



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	5
6.2.2	Relevant Guidelines, Policy and Legislation	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	16
6.3	Baseline Environment.....	19
6.3.1	Overview	19
6.3.2	Section 1 – N3 Blanchardstown Junction to Snugborough Road	20
6.3.3	Section 2 – Snugborough Road to N3 / M50 junction	30
6.3.4	Section 3 – N3 / M50 Junction to Navan Road / Ashtown Road junction	37
6.3.5	Section 4 – Navan Road / Ashtown Road Junction to Navan Road / Old Cabra Road junction.....	43
6.3.6	Section 5 – Navan Road / Old Cabra Road Junction to Ellis Quay	52
6.4	Potential Impacts	68
6.4.1	Characteristics of the Proposed Scheme	68
6.4.2	‘Do Nothing’ Scenario	68
6.4.3	‘Do Minimum’ Scenario.....	68
6.4.4	‘Do Something’ Scenario	70
6.4.5	Construction Phase	70
6.4.6	Operational Phase	78
6.5	Mitigation and Monitoring Measures	158
6.5.1	Construction Phase	158
6.5.2	Operational Phase	159
6.6	Residual Impacts	159
6.7	References	160

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 Blanchardstown to City Centre 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) has an overall length of approximately 10.9km and will commence at Junction 3 (Blanchardstown / Mulhuddart) southbound off-slip from the N3. The Proposed Scheme proceeds along the R121 Blanchardstown Road South into the Blanchardstown Shopping Centre. From a new terminus to the north-west of Blanchardstown Shopping Centre the Proposed Scheme is routed onto the N3 Navan Road via the Snugborough Road junction and will follow the N3 and Navan Road as far as the junction with the Old Cabra Road. From here, the Proposed Scheme will be routed along Old Cabra Road, Prussia Street, Manor Street and Stoneybatter to the junction with King Street North. The Proposed Scheme will proceed via Blackhall Place as far as the junction with Ellis Quay, where it will join the prevailing traffic management regime on the North Quays. At the Stoneybatter / Brunswick Street North junction, cyclists proceed along Brunswick Street North, George's Lane and Queen Street as far as Ellis Quay/Arran Quay.

The Proposed Scheme includes an upgrade of the existing bus priority and cycle facilities associated with the corridor. The Proposed Scheme includes a substantial increase in the level of bus priority provided along the corridor, including the provision of additional lengths of bus lane, resulting in improved journey time reliability. 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. The proposed route of the cycle track will integrate with route 4A of the GDA Cycle Network Plan via Castleknock Manor and the cycle track will recommence at Snugborough Road junction.

Moreover, pedestrian facilities will be upgraded and additional signalised crossings will be provided. In addition, public realm works will be undertaken at key locations with higher quality materials, planting and street furniture provided to enhance the pedestrians experience. An example of this is the proposed landscape design at Prussia Street / Manor Street / Aughrim Street junction. 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	10.9km	
Bus Priority	Existing (km)	Proposed Scheme (km)
Bus Lanes		
Inbound	4.4	9.1
Outbound	1.1	9.0
Bus Priority through Traffic Management		
Inbound	0	1.5
Outbound	0	1.6
Total Bus Priority (both directions)	5.5	21.2 (+289%)
Bus Measures		

Total Length of Proposed Scheme		10.9km
Bus Priority		
	Existing (km)	Proposed Scheme (km)
Proportion of Route with Bus Measures	25%	97%
Cycle Facilities – Segregated		
Inbound	0.8	7.8
Outbound	1.2	8.7
Cyclist Facilities – Non-segregated Non-Segregated Online (NS) / Offline Quiet Street (QS)		
Inbound	3.4 (NS)	0.5 (QS)
Outbound	4 (NS)	0.5 (QS)
Cyclist Facilities - Overall		
Total Cyclist Facilities (both directions)	9.4	17.1 (+82%)
Proportion Segregated	9%	78%
Other Features		
Number of Traffic Signal Controlled Junctions	27	41
Number of Signal Crossings	77	125

The Proposed Scheme, as described in Chapter 4 (Proposed Scheme Description) is shown in 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
BCIDC-ARP-GEO_GA-0005_XX_00-DR-CR-9001	General Arrangement
BCIDC-ARP-GEO_CS-0005_XX_01-DR-CR-9001	Typical Cross Sections
BCIDC-ARP-TSM_GA-0005_XX_00-DR-CR-9001	Traffic Signs and Road Markings
BCIDC-ARP-TSM_SJ-0005_XX_00-DR-TR-9001	Junction Systems 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 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; 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.

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 optimization 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) were 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, focussing 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 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 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 whilst ensuring the scheme objectives remained satisfied.

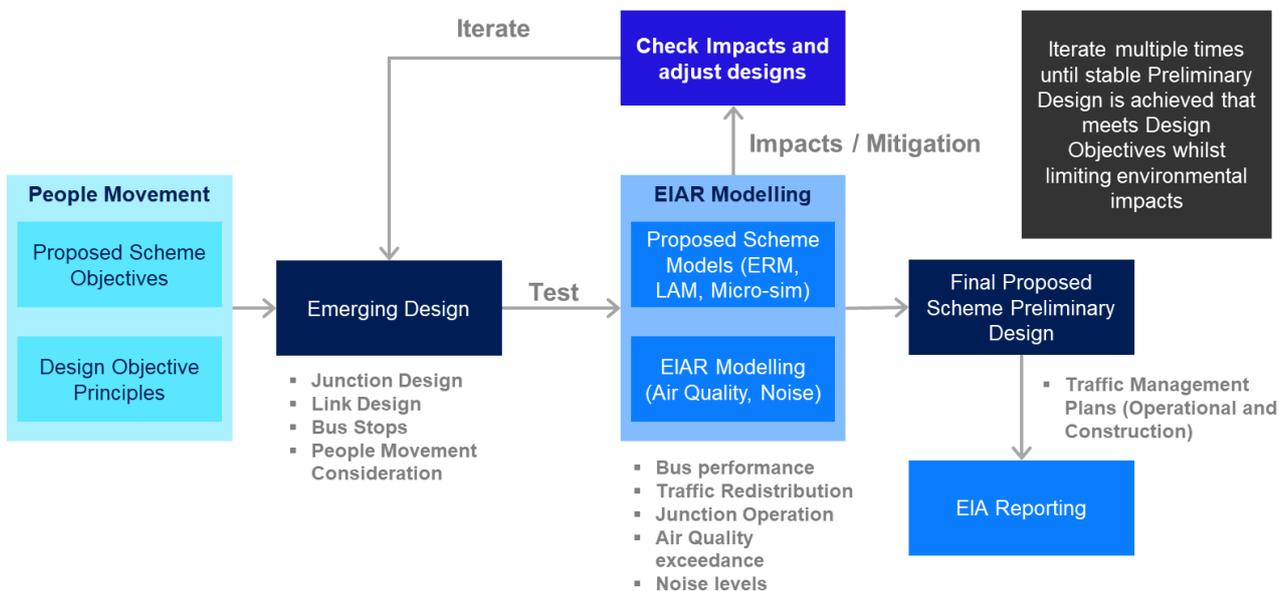


Diagram 6.1 Proposed Scheme Impact Assessment and Design Interaction

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 method 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: Direct and Indirect Study Area Extents for the Traffic & Transport Chapter

6.2.2 Relevant Guidelines, Policy and Legislation

The policies and legislation which are applicable to the Traffic & Transport chapter are detailed in Chapter 2 (Need for the Proposed Scheme) 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 1.3 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 Eastern Regional Model (ERM) as the primary source for multi-model demand and trip growth. Demand information is then passed 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.

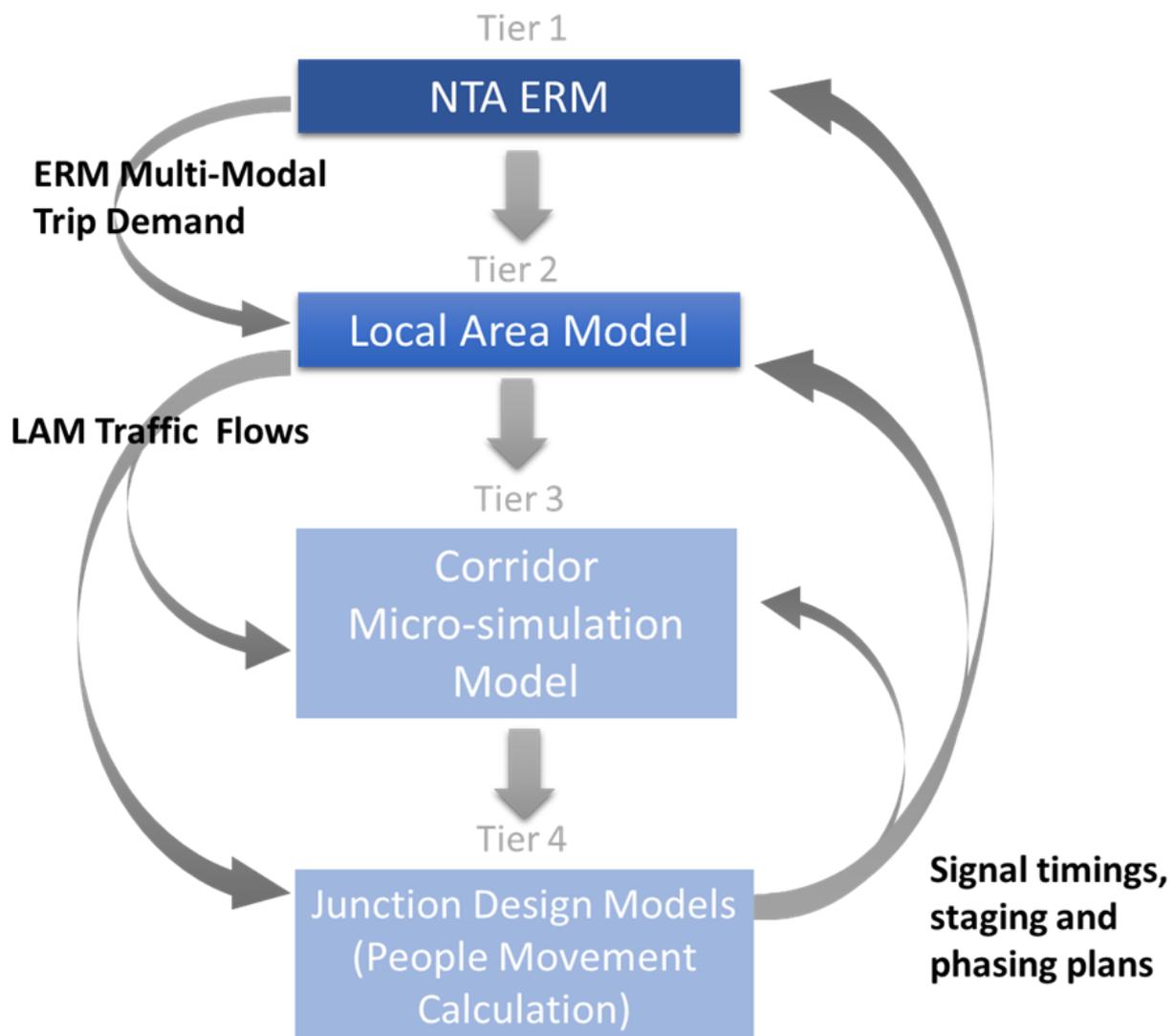


Diagram 6.3: Proposed Scheme Modelling Hierarchy

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 the Transport Modelling Report, 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 Environmental Impact Assessment Reports (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 are as follows:
 - **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 are as follows, 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 that will occur for the general traffic conditions on 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, 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 impacts 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.

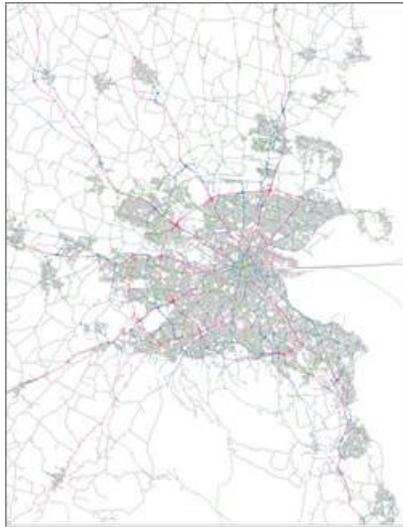
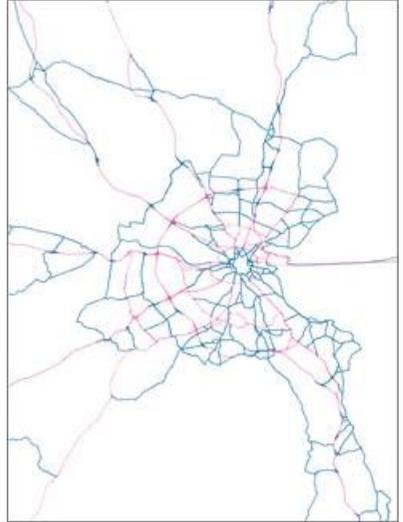
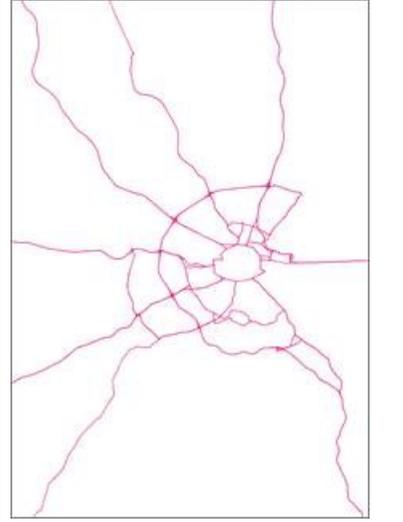
6.2.4.4 Defining the Sensitivity of the Environment

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	<p>Category 5: Low capacity, low operating speeds. Local and minor roads. (shown in grey)</p> 	<p>Category 4: High capacity, moderate operating speeds. Roads connecting between neighbourhoods. (shown in green)</p> 	<p>Category 3 roads: <i>High capacity, high operating speeds</i> (less than Category 2). Roads connecting Category 2 roads. (shown in blue)</p> 	<p>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)</p> 

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 3.4 of the EPA Guidelines (EPA 2022). 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 hierarchical classification of roads, used to determine a logical and efficient route for a traveller. 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. The source of this data was 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 up to date 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 desk study of the most recent aerial photography.

Overall cycling infrastructure provision on the corridor consists of 48% cycle priority outbound (11% cycle track, 37% non-segregated), with 38% inbound (7% segregated, 31% non-segregated).

Bus services along the Proposed Scheme currently operate within a constrained and congested environment, with 40% priority outbound and 10% priority inbound on the corridor. An examination of Automatic Vehicle Location (AVL, collected by the NTA) data indicates that the current standard deviation for journey times of buses on the corridor is 12 minutes. With any further increases in traffic levels, these issues are expected to be exacerbated. While impacting upon bus passengers, longer and less reliable bus services also require operators to use additional buses to maintain headways to fill gaps created in the timetable. Aligned to this, the remaining sections of unprioritised 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 five sections, which are outlined as follows and illustrated in Figures 6.2a to 6.2e in Volume 3 of this EIAR.

- **Section 1** – N3 Blanchardstown Junction to Snugborough Road;
- **Section 2** – Snugborough Road to N3 / M50 junction;
- **Section 3** – N3 / M50 junction to Navan Road / Ashtown Road junction;
- **Section 4** – Navan Road / Ashtown Road junction to Navan Road / Old Cabra Road junction; and
- **Section 5** – Navan Road / Old Cabra Road junction to Ellis Quay.

6.3.2 Section 1 – N3 Blanchardstown Junction to Snugborough Road

This Section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 1 of the Proposed Scheme, between Blanchardstown Centre and R483 Snugborough Road.

This section commences at Junction 3 (Blanchardstown / Mulhuddart) southbound off-slip from the N3, and routes via Old Navan Road onto the R121. The route then proceeds on the R121 Blanchardstown Road South into the Blanchardstown Shopping Centre, via the R121 / Blakestown Way junction. Passing between the Retail Park North and the Blanchardstown Centre, the route then turns south-east on the L3020 to the R843 Snugborough Road.

6.3.2.1 Pedestrian Infrastructure

Footpaths of 2m in width are present on both sides of Old Navan Road between the N3 off-slip and R121 Blanchardstown Road North. These are in good condition and street lighting is present. These footpaths continue on both sides of Blanchardstown Road North as it crosses the N3.

Footpaths are present on both sides of Blanchardstown Road South between the N3 and Blakestown Way. On the north side of the road there is a 3m-wide shared surface for pedestrians and cyclists, with clearly marked 1.5m-wide 'lanes' to separate the two. On the south side of the road there is a 4m-wide shared surface, with no white lining, but distinctive surfacing, separating pedestrians and cyclists. The pedestrian facilities are generally good, with good quality surfacing and street lighting on both sides of the road.

These pedestrian facilities continue along the road that skirts the south of Retail Park North and passes between the Retail Park and Blanchardstown Centre itself. On the north side of the road, the shared footpath / cycleway continues for approximately 120m, at this point a dedicated two-way cycle path begins, and a 2.5m footpath runs to the north of this, continuing along the southern perimeter of Retail Park North to the Crowne Plaza Hotel on the L3020. On the south side of the road that passes between the Retail Park and Blanchardstown Centre itself, there is a continuous footpath that varies in width between 2m and 2.5m.

There are continuous footpaths on both sides of the L3020 as it runs from Blanchardstown Centre towards Snugborough Road. These footpaths are typically 2m in width and separated from the road by grass verges. These footpaths continue on the final section of the L3020, south of the Old Navan Road roundabout, to the Snugborough Road junction.

There are several pedestrian crossings along Section 1 of the Proposed Scheme, both signalised and uncontrolled. Signalised pedestrian crossings are provided across most of the major roads and are typically sited at junctions or across main roads on the main pedestrian routes into the centre. Crossings across side road entrances, such as into car parks are not signalised but do typically feature dropped kerbs.

Controlled pedestrian crossing facilities can be found at the following locations:

- Across the northern arm of Old Navan Road and the N3 off-slip at the N3 / Old Navan Road signalised junction;
- Across the northern, eastern and southern arms of the Old Navan Road / R121 Blanchardstown Road North signalised junction;
- Across the southern, eastern and western arms of the N3 / R121 Blanchardstown Road South signalised junction;
- On the western and southern arms of the R121 Blanchardstown Road South / Blakestown Way Roundabout (pelican crossings remote from the roundabout); and
- At four locations on the main routes into Retail Park North (three toucan crossings and one pelican Crossing).

Uncontrolled crossings across priority junctions at side roads benefit from dropped kerbs. The locations of the pedestrian crossings are 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 footpath 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

Cycle facilities are provided along the length of Section 1 of the Proposed Scheme, on the R121 Blanchardstown Road South corridor in both directions, comprising a combination of:

- Cycle tracks to the east of Old Navan Road;
- Cycle lanes in both directions on the N3 overbridge; and
- Combined cycle and bus lanes between the N3 and Blakestown Way.
- A shared pedestrian / cyclist facility that runs adjacent to the southbound carriageway of R121 Blanchardstown Road South. This is approximately 3.0m wide, with 1.5m designated for pedestrians and 1.5m for cyclists. This means that cyclists travelling in opposite directions must make use of the pedestrian lane, passing with care.

Combined cycle and bus lanes are present in both directions on the road that passes between Retail Park North and the Blanchardstown Centre. There is also a 3.0m wide two-way segregated off-road cycle track that runs along the southern boundary of Retail Park North, which also links into the site from the west.

Toucan crossings provide cycle access into Retail Park North at three of the main access points.

There are no cycle facilities on the L3020, the road that connects the Retail Park North with R843 Snugborough Road and provides access to Retail Park East.

There is a total of 66 designated cycle parking racks for hire bikes which are spread across the car parks of the retail park and Blanchardstown Centre.

The existing cycle facilities along Section 1 of the Proposed Scheme are 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 along Section 1 of the Proposed Scheme at the following locations (aside from intermittent breaks and junctions):

An eastbound bus lane of approximately 400m in length on Blanchardstown Road South between Blakestown Way and the N3 overbridge;

- A westbound bus lane of approximately 330m in length on Blanchardstown Road South between the N3 overbridge and Blakestown Way;
- An eastbound bus lane of approximately 370m in length on the road that runs from Blakestown Way to the L3020;
- A westbound bus lane of approximately 430m in length on the road that runs from the L3020 to Blakestown Way; and
- A northbound bus lane of approximately 170m in length that runs from the L3020 past the Crowne Plaza Hotel towards Blanchardstown Road South.

6.3.2.3.2 Bus Stop Facilities

There are currently eight bus stops along Section 1 of the Proposed Route – four ‘inbound’ stops towards the city centre and four ‘outbound’ stops towards Blanchardstown Road North. The existing bus facilities along Section 1 of the Proposed Scheme are illustrated in Figure 6.5a in Volume 3 of this EIAR.

The inbound stops are:

- Stop 7475 on R121 Blanchardstown Road South, near service access;
- Stop 4362 on Blanchardstown Road South;
- Stops 2959 and 4747 at Blanchardstown Centre;
- Stop 2960 at Blanchardstown Retail Park; and
- Stop 1545 at Westend Office Park.

The outbound stops are:

- Stop 661 at Westend Office Park;
- Stop 101281 at the Crowne Plaza Hotel;
- Stops 7025 and 7026 at Blanchardstown Centre;
- Stop 1882 on Blanchardstown Road South; and
- Stop 4323 on R121 Blanchardstown Road South at Whitestown Grove.

Table 6.6 shows the availability of bus stop facilities at the existing 10 bus stops along Blanchardstown Road North.

Table 6.6: Section 1 – Availability of Bus Stop Facilities (of a Total Ten Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI (Real Time Passenger Information)	2	20%
Timetable information	8	80%
Shelter	5	50%
Seating	5	50%
Accessible Kerbs	7	70%
Indented Drop Off Area	5	50%
Total Stops*	10	

*Assumes that multiple stops at Blanchardstown Centre are counted as one stop in each direction in both DM and DS.

There are four bus stops with shelters and real time information screens that serve the Blanchardstown Centre and Retail Park North which are located on the road that passes between the two.

There is a further sheltered bus stop on the L3020, the road that connects Retail Park East to R843 Snugborough Road. The remaining bus stops in the area do not have shelters.

The bus stops cater for 21 Dublin Bus and Go-Ahead Ireland routes as well as bus services linking the Blanchardstown Centre with local and regional destinations. Stops on the L3020 are also served by Bus Éireann commuter and regional coach services. The services available from these stops are outlined in Table 6.7.

Table 6.7: Section 1 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Mon-Sat	Sun
17A	Naomh Barrog – Malahide Road – Santry Avenue – Civic Centre – Cappagh’s Cross – Connolly Hospital – Blanchardstown	15 minutes	20 minutes
37	Wilton Terrace - Shopping Centre	15 minutes	20 minutes
39a / 39a / 39X	University College Dublin - Ongar Road (Hansfield Road)	30 minutes	30 minutes
70d	The Helix – Dunboyne Village	1 bus per day	-
76a	The Square Tallaght - Blanchardstown	7 buses per day per direction	-
105	Drogheda - Ashbourne - Ratoath - Blanchardstown	30 minutes	60 minutes
109	Dublin - Dunshaughlin - Navan - Kells	30 minutes	60 minutes
109B	Dublin - Dunshaughlin - Kilmessan - Trim	120 minutes	240 minutes
109x	Dublin - Kells - Cavan	60 minutes	60 minutes
111	Dublin - Batterstown - Athboy - Trim	60 minutes	60 minutes
111x	Dublin – Trim / Athboy - Delvin - Clonmellon	3 buses during day	-
139	Corduff (Fingal), Blanchardstown - Naas General Hospital	120 minutes	120 minutes
220	Kilbarrack - Blanchardstown	30 minutes	30 minutes
236 / 236a	Blanchardstown Shopping Centre - Damastown IBM	3 buses per day per direction	-
238	Tyrellstown - Lady’s Well Road	60 minutes	60 minutes
239	Liffey Valley Shopping Centre - Blanchardstown Shopping Centre	60 minutes	60 minutes
270	Dunboyne - Blanchardstown Shopping Centre	60 minutes	60 minutes
870	Dublin, Millennium Spire - Mulhuddart, I.B.M Industries	7 buses per day per direction	-

6.3.2.4 General Traffic

6.3.2.4.1 N3 Navan Road Southbound Off-Slip

The off slip is a one-way single lane carriageway which is subject to a speed limit of 60km/h. As it leaves the N3, the slip-road is a single lane, but widens to two lanes on the approach to its signalised junction with Old Navan Road.

6.3.2.4.2 Navan Road

The Proposed Scheme passes along a short section of Navan Road between the N3 off slip and R121 Blanchardstown Road North. This section of Navan Road is a two-way carriageway, with two lanes in either direction, which are separated by a 3.0m central reserve. Total carriageway width (including central reserve and cycle lanes) is 20.0m.

To the north of the N3 signalised junction, Navan Road is subject to a speed limit of 50km/h. Between the N3 and R121 Blanchardstown Road, Navan Road is subject to a 60km/h speed limit.

The only junction on this section of Old Navan Road is the following:

Navan Road / Mulhuddart N3 Slip Road three-arm signalised junction: Both arms of Navan Road have two lanes on approach, and cycle lanes are present. The N3 off slip has a two-lane approach, with traffic permitted to turn right from both lanes. Signalised pedestrian crossings are provided across the west and north arms of the junction. This is shown in Image 6.1.



Image 6.1: Navan Road / Mulhuddart N3 Slip Road signalised Junction

6.3.2.4.3 R121 Blanchardstown Road North

Section 1 of the Proposed Scheme passes along a short section of R121 Blanchardstown Road North between the Navan Road signalised junction and the R121 Blanchardstown Road South / N3 on slip signalised junction 150m to the west. This section of R121 Blanchardstown Road North is subject to a speed limit of 60km/h, and typically has three traffic lanes in either direction, along with in-carriageway cycle lanes. As R121 Blanchardstown Road North passes over the N3, it has a total carriageway width of 12.0m in either direction, 24.0m in total.

The only junction along the R121 Blanchardstown Road North within Section 1 of the Proposed Scheme is the following:

R121 Blanchardstown Road North / Navan Road four-arm signalised junction: The northern arm, Navan Road, has two lanes and a 20.0m left-turn flare lane on approach to the junction. The eastern arm has two lanes on approach, plus a 40m right-turn flare, and a 25.0m segregated left-turn slip. The western arm has two lanes on approach, and a 30m right-turn flare. Traffic on R121 Blanchardstown Road North travelling onto the southbound N3 leaves R121 Blanchardstown Road North prior to reaching the junction. The southern arm of the junction has two lanes on approach, plus a 25.0m right-turn flare, and a 25.0m segregated left-turn slip.

On-road cycle lanes are present on all movements through the junction, and signalised pedestrian crossings are present on the northern, eastern and southern arms. The junction is shown in Image 6.2.

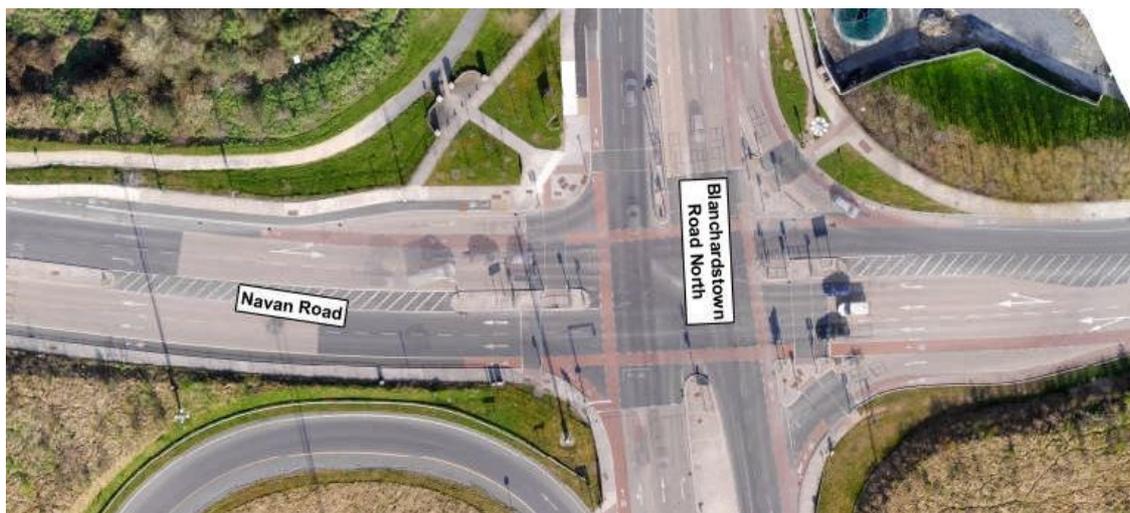


Image 6.2: R121 Blanchardstown Road North / Navan Road signalised junction

6.3.2.4.4 R121 Blanchardstown Road South

Section 1 of the Proposed Scheme passes along R121 Blanchardstown Road South between the A50 overpass and the R121 Blanchardstown Road South / Blakestown Way roundabout. R121 Blanchardstown Road South is a two-way road, has two lanes in either direction, and is subject to a speed limit of 60km/h. There is no central reservation. The inside lane running both directions is a dedicated bus lane. The total carriageway width, including the bus lanes, is 12.0m.

The existing major junction arrangements along the R121 Blanchardstown Road South within Section 1 of the Proposed Scheme are as follows:

- R121 Blanchardstown Road South / N3 off-slip four-arm signalised junction;
- R121 Blanchardstown Road South / Retail Park Delivery Area priority junction; and
- R121 Blanchardstown Road South / Blakestown Way priority 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.

R121 Blanchardstown Road South / N3 off-slip four-arm signalised junction: The north-eastern arm of the junction has three lanes on approach. The south-eastern arm of the junction has two lanes on approach, plus a 15.0m long, segregated left-turn flare. The south-western arm of the junction has two lanes on approach, plus two 30m long left-turn flares, which are segregated. The north-western arm of the junction is a one-way outbound slip-road onto the northbound N4.

On-road cycle lanes are present on all approaches to the junction. Signalised crossing facilities are present across the north-eastern, south-western and north-western arms. The junction is shown in Image 6.3.



Image 6.3: R121 Blanchardstown Road South / N3 off-slip Signalised Junction

R121 Blanchardstown Road South / Retail Park Delivery Area priority junction: A 'left-in / left-out' arrangement provides access from R121 Blanchardstown Road South into the delivery area of the Retail Park. This priority junction is located approximately 300m to the south-west of the R121 Blanchardstown Road South / N3 on slip signalised junction. Delivery vehicles wishing to return to the north-east can turn around via the R121 Blanchardstown Road South / Blakestown Way roundabout. The junction is shown in Image 6.4.



Image 6.4: R121 Blanchardstown Road South / Retail Park Delivery Area

R121 Blanchardstown Road South / Blakestown Way priority roundabout: This priority controlled four-arm roundabout has an inscribed circle diameter of 40.0m. Excluding bus lanes, all arms of the roundabout have single lane approaches with additional flared lanes of 40 - 50m in length for general traffic. In addition, segregated left-turn lanes from R121 Blanchardstown Road South towards the Blanchardstown Centre, and from Blakestown Way onto R121 Blanchardstown Road South are provided, which allow left-turning traffic to bypass the roundabout.

No cycle facilities are present. Remote signalised pedestrian crossings are provided on the south-western and north-western arms of the roundabout, approximately 25.0m from the roundabout exits. The junction is shown in Image 6.5.

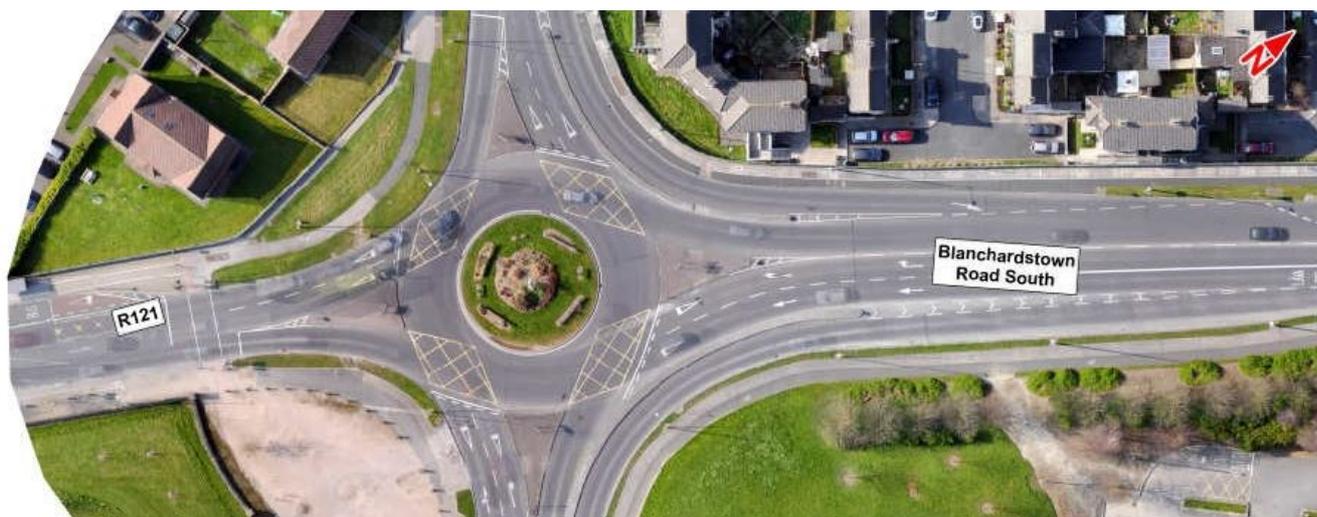


Image 6.5: R121 Blanchardstown Road South / Blakestown Way Priority Roundabout

6.3.2.4.5 Blanchardstown Centre / Retail Park Access Road

Section 1 of the Proposed Scheme passes along the road that runs between the Retail Park to the north and the Blanchardstown Centre to the south, which links R121 Blanchardstown Road South with the L3020. The access road is a two-way road, has two lanes in either direction, and is subject to a speed limit of 60km/h. Three raised signalised pedestrian crossings assist in reducing traffic speeds. The inside lanes in both directions are bus lanes for the majority of the route. There is a 2.0m-wide, tree-lined central reserve for most of the length of the access road. The total carriageway width, including the bus lanes and central reserve, is approximately 15.0m.

A combination of car parks, commercial units and goods yards take access from the road.

As described above, three raised signalised pedestrian crossings provide safe access between the commercial sites to the north and south of the road.

The existing major junction arrangements along Blanchardstown Centre Access Road within Section 1 of the Proposed Scheme are as follows:

- Access Road / West Car Park / Commercial access priority junction;
- R121 Access Road / Access Road South priority roundabout;
- Access Road / East Car Park / Goods Access priority junction;
- Crowne Plaza priority roundabout; and
- Liberty Insurance priority roundabout.

Access Road / West Car Park / Commercial access priority junction: Located approximately 210m to the east of the Blakestown Way roundabout, a priority junction onto the eastbound access road provides entry and exit into the west car park via a 'left-in, left-out' arrangement.

A similar arrangement on westbound carriageway provides access into several commercial units, including a McDonald's Drive-Thru. The junction is shown in Image 6.6.



Image 6.6: Access Road / West Car Park / Commercial Access Priority Junctions

R121 Access Road / Access Road South priority roundabout: This priority three-arm roundabout has an inscribed circle diameter of 35.0m. Excluding bus lanes, each approach has a single lane plus a flare of between 25m-30m for general traffic. Yellow boxes are in place to prevent queuing traffic from blocking through-movements. The junction is shown in Image 6.7.



Image 6.7: Access Road / Access Road South Roundabout

Access Road / East Car Park / Goods Access priority junction: Located approximately 120m to the west of the Access Road / L3020 priority roundabout, a priority junction onto the eastbound access road provides entry and exit into the east car park. Yellow boxes are in place to ensure that queueing traffic does not impede vehicles wishing to turn right out of the car park. A short right-turning lane is in place for westbound traffic turning right into the car park.

Opposite the junction, on the westbound access road, a one-way road provides access into a service area for the Blanchardstown Centre. The junction is shown in Image 6.8.



Image 6.8: Access Road / East Car Park / Goods Access Priority Junction

Crowne Plaza priority roundabout: This four-arm priority roundabout with an inscribed circle diameter of 45.0m is located at the eastern end of the access road. The northern arm provides access towards Blanchardstown Road South, the eastern arm forms the Crowne Plaza Hotel access, and the southern arm provides a link towards R843 Snugborough Road. The northern arm has two lanes on approach and features a raised pedestrian table to slow traffic. The road heading northbound from the roundabout is 'Bus Only', and not open to general traffic. Yellow boxes are in place to prevent queuing traffic from blocking through-movements.

The eastern arm has one lane on approach and has a zebra crossing to assist pedestrians. The southern arm has one lane on approach. The western arm has two lanes on approach. The junction is shown in Image 6.9.

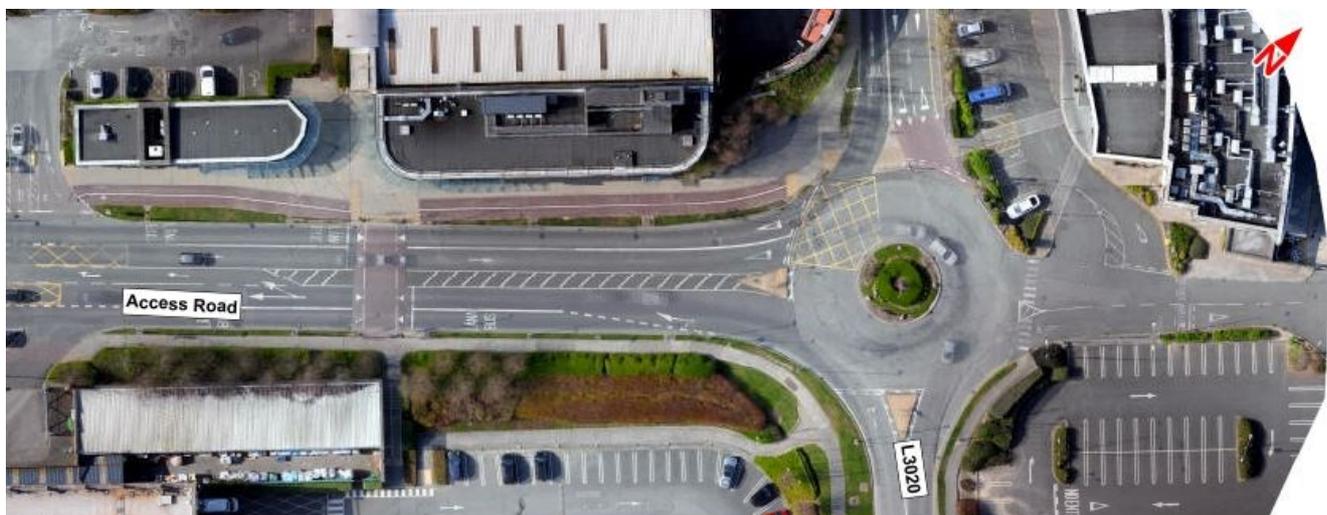


Image 6.9: Crowne Plaza Roundabout

Liberty Insurance priority roundabout: This four-arm roundabout has an inscribed circle diameter of 46.0m and is not signalised. The north-western arm has one lane and a flared lane of 30.0m length on approach. The north-eastern arm has a single lane on approach. The south-eastern and north-western arms have one lane plus 10.0m flare on their approach. Dropped kerbs and pedestrian refuges are present on the traffic islands on all of the arms of the junction. There are no cycle facilities. The junction is shown in Image 6.10.



Image 6.10: Liberty Insurance Priority Roundabout

6.3.2.5 Existing Parking / Loading

There are currently no on-street parking spaces or loading bays along Section 1 of the Proposed Scheme.

There are approximately 7,000 free parking spaces at the Blanchardstown Centre and associated Retail Parks, and vehicles are directed to official car parks and discouraged from parking on-street. Loading of vehicles takes place in formal off-street loading areas.

6.3.3 Section 2 – Snugborough Road to N3 / M50 junction

This Section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 2 of the Proposed Scheme, between R843 Snugborough Road and R102 Dunsink Lane.

Section 2 is approximately 2.0km in length, and begins on R843 Snugborough Road, and joins the N3 Navan Road at Junction 2. The Proposed Scheme then runs south along N3 Navan Road, before leaving the N3 and passing through the M50 interchange on Navan Road to reach the R102 Dunsink Lane signalised junction. Prior to passing through the interchange, the southbound scheme loops north along River Road past Connolly Hospital and Castleknock health and leisure village, before joining Navan Road.

6.3.3.1 Pedestrian Infrastructure

As Section 2 of the Proposed Scheme largely passes along the N3, pedestrian routes and facilities are limited to those present on R843 Snugborough Road, in the area around Castleknock / Connolly Hospital and at the N3 / R102 Dunsink Lane / Auburn Avenue junctions.

There are continuous footpaths of reasonable quality along both sides of R843 Snugborough Road. In general, the footpaths are in good condition and free from obstructions. At the R843 Snugborough Road / Waterville Road roundabout, there is no pedestrian route around the south side of the roundabout, with pedestrians directed to the footpath on the northern side.

There is a continuous footpath on the north side of River Road between Connolly Hospital and the Castleknock health and leisure village. On River Road to the east of the hospital access junction on the motorway overbridge, this footpath is extremely narrow in places and would not be considered suitable for vulnerable users or the mobility impaired.

There is a continuous footpath on the north side of N3 Navan Road between the Castleknock health and leisure village junction and the Old Navan Road junction.

To the east of R102 Dunsink Lane, there is a footpath on the north side of the N3, but no pedestrian facilities on the south side of the road. There are continuous footpaths on both sides of both R102 Dunsink Lane and Auburn Avenue.

Pedestrian crossing facilities can be found at the following locations:

- Signalised crossings across the northern arm of the Connolly Hospital access junction;
- Signalised crossings across the northern arm of the Castleknock health and leisure village junction;
- Signalised crossings across the southern and western arms of the N3 Navan Road / Old Navan Road junction; and
- Signalised crossings are present across the western arm of the R147, R102 Dunsink Lane and Auburn Avenue at the R147 / R102 Dunsink Lane signalised junction. Guard rails, tactile paving and dropped kerbs are in place at all signalised crossing points.

The locations of the pedestrian crossings are 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 footpath widths) at each junction along Section 2 of the Proposed Scheme are included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.3.2 Cycling Infrastructure

There are no existing cycling facilities along Section 2 of the Proposed Scheme. Cyclists wishing to travel between R843 Snugborough Road and the south-east join the cycle track that passes underneath the R843 Snugborough Road / Waterville Road roundabout, and then join the bus lane that runs in a southeast direction towards Castleknock.

The existing cycle facilities along Section 2 of the Proposed Scheme are 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 no bus priority measures along Section 2 of the Proposed Scheme, apart from a short section of bus lane on the southbound N3, to the north of the southbound on-slip at Junction 2 Bus Stop Facilities

6.3.3.3.2 Bus Stop Facilities

The existing bus facilities along Section 2 of the Proposed Scheme are illustrated in Figure 6.5b in Volume 3 of this EIAR.

There are two bus stops along Section 2 of the Proposed Scheme – one 'inbound' stop towards the city centre and one 'outbound' stop heading towards R843 Snugborough Road.

The inbound stop is:

- Stop 7374, located on Navan Road near Castleknock health and leisure village.

The outbound stop is:

- Stop 7389, located on Navan Road, 80m to the west of Old River Road.

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

Table 6.8: Section 2 – Availability of Bus Stop Facilities (of a Total Two Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI (Real Time Passenger Information)	0	0%
Timetable information	2	100%
Shelter	1	50%
Seating	1	50%
Accessible Kerbs	1	50%
Indented Drop Off Area	2	100%
Total Stops	2	

The level of facilities available at the stops along Section 2 is considered less than adequate, with only one stop having a shelter, seating, and accessible kerbs.

The bus stops cater for several Dublin Bus and Go-Ahead bus services to local and regional destinations, as shown in Table 6.9.

Table 6.9: Section 2 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
17A	Kilbarrack – Edenmore – Coolock – Kilmore – Santy – Ballymun – Finglas – Cloghran - Blanchardstown	20 minutes	30 minutes
38A	Dublin City South – Phibsborough – Cabra East – Ashtown – Blanchardstown – Corduff – Mulhuddart - Damastown	30 minutes	30 minutes
39	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	30 minutes	30 minutes
39A	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	15 minutes	15 minutes
76a	Tallaght – Clondalkin – Ronanstown – Liffey valley – Palmerston – Ballyfermot - Blanchardstown	Typically seven buses per day	

6.3.3.4 General Traffic

6.3.3.4.1 R843 Snugborough Road

Section 2 of the Proposed Scheme passes along a 200m section of R843 Snugborough Road, which links the N3 northbound off slip and the N3 southbound off slip.

The R843 has a wide single lane in either direction, flaring to two lanes on the approach to the junctions. It is subject to a speed limit of 60km/h and has a total carriageway width of 10.0m.

The two junctions on this section of R843 Snugborough Road are as follows:

- R843 Snugborough Road / L3020 / N3 northbound off-slip / R806 Main Street signalised junction; and
- R843 Snugborough Road / Waterville Road / N3 southbound on-slip priority roundabout.

This section of R843 Snugborough Road is not included within the Red Line Boundary and is part of the separate Snugborough Interchange Upgrade scheme being undertaken by Fingal County Council. The scheme involves

the widening of the Snugborough Road bridge and the L3020 to accommodate additional bus lanes and general traffic lanes.

6.3.3.4.2 N3 Navan Road

Heading southbound from R843 Snugborough Road, Section 2 of the Proposed Scheme joins the N3 via slip road at the R843 Snugborough Road roundabout, then heads east on the N3 before bearing off at the next junction towards Connolly Hospital.

Southbound between R843 Snugborough Road and Navan Road, the N3 has three lanes. Northbound, the N3 has three lanes which quickly flare to four lanes on the approach to the R843 Snugborough Road junction. The two nearside lanes form the slip road towards the R843 Snugborough Road, and two lanes continue northbound.

This section of the N3 has a speed limit of 80km/h. The three lane sections of carriageway are approximately 11.0m wide, and the four lane sections of carriageway are 14.0m wide. The northbound and southbound carriageways are separated by a 7.0m-wide central reservation.

6.3.3.4.3 N3 Navan Road Off-Slip

Continuing eastbound, Section 2 of the Proposed Scheme leaves the N3 at the slip road signposted towards Castleknock, Blanchardstown Village and Connolly Hospital. The slip road has a single lane, and is subject to a speed limit of 50km/h. Section 2 of the Proposed Scheme passes through the N3 Eastbound off-slip / Connolly Hospital Access signalised junction, becoming two lanes past the Castleknock health and leisure village access junction. The Proposed Scheme then heads south through the M50 / N3 Navan Road interchange roundabout before re-joining the eastbound N3 at the N3 / R102 Dunsink Lane / Auburn Avenue signalised junction.

The northbound route begins at the N3 / Auburn Avenue signalised junction, passes through the M50 / N3 Navan Road interchange heading northbound, and continues through the N3 Navan Road / Old Navan Road signalised junction to re-join the N3 via the slip road.

The key junctions on this section of N3 Navan Road are:

- N3 Eastbound off-slip (River Road) / Connolly Hospital Access signalised junction;
- N3 Navan Road / N3 Eastbound off-slip (River Road) signalised junction;
- N3 Navan Road / Old Navan Road signalised junction;
- N3 Navan Road / M50 Junction 6 Interchange; and
- N3 Navan Road / Auburn Avenue 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.

N3 Eastbound off-slip (River Road) / Connolly Hospital Access signalised junction: The western arm has two lanes on approach to the junction and is a one-way inbound link. The Connolly Hospital arm has a single lane on approach. The east arm of the junction is also a single lane on approach. Yellow boxes are in place to prevent traffic queueing on the N3 blocking traffic wishing to travel to the hospital. No cycle facilities are present. Signalised pedestrian crossings are present across the north arm of the junction, where the traffic island acts as a pedestrian refuge. The junction is shown in Image 6.11.



Image 6.11: N3 Eastbound off-slip (River Road) / Connolly Hospital Access Signalised Junction

N3 Navan Road / Old Navan Road signalised junction: The eastern arm of Navan Road has two full lanes on approach to the junction, and in addition a segregated left-turn bypass lane is provided. There are two approach lanes on the southern arm of the junction, with an additional short flare for left-turning traffic of 15.0m in length. The western arm of the junction is a one-way outbound link, with two traffic lanes.

There are no cycle facilities at the junction. Signalised pedestrian crossings are present across the southern arm of the junction, and a single crossing is provided across Navan Road via the traffic islands which act as pedestrian refuges. The junction is shown in Image 6.12.



Image 6.12: N3 Navan Road / Old Navan Road Signalised Junction

N3 Navan Road / N3 Eastbound off-slip (River Road) signalised junction: The western arm of N3 Navan Road has two lanes on approach to the junction, with a total carriageway width of 8.0m. The eastern arm of N3 Navan Road has two full lanes plus a right-turning flare of 110m in length on approach to the junction, with a total carriageway width of 11.0m. The northern arm of the junction has separate lanes for right-turning and left-turning traffic. Yellow boxes are in place to prevent queuing vehicles on the north approach blocking right-turning vehicles wishing to exit from Castleknock health and leisure village.

No cycle facilities are present. Signalised pedestrian crossings are provided across the northern arm of the junction.

Castleknock health and leisure village is accessed via a simple priority junction, located 40.0m north of N3 Navan Road. A single lane is provided on exit from the service area, and a short right-turn 'ghost island' arrangement is provided for right-turning traffic into the services. The junction is shown in Image 6.13.



Image 6.13: N3 Navan Road / N3 Eastbound off-slip (River Road) Signalised Junction

N3 Navan Road / M50 Junction 6 Interchange: The interchange is grade-separated and allows all movements between the M50, the N3 and Navan Road. The Western Commuter Rail Line passes over the M50, as does the N2 Royal Canal Greenway.

Traffic travelling between the M50 and N3 Navan Road meets at a large roundabout with an inscribed circle diameter of 200m. All approaches to the roundabout are signalised, with circulating traffic halted to allow the joining traffic to proceed.

The roundabout has three circulating lanes. Each of the approaches has two lanes, with the exception of the westbound N3 Navan Road approach, which has three lanes. The junction is shown in Image 6.14.

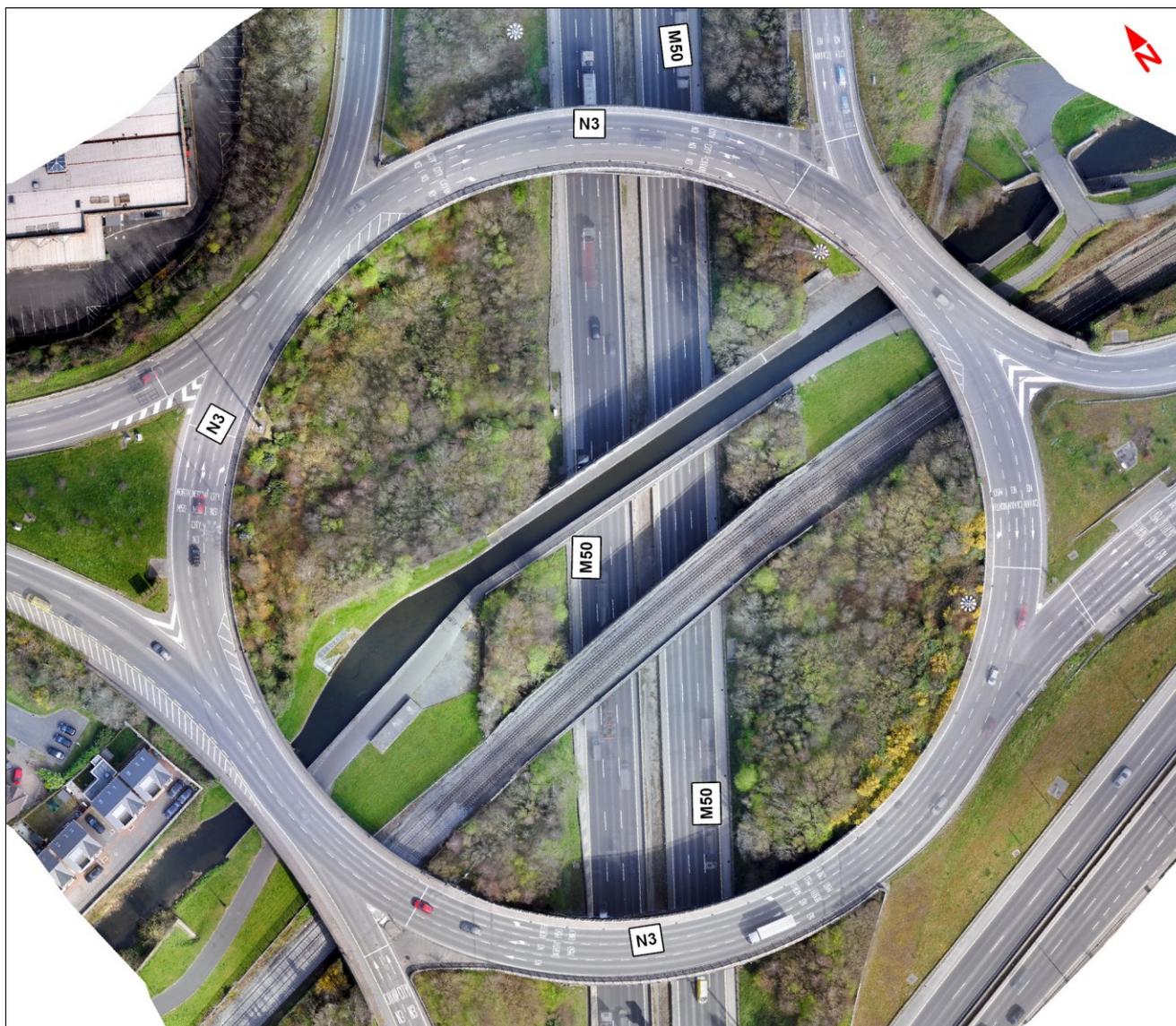


Image 6.14: N3 Navan Road / M50 Junction 6 Interchange

N3 Navan Road / Auburn Avenue signalised junction: To the east of the N3 Navan Road / M50 Junction 6 Interchange, Navan Road becomes the R147. The south-eastern Navan Road arm has five lanes approaching the junction, the left of which is a signal-controlled left turn slip onto Auburn Avenue south. Three lanes continue straight ahead, and the right lane is for right turn movements onto the R102 northbound.

The north-western Navan Road arm has four lanes approaching the junction; two lanes coming from the Blanchardstown Bypass, alongside two lanes from the Navan Road / M50 Junction 6 Interchange. The two approaches are separated by bollards to prevent merging until having passed through the junction when vehicles can change lanes. No right turn onto Auburn Avenue is permitted.

Auburn Avenue, which joins from the south, has two lanes plus a 20.0m flare on approach. The eastern arm of the junction has three lanes on approach, with an additional lane of 70.0m in length for left-turning traffic.

R102 Dunsink Lane has one full lane on approach to the junction, with the addition of a short flare for right-turning traffic, and a short, segregated lane of 15.0m in length for left-turning traffic.

There are no cycle facilities at the junction. Signalised pedestrian crossings are provided across the northern, western and southern arms. The junction is shown in Image 6.15.

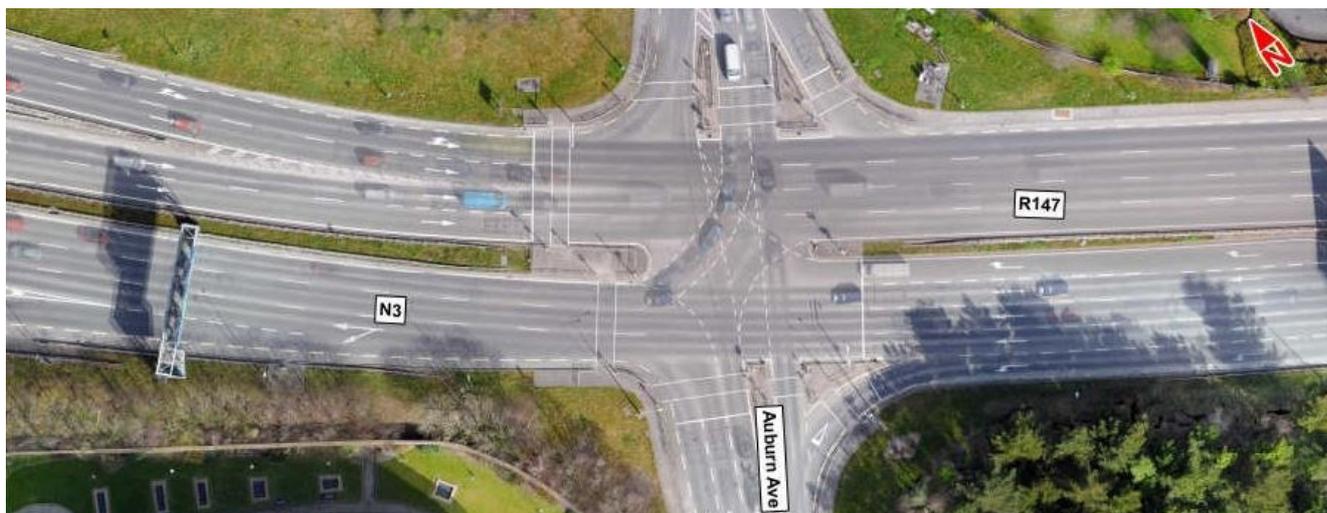


Image 6.15 N3 Navan Road / Auburn Avenue Signalised Junction

6.3.3.5 Existing Parking / Loading

There is currently no on-street parking or loading bays along Section 2 of the Proposed Scheme.

6.3.4 Section 3 – N3 / M50 Junction to Navan Road / Ashtown Road junction

6.3.4.1 General

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 3 of the Proposed Scheme, between R102 Dunsink Lane and Ashtown Road. This section is approximately 2.0km in length, and runs along R147 Navan Road, apart from a short section where the route detours to run along the slip roads that serve Navan Road Parkway Rail Station. Section 3 of the Proposed Scheme primarily passes along inter-urban dual carriageway, with no or limited pedestrian or cycle facilities.

6.3.4.2 Pedestrian Infrastructure

Eastbound from R102 Dunsink Lane, there is a continuous footpath alongside the northern carriageway of the R147 Navan Road between R102 Dunsink Lane and the Navan Road Parkway. Where this crosses the Travelodge Dublin Phoenix Park entrance, dropped kerbs and tactile paving is present, and at the entrance to Morgan Park, dropped kerbs are provided.

The only discontinuity on this footpath is at the Filling Station on the north side of R147 Navan Road where the footpath stops on the west side of the station and restarts at the east side and continuing on the north side of the slip road up to Navan Road Parkway. Beyond Navan Parkway, a narrow footpath continues as far as the eastbound bus stop on R147 Navan Road.

Heading westbound there is a continuous shared pedestrian / cyclist facility, between Ashtown Road and the Navan Road Parkway slip-road. Where the footpath crosses Phoenix Park Avenue, dropped kerbs and tactile paving are present. At the Navan Parkway slip-road, the footpath becomes a joint footpath and cycleway. This runs up the northbound off-slip and down the northbound on-slip, terminating at the filling station, where the pedestrian route leaves R147 Navan Road and enters Castleknock Manor.

The joint footpath / cycleway is present on both sides of the Navan Road Parkway overbridge. It was noted that road signs are present in the centre of the cycle lane at four locations, presenting a safety risk to cyclists.

Pedestrian crossing facilities can be found at the following locations:

- A staggered signalised crossing across R147 Navan Road, 320m to the east of R102 Dunsink Lane, providing access to and from Castleknock Manor;

- Signalised crossings across the western, southern and eastern arms of the R147 Navan Road northbound off/on slips and the Navan Road Parkway junction;
- Signalised crossings across the western, northern and eastern arms of the R147 Navan Road southbound off/on slips and the Navan Road Parkway entrance; and
- A signalised crossing across Navan Road, 200m to the west of the R147 Navan Road / Ashtown Road roundabout.

The locations of the pedestrian crossings are 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 footpath widths) at each junction along Section 3 of the Proposed Scheme are included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment).

6.3.4.3 Cycling Infrastructure

The existing cycling facilities along Section 3 of the Proposed Scheme comprise the following:

- A shared pedestrian / cyclist facility of 2.0m-3.0m in width on the south side of R147 Navan Road between Ashtown Road and the northbound off-slip of the Navan Road Parkway junction;
- A 3m-wide shared facility that runs up the northbound off-slip and down the northbound on-slip, terminating at the filling station, where the pedestrian route leaves R147 Navan Road and enters Castleknock Manor;
- The shared facility is present on both sides of the Navan Road Parkway overbridge. Road signs are present in the centre of the cycle lane at four locations, presenting a safety risk to cyclists;
- 400m combined cycle and bus lanes on R147 Navan Road in both directions that run between the Navan Road Parkway on and off slip-roads; and
- An eastbound combined cycle and bus lane on R147 Navan Road that starts at the southbound R147 Navan Road on-slip at Navan Parkway, and terminates 70m to the west of Ashtown Roundabout.

Navan Road Parkway rail station also has 16 Sheffield stands which are designated cycle parking racks for hire bikes, providing capacity for 32 bicycles.

The existing cycle facilities along Section 3 of the Proposed Scheme are 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 are included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.4.4 Bus Infrastructure

6.3.4.4.1 Bus Priority Measures

The following bus priority measures are present along Section 3 of the Proposed Scheme:

- A southbound bus lane of approximately 90m in length on the N3 off slip on approach to Parkway Station;
- A northbound bus lane of approximately 50m in length on the N3 off slip on approach to Parkway Station;
- Eastbound and westbound bus lanes of approximately 450m in length on the N3 as it passes beneath the Parkway Station junction;
- A southbound bus lane of approximately 440m in length on the approach to the R147 Navan Road / Ashtown Road / Ashtown Gate Road priority roundabout and
- A bus priority signal on the westbound N3 Navan Road at the N3 Navan Road / R102 Dunsink Lane junction

6.3.4.4.2 Bus Stop Facilities

There are six bus stops along this section of the Proposed Route – three ‘inbound’ stops towards the city centre and three ‘outbound’ stops heading towards R102 Dunsink Lane.

The inbound stops are:

- Stop 1845 on R147 Navan Road, 60m west of Morgan Place;
- Stop 7166 on the Navan Road Parkway eastbound off-slip, 60m from the Parkway access; and
- Stop 1847 on R147 Navan Road, 140m west of Ashtown Road.

The outbound stops are:

- Stop 1807 on R147 Navan Road, 170m west of Phoenix Park Avenue;
- Stop 7167 on the Navan Road Parkway westbound off-slip, 60m from the overbridge; and
- Stop 1808 on R147 Navan Road, 160m west of Morgan Place.

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

Table 6.10: Section 3 – Availability of Bus Stop Facilities (of a Total of Six Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI (Real Time Passenger Information)	1	17%
Timetable information	3	50%
Shelter	3	50%
Seating	3	50%
Accessible Kerbs	6	100%
Indented Drop Off Area	0	0%
Total Stops	6	

There is considered to be an average level of passenger facilities at the existing bus stops along this section as only half of the bus stops have shelters and seating, and only one out of the 6 stops has RTPI.

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 stops cater for several Dublin Bus and Go-Ahead bus services linking Blanchardstown Centre with local and regional destinations, as shown in Table 6.11.

Table 6.11: Bus Service Frequency from Identified Stops between R102 Dunsink Lane and Ashtown Road

Service	Route	Typical Service Frequency	
		Weekday	Weekend
38	Burlington Rd O'Connell Bridge - Berkeley Rd - Navan Rd Garda Station - Ashtown - Castleknock - Blanchardstown Village - Damastown	20 minutes	30 minutes
38A	Dublin City South – Phibsborough – Cabra East – Ashtown – Blanchardstown – Corduff – Mulhuddart - Damastown	30 minutes	30 minutes

Service	Route	Typical Service Frequency	
		Weekday	Weekend
38B	Burlington Rd - O'Connell Bridge - Berkeley Rd - Navan Rd. Garda Station - Ashtown - Damastown	6 Services in each of the morning and evening peaks	No Service
38D	Burlington Rd direct to IBM Damastown via N3	1 Service between in each of the morning and evening peaks	
39	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	30 minutes	30 minutes
39A	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	10 minutes	15 minutes
39X	Burlington Rd - Aston Quay / Bachelors Walk - Blanchardstown Rd - Ongar	4 Services in each of the morning and evening peaks	No Service
70	Burlington Rd - O'Connell Bridge - Stoneybatter - Navan Rd Garda Station - Ashtown - Littlepace - Dunboyne	30 minutes	60 minutes
109	Dublin - Mater Hospital - Blanchardstown - Dunboyne - Rathbeggan - Ryans Town - Dunshaughlin - Garlow Cross - Navan - County Meath - Kells	30 minutes	30 minutes
109B	Dublin - Phibsboro - Castleknock - Blanchardstown - Porterstown - Rathbeggan - Ryans Town - Dunshaughlin - Dunsaney Village - Swainstown - Kilmessan - Trim	120 minutes	3 Services per Day
111	Dublin - Philbrook - Castleknock - Blanchardstown - Warrenstown - Dunsaney - Kiltale - Scurroughstown - Trim	60 minutes	60 minutes

6.3.4.5 General Traffic

6.3.4.5.1 R147 Navan Road

Section 3 of the Proposed Scheme runs along R147 Navan Road, apart from a short section where the route detours to run along the slip roads that serve Navan Road Parkway Rail Station.

Heading eastbound from the R102 Dunsink Lane junction, R147 Navan Road has four lanes which reduces to three lanes after 150m. This three-lane section continues to the Navan Road Parkway grade separated junction. As it passes beneath the junction, the nearside lane becomes a bus lane.

As it leaves and approaches its junction with R102 Dunsink Lane, R147 Navan Road has four lanes in either direction. 150m to the east of R102 Dunsink Lane, R147 Navan Road has three lanes in either direction. After 350m, the general traffic lanes are required to merge, and there is 170m section comprising one bus lane and one general traffic lane, following which R147 Navan Road reverts to two lanes for general traffic.

Heading westbound from Ashtown Lane, R147 Navan Road is a dual carriageway. On the approach to the Navan Road Parkway, an additional nearside bus lane begins, which runs for 950m beneath the grade separated junction, before the bus lane becomes a lane for general traffic. This three-lane section continues for 320m, before widening to four lanes on the approach to the R147 Navan Road / R102 Dunsink Lane junction.

R147 Navan Road has a speed limit of 60km/h between R102 Dunsink Lane and the Navan Road Parkway grade-separated junction, and a speed limit of 80km/h between Navan Road Parkway and a point 80.0m west of the Ashtown Road junction, at which point a speed limit of 60km/h is in place.

Section 3 of the Proposed Scheme is inter-urban in nature, with few side road junctions. A continuous central reservation is in place between R102 Dunsink Lane and the R147 Navan Road / Ashtown Lane roundabout, meaning that 'left-in, left-out' arrangements are present at all of the side road junctions and accesses. Ashtown Road marks the point at which R147 Navan Road becomes a more suburban route, with frontage access onto the carriageway possible from residential properties.

The main junctions on this section of R147 Navan Road are:

- R147 Navan Road / Hotel access priority junction;
- R147 Navan Road / Morgan Place junction and Filling Station Accesses;
- R147 Navan Road / Navan Road Parkway grade-separated interchange;
- R147 Navan Road / Phoenix Park Avenue / Phoenix Industrial Park junctions; and
- R147 Navan Road / Ashtown Road priority 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.

R147 Navan Road / Hotel access priority junction: This junction is approximately 210m to the west of the R147 Navan Road / Auburn Avenue junction. It is a one-way 'exit only' road providing access into a hotel to the north of R147 Navan Road. A short, 30m-long, deceleration lane is provided.

R147 Navan Road / Morgan Place junction and Filling Station Accesses: Morgan Place is a small residential development of ten properties, located to the north of R147 Navan Road, some 450m east of R102 Dunsink Lane. Further to the east, filling stations are located on both the eastbound and westbound carriageways. All three accesses are 'left-in, left out' Arrangements, with the central reserve on R147 Navan Road preventing cross-carriageway movements. No deceleration or acceleration lanes are provided. The junction is shown in Image 6.16.



Image 6.16: R147 Navan Road / Morgan Place / Filling Station Junctions

R147 Navan Road / Navan Road Parkway grade-separated interchange: The 'all-movements' interchange provides access from R147 Navan Road to the Navan Road Parkway station to the north and allows for future access into an, as yet un-developed plot to the south of Navan Road.

The R147 Navan Road off-slips (both directions) are initially one lane wide, but flare to two lanes on the approach the signalised junctions. The R147 Navan Road on-slips (both directions), which leave the signalised junctions, are initially two lanes wide, but these lanes merge to form one wide lane on the approach to R147 Navan Road.

The western arm of the northern signalised junction has two lanes on approach. The inside lane is primarily designed for bus use, with a 90m-long bus lane terminating 20.0m short of the junction. The northern arm, which

provides access to Navan Road Parkway Station, has one full lane plus a 20.0m flare on approach. The one-way R147 Navan Road on-slip forms the eastern arm. The southern arm has two lanes on approach. Signalised pedestrian crossing facilities are present across the western, northern and eastern arms of the junction.

At the southern signalised junction, the eastern arm has two lanes on approach. The inside lane is primarily designed for bus use, with a 90m-long bus lane terminating 30.0m short of the junction. The southern arm of the junction is currently blocked off and not in use. The one-way R147 Navan Road on-slip forms the western arm. The northern arm has one lane on approach. Signalised pedestrian crossing facilities are present across the eastern, southern and western arms of the junction. The junction is shown in Image 6.17.



Image 6.17: R147 Navan Road / Navan Road Parkway Grade-Separated Interchange

R147 Navan Road / Phoenix Park Avenue / Phoenix Industrial Park junctions: The two access junctions are located approximately 360m to the east of the Navan Road / Ashtown Road roundabout. Both accesses are 'left-in, left out' arrangements, with the central reserve on R147 Navan Road preventing cross-carriageway movements. They feature triangular traffic islands, which provide suitable deflection for vehicles entering and leaving both sites. No deceleration or acceleration lanes are provided at the Phoenix Industrial Park junction on the north side of Navan Road, but 50.0m deceleration and acceleration lanes from / to R147 Navan Road are present at the Phoenix Park Avenue junction. The junction is shown in Image 6.18.



Image 6.18: R147 Navan Road / Phoenix Park Avenue / Phoenix Industrial Park Junction

R147 Navan Road / Ashtown Road priority roundabout: This four-arm roundabout has an inscribed circle diameter of 45.0m and is not signalised. R147 Navan Road forms the western and eastern arms. Ashtown Road forms the northern arm. Ashtown Gate Road, the southern arm, leads towards Phoenix Park.

Both the eastern and western approaches have two full lanes, and carriageway widths of 7.0m. The northern and southern arms have one lane on approach.

Yellow boxes are in place to prevent queuing eastbound traffic on R147 Navan Road blocking traffic from Ashtown Road entering the roundabout. The traffic islands that are present on the northern, eastern and southern arms of the junction act as pedestrian refuges and dropped kerbs are present at these locations. The junction is shown in Image 6.19.



Image 6.19: R147 Navan Road / Ashtown Road Priority Roundabout

6.3.4.6 Existing Parking / Loading

There is currently no on-street parking or loading bays along Section 3 of the Proposed Scheme.

6.3.5 Section 4 – Navan Road / Ashtown Road Junction to Navan Road / Old Cabra Road junction

This section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 4 of the Proposed Scheme, between Ashtown Road and R805 Old Cabra Road.

Section 4 of the Proposed Scheme is approximately 2.5km in length and runs along R147 Navan Road. This section is primarily suburban in nature, with well-spaced side road junctions (both priority and signalised), developments taking direct access onto the N3, and houses with frontage access on both sides of the route.

6.3.5.1 Pedestrian Infrastructure

The Ashtown Road to R805 Old Cabra Road section of the proposed route has been split into three sections, which are described below.

Ashtown Road to Baggot Road

On the south side of R147 Navan Road, there is a shared footpath / cycleway between Ashtown Road and Darling Estate. Beyond this, a continuous footpath continues to Baggot Road. On the northern side of R14 Navan Road, there is a continuous footpath for the full length of this section.

Where private accesses cross the footpath, these are usually at the level of the footpath and join R147 Navan Road via dropped kerbs.

Pedestrian crossing facilities can be found at the following locations:

- Signalised pedestrian crossings across R147 Navan Road and Kempton Avenue at the R147 Navan Road / Kempton Avenue junction;
- A signalised pedestrian crossing 15.0m to the west of the R147 Navan Road / Ashtown Grove priority junction. An uncontrolled crossing with dropped kerbs is provided across the Ashtown Grove arm of the junction; and
- Signalised pedestrian crossings across the western and southern arms of the R147 Navan Road / Baggot Road junction.

The locations of the pedestrian crossings are 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 footpath widths) at each junction along Section 4 of the Proposed Scheme are included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

Baggot Road to Nephin Road

There are continuous footpaths on both sides of R147 for the extent of this section. The footpath on the south side of the road is wider than on the north, but the usable width is sometimes constrained by intermittent planted trees and dropped kerbs which emerge from private driveways. Cars parked on footpaths are also evident in this section.

Pedestrian crossing facilities can be found at the following locations:

- A signalised pedestrian crossing across R147 Navan Road outside the 'Our Lady Help of Christians' church;
- Signalised pedestrian crossings across all arms of the R147 / Nephin Road junction; and
- A signalised pedestrian crossing across R147 Navan Road 15.0m to the west of the junction with Skreen Road.

Nephin Road to Old Cabra Road

There are continuous footpaths on both sides of R147 for the extent of this section. Pedestrian crossing facilities can be found at the following locations:

- A signalised pedestrian crossing across R147 Navan Road 15.0m to the east of the R147 Navan Road / Hampton Green junction. Staggered crossings with pedestrian refuge islands are provided;
- Signalised pedestrian crossings are provided across all arms of the R147 Navan Road / St Vincent's Centre access junction; and
- Signalised pedestrian crossings are provided across all arms of the R147 Navan Road / R805 Old Cabra Road junction.

6.3.5.2 Cycling Infrastructure

The cycling facilities along Section 4 of the Proposed Scheme comprise:

- A shared facility for pedestrians and cyclists of 2.0m – 3.0m in width on the south side of R147 Navan Road between the Darling Estate entrance and the R147 Navan Road / Ashtown Road roundabout; and
- A combination of on-road mandatory and advisory cycle lanes of 1.5m in width, which run along the eastbound and westbound carriageways for the remainder of Section 4 of the Proposed Scheme, with the exception of a 200m eastbound section to the east of Nephin Road where the cycle lane is amalgamated into a combined cycle and bus lane before becoming a distinct cycle lane again.

There are eight Sheffield stands at the south east corner of the Navan Road / Baggot Road junction and a further five Sheffield stands at the north west corner, providing capacity for 26 bicycles to park.

There are two Sheffield stands at the Navan Road / Skreen Road junction which are designated bike hire cycle parking racks, providing capacity for four bicycles to park.

There are two Sheffield stands on Navan Road outside Cabra Library and eight outside McDonald's, all of which are designated cycle hire parking racks. These provide capacity for 20 bicycles to park.

The existing cycle facilities along Section 4 of the Proposed Scheme are 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 are 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

The following bus priority measures are present along the route:

- Eastbound bus lanes totalling approximately 670m in length on R147 Navan Road between Ashtown Road and Kinvara Avenue;
- Eastbound bus lanes totalling approximately 490m in length on R147 Navan Road between Kinvara Avenue and Nephin Road;
- Eastbound bus lanes totalling approximately 385m in length on R147 Navan Road between Nephin Road and Cabra Road; and
- A westbound bus lane of approximately 220m in length between Cabra Road and Nephin Road.

6.3.5.3.2 Bus Stop Facilities

The existing bus facilities along Section 4 of the Proposed Scheme are illustrated in Figure 6.5d in Volume 3 of this EIAR.

There are 16 bus stops along this section of the Proposed Route – nine 'inbound' stops towards the city centre and seven 'outbound' stops heading towards Ashtown Road.

The inbound stops are:

- Stop 1696 on R147 Navan Road, 50m to the west of Kempton Avenue;
- Stop 1697 on R147 Navan Road, 30m to the east of Darling Estate;
- Stop 1698 on R147 Navan Road, 60m to the east of Ashtown Grove;
- Stop 1699 on R147 Navan Road, 200m to the west of Baggot Road;
- Stop 1700 on R147 Navan Road, 40m to the east of Kinvara Avenue;
- Stop 1701 on R147 Navan Road, 60m to the east of Our Lady's Church;
- Stop 1702 on R147 Navan Road, 140m to the west of Nephin Road;
- Stop 1703 on R147 Navan Road, 60m to the east of Nephin Road; and
- Stop 1905 on R147 Navan Road, 60m to the east of Skreen Road.

The outbound stops are:

- Stop 101401/1806 on R147 Navan Road, 50m to the west of Hampton Green;
- Stop 1660 on R147 Navan Road, 60m to the west of Nephin Road;
- Stop 1661 on R147 Navan Road, 30m to the west of Our Lady's Church;
- Stop 1662 on R147 Navan Road, 40m to the east of Kinvara Avenue;
- Stop 1664 on R147 Navan Road, 60m to the east of Ashtown Grove;
- Stop 1665 on R147 Navan Road, 30m to the east of Darling Estate; and
- Stop 1666 on R147 Navan Road, 90m to the east of Ashtown Roundabout.

Table 6.12 outlines the availability of bus stop facilities at the existing 16 no. bus stops between Ashtown Road and R805 Old Cabra Road.

Table 6.12: Section 4 – Availability of Bus Stop Facilities (of a Total 16 Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI (Real Time Passenger Information)	11	69%
Timetable information	16	100%
Shelter	13	81%
Seating	13	81%
Accessible Kerbs	5	31%
Indented Drop Off Area	9	56%
Total Stops	16	

There is considered to be a good level of passenger facilities at the bus stops along Section 4 of the Proposed Scheme overall, as the majority have RTPI, shelters and seating. However, only a third of the stops have accessible kerbs.

The bus stops cater for several Dublin Bus and Go-Ahead bus services to local and regional destinations, as shown in Table 6.13.

Table 6.13: Bus Service Frequency along Section 4 of the Proposed Scheme

Service	Route	Typical Service Frequency	
		Weekday	Weekend
38	Burlington Rd O'Connell Bridge - Berkeley Rd - Navan Rd Garda Station - Ashtown - Castleknock - Blanchardstown Village - Damastown	20 minutes	30 minutes
38A	Dublin City South – Phibsborough – Cabra East – Ashtown – Blanchardstown – Corduff – Mulhuddart - Damastown	30 minutes	30 minutes
38B	Burlington Rd - O'Connell Bridge - Berkeley Rd - Navan Rd Garda Station - Ashtown - Damastown	6 Services in the morning and evening peaks	No Service
38D	Burlington Rd direct to IBM Damastown via N3	1 Service in the morning and evening peaks	
39	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	30 minutes	30 minutes
39A	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	10 minutes	15 minutes
39X	Burlington Rd - Aston Quay / Bachelors Walk - Blanchardstown Rd - Ongar	4 Services from 16:55 to 17:40 only	No Service
70	Burlington Rd - O'Connell Bridge - Stoneybatter - Navan Rd Garda Station - Ashtown - Littlepace - Dunboyne	30 minutes	60 minutes
70D	Dunboyne Village - Navan Rd - Tolka Estate - DCU	1 Service at 17:05	No Service

Service	Route	Typical Service Frequency	
		Weekday	Weekend
70N	Westmoreland St - Blackall Plc - Stoneybatter - Prussia St - Cabra Cross - Ashtown Roundabout - Castleknock - Carpenterstown - Clonsilla Village - Ongar - Little Pace - Clonee - Dunboyne	No Service	No Service
122	Ashington - Kinvara Ave - Cabra Garda Station - Broombridge Rd - Faussaugh Ave - Drumcliffe Rd - Carnlough Rd - Quarry Rd - Annamoe Terrace - Exchequer Street - Camden St - Carlisle St - St Andrews Centre - Keeper Rd - Brickfields Park - Crumlin Hospital	20 minutes	20 minutes
870	The Mayne - Damaston - Dublin - Millennium Spire	5 Services between 06:30 and 08:15 then five Services between 15:05 and 18:15	No Service

6.3.5.4 General Traffic

6.3.5.4.1 R147 Navan Road

The proposed route passes along a 2.5km section of Navan Road. This section of Navan Road is subject to a speed limit of 50km/h. Heading eastbound, R147 Navan Road typically has two lanes, with the inside lane operating as a bus lane between 07:00 and 19:00, Monday to Saturday.

Heading westbound from R805 Old Cabra Road, R147 Navan Road typically has a single lane of traffic, apart from a short two-lane section between Skreen Road and Nephin Road, where an additional bus lane is present.

As discussed, both eastbound and westbound sections have a 1.5m cycle-lane marked within the carriageway for the majority of Section 4 of the Proposed Scheme.

The primary junctions on this section of R147 Navan Road are:

- R147 Navan Road / Kempton Avenue signalised junction;
- R147 Navan Road / Ashtown Grove priority junction;
- R147 Navan Road / Kinvara Avenue / Baggot Road signalised junction;
- R147 Navan Road / Nephin Road signalised junction;
- R147 Navan Road / Skreen Road priority junction;
- R147 Navan Road / Hampton Green / Primary Care Centre junctions;
- R147 Navan Road / Cabra Library signalised junction; and
- R147 Navan Road / R805 Old Cabra Road 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.

R147 Navan Road / Kempton Avenue signalised junction: This three-arm signalised junction has two lanes on the western approach to the junction. In the inside lane, the bus lane stops 25.0m short of the junction, providing a short flare for left-turning traffic. The eastern approach has a single lane plus a 65m-long right-turning flare. The Kempton Avenue approach is a single lane. A yellow box is provided over the eastbound exit from the junction, to ensure that left-turning traffic out of Kempton Avenue does not block the eastbound bus lane. A signalised pedestrian crossing is present across the eastern arm. The junction is shown in Image 6.20.



Image 6.20: R147 Navan Road / Kempton Avenue Signalised Junction

R147 Navan Road / Ashtown Grove priority junction: This three-arm signalised junction has a single lane on the western approach to the junction. The eastern arm has a single lane plus a 30m-long right-turn flare. The Ashtown Grove approach, which forms the northern arm, is a single lane. A yellow box is provided within the junction to prevent queues from impeding emerging vehicles. A signalised pedestrian crossing is provided across the western arm of the junction. The junction is shown in Image 6.21.



Image 6.21: R147 Navan Road / Ashtown Grove Priority Junction

R147 Navan Road / Kinvara Avenue / Baggot Road signalised junction: The western approach to this four-arm signalised junction has two lanes, with eastbound traffic permitted to use both lanes. The eastern approach has a single lane plus a 35.0m flare for right-turning traffic. The Kinvara Avenue northern approach is marked as a wide, single lane, but in practice operates as a two-lane approach, with approximately 30.0m of queueing space available in the outside lane, depending upon the presence of parked vehicles. The left turn from Kinvara Avenue has a left turn filter light. The Baggot Road southern approach is a single lane. A yellow box is present in the centre of the junction to prevent queuing vehicles from blocking through-movements.

Signalised pedestrian crossing facilities are present across the western and southern arms. The junction is shown in Image 6.22.



Image 6.22: R147 Navan Road / Kinvara Avenue / Baggot Road Signalised Junction

R147 Navan Road / Nephin Road signalised junction: This signalised crossroads is one of the major junctions on Section 4 of the Proposed Scheme. R147 Navan Road forms the western and eastern arms, and Nephin Road the northern and southern arms.

The western approach has two lanes. In the inside lane, the bus lane stops 75.0m short of the junction, providing more capacity for general traffic at the stop line. The northern approach has one lane plus a flare of approximately 60.0m for right-turning traffic, depending upon the presence of parked vehicles.

The eastern arm has two lanes on approach. In the inside lane, the bus lane stops 30.0m short of the junction, providing a short, two-lane approach for general traffic. The western arm has a one lane approach. Signalised pedestrian crossings are present across all arms of the junction. The junction is shown in Image 6.23.



Image 6.23: R147 Navan Road / Nephin Road Signalised Junction

R147 Navan Road / Skreen Road priority junction: This three-arm priority junction is located 440m to the west of R805 Old Cabra Road. Skreen Road forms the minor arm, and has one lane, plus a short flare (~10.0m) on approach to R147 Navan Road.

Vehicles turning right into Skreen Road from the eastbound R147 Navan Road wait in the outside lane, which is not specifically marked as such. These right-turning vehicles have the potential to block eastbound traffic unless vehicles use the inside bus lane to pass. The westbound Navan Road is a single lane as it passes the junction.

A signalised pedestrian crossing is provided across R147 Navan Road, 10.0m to the west of Skreen Road. A yellow box is present on the westbound approach to the signalised pedestrian crossing. When the crossing called, this provides an opportunity for vehicles to emerge from Skreen Road. The junction is shown in Image 6.24.

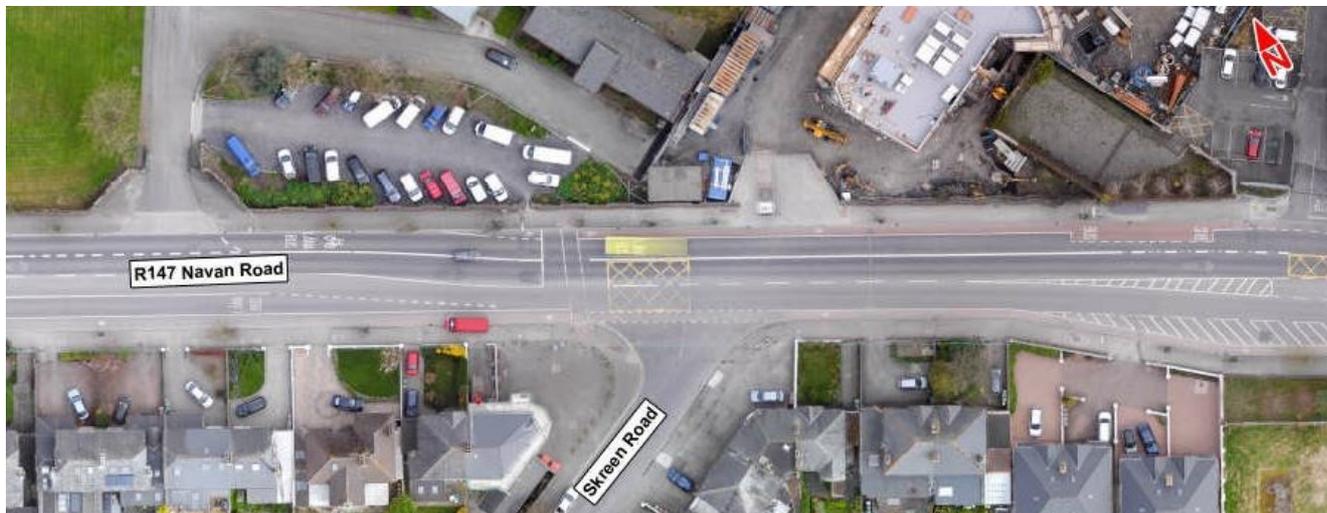


Image 6.24: R147 Navan Road / Skreen Road Priority Junction

R147 Navan Road / Hampton Green / Primary Care Centre junctions: This pair of priority junctions is located 330m to the west of R805 Old Cabra Road. Both junctions comprised simple priority 'T' junctions with short right-turn 'ghost island' arrangements. The junction is shown in Image 6.25.



Image 6.25: R147 Navan Road / Hampton Green / Primary Care Centre Priority Junctions

R147 Navan Road / Cabra Library signalised junction: This three-arm signalised junction is located 130m to the west of R805 Old Cabra Road. Navan Road forms the eastern and western arms, with the St Vincent's Centre access forming the southern arm.

The western arm has two full lanes on approach, with an additional 60m-long lane provided for traffic turning right into the St Vincent's Centre. A bus lane on the inside lane stops 30.0m short of the junction to provide additional capacity for general traffic. The eastern arm also has two full lanes on approach, with an additional 50m-long inside lane provided for left-turning traffic into The Centre.

The Cabra Library arm has separate lanes for left and right-turning traffic. A yellow box is present in the centre of the junction, to prevent queuing vehicles from blocking through-movements. Signalised pedestrian crossings are provided across the eastern and southern arms of the junction. The junction is shown in Image 6.26.

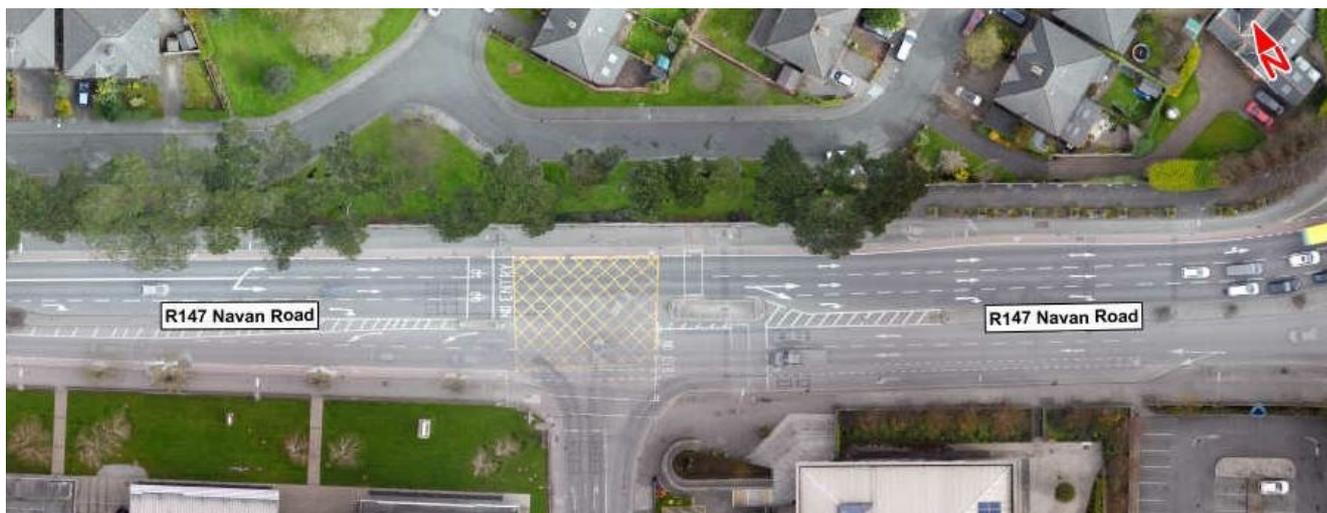


Image 6.26: R147 Navan Road / Cabra Library Signalised Junction

R147 Navan Road / R805 Old Cabra Road signalised junction: This four-arm signalised junction is the point at which the proposed route leaves R147 road and continues towards the city centre on R805 Old Cabra Road.

The northern arm of the junction has a single lane on approach, plus a 20.0m flare lane for right turning traffic. The eastern arm of the junction, R147 Cabra Road, has one full lane on approach, plus a 20.0m flare for right-turning traffic. R805 Old Cabra Road, which forms the southern approach, has two lanes on the approach to the junction. Traffic travelling westbound from Old Cabra Road to R147 Navan Road westbound is not signal controlled but joins R147 Navan Road via a priority Arrangement. This is made possible by a traffic island that separates the traffic streams on R805 Old Cabra Road.

The western arm of the junction has three lanes on approach, with a short, segregated left-turn traffic island provided for traffic turning into R805 Old Cabra Road. The junction is shown in Image 6.27.

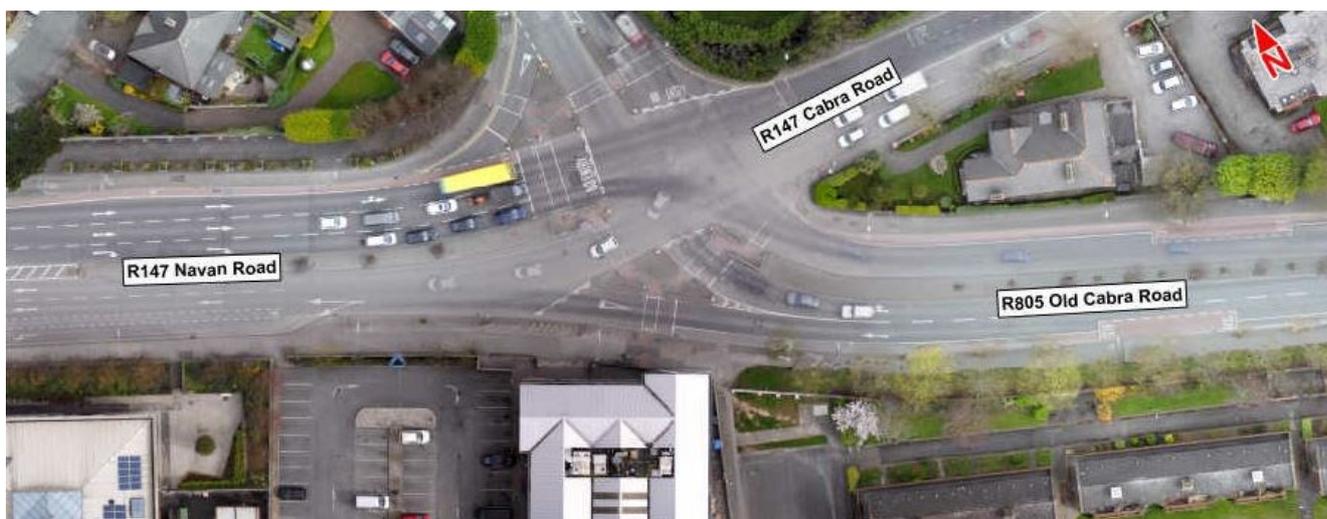


Image 6.27: R147 Navan Road / R805 Old Cabra Road Signalised Junction

6.3.5.5 Existing Parking / Loading

Along Section 4 of the Proposed Scheme there is a total of 24 existing parking / loading spaces. These comprise:

- Nineteen informal residential parking spaces located on the south side of R147 Navan Road, between Nephin Road and Baggot Road. These spaces are located between the cycle lane and the footway, to the east and west of the Navan Road filling station; and

- Five informal general / residential parking spaces located on the north side of R147 Navan Road, to the west of Our Lady’s Church, which has a private car park.

There are no on-street loading bays between Ashtown Road and Nephin Road. It can be assumed that loading activities occur within adjacent premises, or outside bus lane regulation and Clearway hours.

Table 6.14 presents a summary of the existing parking and loading spaces

Table 6.14: Section 4 – Existing Parking / Loading Spaces

Street	Parking Type	Number of Existing Parking Spaces
R147 Navan Road (between Nephin Road and Baggot Road)	Informal Parking	24
Total		24

In addition to the above, vehicles are often observed parking illegally on the kerb on the south side of R147 Navan Road, between Our Lady’s Church and the Belvedere Sports Ground. In total, there is space for approximately 14 vehicles.

6.3.6 Section 5 – Navan Road / Old Cabra Road Junction to Ellis Quay

6.3.6.1 General

This Section outlines the baseline environment for walking, cycling, bus services, general traffic and parking / loading facilities along Section 5 of the Proposed Scheme, between R805 Old Cabra Road and R101 R148 Ellis Quay.

Section 5 is approximately 1.9km in length and consists of R805 Old Cabra Road, R805 Prussia Street, R805 Manor Street, R805 Stoneybatter and Blackhall Place.

The study area also includes Brunswick Street North, King Street North, Blackhall Street and Queen Street, where changes to the road network, and new cycle facilities are proposed.

R805 Old Cabra Road is predominantly suburban, with well-spaced side road junctions, and residential properties taking frontage access onto the R805. R805 Old Cabra Road is subject to a speed limit of 50km/h. 150m to the south-west of the R805 Old Cabra Road signalised junction the road narrows from a total carriageway width (including central reserve and cycle lanes) of 18.0m to 19.0m (3.0m single carriageway plus 1.5m cycle lane in both directions), and this configuration continues to the R101 North Circular Road junction. Speed cushions are in place approximately every 100m to encourage lower vehicle speeds.

Beyond R805 Old Cabra Road, the route enters a busy urban area where residential properties and commercial premises directly front the street, before emerging onto R148 Ellis Quay on the north side of the River Liffey. This section of route is subject to a speed limit of 50km/h, apart from Blackhall Place which has a speed limit of 30km/h in place and has parking restrictions in place for much of its length.

The character of the surrounding area changes as the Proposed Scheme heads south. R805 Prussia Street is relatively narrow and is typically a single carriageway in both directions with a typical carriageway width of 7.5m. Beyond R806 Aughrim Street, as R805 Prussia Street becomes R805 Manor Street, the carriageway width widens to 11.0m, providing sufficient space for both a northbound cycle lane and a southbound bus lane. Buildings here are set further back from the road, providing a greater sense of space. Roadside parking is also present on both sides of the road.

At R805 Stoneybatter the route narrows again, to a minimum of 9.0m carriageway width, before widening to a typical carriageway width of 13.0m on Blackhall Place, which provides space for general traffic lanes, bus lanes and some limited roadside parking.

6.3.6.2 Pedestrian Infrastructure

There are continuous footpaths alongside both the north and south sides of the route between R805 Old Cabra Road and R148 Ellis Quay.

These footpaths vary in width, depending upon the character of the route. They are widest on Manor Street, particularly in the central section near Kirwan Street and Manor Place, which is a particularly attractive pedestrian environment. Footpaths on Stoneybatter are narrow and more constrained but widen as the route of the Proposed Scheme progresses south through Blackhall Place towards R148 Ellis Quay.

There are numerous pedestrian crossings along Section 5, both signalised and uncontrolled. Signalised pedestrian crossing facilities can be found at the following locations:

- Signalised pedestrian crossings across all arms of the R805 Old Cabra Road / R101 North Circular Road junction;
- A signalised pedestrian crossing across R805 Prussia Street to the south of the Park Shopping Centre. Dropped kerbs, without tactile paving, are provided across the access road into the Centre;
- A signalised pedestrian crossing across R805 Prussia Street, 15.0m to the north of R806 Aughrim Street. Dropped kerbs and a raised pedestrian table are provided across R806 Aughrim Street itself;
- A signalised pedestrian crossing across R805 Prussia Street, 10.0m to the south of Manor Place. Dropped kerbs and raised pedestrian tables are provided across Manor Place and Kirwan Street;
- A signalised pedestrian crossing across R805 Stoneybatter, 50.0m to the north of Brunswick Street North; Dropped kerbs and raised pedestrian tables are provided across Arbour Hill and Brunswick Street North;
- Signalised pedestrian crossings across the northern and eastern arms of the Blackhall Place / R805 junction;
- Signalised pedestrian crossings across all arms of the Blackhall Place / Blackhall Street junction;
- Signalised pedestrian crossings across the northern and southern arms of the Blackhall Place / Benburb Street junction;
- Signalised pedestrian crossings across all arms of the Blackhall Place / R148 / R148 Ellis Quay junction;
- Signalised pedestrian crossings across all arms at the R04 King Street North / George's Lane / Queen Street junction;
- Signalised pedestrian crossings across the north and west arms of the R805 Queen Street / Blackhall Street junction;
- Signalised pedestrian crossings across the north and south arms of the R805 Queen Street / Benburb Street junction; and
- Signalised pedestrian crossings across the north and west arms of the R805 Queen Street / R148 Ellis Quay junction.

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 footpath widths) at each junction along Section 5 of the Proposed Scheme are included in Appendix A6.4.1 (Pedestrian Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.6.3 Cycling Infrastructure

There are continuous cycle lanes of 1.5m in width on both sides of Old Cabra Road between R147 Cabra Road and the R101 North Circular Road within Section 5 of the Proposed Scheme. All of these cycle lanes are advisory, with the exception of the first 140m section to the east of R147 Cabra Road, where the cycle lanes are mandatory. Parking on advisory cycle lanes is possible for up to 30 minutes, providing that active loading is taking place, however the full extent of R805 Old Cabra Road is designated as a Clearway, with no parking or stopping between the hours of 07:00 and 19:00, Monday to Saturday. This should ensure that the cycle lanes are free of obstructions during these hours.

There are four Sheffield stands on Prussia Street north of the junction with St John's Close, which are designated cycle hire parking racks. These stands provide capacity for eight bicycles to park.

On the southern part of Section 5 of the Proposed Scheme there is a continuous advisory cycle lane of 1.25m in width that runs northbound from 30.0m north of Manor Place to the R101 North Circular Road signalised junction. Parking on advisory cycle lanes is possible for up to 30 minutes, providing that active loading is taking place, however the full extent of the cycle lane is designated as a Clearway, with no parking or stopping between the hours of 07:00 and 19:00, Monday to Saturday. This should ensure that the cycle lanes are free of obstructions during these hours.

Other than this, the only cycle facilities present on Section 5 of the Proposed Scheme:

- A northbound combined cycle and bus lane between Benburb Street and Blackhall Green; and
- Southbound combined cycle and bus lanes between R806 Aughrim Street and R148 Ellis Quay, which includes a short 'bus / taxi / motorcycle / cycle only' section between the R804 and Blackhall Street.

DublinBike Docking station number 88 is located on Blackhall Place, just to the north of Blackhall Place. It has capacity for 30 bikes. 14 Sheffield stands designated as cycle hire cycle parking racks are provided outside shops along Manor Street / Blackhall Place, with a further 3 stands outside City Cycles at the junction with Oxmantown Lane. These stands therefore provide capacity for 34 bicycles to park.

The existing cycle facilities along Section 5 of the Proposed Scheme are illustrated in Figure 6.4e 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 5 of the Proposed Scheme is included in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

6.3.6.4 Bus Infrastructure

6.3.6.4.1 Bus Priority Measures

The following bus priority measures are present along the route:

- A southbound bus lane of approximately 310m in length on R805 Manor Place between R806 Aughrim Street and R805 Stoneybatter;
- A southbound bus lane of approximately 260m in length on Blackhall Place between King Street North and R148 Ellis Quay, which includes a short 'bus / taxi / motorcycle / cycle only' section of road; and
- A northbound bus lane of approximately 170m in length on Blackhall Place between Benburb Street and Blackhall Green.

6.3.6.4.2 Bus Stop Facilities

The existing bus facilities along Section 5 of the Proposed Scheme are illustrated in Figure 6.5e in Volume 3 of this EIAR.

There are 14 bus stops along this section of the Proposed Route – seven 'inbound' stops towards the city centre and seven 'outbound' stops heading towards Old Cabra Road.

The inbound stops are:

- Stop 1906 on R805 Old Cabra Road, 70m south of R147 Navan Road;
- Stop 1907 on R805 Old Cabra Road, 50m south of Glenbeigh Road;
- Stop 1908 on R805 Old Cabra Road, 30m south of Cabra Drive;
- Stop 1909 on R805 Prussia Street, 40m south of R101 North Circular Road;

- Stop 1713 on R805 Manor Street, 60m south of Manor Place;
- Stop 1714 on R805 Stoneybatter, 20m north of Brunswick Street North; and
- Stop 1715 on Blackhall Place, 30m north of Benburb Street.

The outbound stops are:

- Stop 1647 on Blackhall Place, opposite Oxmantown Lane;
- Stop 1648 on R805 Manor Street, 20m north of Arbour Place;
- Stop 1649 on R805 Manor Street, 30m north of Manor Place;
- Stop 1911 on R805 Prussia Street, 70m south of R101 North Circular Road;
- Stop 1913 on R805 Old Cabra Road, opposite Cabra Drive;
- Stop 1914 on R805 Old Cabra Road, 30m north of Glenbeigh Road; and
- Stop 1805 on R805 Old Cabra Road, 90m south of R147 Navan Road.

Table 6.15 outlines the availability of bus stop facilities at the existing 14 bus stops between R805 Old Cabra Road junction and R148 Ellis Quay.

Table 6.15: Section 5 – Availability of Bus Stop Facilities (of a Total 14 Bus Stops)

Bus Stop Facility	Number of Bus Stops in Baseline with Facility	Percentage of Bus Stops in Baseline with Facility
RTPI	4	29%
Timetable information	9	64%
Shelter	9	64%
Seating	9	64%
Accessible Kerbs	8	57%
Indented Drop Off Area	0	0%
Total Stops	14	

There is considered to be a good level of facilities at the bus stops along Section 5 of the Proposed Scheme overall, as around two-thirds have timetable information, shelters, seating and accessible kerbing.

The bus stops cater for several Dublin Bus and Go-Ahead bus services to local and regional destinations, as shown in Table 6.16.

Table 6.16: Section 5 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
37	Blanchardstown - Diswellstown Rd - Carpenterstown Rd - Castleknock Vale - Navan Rd - Ashtown Grove Baggot Rd - Navan Rd - R148 Ellis Quay - Bachelors Walk	20 minutes	30 minutes
38	Burlington Rd O'Connell Bridge - Berkeley Rd - Navan Rd Garda Station - Ashtown - Castleknock - Blanchardstown Village - Damastown	20 minutes	30 minutes
38A	Dublin City South – Phibsborough – Cabra East – Ashtown – Blanchardstown – Corduff – Mulhuddart - Damastown	30 minutes	30 minutes
38B	Burlington Rd - O'Connell Bridge - Berkeley Rd - Navan Rd. Garda Station - Ashtown - Damastown	6 Services in the morning	No Service

Service	Route	Typical Service Frequency	
		Weekday	Weekend
		and evening peaks	
38D	Burlington Rd direct to IBM Damastown via N3	1 service in the morning and evening peaks	No Service
39	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	30 minutes	30 minutes
39A	Belfield – Donnybrook – Dublin City South – Arbour Hill – Cabra – Ashtown – Castleknock – Blanchardstown – Clonsilla - Castleheaney	10 minutes	15 minutes
39X	Burlington Rd - Aston Quay / Bachelors Walk - Blanchardstown Rd - Ongar	4 Services in the morning and evening peaks	No Service
70	Burlington Rd - O'Connell Bridge - Stoneybatter - Navan Rd Garda Station - Ashtown - Littlepace - Dunboyne	30 minutes	60 minutes
70D	Dunboyne Village - Navan Rd - Tolka Estate - DCU	1 Service in the morning and evening peaks	No Service
122	Ashington - Kinvara Ave - Cabra Garda Station - Broombridge Rd - Faussaugh Ave - Drumcliffe Rd - Carnlough Rd - Quarry Rd - Annamoe Terrace - Exchequer Street - Camden St - Carlisle St - St Andrews Centre - Keeper Rd - Brickfields Park - Crumlin Hospital	20 minutes	20 minutes

6.3.6.5 General Traffic

6.3.6.5.1 R805 Old Cabra Road

R805 Old Cabra Road is subject to a speed limit of 50km/h. 150m to the south-west of the R147 Cabra Road signalised junction the road narrows from a total carriageway width (including central reserve and cycle lanes) of 18.0m to 19.0m (3.0m single carriageway plus 1.5m cycle lane in both directions), and this configuration continues to the R101 North Circular Road junction. Speed cushions are in place approximately every 100m to encourage lower vehicle speeds.

The primary junctions on this section of R805 Old Cabra Road are:

- R805 Old Cabra Road / Glenbeigh Road priority junction;
- R805 Old Cabra Road / Cabra Drive priority junction; and
- R805 Old Cabra Road / Supermarket access priority 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.

R805 Old Cabra Road / Glenbeigh Road priority junction: R805 Old Cabra Road forms the western and eastern arms of this three-arm priority junction, with Glenbeigh Road forming the minor, southern arm.

No marked right-turn lane is provided for traffic turning from R805 Old Cabra Road into Glenbeigh Road, but there is sufficient space for mainline traffic to pass waiting vehicles, providing that the cycle lane is clear. A traffic island is provided on Glenbeigh Road, to allow pedestrians to break their crossing. The junction is shown in Image 6.28.



Image 6.28: R805 Old Cabra Road / Glenbeigh Road Priority Junction

R805 Old Cabra Road / Cabra Drive priority junction: R805 Old Cabra Road forms the western and eastern arms of this three-arm priority junction, with Cabra Drive forming the minor, northern arm.

No marked right-turn lane is provided for traffic turning from R805 Old Cabra Road into Cabra Drive, but there is sufficient space for mainline traffic to pass waiting vehicles, providing that the cycle lane is clear. The Cabra Drive approach is 16.0m wide at the stopline, allowing space for approximately three vehicles to wait to turn left, in addition to right-turning traffic queueing in the outside lane. A yellow box is provided on the eastbound carriageway of R805 Old Cabra Road, to ensure that queueing vehicles do not block right-turning traffic out of Cabra Drive. The junction is shown in Image 6.29.



Image 6.29: R805 Old Cabra Road / Cabra Drive Priority Junction

R805 Old Cabra Road / Supermarket access priority junction: R805 Old Cabra Road forms the western and eastern arms of this three-arm priority junction, with the supermarket access forming the minor, northern arm.

No marked right-turn lane is provided for traffic turning from R805 Old Cabra Road into the supermarket, but there is sufficient space for mainline traffic to pass waiting vehicles, providing that the cycle lane is clear.

The supermarket access is one lane wide. A yellow box is provided on the eastbound carriageway of R805 Old Cabra Road, to ensure that queueing vehicles do not block traffic turning into and out of the supermarket. The junction is shown in Image 6.30.



Image 6.30: Old Cabra Road / Supermarket Access Priority Junction

6.3.6.5.2 R805 Prussia Street

The proposed route passes along R805 Prussia Street for a distance of 500m. R805 Prussia Street is relatively narrow and is typically a single carriageway in both directions with a typical carriageway width of 7.5m. There are various side roads and accesses that meet R805 Prussia Street, and both residential and commercial premises that front onto the street. R805 Prussia Street is subject to a 50km/h speed limit and is designated as a Clearway between 07:00-19:00, Monday to Saturday.

The primary junctions on this section of R805 Prussia Street are:

- R805 Prussia Street / R101 North Circular Road signalised junction.
- R805 Prussia Street / Park Shopping Centre signalised junction; and
- R805 Prussia Street / St Joseph's Road priority 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.

R805 Prussia Street / R101 North Circular Road signalised junction: R805 Old Cabra Road forms the northern approach and R805 Prussia Street forms the southern approach to this four-armed signalised junction, with R101 North Circular Road forming the eastern and western approaches.

The northern approach has one full lane plus a 30.0m flare. An advanced stacking location is provided for cyclists. The eastern approach has one full lane, plus a wider 30.0m section where two lanes of traffic can queue. The southern approach has one full lane plus a 30.0m flare with an advanced stacking location again provided. The western approach has one full lane on approach. The left turn from R101 North Circular Road onto the northbound R805 Old Cabra Road is segregated by a small traffic island.

Signalised pedestrian facilities are provided across all arms of the junction. Pedestrian guard rails are only in place on the north-eastern and south-eastern corners of the junction. The junction is shown in Image 6.31.



Image 6.31: R805 Prussia Street / R101 North Circular Road Signalised Junction

R805 Prussia Street / Park Shopping Centre priority junction: R805 Prussia Street is a single lane in either direction at this location, and no right-turning lane is provided for traffic turning into the Shopping Centre. The Shopping Centre exit is a single lane. Yellow boxes are provided to prevent northbound or southbound queuing traffic on R805 Prussia Street from blocking emerging traffic from the Centre. A signalised pelican crossing is provided across R805 Prussia Street 25.0m to the south of the junction. The junction is shown in Image 6.32.



Image 6.32: R805 Prussia Street / Park Shopping Centre Priority Junction

R805 Prussia Street / St Joseph's Road priority junction: The R805 Prussia Street / St Joseph's Road junction is a simple priority junction. R805 Prussia Street is a single lane in either direction at this location, without a right-turn lane for traffic turning into the minor arm. St Joseph's Road is designated as a 30km/h 'Slow Zone', with vehicles over 3.5 tonnes prohibited from entering. The junction is shown in Image 6.33.



Image 6.33: R805 Prussia Street / St Joseph's Road Priority Junction

6.3.6.5.3 Manor Street

The proposed route runs along Manor Street for a distance of 300m. Beyond R806 Aughrim Street, as R805 Prussia Street becomes R805 Manor Street, the carriageway width widens to approximately 11.0m, providing sufficient space for both a northbound cycle lane and a southbound bus lane. Buildings here are set further back from the road, providing a greater sense of space. Roadside parking is also present on both sides of the road.

The primary junctions on R805 Manor Street are:

- R805 Manor Street / R806 Aughrim Street priority junction; and
- R805 Manor Street / Kirwan Street / Manor Place priority junctions.

R805 Manor Street / R806 Aughrim Street priority junction: At this junction, R805 Manor Street is a single lane in either direction at this location. R806 Aughrim Street is designated as a 30km/h 'Slow Zone' and forms the minor arm with a single lane on approach. A raised table is provided to assist pedestrians crossing R806 Aughrim Street.

A yellow box is present, preventing northbound queuing traffic on R805 Manor Street from blocking vehicles turning into and out of R806 Aughrim Street. A signalised pelican crossing is provided across R805 Manor Street, 15.0m to the north of the junction. The junction is shown in Image 6.34.



Image 6.34: R805 Manor Street / R806 Aughrim Street Priority Junction

R805 Manor Street / Kirwan Street / Manor Place priority junctions: At this location, R805 Manor Street has a total carriageway width of 14.0m. The northbound carriageway incorporates a 2.0m-wide cycle lane, and the southbound carriageway incorporates a bus lane plus a lane for general traffic.

Kirwan Street joins R805 Manor Street from the east and is one-way inbound link with a carriageway width of 6.5m, although parking bays on the north side of the road curtail the available space for right-turning vehicles. Yellow boxes are provided to prevent southbound queuing vehicles on R805 Manor Street blocking vehicles exiting from Kirwan Street.

Manor Place joins Manor Street from the west and is designated as a 30km/h 'Slow Zone'. It has a single lane on approach, and a raised table is provided to assist pedestrians crossing Manor Place.

A signalised pelican crossing is provided across R805 Manor Street, 10.0m to the south of Manor Place. This incorporates a traffic island with pedestrian refuge, and tactile paving. The junctions are shown in Image 6.35.



Image 6.35: R805 Manor Street / Kirwan Street / Manor Place Priority Junctions

6.3.6.5.4 R805 Stoneybatter

R805 Stoneybatter is 70.0m long and is a continuation of R805 Manor Street, extending to the junction with King Street North. It represents the narrowest section of this part of the route with a typical carriageway width of between 9.0m and 11.0m. It is subject to a speed limit of 50km/h.

The primary junctions on R805 Stoneybatter are as follows:

- R805 Stoneybatter / Brunswick Street North / Arbour Hill Priority junction; and
- R805 Stoneybatter / Blackhall Place / King Street North signalised junction.

R805 Stoneybatter / Brunswick Street North / Arbour Hill Priority junctions: At this location, R805 Stoneybatter has a single lane in either direction and a southbound advisory bike lane. Total carriageway width is 10.5m. Brunswick Street North joins R805 Stoneybatter to the east, and Arbour Hill joins R805 Stoneybatter to the west. Yellow boxes on R805 Stoneybatter cover the full extent of both junctions.

Brunswick Street North has a single lane in either direction and an advisory bike lane runs westbound towards R805 Stoneybatter. A 30km/h 'Slow Zone' begins 20.0m to the east of R805 Stoneybatter. Arbour Hill is a narrow two-way road, with a total carriageway width of 4.5m. It is designated as a 30km/h 'Slow Zone'. The junctions are shown in Image 6.36.



Image 6.36: R805 Stoneybatter / Brunswick Street North / Arbour Hill Priority Junctions

R805 Stoneybatter / Blackhall Place / King Street North signalised junction: The northern arm of the junction (R805 Stoneybatter) has a single lane on approach to the junction, plus a nearside advisory cycle lane. King Street North is one-way outbound from the junction and is two lanes wide. The southern arm of Blackhall Place has two lanes on approach, one for vehicles travelling ahead, and one for vehicles turning right into King Street North. Signalised pedestrian crossings are present across the northern and eastern arms, and a pedestrian guard rail is in place on the south-east corner of the junction. The junction is shown in Image 6.37.



Image 6.37: Blackhall Place / King Street North Signalised Junction

6.3.6.5.5 Blackhall Place

Blackhall Place is a continuation of the R805 Stoneybatter and routes between King Street North and the R148 Ellis Quay. It consists of sections of three and four traffic lanes, and different northbound / southbound combinations of general traffic and bus lanes are provided on different sections. The southbound section of Blackhall Place between King Street North and Blackhall Street is restricted to buses, taxis, motorcycles and cycles only. Blackhall Place is generally subject to a speed limit of 30km/h.

The primary junctions on this section of Blackhall Place are:

- Blackhall Place / Blackhall Street signalised junction;
- Blackhall Place / Benburb Street signalised junction; and

- Blackhall Place / R148 Ellis Quay / James Joyce Bridge 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.

Blackhall Place / Blackhall Street signalised junction: The northern arm of Blackhall Place has a single lane on approach to the junction. Blackhall Street is one-way inbound into the junction, with right-turn and left-turn lanes separated by a traffic island, which also acts as a pedestrian refuge. The southern arm of Blackhall Place has two lanes on approach to the junction: one bus lane and one lane of general traffic. The traffic exit from the Law Society of Ireland building to the west of the junction emerges onto Blackhall Place just south of the junction. Signalised pedestrian crossings are present across both Blackhall Place and Blackhall Street. The junction is shown in Image 6.38.



Image 6.38: Blackhall Place / Blackhall Street Signalised Junction

Blackhall Place / Benburb Street signalised junction: The Blackhall Place / Benburb Street signalised junction has four arms, with Blackhall Place forming the northern and southern arms, and Benburb Street forming the eastern and western arms. The Luas tram line runs through the junction along the north side of Benburb Street. Benburb Street is one-way from east to west for general traffic. The northern arm of the junction has one lane for general traffic, and one bus lane, on the approach to the junction. Traffic must proceed south ahead onto Blackhall Street, with the right turn onto Benburb Street west being prohibited.

The eastern arm of the junction, Benburb Street, has one lane for general traffic. The southern arm has two lanes on approach. The western arm is one-way outbound from the junction, except for trams which can travel both east and west along Benburb Street. Signalised pedestrian crossings are provided across both the northern and southern arms of the junction. The junction is shown in Image 6.39.



Image 6.39: Blackhall Place / Benburb Street Signalised Junction

Blackhall Place / R148 Ellis Quay / James Joyce Bridge signalised junction: The Blackhall Place / R148 Ellis Quay signalised junction is a four-arm crossroads, with Blackhall Place forming the northern arm, R148 Ellis Quay the eastern and western arms, and R804 James Joyce Bridge the southern arm. R148 Ellis Quay runs one-way, west to east, through the junction. The northern arm of the junction has one lane for general traffic, and one bus lane. The southern approach has two lanes for general traffic, plus advisory cycle lanes in both directions. The western approach has two lanes for general traffic, plus a central bus lane.

Signalised pedestrian crossings are present across both arms of R148 Ellis Quay. The centre of the junctions is marked with yellow boxes to reduce the impact of queuing traffic blocking other vehicle movements. The junction is shown in Image 6.40.



Image 6.40: Blackhall Place / R148 Ellis Quay / James Joyce Bridge Signalised Junction

6.3.6.5.6 R804 Brunswick Street North

R804 Brunswick Street North / Grangegorman Lower / George's Lane priority junction: This junction has four arms. Brunswick Street North (west arm), Grangegorman Lower and George Street are all one lane, one-way links that feed into the junction, with Brunswick Street north (east arm) forming the sole exit arm. Traffic on Grangegorman Lower feeds into Brunswick Street North, and must give way. Traffic on George's Lane bears east into the junction, and does not need to give way as there are two exit lanes on Brunswick Street North (east arm).

There are signalised pedestrian crossings on Brunswick Street North (west) and George's Lane. The junction is shown in Image 6.41.



Image 6.41: R804 Brunswick Street North / Grangegorman Lower / George's Lane Priority Junction

6.3.6.5.7 R804 Queen Street

King Street North / George's Lane / R804 Queen Street signalised junction: This four-arm junction is signalised, with each arm one-way either into or out of the junction. King Street North (west arm) is one-way into the junction, and has two lanes on approach, allowing turns onto George's Lane and Queen Street respectively. George's Lane is one-way away from the junction, and has two lanes. King Street North (east arm) is one-way into the junction, and has two lanes which allow turns to George's Lane and Queen Street respectively. Queen Street is one-way away from the junction, and has three traffic lanes. There are signalised pedestrian crossings across all arms of the junction, which each cross via a central island. The junction is shown in Image 6.42.



Image 6.42: King Street North / George's Lane / R804 Queen Street Signalised Junction

R804 Queen Street / Blackhall Street junction: This junction has three arms, with Blackhall Street forming the minor arm. Queen Street is one-way and runs north-south. It is three lanes wide, with the westernmost lane providing access into Blackhall Street, which is one-way away from the junction. Traffic on Queen Street is only halted when the signal-controlled pedestrian crossings across either Queen Street or Blackhall Street are activated. The junction is shown in Image 6.43.



Image 6.43: Queen Street / Blackhall Street junction

R804 Queen Street / Hendrick Street / Haymarket priority junction: This priority junction has four arms, with Queen Street forming the major arm, and Hendrick Street and Haymarket forming the minor arms. Queen Street is one-way from north to south and has three lanes on approach to the junction. Hendrick Street is one-way into the junction and has two lanes. The inside lane provides access to Haymarket, and the outside lane allows the right turn onto Queen Street. Haymarket is a two-way arm, with vehicles permitted to turn left out of Haymarket onto Queen Street (south), giving way to southbound traffic from Queen Street (north). The junction is shown in Image 6.44.



Image 6.44: R804 Queen Street / Hendrick Street / Haymarket Junction

R804 Queen Street / Benburb Street / Arran Quay Terrace junction: This signalised junction has four arms, with R804 Queen Street forming the northern and southern arms, and Arran Quay Terrace forming the eastern arm, and Benburb Street forming the western arm. The Luas tram line runs through the junction along the north side of Benburb Street and Arran Quay Terrace. Queen Street has three lanes, and is one-way, running from north-south through the junction. Both Benburb Street and Arran Quay Terrace are one-way away from the junction.

Trams can travel both east and west through the junction. Signalised pedestrian crossings are provided across both the northern and southern arms of the junction. The junction is shown in Image 6.45.



Image 6.45: R804 Queen Street / Benburb Street / Arran Quay Terrace Signalised Junction

6.3.6.6 Existing Parking / Loading

Along Section 5 of the Proposed Scheme there is a total of 145 existing parking / loading spaces. These comprise:

- On Prussia Street there is a short length of kerbside parking (for Pay & Display and Permit Parking from 10.00 to 19.00 Monday to Saturday), with sufficient space for approximately 10 cars;
- On Manor Street and Stoneybatter there is kerbside parking with space for approximately 58 cars (including 2 disabled parking bays), available for Pay & Display and Permit Parking from 07.00 to 19.00 Monday to Saturday .
- There are currently four loading spaces on Manor Street between Brunswick Street North and Aughrim Street, two single bays on the west side, and one two-space bay on the east side;
- There is a further loading bay located on the southern end of Aughrim Street at the junction with Manor Street;
- On Aughrim Street at its junction with Manor Street, there is kerbside parking available for up to 7 cars outside Kavanagh's Pub, available for Pay & Display and Permit Parking from 07.00 to 24.00 Monday to Sunday. There is also kerbside parking available for up to 4 cars in the northbound lane, available for Pay & Display and Permit Parking from 07.00 to 19.00 Monday to Saturday.
- There are 4 separate loading bays, 3 bays (4 spaces) are on Manor Street and Stoneybatter, and another bay (2 spaces) on the southern end of Aughrim Street at the junction with Manor Street
- There are 26 designated pay & display / permit spaces on Blackhall Place, between King Street North and Blackhall Street.
- On Queen Street Pay & Display and Permit Parking for 3 cars is available from 10.00 to 16.00 Monday to Friday.
- On Brunswick Street North, there are 6 pay & display / permit spaces, and two Loading spaces in a bay on the south side of the street, close to the George's Lane junction; and
- Blackhall Street has designated on-street parallel parking (unregulated) for approximately 19 cars, however, observations indicate that the southern side of Blackhall Street is being used by more cars due to cars parking at an angle to the kerb lanes (instead of parallel) and protruding into the wide traffic lane. There is also a loading bay located on Blackhall Street next to its junction with Blackhall Place.

It is noted that there is also space along the kerb for parking on Prussia Street, Manor Street and Stoneybatter outside Clearway hours which is in place between 07.00 and 10.00 and 12.00 and 19.00 (Monday to Saturday). However, this has not been included in the assessment as it is only available for two hours during the day and therefore would have minimal impact on the overall parking supply during the daytime.

There are a number of side streets which can be used by local residents and visitors / businesses throughout this section. In total there are approximately 124 parking spaces on St Joseph's Road, Manor Place and Kirwan Street, which are likely to be utilised by some residents and visitors to premises on Prussia Street, Manor Street and Aughrim Street.

In addition, there are 110 parking spaces located in the vicinity of Blackhall Place area, on Benburb Street, Hendrick Street, Hendrick Place, Oxmantown Lane, Blackhall Green, Haymarket and Smithfield.

6.4 Potential Impacts

This section presents potential impacts that may occur due to the Construction and Operation of the Proposed Scheme, taking into account the Proposed Scheme design in the absence of any further mitigation. This informs the need for mitigation or monitoring to be proposed (refer to Section 6.5). Predicted 'residual' impacts taking into account any proposed mitigation are then presented in Section 6.6.

6.4.1 Characteristics of the Proposed Scheme

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

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 ('objective'). 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 include 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 2016-2035 (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 2035;
- The GDA Strategy provides a consistent basis for the 'likely' future receiving environment that is consistent with Government plans and Policies including the 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, DART+ Tunnel, Luas line extensions to Lucan, Finglas 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. This is shown diagrammatically in Diagram 6.4. Total trip demand (indicated by the dashed line) 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 overall in private car travel demand. 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, 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.

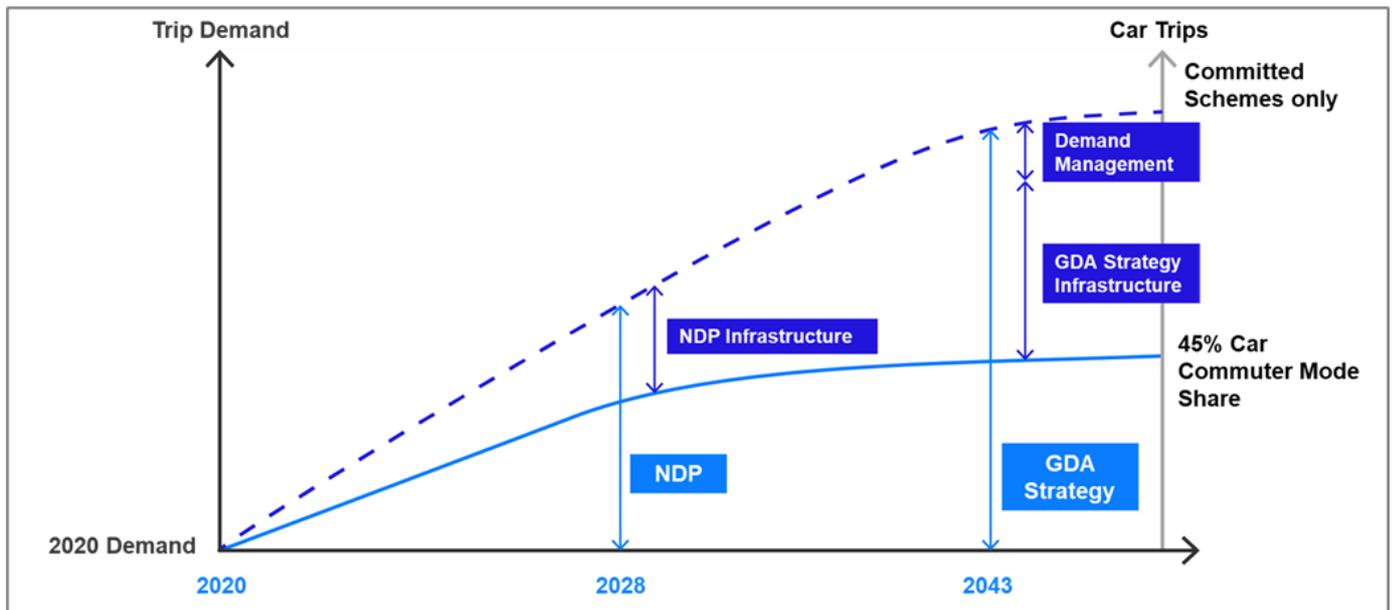


Diagram 6.4: Trip Demand Growth and the GDA Strategy

In terms of the transport modelling scenarios for the traffic and transport assessment, as per the Strategy proposals, there are no specific demand management measures included in the Do Minimum scenario in the 2028 Opening year, other than constraining parking availability in Dublin at existing levels. For the design year, 2043 scenario, a proxy for a suite of demand management measures is included in the Do Minimum in line with the target to achieve a maximum 45% car driver commuter mode share target, across the GDA, as outlined in the Strategy.

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 the proposed Construction Compounds, 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 five Construction Phase subsections which have been determined by the nature of the proposed road layouts and extent of works to be undertaken. Table 6.17 outlines the construction subsections with reference to the Proposed Scheme sections and the extent of works.

Table 6.17 Proposed Construction Subsections

Proposed Scheme Sections	Construction Phase Subsections	Extent of Works
Section 1 – N3 Blanchardstown Centre to R843 Snugborough Road	Section 1a: Old Navan Road	100m
	Section 1b: Blanchardstown Slip Roads	400m
	Section 1c: Blanchardstown Road	1,110m
	Section 1d: Blakestown Roundabout	-
	Section 1e: Blakestown Roundabout to Blanchardstown Shopping Centre Roundabout 1	380m
	Section 1f: Blanchardstown Shopping Centre Roundabout 1	-
	Section 1g: Blanchardstown Shopping Centre Roundabout 1 to Roundabout 2 Including Bus Depot	350m
	Section 1h: Blanchardstown Shopping Centre Roundabout 2	-
	Section 1i: Blanchardstown Shopping Centre Roundabout 2 to Blanchardstown Road	370m
	Section 1j: Blanchardstown Shopping Centre Roundabout 2 to Roundabout 3	400m
	Section 1k: Blanchardstown Shopping Centre Roundabout 3	-
Section 2 – R843 Snugborough Road to N3 / M50 junction	Section 2a: N3 Dual Carriageway Slip Roads	300m
	Section 2b: N3 Dual Carriageway to Navan Road	700m
	Section 2c: N3 Structure Widening; Central Reservation	-

Proposed Scheme Sections	Construction Phase Subsections	Extent of Works
	Section 2d: N3 Structure Widening; Mill Road South	-
	Section 2e: N3 Structure Widening; Mill Road North	-
	Section 2f: Old Navan Road to M50 Roundabout	430m
	Section 2g: M50 Roundabout	-
Section 3 – N3 / M50 junction to Navan Road / Ashtown Road junction	Section 3a: M50 Roundabout to Railway Station	1,150m
	Section 3b: Railway Station to Ashtown Road Roundabout	1,020m
	Section 3c: Ashtown Road Roundabout	-
Section 4 – Navan Road / Ashtown Road junction to Navan Road / Old Cabra Road junction	Section 4a: Ashtown Road Roundabout to Baggot Road	1,030m
	Section 4b: Baggot Road to Skreen Road	1,070m
	Section 4c: Skreen Road to Railway Line	800m
	Section 4d: Ratoath Road Junction	-
Section 5 – Navan Road / Old Cabra Road junction to Ellis Quay	Section 5a: Railway Line to Aughrim Street	930m
	Section 5b: Aughrim Street to Brunswick Street	-
	Section 5c: Blackhall Place	400m
	Section 5d: Queens Street	390m
	Section 5e: Brunswick Street North	170m
	Section 5f: King Street North	190m
	Section 5g: Blackhall Street;	150m
	Section 5h: Georges Lane	80m
Section 5i: Offline sections	360m	

Diagram 6.46 illustrates the extent of each subsection of the works.

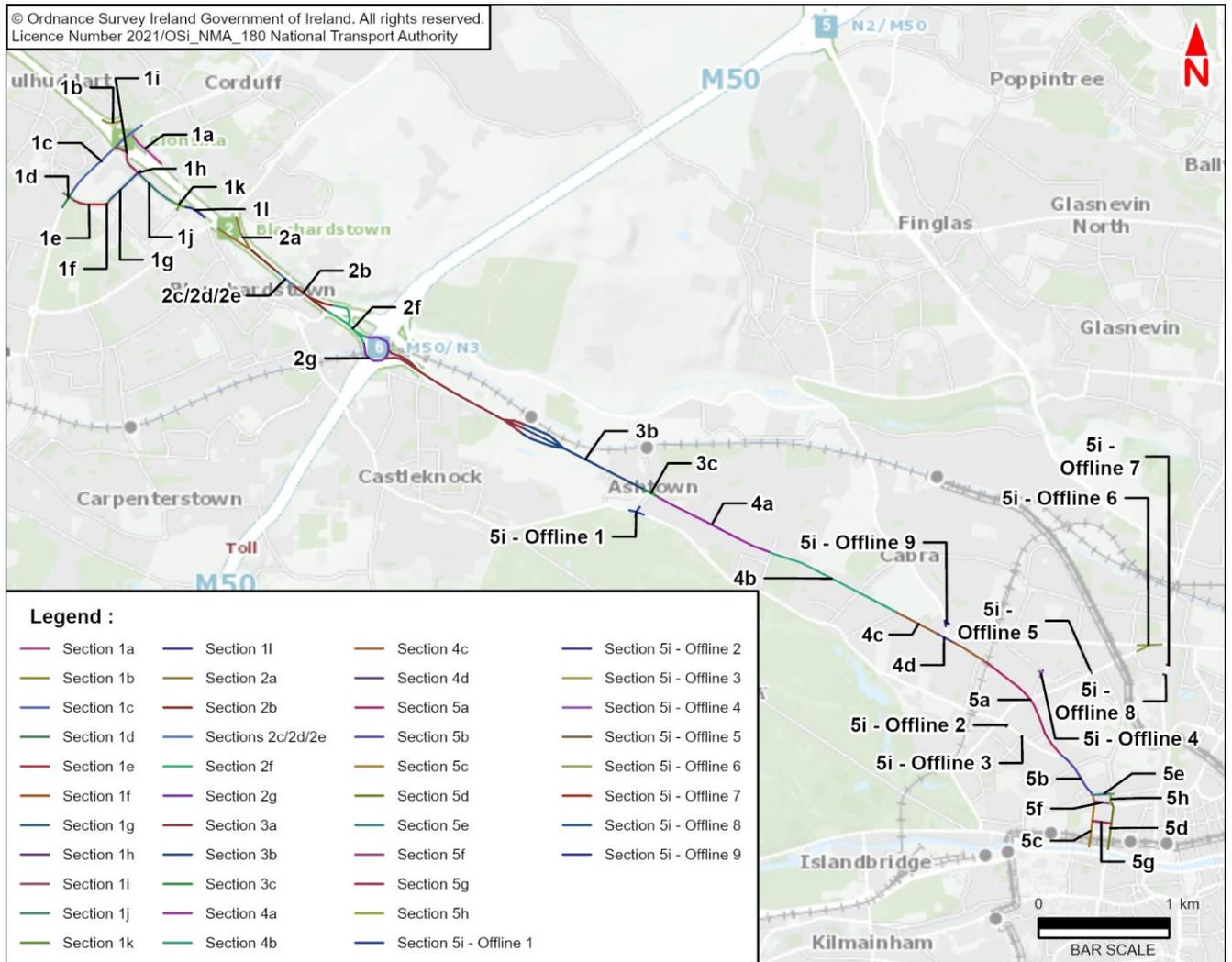


Diagram 6.46: Locations of Proposed Subsections of Construction Phase

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 24 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 will be via dedicated Construction Access 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 along the National roads such as the close by M50 and from the Regional road network. It is assumed that all National and Regional roads including the Regional routes in the immediate vicinity of the Proposed Scheme will be used to supply/remove this material where practicable, to minimise use of the local road network.

The following national primary and national secondary roads will be utilised as construction vehicle routes during the construction period:

- N3; and
- M50 Motorway.

The following regional roads will be utilised as construction vehicle routes during the construction period:

- R147;
- R804; and
- R805.

Given the length and varying nature of each subsection it is proposed to establish three Construction Compounds for the duration of the works. These are:

- **Construction Compound BL1:** Old Navan Road Car Park;
- **Construction Compound BL2:** Junction 6; and
- **Construction Compound BL3:** R147 East of the M50.

These areas will be used to store construction materials, cater for employee facilities and may also provide limited space for employee parking. The appointed contractor's CTMP shall include measures for managing traffic in and out of the compound. The appointed contractor will be responsible for developing the final layouts and use of the Construction Compounds within the framework set out within the EIAR.

In addition to the Construction Compounds, welfare facilities will be provided along the Proposed Scheme. The Contractor, when appointed, may identify other (or additional) construction compound locations, subject to gaining all necessary approvals.

Diagram 6.47 illustrates the proposed construction route to and from the Construction Compounds.



Diagram 6.47: Proposed Construction Route and Construction Compound Locations

6.4.5.4 Potential 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 to 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 Provisions

As described in Chapter 5 (Construction) of this report, pedestrians will be temporarily impacted by construction activities along the direct study area. Pedestrian diversions and temporary surface footpaths will be used to facilitate pedestrian movements around construction activities. Access to local amenities, such as 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 footpaths 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 footpath 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 Provisions

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. Localised temporary lane or road closures may be required for short periods. Details of indicative temporary traffic management measures to facilitate construction of the Proposed Scheme are included in Chapter 5 (Construction). All road closures and diversions will be determined by the NTA, who may liaise with the local authority and An Garda Síochána, as necessary. It should be noted that 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 are to be maintained in both directions. There may be a requirement for some localised temporary lane closures for short durations of 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.

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 effect on general traffic redistribution is anticipated to be **Negative, Moderate and Temporary** 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 1e, 1i, 1g, 1j, 1l, 2b, 2f, 3b, 4a, 4b, 4c, 5b, 5c and 5d were under construction concurrently. Further details on the impact 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, there will typically be 250 staff directly employed across the Proposed Scheme, rising to 300 staff at peak construction.

Typical work hours on site are between 07:00 and 23:00 with staff working across early and late shifts. 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 Compounds 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 89 vehicles.

In a typical hour during peak haulage activity of the Proposed Scheme, 40% of HGVs are anticipated to be in operation, which equates to 36 HGVs in total. A total of 36 two-way truck movements are therefore expected in a typical hour during peak haulage activity of the Proposed Scheme.

Overall Peak Hour Impacts: Table 6.18 identifies the anticipated maximum construction traffic generation by site operatives and HGVs during the AM and PM Peak Hours.

Table 6.18 Anticipated Maximum Construction Traffic Generation during Construction Phase

Peak Hour	Arrivals (veh)		Departures (veh)		Total Two-Way Traffic Flows (vehicles)
	Car / Van	HGV	Car / Van	HGV	
AM Peak Hour	10	18	0	18	46
PM Peak Hour	0	18	10	18	46

Given that the above impacts are below the thresholds set out in TII's Guidelines for Transport Assessments, it is considered appropriate to define the potential significance of traffic impacts of the Construction Phase to be **Negative, Slight and Temporary**. 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

Table 6.19 presents a summary of the predicted impacts of the Proposed Scheme during the Construction Phase.

Table 6.19 Summary of Construction Phase Predicted Impacts

Assessment Topic	Effect	Predicted 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 movements) 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 five 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 footpaths 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 6.9. The contents of Table 6.20 outlines the assessment criteria for each junction.

Table 6.20: 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 (or raised table treatment) and road markings for pedestrians (including able-bodied, wheelchair users, mobility impaired and pushchairs)?
Widths	Are there adequate footpath and crossing widths in accordance with national standards?

A LoS rating 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 6.21: 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 6.22 have been used to describe the potential impact, based on the changes in the Qualitative Pedestrian LoS rating.

Table 6.22: 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.

Table 6.23: 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	Crossings at signalised junctions for cyclists along Proposed Scheme / 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 6.24 have been used to describe the potential impact, based on the changes in the Qualitative Cycling LoS rating.

Table 6.24: 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 6.2.

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;
- Pedestrian accessibility; and
- Changes to the existing bus stop facilities:
 - Real-time information;
 - Timetable information;
 - Shelters;
 - Seating;
 - Accessible kerbs (containment Kassel kerbs); and
 - Provision of indented drop off areas / in-line stops as appropriate.

The magnitude of impact of the Proposed Scheme, applied to the qualitative review of the above factors, is set out in Table 6.25.

Table 6.25: Magnitude and Type of Impact for Bus Users Qualitative Assessment

Impact	Description of Impact / Proposed Changes
High positive	Significant benefit for bus stop 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.

6.4.6.1.1.4 Parking and Loading

The potential 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 and Do Something scenarios. The assessment 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 into account nearby parking, 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 – N3 Blanchardstown Junction R843 Snugborough Road

6.4.6.1.2.1 Pedestrian Infrastructure

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

- Provision of a new signalised pedestrian crossing across the Crowne Plaza link road, providing access to a new bus stop close to the N3 J3 northbound off-slip; and
- Conversion of three roundabouts in the vicinity of the Blanchardstown Centre into signalised junctions, providing signalised pedestrian crossing facilities where none currently exist.

The assessment of the qualitative impacts on the Pedestrian Infrastructure for Section 1 of the Proposed Scheme are summarised in Table 6.27, along with the accompanying sensitivity for each junction and the resultant significance of effect. 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.

Table 6.26: Section 1: Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact	Sensitivity	Significance of Effect
R121 Blanchardstown Road North / Old Navan Road	B800	D	C	Low	Medium	Positive Moderate
R121 Blanchardstown Road South / Blakestown Way	B100	D	B	Medium	Medium	Positive Significant
Bus Interchange Western Access	F000	F	B	High	High	Positive Profound
Bus Interchange Eastern Access	F225	B	A	Low	High	Positive Moderate
Crowne Plaza roundabout	F230	E	A	High	High	Positive Profound
Liberty Insurance	A600	E	A	High	High	Positive Profound
Section Summary	-	D	B	Medium	High	Positive Very Significant

The contents of Table 6.26 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at junctions within Section 1.

The LoS during the Do Minimum scenario ranges between B and F, with five of the six junctions being assessed as D or lower. In the Do Something scenario, there are improvements in the assessed LoS at all of the junctions, with five being brought up to the highest A or B ratings. 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 footpath 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 following section sets out the qualitative impacts on the cycling receptor for Section 1 of the Proposed Scheme. The results are summarised in Table 6.27 along with the accompanying sensitivity for each section and the resultant significance of impact

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

- Proposed cycle tracks on both sides of the R121 Blanchardstown Road North and Blanchardstown Road South, providing dedicated cycle facilities to replace the existing shared footpaths / cycle routes on both sides of the carriageway;
- Proposed 3.0m-wide, two-way cycle track along the road running from the Crowne Plaza Hotel to the Blanchardstown Road North / N3 northbound on / off slip signalised junction;
- Proposed 3.0m-wide, two-way cycle track along the road between Blanchardstown Centre and Retail Park to the north. This would replace the existing 3.0m-wide cycle track and provide priority for cyclists across side-roads where they currently give way. The cycle track would pass to the south side of the proposed bus interchange; and
- Proposed 3.0m-wide, two-way cycle track alongside the west side of the shopping centre road between the Crowne Plaza Hotel and R843 Snugborough Road, where no facilities currently exist.
- Proposed Cycle Stands at the Bus Interchange, which will provide an additional 34 cycle parking spaces.

Along Section 1, the Proposed Scheme will provide a 60mm set down kerb segregation between the footpath 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 tracks will also be raised 120mm from the carriageway to provide segregation from vehicles.

The contents of Table 6.27 outline the cycling qualitative assessment along Section 1 of the Proposed Scheme, which sets out the overall Do Minimum LoS and the Do Something LoS and the description of impact. 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 6.27: Section 1 Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
N3 slip road to R121 Blanchardstown Road North / South	C0 – C200	D	B	Medium	Negligible	Not Significant
Old Navan Road between N3 off slip and Blanchardstown Road North	C200-B800	B	B	Negligible	Low	Not Significant
Blanchardstown Road North and Blanchardstown Road South between Old Navan Road and Blakestown Way junction	B800 – B100	B	A	Low	Medium	Positive Moderate
Blakestown Way junction to Crowne Plaza Hotel	E100 – A200	B	A	Low	High	Positive Moderate

Location	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
Crowne Plaza Hotel to R843 Snugborough Road	A200 – A900	D	A	High	High	Positive Profound
Section Summary	-	C	A	Medium	Medium	Positive Significant

The contents of Table 6.27 demonstrate that the Proposed Scheme will have a **Positive, Significant and Long-term effect** on the cycling environment along Section 1.

The LoS for two of the four sub-sections in the Do Minimum scenario has been assessed as ranging from B to D, indicating that the existing facilities are generally adequate, but not of a particularly high standard.

The LoS in the Do Something scenario show improvements on every sub-section, with three of the sub sections being brought up to a LoS of A by the Proposed Scheme, and the remaining section having an assessed LoS of B. In Section 1, the improvements arise from the provision of dedicated cycle facilities on links where there are either shared pedestrian / cycle facilities, or no cycle facilities currently exist.

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

This assessment outlines the changes to bus stop infrastructure along Section 1 of the Proposed Scheme. It assesses any changes in the number or location of stops, and any changes to bus stop facilities.

There are currently ten bus stops along this section of the Proposed Route – five ‘inbound’ stops towards the city centre and five ‘outbound’ stops towards Blanchardstown Road North.

Under the proposals, there will be a total of 13 stops – seven inbound and six outbound, with four new stops being added, and two removed. Inbound, a new stop will be provided close to Stop 2960. Longer-distance buses will now use the new stop adjacent to Stop 2960, which is in a lay-by to allow loading / unloading of baggage.

Outbound, a new stop will be provided close to Stop 661, which will again allow standard services and long-distance services to use separate stops. Another new stop will be provided at Blanchardstown Town Centre which will complete an inbound / outbound pair of stops at this location. The stop close to the Crowne Plaza Hotel and the stop on R121 Blanchardstown Road South at Whitestown Grove will be removed. A new stop will be provided for regional bus services on the N3 northbound off-slip, 165m to the south of Blanchardstown Road South.

A new bus interchange is proposed at Blanchardstown Shopping Centre, with six saw tooth bays, and kerbside space for a further 6 buses, and a central waiting area covered with a canopy.

Table 6.28 summarises the proposed changes to bus stop facilities in Section 1 of the Proposed Scheme.

Table 6.28: 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 (Real Time Passenger Information)	2	25%	13	100%	RTPI added to all bus stops.

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
Timetable information	6	75%	13	100%	Timetable information added to be provided at all bus stops.
Shelter	3	38%	13	100%	Shelters to be provided at all bus stops.
Seating	3	38%	13	100%	Seating to be provided at all bus stops.
Accessible Kerbs	5	63%	13	100%	Accessible kerbs added to all bus stops.
Indented Drop Off Area	5	63%	4	30%	The majority of stops will be located within bus lanes, meaning that general traffic will not be delayed by stationary buses. The bus stops that will be located in indented drop-off areas (lay-bys) are those that serve longer distance services where buses may need to remain stationary for longer.
Total Stops	8*		13		Two more bus stops along Section 1. In addition, six new bays will be provided at the new bus interchange.

* Assumes that multiple stops at Blanchardstown Centre are counted as one stop in each direction in both DM and DS.

The contents of Table 6.28 shows that there is currently varied provision at existing stops, with less than half having shelters and seating. Only the stops at Blanchardstown Centre currently have real-time information screens. As part of the scheme, all of the new and existing bus stops will have shelters with seating, real-time bus information and accessible kerbs. Four of the proposed 13 bus stops will have lay-bys. Bus lanes will be provided along the entirety of the corridor, replacing current intermittent provision.

Taking into account the provision of bus lanes, pedestrian accessibility and bus stop facilities outlined within this section, Table 6.29 outlines the bus qualitative assessment along Section 1 of the Proposed Scheme.

Table 6.29: Section 1 Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity	Significance of Effect
Section 1 – N3 Blanchardstown Centre to R843 Snugborough Road	A000 - A900	<ul style="list-style-type: none"> New bus interchange at Blanchardstown Centre will provide a significant benefit. Significant improvements in the quality of bus stop facilities in this section. Bus lanes provided along the entirety of the corridor. 	High Positive	High	Positive Profound

The provision of a new bus interchange and four new stops, along with the improvements in the provision of real-time information, shelters, seating and accessible kerbs throughout Section 1 is assessed as providing a potential **high positive** impact for bus passengers. This aligns with the overarching aim to provide enhanced bus infrastructure on the corridor and will result in a **Positive, Profound and Long-term effect** on Section 1 of the Proposed Scheme.

6.4.6.1.2.4 Parking and Loading

There are no on-street parking spaces or loading bays along this section of the Proposed Scheme.

6.4.6.1.3 Section 2 – Snugborough Road to N3 / M50 junction

6.4.6.1.3.1 Pedestrian Infrastructure

Key infrastructural changes to pedestrian facilities along Section 1 of the Proposed Scheme is the provision of a new signalised crossing on the N3 Navan Road at the north-western arm of the junction with the Connolly Hospital Access Road.

The results of the assessment are summarised in Table 6.30, along with the accompanying sensitivity for each junction and the resultant significance of impact. 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.

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

Junction	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Impact
N3 Eastbound off-slip / Connolly Hospital Access signalised junction	A2000	C	B	Low	Low	Positive Slight
N3 Navan Road / Auburn Avenue signalised junction	A2900	D	C	Low	Medium	Positive Moderate
Auburn Avenue / Auburn Park Roundabout	A2900	E	B	Medium	Medium	Positive Significant
Section Summary	-	D	B	Medium	Low	Positive Moderate

The contents of Table 6.30 demonstrate that the Proposed Scheme will have a potential long-term positive impact on the quality of the pedestrian infrastructure at the junctions within Section 2. 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 footpath 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 the significance of effect will be **Positive, Moderate and Long-term** 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

There will be **no change** in cycling provision as a result of the Proposed Scheme. Although bus lanes will be constructed along this section, it is not intended that these will be used by cyclists.

An alternative on-road cycle route is available along R806 Main Street and Old Navan Road, which runs parallel to the south of the N3.

6.4.6.1.3.3 Bus Infrastructure

This assessment outlines the changes to bus stop infrastructure along Section 2 of the Proposed Scheme. It assesses any changes in the number or location of stops, and any changes to bus stop facilities.

There are currently two bus stops along this section of the Proposed Route – one ‘inbound’ stop towards the city centre and one ‘outbound’ stop heading towards R843 Snugborough Road.

Under the proposals, there will be a total of six stops – three inbound and three outbound. A key piece of infrastructure proposed on Section 2 as part of the Proposed Scheme is the provision of a pair of inbound and outbound stops on N3 Navan Road. The bus stops would be accessed by new pedestrian ramps and steps (RW07), which would rise from Mill Road up to the higher level of N3 Navan Road. The new bus stops would help to serve both Connolly Hospital and Blanchardstown Village.

There are currently no bus lanes on this section, apart from a short section of bus lane on the southbound N3, to the north of the southbound on-slip at Junction 2. Under the proposals, bus lanes will be provided in both directions, greatly improving bus priority. These will be largely continuous for the whole section, with short breaks where the lanes cross junctions.

Table 6.31 summarises the proposed changes to bus stop facilities in Section 2 of the Proposed Scheme.

Table 6.31: 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 (Real Time Passenger Information)	0	0%	6	100%	RTPI added to all bus stops.
Timetable information	2	100%	6	100%	Timetable information added to be provided at all bus stops.
Shelter	1	50%	6	100%	Shelters to be provided at all bus stops.
Seating	1	50%	6	100%	Seating to be provided at all bus stops.
Accessible Kerbs	1	50%	6	100%	Accessible kerbs added to all bus stops.
Indented Drop Off Area	2	100%	3	50%	Three of the stops will be located inline within bus lanes, meaning that general traffic will not be delayed by stationary buses. The bus stops that will be located in indented drop-off areas (lay-bys) are those that serve longer distance services where buses may need to remain stationary for longer.
Total Stops	2		6		Three more bus stops along Section 2.

The contents indicate that there are improvements to the bus stop facilities along Section 2 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 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, pedestrian accessibility and bus stop facilities outlined within this section, Table 6.32 below outlines the bus qualitative assessment along Section 2 of the Proposed Scheme.

Table 6.32: Section 2 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Section 2 – R843 Snugborough Road to N3 / 50 Junction	A900 - A2900	<ul style="list-style-type: none"> Provision of bus lanes along N3 Navan Road in both directions of the full extent of this section. New pair of bus stops provided on Navan Road to serve Connolly Hospital and Blanchardstown Village. Bus lanes provided along the entirety of the corridor. 	High Positive	Low	Positive Moderate

The provision of the new stops close to Mill Road, along with the improvements to facilities at the existing stops in Section 2 is assessed as providing an overall **High positive** impact for bus passengers. This aligns with the overarching aim to provide enhanced bus infrastructure on the corridor, and will result in a **Positive, Moderate and Long-term effect** on this section.

6.4.6.1.3.4 Parking and Loading

There is no on-street parking or loading bays along this section of the proposed route.

6.4.6.1.4 Section 3 – N3 / M50 junction to Navan Road / Ashtown Road junction

6.4.6.1.4.1 Pedestrian Infrastructure

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

- Provision of signalised pedestrian crossings across three arms of the R147 Navan Road / Phoenix Park Avenue junction, where no controlled facilities currently exist;
- Provision of signalised pedestrian crossings across all arms of the R147 Navan Road / Ashtown Road junction, where no controlled facilities currently exist.

The assessment of the qualitative impacts on the pedestrian infrastructure for Section 3 of the Proposed Scheme is summarised in Table 6.33 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.33: Section 3 – Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Impact	Sensitivity	Significance of Effect
R147 Navan Road / Phoenix Park Avenue junction	A4500	F	B	High	Low	Positive Moderate
R147 Navan Road / Ashtown Road junction	A4875	F	A	High	High	Positive Profound
Castleknock Road / Blackhorse Avenue	A850	E	A	High	Medium	Positive Very Significant
Section Summary	-	F	A	High	Medium	Positive Very Significant

The contents of Table 6.33 demonstrate that the Proposed Scheme will have a long-term positive impact on the quality of the pedestrian infrastructure at road junctions within Section 3.

The LoS during the Do Minimum scenario at the junctions is lowest E / F. In the Do Something scenario, all of these junctions are signalised, improving the LoS to either A or B at each location. 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 footpath 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, Very Significant 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

This assessment outlines the changes to the quality of cycling provision along Section 3 of the Proposed Scheme.

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

- Provision of a cycling ‘Quiet Street Treatment’ along Castleknock Manor / Auburn Avenue, to integrate with secondary route 4A of the Greater Dublin Area (GDA) Cycle Network Plan to the north, along Old Navan Road. This will allow cyclists to avoid travelling directly adjacent to this section of the R147 Navan Road dual carriageway.
- Provision of a 3.0m-wide, two-way cycle track on the south side of R147 Navan Road between Castleknock Manor and Ashtown Road junction, linking into the ‘Quiet Street Treatment’ along Castleknock Manor. This represents an improvement on the current shared pedestrian / cycle facility. The cycle track will bypass bus stops on the route. Toucan crossings will be provided across the N3 parkway (south) junction and at Phoenix Park Avenue; and
- Provision of Cycle Crossings across all arms of signalised R147 Navan Road / Ashtown Road junction, which is currently a roundabout.

Table 6.34 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 3, along with the resultant Impact Assessments. A detailed breakdown of the assessment can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.34: Section 3 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Description of Impact	Sensitivity	Significance of Effect
R147 Navan Road: Dunsink Lane to Morgan’s Place (Castleknock Manor in Do Something)	A2900 – A3400	D	C	Low	Medium	Positive Moderate
R147 Navan Road: Morgan’s Place to Ashtown Road	A3400 – A4875	C	A	Medium	Low	Positive Moderate
Section Summary	-	D	B	Medium	Low	Positive Moderate

The contents of Table 6.34 demonstrate that the Proposed Scheme will have an overall long-term positive impact on the quality of the cycling infrastructure along Section 3, delivering an improved LoS on both of the assessed sections.

Overall, a **Positive, Moderate and Long-term effect** is anticipated 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 align 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

This assessment outlines the changes to bus stop infrastructure along Section 3 of the Proposed Scheme. It assesses any changes in the number or location of stops, and any changes to bus stop facilities.

There are six bus stops along this section of the Proposed Route – three ‘inbound’ stops towards the city centre and three ‘outbound’ stops heading towards the N3 / M50 Junction Roundabout.

Under the proposals, there will be a total of 12 stops – six inbound and six outbound. Inbound, a new stop will be provided on R147 Navan Road to the east of Auburn Avenue. The existing stop on the Navan Road Parkway eastbound off-slip will be placed in a lay-by to serve longer-distance services. A new stop will be placed nearby on the Navan Road Parkway eastbound on-slip to cater for local bus services.

Finally, a new bus stop will be created to the west of Phoenix Industrial Park within a lay-by, freeing up nearby existing stop 1847 (which will be slightly relocated) for local bus services.

Outbound, a new stop will be located 30m east of Phoenix Park Avenue, which will allow urban bus services and long-distance services to use existing stop 1807 (which will be slightly relocated). Stop 7167 on the Navan Road Parkway westbound off-slip will be retained, and a new stop will be provided nearby on the Navan Road Parkway westbound on-slip, to cater for longer-distance services. Finally, a new stop will be provided on Navan Road, 50m to the east of Auburn Avenue.

The contents of Table 6.35 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 6.35: Overview of Changes in Bus Stop Facilities in Section 3 – R102 Dunsink Lane to Ashtown Road

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI (Real Time Passenger Information)	1	17%	12	100%	RTPI added to all bus stops.
Timetable information	3	50%	12	100%	Timetable information added to be provided at all bus stops.
Shelter	3	50%	12	100%	Shelters to be provided at all bus stops.
Seating	3	50%	12	100%	Seating to be provided at all bus stops.
Accessible Kerbs	6	100%	12	100%	Accessible kerbs added to all bus stops.
Indented Drop Off Area	0	0%	4	33%	Eight of the stops will be located inline within bus lanes, meaning that general traffic will not be delayed by stationary buses. The four bus stops that will be located in indented drop-off areas (lay-bys) are those that serve

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
					longer distance services where buses may need to remain stationary for longer.
Total Stops	6		12		Six more bus stops along Section 3

The contents of **Table 6.35** indicate that there are improvements to the bus stop facilities along Section 3 of the Proposed Scheme. 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.

Only half of the existing stops on this section have timetable information, shelters and seating. Under the proposals, all of the existing and new stops will be provided with the full range of passenger facilities.

Four of the proposed 12 bus stops will have lay-bys. These will cater for longer-distance bus services. The remaining eight stops will all be located in-line within bus lanes, which will be provided along the full length of this section, in both directions.

Taking into account the provision of bus lanes, pedestrian accessibility and bus stop facilities outlined within this section, Table 6.36 below outlines the bus qualitative assessment along Section 3 of the Proposed Scheme.

Table 6.36: Section 3 – Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Section 3 – R102 Dunsink Lane to Ashtown Road	A2900 - A4875	<ul style="list-style-type: none"> Bus lanes provided along the entire length of this section. Number of stops increased from six to twelve on this section, primarily to separate DublinBus and longer-distance services. Significant improvements in the quality of bus stop facilities in this section. 	High Positive	Medium	Positive Very Significant

The provision of six new bus stops (particularly those to the east of Auburn Avenue), along with the improvements in the provision of real-time information, shelters and seating at stops throughout Section 3 is assessed as providing an overall **high positive** impact for bus passengers.

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 ‘high’. This results in a **Positive, Very Significant and Long-term effect** on this section.

6.4.6.1.4.4 Parking and Loading

There are no on-street parking spaces or loading bays along this section of the proposed route.

6.4.6.1.5 Section 4 – Navan Road / Ashtown Road junction to Navan Road / Old Cabra Road junction

6.4.6.1.5.1 Pedestrian Infrastructure

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

- Provision of signalised pedestrian crossings across all arms of the R147 Navan Road / Phoenix Park Avenue junction, where no controlled facilities currently exist;
- Provision of signalised pedestrian crossings across all arms of the R147 Navan Road / Ashtown Road roundabout, where no controlled facilities currently exist.

The assessment of the qualitative impacts on the pedestrian infrastructure for Section 4 of the Proposed Scheme is summarised in Table 6.37 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.37: Section 4 – Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact	Sensitivity	Significance of Impact
R147 Navan Road / Kempton Avenue signalised junction	A5100	F	A	High	Low	Positive Moderate
R147 Navan Road / Ashtown Grove signalised junction	A5425	D	A	Medium	Low	Positive Moderate
R147 Navan Road / Kinvara Avenue / Baggot Road signalised junction	A5900	E	A	High	Medium	Positive Very Significant
R147 Navan Road / Nephin Road signalised junction	A6650	C	A	Medium	High	Positive Very Significant
R147 Navan Road / Skreen Road signalised junction	A6975	E	A	High	High	Positive Profound
R147 Navan Road / Hampton Green signalised junction	A7125	E	A	High	Medium	Positive Very Significant
R147 Navan Road / Cabra Library signalised junction	A2700 (north)	D	A	Medium	Medium	Positive Significant
R147 Navan Road / R805 Old Cabra Road signalised junction	A2700 (south)	D	B	Medium	High	Positive Very Significant
Section Summary		E	A	High	Medium	Positive Very Significant

The contents of Table 6.37 demonstrate that the Proposed Scheme will have a potential long-term very significant positive impact on the quality of the pedestrian infrastructure at junctions within Section 4.

The LoS during the Do Minimum scenario ranges between C and F, with seven of the eight junctions being assessed as D or lower. In the Do Something scenario, seven of the eight junctions have been assessed as achieving an A, the highest LoS. These improvements are the result of comprehensive pedestrian improvements at junctions along this section, with the provision of compliant footpath and crossing widths, dropped kerbs and tactile paving, and the introduction of design features that will reduce vehicle speeds. 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 footpath 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, Very Significant and Long-term effect** on 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 2.0m-wide cycle tracks on both sides of Navan Road for the whole length of Section 4 of the Proposed Scheme, replacing existing on-road cycle lanes; and
- Provision of controlled cycle crossing infrastructure at all signalised junctions on the Proposed Scheme, where currently cyclists share road-space across the junction with traffic. These will benefit both cyclists on the main road corridor and those emerging from side roads.

Table 6.38 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 4, along with the resultant Impact Assessments. A detailed breakdown of the assessment can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.38: Section 4 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Description of Impact	Sensitivity	Significance of Effect
R147 Navan Road: Ashtown Road to Kinvara Avenue / Baggot Road	A4875 – A5900	C	A	Medium	High	Positive Very Significant
R147 Navan Road: Kinvara Avenue / Baggot Road to Nephin Road.	A5900 – A6625	C	A	Medium	High	Positive Very Significant
R147 Navan Road: Kinvara Avenue / Baggot Road to R805 Old Cabra Road	A6625 – A7400	C	A	Medium	High	Positive Very Significant
Section Summary		C	A	Medium	High	Positive Very Significant

The contents of Table 6.38 demonstrate that the Proposed Scheme will have an overall potential long-term positive impact on the quality of the cycling infrastructure along Section 4.

The LoS for each of the three sub-sections in the Do Minimum scenario has been assessed as C, indicating that the existing facilities are generally adequate, but not of a particularly high standard. The LoS in the Do Something scenario show improvements on every sub-section, with each being brought up to a LoS of A by the Proposed Scheme, as the result of the introduction of fully segregated cycle tracks that will replace on-road cycle lanes.

Overall, it is anticipated that there will be **Positive, Very Significant 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 align 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

There are currently 16 bus stops along this section of the Proposed Route – nine ‘inbound’ stops towards the city centre and seven ‘outbound’ stops heading towards Ashtown Road.

Under the proposals, there will be a total of 13 stops – six inbound and seven outbound. Three of the nine inbound and one of the seven outbound stops will be removed. This rationalisation aims to strike the right balance between bus stop catchments and bus journey time reliability. All of the current stops that are within lay-bys will be changed to in-line stops within bus lanes, which will have a beneficial effect on bus journey times.

Bus lanes will be provided in both directions for the full extent of this section, greatly improving bus priority, particularly in the westbound direction. A bus priority signal will be introduced on the eastbound R147 Navan Road at the Hampton Green junction.

Outbound Stop 1805, which is currently located to the east of Old Cabra Road is currently within Section 5. This will be relocated just to the west of Old Cabra Road (into Section 4) as part of the scheme. This has been included in the analysis for Section 5.

Table 6.39 summarises the proposed changes to bus stop facilities in Section 4 of the Proposed Scheme.

Table 6.39: Overview of Changes in Bus Stop Facilities in Section 4 – Ashtown Road to R805 Old Cabra Road

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI (Real Time Passenger Information)	11	69%	13	100%	RTPI added to all bus stops.
Timetable information	16	100%	13	100%	Timetable information added to be provided at all bus stops.
Shelter	13	81%	13	100%	Shelters to be provided at all bus stops.
Seating	13	81%	13	100%	Seating to be provided at all bus stops.
Accessible Kerbs	5	31%	13	100%	Accessible kerbs added to all bus stops.
Indented Drop Off Area	9	56%	0	0%	All of the stops will be located inline within bus lanes, meaning that general traffic will not be delayed by stationary buses.
Total Stops	16		13		Three fewer bus stops along Section 4.

The contents of Table 6.39 indicate that there are improvements to the bus stop facilities along Section 4 of the Proposed Scheme. Existing bus stop facilities in Section 4 are currently of a good standard, with 11 of 16 bus stops having real-time information, and 13 of 16 bus stops having bus shelters. The one area of noticeable deficiency is in the provision of accessible kerbs, with only 5 of 16 bus stops currently having these in place. Under the proposals, all of the existing and relocated stops will be provided with the full range of passenger facilities.

Taking into account the provision of bus lanes, pedestrian accessibility and bus stop facilities outlined within this section, Table 6.40 below outlines the bus qualitative assessment along Section 4 of the Proposed Scheme.

Table 6.40: Section 4 Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Section 4 – Ashtown Road	A4875 – A7400	<ul style="list-style-type: none"> Bus lanes provided along the entirety of the corridor. 	Medium	High	Positive Very Significant

to Old Cabra Road		<ul style="list-style-type: none"> Number of stops rationalised from 16 to 13, to optimise spacing and journey times. Improvements to bus stop facilities in this section. 			
-------------------	--	--	--	--	--

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 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.

6.4.6.1.5.4 Parking and Loading

The Proposed Scheme will impact on some existing parking locations along Section 4. The areas of parking changes are as follows:

- There are 19 informal residential parking spaces located on the south side of R147 Navan Road, between Nephin Road and Baggot Road. These spaces are located between the existing cycle lane and the existing footway, to the east and west of the Navan Road filling station. It is proposed to remove all of these spaces, to allow the addition of a westbound bus lane in this location. All of the houses on this section have private driveways, generally with space for two vehicles. The impact of this change is considered to have a **Negative, Slight and Long-term effect**.
- There are five informal general / residential parking spaces located on the north side of R147 Navan Road, to the west of Our Lady’s Church, which has a private car park. Four of the informal spaces will be retained in the Proposed Scheme and will continue to be located between the cycle track and the footway. The impact of this change is considered to have a **Negative, Slight and Long-term effect**.
- There are no on-street loading bays between Ashtown Road and Old Cabra Road. It can be assumed that loading activities occur within premises, or outside bus lane regulation and Clearway hours.

Table 6.41 presents a summary of the parking and loading spaces during the Do Minimum / Do Something scenarios and the resulting change in parking along Section 4.

Table 6.41: Section 4 – Change in Parking Provision

Street	Parking Type	Number of Parking Spaces		
		Do Minimum	Do Something	Change
R147 Navan Road (between Nephin Road and Baggot Road)	Informal Parking	24	4	-20
Total		24	4	-20

As shown in Table 6.41, 24 current parking spaces will be affected by the scheme. The proposed amendments to the parking / loading will result in a loss of 20 spaces along Section 4. Where parking is removed, the impact is Slight. Considering the availability of adjacent parking on private driveways, the overall impact is considered to have a **Negative, Slight and Long-term effect**.

6.4.6.1.6 Section 5 – Navan Road / Old Cabra Road junction to Ellis Quay.

6.4.6.1.6.1 Pedestrian Infrastructure

The key infrastructural changes to pedestrian facilities along Section 5 of the Proposed Scheme are the following:

- Provision of signalised pedestrian crossings across all three arms of the R805 Old Cabra Road / Glenbeigh Road junction, where no controlled facilities currently exist; and
- Provision of signalised pedestrian crossings across all arms of the R805 Manor Street / Kirwan Road / Manor Place junction, where no controlled facilities currently exist.

The assessment of the qualitative impacts on the pedestrian infrastructure for Section 5 of the Proposed Scheme is summarised in Table 6.42 along with the accompanying sensitivity for each junction and the resultant significance of impact.

Table 6.42: Section 5 – Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact	Sensitivity	Significance of Impact
R805 Old Cabra Road / Earl's Court	A7600	D	B	Medium	Medium	Positive Significant
R805 Old Cabra Road / Glenbeigh Road priority to signalised junction	A7700	D	A	Medium	Medium	Significant
R805 Old Cabra Road / Cabra Drive	A7930	D	B	Medium	Medium	Positive Significant
R805 Prussia Street / North Circular Road signalised junction	A8200	D	A	Medium	High	Positive Very Significant
R805 Prussia Street / St Joseph's Road	A8500	E	B	Medium	Medium	Positive Very Significant
R805 Manor Street / Aughrim Street signalised junction	A8700	D	B	Medium	High	Positive Very Significant
R805 Manor Street / Kirwan Street signalised junction	A8850	C	A	Medium	High	Positive Very Significant
R805 Stoneybatter / Brunswick Street North / Arbour Hill signalised junction	A9100	D	B	Medium	High	Positive Very Significant
Blackhall Place / King Street North signalised junction	A9150	C	B	Low	High	Positive Moderate
Blackhall Place / Blackhall Street signalised junction	A9300	D	B	Medium	High	Positive Very Significant
R804 Brunswick Street North / Grangegorman Lower / George's Lane	H025	C	A	Medium	Medium	Significant
King Street North / George's Lane / R804 Queen Street	K000	C	A	Medium	Medium	Significant
R804 Queen Street / Blackhall Street	J000	D	A	Medium	Medium	Positive Significant
Section Summary		D	B	Medium	Medium	Positive Significant

The contents of Table 6.42 demonstrate that the Proposed Scheme will have a long-term significant positive impact on the quality of the pedestrian infrastructure at junctions within Section 5.

The LoS during the Do Minimum scenario ranges between C and E. In the Do Something scenario, improvements have been assessed as achieving either an A or B rating at all junctions. These improvements are the result of comprehensive pedestrian improvements at junctions along this section, with the provision of compliant footpath and crossing widths, dropped kerbs and tactile paving, and the introduction of design features that will reduce vehicle speeds. Three existing priority junctions will be signalised as part of the Proposed Scheme, which will allow the provision of controlled crossings where none currently exist. 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 footpath 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** on 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

This assessment outlines the changes to the quality of cycling provision along Section 5 of the Proposed Scheme.

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

- Provision of 1.5m to 2m wide cycle tracks on both sides of R805 Old Cabra Road between R147 Navan Road and North Circular Road, replacing on-road cycle lanes;
- Provision of 2m cycle tracks on Manor Street between Aughrim Street and Brunswick Street North, replacing on-road cycle lanes and shared bus / cycle lanes;
- Provision of two 1.5m wide cycle tracks running along Brunswick Street North, and a 3.25 m wide cycle track along George's Lane and Queen Street between Blackhall Place and Arran Quay, providing cyclists with an alternative route to Blackhall Place, where current facilities are limited to shared bus / cycle lanes;
- Full cycle crossing facilities at the Brunswick Street North / George's Lane signalised junction; and
- Provision of green signal priority at signalised junctions, where currently cyclists share green time with traffic.

Table 6.43 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 5, along with the resultant Impact Assessments. A detailed breakdown of the assessment can be found in Appendix A6.4.2 (Cycling Infrastructure Assessment) in Volume 4 of this EIAR.

Table 6.43: Section 5 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Description of Impact	Sensitivity	Significance of Effect
R805 Old Cabra Road: R147 Navan Road to R101 North Circular Road	A7400 – A8200	B	B	Negligible	High	Not Significant
R805 Prussia Street: R101 North Circular Road to Aughrim Street	A8200 – A8700	C	B	Low	High	Positive Moderate
R805 Manor Street / Stoneybatter: Aughrim Street to Brunswick Street North	A8700 – A9100	C	B	Low	Medium	Positive Moderate
Brunswick Street North to Ellis Quay / Arran Quay	Do Minimum A9100 – A9500 (Blackhall Place) Do Something -A9100 – G000 (Brunswick Street North, George's Lane and Queen Street)	C	A	Medium	High	Positive Very Significant
Section Summary	-	C	B	Low	High	Positive Moderate

The contents of Table 6.43 demonstrate that the Proposed Scheme will have an overall long-term positive impact on the quality of the cycling infrastructure along Section 5.

The LoS for the four sub-sections in the Do Minimum scenario has been assessed as either B or C, indicating that the existing facilities are generally adequate, but not of a particularly high standard. The LoS in the Do Something scenario show improvements in two sub-sections, bringing the LoS across Section 5 to either an A or B rating, primarily as the result of the introduction of dedicated off-road cycle tracks to replace existing on-road facilities.

Overall, it is anticipated that there will be **Positive, Moderate 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 align 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

This assessment outlines the changes to bus stop infrastructure along Section 5 of the Proposed Scheme. It assesses any changes in the number or location of stops, and any changes to bus stop facilities.

The findings of the TIA are summarised below, along with the assessed impacts, assigned sensitivity and resulting significance of effects.

There are 14 bus stops along this section of the Proposed Route – seven ‘inbound’ stops towards the city centre and seven ‘outbound’ stops heading towards Old Cabra Road.

Under the proposals, the number of stops would be reduced from 14 to 11, with one fewer inbound stop, and two fewer outbound stops than in the Do Minimum scenario.

This is part of the rationalisation process, which aims to strike the right balance between bus stop catchments and bus journey time reliability.

Outbound Stop 1805, which is currently located to the east of Old Cabra Road is currently within Section 5. This will be relocated just to the west of Old Cabra Road (into Section 4) as part of the scheme. This has been included in the analysis for Section 5.

The contents of Table 6.44 outline a summary of the improvements 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 6.44: 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 (Real Time Passenger Information)	4	29%	11	100%	RTPI added to all bus stops.
Timetable information	9	64%	11	100%	Timetable information added to be provided at all bus stops.
Shelter	8	57%	11	100%	Shelters to be provided at all bus stops.
Seating	8	57%	11	100%	Seating to be provided at all bus stops.
Accessible Kerbs	7	50%	11	100%	Accessible kerbs added to all bus stops.

Indented Drop Off Area	0	0%	0	0%	The majority of stops are within bus lanes, or in carriageway on bus only links, meaning that general traffic will typically not be delayed by stationary buses.
Total Stops	14		11		Three fewer bus stops along Section 5.

Current bus stop facilities are mixed. Only four stops are equipped with real-time information, and just over half have shelters and seating. Under the proposals, all of the existing and new stops will be provided with the full range of passenger facilities.

Significant changes will be made to provide bus priority measures, primarily using Bus Gates along this section, to limit access for general traffic:

- No through traffic in the southbound direction at the northern end of the R805 Old Cabra Road (at its junction with the R147 Navan Road), except for buses, taxis and cyclists, which precludes general traffic from the R147 Navan Road travelling to Stoneybatter along the R805 Old Cabra Road. No through traffic in the northbound direction except for buses, taxis and cyclists, due to proposed introduction of a Bus Gate at the railway overbridge on the R805 Old Cabra Road, which precludes general traffic from Stoneybatter and the North Circular Road from travelling along R805 Old Cabra Road through to R147 Navan Road. Local traffic in the northbound direction will have access as far as the Bus Gate.
- On the R805 Prussia Street, between R101 North Circular and Aughrim Street, southbound access for all traffic will be permitted, but traffic levels will be lowered as all southbound traffic (apart from buses, taxis and bicycles) must turn right onto Aughrim Street, rather than continuing onto Manor Street. Heading northbound from Manor Street to Prussia Street, a bus gate will restrict all through traffic apart from buses, taxis and bicycles. The proposal also includes a southbound Bus Gate on Aughrim Street, preventing any general traffic from travelling from Aughrim Street onto Manor Street.
- Bus lanes will be provided in both directions on Blackhall Place between King Street North and Ellis Quay. A northbound bus gate on Blackhall Place immediately to the south of the Blackhall Place / King Street North junction will force all traffic, apart from Public Service Vehicles to turn onto King Street North.

Table 6.45 lists the proposed Bus Gates in Section 5 and their proposed operating hours.

Table 6.45: Section 5 Bus Gates and Proposed Hours of Operation

Bus Gate Location	Proposed Hours of Operation
Northbound only, between King St North and Brunswick St North	24 Hour
Aughrim St / Manor St junction – southbound direction	24 Hour
Two-way, at Manor St / Prussia St junction, turns onto Aughrim St are allowed from both directions	24 Hour
Railway Overbridge on Old Cabra Road - northbound direction	24 Hour
Navan Road / Old Cabra Road junction – southbound direction	24 Hour

The effect of all these changes will be to reduce the levels of general traffic along the route of the Proposed Scheme and improve bus journey times along the corridor.

Taking into account the provision of bus priority measures, pedestrian accessibility and bus stop facilities outlined within this section, Table 6.46 below outlines the bus qualitative assessment along Section 5 of the Proposed Scheme.

Table 6.46: Section 5 Bus Qualitative Impact during Operational Phase

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Section 5 – R805 Old	A7400 - A9425	<ul style="list-style-type: none"> • Significant new bus priority measures along this section. 	Medium Positive	High	Positive Very Significant

Section	Chainage	Description of Impact	Impact	Sensitivity of Environment	Significance of Effect
Cabra Road to Ellis Quay		<ul style="list-style-type: none"> Number of stops rationalized from 14 to 12, to optimise spacing and journey times. Improvements to bus stop facilities in this section. 			

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 Medium Positive. This results in a **Positive, Very Significant and Long-term effect** on this section.

6.4.6.1.6.4 Parking and Loading

The Proposed Scheme will impact on some existing parking and loading locations along Section 5. The areas of parking changes are as follows:

- There are currently ten pay & display / permit spaces on the east side of the R805 Prussia Street, to the north and south of St Joseph's Road. Under the proposals these spaces would be removed. In total, there are currently 125 spaces of the same type within 200m. The impact of this loss is assessed as having a **Negative, Slight and Long-term** effect.
- There is currently a total of 58 pay & display / permit spaces on Manor Street between Aughrim Street and Brunswick Street North. These are located on both sides of the road in parallel bays. Under the proposals, the existing 58 spaces within the red line boundary would be reduced to 16 pay & display / permit spaces, plus two disabled spaces as existing. One space will also be removed on Manor Place. It is anticipated that improved enforcement, and turnover of the remaining parking spaces, together with continued occasional use of pay & display parking on side streets such as Aughrim Street, Kirwan Street and Manor Place (where there are approximately 100 pay & display / permit spaces within 200m of Manor Street), will partially mitigate this impact. However, the overall impact of this loss of 42 spaces and one on Manor Place is assessed as a having a **Negative, Moderate and Long-term** effect.
- On Manor Street's southern section and along Stoneybatter, alongside the northbound lane, there is currently space along the kerb to allow vehicles to park for part of the day only, located directly along an advisory cycle lane (northbound). These spaces are only theoretically available from 10.00 to midday (due to the Clearway regulation from 07.00 to 10.00 and 12.00 to 19.00) – and hence their removal to allow for provision of a northbound off-road cycle track will have minimal impact on overall parking supply, and hence has not been included in the assessment of parking impact.
- There are currently four loading spaces on Manor Street between Brunswick Street North and Aughrim Street, two single bays on the west side, and one two-space bay on the east side. It is proposed to provide two loading bays with space for five vehicles on the east side of Stoneybatter, immediately to the north of Brunswick Street North. The bays on the west side would be removed to make space for the proposed northbound cycle track. The resultant increase of one loading spaces is considered to be a **Positive, Slight and Long-term** impact.
- There is a further loading bay (2 spaces) located on the southern end of Aughrim Street at the junction with Manor Street. This will be retained.
- There are 11 pay & display / permit spaces on Aughrim Street, located in a triangle of lane between Aughrim Street and Manor Place. Under the proposals these spaces would be removed to allow the re-modelling of the Manor Place / Aughrim Street junction, and the creation of associated public realm. As a stand-alone change, this is considered to be a slight impact, but when considered with the loss of spaces on Manor Street, the scale of the parking loss is assessed as **Negative, Moderate and Long-term** impact.
- There are 26 designated pay & display / permit spaces on Blackhall Place, between King Street North and Blackhall Street. It is proposed to remove the six northern-most spaces to allow the provision of a bus stop immediately to the south of King Street North. It is proposed to remove the Pay & Display / Permit spaces between Benburb Street and Oxmantown Lane to allow the free-flow of buses in the northbound Bus Lane. There are 110 pay & display / permit spaces within 200m of this location. The impact of removing 14 spaces is considered to be **Negative, Moderate and Long-term**.

- On Brunswick Street North, there are 6 pay & display / permit spaces, and two Loading spaces in a bay on the south side of the street, close to the George's Lane junction. It is proposed to remove all of these spaces to allow the provision of a two-way cycle track. Given that there are 110 pay & display / permit spaces within 200m of this location, the overall significance of impact on these spaces is considered to be **Negative, Slight and Long-term**.
- On Blackhall Place there is currently a total of 19 parking spaces. The current parallel parking arrangement on the south side of the street will be changed to a formalised perpendicular parking arrangement, which will create an additional 11 spaces. The impact of adding 11 spaces is considered to be **Positive, Moderate and Long-term**.
- On Queen Street Pay & Display and Permit Parking for 3 cars will be removed as part of Proposed Scheme proposals. The overall significance of impact on these spaces is considered to be **Negative, Slight and Long-term**.
- A new loading bay, three spaces long, will be created on King Street North, which will offset the loss of the loading spaces on Brunswick Street North.

A new loading bay, three spaces long, will be created on King Street North, which will offset the loss of the loading spaces on Brunswick Street North. The contents of Table 6.47 presents a summary of the parking and loading spaces during the Do Minimum and Do Something scenarios and the resulting change in parking along Section 5.

Table 6.47: Section 5 – Change in Parking Provision

Street	Parking Type	Number of Parking Spaces		
		Do Minimum	Do Something	Change
Prussia Street (between Manor Street & North Circular Road)	Designated Paid / Permit	10	0	-10
Manor Street / Stoneybatter (between Arbour Place & Aughrim Street)	Designated Paid / Permit	58	16	-42
	Disabled	2	2	0
	Loading Bays	4	5	1
Aughrim Street / Manor Street junction	Designated Paid / Permit	11	0	-11
	Loading Bays	2	2	0
Manor Place	Designated Paid / Permit	1	0	-1
Blackhall Place (between King Street North & Benburb Street)	Designated Paid / Permit	26	12	-14
Queen St	Designated Paid Parking and Permit Parking	3	0	-3
Brunswick Street North	Designated Paid / Permit	6	0	-6
	Loading Bays	2	0	-2
King Street North	Loading Bays	0	3	3
Blackhall Street	Designated Parking	19	30	11
	Loading Bays	1	1	0
Total		145	71	-74

As shown in Table 6.47 the proposed amendments to parking / loading will result in a loss of 74 spaces along Section 5. Where parking is removed, the impact varies between negligible and high. The overall significance of effect is assessed as **Negative, Moderate and Long-term**, primarily as a result of the designated paid spaces lost on Manor Street. This moderate effect is considered acceptable in the context of the planned outcome of the Proposed Scheme, which is to improve accessibility to this local area (on foot, by bicycle and bus) for residents and visitors to local shops and businesses.

6.4.6.1.7 Summary of Corridor-Wide Infrastructure Works

6.4.6.1.7.1 Pedestrian Infrastructure

Overall, the Proposed Scheme will provide an average increase in footway area for pedestrians of 18% inbound and 8% outbound across the corridor compared to the Do Minimum scenario. The Proposed Scheme will increase the number of controlled pedestrian crossings from 77 in the Do Minimum to 125 in the Do Something scenario, equating to a 70% increase. Additionally, there will be an increase in the number of raised table crossings on side roads from 6 in the Do Minimum to 22 in the Do Something scenario, equating to a 266% increase.

6.4.6.1.7.2 Cycling Infrastructure

The Proposed Scheme will provide 7.8km inbound and 8.1km outbound of segregated cycle facilities which is an increase from only 0.8km and 1.2km respectively in both directions 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.

Overall, total cycle facilities (segregated and non-segregated) will be increased by 82% as part of the Proposed Scheme. The proportion of the corridor with segregated facilities (including quiet street treatment) will increase from 9% in the Do Minimum to 78% in the Do Something scenario.

With regards to cycle parking, 108 spaces are provided in the Do Minimum scenario. The Proposed Scheme will increase provision by 342% to a total of 478 spaces across the entire corridor in the Do Something scenario.

6.4.6.1.7.3 Bus Priority Infrastructure

The Proposed Scheme will provide 9.1km inbound and 9km outbound of bus lanes across the corridor. This is an increase from 4.4km inbound and 1.1km outbound in the Do Minimum scenario. This contributes to an increase of 289% 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 the entirety of the corridor.

6.4.6.2 Quantitative Analysis

The following sections set out the permanent impacts of the Proposed Scheme which have been assessed using quantitative metrics.

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

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 on the direct CBC 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 are 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 6.5 illustrates the People Movement by mode travelling inbound towards the city centre during the AM Peak Hour in 2028.

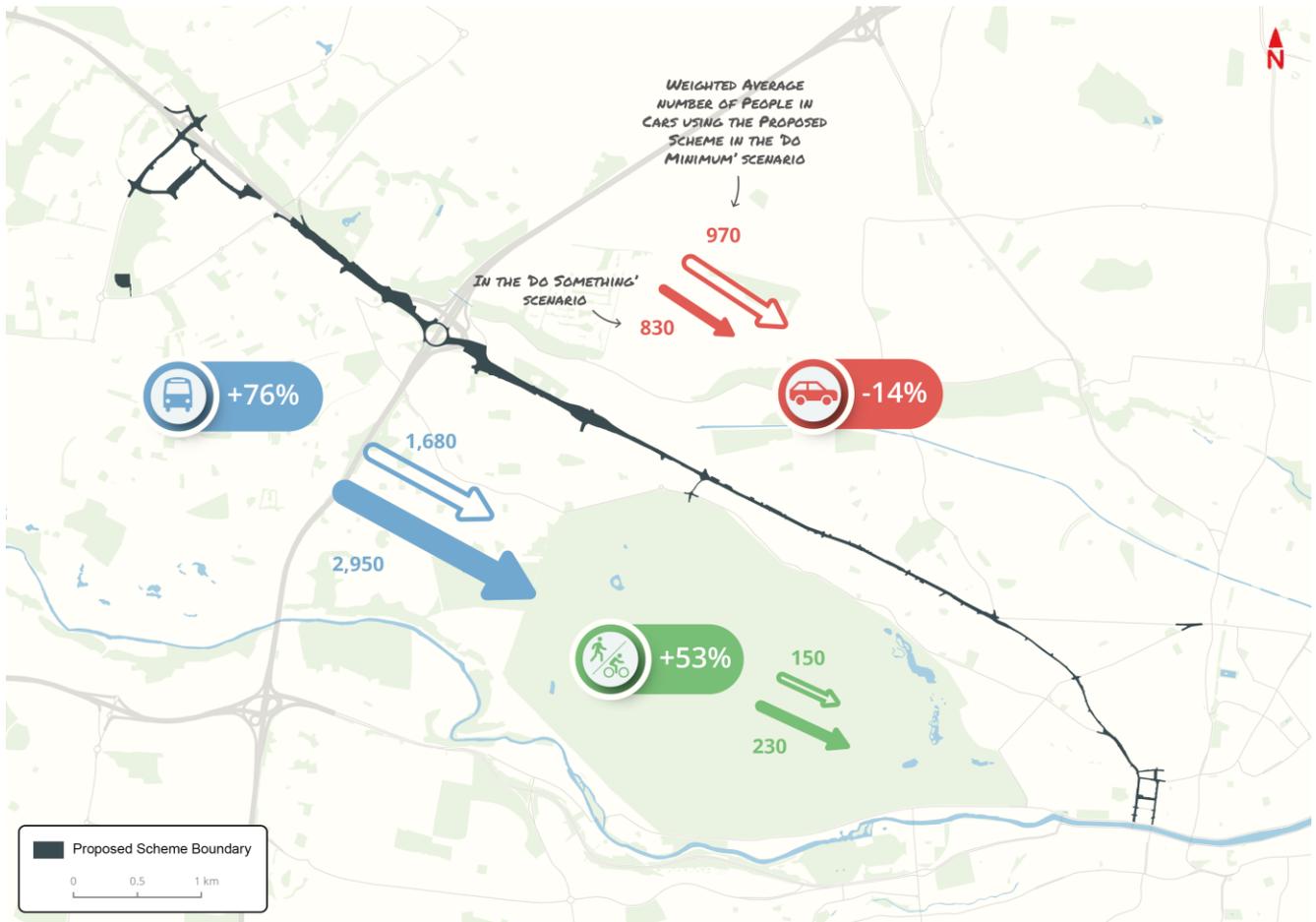


Diagram 6.5: People Movement by Mode travelling along the Proposed Scheme during 2028 AM Peak Hour

As indicated in Diagram 6.5, there is a reduction of 14% in the number of people travelling via car, an increase of 76% in the number of people travelling via bus and an increase of 53% in 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 growth in walk trips is offset by some walking trips in the Do Minimum scenario transferring to public transport and cycling as a result of the improved provision for these modes with any new pedestrians 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 is conservative in terms of the predicted cycling mode share. The Proposed Scheme has been designed to cater for much higher levels of cycling uptake than modelled outputs, to cater for long-term trends in travel behaviours as people make sustainable travel lifestyle choices, which would otherwise not be achievable in the absence of the Proposed Scheme.

The contents of Table 6.48 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 43% increase in people moved as a result of the Proposed Scheme and a 75% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.48: 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 (%)
		Public Transport	1,680	60%		2,950	74%		1,270	76%
		General Traffic	970	35%		830	21%		-140	-14%

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 Hour	Walking	110	4%		110	3%		0	0%
		Cycling	40	1%		120	3%		80	200%
		Combined Walk / Cycle	150	5%		230	6%		80	53%
		Sustainable Modes Total	1,830	66%		3,180	80%		1,370	75%
		Total	2,800	100%		4,010	100%		1,210	43%

6.4.6.2.2.2 2028 PM Peak Hour People Movement

Diagram 6.6 illustrates the People Movement by mode travelling outbound from the city centre during the PM Peak Hour.

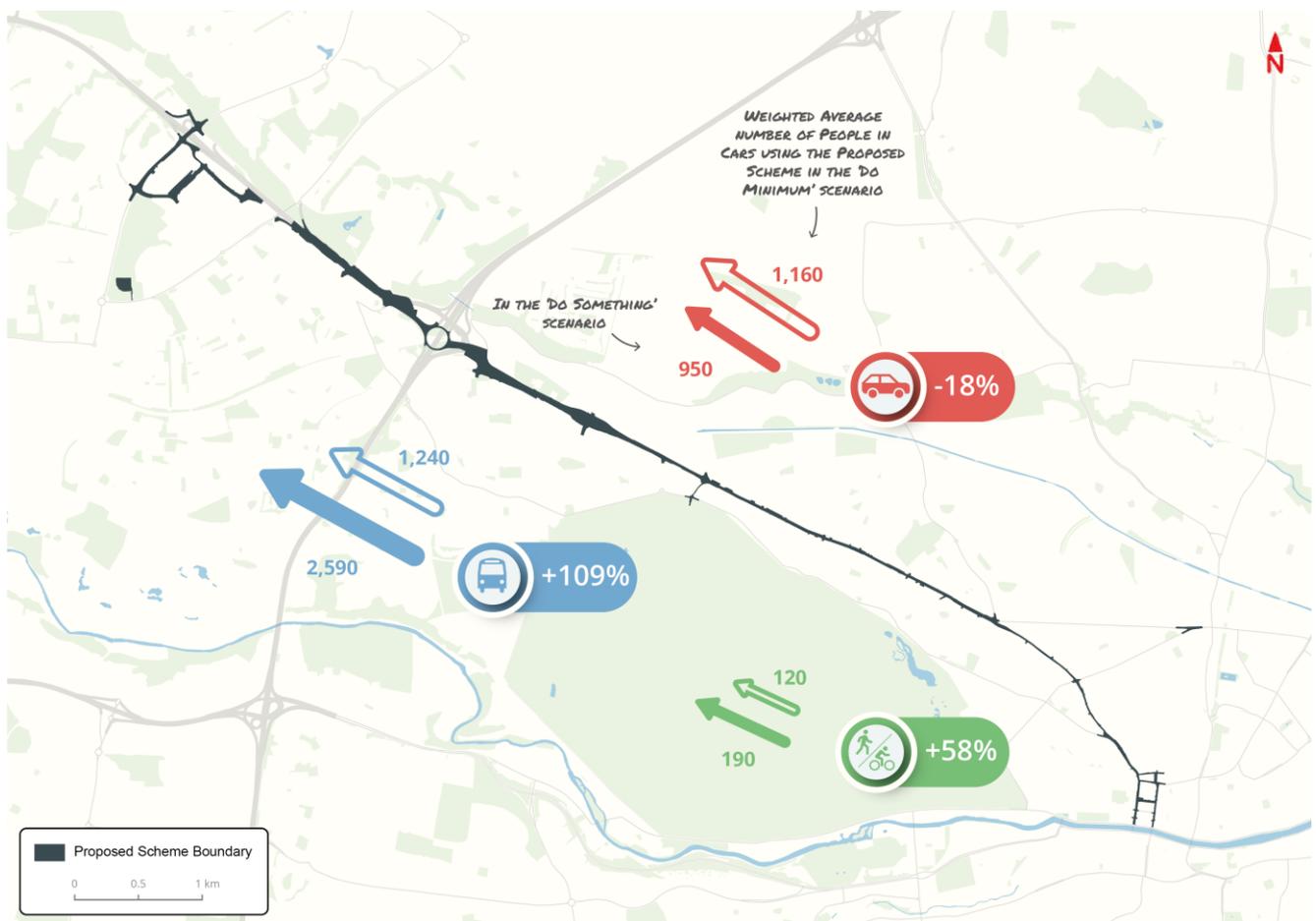


Diagram 6.6: People Movement by Mode travelling along the Proposed Scheme during 2028 PM Peak Hour

As indicated in Diagram 6.6, there is a reduction of 18% in the number of people travelling via car, an increase of 109% in the number of people travelling via bus and an increase in 58% in the number of people walking or cycling along the Proposed Scheme during the PM Peak Hour.

The contents of Table 6.49 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 48% increase in people moved as a result of the Proposed Scheme and 104% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.49: 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 Hour	Public Transport	1,240	49%	2,590	69%	1,350	109%
		General Traffic	1,160	46%	950	25%	-210	-18%
		Walking	80	3%	80	2%	0	0%
		Cycling	40	2%	110	3%	70	175%
		Combined Walk / Cycle	120	5%	190	5%	70	58%
		Sustainable Modes Total	1,360	54%	2,780	74%	1,420	104%
		Total	2,520	100%	3,730	100%	1,210	48%

6.4.6.2.2.3 2043 AM Peak Hour People Movement

Diagram 6.7 illustrates the People Movement by mode inbound towards the city centre during the AM Peak Hour in 2043.

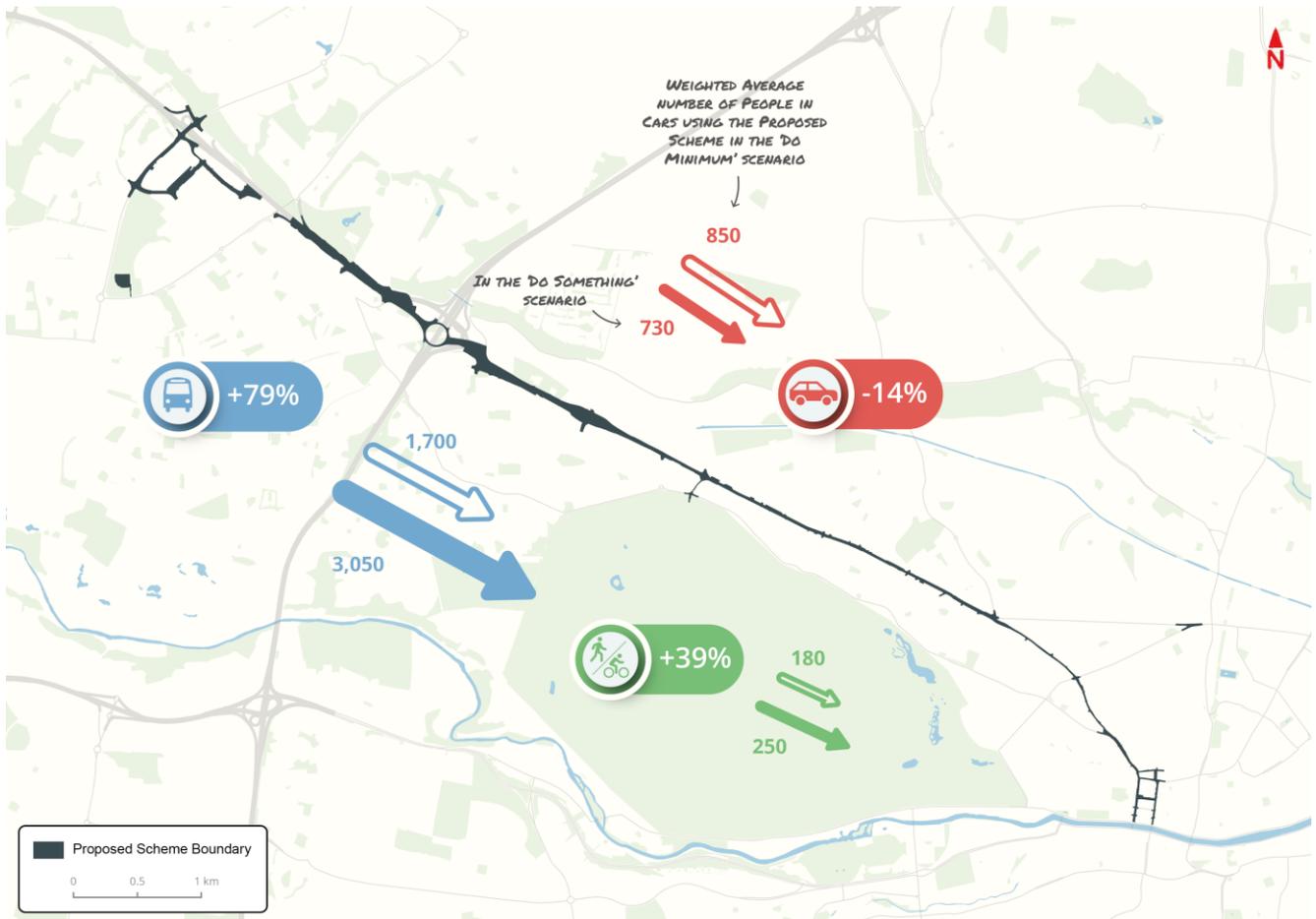


Diagram 6.7: People Movement by Mode travelling along the Proposed Scheme during 2043 AM Peak Hour

As indicated in Diagram 6.7, there is a decrease of 14% in the number of people travelling via car, an increase of 79% in the number of people travelling via bus and an increase of 39% in the number of people walking and cycling along the Proposed Scheme during the AM Peak Hour.

The contents of Table 6.51 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 48% increase in people moved as a result of the Proposed Scheme and 76% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.50 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 Hour	Public Transport	1,700	62%		3,050	76%		1,350	79%
		General Traffic	850	31%		730	18%		-120	-14%
		Walking	130	5%		130	3%		0	0%
		Cycling	50	2%		120	3%		70	140%
		Combined Walk / Cycle	180	7%		250	6%		70	39%
		Sustainable Modes Total	1,880	69%		3,300	82%		1,420	76%
		Total	2,730	100%		4,030	100%		1,300	48%

6.4.6.2.2.4 2043 PM Peak Hour People Movement

Diagram 6.8 illustrates the People Movement by mode travelling outbound from the city centre during the PM Peak Hour in 2043.

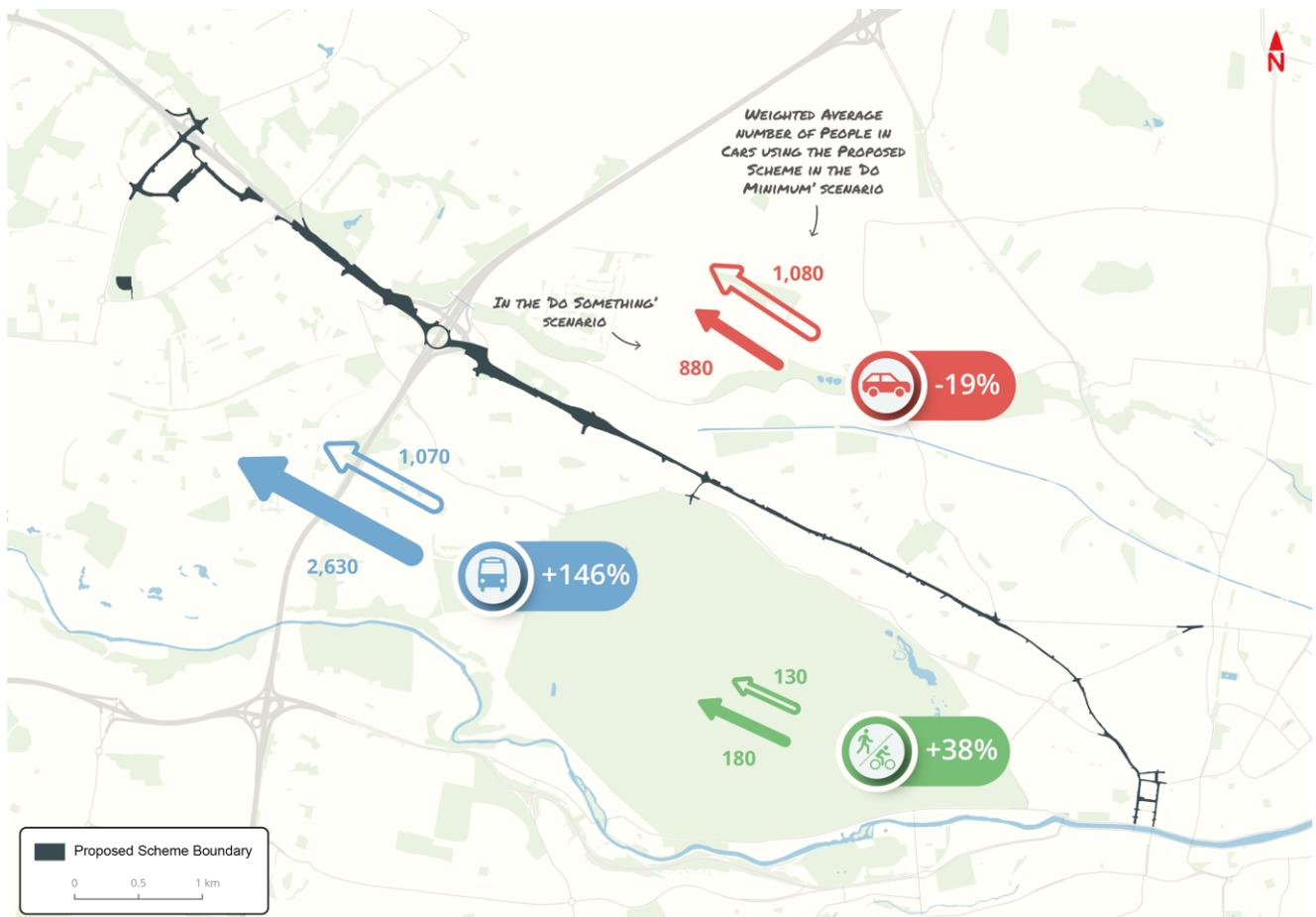


Diagram 6.8: People Movement by Mode travelling along the Proposed Scheme during 2043 PM Peak Hour

As indicated in Diagram 6.8, there is a decrease of 19% in the number of people travelling via car, an increase of 146% in the number of people travelling via bus and an increase of 38% in the number of people walking and cycling along the Proposed Scheme during the PM Peak Hour.

The contents of Table 6.51 outlines the difference in modal split between the Do Minimum and Do Something scenarios for each mode of travel in an outbound direction from the City Centre during the PM Peak Hour. The results indicate 62% increase in people moved as a result of the Proposed Scheme and 172% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.51 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	Public Transport	1,070	47%	2,630	71%	1,560	146%
		General Traffic	1,080	47%	880	24%	-200	-19%
		Walking	90	4%	90	2%	0	0%
		Cycling	40	2%	90	2%	50	125%
		Combined Walk / Cycle	130	6%	180	4%	50	38%
		Sustainable Modes Total	1,200	53%	2,810	75%	2,060	172%
		Total	2,280	100%	3,690	100%	1,410	62%

6.4.6.2.3 People Movement 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 6.9 presents the passenger loading profile comparing the 'Do Minimum' and 'Do Something' scenarios in the AM Peak Hour in the inbound direction in 2028.

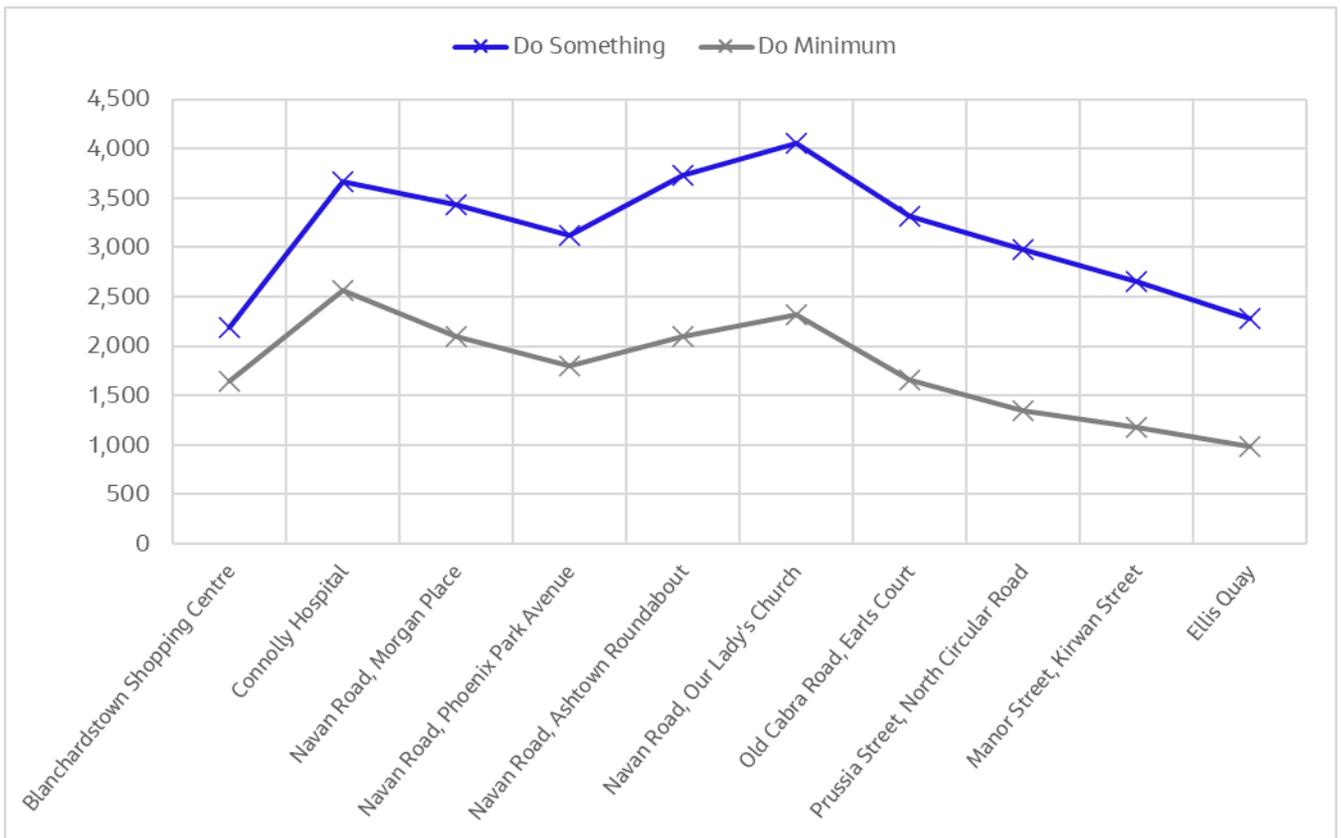


Diagram 6.9: 2028 AM Peak Hour Passenger Volume along Proposed Scheme (inbound direction)

Diagram 6.9 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at Our Lady’s Church where the volume of passengers reaches 4,000 passengers in the AM Peak hour, compared to approximately 2,300 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along the Proposed Scheme with approximately 1,500 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.2 2028 PM Peak Hour Bus Passengers

Diagram 6.10 presents the passenger loading profile comparing the Do Minimum and Do Something scenarios in the PM Peak Hour in the outbound direction in 2028.

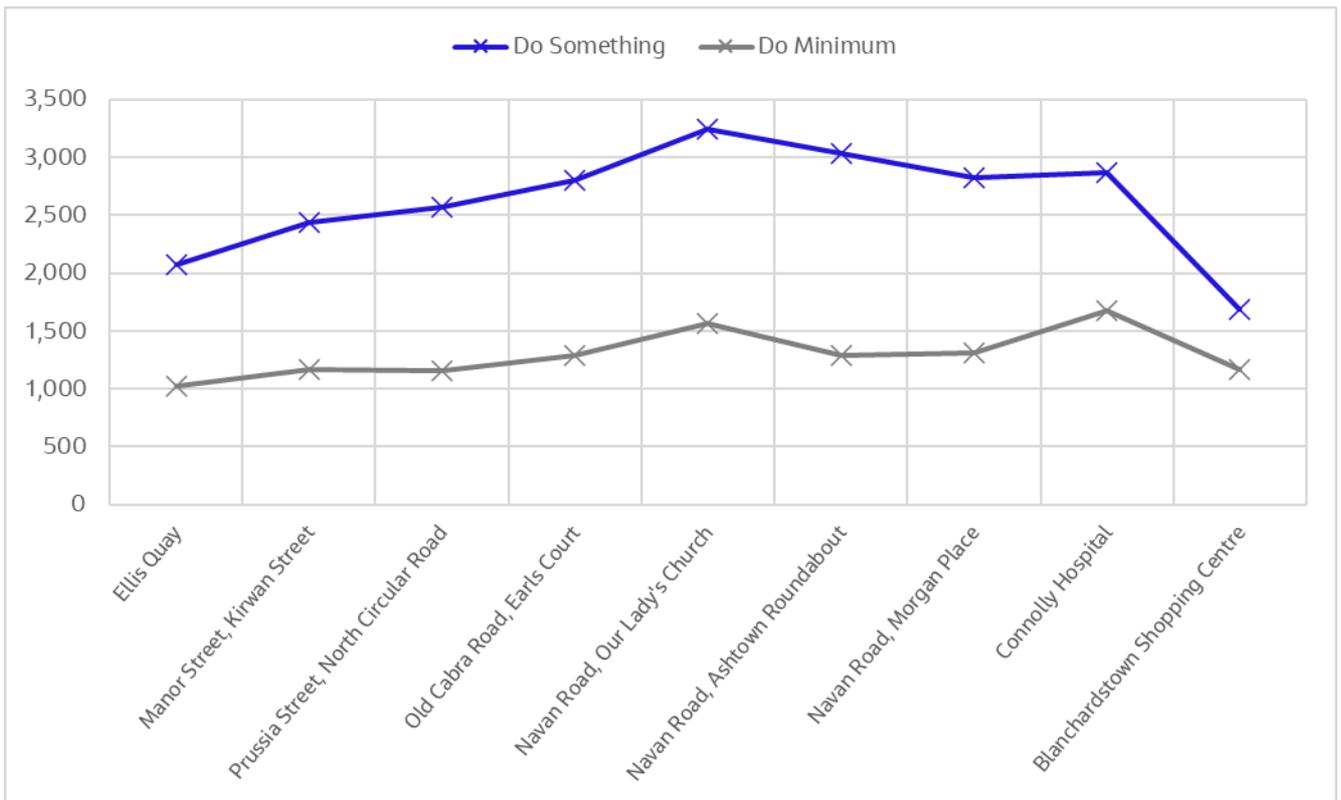


Diagram 6.10: 2028 PM Peak Hour Passenger Volume along Proposed Scheme (outbound direction)

Diagram 6.10 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at Our Lady's Church on R147 Navan Road, where the volume of passengers reaches 3,200 passengers in the PM Peak hour, compared to approximately 1,500 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along the Proposed Scheme with approximately 1,500 additional users on most of the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.3 2043 AM Peak Hour Bus Passengers

Diagram 6.11 presents the passenger loading profile comparing the Do Minimum and Do Something scenarios in the AM Peak Hour in the inbound direction in 2043.

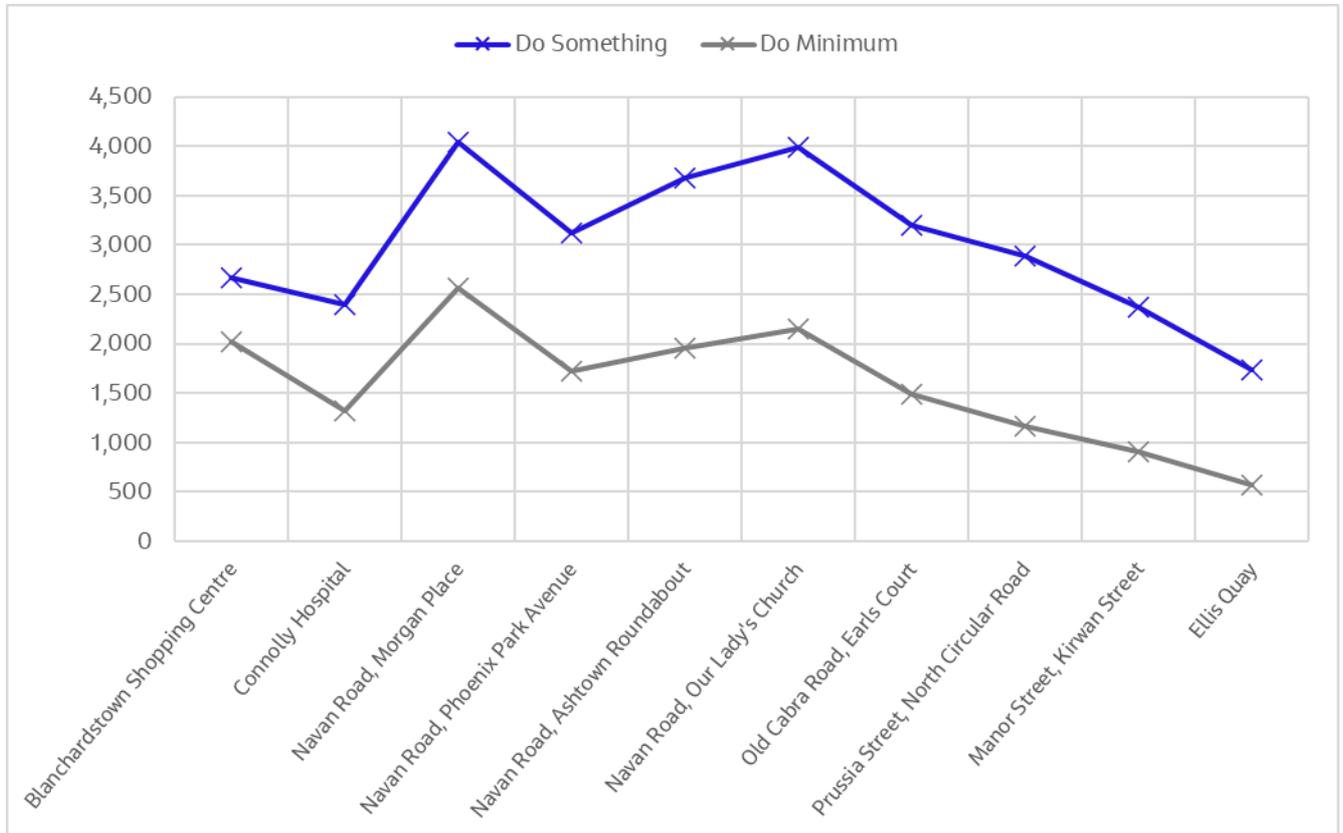


Diagram 6.11: 2043 AM Peak Hour Passenger Volume Along Proposed Scheme (outbound direction)

Diagram 6.11 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at the junction with Morgan Place on R147 Navan Road (just before the interchange with the Navan Road Parkway Rail Station), where the volume of passengers reaches 4,000 in the AM Peak hour, compared to approximately 2,500 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along the Proposed Scheme with approximately 1,500 to 2,000 additional users on the corridor, compared to the Do Minimum scenario.

6.4.6.2.3.4 2043 PM Peak Hour Bus Passengers

Diagram 6.12 presents the passenger loading profile comparing the Do Minimum and Do Something scenarios in the PM Peak Hour in the outbound direction in 2043.

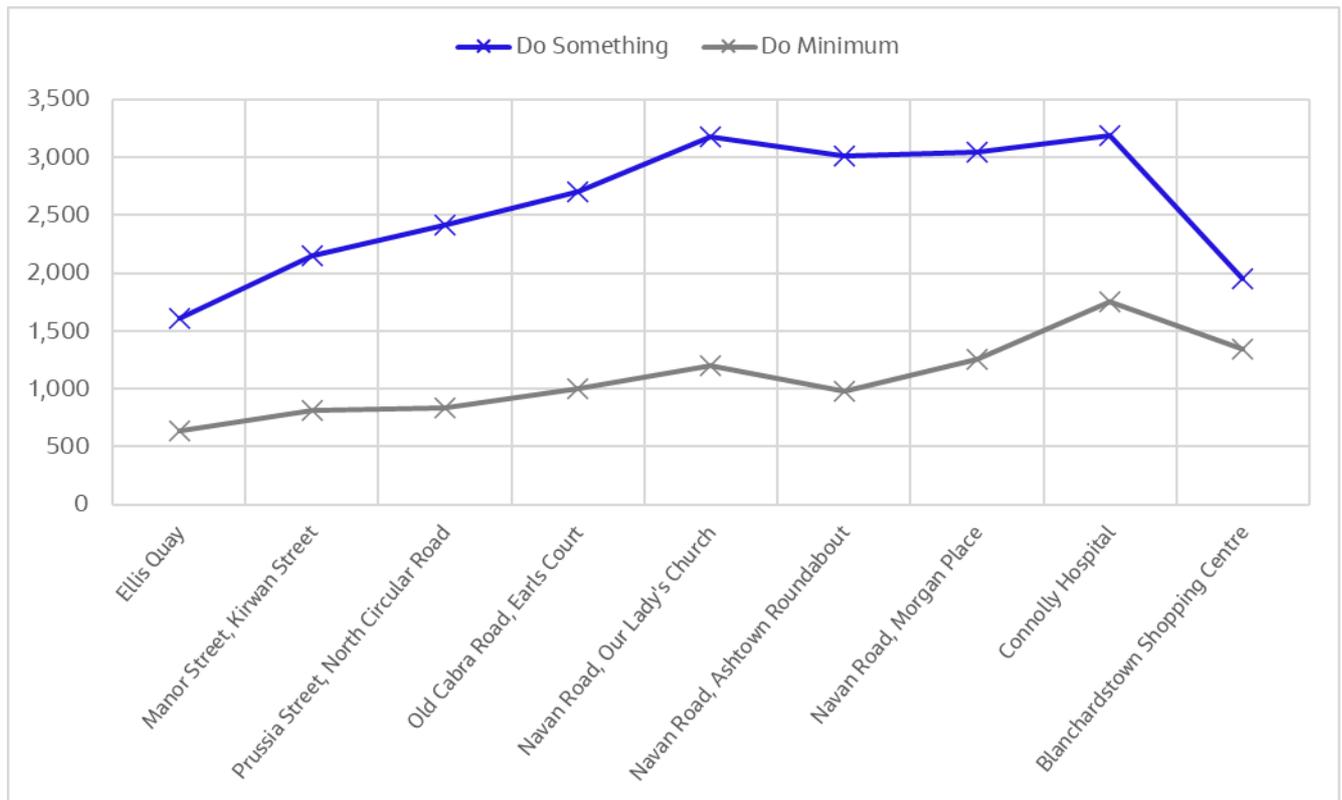


Diagram 6.12: 2043 PM Peak Hour Passenger Volume along Proposed Scheme (outbound direction)

Diagram 6.12 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at Connolly Hospital on R14 Navan Road, where the volume of passengers reaches 3,200 passengers in the PM Peak hour, compared to approximately 1,800 in the Do Minimum scenario.

The increase in bus passengers remains at a high level along the Proposed Scheme with approximately 1,500 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 total boardings 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 6.52.

Table 6.52: 2028 Peak Hour Bus Boardings on Routes using the Proposed Scheme (inc. boarding at stops outside Proposed Scheme)

Time Period	Do Minimum	Do Something	Difference Boardings	in	Difference (%)
AM Peak Hour	11,040	13,360	2,320		21.0%
PM Peak Hour	8,780	10,830	2,050		23.3%

The contents of Table 6.52 shows that there will be a 21% increase in people boarding bus routes which use the Proposed Scheme during the AM Peak Hour. This represents an addition of 2,320 passengers in the AM Peak hour.

In the PM Peak hour, there will be a 23.3% increase in people boarding bus routes which use the Proposed Scheme, representing an additional 2,050 passengers.

The comparison results for the 2043 Design Year scenario are indicated in Table 6.53

Table 6.53: 2043 Peak Hour Bus Boardings on Routes using the Proposed Scheme (inc. boarding at stops outside Proposed Scheme)

Time Period	Do Minimum	Do Something	Difference Boardings in	Difference (%)
AM Peak Hour	12,390	15,600	3,210	25.9%
PM Peak Hour	9,980	12,530	2,550	25.6%

Table 6.53 shows that there will be a 25.9% increase in people boarding bus routes which use the Proposed Scheme during the AM Peak Hour. This represents an addition of 3,210 passengers in the AM Peak hour.

In the PM Peak hour, there will be a 25.6% increase in people boarding bus routes which use the Proposed Scheme, representing an additional 2,550 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 as a qualitative assessment, 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 effect** in People Movement by sustainable modes. The Proposed Scheme can be shown to deliver significant improvements in people movement by sustainable modes along the corridor, particularly by bus, with reductions in car mode share due in part to the bus gate proposals and 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 have been assessed based on journey times and reliability metrics extracted from the micro-simulation model of the Proposed Scheme 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.

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 B3 service, which traverses the entire length of the Proposed Scheme, have been extracted from the model. 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 the Proposed Scheme servicing the B-Spine services.

Inbound Direction

Average journey times for the inbound B3 service in 2028 Opening Year and in 2043 Design Year can be seen in Table 6.54. 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) in Volume 4 of this EIAR.

Table 6.54: B3 Service Bus Average Journey Times (Inbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	35.7	30.0	-5.7	-16%
2028 PM	34.6	29.6	-4.9	-14%
2043 AM	35.7	30.2	-5.5	-15%
2043 PM	34.2	29.8	-4.4	-13%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for inbound B3 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.55 and Diagram 6.13 below. 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 6.55: B3 Service – Range of Journey Times (Inbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	30.5	42.2	35.7	2.0	27.2	33.5	30.0	1.4
2028 PM	30.5	39.4	34.6	2.1	27.1	32.6	29.6	1.4
2043 AM	30.5	41.4	35.7	2.2	26.6	33.2	30.2	1.4
2043 PM	29.9	40.7	34.2	2.1	26.3	32.7	29.8	1.3

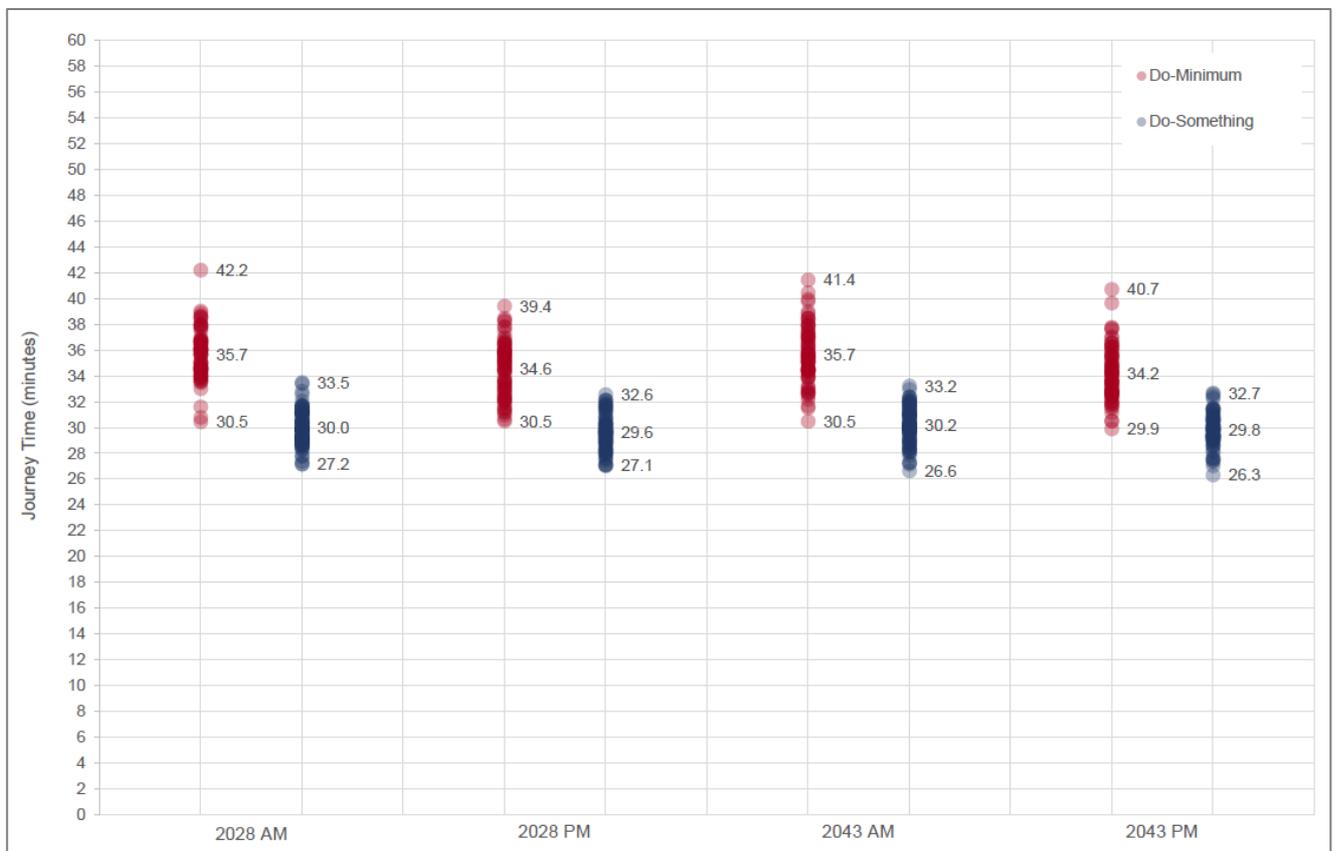


Diagram 6.13: B1 Bus Journey Times (Inbound Direction)

Based on the results presented in Table 6.54, the Proposed Scheme will deliver average inbound journey time savings for B3 service bus passengers of up to 5.7 minutes (16%) in 2028 (AM) and 5.5 minutes (15%) in 2043 (AM). Furthermore, results presented in Diagram 6.15 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.

Comparisons of average Do Minimum and Do Something journey times for the inbound B3 service are also illustrated in the cumulative time-distance graphs shown in Diagram 6.14 to Diagram 6.17.

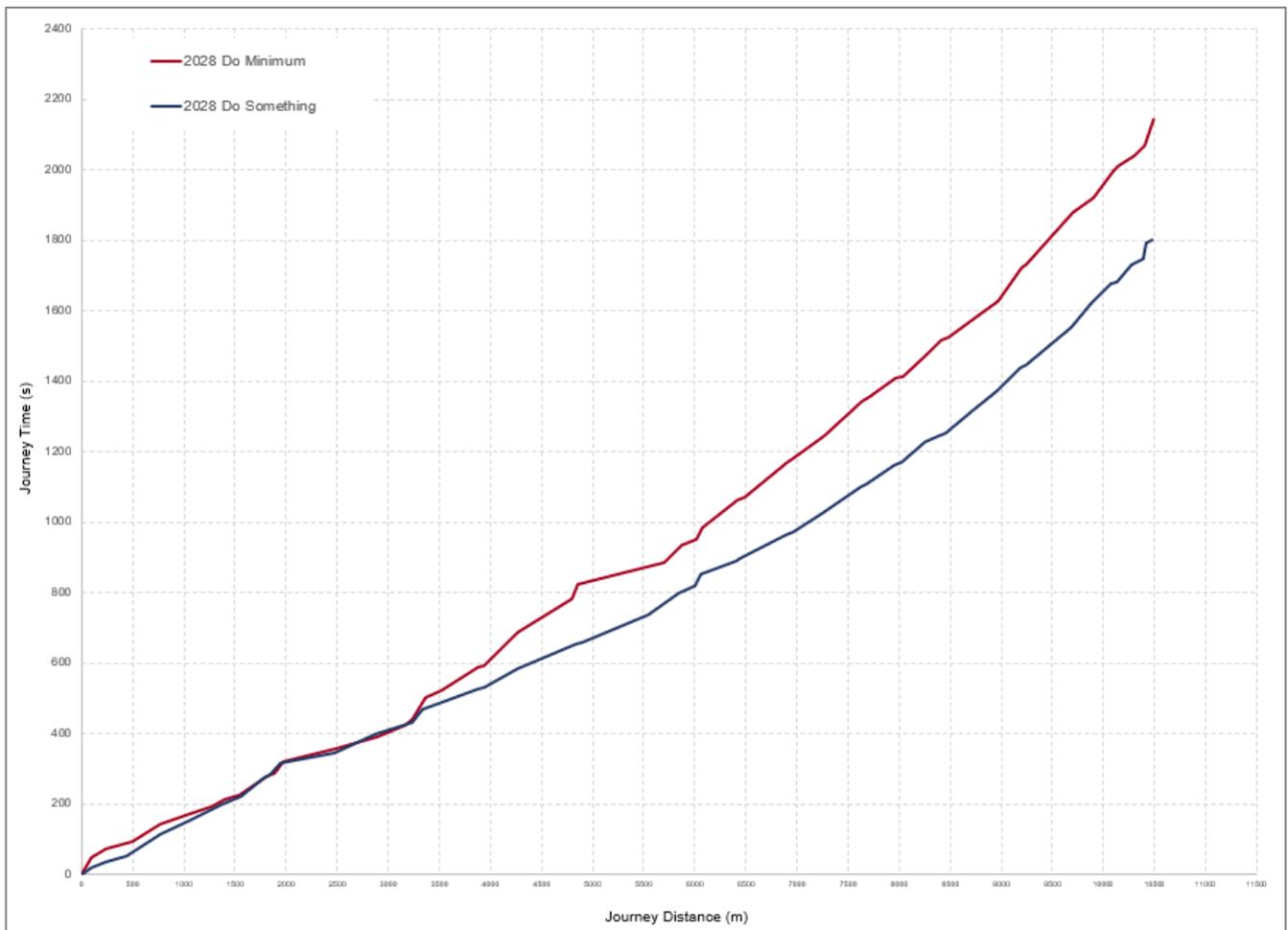


Diagram 6.14: B3 Bus Journey Time (2028 AM, Inbound)

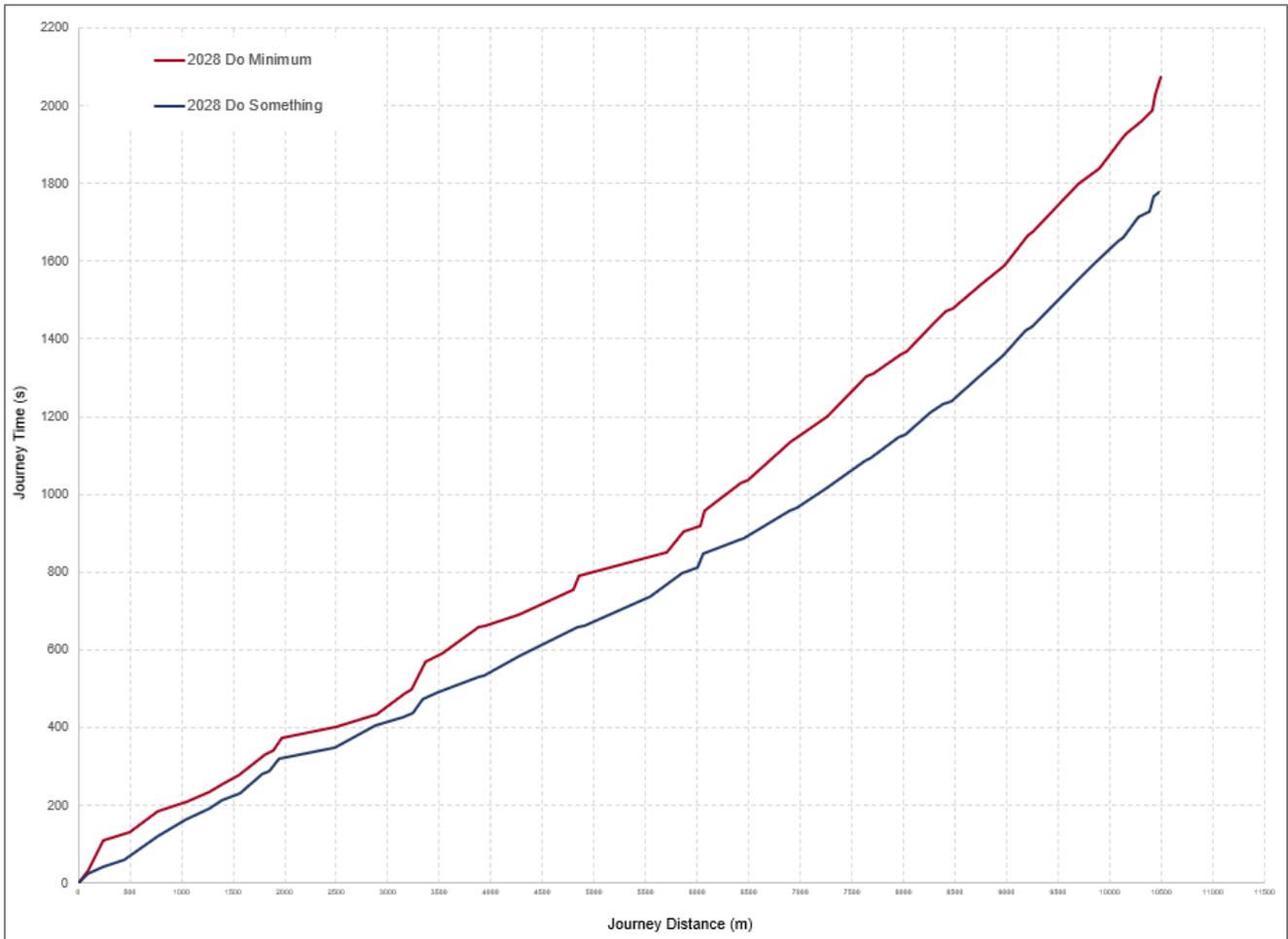


Diagram 6.15: B3 Bus Journey Time (2028 PM, Inbound)

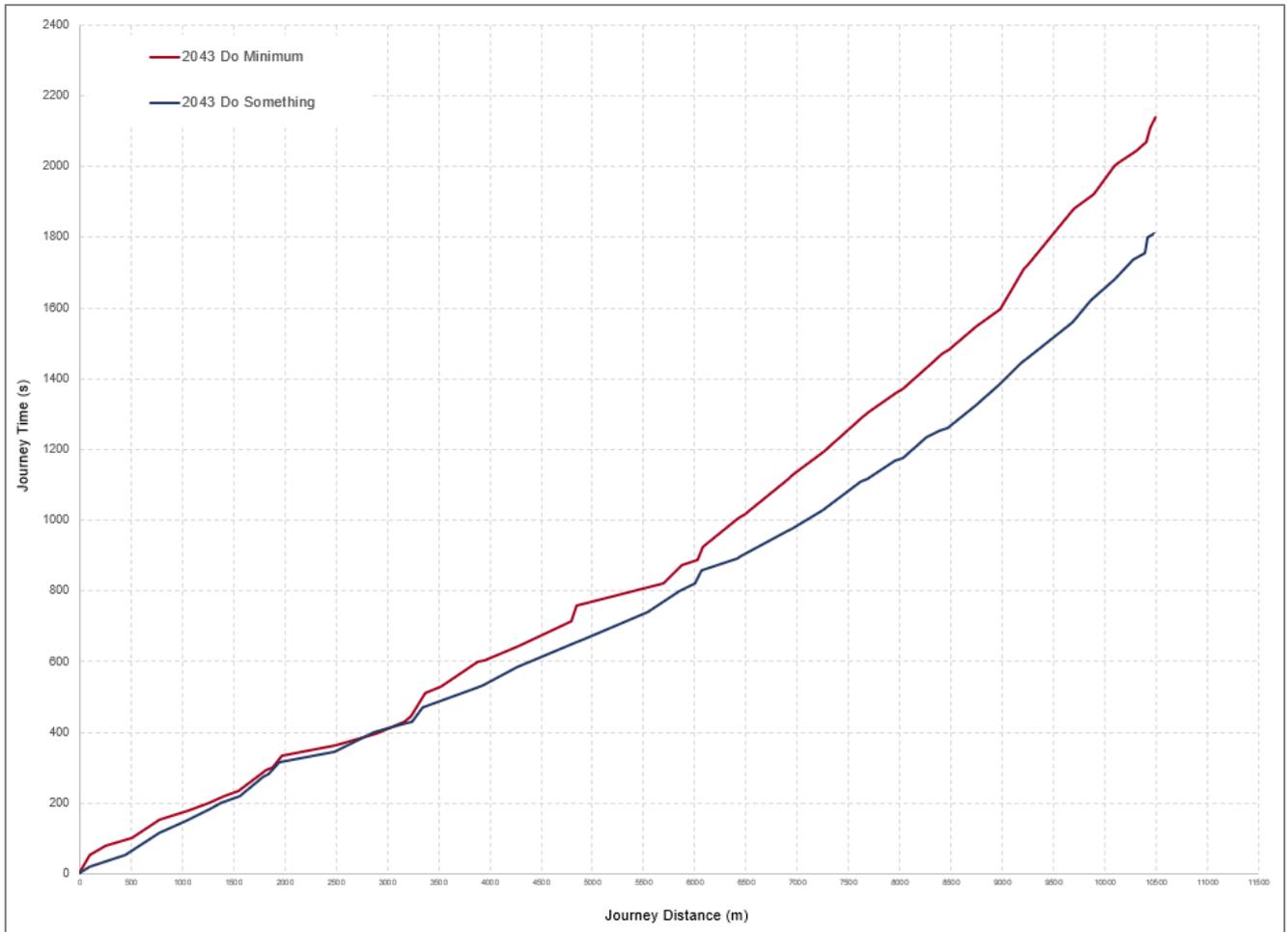


Diagram 6.16: B3 Bus Journey Time (2043 AM, Inbound)

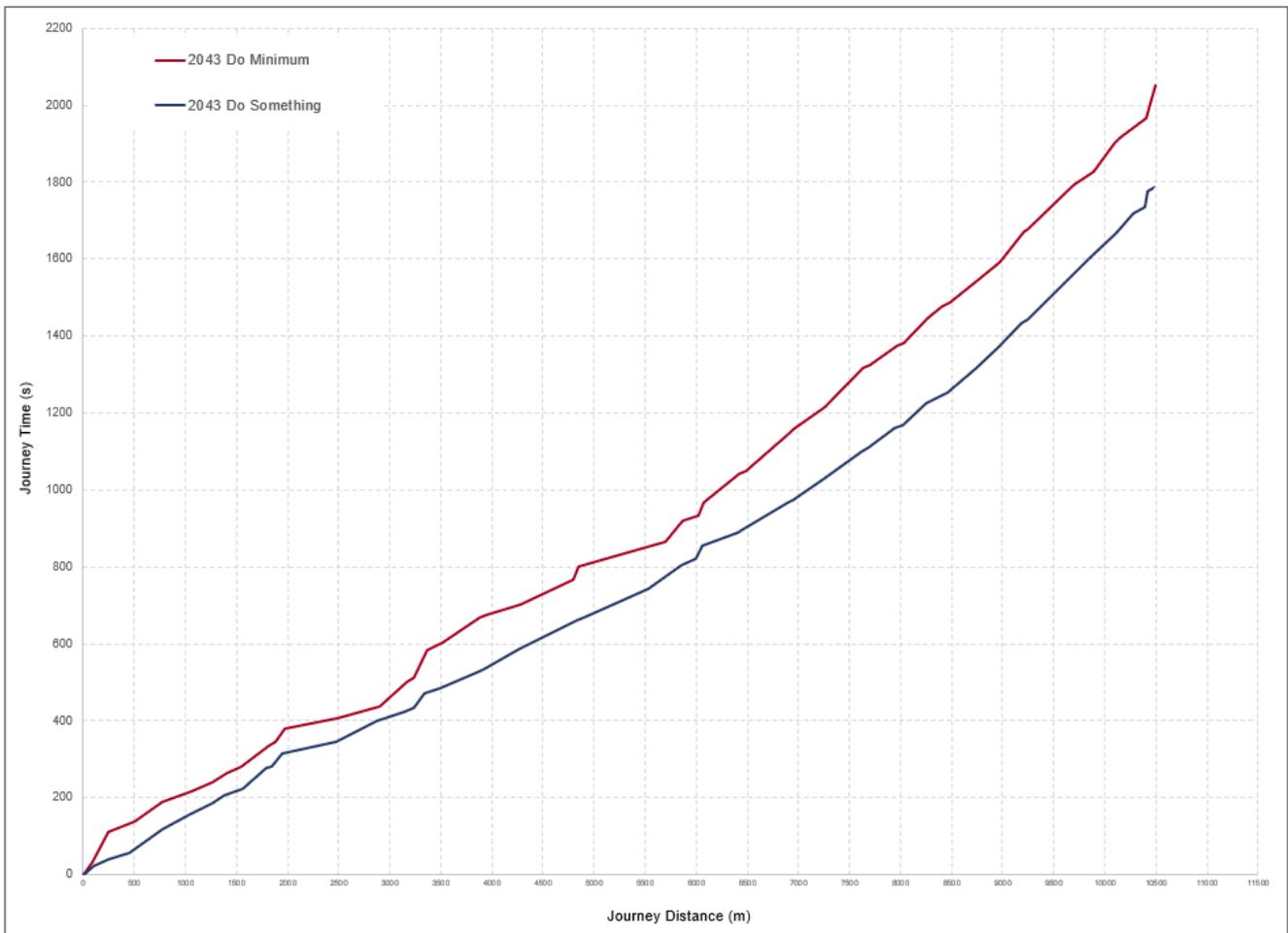


Diagram 6.17: B3 Bus Journey Time (2043 PM, Inbound)

Based on the results presented in Diagram 6.14 to Diagram 6.17, the Proposed Scheme will deliver notable bus journey time savings from the start of the corridor at Navan Road and Blanchardstown Road (R121). Bus journey time savings through the Blanchardstown Centre are limited by the introduction of four new signalised junctions, which will greatly improve pedestrian safety, but introduce slight delays for buses. However, the overall journey time savings delivered by the Proposed Scheme are particularly evident towards the City Centre, from the Navan Road and Connolly Hospital Access junction.

The journey time savings from this junction to the Navan Road and Old Cabra Road junction are due to the introduction of numerous new sections of bus lane, which contributes to the continuous provision of bus lanes (both existing and those introduced as part of the Proposed Scheme) along this section. In addition, the bus priority 'hurry calls' (use of traffic signal plans to give buses priority ahead of general traffic) offered to mainline buses as part of the Proposed Scheme enable further journey time savings.

Closer to the City Centre, the junction improvements and bus priority 'hurry calls' included as part of the Proposed Scheme can be shown to create cumulative bus journey time savings over the Do Minimum, most notably from the Navan Road and Old Cabra Road junction where a bus gate has been introduced to the Navan Road and Aughrim Street junction.

Outbound Direction

Average journey times for the outbound B3 service in 2028 Opening Year and in 2043 Design Year can be seen in Table 6.56. 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) in Volume 4 of this EIAR.

Table 6.56: B3 Service Bus Journey Times (Outbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	32.4	30.6	-1.8	-5%
2028 PM	35.6	30.8	-4.8	-13%
2043 AM	32.1	30.6	-1.5	-5%
2043 PM	35.0	30.7	-4.3	-12%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for outbound B3 buses in the Do Minimum (red) and Do Something (blue) can be seen in Table 6.57 and Diagram 6.18 below. 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 6.57: B3 Service – Range of Journey Times (Outbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	28.4	36.2	32.4	1.9	26.7	34.1	30.6	1.4
2028 PM	31.1	39.6	35.6	2	26.5	34.1	30.8	1.6
2043 AM	28.3	37.2	32.1	1.7	27.7	34.6	30.6	1.5
2043 PM	30.9	41.7	35.0	1.8	26.9	33.8	30.7	1.5

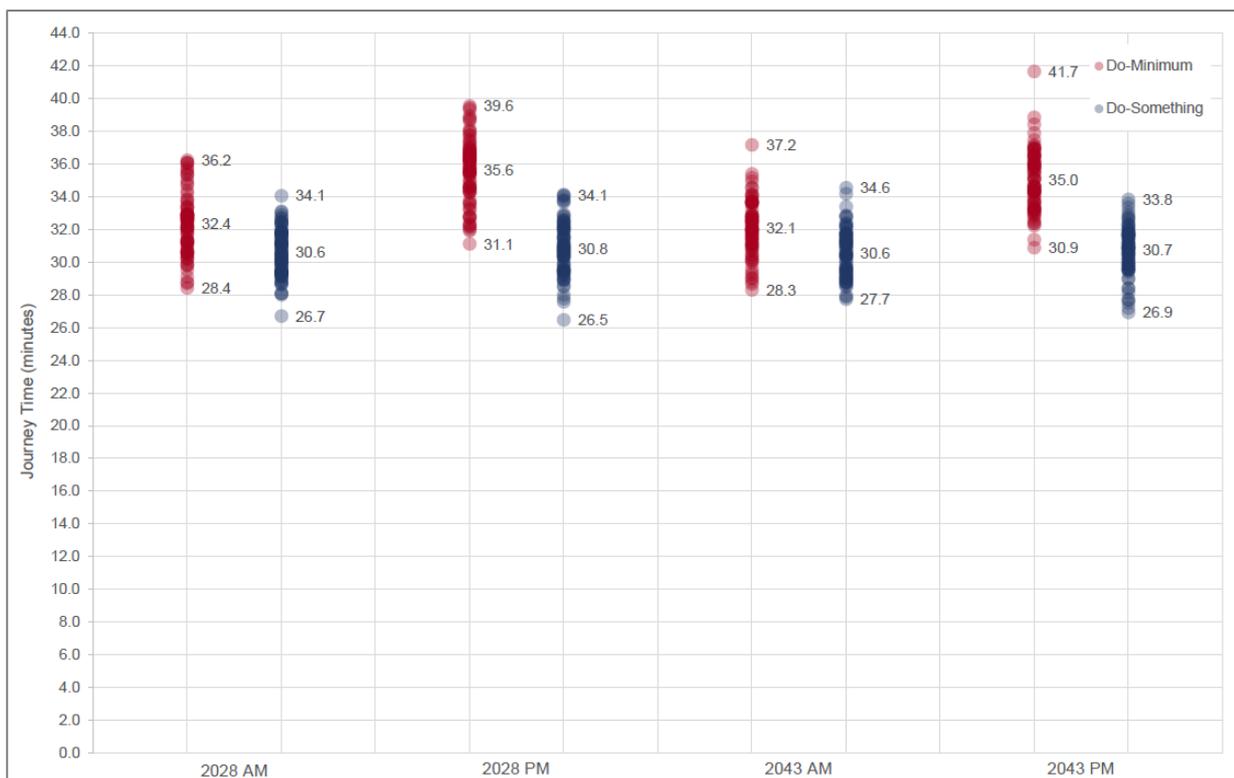


Diagram 6.18: B3 Bus Journey Times (Outbound Direction)

Based on the results presented in Table 6.56, the Proposed Scheme will deliver average outbound journey time savings for B3 service bus passengers of up to 4.8 minutes (13%) in 2028 (PM) and 4.3 minutes (12%) in 2043 (PM).

The results presented in Diagram 6.18 suggest an improvement in bus journey time reliability in all four scenarios. This is indicated by the reduced ranges of journey times, with durations focused much closer to the average journey times (lower standard deviation) in the Do Something scenario (blue dots) compared to the more dispersed range in the Do Minimum scenario (red dots).

Note that the variation in journey times shown above is 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 B3 service for the outbound direction of travel illustrated in the cumulative time-distance graphs shown in Diagram 6.19 to Diagram 6.22.

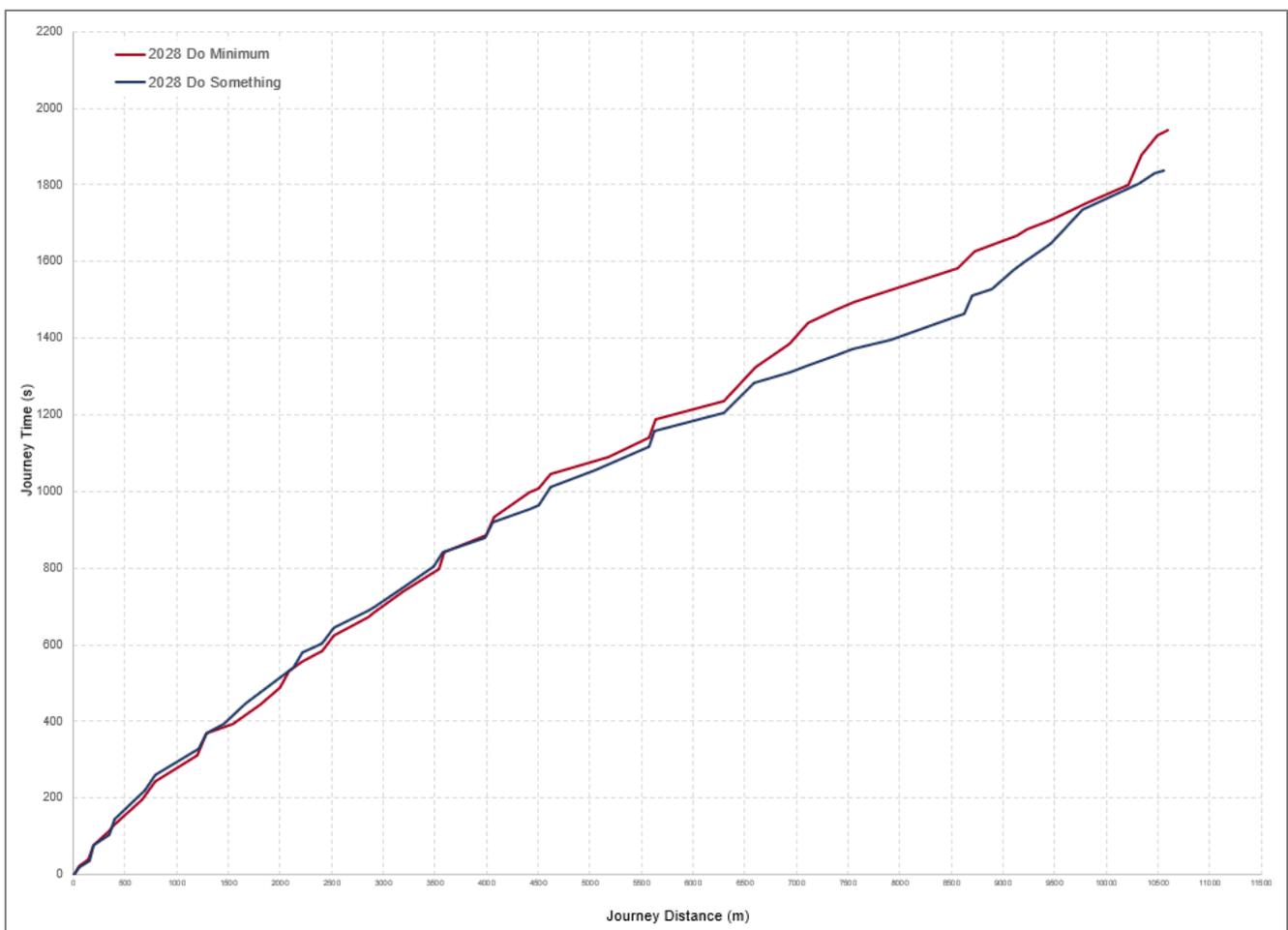


Diagram 6.19: B3 Bus Journey Time (2028 AM, Outbound)

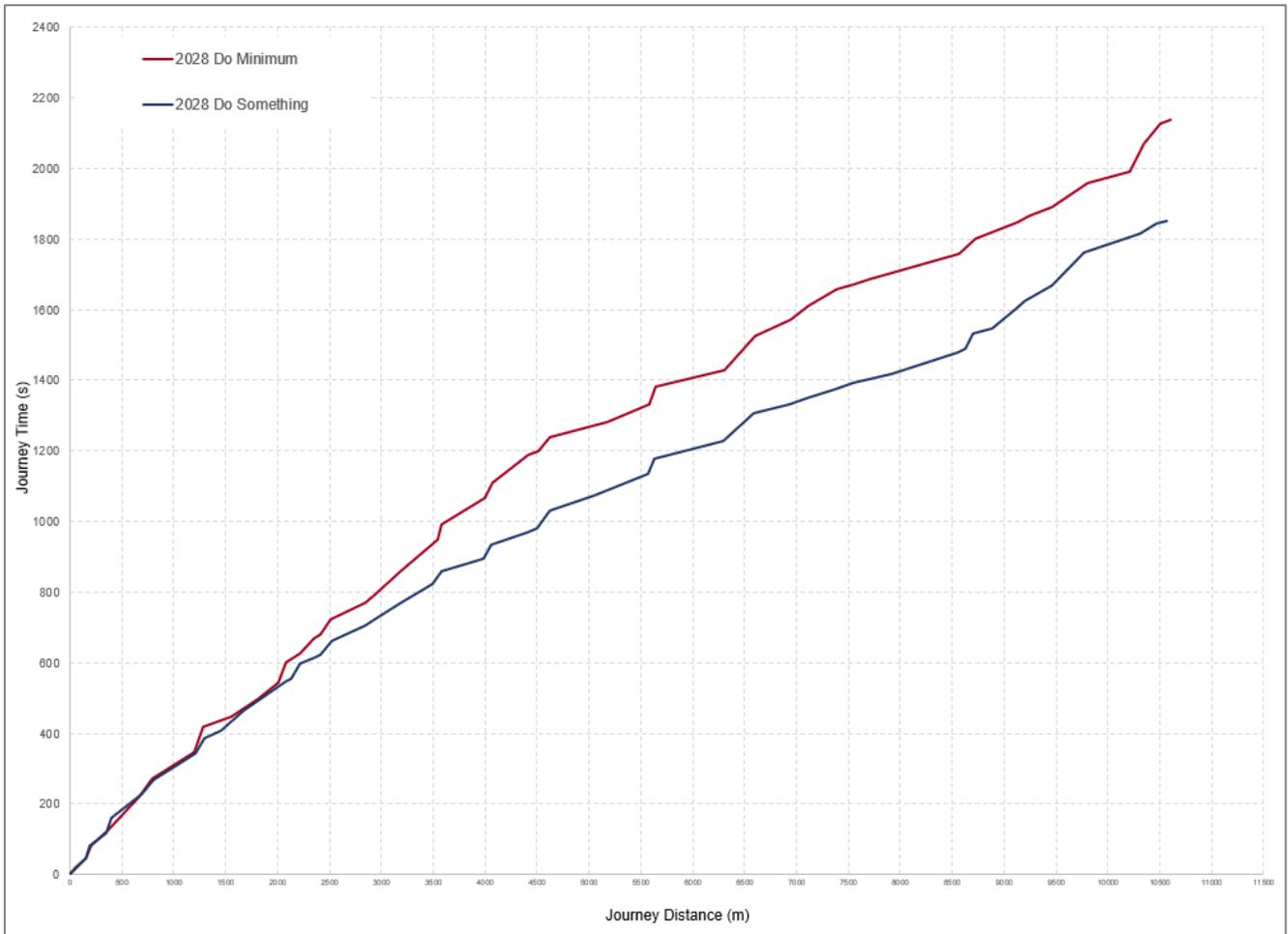


Diagram 6.20: B3 Bus Journey Time (2028 PM, Outbound)

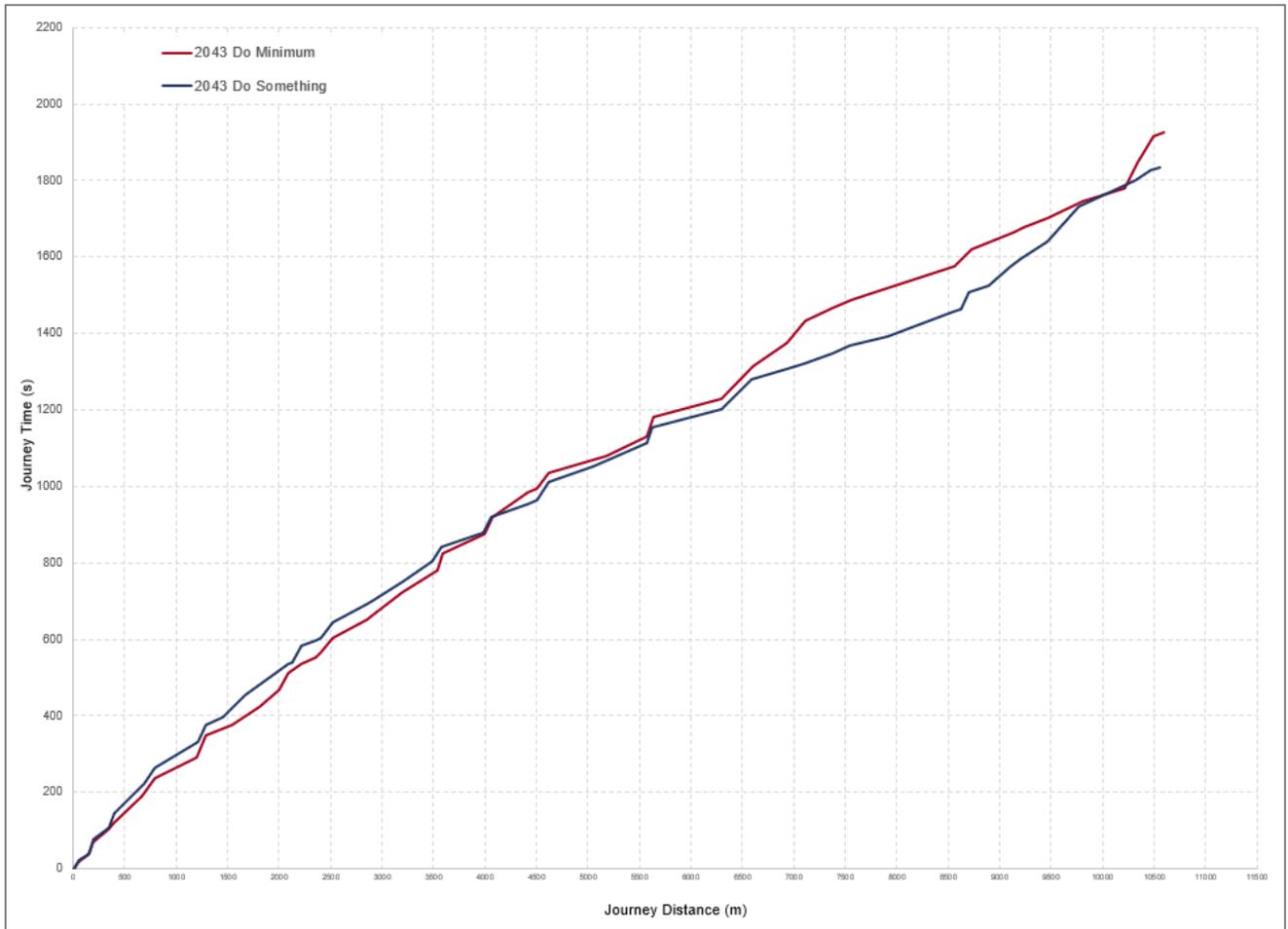


Diagram 6.21: B3 Bus Journey Time (2043 AM, Outbound)

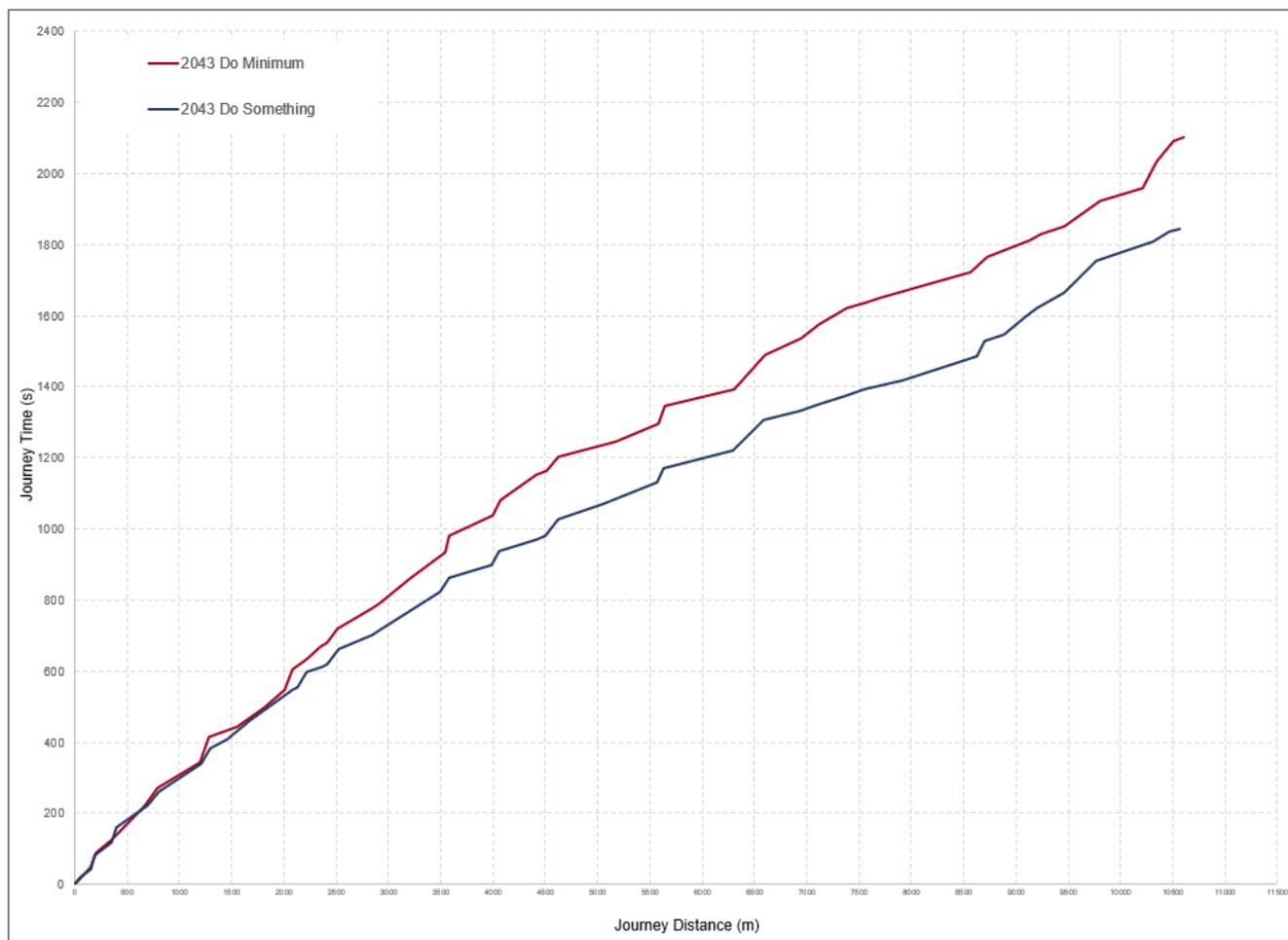


Diagram 6.22: B3 Bus Journey Time (2043 PM, Outbound)

Based on the results presented in Diagram 6.19 to Diagram 6.22 the Proposed Scheme will deliver good bus journey time savings in the outbound direction.

As expected, the Do Something benefits are most notable in the PM peak in the busiest direction of travel (outbound from the City Centre). The PM peak journey time savings mainly start from the outbound approach at the Navan Road and Old Cabra Road junction. The journey times for the Do Minimum and Do Something scenarios are similar up to this point due to a speed limit reduction (50 kph to 30 kph) from King Street North, as well as 4 new signalised junctions – two of which are signalised pedestrian crossings in the Do Minimum – from Ellis Quay introduced as part of the Proposed Scheme, which all contribute to an improved pedestrian environment in this section. At the same time, the Do Something provides bus priority ‘hurry calls’ at the signalised junctions and introduces a bus gate between Auhgrim Street and Old Cabra Road.

Beyond Old Cabra Road, the junction improvements and bus priority ‘hurry calls’ included as part of the Proposed Scheme can be shown to create cumulative bus journey time savings over the Do Minimum. These are most notable at the Ashtown Road junction, where, unlike the Do Minimum, the Proposed Scheme offers a continuous outbound bus lane through this junction.

There are journey time savings from the outbound approach of the Auburn Avenue junction in both peaks. Unlike the Do Minimum, the Proposed Scheme offers a continuous outbound bus lane through this junction.

6.4.6.2.5.3 Total Journey Time Changes for all Proposed Scheme Bus Services

The change in total bus journey time for all buses travelling along the Proposed Scheme, is shown in Table 6.58 in vehicle minutes.

Table 6.58: Total Bus Journey Time

Peak Hour	Do Minimum (vehicle.minutes)	Do Something (vehicle.minutes)	Difference (vehicle.minutes)	%Difference
2028 AM	2021	1809	-212	-10%
2028 PM	2098	1799	-300	-14%
2043 AM	2015	1808	-207	-10%
2043 PM	2057	1805	-252	-12%

Based on the results presented in Table 6.58, modelling shows that the Proposed Scheme will reduce total bus journey times along the Proposed Scheme by up to 14% in 2028 and 12% in 2043. Based on the AM and PM peak hours alone, this equates to **8.5 hours of savings in 2028 and 7.7 hours in 2043** combined across all buses when compared to the Do Minimum. On an annual basis this equates to approximately 6,400 hours of bus vehicle savings in 2028 and 5,800 hours in 2043, when considering weekday peak periods only. The savings are slightly lower in 2043 compared to 2028 due to slightly lower vehicle minutes in the Do Minimum, particularly in the PM. The Do Something vehicle minutes remain largely consistent between both years and time periods.

6.4.6.2.6 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.

6.4.6.2.7 Increased Bus Frequency - Resilience Sensitivity Analysis

6.4.6.2.7.1 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 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.

6.4.6.2.7.2 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 Do 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, in the 2028 Do Minimum model and in the 2028 Do Something Resilience testing models is outlined in Table 6.59 below.

Table 6.59: Resilience Testing Bus Service Frequency Scenario Testing

Scenario	Inbound (Buses per Hour)	Outbound (Buses per Hour)
Do Minimum	45	45
Do Something	45	45
Do Minimum - Additional Services Resilience Test	55	55
Do Something - Additional Services Resilience Test	55	55

Table 6.60 outlines the average AM journey times for the inbound B3 service, and the average PM journey times for the outbound B3 service in the 2028 Opening Year.

Table 6.60: B3 Service – Average Bus Journey Times

Peak Hour	Do Minimum (minutes)	Do Minimum (Additional Services) (minutes)	% Difference	Do Something (minutes)	Do Something - Additional Services (minutes)	% Difference
2028 AM	35.7	35.7	0.0%	30.0	30.1	0.3%
2028 PM	35.6	37.8	6.2%	30.8	30.8	0.0%

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 6.23 below. The diagram displays the maximum, minimum and average journey times for each of the B3 bus services modelled.

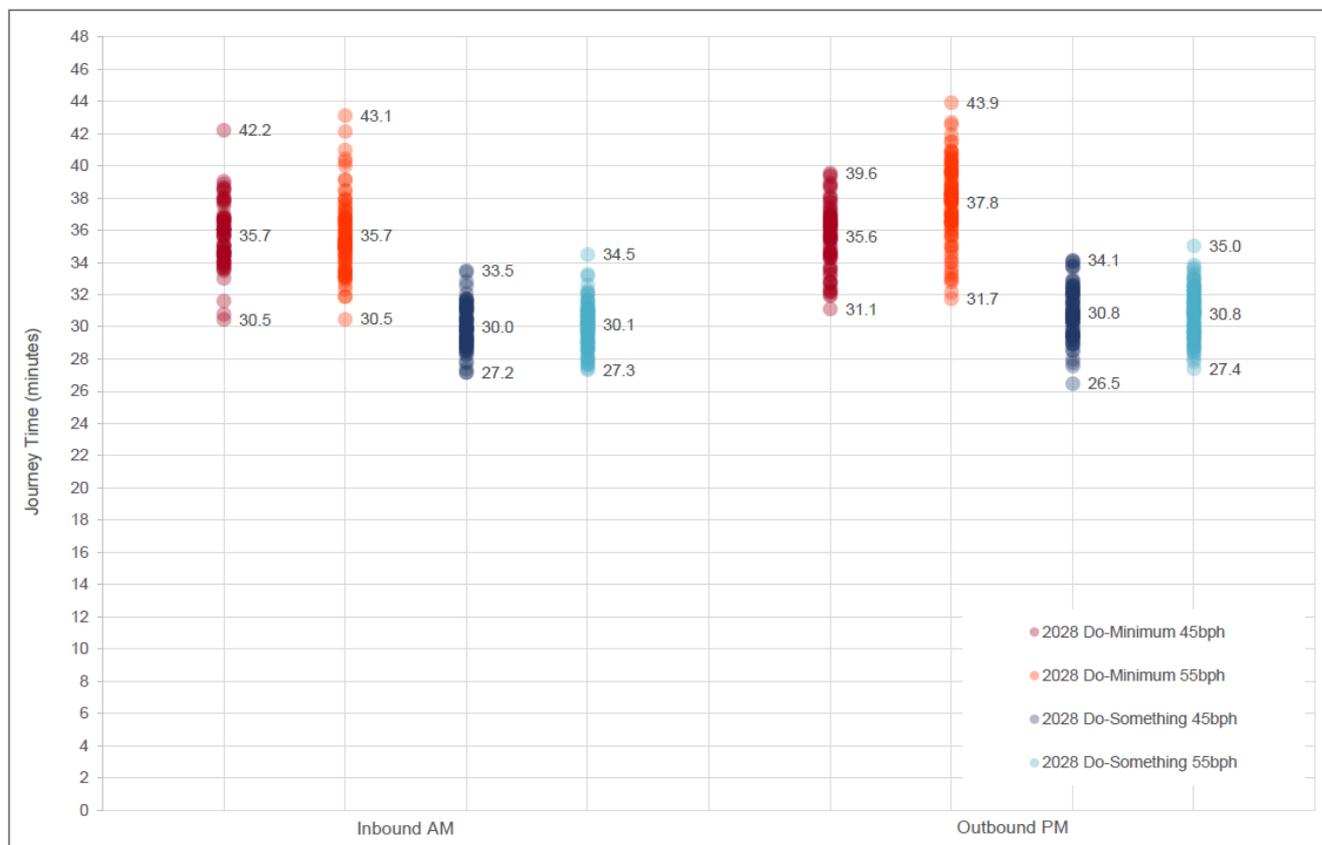


Diagram 6.23: Resilience Testing Bus Journey Time Reliability Indicators - Scenario Testing– Opening Year (2028)

As can be seen from Table 6.60 and Diagram 6.23 the results indicate 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 scenarios, comparable with the 45 buses per direction per hour results. The results indicate negligible change in journey times in the Do Something Resilience sensitivity test per bus. In the Do Minimum Resilience sensitivity test, however, bus journey time reliability is more severely impacted with additional services in place, particularly in the PM peak period. 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 must 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) of this EIAR.

6.4.6.2.8 General Traffic Assessment

6.4.6.2.8.1 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 likely 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 2021 Climate Action Plan (CAP) (DCCA 2021) includes reference to a freight strategy for the region that 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. The 2021 Climate Action Plan 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. As proposals for the above are at a pre-planning stage, it was not possible to account for them in the assessments and a worst-case assessment has been undertaken based on continued growth in goods traffic.

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.

6.4.6.2.8.2 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 in Table 6.61.

Table 6.61 Significance of the Reduction in General Traffic Flows

Significance of Positive Impact	Description of Impact / Proposed Changes
Profound	< -1,000
Very Significant	-1,000 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 junctions) 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 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 potential 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 6.48 provides 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

Vehicle Movements	<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 6.48: Extract from TII Guidelines for Traffic and Transport Assessments (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 has 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, further assessment has been undertaken by way of a traffic capacity analysis on the associated junctions along the affected links.

6.4.6.2.8.3 General Traffic Flow Difference – AM Peak Hour

Diagram 6.24 (an 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. Refer to Appendix A6.4.4 (General Traffic Assessment) in Volume 4 of this EIAR for the full LAM outputs.

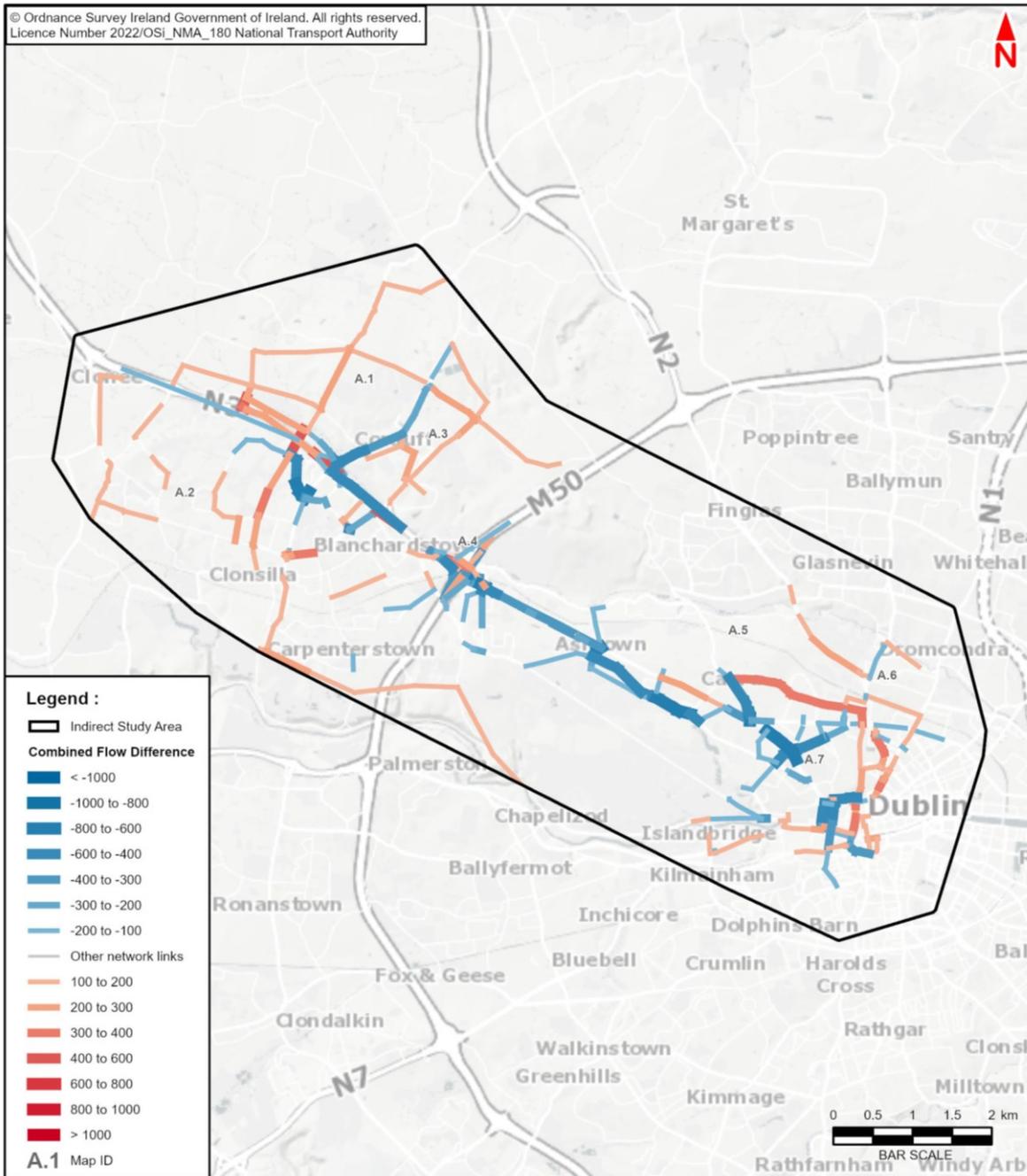


Diagram 6.24: Flow Difference on Road Links (Do Minimum vs. Do Something), AM Peak Hour, 2028 Opening Year

Impact on Direct Study Area (AM Peak Hour)

Direct Reductions in General Traffic: The blue lines in Diagram 6.24 indicate where the LAM predicts that a reduction of at least 100 combined traffic flows will occur. These are presented in Table 6.62.

The key reductions in traffic flows during the AM Peak Hour are outlined in Table 6.62.

Table 6.62 Road Links that Experience a Reduction of ≥ 100 Combined Flows during AM Peak Hour (Direct Study Area)

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	A1	Navan Road (north of Blanchardstown Road North)	961	559	-402
	A1	Blanchardstown Road North	1,796	1,296	-500
	A1	Blanchardstown Road South	2,208	1,401	-808
	A1	N3 J3 NB off-slip	854	329	-525
	A1	N3 J3 SB off-slip	407	211	-195
South of the M50, west of M50 / N3 Interchange	A2	N3 J3 NB off-slip	964	388	-576
North of the M50, east of Junction 2	A3	Blanchardstown Road South	2,243	1,429	-814
	A3	N3 WB west of M50	2,964	2,392	-572
M50 / N3 Interchange area	A4	N3 / M50 Interchange EB circulating	487	158	-329
	A4	N3 / M50 Interchange WB circulating	1,741	1,153	-588
	A4	R147 Navan Road east of Auburn Avenue	3,089	2,519	-570
North of R147 Navan Road, west of rail line	A5	R147 Navan Road between Skreen Road and Cabra Road	1,204	823	-381
	A5	Old Cabra Road	1,035	88	-947
	A5	Prussia Street	940	84	-856
	A5	Manor Street	1,229	132	-1,097
City Centre south and west of LUAS line	A7	Stoneybatter	1,485	518	-967
	A7	Blackhall Place	784	222	-562
	A7	King Street North	684	486	-197
	A7	Queen Street	684	152	-532

The contents of Table 6.62 demonstrate the traffic reductions vary between -195 and -1,097 combined flows, from Slight to Profound magnitude of impacts. Positive impacts are predicted on 19 links, most noticeably on Manor Street, Stoneybatter, Old Cabra Road and Prussia Street. This reduction in general traffic flow has been determined as an overall **Positive, Significant and Long-term effect** on the direct study area.

Direct Increases in General Traffic: The red lines in Diagram 6.24 indicate where the LAM predicts that an increase of at least 100 combined traffic flows will occur. These are presented in Table 6.63.

Table 6.63 Road Links that Experience an Increase of ≥ 100 Combined Flows during AM Peak Hour (Direct Study Area)

Section	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
M50 / N3 Interchange area	A4	N3 J2 NB off slip to Snugborough Road	681	1,167	+486
	A4	N3 EB to M50 J6	653	790	+137
North of R147 Navan Road, west of rail line	A5	R147 Navan Road between Kinvara Avenue and Skreen Road	878	1,136	+258

Table 6.63 shows that there are predicted to be increases on three links on the Proposed Scheme itself, ranging from +137 to +486 combined peak hour flows, which are Slight and Significant negative magnitude of impacts respectively.

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 reductions in general traffic along certain road links within the indirect study area. The key reductions in traffic flows along the indirect study area during the AM Peak Hour are outlined in Table 6.64.

Table 6.64 Road Links that Experience a Reduction of ≥ 100 Combined Flows during AM Peak Hour (Indirect Study Area)

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	A1	Blanchardstown Centre	933	478	-456
	A1	Blanchardstown Road South Nb onto N3 Eb Slip	795	476	-319
	A1	Blanchardstown Road South Nb onto N3 Wb Slip	338	208	-130
	A1	N3	2,964	2,392	-572
	A1	N3 J3 Sb Off Slip	407	211	-195
	A1	N3 J3 Sb On Slip	865	648	-217
	A1	N3 Nb onto Blanchardstown Rd South Slip	964	388	-576
South of the M50, west of M50 / N3 Interchange	A2	Blakestown Way	894	274	-620
	A2	Huntstown Drive	686	581	-106
	A2	Huntstown Way	1,123	942	-181
	A2	N3 J3 Nb Off Slip	854	329	-525
	A2	R121 Blanchardstown Road South	2243	1,429	-814
	A2	Snugborough Road	1,403	1,167	-236
North of the M50, east of Junction 2	A3	Access Road Connolly Hospital onto R806	531	350	-181
	A3	Castleknock Road	1,446	719	-727
M50 / N3 Interchange area	A4	Ashtown Gate Road	706	494	-212
	A4	Ashtown Road	621	452	-169
	A4	Auburn Avenue	1,121	541	-580
	A4	Auburn Park	484	287	-197
	A4	Beechpark Avenue	422	292	-130
	A4	Diswellstown Road	638	529	-108
	A4	Dunsink Lane	1,688	1,510	-178
	A4	J6 Rbt	1,741	1,153	-588
	A4	Laurel Lodge Road	1,205	1,055	-150

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	A4	M3 Wb to M50 South at J6	2,163	1933	-230
	A4	M50	2,059	1,861	-198
	A4	M50 J6 N3 Nb to M50 North	1,322	1,195	-126
	A4	M50 J6 Sb Off Slip from M50	692	322	-369
	A4	M50 Nb onto J6 Rbt Slip	609	298	-311
	A4	N3 Eb at J6 Approach to Dunsink Lane	442	48	-393
	A4	N3 Wb at J6	1,595	1,116	-479
	A4	North Road	335	212	-123
	A4	Old Navan Road	589	477	-112
	A4	Park Lodge	1,205	1,055	-150
North of R147 Navan Road, west of rail line	A5	Aughrim Street	374	139	-235
	A5	Cabra Road	832	561	-270
	A5	Glenbeigh Road	337	170	-167
	A5	Kinvara Avenue	744	565	-179
	A5	Rathborne Place	691	341	-350
	A5	Ratoath Road	847	203	-645
	A5	River Road	674	344	-330
	A5	Skreen Road	492	344	-149
City Centre north and east of LUAS line	A6	Botanic Road	1,008	869	-140
	A6	Eccles Street	717	562	-154
	A6	High Street	2,108	1,750	-358
	A6	North Circular Road	1,217	463	-755
	A6	Prospect Road	1,303	1181	-122
	A6	St Mobhi Road	789	649	-140
	A6	St Peters Road	662	436	-226
City Centre south and west of LUAS line	A7	Annamoe Road	359	198	-161
	A7	Annamoe Terrace	359	198	-161
	A7	Ardee Street	508	397	-111
	A7	Baggot Road	413	271	-142
	A7	Blackhall Bridge	833	598	-235
	A7	Blackhorse Avenue	1,243	607	-636
	A7	Bridge Street Lower	2,574	2366	-208

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	A7	Bridge Street Upper	1,654	1,279	-376
	A7	Brunswick Street North	780	351	-429
	A7	Charleville Road	259	136	-123
	A7	Chesterfield Avenue	548	396	-152
	A7	Conyngham Road	1,762	1,369	-393
	A7	Glencar Road	343	184	-159
	A7	Hanbury Lane	644	444	-200
	A7	Hardwicke Place	593	489	-104
	A7	Imaal Road	314	203	-111
	A7	Marrowbone Lane	887	756	-131
	A7	Pimilico Cottages	426	312	-114
	A7	Pimilico	569	455	-114
	A7	Queen Street Bridge	612	378	-234
	A7	Usher's Quay	987	858	-129

As indicated in Table 6.64, the traffic reductions vary between -104 and -814 combined flows along the surrounding road network, ranging from Slight to Very Significant magnitude of positive impacts, although the majority are Slight. The biggest reductions are predicted on Blanchardstown Road South, North Circular Road, Castleknock Road, Blackhorse Avenue and Ratoath Road.

This reduction in general traffic flow has been determined as an overall **Positive, Slight and Long-term effect** on the indirect study area.

Indirect Increases in General Traffic: The key road links which experience additional traffic volumes are presented in Table 6.65.

Table 6.65: Road Links where the 100 Flow Additional Traffic Threshold is Exceeded during AM Peak Hour

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	A.1	Blakestown Road	935	1,352	+418
	A.1	Damastown Close	1,404	1,587	+183
	A.1	Damastown Road	959	1,366	+406
	A.1	Hartstown Road	394	550	+156
	A.1	Ladyswell Road	359	468	+109
	A.1	N3 Sb North of J3	2,257	2,680	+422
	A.1	Navan Road East of Damastown Road	262	478	+216
	A.1	Ongar Distributor Road	357	523	+166
	A.1	Ongar Hartstown Relief Road	626	870	+244
	A.1	R121 Hollywoodrath Road	833	951	+118

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
South of the M50, west of M50 / N3 Interchange	A.2	L30862 Blanchardstown Centre	493	664	+171
	A.2	Barnwell Road	1,653	1,758	+104
	A.2	Church Road	546	809	+262
	A.2	Damastown Avenue	1,173	1390	+217
	A.2	L30862 Blanchardstown Centre	331	576	+245
	A.2	Littlepace Distributor Road	670	797	+127
	A.2	Ongar Road	492	700	+207
	A.2	Phibblestown Road	516	640	+124
	A.2	Porterstown Road	445	587	+142
	A.2	R149	374	528	+154
	A.2	Shelerin Road	368	589	+222
North of the M50, east of Junction 2	A.3	Ballycoolin Business Park	850	1,022	+172
	A.3	Ballycoolin Road	877	1,095	+217
	A.3	Blackcourt Road	607	867	+260
	A.3	Cruiserath Road	1,051	1336	+284
	A.3	Ratoath Road	643	967	+324
	A.3	Snugborough Road	680	980	+300
	A.3	Snugborough Road Extension	1,109	1450	+341
M50 / N3 Interchange area	A.4	Castleknock Road	1,157	1,322	+164
	A.4	Delwood Road	518	655	+137
	A.4	Diswellstown Road	1,167	1,341	+174
	A.4	Luttrellstown Road	457	700	+244
	A.4	M50	996	1,188	+191
	A.4	M50 Nb Through N3 Interchange	3,859	4,011	+152
	A.4	M50 North onto Wb N3	2,446	2751	+305
	A.4	M50 Sb Through N3 Interchange	3,405	3,617	+212
	A.4	Main Street	549	731	+182
	A.4	N3 Between Main Street A and River Road	549	731	+182
	A.4	N3 Eb Through M50 Interchange	1,134	1,358	+224
	A.4	Navan Road Between Blakestown Road and Church Road	750	972	+223
	A.4	Navan Road Eb to M50 Interchange	653	790	+137
	A.4	Navan Road West of Church Road	412	615	+204

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	A.4	Tower Road	1,186	1,294	+108
North of R147 Navan Road, west of rail line	A.5	Dunmanus Road	630	974	+344
	A.5	Fassaugh Avenue	613	964	+351
	A.5	Fassaugh Road	594	954	+360
	A.5	Rathborne Avenue	327	563	+236
	A.5	Rathborne Drive	217	493	+276
City Centre north and east of LUAS line	A.6	Berkeley Road	521	845	+324
	A.6	Berkeley Street	584	909	+325
	A.6	Bolton Street	1,571	1,879	+308
	A.6	Botanic Avenue	323	427	+104
	A.6	Church Street	1645	2,033	+388
	A.6	Church Street Upper	1,229	1,463	+234
	A.6	Connaught Street	500	868	+368
	A.6	Constitution Hill	1,379	1,614	+235
	A.6	Dorset Street Lower	2537	2,697	+160
	A.6	Dorset Street Upper	1500	1,797	+297
	A.6	Finglas Road	1,380	1,599	+219
	A.6	Georges Lane	113	416	+303
	A.6	Parnell Street	830	990	+160
	A.6	Phibsborough Road	1,290	1,593	+303
	A.6	Prospect Way	644	774	+130
	A.6	Whitworth Road	237	362	+125
City Centre south and west of LUAS line	A.7	Arran Quay	1,014	1,171	+157
	A.7	Bridgefoot Street	1,484	1,620	+135
	A.7	Chancery Place	445	567	+123
	A.7	Chancery Street	244	362	+118
	A.7	Christchurch Place	870	1,059	+188
	A.7	Eccles Street	847	1,048	+201
	A.7	Ellis Quay	802	1,010	+208
	A.7	Fishamble Street	290	442	+151
	A.7	Frank Sherwin Bridge	1244	1351	+107
	A.7	Greek Street	244	362	+118
	A.7	James's Street	1,300	1,408	+108

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	A.7	Leinster Street North	188	307	+119
	A.7	Mary's Lane	416	546	+130
	A.7	Mountjoy Street	523	770	+247
	A.7	O'Donovan Rossa Bridge	799	991	+192
	A.7	Oliver Bond Street	686	854	+168
	A.7	Shandon Road	188	306	+118
	A.7	South Circular Road	908	1,075	+168
	A.7	St John's Road West	759	879	+120
	A.7	St Mary's Place North	187	331	+145
	A.7	Thomas Street	1,487	1,622	+136
	A.7	Usher's Island	1,112	1,400	+288
	A.7	Victoria Quay	1,052	1,235	+183
	A.7	Western Way	332	446	+114
	A.7	Winetavern Street	731	848	+117
	A.7	Wood Quay	790	1,005	+215
A.7	Wormwood Gate	489	723	+234	

As presented in Table 6.65, the additional traffic on the key road links varies between +104 and +486 combined flows during the AM peak hour, which ranges from a Slight to Significant magnitude of impact, although the majority of increases are Slight. The biggest increases are predicted on the southbound N3 to the north of J3, Blakestown Road and Damastown Road.

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.

6.4.6.2.8.4 National Roads – 5% Threshold Impact Assessment

Based on 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 required further assessment, the junctions and associated flow difference between the Do Minimum and Do Something scenarios during the AM Peak Hour are outlined in Table 6.66.

Table 6.66: National Road Links Traffic Threshold Assessment (AM Peak Hour)

Junction	Total Do Minimum Inbound Flows (PCUs)	Total Do Something Inbound Flows (PCUs)	Difference (PCUs)	Percentage Difference
N3 Junction 4a	6,700	6,580	-119	-1.8%

Junction	Total Do Minimum Inbound Flows (PCUs)	Total Do Something Inbound Flows (PCUs)	Difference (PCUs)	Percentage Difference
N3 Junction 4b	5,208	5,424	216	4.1%
N3 Junction 3	5,970	3,731	-2,239	-37.5%
N3 Junction 2	5,064	5,340	276	5.4%
M50 Junction 6	11,269	10,051	-1,218	-10.8%

The contents of Table 6.66 demonstrate that in the majority of cases, in the AM peak hour, traffic flows at national roads junctions are expected to reduce as a result of the scheme or are below the 5% threshold for assessment.

At N3 Junction 2, traffic flows are predicted to increase by 5.4% as a result of the scheme, primarily due to increases in inbound traffic on Snugborough Road to the north-east, and on the N3 northbound off-slip.

The local road junctions at N3 Junction 2 are:

- R843 Snugborough Road / L3020 signalised junction; and
- R843 Snugborough Road / Waterville Road roundabout.

Both of these junctions are due to be modified by Fingal County Council as part of the Snugborough Interchange Upgrade scheme. This will involve the widening of the Snugborough Road bridge and the L3020 to accommodate additional bus lanes and general traffic lanes, and the conversion of the R843 Snugborough Road / Waterville Road roundabout to a signalised junction. The scheme is expected to be completed in February 2023.

Testing within the LAM shows that when optimised, both of the local road junctions at N3 J2 are expected to operate with V / C of under 100% in the AM peak hour.

Overall, the Proposed Scheme is expected to have a negligible effect on turning flows at junctions with national roads in the AM peak hour.

No further assessment on the junctions with national roads during the AM peak hour has been undertaken, except for instances where the 100 combined traffic flow threshold for additional traffic is exceeded, as shown in

Table 6.65.

6.4.6.2.8.5 General Traffic Flow Difference – PM Peak Hour

Diagram 6.25 (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. Refer to Appendix A6.4.4 (General Traffic Assessment) in Volume 4 of this EIAR for the full LAM outputs.

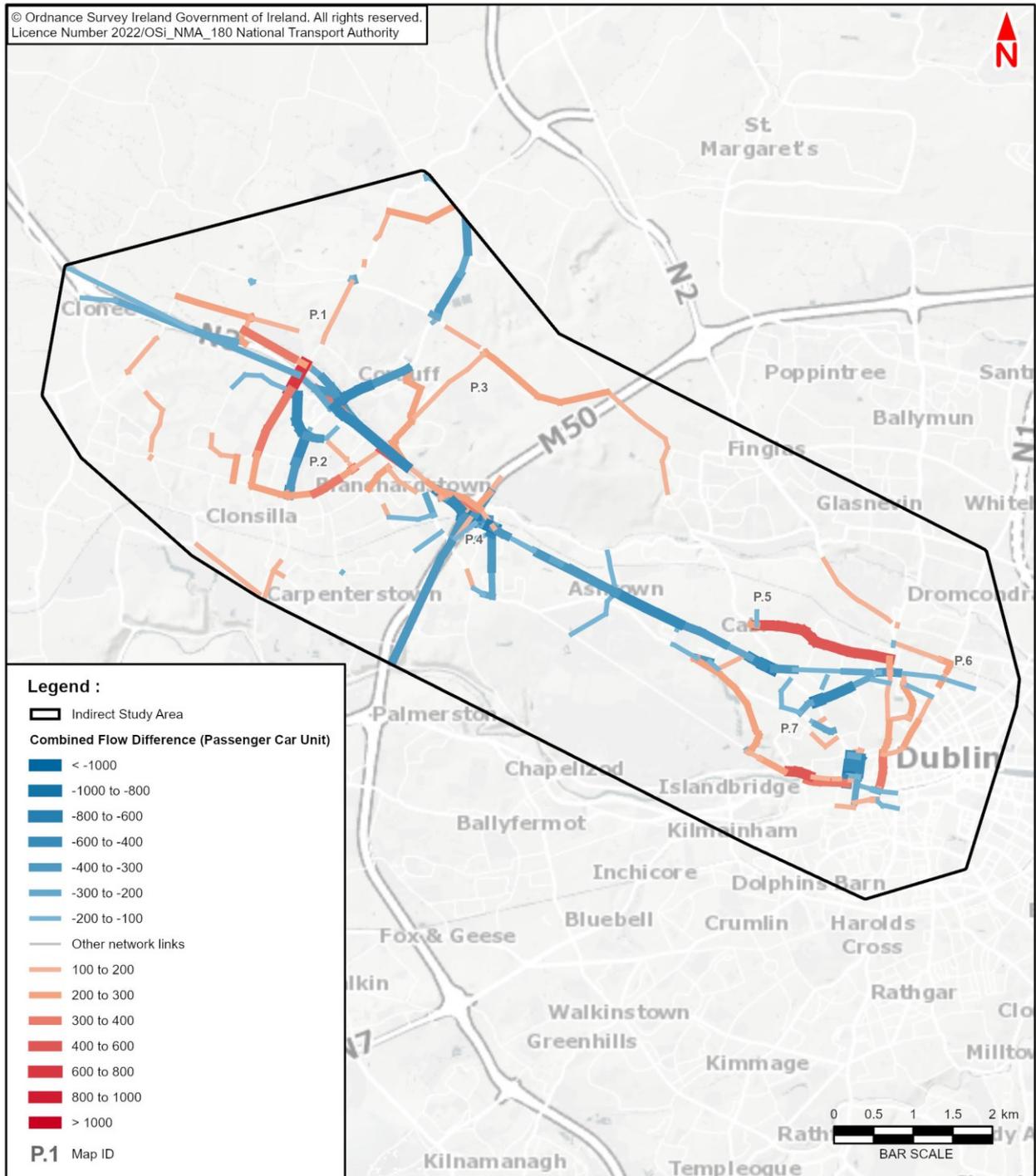


Diagram 6.25: Flow Difference on Road Links (Do Minimum vs. Do Something), PM Peak, 2028 Opening Year

Impact on Direct Study Area (PM Peak Hour)

Direct Reductions in General Traffic Flows: The blue lines in Diagram 6.25 indicate where the LAM predicts that a reduction of at least -100 combined traffic flows will occur. These are presented in Table 6.67.

Table 6.67 Road Links that Experience a Reduction of at least -100 Combined Flows during PM Peak Hour (Direct Study Area)

Location	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	P1	Navan Road (north of Blanchardstown Road North)	1,182	534	-647
	P1	Blanchardstown Road North	1,628	1,170	-458
	P1	Blanchardstown Road South	2,399	1,274	-1,125
	P1	N3 J3 NB off-slip	823	384	-439
	P1	N3 J3 SB off-slip	518	189	-328
South of the M50, west of M50 / N3 Interchange	P2	Blanchardstown Centre (between Centre and Retail Park)	312	133	-179
	P2	N3 J3 NB off-slip	855	411	-444
North of the M50, east of Junction 2	P3	N3 WB west of M50	3,181	2,687	-493
M50 / N3 Interchange area	P4	N3 / M50 Interchange EB circulating	418	151	-267
	P4	N3 / M50 Interchange WB circulating	1,883	1,231	-652
	P4	R147 Navan Road east of Auburn Avenue	2,755	2,367	-388
North of R147 Navan Road, west of rail line	P5	R147 Navan Road between Ashtown Road and Kinvara Road	2,079	1,580	-499
	P5	R147 Navan Road between Kinvara Road and Nephin Road	1,406	1,019	-386
	P5	R147 Navan Road between Skreen Road and Cabra Road	1,374	770	-604
	P5	Old Cabra Road	1253	117	-1136
	P5	Prussia Street	991	65	-926
	P5	Manor Street	1,329	149	-1,180
City Centre south and west of LUAS line	P7	Stoneybatter	1,400	313	-1,088
	P7	Blackhall Place	1,069	385	-684
	P7	King Street North	550	340	-210
	P7	Queen Street	550	49	-501

As indicated by the results in Table 6.67, the traffic reductions vary between -179 and -1,180 combined flows, ranging between a Slight to Profound magnitude of impacts. The biggest positive impacts are predicted on Manor Street, Blanchardstown Road South and Stoneybatter This reduction in general traffic flow has been determined as an overall **Positive, Significant and Long-term effect** on the direct study area.

Increases in General Traffic Flows: The red lines in Diagram 6.25 indicate where the LAM predicts that an increase of at least +100 combined traffic flows will occur. These are presented in Table 6.68.

Table 6.68 Road Links that Experience an Increase of ≥ 100 Combined Flows during PM Peak Hour (Direct Study Area)

Location	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	A1	N3 J2 SB on-slip	851	1,066	+215
	A2	N3 J2 NB off-slip	421	830	+409
	A1	N3 EB between J2 and M50	3,281	3,488	+208
North of the M50, west of Junction 2	A4	N3 EB to J6	508	663	+155

Table 6.68 shows that there are predicted to be Slight to Moderate negative magnitude of impacts on five links in the direct study area, ranging from +101 to +409 combined peak hour flows.

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 reductions in general traffic 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 6.69.

Table 6.69 Road Links that Experience a Reduction of ≥ 100 Combined Flows during PM Peak Hour (Indirect Study Area)

Orientation	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	P1	Blanchardstown Centre	475	199	-276
	P1	Blanchardstown Road South of Blanchardstown Centre	1,769	1,299	-470
	P1	Blanchardstown Road South Nb Onto N3 Eb Slip	434	333	-101
	P1	Blanchardstown Road South Nb Onto N3 Wb Slip	893	671	-223
	P1	N3	3,181	2,687	-493
	P1	N3 J3 Sb Off Slip	518	189	-328
	P1	N3 J3 Sb On Slip	879	576	-303
	P1	N3 Nb onto Blanchardstown Rd South Slip	855	411	-444
	P1	N3 Nb onto Main Street Slip	723	503	-220
South of the M50, west of M50 / N3 Interchange	P2	Blakestown Way	1,080	526	-554
	P2	Huntstown Drive	653	552	-101

Orientation	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P2	Huntstown Way	1,147	983	-164
	P2	N3 Eb Between J4 And J3	2,008	1,754	-253
	P2	N3 J3 Nb Off Slip	823	384	-439
	P2	R121	2,414	1,294	-1,120
	P2	Roselawn Road	790	664	-126
North of the M50, east of Junction 2	P3	Access Road Connolly Hospital onto R806	623	422	-201
	P3	Castleknock Road	1,240	1,030	-209
M50 / N3 Interchange area	P4	Ashtown Gate Road	405	280	-125
	P4	Ashtown Road	694	501	-193
	P4	Auburn Avenue	943	478	-465
	P4	Auburn Park	318	209	-109
	P4	Dunsink Lane	1,760	1,600	-160
	P4	J6 Rbt	1,883	1,231	-652
	P4	Laurel Lodge Road	967	844	-124
	P4	M50	6,546	6,301	-245
	P4	M50 J6 Rbt	2,537	1,549	-988
	P4	M50 J6 Sb Off Slip from M50	719	323	-396
	P4	M50 Nb onto J6 Rbt Slip	654	318	-336
	P4	M50 Nb South of J6	6,208	5,906	-302
	P4	N3 Eb at J6 Approach to Dunsink Lane	417	30	-387
	P4	N3 Wb at J6	1,634	1,149	-485
	P4	North Road	341	185	-155
P4	Old Navan Road	772	455	-316	
P4	Park Lodge	967	844	-124	
North of R147 Navan Road, west of rail line	P5	Aughrim Street	411	175	-236
	P5	Broombridge Road	339	204	-134
	P5	Cabra Road	857	463	-394
	P5	Glenbeigh Road	304	142	-162
	P5	Ratoath Road	1,066	260	-806
	P5	River Road	791	626	-165
City Centre north and east of LUAS line	P6	Eccles Street	687	561	-126
	P6	High Street	1,592	1,471	-121
	P6	North Circular Road	1,083	433	-650

Orientation	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P6	Prospect Road	1,365	1,203	-162
City Centre south and west of LUAS line	P7	Annamoe Road	348	187	-161
	P7	Annamoe Terrace	348	187	-161
	P7	Baggot Road	372	259	-113
	P7	Benburb Street	211	84	-127
	P7	Blackhall Bridge	979	493	-487
	P7	Blackhorse Avenue	752	430	-323
	P7	Bridge Street Upper	1,942	1,815	-126
	P7	Bridgefoot Street	391	153	-237
	P7	Merchant's Quay	1,600	1,482	-118
	P7	Queen Street Bridge	444	341	-103
	P7	Usher's Quay	1,920	1,707	-213

The LAM, as demonstrated by the contents of Table 6.69, indicates that during the 2028 Opening Year, the traffic reductions vary between -101 and -1,120 combined flows along the surrounding road links, ranging from Slight to Profound positive magnitude of impacts, although the majority are Slight. The biggest reductions are predicted on Blanchardstown Road South. This reduction in general traffic flow has been determined as an overall **Positive, Slight and Long-term effect** on the direct study area.

Increases in General Traffic Flows: The key road links which experience additional traffic volumes in the PM Peak Hour are illustrated by the red lines in Diagram 6.25. These red lines indicate where an increase in at least 100 combined flows are occurring. The key increases in traffic flows along the indirect study area during the PM Peak Hour are outlined in Table 6.70.

Table 6.70: Road Links Where Link Threshold of 100 Combined Flows is Exceeded (PM Peak Hour)

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
North of the M50, west of Junction 2	P1	Cherryhound Tyrellstown Link Road	698	941	+243
	P1	Damastown Avenue	887	1,068	+181
	P1	Damastown Close	688	818	+130
	P1	Damastown Road	1,097	1,310	+213
	P1	Tolka Valley Park Road	645	779	+134
South of the M50, west of M50 / N3 Interchange	P2	Blakestown Road	951	1,573	+623
	P2	Blanchardstown Bypass	3,281	3,488	+208
	P2	Coolmine Road	721	937	+216
	P2	Diswellstown Road	869	1,044	+175
	P2	Hansfield Road	399	509	+110

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P2	Hartstown Road	299	451	+152
	P2	Inglewood Road	237	461	+224
	P2	L30862 Blanchardstown Centre	248	406	+158
	P2	Littlepace Distributor Road	985	1,172	+188
	P2	N3	1,347	1,731	+384
	P2	N3 J2 Nb Off-Slip	421	830	+409
	P2	N3 Wb onto R843	421	830	+409
	P2	Phibblestown Road	546	657	+111
	P2	Porterstown Link Road	785	898	+112
	P2	Porterstown Road	913	1,024	+111
	P2	Shelerin Road	321	538	+217
	P2	Snugborough Road Extension	980	1,308	+328
North of the M50, east of Junction 2	P3	Ballycoolin Road	1,128	1,414	+285
	P3	Blackcourt Road	562	813	+251
	P3	Cappagh Road	1,723	1,850	+127
	P3	Corduff Road 2	562	813	+251
	P3	Cruiserath Road	448	657	+209
	P3	N3 J2 Sb On-Slip	851	1,066	+215
	P3	Navan Road	229	577	+348
	P3	Snugborough Road	1,525	1,819	+394
M50 / N3 Interchange area	P4	Church Road	968	1,128	+160
	P4	Clonsilla Road	363	659	+296
	P4	M50	648	789	+141
	P4	M50 North onto Wb N3	2,161	2,493	+332
	P4	M50 South onto Wb N3	1,041	1,277	+236
	P4	Main Street	402	516	+114
	P4	Main Street onto N3 south slip	307	531	+224
	P4	N3 Eb Through M50 Interchange	2,151	2,380	+229
	P4	Old Navan Road	159	385	+226
	P4	Roselawn Road	275	387	+112
North of R147 Navan Road, west of rail line	P5	Dunmanus Road	701	1,107	+406
	P5	Fassaugh Avenue	733	1,212	+479
	P5	Fassaugh Road	726	1,260	+534

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P5	Ratoath Road	517	670	+153
City Centre north and east of LUAS line	P6	Berkeley Road	259	487	+228
	P6	Berkeley Street	334	573	+239
	P6	Connaught Street	641	1,179	+538
	P6	Dorset Street Lower	2,805	3,026	+221
	P6	Dorset Street Upper	1,287	1,540	+253
	P6	Finglas Road	1,615	1,771	+156
	P6	King Street North	78	367	+289
	P6	Leinster Street North	302	558	+256
	P6	Mountjoy Street	262	503	+241
	P6	Phibsborough Road	1,356	1,606	+249
	P6	Prospect Way	613	736	+123
	P6	Shandon Road	302	558	+256
	P6	Western Way	211	400	+189
	P6	Whitworth Road	971	1,194	+223
	City Centre south and west of LUAS line	P7	Blackhorse Avenue	441	660
P7		Bolton Street	1,424	1,693	+270
P7		Bow Street	210	322	+112
P7		Bridgefoot Street	1,241	1,361	+120
P7		Brunswick Street North	0	150	+150
P7		Chesterfield Avenue	835	1,050	+215
P7		Church Street	1,426	1,788	+362
P7		Church Street Upper	1,160	1,430	+269
P7		Constitution Hill	1,324	1,593	+269
P7		Ellis Quay	696	883	+187
P7		Fountain Road	790	1,072	+282
P7		Frank Sherwin Bridge	1,667	1,979	+311
P7		Georges Lane	140	367	+227
P7		Mary's Lane	410	535	+125
P7		North Road	644	909	+264
P7		Oliver Bond Street	444	641	+196
P7		Oxmantown Road	126	233	+107
P7	Parkgate Street	1,450	1,902	+451	

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P7	Parnell Street	387	487	+100
	P7	Sarsfield Quay	1,176	1,302	+126
	P7	Skreen Road	152	299	+147
	P7	St Joseph's Road	29	148	+119
	P7	Thomas Street	1,230	1,351	+120
	P7	Usher's Island	1,754	2,142	+388
	P7	Victoria Quay	1,897	2,258	+361
	P7	Wolfe Tone Quay	1,430	1,894	+463
	P7	Wormwood Gate	335	577	+242
	P7	Zoo Road	384	619	+235

As presented in Table 6.70, the additional traffic on the indirect road links varies between +100 and +623 combined flows during the PM peak hour, which ranges from a Slight to Significant magnitude of impact, although the majority of increases are Slight. The biggest increases are predicted on Blakestown Road, Connaught Street, Fassauga Road and Fassauga Avenue.

6.4.6.2.8.6 National Roads – 5% Threshold Impact Assessment

On the basis of the assessment methodology specifically for national roads, the inbound flow differences between the Do Minimum and Do Something scenarios during the PM Peak Hour at the National Road junctions within the indirect study area are presented in Table 6.71.

Table 6.71: National Road Links Traffic Threshold Assessment (PM Peak Hour)

Junction	Total Do Minimum Inbound Flows (PCUs)	Total Do Something Inbound Flows (PCUs)	Difference (PCUs)	Percentage Difference
N3 Junction 4a	6,293	5,798	-495	-7.9%
N3 Junction 4b	5,172	5,154	-18	-0.3%
N3 Junction 3	6,159	3,499	-2,659	-43.2%
N3 Junction 2	3,969	4,716	747	18.8%
M50 Junction 6	10,188	9,063	-1,125	-11.0%

The contents of Table 6.71 show that traffic flows are predicted to decrease at four of the five junctions assessed, meaning that the Proposed Scheme will have a positive impact at these locations. At N3 Junction 2, traffic flows are predicted to increase by 18.8% as a result of the scheme, primarily due to increases in inbound traffic on Snugborough Road to the north-east, and on the N3 northbound off-slip.

The local road junctions at N3 Junction 2 are:

- R843 Snugborough Road / L3020 signalised junction; and
- R843 Snugborough Road / Waterville Road roundabout.

Both of these junctions are due to be modified by Fingal County Council as part of the Snugborough Interchange Upgrade scheme. This will involve the widening of the Snugborough Road bridge and the L3020 to accommodate additional bus lanes and general traffic lanes, and the conversion of the R843 Snugborough Road / Waterville Road roundabout to a signalised junction. The scheme is expected to be completed in February 2023.

Testing within the LAM shows that when optimised, both of the local road junctions at N3 J2 are expected to operate with V / C of under 100% in the PM peak hour.

No further assessment into the junctions with national roads during the PM peak hour has been undertaken, except for instances where the 100 combined flow of additional traffic threshold is exceeded.

6.4.6.2.8.7 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, has spare capacity, and that traffic does not experience 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 6.72.

Table 6.72 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 6.73 have been used to describe the impact.

Table 6.73 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 6.73, 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 (EPA 2022).

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 25 to Table 28 of Appendix A6.4.4 (General Traffic Assessment). The tables shown in this section show only those junctions with a predicted Significance of Effect of Slight or higher. A full list of junctions is included in 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 6.74 outline the V / C ratios at the key local / regional road junctions in the AM Peak Hour for the 2028 Opening Year and the resultant magnitude of impact and significance of effect at each junction. 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 6.74: 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%		
Blakestown Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low	Moderate
Diswellstown Road	Medium	Porterstown Link Road / Diswellstown Road		✓				✓	Medium	Significant
R121 Hollywoodrath Road	Medium	Church Road / Cruiserath Road / Damastown Avenue Roundabout	✓				✓		Low	Moderate
Church Road	High	Church Road / Navan Road (Tolka Park Road)	✓				✓		Low	Moderate
Damastown Road	Medium	Damastown Road / Damastown Drive Rbt		✓				✓	Medium	Significant
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low	Moderate
Church Road	High	Ladys Well Road / Church Road (south)	✓				✓		Low	Moderate
Blanchardstown Road South	Medium	Ongar Distributor Road / Blanchardstown Road South	✓				✓		Low	Moderate
Castleknock Road	Medium	Roselawn Road / Castleknock Road / Castleknock Road	✓				✓		Low	Moderate
Main Street	Low	Clonee Road / Main Street / R156		✓				✓	Medium	Moderate
Dorset Street Lower	Low	Dorset Street Lower / Eccles Place / Dorset Street Lower	✓				✓		Low	Slight
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low	Slight
Dorset Street Upper	Low	Dorset Street Upper / Dorset Street Upper / Frederick Lane North	✓				✓		Low	Slight
Dorset Street Upper	Low	Dorset Street Upper / Wellington Street Lower / Dorset Street Upper	✓				✓		Low	Slight
Constitution Hill	Low	Constitution Hill / Western Way		✓				✓	Medium	Moderate
Berkeley Road	Low	North Circular Road / Berkeley Road / North Circular Road	✓				✓		Low	Slight
James's Street	Low	Echlin Street / Echlin Street / James's Street / James's Street	✓				✓		Low	Slight

The results of the junction analysis shown in Table 6.74 demonstrate that **Negative Significant** effects are predicted at the following junctions:

- Porterstown Link Road / Diswellstown Road signalised junction (28317) - predicted to operate with a maximum V / C of 99% in the Do Minimum and 102% in the Do Something scenario. This is a marginal increase as a result of the scheme.
- Damastown Road / Damastown Drive Roundabout (28188) - predicted to operate with a maximum V / C of 97% in the Do Minimum and 101% in the Do Something scenario. This is a marginal increase as a result of the scheme.

At both of the above junctions, the results demonstrate that the Proposed Scheme is expected to have only a very marginal impact upon junction performance, and no mitigation is deemed to be required.

Of the remaining junctions that have been assessed:

- 167 are predicted to experience **Not Significant** effects (not shown in Table 6.74);
- 11 are predicted to experience **Imperceptible** effects (not shown in Table 6.74); and
- Five are predicted to experience **Slight Positive** effects (not shown in Table 6.75).

Capacity issues (V/C >100%) have been identified at the following junctions:

- Littlepace Road / Littlepace Distributor Road;
- Edgewood Lawns / Snugborough Road / Snugborough Road;
- Castleknock Road / Main Street; and
- High Street / Nicholas Street / St Michaels Hill / Clanbrassil Street Upper / Christchurch Place.

At each of the above junctions, the maximum V/C is also predicted to be over 100% in the Do Minimum scenario, meaning that any capacity issues are not predicted to arise as a result of the scheme.

No further assessment into potential mitigation measures is therefore required for junctions in the 2028 AM Peak Hour scenario.

General Traffic Impact Assessment (2028 Opening Year) – Indirect Study Area- PM Peak Hour

The contents of Table 6.75 outline the V / C ratios at the key local / regional road junctions in the PM Peak Hour for the 2028 Opening Year and the resultant magnitude of impact and significance of effect at each junction. 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 6.75: 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%		
Snugborough Road	Medium	Snugborough Road / Waterville Road	✓				✓		Low	Moderate
Snugborough Road	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low	Moderate
Snugborough Road Extension	Medium	R843 / Snugborough Road / Main Street	✓				✓		Low	Moderate
Snugborough Road Extension	Medium	Porters Road / Snugborough Road Ext	✓				✓		Low	Moderate
Navan Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low	Moderate
Blakestown Road	High	Blakestown Road / Blakestown Way / Huntstown Way	✓				✓		Low	Moderate
Snugborough Road	High	Edgewood Lawns / Snugborough Road / Snugborough Road	✓				✓		Low	Moderate
Main Street	Low	Church Avenue / Main Street / Main Street / Mill Road	✓				✓		Low	Slight
Cappagh Road	Medium	Ballycoolin Road / Cappagh Road	✓				✓		Low	Moderate
Main Street	Low	Clonsilla Road / Main Street /	✓				✓		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%		
Dorset Street Lower	Low	Whitworth Place / Drumcondra Road Lower / Drumcondra Road Lower / Drumcondra Road Lower		✓				✓	Medium	Moderate
Dorset Street Lower	Low	Dorset Street Lower / Dorset Street Lower	✓				✓		Low	Slight
Shandon Road	High	Connaught Street / St Peters Road / Connaught Street	✓				✓		Low	Moderate
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low	Slight
King Street North	Low	King Street North / Church Street / Church Street Upper / King Street North	✓					✓	High	Moderate
Church Street	Low	Father Mathew Bridge / Merchant's Quay / Bridge Street Lower / Usher's Quay	✓				✓		Low	Slight
Frank Sherwin Bridge	Low	St Johns Road West / R148 / Frank Sherwin Bridge	✓				✓		Low	Slight
Constitution Hill	Low	Constitution Hill / Western Way		✓				✓	Medium	Moderate
Sarsfield Quay	Low	Liffey Street West / Sarsfield Quay / Wolfe Tone Quay	✓				✓		Low	Slight

No Significant effects (or higher) are predicted at any further junctions in the PM peak hour in 2028. Of the remaining junctions that have been assessed:

- 128 are predicted to experience **Not Significant** effects (not shown in Table 6.75);
- Four are predicted to experience **Imperceptible** effects (not shown in Table 6.75); and
- Four are predicted to experience **Slight Positive** effects (not shown in Table 6.75).

No further assessment into potential mitigation measures is therefore required for junctions in the 2028 PM Peak Hour scenario.

2043 Opening Year + 15 Years - Do Minimum vs Do Something – AM Peak Hour

The contents of Table 6.76 outline the V / C ratios at the key local / regional road junctions in the AM Peak Hour for the 2043 Design Year and the resultant magnitude of impact and significance of effect at each junction. 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 6.76: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), AM Peak, 2043 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%		
Navan Road West of Church Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low	Moderate
Diswellstown Road	Medium	Porterstown Link Road / Diswellstown Road		✓				✓	Medium	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%		
R121 Hollywoodrath Road	Medium	Church Road / Cruiserath Road / Damastown Avenue Roundabout	✓				✓		Low	Moderate
Church Road	High	Church Road / Navan Road (Tolka Park Road)	✓				✓		Low	Moderate
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low	Moderate
N3 J2 Nb Off Slip	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low	Moderate
Castleknock Road	Medium	Roselawn Road / Castleknock Road / Castleknock Road	✓				✓		Low	Moderate
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low	Slight
Dorset Street Upper	Low	Dorset Street Upper / Dorset Street Upper / Frederick Lane North	✓				✓		Low	Slight
Dorset Street Upper	Low	Dorset Street Upper / Wellington Street Lower / Dorset Street Upper	✓				✓		Low	Slight
Western Way	Low	Constitution Hill / Western Way		✓				✓	Medium	Moderate
Berkeley Road	Low	North Circular Road / Berkeley Road / North Circular Road	✓				✓		Low	Slight
James's Street	Low	Echlin Street / Echlin Street / James's Street / James's Street	✓				✓		Low	Slight
James's Street	Low	James's Street / Watling Street / James's Street	✓				✓		Low	Slight

Negative Significant effects are predicted at the following junction:

- Porterstown Link Road / Diswellstown Road junction (28317) - predicted to operate with a maximum V / C of 94% in the Do Minimum and 101% in the Do Something scenario. This is a marginal increase as a result of the scheme.

The results demonstrate that the Proposed Scheme is expected to have only a very marginal impact upon junction performance, and no mitigation is deemed to be required.

Of the remaining junctions that have been assessed:

- 170 are predicted to experience **Not Significant effects** (not shown in Table 6.76);
- 10 are predicted to experience **Imperceptible** effects (not shown in Table 6.76); and
- Three are predicted to experience **Slight Positive** effects (not shown in Table 6.75).

Capacity issues (V/C >100%) have been identified at the following junctions:

- Dorset Street Lower / Belvedere Road; and
- Finglas Road / Prospect Way.

At both of the above junctions, the maximum V/C is also predicted to be over 100% in the Do Minimum scenario, meaning that any capacity issues are not predicted to arise as a result of the scheme.

No further assessment into potential mitigation measures is therefore required for junctions in the 2043 AM Peak Hour scenario.

2043 Opening Year + 15 Years - Do Minimum vs Do Something – PM Peak Hour

The contents of Table 6.77 outline the V / C ratios at the key local / regional road junctions in the PM Peak Hour for the 2043 Design Year and the resultant magnitude of impact and significance of effect at each junction. 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 6.77: Volume over Capacity Ratios at Key Junctions (Do Minimum vs. Do Something), PM Peak, 2043 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%		
Snugborough Road	Medium	Snugborough Road / Waterville Road	✓				✓		Low	Moderate
Snugborough Road	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low	Moderate
Snugborough Road Extension	Medium	R843 / Snugborough Road / Main Street	✓				✓		Low	Moderate
Navan Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low	Moderate
Blakestown Road	High	Blakestown Road / Blakestown Way / Huntstown Way	✓				✓		Low	Moderate
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low	Moderate
Snugborough Road	High	Edgewood Lawns / Snugborough Road / Snugborough Road	✓				✓		Low	Moderate
Main Street	Low	Church Avenue / Main Street / Main Street / Mill Road	✓				✓		Low	Slight
Cappagh Road	Medium	Ballycoolin Road / Cappagh Road	✓				✓		Low	Moderate
Main Street	Low	Clonsilla Road / Main Street /	✓				✓		Low	Slight
Shandon Road	High	Connaught Street / St Peters Road / Connaught Street	✓				✓		Low	Moderate
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low	Slight
King Street North	Low	King Street North / Church Street / Church Street Upper / King Street North	✓				✓		Low	Slight
Church Street	Low	Father Mathew Bridge / Merchant's Quay / Bridge Street Lower / Usher's Quay	✓				✓		Low	Slight

Of the remaining junctions that have been assessed:

- 133 are predicted to experience Not Significant effects (not shown in Table 6.77);
- Four are predicted to experience Imperceptible effects (not shown in Table 6.77); and
- Five are predicted to experience Slight Positive effects (not shown in Table 6.77).

Capacity issues (V/C >100%) have been identified at the following junctions:

- Finglas Road / Prospect Way.

At the above junction, the maximum V/C is also predicted to be over 100% in the Do Minimum scenario, meaning that any capacity issues are not predicted to arise as a result of the scheme.

No further assessment into potential mitigation measures is therefore required for junctions in the 2043 PM Peak Hour scenario.

6.4.6.2.8.8 Night-time Traffic Redistribution

The night-time period is defined as between 23:00 and 07:00. Analysis of traffic data during this period indicates that traffic levels are considerably lower and that junctions have a higher capacity for vehicular movement. Less pedestrian, cycling and bus demand requirements leading to higher level of general traffic green time allocation per typical signal cycle

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 the Proposed Schemes will be **Negligible and Long-term** during the night-time period.

6.4.6.2.8.9 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;
- **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 roads that required further traffic analysis:

- **AM Peak Hour:** A total of 94 road links, as listed in Table 6.63 and Table 6.65.
- **PM Peak Hour:** A total of 91 road links, as listed in Table 6.68 and Table 6.70.

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 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 for the additional general traffic volumes redistributed, as a result of the Proposed Scheme and the effect is deemed **Imperceptible / Not Significant**.

In the AM 2028 peak hour, **Negative Significant** effects are predicted at the following junctions:

- Porterstown Link Road / Diswellstown Road signalised junction (28317) - predicted to operate with a maximum V / C of 99% in the Do Minimum and 102% in the Do Something scenario. This is a marginal increase as a result of the scheme.
- Damastown Road / Damastown Drive Roundabout (28188) - predicted to operate with a maximum V / C of 97% in the Do Minimum and 101% in the Do Something scenario. This is a marginal increase as a result of the scheme.

At both of the above junctions, the results demonstrate that the Proposed Scheme is expected to have only a very marginal impact upon junction performance, and no mitigation is deemed to be required.

In the PM 2028 peak hour, no Significance of Effects of 'Significant' or higher are predicted.

2028 National Roads Assessment

The assessment of National Roads junctions has shown in that in the majority of cases junctions within the study area are predicted to experience reductions in flows or increases below the 5% threshold for assessment.

At N3 Junction 2 in the AM and PM peak hours, traffic flows are predicted to increase by 5.4% and 18.8% respectively, as a result of the Proposed Scheme, primarily due to increases in inbound traffic on Snugborough Road to the north-east, and on the N3 northbound off-slip.

The local road junctions at N3 Junction 2 are:

- R843 Snugborough Road / L3020 signalised junction; and
- R843 Snugborough Road / Waterville Road roundabout.

Both of these junctions are due to be modified by Fingal County Council as part of the Snugborough Interchange Upgrade scheme. This will involve the widening of the Snugborough Road bridge and the L3020 to accommodate additional bus lanes and general traffic lanes, and the conversion of the R843 Snugborough Road / Waterville Road roundabout to a signalised junction. The scheme expected to be completed in February 2023.

Testing within the LAM shows that, with the upgrade, and when optimised, both of the local road junctions at N3 J2 are expected to operate with V / C of under 100% in the peak hours.

Overall, the Proposed Scheme is expected to have a slight positive effect on turning flows at junctions with National roads in both the AM and PM peak hours in 2028.

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 for the additional general traffic volumes redistributed, as a result of the Proposed Scheme and the effect is deemed **Imperceptible / Not Significant**.

In the AM 2043 peak hour, **Negative Significant** effects are predicted at the following junctions:

- Porterstown Link Road / Diswellstown Road junction (28317) - predicted to operate with a maximum V / C of 94% in the Do Minimum and 101% in the Do Something scenario. This is a marginal increase as a result of the scheme.

The results demonstrate that the Proposed Scheme is expected to have only a very marginal impact upon junction performance, and no mitigation is deemed to be required.

In the PM 2043 peak hour, no Significance of Effects of 'Significant' or higher are predicted.

Overall Summary

Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be **Positive, Significant and Long-term** whilst the impact of the redistributed general traffic along the surrounding road network will be **Negative, Slight and Long-term**.

It should be noted that while Significant effects have been identified, these are at a small number of individual junctions, and effects will be short-lived and localised. This level of congestion is acceptable according to national guidance. Section 3.4.2 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 and in the context of the increased movement of people overall and by sustainable modes in particular. Therefore, the proposed impacts are considered acceptable when considered against the Scheme Objectives.

Given that the redistributed traffic will not lead to a significant deterioration of the operational capacity on the surrounding road network, no 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 has been undertaken using a set of five criteria to determine the impact that the Proposed Scheme has for pedestrians. The assessments demonstrate in the Do Minimum scenario, 70% of the junctions assessed had LoS ratings of D or below, 24% had a C rating, and just 5% had a B rating. In the Do Something scenario, i.e. following the development of the Proposed Scheme, 84% of the assessed junctions had the highest A / B LoS ratings, and 11% C ratings. The improvements to the quality of the pedestrian infrastructure will be **Positive, Moderate and Long-term** in Section 2, **Positive, Very Significant and Long-term** in Sections 1, 3 and 4 and **Positive, Significant and Long-term** in Sections 5 the Proposed Scheme.

- **Cycling Infrastructure:** The Proposed Scheme also consists of measures to enhance the existing cycling infrastructure 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 assessments demonstrate in the Do Minimum scenario, 71% of the route sections assessed had LoS ratings of C or below, 24% had a C rating, with 29% having a B rating.

In the Do Something scenario, 85% of the assessed route sections had A or B LoS ratings, and 15% C ratings. The potential improvements to the quality of the cycling infrastructure will be **Positive, Significant and Long-term** in Section 1, **Negligible** in Section 2, **Positive, Moderate and Long-term** in Sections 3 and 5 and **Positive, Very Significant and Long-term** in Section 4.

- **Bus Infrastructure:** A qualitative impact assessment has been undertaken based on the provision of bus priority, pedestrian accessibility and changes to the bus stop facilities. The results of the assessment demonstrate that the improvements to the quality of the bus infrastructure will be **Positive, Profound and Long-term** in Section 1, **Positive, Moderate and Long-term** in Section 2, **Positive, Very Significant and Long-term** in Sections 3, 4 and 5.
- **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 94 spaces (-20 spaces in Section 4, and -74 spaces in Section 5)) Given the nature of the loss in parking and the availability of alternative spaces in the indirect study area, the impact is expected to be **Slight** in Section 4 and **Negative, Moderate and Long-term** in Section 5.
- **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 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 43% and 48% 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 in 48% and 62% in the number of people travelling along the Proposed Scheme during the AM and PM Peak Hours.

The analysis also shows that there will be an increase in 21.0% and 23.3% of passengers boarding buses during the 2028 AM and PM Peak Hours respectively. During the 2043 scenario there will be an increase in 25.9% and 25.6% 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.

- **Operational Impacts for Bus Passengers and Operators:** A micro-simulation modelling assessment has been developed and network performance indicators established for 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 10% and 14% during the AM and PM Peak hours of the 2028 Opening Year and 2043 Design Year. Based on the AM and PM peak hours alone, this equates to **8.5 hours of savings in 2028 and 7.7 hours in 2043**, when compared to the Do Minimum combined across all buses. On an annual basis this equates to approximately 6,400 hours of bus vehicle savings in 2028 and 5,800 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 to the network performance indicators for bus users along the Proposed Scheme will be **Positive, Very Significant and Long-term**.
- **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 to the existing road layout outlined above. This reduction in operational capacity for general traffic will create some level of traffic redistribution 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 Volume / Capacity 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 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.

Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be **Positive, Significant and Long-term** whilst the impact of the redistributed general traffic along the surrounding road network will be **Negative, Slight and Long-term**. 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.

Table 6.78 presents a summary of the predicted impacts of the Proposed Scheme during the Operational Phase.

Table 6.78: Summary of Predicted Operational Phase Impacts

Assessment Topic	Effect	Predicted 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 Slight to Very Significant and Long-term
Bus Infrastructure	Improvements to the quality of the bus infrastructure along the Proposed Scheme.	Positive, Moderate to Profound and Long-term
Parking and Loading	A total loss of 94 parking / loading spaces along the Proposed Scheme.	Negative, Negligible to Moderate and Long-term
People Movement	Increases to the total number of people travelling through 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, Significant and Long-term
	Redistributed general traffic along the surrounding road network in the indirect study area as a result of the reduction of reserve capacity along the Proposed Scheme.	Negative, Slight and Long-term

As outlined within Section 6.4 and summarised in Table 6.78 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 and comfort 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 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. The combined effect of these changes 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 and lower reliability for bus journeys. This limits their attractiveness to users, and this will lead to reduced levels of public transport use, making the bus system less resilient to higher levels of growth. 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 that is a key part of the GDA Strategy and will enable the city to grow sustainably into the future. This 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) of this EIAR outlines a number of mitigation measures to minimise the impacts of the Construction Phase of the Proposed Scheme for walking, cycling, bus, parking and general traffic.

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 personnel to travel to site by sustainable means.

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 movements, mitigation and monitoring measures have not been considered for these assessments.

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 (2016). Dublin City Development Plan
- DCC and NTA (2016). Transport Study
- DCCAIE (2018). Sustainable Development Goals National Implementation Plan
- DCCAIE (2019). Climate Action Plan 2019
- DCCAIE (2021). Climate Action Plan 2021
- 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)
- DTTAS (2009). National Cycle Policy Framework
- DTTAS (2019). Design Manual for Urban Roads and Streets
- DTTAS (2019). Smarter Travel: A Sustainable Transport Future (2009 – 2020)
- DTTAS (2019). Statement of Strategy
- DTTAS (2019). Temporary Traffic Management Design Guidance
- DTTAS (2019). Traffic Management Guidelines
- DTTAS (2019). Traffic Signs Manual
- DTTAS (2021). Draft National Investment Framework for Transport in Ireland
- 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. May 2022
- NAVTEQ (2011). The NavStreets Reference Manual
- NTA (2011). National Cycle Manual
- NTA (2013). Greater Dublin Area Cycle Network Plan
- NTA (2016). Transport Strategy for the Greater Dublin Area (2016 – 2035)
- RSA (2019). Road Safety Strategy (2013-2020)
- TII (2014) Traffic and Transport Assessment Guidelines
- Transport for London (2010) Traffic Modelling Guidelines

TRB (2000) Highway Capacity Manual

TRB (2013) Transit Capacity and Quality of Service Manual