6.12 in Volume 3 of this EIAR.

sensitivity of this road link is deemed to be 'negligible', therefore, the significance of effect is **Not Significant** and **Long-term** overall.

The results demonstrate that no junctions are predicted to have a significance of effect of significant or higher, therefore, no further assessment of the AM Peak Hour in the 2028 Opening Year is required.

General Traffic Impact Assessment (2028 Opening Year) – Indirect Study Area - PM Peak Hour

The contents of Table 6.81 outline the V / C ratios at the key local / regional road junctions in the PM Peak Hour for the 2028 Opening Year at junctions where the ratio exceeds 100% in the Do Something scenario, or the significance of effect is slight or higher. The location of these junctions and the V / C ratio comparison between the Do Minimum and Do Something scenarios in the 2028 PM Peak Hour are illustrated in Figure 6.10 in Volume 3 of this EIAR.

Table 6.86: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), PM Peak, 2028 Opening Year

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Chapelizod Bypass	Negligible	Chapelizod Bypass / Kennelsfort Road Lower			✓			✓	Low	Not Significant
Chapelizod Bypass	Negligible	Chapelizod Bypass / The Oval			✓			✓	Low	Not Significant
Con Colbert Road	Negligible	Memorial Road / Con Colbert Road			✓			✓	Negligible	Imperceptible
Ballymount Road Lower	Medium	Ballymount Road Lower / Ballymount Retail Centre			✓			✓	Negligible	Not Significant
Long Mile Road	Negligible	Walkinstown Avenue / Long Mile Road		✓				✓	Medium	Not Significant
Naas Road	Negligible	Naas Road / Turnpike Road			✓			✓	Negligible	Imperceptible
Ballyfermot Road	Medium	Clifden Road / Ballyfermot Road	✓				✓		Low	Moderate
Ballyfermot Road	High	Kennelsfort Road Upper / Coldcut Road / Ballyfermot Road	✓				✓		Low	Moderate
M50	Negligible	M50 Northbound / J9 Off-slip		✓				✓	Medium	Not Significant
N7	Negligible	M50 J10 NB off slip to Naas Road			✓			✓	Low	Not Significant
N81	Negligible	Glenview Roundabout / Tallaght Bypass /		✓				✓	Medium	Not Significant

The results of the junction analysis illustrate that, of a total of 164 junctions assessed, 133 junctions are operating with a maximum V / C ratio of below 85% in the Do Something scenarios in the PM Peak Hour in the 2028 Opening Year. A further 22 junctions are operating with a maximum V / C ratio of between 85% - 100%.

Overall, as a result of redistributed general traffic associated with the Proposed Scheme, the effect at 161 out of 164 junctions assessed is predicted to be **Not Significant and Long-term** and **Imperceptible and Long-term** within the Indirect Study Area. Two are shown to have **Negative, Moderate and Long-term** effects in the 2028 Opening Year PM Peak Hour.

Capacity issues are noted at the following 9 junctions:

- Chapelizod Bypass / Kennelsfort Road Lower (22106);
- Chapelizod Bypass / The Oval (22117);

- Memorial Road / Con Colbert Road (14124);
- Ballymount Road Lower / Ballymount Retail Centre (16166);
- Walkinstown Avenue / Long Mile Road (8196);
- Naas Road / Turnpike Road (16113);
- M50 Northbound / J9 Off-slip (16190);
- M50 J10 NB off slip to Naas Road (16183); and
- Glenview Roundabout / Tallaght Bypass (24103).

Six out of 9 junctions operate with a maximum V / C ratio of above 100% in both the Do Minimum and Do Something scenarios, therefore, the significance of effect is considered to be **Not Significant and Long-term**. At the remaining three junctions, the sensitivity of the road links is considered to be 'negligible', therefore, the overall significance of effect is **Not Significant and Long-Term**. One junction was assessed to have a **Positive, Moderate and Long-term** effect.

The results demonstrate that no junctions are predicted to have a significance of effect of significant or higher, therefore, no further assessment of the PM Peak Hour in the 2028 Opening Year is required.

General Traffic Impact Assessment (2043 Design Year) – Indirect Study Area – AM Peak Hour

The contents of Table 6.87 outline the V / C ratios at the key local / regional road junctions in the AM Peak Hour for the 2043 Design Year at junctions where the ratio exceeds 100% in the Do Something scenario, or the significance of effect is slight or higher. The location of these junctions and the V / C ratio comparison between the Do Minimum and Do Something scenarios in the 2043 AM Peak Hour are illustrated in Figure 6.11 in Volume 3 of this EIAR.

Table 6.87: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), AM Peak, 2043 Opening Year + 15

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Station Road	Medium	Station Road / Ninth Lock Road			✓			✓	Negligible	Not Significant
Coldcut Road	Medium	Coldcut Road / Coldcut Road / Cloverhill Road	✓				✓		Low	Moderate
Killeen Road	Low	Killeen Road / Park West Road / Killeen Road		✓				✓	Medium	Moderate
Chapelizod Bypass	Low	Chapelizod Bypass / The Oval		✓				✓	Medium	Moderate
South Circular Road	Medium	South Circular Road / Clanbrassil Street Lower / Clanbrassil Street Upper / South Circular Road	✓				✓		Low	Moderate
South Circular Road	Medium	South Circular Road / Dolphin's Barn	✓				✓		Low	Moderate
Spawell Roundabout	Negligible	Spawell Roundabout / Spawell Roundabout / Templeogue Road		✓				✓	Medium	Not Significant
Templeogue Road	Negligible	Templeogue Road / Cypress Grove Road			✓			✓	Low	Not Significant
Belgard Road	Low	Belgard Road / Cookstown Road			✓			✓	Negligible	Not Significant

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Citywest Road	Low	Citywest Road / Garter Avenue			✓			✓	Low	Slight
Cookstown Way	Medium	Cookstown Way / Maplewood Road	✓				✓		Low	Moderate
N81	Negligible	Tallaght Bypass / Whitestown Way / Cookstown Way			✓			✓	Negligible	Imperceptible

The results demonstrate that, similar to the AM Peak Hour scenario in the 2028 Opening Year, the majority of junctions continue to operate within capacity with the Proposed Scheme in place (182 out of 190 junctions assessed).

The following 8 junctions are predicted to operate with a V / C of above 100%:

- Station Road / Ninth Lock Road (25236);
- Killeen Road / Park West Road (14214);
- Chapelizod Bypass / The Oval (22117);
- Spawell Roundabout (9148);
- Templeogue Road / Cypress Grove Road (9178);
- Belgard Road/ Cookstown Road (24178);
- Citywest Road / Garter Avenue (24298); and
- Tallaght Bypass / Whitestown Way / Cookstown Way (24129).

Five out of eight junctions operate with a maximum V / C ratio of above 100% in both the Do Minimum and Do Something scenarios, therefore, the significance of effect is considered to be **Negative, Slight and Long-term**, at worst. Similarly, the remaining three junctions (Killeen Road, Spawell Roundabout and Chapelizod Bypass / The Oval) operate with a V / C ratio of 85-100% in the Do Minimum, however, the sensitivity of these road links is deemed to be 'low' or 'negligible', therefore, the significance of effect is **Negative, Moderate and Long-term**, at worst. One junction was assessed to have a **Positive, Slight and Long-term** effect and three junctions were assessed to have a **Positive Moderate and Long-term** effect.

The results demonstrate that no junctions are predicted to have a significance of effect of significant of higher, therefore, no further assessment of the AM Peak Hour in the 2043 Design Year is required.

General Traffic Impact Assessment (2043 Design Year) – Indirect Study Area – PM Peak Hour

The contents of Table 6.88 outline the V / C ratios at the key local / regional road junctions in the PM Peak Hour for the 2043 Design Year at junctions where the ratio exceeds 100% in the Do Something scenario, or the significance of effect is slight or higher. The location of these junctions and the V / C ratio comparison between the Do Minimum and Do Something scenarios in the 2043 PM Peak Hour are illustrated in Figure 6.12 in Volume 3 of this EIAR.

Table 6.88: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), PM Peak, 2043 Opening Year + 15

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact	Significance of Effects
			≤85%	85% - 100%	>100%	≤85%	85% - 100%	>100%		
Fonthill Road	Low	Fonthill Road North / Coldcut Road	✓				✓		Low	Slight
Chapelized Bypass	Negligible	Chapelized Bypass / Kennelsfort Road Lower			✓			✓	Negligible	Imperceptible
Chapelized Bypass	Negligible	Chapelized Bypass / The Oval			✓			✓	Low	Not Significant
Con Colbert Road	Negligible	Memorial Road / Con Colbert Road			✓			✓	Negligible	Imperceptible
Bridgefoot Street	Low	Thomas Street / Bridgefoot Street	✓				✓		Low	Slight
Ballymount Road Lower	Medium	Ballymount Road Lower / Ballymount Retail Centre			✓			✓	Low	Moderate
Killeen Road	Medium	Killeen Road / Nangor Road / Killeen Road	✓				✓		Low	Moderate
Long Mile Road	Negligible	Walkinstown Avenue / Long Mile Road		✓				✓	Medium	Not Significant
Long Mile Road	Negligible	Long Mile Road / Naas Road	✓				✓		Low	Slight
Naas Road	Negligible	Naas Road / Turnpike Road			✓			✓	Negligible	Imperceptible
Belgard Road	High	Blessington Road / Belgard Road	✓				✓		Low	Moderate
N7	Negligible	N7 J3 On-slip / Naas Road Northbound			✓			✓	Low	Not Significant
N81	Negligible	Tallaght Bypass / Whitestown Way / Cookstown Way			✓			✓	Negligible	Imperceptible

The results demonstrate that, similar to the PM Peak Hour scenario in the 2028 Opening Year, the majority of junctions continue to operate within capacity with the Proposed Scheme in place (156 out of 164 junctions assessed).

The following eight junctions are predicted to operate with a V / C of above 100%:

- Chapelized Bypass / Kennelsfort Road Lower (22106);
- Chapelized Bypass / The Oval (22117);
- Memorial Road / Con Colbert Road (14124);
- Ballymount Road Lower / Ballymount Road Lower / Ballymount Retail Centre (16166);
- Walkinstown Avenue / Walkinstown Avenue / Long Mile Road / Long Mile Road (8196);
- Naas Road / Turnpike Road (16113);
- N7 J3 On-slip / Naas Road Northbound (24110); and
- Tallaght Bypass / Whitestown Way / Cookstown Way (24129).

Seven out of the eight junctions operate with a maximum V / C ratio of above 100% in both the Do Minimum and Do Something scenarios and the significance of effect is considered to be **Not Significant and Long-term**. The remaining one junction, Walkinstown Avenue / Long Mile Road, operates with a V / C ratio of 85-100% in the Do Something, however, the sensitivity of these road links is deemed to be 'negligible', therefore, the significance of effect is **Not Significant and Long-term** respectively. Three junctions were assessed to have a **Positive, Moderate and Long-term** effect.

The results demonstrate that no junctions are predicted to have a significance of effect of significant or higher, therefore, no further assessment of the PM Peak Hour in the 2043 Design Year is required.

6.4.6.2.9.6 Night-time Traffic Redistribution

The night-time period is defined as between 23:00 and 07:00. An analysis of traffic data during this period indicates that traffic levels are considerably lower and that junctions have a higher capacity for vehicular movement². Automatic Traffic Counter data demonstrates that, typically, within Dublin the night-time period has approximately 19% of the traffic levels compared to the morning peak hour (08:00-09:00). As a result, during the night-time period junctions do not experience flows in excess of capacity which would result in queuing and in turn potential re-distribution of traffic to alternative routes to avoid congestion. Therefore, the effects of traffic redistribution due to any of the Proposed Schemes will be **Negligible and Long-term** during the night-time period.

6.4.6.2.9.7 General Traffic Impact Assessment Summary

Given the improvements to bus priority, walking and cycling as a result of the Proposed Scheme, there will likely be an overall reduction in operational capacity for general traffic along the direct study area. This may in turn result in some redistribution of general traffic away from the main corridor onto the surrounding road network.

Using the TII guidelines as an indicator for best practice, the LAM Opening Year 2028 model results were used to identify the difference in traffic flows between the Do Minimum and Do Something scenarios. The following thresholds have been used to identify where further assessment is required:

- **Local / Regional Roads:** Traffic redistribution results in an increase above 100 combined flows (i.e. in a two-way direction) along residential, local and regional roads in the vicinity of the Proposed Scheme in the AM and PM peak hours; and
- **National Roads:** Traffic exceeds 5% of the combined turning flows at junctions with/ on/or with national roads in the AM and PM peak hours as a result of traffic redistribution comparing the Do Minimum to the Do Something scenario with the Proposed Scheme in place.

The threshold impact assessment identified the following roads that required further traffic analysis:

- **AM Peak Hour:** A total of 63 road links, as listed in Table 6.76; and
- **PM Peak Hour:** A total of 48 road links, as listed in Table 6.81.

The general traffic impact assessment was undertaken by extracting operational capacities from the LAM at the key junctions along the above road links. To undertake a robust assessment, the outputs for the worst-performing arm at each junction have been assessed. Potential mitigation measures have been considered at junctions where the Significance of Effect is predicted to be Significant or higher.

2028 National Roads Assessment: The highest impact predicted for total inbound flows between the Do Minimum and Do Something scenarios in the AM peak hour is a 2.8% increase at M50 Junction 9, which is below the 5% threshold that has been adopted for further assessment.

The highest impact predicted for total inbound flows between the Do Minimum and Do Something scenarios in the PM peak hour is a 3.3% increase at M50 Junction 11, which is below the 5% threshold that has been adopted for further assessment.

Overall, the Proposed Scheme is expected to have a **Negligible** effect on turning flows at junctions with National roads in both the AM and PM peak hours in 2028.

2028 and 2043 Local / Regional Roads Assessment: The majority of assessed junctions have V / C ratios of below 85%, i.e. they are operating within capacity for all assessed years in the Do Minimum and Do Something scenarios. This indicates that these junctions will be able to accommodate the additional general traffic volumes redistributed, as a result of the Proposed Scheme and the effect is deemed **Imperceptible / Not Significant and Long-term**.

² Less pedestrian, cycling and bus demand requirements leading to higher level of general traffic green time allocation per typical signal cycle

A small number of junctions are predicted to operate over capacity (>100% V / C ratio) in the Do Something scenario, however, it is concluded that, in the majority of cases the performance of the junction is similar with and without the Proposed Scheme, or the sensitivity of the road link determines that the overall effect will not be significant.

The results demonstrate that no junctions are predicted to have a significance of effect of significant or higher, therefore, no further assessment is required.

Overall Summary: Overall, it has been determined that the potential impact of the reduction in general traffic flows along the Proposed Scheme will be **Positive, Moderate and Long-term** whilst the potential impact of the redistributed general traffic along the surrounding road network will be **Negative, Slight and Long-term**.

It should be noted that effects will be short-lived and localised. Section 5.4.2 of DMURS (2019) recognises that a certain level of traffic congestion is an inevitable feature within urban networks and that junctions may have to operate at saturation levels for short periods of time during the peak hours of the day.

Chapter 1 of the Smarter Travel Policy Document also acknowledges that it is not feasible or sustainable to accommodate continued demand for car use. It should therefore be considered that the traffic congestion that is outlined in the impact assessment is acceptable with regard to the urban location of the area.

Given that the redistributed traffic is not predicted to lead to a significant deterioration of the operational capacity on the surrounding road network, no further mitigation measures have been considered to alleviate the impact outside of the direct study area.

6.4.6.3 Operational Phase Summary

The aim of the Proposed Scheme is to provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor. The objectives of the CBC Infrastructure Works, applicable to the Traffic and Transport assessment 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; and
- Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable;
- Support the delivery of an efficient, low carbon and climate resilient public transport service, which supports the achievement of Ireland's emission reduction targets;
- Enable compact growth, regeneration opportunities and more effective use of land in Dublin, for present and future generations, through the provision of safe and efficient sustainable transport networks;
- Improve accessibility to jobs, education and other social and economic opportunities through the provision of improved sustainable connectivity and integration with other public transport services; and
- Ensure that the public realm is carefully considered in the design and development of the transport infrastructure and seek to enhance key urban focal points where appropriate and feasible.

Based on the information and analysis presented within Section 6.4.6 (Operational Phase) the assessment determines that the Proposed Scheme meets the above objectives and integrates within the receiving transport environment with minimal impacts during the Operational Phase. The assessment demonstrates the following:

- **Pedestrian Infrastructure:** The Proposed Scheme consists of measures to enhance the existing pedestrian infrastructure along the direct study area. A Level of Service (LoS) junction assessment was undertaken using a set of five criteria to determine the impact that the Proposed Scheme has for pedestrians. The results of the impacted junctions demonstrate that the LoS during the Do Minimum scenario consists predominantly of the low B/ C /D / E ratings, with the exception of 3 F's and 4 A's. During the Do Something scenario, i.e., following the development of the Proposed

Scheme, the LoS consists predominantly of the highest A / B ratings, with the exception of two Cs. Overall, the improvements to the quality of the pedestrian infrastructure will have a **Positive, Very Significant and Long-term** effect in Section 1 and Section 2, a **Positive, Significant and Long-term effect** in Section 4, Section 5 and Section 6 and a **Positive, Moderate and Long-term effect** in Section 3 of the Proposed Scheme.

- **Cycling Infrastructure:** The Proposed Scheme also consists of measures to enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic (and pedestrians) wherever practicable along the direct study area. A LoS assessment was undertaken using an adapted version of the NTA's National Cycle Manual Quality of Service (QoS) Evaluation criteria. The results of the assessment demonstrate that the LoS during the Do Minimum scenario consists of mainly B/C/D ratings. In the Do Something scenario, the LoS consists predominantly of the high ratings, with the exception of four B's and one C. Given the quality of the cycling infrastructure along the Proposed Scheme, the improvements will have a **Positive, Significant and Long-term effect** in Section 2, 3, Section 5 and Section 6 and a **Positive, Moderate and Long-term effect** in Section 1 and Section 4.
- **Bus Infrastructure:** The implementation of the Proposed Scheme will result in improvements in the quality of bus infrastructure provision along the direct study area. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance. A qualitative impact assessment has been undertaken based on the provision of bus priority, bus stop provision and changes to facilities. The results of the assessment demonstrate that the improvements to the quality of the bus infrastructure will have a **Positive, Very Significant and Long-term effect** in Section 1, Section 2 and Section 4, a **Positive, Significant and Long-term effect** in Section 3 and Section 5 and a **Positive, Moderate and Long-term effect** in Section 6 of the Proposed Scheme.
- **Parking and Loading:** A qualitative impact assessment has been undertaken of the Proposed Scheme impacts on the existing parking and loading. The results of the assessment demonstrate that the changes to the parking and loading provision will result in an overall loss of 534 spaces and 7 HGV spaces within the redline boundary of the Proposed Scheme, however the majority of these are off-street private parking spaces. Given the nature of the loss in parking and the availability of alternative spaces in the indirect study area, the impact is expected to have a **Negative, Slight and Long-term effect** in Section 1, Section 2, Section 3, Section 4 and Section 6 and a **Negligible and Long-term effect** in Section 5 of the Proposed Scheme.
- **People Movement:** Given the proposed amendments to the pedestrian, cycling, bus and parking / loading infrastructure outlined above, the Proposed Scheme will have greater capacity to facilitate the sustainable movement of people travelling along the corridor. A quantitative impact assessment has been undertaken using outputs from the NTA's ERM and LAM, comparing the Do Minimum and Do Something peak hour scenarios for each forecast year (2028, 2043). The results of the assessment demonstrate that there will be an increase of 37% and 27% in the number of people travelling along the Proposed Scheme during the 2028 AM and PM Peak Hours respectively. During the 2043 scenario there will be an increase of 49% and 38% in the number of people travelling along the Proposed Scheme during the AM and PM Peak Hours. These increases are all due to the increased levels of people movement by sustainable modes facilitated by the Proposed Scheme. The analysis also shows that there will be an increase of 11% in the number of passengers boarding buses during the AM and PM Peak hours in 2028. During the 2043 scenario there will be an increase of approximately 6.4% and 38.4% in the number of passengers boarding buses during the AM and PM Peak hours respectively. Overall, it is adjudged that the Proposed Scheme will have a **Positive, Very Significant and Long-term effect** on the sustainable movement of people along the corridor.
- **Bus Network Performance Indicators:** A micro-simulation modelling assessment has been developed and network performance indicators of the bus operations along the 'end to end' corridor. A micro-simulation modelling assessment has been developed and network performance indicators of the bus operations along the 'end to end' corridor. The results of the assessment demonstrate that the total bus journey times on all modelled bus services will improve by between 8% and 12% during the AM and PM Peak hours of the 2028 Opening Year and 2043 Design Year. The Proposed Scheme will reduce total bus journey times along the Proposed Scheme by up to 12% in 2028 and 12% in 2043. Based on the AM and PM peak hours alone, this equates to **7.6 hours of savings in 2028 and 7.2 hours in 2043** combined across all buses when compared to the Do Minimum. On an annual basis this equates to approximately 5,750 hours of bus vehicle savings in 2028 and 5,450 hours in 2043, when considering weekday peak periods only. Journey time variation and reliability

are shown to improve in all Do Something scenarios compared to the Do Minimum. Overall, it is anticipated that the improvements in journey times and reliability for bus users along the Proposed Scheme will have a **Positive, Very Significant and Long-term effect**.

- **General Traffic Network Performance Indicators:** There will be an overall reduction in operational capacity for general traffic along the direct study area, given the proposed infrastructural changes and rebalancing of priority towards sustainable modes outlined above. This reduction in operational capacity for general traffic will create some level of traffic redistribution away from the Proposed Scheme onto the surrounding road network.

The LAM Opening Year 2028 model results were used to identify the impact in traffic flows between the Do Minimum and Do Something scenarios. A reduction in general traffic flows along a road link has been described as a positive impact to the environment. An increase in general traffic flows along a road link has been described as a negative impact to the environment. Reference has been given to TII's Traffic and Transport Assessment Guidelines as an indicator for best practice, to determine the key road links that require further traffic analysis due to the increase in traffic. Operational capacities were extracted from the LAM at the associated junctions of the key road links to identify the impact that the Proposed Scheme will have on the V / C ratios. The results are presented in terms of the significance of the impact to the V / C ratio for each junction based on its sensitivity and magnitude of impact.

The results of the assessment demonstrate that the surrounding road network largely has the capacity to accommodate the redistributed general traffic as a result of the Proposed Scheme. The majority of assessed junctions that required further traffic analysis have V / C ratios that are broadly similar before and after the Proposed Scheme implementation, resulting in a **Not Significant and Long-term effect**. It has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be a **Positive, Moderate and Long-term effect** whilst the impact of the redistributed general traffic in the surrounding road network will have a **Negative, Slight and Long-term effect**. Thus, overall, there will be no significant deterioration in the general traffic environment in the study area as a consequence of meeting the scheme objectives of providing enhanced sustainable mode priority along the direct study area.

The contents of Table 6.89 present a summary of the potential impacts of the Proposed Scheme during the Operational Phase.

Table 6.89: Summary of Predicted Operational Phase Impacts

Assessment Topic	Effect	Potential Impact
Pedestrian Infrastructure	Improvements to the quality of the pedestrian infrastructure along the Proposed Scheme.	Positive, Moderate to Very Significant and Long-term
Cycling Infrastructure	Improvements to the quality of the cycling infrastructure along the Proposed Scheme.	Positive Moderate to Significant and Long-term
Bus Infrastructure	Improvements to the quality of the bus infrastructure along the Proposed Scheme.	Positive, Moderate to Very Significant and Long-term
Parking and Loading	A total loss of 540 parking / loading spaces and 3 HGV spaces along the Proposed Scheme.	Negligible to Negative, Slight and Long-term
People Movement	Increases to the total number of people travelling along the Proposed Scheme.	Positive, Very Significant and Long-term
Bus Network Performance Indicators	Improvements to the network performance indicators for bus users along the Proposed Scheme.	Positive, Very Significant and Long-term
General Traffic Network Performance Indicators	Reduction in general traffic flows along the Proposed Scheme.	Positive, Moderate and Long-term
	Redistributed general traffic along the surrounding road network in the indirect study	Negative, Slight and Long-term

Assessment Topic	Effect	Potential Impact
	area as a result of the reduction of reserve capacity along the Proposed Scheme.	

As outlined within Section 6.4 and summarised in Table 6.89 above, the Proposed Scheme will deliver strong positive impacts to the quality of pedestrian, cycling and bus infrastructure during the Operational Phase providing for enhanced levels of People Movement in line with the scheme objectives. These improvements will help to provide an attractive alternative to the private car and promote a modal shift 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 Proposed Scheme will address sustainable mode transport infrastructure deficits while contributing to an overall integrated sustainable transport system as proposed in the GDA Transport 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, more reliable journey times which the Proposed Scheme provides. This in turn will support the future increase to the capacity of the bus network and 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. All of these changes combined will therefore cater for higher levels of future sustainable 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 and lower reliability for bus journeys. This limits their attractiveness to users which will lead to reduced levels of public transport use, making the bus system less resilient to higher levels of growth and leading to increased levels of car use and congestion. The absence of walking and cycling measures that the Proposed Scheme provides will also significantly limit the potential to grow those modes into the future.

On the whole, the Proposed Scheme will make a significant contribution to the overall aims of BusConnects, the GDA Transport Strategy and allow the city to grow sustainably into the future, which would not be possible in the absence of the Proposed Scheme.

6.5 Mitigation and Monitoring Measures

6.5.1 Construction Phase

Chapter 5 (Construction) has been prepared to demonstrate the likely approach that will be taken to construct the Proposed Scheme, while it also provides an overview of the construction activities necessary to undertake the works, including information on a proposed Construction Compound, construction plant and equipment.

A Construction Environmental Management Plan (CEMP) has been prepared and is included as Appendix A5.1 in Volume 4 of this EIAR. The CEMP which will be updated and finalised by the appointed contractor prior to construction commencing. The CEMP comprises the construction mitigation measures, which are set out in this EIAR, and will be updated with any additional measures which may be required by the conditions attached to An Bord Pleanála's decision. Implementation of the CEMP will ensure disruption and nuisance are kept to a minimum during the Construction Phase. The CEMP has regard to the guidance contained in the 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 (CIRIA 2015). All of the content provided in this CEMP will be implemented in full by the appointed contractor and its finalisation will not affect the robustness and adequacy of the information presented and relied upon in this EIAR.

A detailed Construction Traffic Management Plan will subsequently be prepared by the appointed contractor prior to construction, including Temporary Traffic Management arrangements prepared in accordance with Department of Transport's 'Traffic Signs Manual, Chapter 8 Temporary Traffic Measures and Signs for Roadworks'. The CTMP will be consulted upon with the road authority and will include measures to minimise the impacts associated with the Construction Phase upon the peak periods of the day. It will include imbedded mitigation measures which will assist to alleviate any negative impact as a result of the Construction Phase of the Proposed Scheme. The appointed contractor will also prepare a Construction Stage Mobility Management Plan (CSMMP) which will be developed prior to construction, as described in the CEMP, to actively encourage its personnel to travel to site by sustainable modes.

No further mitigation measures are therefore required to be considered as part of the Proposed Scheme.

6.5.2 Operational Phase

Given that the Proposed Scheme results in a positive impact for walking, cycling, bus and people movement, 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 incorporated into the Proposed Scheme have been outlined in Chapter 4 (Proposed Scheme Description) of this EIAR.

No further mitigation measures are required to be considered as part of the Proposed Scheme.

6.6 Residual Impacts

With the implementation of the imbedded mitigation measures which have been included as part of the Proposed Scheme, the residual impacts associated with the assessment topics outlined in Section 6.4 remain the same.

6.7 References

- CIRIA (2015). Environmental Good Practice on Site Guide, 4th Edition
- DCC (2009). Local Area Plan for the Liberties Area
- DCC (2022). Dublin City Development Plan
- DCC and NTA (2016). Transport Study
- DHLGH (2018). Project Ireland 2040 National Planning Framework
- DPER (2015). Building on Recovery: Infrastructure and Capital Investment (2016-2021)
- DPER (2018). National Development Plan (2018- 2027)
- DTTS (2009). National Cycle Policy Framework
- DTTS (2019). Smarter Travel: A Sustainable Transport Future (2009 – 2020)
- DTTS (2019). Traffic Management Guidelines
- DTTS (2019). Traffic Signs Manual
- DTTS (2019). Temporary Traffic Management Design Guidance
- DTTS (2021). Draft National Investment Framework for Transport in Ireland
- DTTS (2019). Design Manual for Urban Roads and Streets
- DTTS (2019). Statement of Strategy
- DTTS (2019). Traffic Signs Manual – Chapter 8, Temporary Traffic Measures and Signs for Roadworks
- DCCAIE (2018). Sustainable Development Goals National Implementation Plan
- Department of the Environment, Climate and Communications (2018). Sustainable Development Goals National Implementation Plan
- Department of the Environment, Climate and Communications (2023). Climate Action Plan
- DoT (2023) Ireland's Road Haulage Strategy 2022-2031
- Eastern and Midland Regional Assembly (2019). Regional Spatial and Economic Strategy (2019-2031)
- EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- NAVTEQ (2011). The NavStreets Reference Manual
- NDA (2020). Building for Everyone: A Universal Design Approach
- NTA (2011). National Cycle Manual
- NTA (2013). Greater Dublin Area Cycle Network Plan
- NTA (2022). Greater Dublin Area 2022-2042RSA (2019). Road Safety Strategy (2013-2020)

TRB (2000) Highway Capacity Manual

TRB (2013) Transit Capacity and Quality of Service Manual

Transport for London (2010) Traffic Modelling Guidelines

TII (2014) Traffic and Transport Assessment Guidelines