Appendix A6.1
Transport Impact Assessment Report

Contents

Executive Summary

Introduction

The purpose of this document is to provide a comprehensive Transport Impact Assessment (TIA) of the proposed Blanchardstown to City Centre Scheme (hereafter referred to as the Proposed Scheme). The TIA also informs Chapter 6 of the EIAR (Traffic and Transport) for the Proposed Scheme which has assessed the impacts and significance of those impacts in relation to the receiving environment of the Proposed Scheme.

The Proposed Scheme is being planned to enable and deliver efficient, safe and integrated sustainable transport movement along the corridor. To achieve this overall objective, the National Transport Authority (NTA) has identified the following objectives:

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

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

In line with the above objectives, this TIA is focused on the concept of the "movement of people" rather than the "movement of vehicles". The emphasis of the design philosophy is on maximising the capacity of the Proposed Scheme to move more people by sustainable modes whilst providing for the necessary movement of general traffic along it.

This TIA includes the comprehensive assessment of impacts and benefits of the Proposed Scheme covering all transport modes for both Construction and Operational Phases.

Scheme Description

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.

Assessment Methodology

The assessment of the Proposed Scheme in relation to the baseline transport environment required a qualitative assessment of changes to the transport environment, as well as quantitative analysis undertaken using a suite of multi-modal transport modelling tools which have been developed for the Proposed Scheme Infrastructure Works.

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 because of the Proposed Scheme; and
- Parking / Loading: The changes to the availability of parking and loading because of the Proposed Scheme.

The quantitative assessments are as follows:

- People Movement: An assessment has been carried out to determine the potential impact that the Proposed Scheme will have on projected volume of people moving along the corridor by sustainable modes during the Operational Phase only;
- Bus Performance Indicators: The changes to the projected operational efficiency for buses as a result of the Proposed Scheme;
- General Traffic: The direct and indirect impacts on general traffic using the Proposed Scheme and surrounding road network; and
- Network-Wide Performance Indicators: The strategic changes to queuing, total travel times, total travel distance and average network speed.

The changes between the Do Minimum and Do Something scenarios have been presented in either a positive, negative or negligible / neutral magnitude of impacts as a result of the Proposed Scheme, dependant on the assessment topic. A high, medium, low or negligible rating has been applied to each impact assessment to determine the Magnitude of Impact. Where appropriate, the changes in conditions between the Do Minimum and Do Something scenarios are outlined using a Level of Service (LoS) approach. This concept allows a straightforward comparison of two differing scenarios using a series of metrics specifically developed for this purpose.

Baseline Environment

A detailed review of the existing traffic and transport conditions within the redline boundary of the Proposed Scheme has been undertaken, specifically for pedestrian, cycling, bus services and priority measures, general traffic and parking / loading facilities. The baseline conditions have been informed by several site visits of the local environment, comprehensive traffic surveys, and a desktop review of the most recent aerial photography.

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).

For the purpose of describing the Proposed Scheme it has been split into the following five sections:

- **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.

Section 1 of the Proposed Scheme commences on the north side of the Blanchardstown Road South junction with 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.

Section 2 of the Proposed Scheme 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 Auburn Avenue 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.

Section 3 of the Proposed Scheme 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 limited pedestrian or cycle facilities.

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.

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.

Potential Impacts

Construction Phase

During the construction phase, the Proposed Scheme will have temporary **Low Negative** impacts to pedestrian bus access and parking and loading.

The Proposed Scheme will have temporary **Medium Negative** impacts on cycle access. 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 on general traffic is anticipated to be a **Medium, Negative** and temporary impact due to the short-term nature of any restrictions. It is anticipated that traffic flows along the scheme will to be maintained in both directions. There may be a requirement for some localised temporary lane closures for short durations of the daytime and night-time, 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 impact of construction traffic is anticipated to result in a **Low Negative** and temporary impact due to the low numbers of vehicles anticipated which are and below the thresholds set out in the Transport Assessments Guidelines.

Summary of Construction Phase Predicted Impacts

Assessment Topic	Effect	Predicted Impact
Pedestrian Access	Restrictions to pedestrians along Proposed Scheme.	Low Negative
Cycling Access	Restrictions to cyclists along Proposed Scheme	Medium Negative
Bus Access	Restrictions to public transport along Proposed Scheme.	Low Negative
Parking and Loading	Restrictions to parking / loading along Proposed Scheme.	Low Negative
General Traffic	Restrictions to general traffic along Proposed Scheme	Medium Negative
	Additional construction traffic flows upon surrounding road network	Low Negative

Operational Phase

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 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.

  Overall, the scheme will have **Medium Positive impacts** in Sections 1, 2 and 5 and **High Positive impacts** in Sections 3 and 4.

- **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.

Overall, the scheme will have **Medium Positive impacts** in Sections 1, 3, 4, and 5. There will be no impact in Section 2. Although bus lanes will be constructed along this section, it is not intended that these will be used by cyclists

- **Bus Infrastructure:** The implementation of the Proposed Scheme will result in improvements in the quality of bus infrastructure provision along the direct study area. A qualitative impact assessment has been undertaken based on the provision of bus priority, pedestrian accessibility and changes to the bus stop facilities. Overall, the scheme will have **High Positive impacts** in Sections 1, 2 and 3, and **Medium Positive impacts** in Sections 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 **Negligible** in Section 4 and **Medium Negative** 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 of 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 of 21.0% and 23.3% in the number of passengers boarding buses during the 2028 AM and PM Peak Hours respectively. During the 2043 scenario there will be an increase of 25.9% and 25.6% in the number of passengers boarding buses during the AM and PM Peak Hours respectively. Overall, it is anticipated that the increases to the total number of people travelling along the Proposed Scheme will result in a **High Positive impact.**

- **Bus Network Performance Indicators:** 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 have a **High Positive impact.**

- **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 of the assessment demonstrate that the surrounding road network largely has the capacity to accommodate the redistributed general traffic as a result of the Proposed Scheme. The majority of assessed junctions that required further traffic analysis have V / C ratios that are broadly similar before and after the Proposed Scheme implementation.

Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be a **Medium Positive** impact whilst the impact of the redistributed general traffic along the surrounding road network will have a **Medium Negative impact**.

- **Network Wide Performance Indicators:** Given the impacts to the traffic conditions outlined above, there will be a knock-on effect to the operational efficiency of the road network beyond the direct and indirect study areas. A quantitative impact assessment has been undertaken using outputs from the NTA's ERM and LAM to determine the conditions to queuing, travel times, travel distances and network speeds during the Do Minimum and Do Something scenarios. The results of the assessment demonstrate that the impacts to the network performance indicators range between range -2 to +2% and will therefore have a **Negligible impact**.
- **Cumulative Assessment**: 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) as facilitated by the GDA Strategy implementation.

  The analysis indicates that the 12 BusConnects Proposed Schemes in place, there will be a high positive impact on sustainable mode share. The schemes will prevent any increase in private car traffic within the study area and will instead result in a reduction in car trips below 2020 levels.

  In the 2028 Opening Year scenario, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 12% increase in public transport trips, 2% decrease in general traffic trips (i.e. motorists) and a 14% increase in cycling trips in the AM Peak Hour and a 12% increase in public transport, 3% decrease in general traffic and a 12% increase in cycling trips each day (7am-7pm). In the 2043 Design Year scenario, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 11% increase in public transport trips, 4% decrease in general traffic trips (i.e. motorists) and a 15% increase in cycling trips in the morning peak hour and a 9% increase in public transport, 5% decrease in general traffic and a 13% increase in cycling trips each day (7am-7pm).

  General traffic levels reduce more in 2043 than when compared to 2028 due to the increased level of additional non-bus public transport infrastructure and services (MetroLink, Luas extensions and DART+ from the GDA Strategy) in tandem with the road capacity reduction measures as part of the Proposed Scheme leading to increased usage on all public transport modes.

  The modelling outputs for the 2028 Cumulative Opening Year scenario demonstrate that there is a high growth in bus patronage along all the Proposed Schemes in the AM Peak Hour. The bigger increases occur in the inbound direction on the Blanchardstown to City Centre, the Rathfarnham to City Centre and the Bray to City Centre schemes where the loadings reach more than 2,000 additional passengers per Hour compared to the Do Minimum scenario.

  In the 2028 Opening Year AM Peak Hour scenario with the Proposed Schemes in place, there will be an estimated 10% more passenger boardings across all public transport services and 17% more boardings on bus services. In the 2028 Opening Year PM Peak Hour scenario with the Proposed Schemes in place, there will be an estimated 11% increase in total passengers boarding Public transport services and 18% more passengers boarding buses services.

  In the 2043 Design Year AM and PM Peak Hour scenarios, increase in total passengers boarding all public transport services will be 9% respectively, and the increase in passengers boarding bus services will increase by 23% and 22% respectively. Overall, the Proposed Schemes are expected to deliver a **High Positive cumulative impact** on People Movement by sustainable modes.

Summary and Conclusions

The Proposed Scheme, between Blanchardstown and the city centre, comprises the development of improved bus priority along the entire route This TIA provides a robust assessment of the scheme through qualitative assessment and quantitative analysis using a suite of multi-modal transport modelling tools.

During the Operational Phase, the Proposed Scheme will deliver positive impacts to the quality in terms of People Movement, pedestrian, cycling and bus infrastructure during the Operational Phase. These improvements will help to provide a more attractive alternative to the private car and promote a modal shift to walking, cycling and public transport, allowing for greater capacity along the corridor to facilitate the sustainable movement of people as population and employment levels grow in the future.

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

In the absence of the Proposed Scheme, bus services will be operating in a more congested environment, leading to higher journey times and lower reliability for bus journeys. This limits their attractiveness to users which will lead to reduced levels of public transport use, making the bus system less resilient to higher levels of growth and leading to increased levels of car use and congestion. The absence of walking and cycling measures that the Proposed Scheme provides will also significantly limit the potential to grow those modes into the future.

On the whole, the Proposed Scheme will make a significant contribution to the overall aims of BusConnects, the GDA Transport Strategy and allow the city to grow sustainably into the future, which would not be possible in the absence of the Proposed Scheme

1. Introduction

This TIA presents a comprehensive review of the traffic and transport impacts associated with the Proposed Scheme, which has informed the production of the EIAR Traffic & Transport chapter. The TIA should be read in conjunction with the EIAR chapter and is included as Chapter 6 (Traffic and Transport) within the 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 1.1 summarises the changes which will be made to the existing transport environment along the corridor as a result of the Proposed Scheme.

Table 1.1: 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	1.5
Total Bus Priority (both directions)	5.5	21.2 (+289%)
Bus Measures		
Proportion of Route with Bus Priority Measures	25%	97%
Cycle Facilities – Segregated		
Inbound	0.8	7.8
Outbound	1.2	8.7
Cyclist Facilities – Non-segregated		
Inbound	3.4 (Non-Segregated)	0.5 (Quiet Streets)

Total Length of Proposed Scheme	10.9km	
Bus Priority	**Existing (km)**	**Proposed Scheme (km)**
Outbound	4 (Non-Segregated	0.5 (Quiet Streets)
Total Cyclist Facilities (both directions)	9.4	17.1 (+82%)
Proportion Segregated (including Quiet Street Treatment)	9%	78%
Other Features		
Number of Traffic Signal Controlled Junctions	27	41
Number of Signal Crossings (Junction arms and mid-block crossings)	77	125 (+62%)

The Proposed Scheme is shown in a series of drawings which are contained in Volume 3 of the EIAR. The following drawings (listed in Table 1.2) should be read in conjunction with this TIA.

Table 1.2: List of Drawings

Drawing Series Number	Description
BCIDC-ARP-GEO_GA-0005_XX_00-DR-CR-9001	General Arrangement
BCIDA-ACM-GEO_CS-0005_XX_00-DR-CR-9001	Typical Cross Sections
BCIDA-ACM-TSM_GA-0005_XX_00-DR-CR-9001	Traffic Signs and Road Markings
BCIDA-ACM-TSM_SJ-0005_XX_00-DR-TR-9001	Junction Systems Design

1.1.1 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;
- Enhance the potential for walking by improving the pedestrian infrastructure on the corridor;
- 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.

1.1.1.1 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.

1.1.1.2 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 the EIAR) was developed. This guidance document was prepared to ensure that a consistent design approach was taken across the various BusConnects Schemes and that the objectives of the project are achieved. A 'People Movement' led design involves the prioritisation of people movement, focusing on maximising the throughput of sustainable modes (i.e. Walking, Cycling and Bus modes) in advance of the consideration and management of general vehicular traffic (private car) at junctions.

In support of this approach, a project specific People Movement at Signal Calculator (PMSC) was developed. The PMSC was applied at the initial design development stage, to provide an initial estimate of green time allocation for all movements at a typical junction, on the basis that sustainable mode movements should be accommodated foremost to maximise people movement with the remaining green time allocated to general traffic movements. The calculations were underpinned by:

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

The outputs of the calculator provided an initial estimate of the green times and vehicle capacity movements based on inputs and assumptions for each junction along the Proposed Scheme. The calculator provided an estimate of the People Movement for the junction in question (by mode) and was used to adjust proposals with a view to maximising the total person throughput at each junction along the Proposed Scheme during the iterative design process, described further below. Details on the development of junction designs along the Proposed Scheme are included in TIA Appendix 2 (Junction Design Report).

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 4.3 below.

1.1.2 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, and the reason for developing a multi-tiered modelling framework (described in Section 4.3.1), 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 4.3.1) was developed to support this iterative design process,

Diagram 1.1 below illustrates this process whereby the emerging design for the Proposed Scheme have been tested using the transport models as part the iteration. The transport models provided an understanding of the benefits and impacts of the proposals (mode share changes, traffic redistribution, bus performance etc.) with traffic flow information also informing other environmental disciplines (such as Air Quality, Noise and Vibration, Climate etc.) which in turn allowed feedback of potential impacts into the design process to allow for changes and in turn mitigation to be embedded in the designs. The design process included physical changes (e.g., cycle lane widening) and adjustments to traffic signals including changes to staging, phasing and green times to limit traffic displacement to the greatest extent possible as well as traffic management arrangements and/or turn bans where appropriate. This ensured that any displaced traffic was kept to a minimum and was maintained on higher capacity roads, whilst continuing to meet scheme objectives along the Proposed Scheme.

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

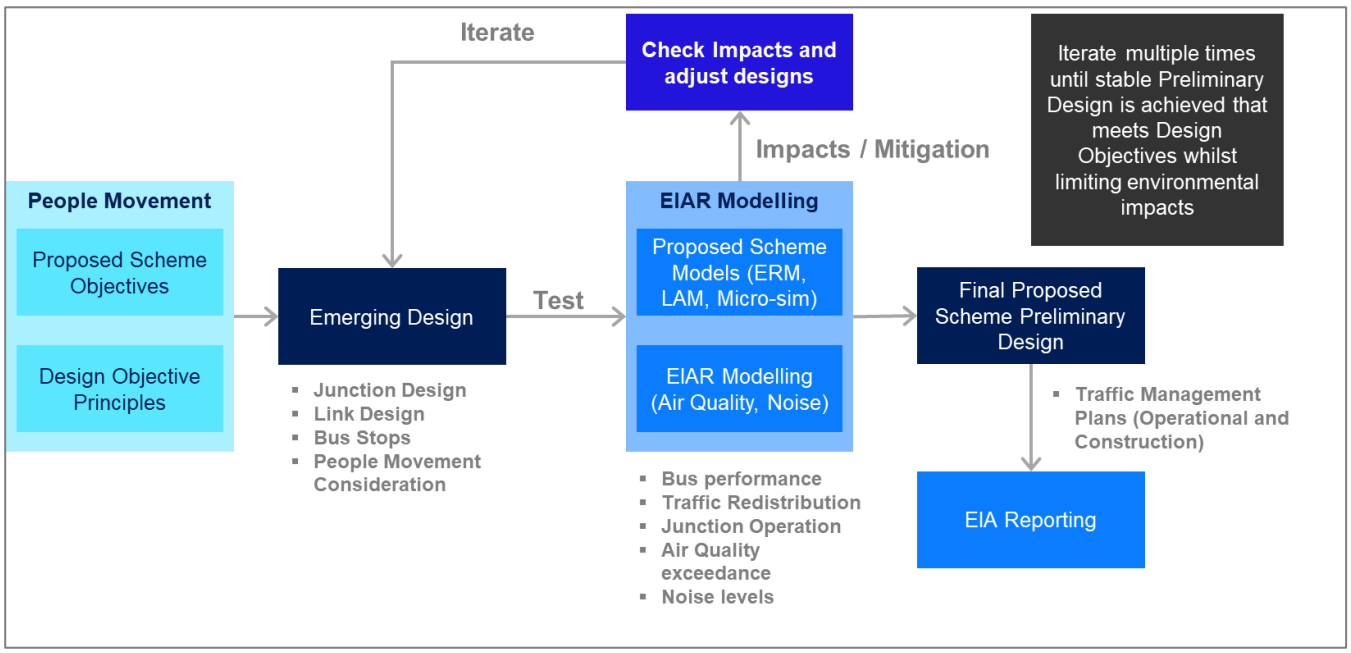

Diagram 1.1: Proposed Scheme Impact Assessment and Design Interaction

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

1.2 Purpose and Structure of This Report

This TIA includes the comprehensive assessment of impacts and benefits of the Proposed Scheme covering all transport modes for both Construction and Operational Phases. The TIA also informs the Traffic and Transport chapter of the EIAR for the Proposed Scheme which assesses the impacts and significance of those impacts in relation to the receiving transport environment of the Proposed Scheme.

The traffic and transport impacts assessment have been undertaken in accordance with latest guidance, which includes the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA 2022), the 'Traffic and Transport Assessment Guidelines' (TII 2014), the National Cycle Manual (NTA 2011) and the UK Design Manual for Roads & Bridges (DMRB) Environmental assessment and monitoring (formerly HA 205/08, HD 48/08, IAN 125/15, and IAN 133/10), LA104 Revision 1 (Highways England, 2020).

The assessment of traffic and transport impacts and benefits of the Proposed Scheme considers the following transport receptors:

- Pedestrians / mobility impaired;

- Cyclists;
- Buses;
- General traffic; and
- On-street parking, off-street parking, loading, taxis.

In addition, the following modes of transport are considered as part of the modelling:

- Public Transport;
- Traffic including private car, taxis and goods vehicles;
- Walking; and
- Cycling.

The impact assessments have been carried out based on 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 previously in the 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 6.3.
- **'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; and
    - **Operational Phase (Opening Year 2028, Design Year 2043) –** This phase represents when the Proposed Scheme is fully operational.

The remaining structure of the report is set out as follows:

- **Chapter 2 – Study Area:** This chapter sets out both the direct and indirect study areas of the TIA;
- **Chapter 3 – Assessment Methodology:** This chapter sets out the proposed method of assessment for the quantitative and qualitative perspectives;
- **Chapter 4 – Baseline Environment**: This chapter will set out the baseline conditions against which the Proposed Scheme has been assessed;
- **Chapter 5 – Scheme Proposals:** This chapter provides an overview of the Proposed Scheme;
- **Chapter 6 – Proposed Scheme Specific Assessment:** This chapter provides the assessment of the Proposed Scheme in both the Construction and the Operational Phase. It focusses on walking, cycling, bus, general traffic and parking and loading using the methods set out in Chapter 4. It considers both operational and construction scenarios;
- **Chapter 7 – Mitigation and Monitoring:** This chapter provides and overview of the mitigation and monitoring measures and the residual impacts of the Proposed Scheme;
- **Chapter 8 – Cumulative Assessment:** This chapter provides an assessment of the cumulative impact of the Proposed Scheme in conjunction with the other eleven Proposed Schemes within the BusConnects Dublin – Core Bus Corridor Infrastructure Works;
- **Chapter 9 – Summary and Conclusions**: This chapter provides a summary of the TIA and the conclusions which can be drawn from it; and
- **Chapter 10** – **References**: contains the traffic and transport sources referred to within this chapter.

2. Study Area

The direct and indirect impacts have been considered with reference to the following study area extents (as shown in Diagram 2.1).

- **Direct Study Area** – The Proposed Scheme (i.e. the transport network within the red line boundary – the boundary of the physical works of the scheme); 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 6.6.3.4.2 for further details on the threshold applied in relation to traffic volume changes used in the definition of the indirect study area).

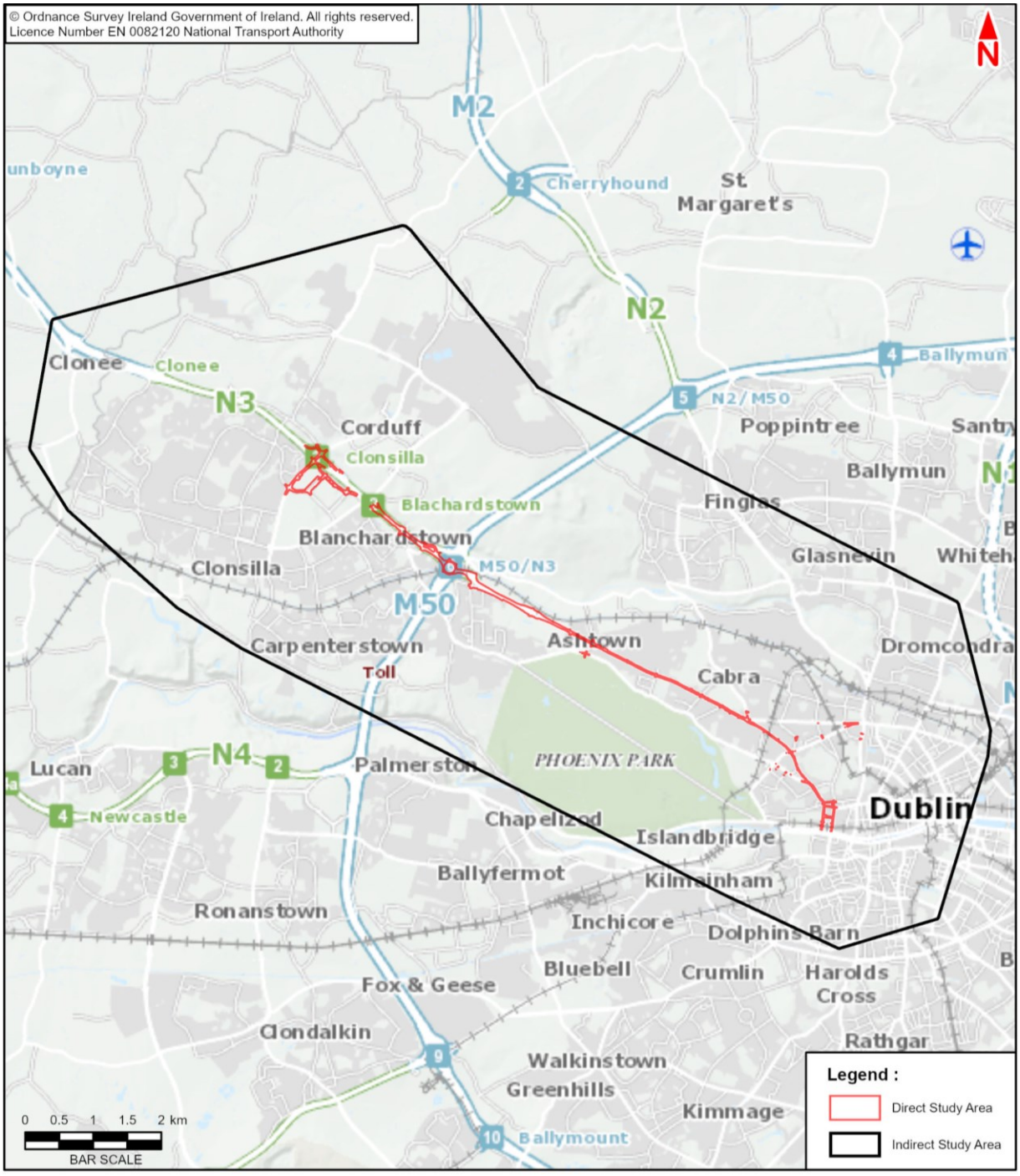

Diagram 2.1: Proposed Scheme Indirect Study Area

3. Policy Context

This chapter outlines the national, regional and local transport and planning policies applicable to the Proposed Scheme. Alignment of the Proposed Scheme with current planning policy at all levels is an important determining factor in planning decisions. Through this summary of policy, the following sections demonstrate that the Proposed Scheme has this alignment and thus is compliant with transport and planning policies.

3.1 National Guidelines

3.1.1 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 the 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.

3.1.2 Design Manual for Urban Roads and Streets

The Design Manual for Urban Roads and Streets (DMURS) (DTTAS 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, characterized 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.

3.1.3 Traffic Signs Manual

The Traffic Signs Manual (Department of Transport, 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.

3.1.4 Traffic Management Guidelines

The Traffic Management Guidelines (Department of Transport, 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:

- Environmental improvement;
- Congestion relief;
- Capacity improvement;
- Safety;
- Accessibility;
- Economic vitality; and
- Politics.

The Proposed Scheme has been designed and assessed with reference to the set of guidance documents listed throughout this section.

3.2 National Policy

3.2.1 National Planning Framework - Ireland 2040 Our Plan (NPF) (2018)

Project Ireland 2040 was launched by the Government in February 2018 and includes two elements:

- the National Planning Framework - Ireland 2040 Our Plan (NPF) (2018); and
- the National Development Plan (2018- 2027).

Project Ireland 2040 provides the framework for future development and investment in Ireland and is the overall Plan from which other, more detailed plans will take their lead, including city and county development plans and regional strategies. The National Planning Framework (NPF) (Department of Housing, Local Government and Heritage, 2020) is a tool to assist the achievement of more effective regional development.

The NPF now represents the overarching national planning policy document, of direct relevance to the planning functions of regional and planning authorities, including An Bord Pleanála. The NPF is the successor to The National Spatial Strategy (NSS), published in November 2002 and has a statutory basis.

The NPF states that the key future growth enablers for Dublin include:

> *'...The development of an improved bus-based system, with better orbital connectivity and integration with other transport networks...'*
>
> *'...Delivery of the metropolitan cycle network set out in the Greater Dublin Area Cycle Network Plan inclusive of key commuter routes and urban greenways on the canal, river and coastal corridors.'*

It is a policy of the NPF (Objective 74) to secure the alignment of the NPF and the National Development Plan (NDP) through delivery of the National Strategic Outcomes. The BusConnects scheme is identified in National Strategic Outcome 4, 'Sustainable Mobility', which includes the delivery of:

> *'…key public transport objectives of the Transport Strategy for the Greater Dublin Area (2016-2035) by investing in projects such as New Metro Link, DART Expansion Programme, BusConnects in Dublin'.*

It also allows for the development of:

> *'a comprehensive network of safe cycling routes in metropolitan areas to address travel needs.'*

By enhancing travel by both public transport and active modes the Proposed Scheme accords with the National Planning Framework.

3.2.2 National Development Plan (NDP) (2018- 2027)

The National Development Plan (NDP) (2018- 2027) (Department of Public Expenditure and Reform, 2018) sets out the investment priorities that will underpin the implementation of the NPF, through a total investment of approximately €116 billion to ensure ongoing employment maintenance and creation, with appropriate regional development. This investment is also to provide clarity to the construction sector, allowing the industry to provide the capacity and capability required to deliver the Government's long-term investment plans.

The NDP illustrates the commitment to reforming how public investment is planned and delivered. This is being achieved through a shift to integrated regional investment plans, stronger co-ordination of sectoral strategies and more rigorous selection and appraisal of projects to secure value-for-money.

The NDP states that investment in public transport infrastructure will be accelerated to support the development of an integrated and sustainable national public transport system consistent with the NPF's National Strategic Outcomes of 'Sustainable Mobility' as well as 'Compact Growth'. It outlines that the programmes and underlying projects proposed for delivery during the period up to 2027 which includes the BusConnects scheme, as follows:

> *'Delivery of the full BusConnects programme for all of Ireland's cities (inclusive of ticketing systems, bus corridors, additional capacity, new bus stops and bus shelters etc.'*
>
> *'Delivery of comprehensive cycling and walking network for Ireland's cities.'*

The NDP promotes the BusConnects proposals, of which the Proposed Scheme forms part, and requires improvements cycles networks such as those included in the scheme. Therefore, the Proposed Scheme is aligned with the NDP.

3.2.3 Draft National Investment Framework for Transport in Ireland (NIFTI) (2021)

The draft National Investment Framework for Transport in Ireland (NIFTI) (Department of Transport, 2021) was recently published by the Department of Transport for public consultation in March 2021. The purpose of the NIFTI is to support the delivery of the Project Ireland 2040 NPF and NDP by providing a strategic framework for future transport investment that is aligned with their spatial objectives and the National Strategic Outcomes (NSOs). The

NIFTI has been developed to ensure decision making in land transport investment enables the NPF, supports the Climate Action Plan, and promotes positive social, environmental, and economic outcomes throughout Ireland. NIFTI establishes four investment priorities and objectives, of which new projects must align with at least one:

- Decarbonisation;
- Protection and Renewal;
- Mobility of People and Goods in Urban Areas; and
- Enhanced Regional and Rural Connectivity.

As outlined in this Chapter, the development of BusConnects is aligned with Project Ireland 2040, and by extension the NIFTI. The principle of the overall BusConnects programme aligns with at number least three of the NIFTI investment priorities, including; protecting and renewing Dublin's public transport network, enabling better mobility for people across the Dublin City-region, and supporting the decarbonization of Dublin's transport network. Smarter Travel: A Sustainable Transport Future (2009 – 2020)

Smarter Travel: A Sustainable Transport Future (2009 – 2020) (Department of Transport, 2019) presents an overall policy framework for sustainable transport in Ireland. The policy sets out a vision, goals and targets to be achieved, and outlines 49 actions that form the basis for achieving a more sustainable transport future. The relevant parts of this policy to the BusConnects scheme are set out in Chapter 4 and 5, as follows:

> *Chapter 4: Actions to Encourage Smarter Travel: 'Action 4 - The delivery of public transport, cycling and promotion of more sustainable travel patterns generally in many existing urban centres can only be achieved through retrofitting. We will require local authorities to prepare plans to retrofit areas towards creating sustainable neighbourhoods so that walking and cycling can be the best options for local trips, for example to reach local facilities such as shops and schools.'*
>
> *Chapter 5: Actions to Deliver Alternative Ways of Travelling: 'Action 12 - Implement more radical bus priority and traffic management measures to improve the punctuality and reliability of bus services and to support more efficient use of bus fleets. This may involve making some urban streets car-free, creating tram-like priorities in others and making greater use of roads/hard shoulders by buses.'*

The Proposed Scheme will support these actions in providing improvements to pedestrian and cycle amenities along the proposed route, whilst also providing greater reliability for road-based public transport.

3.2.4 Smarter Travel: A Sustainable Transport Future (2009 – 2020)

Smarter Travel: A Sustainable Transport Future (2009 – 2020) (Department of Transport, 2019) presents an overall policy framework for sustainable transport in Ireland. The policy sets out a vision, goals and targets to be achieved, and outlines 49 actions that form the basis for achieving a more sustainable transport future. The relevant parts of this policy to the Proposed Scheme are set out in Chapter 4 and 5, as follows:

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The Proposed Scheme will support these actions in providing improvements to pedestrian and cycle amenities along the proposed route, whilst also providing greater reliability for road-based public transport.

3.2.5 National Cycle Policy Framework

In support of the Smarter Travel Policy, the National Cycle Policy Framework (NCPF) (Department of Transport, 2009) was adopted by Government in 2009 and includes the following statements and commitments, as stated in the Executive Summary:

> *'The mission is to promote a strong cycling culture in Ireland. The vision is that all cities, towns, villages and rural areas will be bicycle friendly. Cycling will be a normal way to get about, especially for short trips. Cycling contributes to improved quality of life and quality of the public realm, a stronger economy and business environment, and an enhanced environment. A culture of cycling will have developed in Ireland to the extent that 10% of all trips will be by bike by 2020.'*

Objective 2 of the NCPF is to *'ensure that the urban road infrastructure (with the exception of motorways) is designed / retrofitted so as to be cyclist-friendly and that traffic management measures are also cyclist friendly.'* This involves junction treatment and traffic management, including combined bus and cycle priority measures.

The Proposed Scheme supports the objectives of the NCPF through the provision bus and cycle priority measures.

3.2.6 Statement of Strategy (2016 – 2019)

The Statement of Strategy (Department of Transport, Tourism and Sport (DTTAS), 2019) is the DTTAS's primary strategic plan and sets out the key priorities for the period 2016 – 2019. It details the Government's high-level goals and objectives, providing the framework for more detailed planning and individual performance management. The strategy mission is:

> *'to shape the safe and sustainable development of transport, tourism, and sport, to support economic growth and social progress.'*

DTTAS's high level goal for land transport is:

> *'to best serve the needs of society and the economy through safe, sustainable and competitive transport networks and services.'*

This will be sought with an emphasis on:

- Safety;
- Enhancing services;
- Facilitating and promoting more sustainable forms of transport, including walking and cycling;
- Achieving value-for-money; and
- Promoting sound governance.

The Proposed Scheme will contribute to improved road safety through improvement works at key junctions and upgrades to the pedestrian and cyclist infrastructure along the proposed route. The Proposed Scheme will enhance bus, walking and cycling services which will, in turn, facilitate and promote travel by these modes.

3.2.7 Road Safety Strategy

The Road Safety Strategy (2013-2020) (Road Safety Authority (RSA), 2019) sets out targets to be achieved in terms of road safety in Ireland, with the primary target defined as follows:

> *'A reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020 is required to close the gap between Ireland and the safest countries. This means reducing deaths from 162 in 2012 to 124 or fewer by 2020. A provisional target for the reduction of serious injuries by 30% from 472 (2011) to 330 or fewer by 2020 or 61 per million population has also been set.'*

The Strategy goes on to state that:

'…the attractiveness of walking depends strongly on the safety of the infrastructure provided. Collisions involving pedestrians account for 1 in 5 fatalities annually.'

'…collisions involving cyclists account for 1 in 25 road deaths annually, and many collisions involving cyclists lead to serious head injuries.'

The document sets out strategies for engineering and infrastructure that can effectively reduce collisions. The Proposed Scheme incorporates measures that will contribute to improving road safety in the form of upgrades to key junctions, and new / upgraded pedestrian and cycle infrastructure along the corridor.

3.2.8 Building on Recovery: Infrastructure and Capital Investment (2016-2021)

The Capital Plan (Department of Public Expenditure and Reform, 2015) presented the findings of a Government-wide review of infrastructure and capital investment policy and outlined the Government's commitment to ensuring that the country's stock of infrastructure is capable of facilitating economic growth. The plan identifies the need to improve public transport facilities noting:

'It is therefore essential that road, rail and public transport networks are developed and maintained to the standard required to ensure the safe and efficient movement of people and freight. In addition, getting people out of cars and onto public transport has a key role to play in reducing Ireland's carbon emissions, by providing a viable, less polluting alternative to car and road transport for many journeys.'

The transport capital allocation in the plan is largely framed by the recommendations and priorities set out in the 2015 Department of Transport, Tourism and Sport (DTTaS) Strategic Investment Framework for Land Transport, which centre on:

- Maintaining and renewing the strategically important elements of the existing land transport system;
- Addressing urban congestion; and
- Maximize the contribution of land transport networks to our national development.

The Capital Plan key objective is to provide €3.6 billion of Public Transport Investment including further upgrading of Quality Bus Corridors. The Proposed Scheme is consistent with these recommendations, priorities and objectives as set out in the DTTAS investment framework, and the Capital Plan.

3.2.9 The Sustainable Development Goals National Implementation Plan (2018 – 2020)

In September 2015, 'Transforming Our World, the 2030 Agenda for Sustainable Development (the 2030 Agenda)' was adopted by all 193 Members States of the United Nations (UN).

The 2030 Agenda aims to deliver a more sustainable, prosperous, and peaceful future for the entire world, and sets out a framework for how to achieve this by 2030. This framework is made up of 17 Sustainable Development Goals (SDGs) which cover the social, economic and environmental requirements for a sustainable future which are shown in Diagram 3.1.

Diagram 3.1: The 17 Sustainable Development Goals

The Sustainable Development Goals National Implementation Plan (Department of the Environment, Climate and Communications, 2018) is in direct response to the 2030 Agenda for Sustainable Development and provides a whole-of-government approach to implement the 17 Sustainable Development Goals (SDGs) above.

The Plan also sets out 19 specific actions to implement over the duration of this first SDG National Implementation Plan. The BusConnects scheme aligns with Goals 9 and 11 as they include the following targets:

> *'Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation: Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human wellbeing, with a focus on affordable and equitable access for all.'*

> *'Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.'*

The above goals align with the aim of the Proposed Scheme and the BusConnects proposals overall.

3.2.10 Climate Action Plan

The Climate Action Plan (Department of the Taoiseach, 2019) sets out the strategy of the Irish Government for tackling the climate change crisis and seeks to achieve a zero-carbon energy systems objective for Irish society and in the process, create a resilient, vibrant and sustainable country.

A central pillar of this plan is the role that transport can play in reducing our carbon footprint and improving air quality in our towns and cities. The plan acknowledges that the delivery of improved public transport will lead to a modal shift away from unsustainable transport choices and go a large way to the decarbonization challenge that lies ahead.

BusConnects, and improvements to the bus fleet, are identified in the Climate Action Plan as being a central component of this objective, as noted in the following actions which are extracted from the plan:

> *'Implement major sustainable-mobility projects such as DART Expansion, Metro Link, and the BusConnects Programme. BusConnects targets a 50% increase in bus passenger numbers over the lifetime of the project in our major cities.*

> *Expand sustainable-travel measures, including a comprehensive cycling and walking network for metropolitan areas of Ireland's cities, with a particular emphasis on safety of cyclists. We shall also expand greenways and develop over 200km of new cycling network under BusConnects.*
>
> *Establish a new fare structure in BusConnects which will encourage flexible use of an integrated public transport network. We committed to transition to Low-Emission Vehicles, including electric buses, for the urban public bus fleet, with no diesel-only purchases from 1 July 2019, and will set a roadmap for all public PSO urban bus fleets to become LEVs by 2035.'*

By enhancing public and active travel networks the Proposed Scheme will encourage the use of these modes and reduce reliance on private car. Therefore, the Proposed Scheme is aligned with the Climate Action Plan.

3.3 Regional Policy

3.3.1 Transport Strategy for the Greater Dublin Area (2016 – 2035)

The Transport Strategy for the Greater Dublin Area (2016 – 2035) (National Transport Agency (NTA), 2016) provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades.

The Strategy outlines that the GDA is heavily reliant on the bus network and the existing infrastructure is of varying standards and levels of continuity. It therefore identifies the Core Bus Network for the GDA which represents the most important bus routes in the region; generally characterized by a high frequency of bus services, high passenger volumes and with significant trip attractors located along the route.

The GDA Transport Strategy states:

> *'In order to ensure an efficient, reliable and effective bus system, it is intended, as part of the Strategy, to develop the Core Bus network to achieve, as far as practicable, continuous priority for bus movement on the portions of the Core Bus Network within the Metropolitan Area.'*

The NTA has recently published an Issues Paper to commence the review of the Strategy. The purpose of the review is to assess the implementation of the current plan thus far and look to produce an updated Strategy setting out the framework for investment in transport infrastructure and services up to 2042. BusConnects is identified as a major project by the Issues Paper, stating that the BusConnects Core Bus Corridors element is due to go to planning in 2021.

To complement this Strategy, the NTA devised an Integrated Implementation Plan 2019-2024. It sets out an infrastructure investment programme, integrated service plan and actions to be undertaken by the NTA over the Plan period. A core element of this Plan relates to the delivery of the BusConnects programme.

3.3.2 Greater Dublin Area Cycle Network Plan

The Greater Dublin Area Cycle Network Plan (National Transport Authority (NTA), 2013) was adopted by the NTA in early 2014 following a period of consultation with the public and various stakeholders. This plan forms the strategy for the implementation of a high quality, integrated cycle network for the Greater Dublin Area. This involves the expansion of the urban cycle network from 500km to 2,480km comprising a mixture of cycle tracks and lanes, cycle ways and infrastructure-free cycle routes in low traffic environments. Within the urban network, this will consist of a series of routes categorised as follows:

- **Primary:** Main cycle arteries that cross the urban area and carry most cycle traffic – target quality of service (QoS) of two abreast + overtaking width = 2.5m;
- **Secondary:** Link between principle cycle routes and local zones – target QoS of single file + overtaking width = 1.75m; and
- **Feeder:** Cycle routes within local zones and/or connection from zones to the network levels above.

During the analysis carried out to identify the preferred CBCs for the BusConnects scheme, the provision of these cycle routes was considered at all stages. Therefore, any upgrading of infrastructure to provide bus priority also

provides cycling infrastructure where practical, to the appropriate level and quality of service (as defined by the NTA National Cycle Manual) required for primary and secondary cycle routes.

By enhancing cycling facilities, the Proposed Scheme accords with the Greater Dublin Area Cycle Network Plan.

3.3.3 Regional Spatial and Economic Strategy for the Eastern and Midlands Region (2019-2031)

A Regional Spatial and Economic Strategy (RSES) is a strategic plan and investment framework to shape future growth and to better manage regional planning and economic development throughout the region.

The RSES (Eastern and Midland Regional Assembly, 2019) builds on the foundations of Government policy in Project Ireland 2040, which combines spatial planning with capital investment, and has been prepared from an extensive bottom up consultation process. It is an integrated cohesive policy document that provides a Spatial Strategy to manage future growth in the region. It identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives.

The region includes three subregions or Strategic Planning Areas (SPAs), namely the Midland, Eastern and Dublin SPAs, as shown in Diagram 3.2.

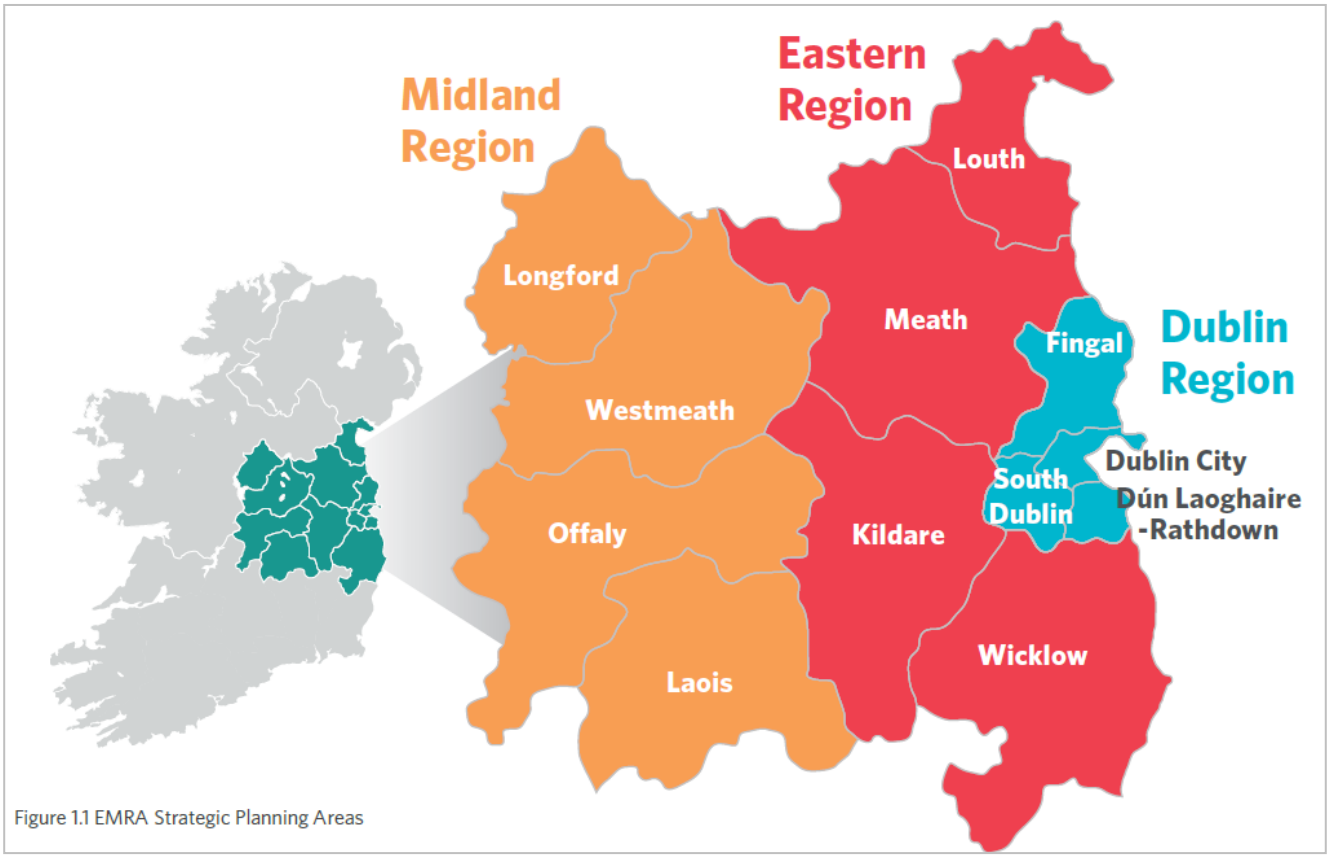

Diagram 3.2: RSES Planning Areas

Dublin City and suburbs is considered in the context of the Dublin Metropolitan Area Strategic Plan (MASP) and is dealt with in greater detail in Chapter 5 of the RSES. The principles underpinning the development of the MASP include the effective integration of transport planning with spatial planning policies, from regional down to local level and the alignment of associated transport and infrastructure investment priorities. The national policy in metropolitan areas is to increase sustainability through greater alignment of land use and transport.

The RSES highlights the BusConnects scheme as a key transport infrastructure investment in the metropolitan area as set out in national policy. The MASP Sustainable Transport Regional Policy Objectives (RPO) are:

'RPO5.2: Support the delivery of key sustainable transport projects including Metrolink, DART and LUAS expansion programmes, BusConnects and the Greater Dublin Metropolitan Cycle Network and ensure that future development maximizes the efficiency and protects the strategic capacity of the metropolitan area transport network, existing and planned.'

'RPO 8.9: The RSES supports delivery of the bus projects…subject to the outcome of appropriate environmental assessment and the planning process.'

Table 3.1: Extract from RSES RPO8.9 – Bus Projects for the Region

Extract from RSES RPO8.9 (Table 8.3: Bus Projects for the Region)
Core Bus Corridors comprising 16 radial routes and 3 orbital routes in Dublin
Regional Bus Corridors connecting the major regional settlements to Dublin
Dublin Metropolitan Bus Network Review
Network reviews for the largest settlements across EMRA, with a view to providing local bus services
Review of bus services between settlements
Review of local bus services throughout EMRA, including services to small towns and villages and the rural transport programme
New interchange and bus hub facilities
New fare structures
Enhances passenger information
Improvements to bus waiting facilities
Integrated time tabling of bus and rail into a coherent national and regional network

The RSES highlights the wider BusConnects proposals as a project, given that the Proposed Scheme fall within this it can be considered to be aligned with it.

3.3.4 Dublin City Council Development Plan (2016 – 2022)

The Dublin City Development Plan (CDP) (Dublin City Council (DCC), 2016) sets out policies and objectives to guide how and where development will take place in the city over the lifetime of the Plan. It provides an integrated, coherent spatial framework within the context of national policies to ensure the city is developed in an inclusive way which improves the quality of life for its citizens, whilst also being a more attractive place to visit and work. The entirety of the Proposed Scheme falls within the remit of the DCDP.

The vision for the city is:

'…within the next 25 to 30 years, Dublin will have an established international reputation as one of Europe's most sustainable, dynamic and resourceful city regions.'

DCDP supports and encourages the uptake of sustainable travel modes to achieve a modal shift through various policies and objectives outlined in the Plan. Mobility and Transport Policy 2 (MT2) states that Dublin City Council (DCC) will:

'…promote modal shift from private car use towards increased use of more sustainable forms of transport such as cycling, walking and public transport, and to co-operate with the NTA, Transport Infrastructure Ireland (TII) and other transport agencies in progressing an integrated set of transport objectives.'

Policy MT4 makes specific reference to the promotion and facilitation of improvements to the bus network in order to achieve strategic transport objectives.

Policy MT7 is to implement walking and cycling improvements at thoroughfares and junctions and develop new and safe routes. Policy MT11 is to promote improved permeability for both cyclists and pedestrians in existing urban areas. The BusConnects scheme incorporates upgrades to pedestrian and cycle infrastructure along CBC05 and at key junctions.

The Proposed Scheme incorporates upgrades to pedestrian and cycle infrastructure along CBC05 and at key junctions thus can be considered in alignment with the DCDP.

3.3.5 Dublin City Centre Transport Study

The National Transport Authority (NTA) and Dublin City Council (DCC) published a set of proposals to enhance overall movement in Dublin City Centre and to improve the attractiveness of the city centre for shoppers, tourists, workers, and residents.

The Transport Study (DCC and NTA, 2016) has been developed as an input into the Dublin City Development Plan (DCCDP) 2016-2022, and sets down a framework for how Dublin City's transport network can be redefined to cater for this increased demand, by better utilising the existing infrastructure available, and by moving towards a more sustainable and efficient use of the public realm within the city centre.

The key objectives of the Transport Strategy are to:

1) Protect the investment that has been, and continues to be made in public transport across the city;
2) Guarantee the future development potential of the City Centre, and improve confidence in the ability of the City Centre to be the key focus of future investment;
3) Increase the capacity, reliability and use of public transport into and within the City Centre;
4) Improve the quality of service for cycling and walking, with particular emphasis on the 'core' City Centre;
5) Ensure that the city develops in a way which will provide a better living and working environment for residents and visitors alike; and
6) Provide an agreed framework for continued transport investment within the City Centre.

The Proposed Scheme directly contributes towards achieving Objectives 3 and 4 of the Transport Strategy.

3.4 Local Policy

3.4.1 Fingal County Council Development Plan 2017-2023

The Fingal Development Plan (FDP) 2017-2023 sets out the Council's proposed policies and objectives for the development of the County over the Plan period. The Plan seeks to develop and improve, in a sustainable manner, the social, economic, environmental and cultural assets of the County.

The administrative area of Fingal covers over 450km^2 stretches from the River Liffey and the Dublin City boundary in the south to the Meath boundary north of Balbriggan, and eastwards from the coast to the Meath and Kildare boundaries in the west.

The 'movement and infrastructure' objectives of the FDP are centred around the following key policies:

- Promote and facilitate movement to, from, and within the County of Fingal, by integrating land use with a high quality, sustainable transport system that prioritises walking, cycling and public transport.
- Provide an appropriate level of safe road infrastructure and traffic management, in particular to support commercial and industrial activity and new development.
- Work with all relevant stakeholders to seek a reduction in greenhouse gas emissions from transport.

Specifically, the FDP walking and cycling objective is to:

"Promote walking and cycling as efficient, healthy, and environmentally-friendly modes of transport by securing the development of a network of direct, comfortable, convenient and safe cycle routes and footpaths, particularly in urban areas." [MT13].

The improvements to the walking and cycling infrastructure along the Proposed Scheme directly aligns with this objective.

3.5 Legislation

There is no legislation specifically relevant to this TIA.

4. Assessment Methodology

This chapter of the TIA details the methodologies used to assess the impacts of the Proposed Scheme on the baseline environment.

The assessment of the Proposed Scheme in relation to the baseline transport environment comprises a qualitative assessment of changes to the transport environment, as well as quantitative analysis undertaken using a suite of multi-modal transport modelling tools which have been developed for the Proposed Scheme.

The assessment of traffic and transport benefits and impacts of the Proposed Scheme requires an approach which can provide information on, for example, the mode share changes along the route, people movement by different modes of transport travelling along the corridor as well as traffic re-routing impacts on the surrounding road network. The approach requires an assessment of bus, pedestrian and cycle operations and bus reliability with a focus on the movement of people along the route.

The traffic and transport impact assessments have been undertaken in accordance with the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA 2022), the 'Traffic and Transport Assessment Guidelines' (TII 2014), the National Cycle Manual (NTA 2011) and the UK Design Manual for Roads & Bridges (DMRB) Environmental assessment and monitoring (formerly HA 205/08, HD 48/08, IAN 125/15, and IAN 133/10), LA104 Revision 1 (Highways England, 2020). A range of transport modelling tools which sit within the framework of the NTA's Eastern Regional Model (ERM) have been used.

Where possible a Level of Service (LoS) has been derived for each mode of travel. The benefits of this approach are outlined subsequently.

4.1 Data Collection and Collation

The TIA has two distinct parts, 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.

4.1.1 Qualitative Assessment Data Collection

This section discusses the data collection undertaken to inform the qualitative assessment metrics set out in this section 4.2.3.

4.1.1.1 Site Surveys

A walkover of the route of the Proposed Scheme was undertaken and photographs 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
- Current parking and loading facilities.

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

4.1.1.2 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 based on reality, 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.

4.1.2 Quantitative Assessment Data Collection

The following chapter provides an overview of the data collection exercise undertaken to facilitate the calibration and validation of the Local Area Model (LAM), Proposed Scheme micro-simulation and junction models. Existing data sources were reviewed to identify available traffic counts and locate gaps in observed information across the model area. This review was used to define a specification for additional counts which were commissioned for the area. The combination of new commissioned counts, and existing available information, provided a comprehensive dataset for calibration and validation.

4.1.2.1 Existing Data Review (Gap Analysis)

A review of existing traffic survey data available for the model area 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 Automatic Traffic Counters (ATCs): 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

4.1.2.2 Commissioned Traffic Survey Data

Due to the scale of the Proposed Scheme, a full set of consistent up to date traffic counts for a neutral period e.g. November / February when schools, colleges were in session was completed for the Proposed Scheme. Traffic surveys were undertaken in February 2020 (Pre COVID- 19) 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 Traffic Counts (JTCs) and Automatic Traffic Counts (ATCs).

The various components of traffic have different characteristics in terms of operating costs, growth and occupancy. The surveys used the most common vehicle categories, as defined in the COBA (Cost Benefit Analysis) Manual:

- Cars: Including taxis, estate cars, 'people carriers' and other passenger vehicles (for example, minibuses and camper vans) with a gross vehicle weight of less than 3.5 tonnes, normally ones which can accommodate not more than 15 seats. Three-wheeled cars, motor invalid carriages, Land Rovers, Range Rovers and Jeeps and smaller ambulances are included. Cars towing caravans or trailers are counted as one vehicle unless included as a separate class;
- Light Goods Vehicles (LGV): Includes all goods vehicles up to 3.5 tonnes gross vehicle weight (goods vehicles over 3.5 tonnes have sideguards fitted between axles), including those towing a trailer or caravan. This includes all car delivery vans and those of the next larger carrying capacity such as transit vans. Included here are small pickup vans, three-wheeled goods vehicles, milk floats and pedestrian controlled motor vehicles. Most of this group is delivery vans of one type or another;
- Other Goods Vehicles (OGV 1): Includes all rigid vehicles over 3.5 tonnes gross vehicle weight with two or three axles. Also includes larger ambulances, tractors (without trailers), road rollers for tarmac pressing, box vans and similar large vans. A two or three axle motor tractive unit without a trailer is also included;
- Other Goods Vehicles (OGV 2): This category includes all rigid vehicles with four or more axles and all articulated vehicles. Also included in this class are OGV1 goods vehicles towing a caravan or trailer; and
- Buses and Coaches (PSV): Includes all public service vehicles and work buses with a gross vehicle weight of 3.5 tonnes or more, usually vehicles with more than 16 seats.

An overview of the commissioned data is provided Table 4.1.

Table 4.1: Survey Overview

Survey Type	Company	Number	Date
JTC	IDASO LTD	23	Thursday 13/2/2020
ATC	IDASO LTD	8	Wednesday 5/2/2020 – Friday 13/2/2020

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.

The ATCs were taken for an entire week. In some cases, the ATC counts were repeated for a second week to account for data-collection issues. The vehicle categories surveyed are motorcycles, cars, LGVs, OGV 1, OGV 2 and PSVs.

The ATC data provides information on:

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

Summary information related to the JTCs and ATCs collected for the Proposed Scheme is shown in Section 5.2.

4.1.2.3 Road and Bus Journey Time Data

4.1.2.3.1 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.

4.1.2.3.2 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.

4.1.2.3.3 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.

4.1.2.3.4 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 TIA Appendix 1 (Transport Modelling Report).

4.2 Appraisal Method for the Assessment of Impacts

4.2.1 Overview

This section provides an overview of 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; and
- Determining the Predicted Magnitude of Impacts.

Further detail on the assessment methodologies is provided in Section 6.6

4.2.2 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:
  - **People Movement:** An assessment has been carried out to determine the potential impact that the Proposed Scheme will have on projected volume of people moving along the Proposed Scheme during the Operational Phase only;
  - **Bus Performance Indicators:** The changes to the projected operational efficiency for buses as a result of the Proposed Scheme;
  - **General Traffic:** The direct and indirect impacts that will occur for the general traffic conditions on the Proposed Scheme and surrounding road network; and
  - **Network-Wide** Performance Indicators: The strategic changes to queuing, total travel times, total travel distance and average network speed.

4.2.3 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 Minimum** – This scenario represents the likely conditions of the road network with all major committed transportation schemes in place that will impact on the use of public transport and private car, without the Proposed Scheme.
- **Do Something** – This scenario represents the likely conditions of the road network with all major committed transportation schemes in place that will impact on the use of public transport and private car, with the Proposed Scheme (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 for further information on the methodology in applying these ratings for each assessment.

4.2.3.1 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 typically applied in the United States, as well as Australia and New Zealand, 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.

4.2.3.2 Movement of People

To support the 'Objective' led approach to the design of junctions along the Proposed Scheme (i.e. with a focus on the movement of people rather than vehicles), a People Movement at Signal (PMS) Calculator has been developed from first principles based on TRL guidance[1].

The 'Objective' led approach 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) movements at junctions.

The PMS calculator was developed to provide an initial estimate of green time allocation for all movements at a typical junction, as proposed in the design guidelines used for the Proposed Scheme Infrastructure Works, 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 are underpinned by:

- The number of buses required to be accommodated along the Proposed Scheme;
- An estimate of Peak Hour cycling demand based on 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 PMS calculator is based on the junction arrangements as proposed in the design guidelines used for the Proposed Scheme Infrastructure Works, for both 3 and 4-arm variations. The outputs of the calculator provided the designer with an initial estimate of the green times and vehicle capacity movements based on designer 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 by the designer to adjust their proposals with a view to maximising the total person throughput at each junction along the Proposed Scheme.

The Movement of People Calculation and vehicular capacity from this initial exercise was enhanced further by the Proposed Scheme Transport Models described below.

4.3 Transport Modelling Methodology

A multi-tiered transport modelling approach has been adopted. The NTA's East Regional Model (ERM) was the primary modelling tool and provided the overarching information on forecast travel demand for each mode of transport. The ERM was supported by other modelling tools which provide more granular level traffic information

[1] UK – Department of Transport Research Report 67 - THE PREDICTION OF SATURATION FLOWS FOR ROAD JUNCTIONS CONTROLLED BY TRAFFIC SIGNALS https://trl.co.uk/sites/default/files/RR067.pdf

and allow for detailed and refined modelling at a local network and junction level. For this purpose, a cordoned[2] corridor-wide, road (motorised vehicle only) based Local Area Model (LAM) in combination with a multi-modal corridor micro-simulation model and local junction models have been used which work in tandem with the NTA's East Regional Model (ERM).

Through the multi-tiered transport modelling approach, the following modes of transport have been considered:

- Public Transport including inter-urban rail, suburban rail, DART, light rail (Luas), bus, and MetroLink;
- Traffic including private car, taxis and goods vehicles;
- Walking; and
- Cycling.

Further detail on the modelling can be found in TIA Appendix 1 (Transport Modelling Report) which details the model development, data inputs, calibration and validation and forecast model development for the suite of models used to support the assessment.

4.3.1 Proposed Scheme Transport Models

This section sets out the various transport modelling tools that have been developed and used to inform the preparation of the TIA and Chapter 6 (Traffic and Transport) of the EIAR and has supported design decisions. The purpose of each tool is detailed and the use of the tool for each element of the Proposed Scheme is defined.

The modelling tools that have been developed do not work in isolation but instead work as a combined modelling system driven by the ERM as the primary source for multi-model demand and trip growth etc. which has been passed to the cordoned local area model, micro-simulation models and junctions models for the Proposed Scheme which have been refined and calibrated to represent local conditions to a greater level of detail then that contained within the ERM.

Importantly, no one tool can provide the full set of modelling data required to inform both the EIAR and TIA requirements and to support design iterations and decisions e.g. the ERM via the LAM has provided road traffic flow information (for example Annual Average Daily Traffic (AADT) and link speed data which has been used to inform Air Quality and Noise models).

The micro-simulation model is the most appropriate tool to provide the end-to-end bus journey times for the Proposed Scheme based on the detailed interaction of vehicle movements along the corridor. In addition, the LAM has been used directly for supporting design development decisions and to assist with an understanding of the implications of banned turns and potential trip redistribution away from the Proposed Scheme during both the Construction and Operational Phases.

4.3.1.1 Transport Modelling Hierarchy

There are four tiers of transport modelling which are used to assess the Proposed Scheme, and these are detailed below and shown graphically in Diagram 4.1.

- **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.

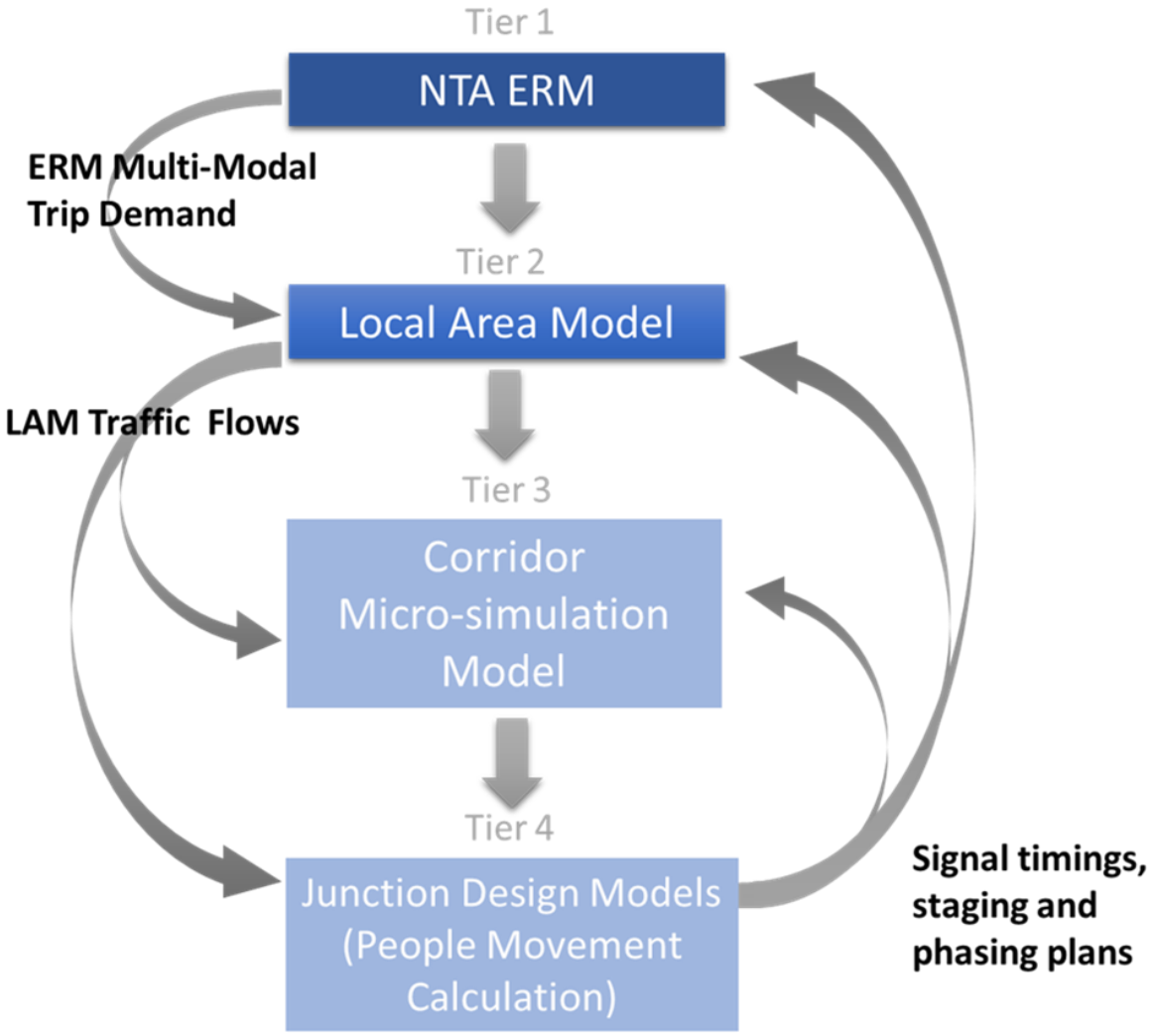

Diagram 4.1: Proposed Scheme Modelling Hierarchy

The purpose of each of the modelling tools is summarised in Table 4.2.

Table 4.2: Modelling tool and purpose

Tool	Purpose	Inputs
NTA ERM	Forecast Multi-Modal demand impacts Proposed Scheme including both area wide and corridor level Mode share Policy assessment (e.g. demand management) Donor Network for LAM	NTA Forecast Planning Data (2020,2028,2043) Future year Proposed Scheme information (Traffic signal plans and timings
Local Area Model (LAM)	General Traffic Redistribution impacts Link Flows (AADTs) Link Speeds Junction turning flows Construction Strategy and Traffic Management measure testing Donor network for Proposed Scheme Micro-sim model	Traffic surveys Journey time data ERM forecast matrices Proposed Scheme designs Proposed Scheme Traffic signal plans and timings
Micro-simulation Model	Operational features Design validation Person delay measurement Bus journey times Queue formation Scheme visualisation	LAM demand matrices Proposed Scheme designs Proposed Scheme Traffic signal plans and timings
Junction Design Models / People Movement Calculation	Junction design tool Proposed Scheme signal plan and timing development People Movement Calculation	Junction Turning flows from LAM

The following sections describe in further detail each of the modelling tools used to inform this TIA and their role within the assessment of the Proposed Scheme.

4.3.1.2 NTA Regional Modelling System (RMS) and East Regional Model (ERM)

The East Regional Model is part of the NTA's Regional Modelling System (RMS) for Ireland that allows for the appraisal of a wide range of potential future transport and land use alternatives. The RMS comprises the National Demand Forecasting Model (NDFM); five large-scale, detailed, multi-modal regional transport models; and, a suite of Appraisal Modules. The five regional models comprising the RMS are focussed on the travel to-work areas for Dublin (represented by the aforementioned East Regional Model (ERM)), for Cork (represented by the South West Regional Model (SWRM)), for Limerick (represented by the Mid-West Regional Model (MWRM)), for Galway (represented by the West Regional Model (WRM)) and for Waterford (represented by the South East Regional Model (SERM)).

The key attributes of the five regional models include: full geographic coverage of each region, detailed representations of all major surface transport modes including active modes, road and public transport networks and services, and of travel demand for five time periods (AM, 2 Inter-Peaks, PM and Off-Peak). The RMS encompasses behavioural models calibrated to 2017 National Household Travel Survey[3] data that predict changes in trip destination and mode choice in response to changing traffic conditions, transport provision and/or policies which influence the cost of travel.

4.3.1.2.1 Purpose of the RMS

The NTA uses the RMS to help inform decisions required during strategy development and to assess schemes and policy interventions that are undertaken as part of its remit. The RMS has been developed to provide the

NTA with the means to undertake comparative appraisals of a wide range of potential future transport and land use options, and to provide evidence to assist in the decision-making process. Examples of how the RMS can assist the NTA include testing new public transport schemes by representing the scheme in the assignment networks, testing demand management measures by, for example, changing the cost of parking or number of parking spaces within the regional model or testing the impacts of new land use by changing the planning data assumptions within the NDFM.

The RMS includes the 2016 Census/POWSCAR and 2017 National Household Travel Survey (NHTS) data sets and the NTA has included a range of improvements to the main model components where identified and implemented. These improvements include improving and making changes to such elements as the NDFM, development of the Long-Distance Model, updated zoning, networks, and parking modules; best-practice discrete choice modelling using the NHTS and POWSCAR datasets to estimate the parameters of the behavioural models, improved model runtimes, and general model functionality improvements.

4.3.1.2.2 RMS Components

The NTA RMS comprises of the following three main components, namely:

- The National Demand Forecasting Model (NDFM);
- 5 Regional Models (including the ERM); and
- A suite of Appraisal Modules.

The NDFM takes input attributes such as land-use data, population etc., and estimates the total quantity of daily travel demand produced by, and attracted to, each of the 18,641 Census Small Areas in Ireland.

The ERM is a strategic multi-modal transport model representing travel by all the primary surface modes – including, walking and cycling (active modes), and travel by car, bus, rail, tram, light goods and heavy goods vehicles, and broadly covers the Leinster province of Ireland including the counties of Dublin, Wicklow, Kildare, Meath, Louth, Wexford, Carlow, Laois, Offaly, Westmeath, and Longford, plus Cavan and Monaghan.

The ERM is comprised of the following key elements:

- **Trip End Integration:** The Trip End Integration module converts the 24-hour trip ends output by the NDFM into the appropriate zone system and time period disaggregation for use in the Full Demand Model (FDM);
- **The Full Demand Model (FDM):** The FDM processes travel demand, carries out mode and destination choice, and outputs origin-destination travel matrices to the assignment models. The FDM and assignment models run iteratively until an equilibrium between travel demand and the cost of travel is achieved; and
- **Assignment Models:** The Road, Public Transport, and Active Modes assignment models receive the trip matrices produced by the FDM and assign them in their respective transport networks to determine route choice and the generalised cost for each origin and destination pair.

Destination and mode choice parameters within the ERM have been calibrated using two main sources: Census 2016 Place of Work, School or College - Census of Anonymised Records (2016 POWSCAR), and the Irish National Household Travel Survey (2017 NHTS).

4.3.1.2.3 The use of the ERM for the Proposed Scheme

The NTA's ERM is the most sophisticated modelling tool available for assessing complex multi-modal movements within an urban context. This provides a consistent framework for transport assessments. The ERM is the ideal tool to use as a basis for the assessment of the Proposed Scheme and to estimate its multi-modal impact. In addition, it provides the platform to forecast future trip demand and distribution.

The NTA ERM is, therefore, the primary high-level modelling tool for the strategic transport assessment of the Proposed Scheme and provides the sole source of multi-modal forecast trip / person demand for each of the scenarios assessed. The ERM provides the strategic impacts and benefits of the Proposed Scheme and the outputs from the ERM provide key inputs to the Transport Impact Assessments (TIA) and EIAR.

4.3.1.3 Local Area Model (LAM)

To support the detailed assessment of the Proposed Scheme a more disaggregate urban area traffic model, the Local Area Model (LAM) has been developed, as a cordoned model from the ERM, that could incorporate the most up-to-date traffic survey data. The LAM provides an appropriate level of detail required to inform the various disciplines and levels of decision making within the Proposed Scheme Infrastructure Works e.g. capturing the impact of redistribution of traffic on streets and roads not included within the strategic detail of the ERM.

The LAM is compatible with the ERM road network, being a direct extraction from the ERM road model, but with the addition of extra road network and zoning detail. The LAM is calibrated and validated with the most recent 2019/2020 traffic survey data and journey time information, which ensures that the model reflects 'on-the-ground' conditions for the Proposed Scheme in February 2020 (e.g. prior to COVID-19 restrictions).

The LAM which is a more refined version of the road network model component of the ERM has been used throughout the Proposed Scheme Infrastructure Works to provide all road-based outputs to inform the TIA, EIA and junction design models. i.e. AADTs, road network speed data, traffic re-distribution impacts during construction and operation of the Proposed Scheme. The LAM also provides traffic flow information for the corridor micro-simulation models and junction design models.

4.3.1.3.1 Count Data for Calibration and Validation

A full set of consistent updated traffic counts for a neutral period was completed for the Proposed Scheme. Traffic surveys were undertaken in February 2020 (Pre COVID- 19) with the surveyed counts used as inputs to the model calibration and validation process.

Private cars and taxis were aggregated as a single vehicle type for input to the LAM model. The OGV1 and OGV2 categories were also aggregated as HGVs. PSVs are modelled as fixed routes with a specific frequency in the model and as such were not included in the model inputs. PCL counts are not included in the model inputs. Separate input files were prepared for the following time periods.

- AM: 0800-0900;
- Lunch Time (LT): 1200-1300;
- School Run (SR): 1500-1600;
- PM: 1700-1800; and
- Off Peak (OP): 2000-2100.

The JTCs were merged into a 'flat format' database which permits the extraction of counts grouped by modelled hour (AM, LT, SR or PM) and modelled vehicle category (Car, LGV or HGV). Turn count records were given a unique movement identifier (AB, AC, AD etc). These identifiers were then associated with their respective nodes in the LAM. In some cases, there is a unique one-to-one relationship between the turn counts and the SATURN network as shown in Diagram 4.2.

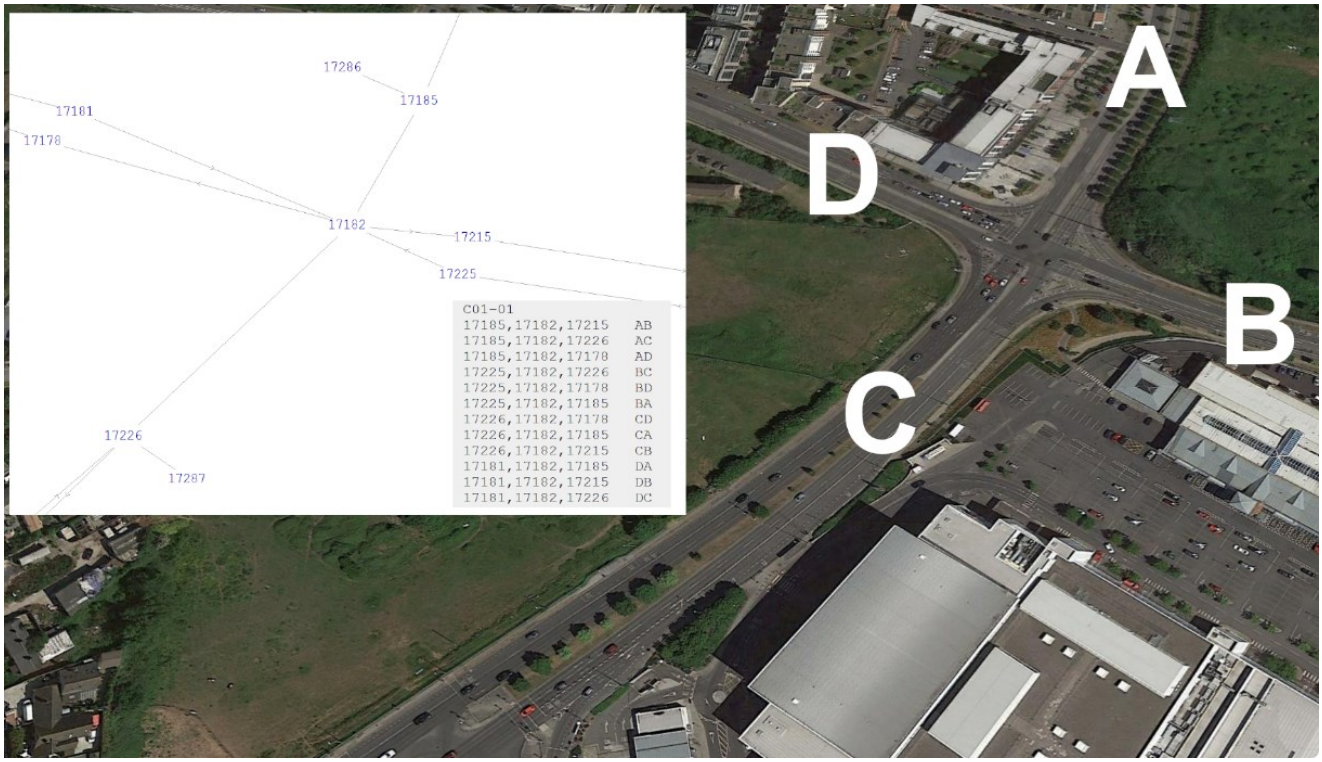

Diagram 4.2: Bus Connects LAM Node Matching (Junction C01-01)

The flows for complex junctions were obtained by combining certain turning movement flows, as shown in Diagram 4.3

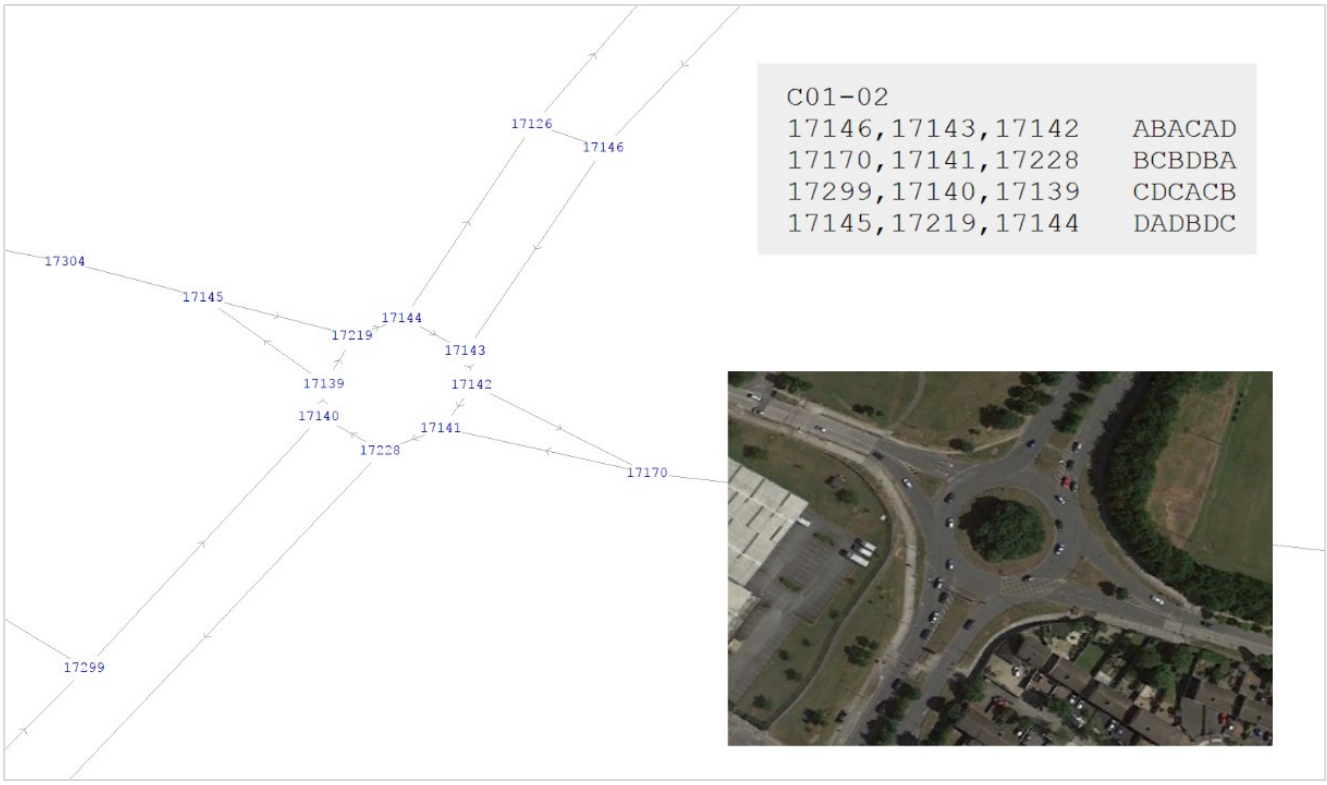

Diagram 4.3: Bus Connects LAM Node Matching (Junction C01-02)

4.3.1.4 Proposed Scheme Micro-Simulation Model

A micro-simulation model has been developed for the full continuous 'end-to-end' route of the Proposed Scheme. The 'end-to-end' corridor micro-simulation model has been developed to assist in the operational validation of the scheme designs and to provide visualisation of scheme operability along with its impacts and benefits.

The term 'end-to-end' refers to the point of model 'entry' (start of Proposed Scheme) to the point of model 'exit' (end of Proposed Scheme) rather than the actual bus service terminus points which, in most cases, lie outside of the modelled area. The modelling of the Proposed Scheme displays the differences in travel time for buses along the full length of the Proposed Scheme, including delay at individual locations.

The Proposed Scheme micro-simulation model network is shown in Diagram 4.4.

Diagram 4.4: Proposed Scheme Micro-simulation Model Network

4.3.1.4.1 Role of the Corridor Micro-Simulation Models

The Proposed Scheme micro-simulation model has provided key information on end-to-end bus and car journey times along the Proposed Scheme. The Proposed Scheme micro-simulation model is supplied traffic flow information from the LAM and uses consistent information from the junction design models, in terms of signal plans, green times, staging, phasing and offsets. 3D Visualisations of sections of the Proposed Scheme have been developed based on the 2D models to help visualise and demonstrate the benefits and impacts of the scheme to stakeholders.

Overall, the Proposed Scheme micro-simulation model has provided key transport metric inputs to the TIA in terms of operational features, vehicle interaction, person level delay and bus journey time and reliability performance.

4.3.1.5 Junction Design Models

The fourth tier of modelling in the modelling hierarchy to support the assessment of the Proposed Scheme comprises of the individual junction design models that have been developed for junctions along the Proposed Scheme. These junction design models are supplied with traffic flow information from the LAM and from the micro-simulation model for the Proposed Scheme. The LAM, Corridor Micro-simulation and local junction models contain consistent design, transport demand, signal phasing and staging information. Further information is contained in TIA Appendix 2 (Junction Design Report).

4.3.1.5.1 Role of the Junction Design Models

The junction design models have been used to inform junction design considerations as part of the formulation of Preliminary Designs for the Proposed Scheme. The junction models have been developed for standalone junction assessments and for combinations of secondary (off-line) junctions. The junction models are used in combination with the micro-simulation model at 'hot-spot' locations for operational testing and 'proof of concept' demonstration of the preferred design for the Proposed Scheme.

The junction design models are important supporting design tools for analysis of the design proposals and help to inform the development of signal plans and phasing at junctions along the Proposed Scheme. The junction models are used to inform the LAM and micro-simulation models, with information such as design amendments, signal plans and timings being fed back in the iterative process where appropriate.

The resultant scheme designs have been modelled in the ERM, LAM and corridor models to understand the strategic and corridor specific issues and inform the preparation of the TIAs and EIARs and the planning submissions for the Proposed Scheme.

5. Baseline Environment

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

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).

5.1 Bus Journey Times

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 varies by up to 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.

5.2 Traffic Count Data

5.2.1 Junction Turning Counts (JTCs)

Table 5.1 displays the JTCs collected for the Proposed Scheme, the locations of which are shown in Diagram 5.1 and Diagram 5.2. The results demonstrate that the busiest junction (66,568 daily vehicle

movements) within the direct study area is R147 Navan Road / Kempton Avenue signalised junction. The next busiest junctions are:

- R147 Navan Road / Dunsink Lane (53,255 daily movements).
- Blanchardstown Road South / Blakestown Road roundabout (50,999 daily movements);
- M50 / R147 Navan Road Roundabout (48,811 daily movements); and
- R147 Navan Road / Ashtown Road Roundabout (47,561 daily movements).

Table 5.1: JTC Locations and Daily, AM and PM Movements

Junction Identifier	Junction Name	Type	Daily Movements (vehs)	AM Movements (vehs)	PM Movements (vehs)
5-1	N3 Off Slip/Old Navan Road	Signals	18,705	1,233	1,420
5-2	Blanchardstown Road N/Old Navan Road	Signals	44,903	3,089	3,328
5-3	N3 On Slip/Old Navan Road	Priority	25,472	1,446	1,919
5-4	Blanchardstown Road S/N3 on/off slips	Signals	45,771	2,968	3,350
5-5	Blanchardstown Shopping/N3 Access	Priority	6,635	365	371
5-6	Blanchardstown Road S/Service Access	Priority	33,369	2,130	2,380
5-7	Blanchardstown Road South/Blakestown Road	Roundabout	50,999	3,020	3,366
5-8	Blanchardstown Centre at Yellow Car Park	Roundabout	26,390	1,156	1,422
5-9	Blanchardstown Centre Service Area 1	Priority	17,261	586	1,062
5-10	Blanchardstown Centre Crowne Plaza Roundabout	Roundabout	18,441	788	1,180
5-11	Blanchardstown Centre (Ben Dunne Gym)	Roundabout	33,049	1,520	2,491
5-12	Snugborough Road/Main Street	Signals	39,988	2,574	2,484
5-13	Connolly Hospital Access	Signals	10,582	915	670
5-14	Navan Road/Junction 6	Signals	40,790	2,709	3,093
5-15	Navan Road near Woods End	Signals	39,063	2,520	2,992
5-16	M50/Navan Road	Priority	48,811	3,356	3,648
5-17	Dunsink Ln/Navan Road	Signals	53,255	4,126	3,720
5-18	Navan Road/Travelodge	Priority	43,401	3,242	3,129
5-19	Morgan Pl/Navan Road	Priority	43,340	3,260	3,099
5-20	Navan Road/Circle K	Priority	22,946	1723	1,459
5-21	Navan Road Parkway North Slip	Signals	3,977	944	312
5-22	Navan Road Parkway South Slip	Signals	2,769	488	234
5-23	Navan Road/Phoenix Park Avenue	Priority	41,376	2,518	2,874
5-24	Ashtown Road/Navan Road	Roundabout	47,561	3,034	3,187
5-25	Kempton Ave/Navan Road	Signals	66,568	4,156	3,984
5-26	Navan Road/Darling Estate	Priority	31,921	1,947	1,913
5-28	Ashtown Grove/Navan Road	Signals	32,536	1,983	1,965
5-29	Navan Road/Aura de Paul Swimming	Priority	28,602	1,629	1,682
5-30	Navan Road/Baggot Road	Signals	34,473	2,204	2,003
5-31	Navan Road/Assisi House	Priority	30,594	1,986	1,647
5-32	Nephin Road/Navan Road	Signals	34,272	2,236	1,885
5-33	Navan Road/Holy Family School	Priority	24,025	1,362	1,133

Junction Identifier	Junction Name	Type	Daily Movements (vehs)	AM Movements (vehs)	PM Movements (vehs)
5-34	Navan Road/Skreen Road	Priority	25,839	1,532	1,317
5-35	Navan Road/Hampton Green	Priority	25,936	1,564	1,299
5-36	Navan Road/Cabra Library	Signals	29,244	1,617	1,588
5-37	R805 Ratoath Road/Cabra Road	Signals	36,893	2,127	2,293
5-38	Old Cabra Road/Glenbeigh Road	Priority	19,953	1,180	1,324
5-39	Cabra Dr/Old Cabra Road	Priority	16,696	957	1,003
5-40	Old Cabra Road/LIDL	Priority	17,658	981	1,044
5-41	N Circular Road/Prussia Street	Signals	32,177	1,992	2,065
5-42	Annamoe Road/N Circular Road	Signals	16,622	1,124	1,098
5-43	Prussia Street/Park Shopping Centre	Priority	18,247	981	1,108
5-44	Prussia Street/St Joseph's Road	Priority	17,109	965	1,017
5-45	Shea's Ct/Manor Street	Priority	21,536	1,319	1,397
5-46	Kirwan Street/R805 Manor Street	Priority	24,138	1,593	1,552
5-47	Brunswick Street N/Blackhall pl	Signals	26,706	1,819	1,678
5-48	Grangegorman/Brunswick St N	Priority	12,319	1,148	602
5-49	Blackhall Pl/Sraid an Ri Thuaidh	Signals	22,714	1,480	1,407
5-50	Blackhall Pl/Blackhall Green	Priority	16,410	920	1,052
5-51	Blackhall Street/Unnamed Road	Signals	19,966	1,186	1,417
5-52	R804 Blackhall pl/Hendrick Street	Signals	16,481	1,037	1,153
5-53	R805 Blackhall Pl/Benburb Street	Signals	17,031	1,075	1,145
5-54	R804/King Street N	Signals	25,352	1,711	1,726
5-55	Queen Street/R805	Signals	21,474	1,428	1,541
5-56	R805/Haymarket	Priority	15,443	1,090	985
5-57	Benburb Street/R804 Queen Street	Priority	15,233	1,114	1,010
5-58	Snugborough Road/Waterville Road	Roundabout	32,547	2,380	2,201
5-59	Manor Street/Aughrim Street	Signals	21,368	1,228	1,360
5-60	St Joseph's Road/Aughrim Street	Priority	6,102	470	451
5-61	N Circular Road/Aughrim Street	Signals	22,893	1,634	1,706
5-62	Glenbeigh Road/Blackhorse Ave	Priority	11,074	965	984
5-63	Skreen Road/Blackhorse Ave	Priority	9,281	953	800
5-64	Nephin Road/Blackhorse Ave	Priority	10,903	1,109	908
5-65	Baggot Road/Blackhorse Ave	Priority	8,816	833	744
5-66	Ashtown Gate Road/Blackhorse Ave	Priority	16,951	1,443	1,215
5-68	Quarry Rd/ Cabra Rd	Signals	21,286	1,297	1,307
5-69	Imaal Rd/ Cabra Rd	Signals	19,014	1,053	1,182
5-70	Dowth Rd/ Cabra Rd	Signals	19,624	1,177	1,247
5-71	St. Peter's Road/ Cabra Road	Priority	18,348	994	1,164
5-72	North Circular Rd./ Oxmantown Rd.	Priority	17,066	1,327	1,254
5-73	North Circular Rd/ Infirmary Rd	Signals	16,393	1,297	1,179

Junction Identifier	Junction Name	Type	Daily Movements (vehs)	AM Movements (vehs)	PM Movements (vehs)
5-74	Infirmary Rd./ Montpelier Hill	Priority	15,562	1,193	1,015
5-75	Infirmary Rd./Parkgate St.	Signals	29,902	2,071	2,355
5-79	North Circular Road/ Dalymount	Signals	25,864	1,558	1,651
5-80	North Circular Road/ O' Devaney Gardens	Priority	15,373	1,127	1,083
5-81	Infirmary Rd./ Montpelier Gardens	Priority	14,284	1,105	958
5-82	Blanchardstown (West End Retail Park roundabout)	Roundabout	23,284	1,131	1,719
5-83	Snugborough Rd, Blanchardstown	Roundabout	24,828	1,457	1,535
5-84	Benburb St./Parkgate St.	Signals	18,507	1,258	1,595

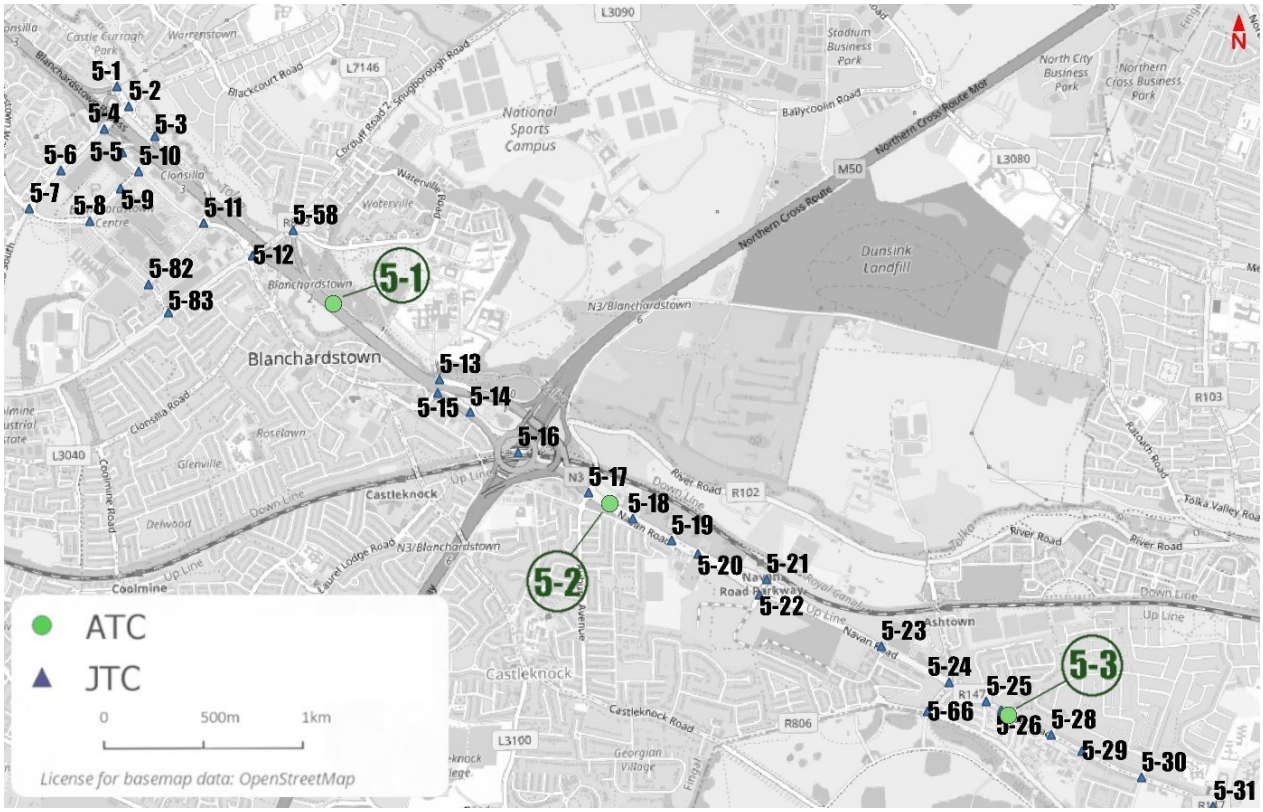

Diagram 5.1: ATC and JTC Traffic Count Locations (1)

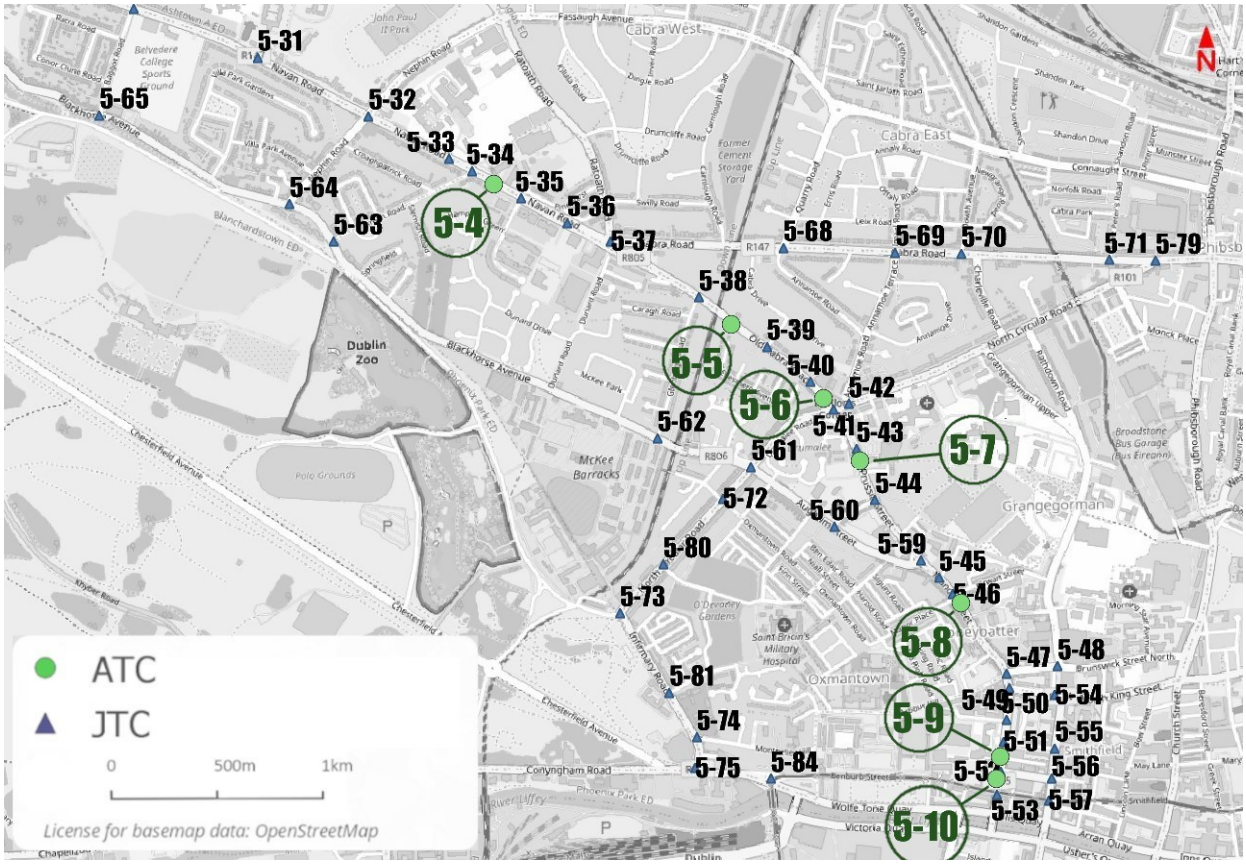

Diagram 5.2: ATC and JTC Traffic Count Locations (2)

5.2.2 Automatic Turning Counts (ATCs)

Table 5.2 displays the ATCs collected for the Proposed Scheme, the locations of which are shown in in Diagram 5.1 and Diagram 5.2. The highest ATC daily flows are at R147 Navan Road, south of Blanchardstown Centre. ATC counts at Locations 5.5A, 5.5B and 5.9B did not have reliable counts for a full week and were excluded from the dataset.

Table 5.2: ATC Locations and Daily, AM and PM Movements

ATC Identifier	ATC Location	Direction	Daily Movements (vehs)	AM Movements (vehs)	PM Movements (vehs)
5.1A	Navan Road South of Blanchardstown Centre	Southbound	52,173	4,353	2,932
5.1B		Northbound	50,216	3,210	3,285
5.2A	Navan Road South of Dunsink Lane	Southbound	20,702	1,511	1,316
5.2B		Northbound	19,534	1,413	1,394
5.3A	Navan Road South of Kempton Avenue	Southbound	14,267	812	939
5.3B		Northbound	14,965	946	834
5.4A	Navan Road South of Skreen Road	Southbound	10,924	529	551
5.4B		Northbound	12,500	873	540

ATC Identifier	ATC Location	Direction	Daily Movements (vehs)	AM Movements (vehs)	PM Movements (vehs)
5.5A	Navan Road North of Cabra Drive	Southbound	excluded	excluded	excluded
5.5B		Northbound	excluded	excluded	excluded
5.6A	Navan Road North of NCR	Southbound	5,748	499	279
5.6B		Northbound	5,520	338	344
5.7A	Prussia Street at Park Shopping	Southbound	6,936	312	466
5.7B		Northbound	7,835	431	399
5.8A	Stoneybatter South of Kirwan Street	Southbound	10,895	881	523
5.8B		Northbound	8,659	339	705
5.9A	Blackhall Place North of Blackhall Street	Southbound	7,529	460	499
5.9B		Northbound	excluded	excluded	excluded
5.10A	Blackhall Place North of Benburb Street	Northbound	1,075	134	89
5.10B		Southbound	10,772	576	587

5.3 Baseline Conditions

5.3.1 Overview

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 the 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.

5.3.2 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.

The Proposed Scheme 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.

5.3.2.1 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 the 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 are included in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

5.3.2.2 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 the 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).

5.3.2.3 Bus Infrastructure

5.3.2.3.1 Bus Priority Measures

Bus lanes are intermittent along Section 1, but are present at the following locations:

- 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.

5.3.2.3.2 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 the 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 5.3 shows the availability of bus stop facilities at the existing 10 bus stops along Blanchardstown Road North.

Table 5.3: 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 5.4.

Table 5.4: 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

Service	Route	Typical Service Frequency	
		Mon-Sat	Sun
111	Dublin - Batterstown - Athboy - Trim	60 minutes	60 minutes
111x	Dublin – Trim / Athboy - Delvin - Clonmellon	3 buses during day	-
139	Corduff (Fingal), Blanchardsto - 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	-

5.3.2.4 General Traffic

5.3.2.4.1 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.

5.3.2.4.2 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 5.3.

Image 5.3: Navan Road / Mulhuddart N3 Slip Road Signalised Junction

5.3.2.4.3 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 5.4.

Image 5.4: R121 Blanchardstown Road North / Navan Road signalised junction

5.3.2.4.4 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.5.

Image 5.5: 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 5.6.

Image 5.6: 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 5.7.

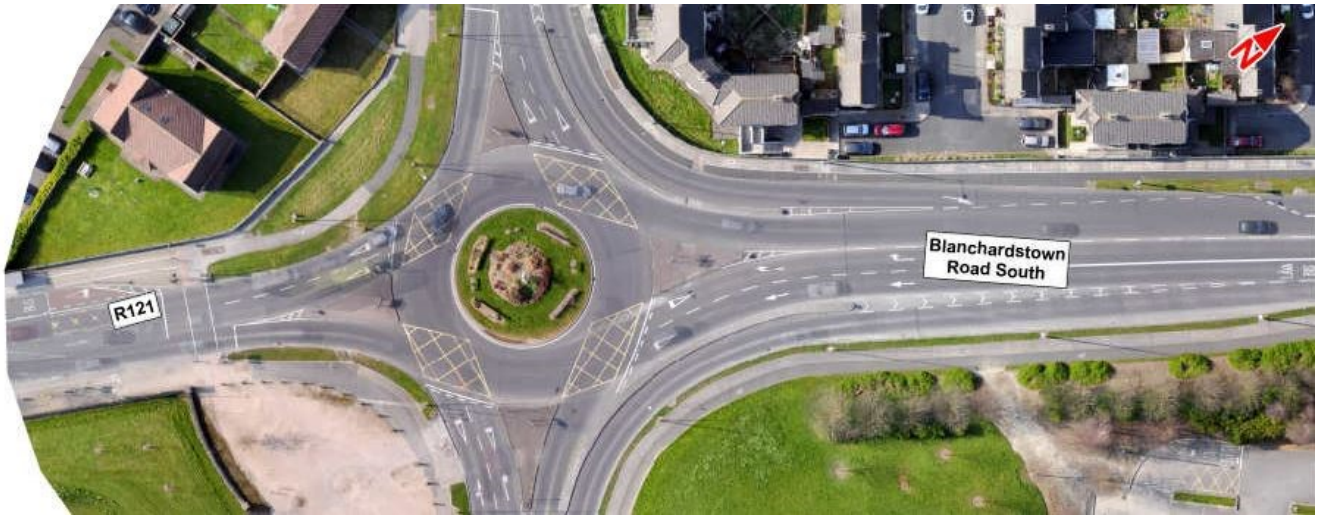

Image 5.7: R121 Blanchardstown Road South / Blakestown Way Priority Roundabout

5.3.2.4.5 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 5.8

Image 5.8: 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 5.9.

Image 5.9: 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 5.10.

Image 5.10: 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 5.11.

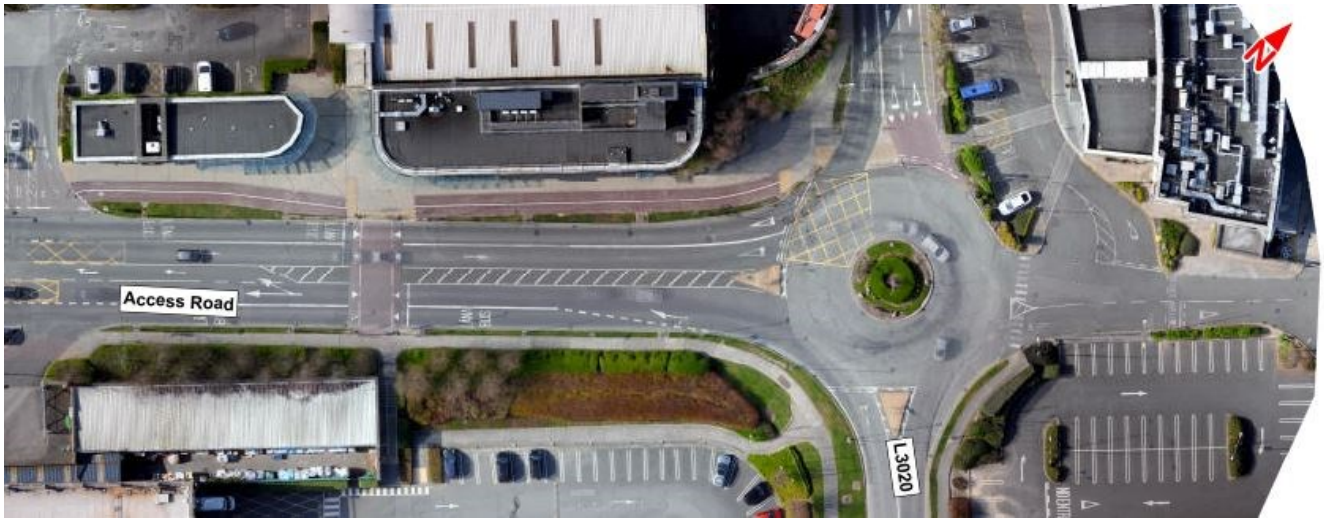

Image 5.11: Crowne Plaza Priority Roundabout

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 5.12.

Image 5.12: Liberty Insurance Priority Roundabout

5.3.2.5 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.

5.3.3 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.

5.3.3.1 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 the 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).

5.3.3.2 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 the 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).

5.3.3.3 Bus Infrastructure

5.3.3.3.1 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.

5.3.3.3.2 Bus Stop Facilities

The existing bus facilities along Section 2 of the Proposed Scheme are illustrated in Figure 6.5b in Volume 3 of the 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 5.5 outlines the availability of bus stop facilities at the bus stops along Section 2 of the Proposed Scheme.

Table 5.5: 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 5.6.

Table 5.6: Section 2 – Bus Service Frequency

Service	Route	Typical Service Frequency	
		Weekday	Weekend
17A	Kilbarrack – Edenmore – Colock – 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

Service	Route	Typical Service Frequency	
		Weekday	Weekend
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	

5.3.3.4 General Traffic

5.3.3.4.1 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.

5.3.3.4.2 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.

5.3.3.4.3 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 N3 Eastbound off-slip / Connolly Hospital Access signalised junction, becoming two lanes wide 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 / R102 Dunsink Lane / 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the EIAR.

N3 Eastbound off-slip (River Road) / Connolly Hospital Access signalised junction: The western arm of Navan Road 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 5.13.

Image 5.13: N3 Eastbound off-slip (River Road) / Connolly Hospital Access Signalised Junction

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 5.14.

Image 5.14: 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 are 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 5.15.

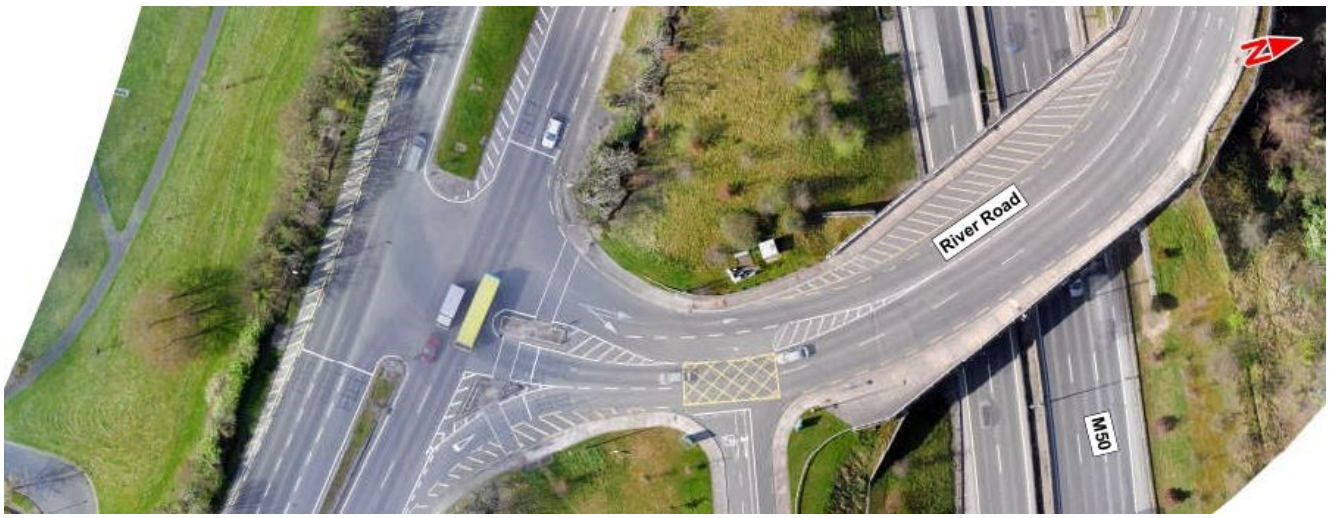

Image 5.15: N3 Navan Road / N3 Eastbound off-slip (River Road) Signalised Junction

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 5.16.

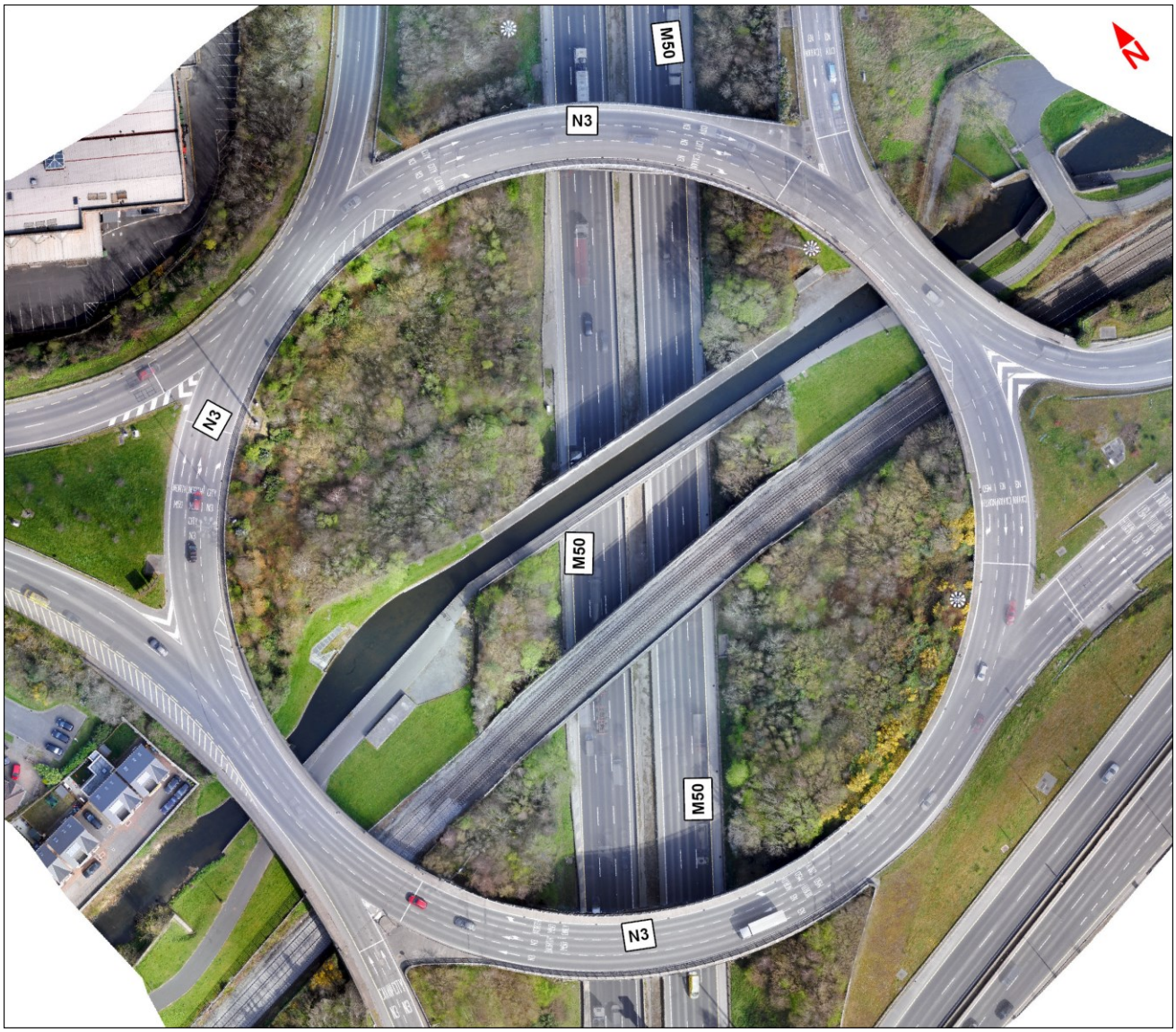

Image 5.16: N3 Navan Road / M50 Junction 6 Interchange

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 5.17.

Image 5.17 N3 Navan Road / Auburn Avenue Signalised Junction

5.3.3.5 Existing Parking / Loading

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

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

5.3.4.1 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.

5.3.4.2 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 the 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).

5.3.4.3 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 a 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 the 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).

5.3.4.4 Bus Infrastructure

5.3.4.4.1 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 on length on the N3 as it passes beneath the Parkway Station junction; and
- A southbound bus lane of approximately 440m in length on the approach to the R147 Navan Road / Ashtown Road / Ashtown Gate Road priority roundabout.

5.3.4.4.2 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 5.7 outlines the availability of bus stop facilities at the existing bus stops along Section 3 of the Proposed Scheme.

Table 5.7: 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 the 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 5.8.

Table 5.8: 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'Connel 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 - Philbboro - Castleknock - Blanchardstown - Porterstown - Rathbeggan - Ryans Town - Dunshaughlin - Dunsaney Village - Swainstown - Kilmessan - Trim	120 minutes	3 Services per Day
111	Dublin - Philboro - Castleknock - Blanchardstown - Warrenstown - Dunsaney - Kiltale - Scurloughstown - Trim	60 minutes	60 minutes

5.3.4.5 General Traffic

5.3.4.5.1 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 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.18.

Image 5.18: 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 5.19.

Image 5.19: 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 5.20.

Image 5.20: 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 5.21.

Image 5.21: R147 Navan Road / Ashtown Road Priority Roundabout

5.3.4.6 Existing Parking / Loading

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

5.3.5 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.

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 the 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).

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.

5.3.5.1 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 the 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).

5.3.5.2 Bus Infrastructure

5.3.5.2.1 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.

5.3.5.2.2 Bus Stop Facilities

The existing bus facilities along Section 4 of the Proposed Scheme are illustrated in Figure 6.5d in Volume 3 of the 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 5.9 outlines the availability of bus stop facilities at the existing 16 no. bus stops between Ashtown Road and R805 Old Cabra Road.

Table 5.9: 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 5.10.

Table 5.10: 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
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	20 minutes	20 minutes

Service	Route	Typical Service Frequency	
		Weekday	Weekend
	Street - Camden St - Carlisle St - St Andrews Centre - Keeper Rd - Brickfields Park - Crumlin Hospital		
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

5.3.5.3 General Traffic

5.3.5.3.1 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.22.

Image 5.22: 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 5.23.

Image 5.23: 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 5.24.

Image 5.24: 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 5.25.

Image 5.25: 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 5.26.

Image 5.26: 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 5.27.

Image 5.27: 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 5.28.

Image 5.28: 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 5.29.

Image 5.29: R147 Navan Road / R805 Old Cabra Road Signalised Junction

5.3.5.4 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 5.11 presents a summary of the existing parking and loading spaces

Table 5.11: 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.

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

5.3.6.1 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 an 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.

5.3.6.2 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 the 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).

5.3.6.3 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 the 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).

5.3.6.4 Bus Infrastructure

5.3.6.4.1 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.

5.3.6.4.2 Bus Stop Facilities

The existing bus facilities along Section 5 of the Proposed Scheme are illustrated in Figure 6.5e in Volume 3 of the 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 5.12 outlines the availability of bus stop facilities at the existing 14 bus stops between R805 Old Cabra Road junction and R148 Ellis Quay.

Table 5.12: 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 5.13.

Table 5.13: 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'Connel 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	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'Connel 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

5.3.6.5 General Traffic

5.3.6.5.1 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.30.

Image 5.30: 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 5.31.

Image 5.31: 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 5.32.

Image 5.32: R805 Old Cabra Road / Supermarket Access Priority Junction

5.3.6.5.2 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.33.

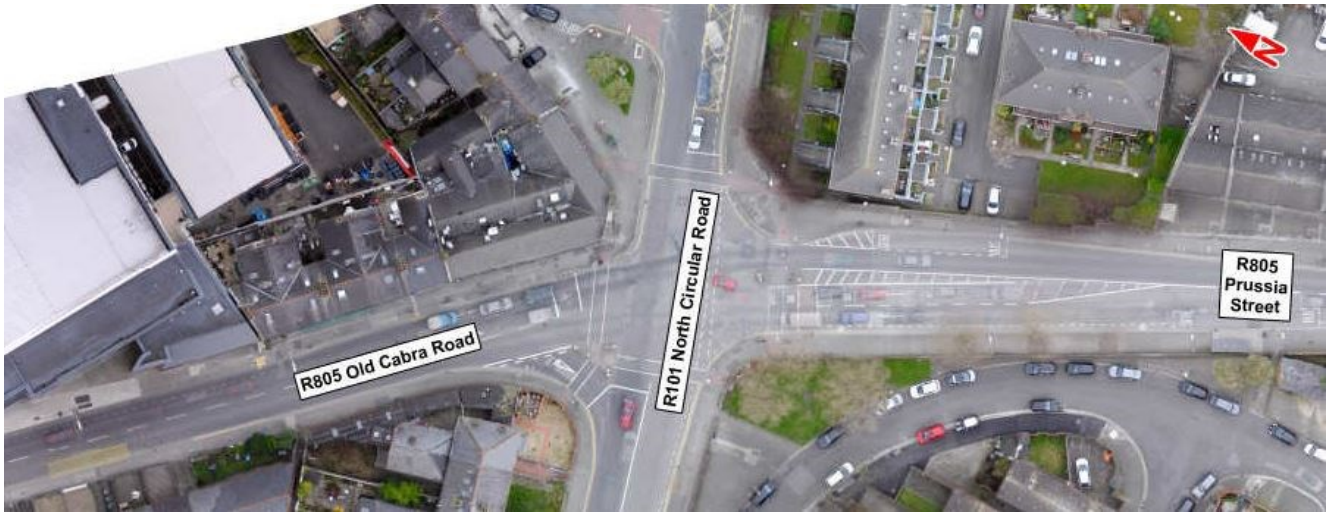

Image 5.33: R805 Prussia Street / R101 North Circular Road Signalised Junction

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 5.34.

Image 5.34: 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 5.35.

Image 5.35: R805 Prussia Street / St Joseph's Road Priority Junction

5.3.6.5.3 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 5.36.

Image 5.36: 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 5.37.

Image 5.37: R805 Manor Street / Kirwan Street / Manor Place Priority Junctions

5.3.6.5.4 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 5.38.

Image 5.38: 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 5.39.

Image 5.39: Blackhall Place / King Street North Signalised Junction

5.3.6.5.5 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 is described in turn below, alongside satellite images which are extracts from Figure 6.6 in Volume 3 of the 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 5.40.

Image 5.40: 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 5.41.

Image 5.41: 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 5.42.

Image 5.42: Blackhall Place / R148 Ellis Quay / James Joyce Bridge Signalised Junction

5.3.6.5.6 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 ways 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 5.43.

Image 5.43: R804 Brunswick Street North / Grangegorman Lower / George's Lane Priority Junction

5.3.6.5.7 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 5.44.

Image 5.44: 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 5.45.

Image 5.45: R804 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 5.46

Image 5.46: 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 5.47.

Image 5.47: R804 Queen Street / Benburb Street / Arran Quay Terrace Signalised Junction

5.3.6.6 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. Potential Impacts

6.1 Characteristics of the Proposed Scheme

The Proposed Scheme commences on the north side of the South Blanchardstown Road junction with the N3. The corridor 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 follows the N3 and Navan Road as far as the junction with the Old Cabra Road. From here the Proposed Scheme is routed along Old Cabra Road, Prussia Street and Manor Street to the junction with Brunswick Street North.

The Proposed Scheme is then routed via Blackhall Place as far as the junction with Ellis Quay and Arran Quay, where it would join the prevailing traffic management regime on the North Quays.

The design consists primarily of dedicated bus lanes in both directions where feasible, with alternative measures proposed at particularly constrained locations. Complementary cycle infrastructure is also provided along Queen Street, parallel to Blackhall Place. The cycle track is not available on the main corridor an alternative cycle route

via quiet roads is proposed. Throughout the Proposed Scheme pedestrian facilities will be upgraded and additional signalised crossings provided.

6.2 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.

6.3 'Do Minimum' Scenario

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

For the qualitative analysis the assessment is in relation to the conditions of the existing transport network, which have been outlined in Section 5 (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.

6.3.1.1 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.

TIA Appendix 1 (Transport Modelling Report) contains further information on the modelling assumptions contained within the Do Minimum scenario including the full list of transport schemes included.

6.3.1.2 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 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 6.1.

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.

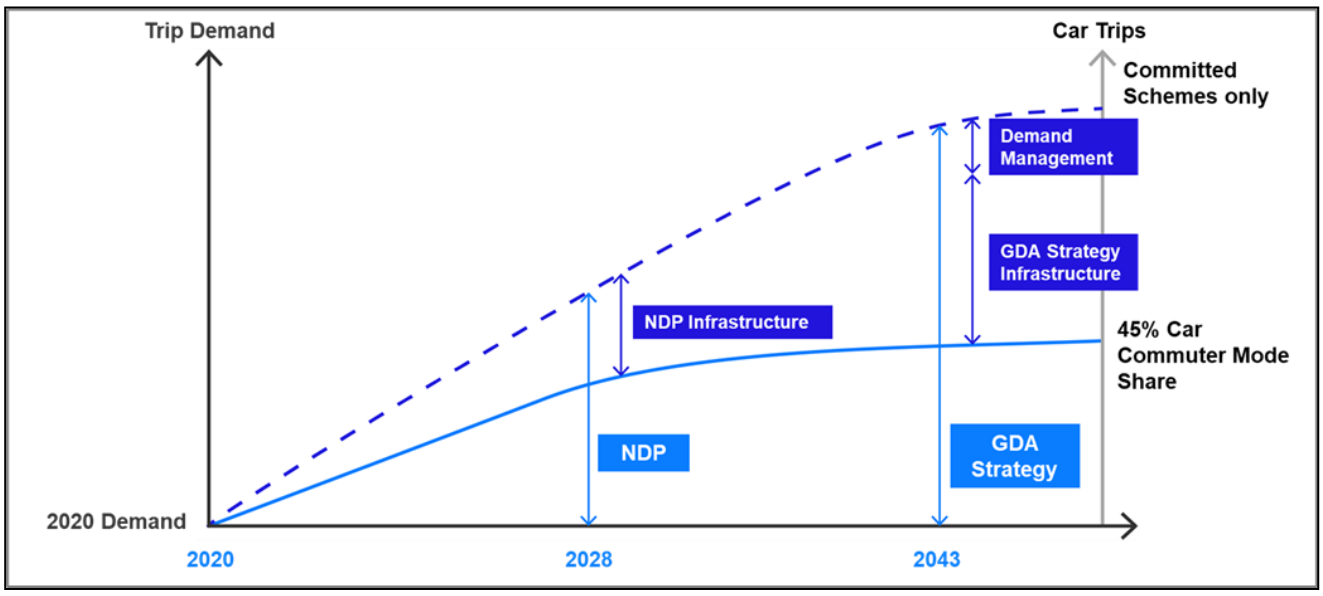

Diagram 6.1: Trip Demand Growth and the GDA Strategy

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 '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) of the EIAR.

6.5 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) of the EIAR has been prepared to demonstrate the likely approach that will be taken to construct the Proposed Scheme, while it also provides an overview of the construction activities necessary to undertake the works, including information on a proposed Construction Compound, construction plant and equipment. This assessment, as outlined herein, provides an overview of the potential traffic and transport impacts of the Construction Phase based on the information set out in Chapter 5 (Construction) of the EIAR.

A Construction Environmental Management Plan (CEMP) has been prepared and is included as Appendix A5.1 in Volume 4 of the 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 the 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 TIA.

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.

6.5.1 Description of Construction Works

The Proposed Scheme has been divided into five principal sections. The division line between sections has been determined by grouping similar carriageway types together. These sections have been further subdivided into sub-sections, according to the types of construction works required. The sections / sub-sections are:

- **Section 1a:** Old Navan Road

- **Section 1b:** Blanchardstown Slip Roads
- **Section 1c:** Blanchardstown Road
- **Section 1d:** Blakestown Roundabout
- **Section 1e:** Blakestown Roundabout to Blanchardstown Shopping Centre Roundabout 1
- **Section 1f:** Blanchardstown Shopping Centre Roundabout 1
- **Section 1g**: Blanchardstown Shopping Centre Roundabout 1 to Roundabout 2 Including Bus Depot
- **Section 1h:** Blanchardstown Shopping Centre Roundabout 2
- **Section 1i:** Blanchardstown Shopping Centre Roundabout 2 to Blanchardstown Road
- **Section 1j:** Blanchardstown Shopping Centre Roundabout 2 to Roundabout 3
- **Section 1k:** Blanchardstown Shopping Centre Roundabout 3
- **Section 1l:** Blanchardstown Shopping Centre Roundabout 3 to Snugborough Tie In
- **Section 2a:** N3 Dual Carriageway Slip Roads
- **Section 2b**: N3 Dual Carriageway to Navan Road
- **Section 2c:** N3 Structure Widening; Central Reservation
- **Section 2d:** N3 Structure Widening; Mill Road South
- **Section 2e:** N3 Structure Widening; Mill Road North
- **Section 2f:** Old Navan Road to M50 Roundabout
- **Section 2g**: M50 Roundabout
- **Section 3a:** M50 Roundabout to Railway Station
- **Section 3b:** Railway Station to Ashtown Road Roundabout
- **Section 3c:** Ashtown Road Roundabout
- **Section 4a:** Ashtown Road Roundabout to Baggot Road
- **Section 4b**: Baggot Road to Skreen Road
- **Section 4c**: Skreen Road to Railway Line
- **Section 4d**: Ratoath Road Junction
- **Section 5a**: Railway Line to Aughrim Street
- **Section 5b**: Aughrim Street to Brunswick Street
- **Section 5c:** Blackhall Place
- **Section 5d:** Queen Street
- **Section 5e**: Brunswick Street North
- **Section 5f:** King Street North
- **Section 5g:** Blackhall Street;
- **Section 5h:** Georges Lane
- **Section 5i:** Offline sections

The location of each section along the Proposed Scheme is shown in Diagram 6.2.

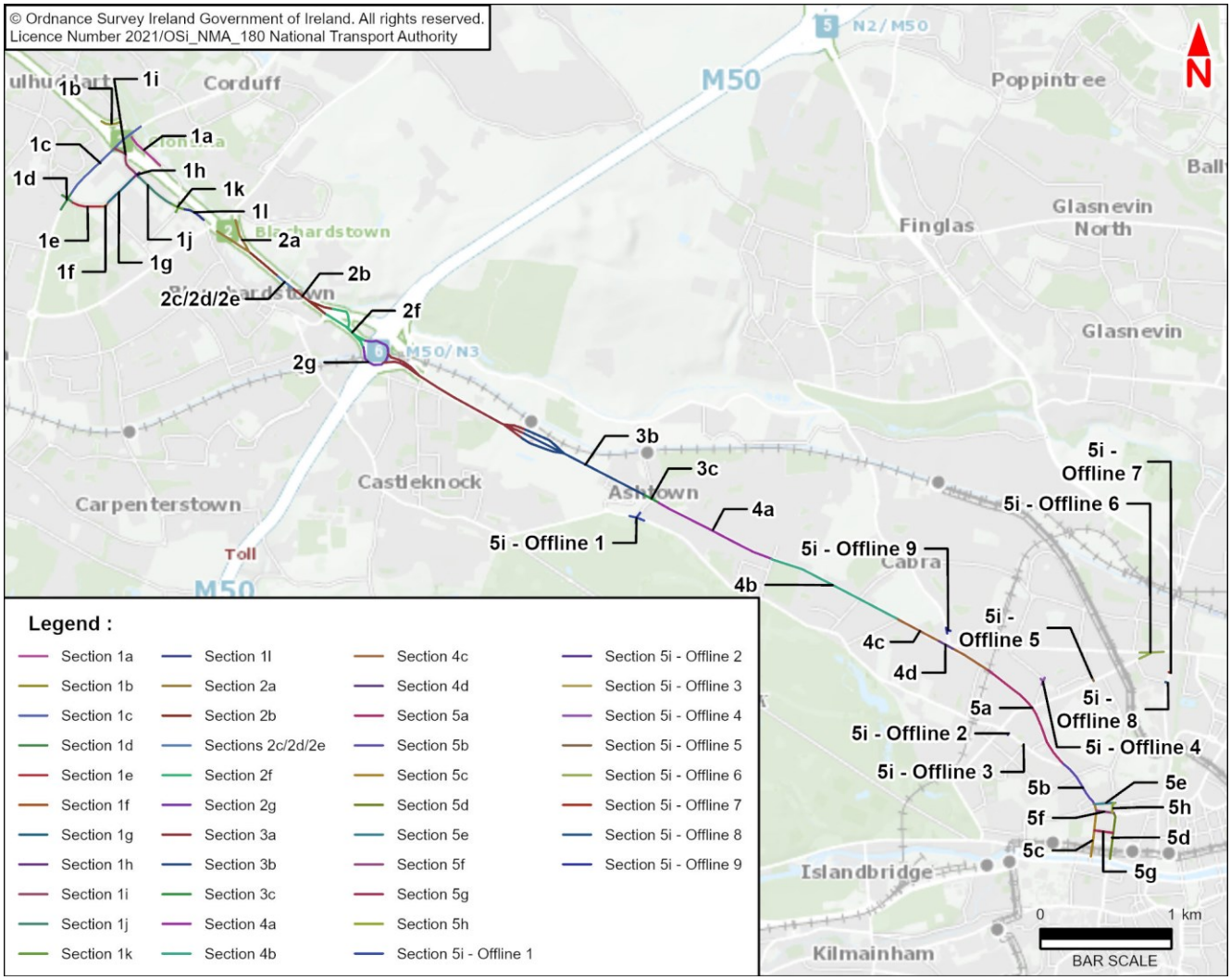

Diagram 6.2: Locations of Proposed Subsections of Construction Phase

6.5.2 Construction Programme

An outline, indicative programme for the construction of the Proposed Scheme is provided in EIAR Chapter 5 (Construction). The Construction Phase of the Proposed Scheme is estimated to require some 24 months (approximately) to complete. Works are envisaged to proceed concurrently on multiple work-fronts to minimise the overall construction duration.

6.5.3 Construction Route

Access to and egress from the construction compounds is permitted via dedicated construction vehicles routes. The haulage of material on site is anticipated to be minimal. There will however be the removal of excavated material and the delivery of construction materials to site. It is anticipated that the exporting and delivery of materials will be executed as efficiently as possible along the National roads such as the close-by M50 and from the local 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.

The following national roads are expected to be used as construction vehicle access routes during the Construction Phase of the Proposed Scheme:

- N3, Navan Road; and
- M50 Motorway.

The following regional roads are expected to be used as construction vehicle access routes during the Construction Phase of the Proposed Scheme:

- 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.

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 6.3 illustrates the proposed construction route to and from the main construction compounds.

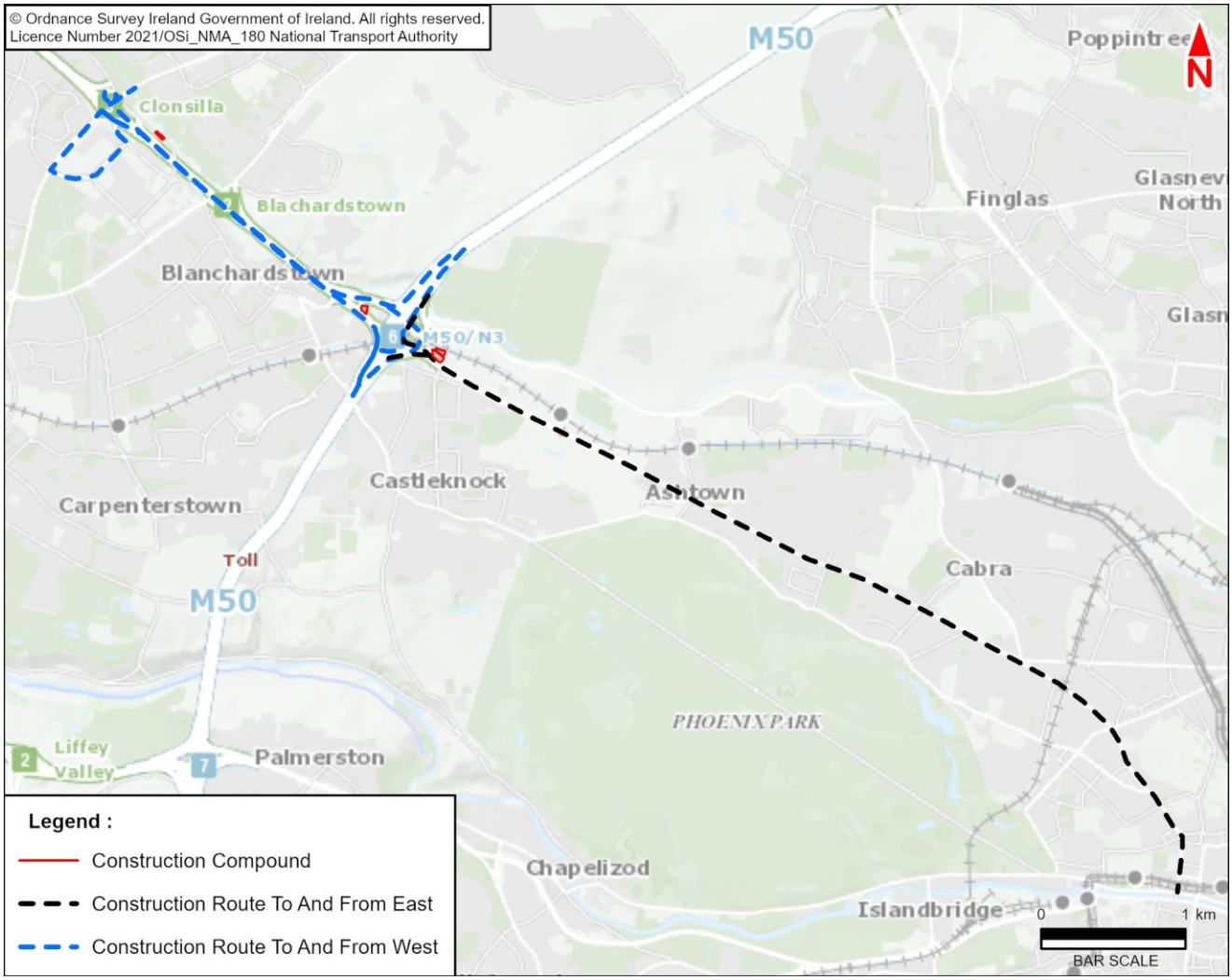

Diagram 6.3: Proposed Construction Route and Construction Compound Locations

6.5.4 Potential Construction Impact

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) of the EIAR and the CEMP (Appendix A5.1 in Volume 4 of the 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 DTTS's 'Traffic Signs Manual, Chapter 8 Temporary Traffic Measures and Signs for Roadworks' and associated guidance. Chapter 5 (Construction) of the EIAR 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 Siochana, as necessary. The need for temporary access restrictions will be confirmed with residents and businesses prior to their implementation.

6.5.4.1 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.

6.5.4.2 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.

6.5.4.3 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 the 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.

6.5.4.4 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.

6.5.4.5 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 Siochana, as necessary. It should be noted that access will be maintained for emergency vehicles along the Proposed Scheme, throughout the Construction Phase.

6.5.4.5.1 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 **Medium Negative and Short Term** due to the temporary nature of any restrictions.

For the purpose of Air Quality (Chapter 7), Climate (Chapter 8) and Noise & Vibration (Chapter 9) impacts assessments, a worst-case scenario for construction activities was considered for assessment purposes and has been modelled in the LAM based on a notional stage of construction whereby Sections 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.

6.5.4.5.2 Construction Traffic Generation

Site Operatives: As described in Chapter 5 (Construction) of the 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 the EIAR, to actively discourage personnel from using private vehicles to travel to site. The CSMMP will promote the use of public transport, cycling and walking by personnel. Private parking at the Construction Compound will be limited. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity e.g. for transporting heavy equipment. A combination of CSMMP measures, as well as work shift patterns, means that fewer than 10 trips by private vehicle are envisaged to and from site during peak periods.

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

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

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

Based on construction activities associated with the Proposed Scheme, the maximum number of HGVs expected to be in operation across the Proposed Scheme during peak haulage activities is 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 34 HGVs in total. A total of 34 two-way truck movements are therefore expected in a typical hour during peak haulage activity of the Proposed Scheme.

Overall Peak Hour Impacts: Table 6.1 the anticipated maximum construction traffic generation by site operatives and HGVs during the AM and PM Peak Hours.

Table 6.1 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	17	0	17	44
PM Peak Hour	0	17	10	17	44

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 **Low Negative and Short-term.** 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. An outline CTMP can be found in Appendix A (Construction Traffic Management Plan) of Appendix A5.1 (Construction Environmental Management Plan) in Volume 4 of the EIAR.

6.5.5 Construction Phase Summary

Table 6.2 presents a summary of the predicted impacts of the Proposed Scheme during construction phase.

Table 6.2 Summary of Construction Phase Predicted Impacts

Assessment Topic	Effect	Predicted Impact
Walking	Restrictions to pedestrians along Proposed Scheme.	Low Negative and Short-term
Cycling	Restrictions to cyclists along Proposed Scheme	Medium Negative and Short-term
Bus	Restrictions to public transport along Proposed Scheme.	Low Negative and Short-term
Parking and Loading	Restrictions to parking / loading along Proposed Scheme.	Low Negative and Short-term
General Traffic	Restrictions to general traffic along Proposed Scheme	Medium Negative and Short-term
	Additional construction traffic flows upon surrounding road network	Low Negative and Short-term

6.6 Operational Phase

6.6.1 Overview

As previously noted, 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.

6.6.2 Qualitative Assessment

6.6.2.1 Qualitative Assessment Methodology

The structure of the qualitative assessment is consistent with the Baseline Environment 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.

6.6.2.1.1 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 potential impact on pedestrians has been assessed using a set of criteria, which has been derived from a set of industry standards and guidance listed in Section 3. Table 6.3 outlines the assessment criteria for each junction.

Table 6.3: 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 6.4 displays the LoS rating based on the number of indicators met.

Table 6.4: 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 6.5 have been used to describe the potential impact, based on the changes in the Qualitative Pedestrian LoS rating.

Table 6.5: 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

6.6.2.1.2 Cycling Infrastructure

The potential 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 (NTA, 2011) 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 6.6 outlines the assessment criteria with reference to the corresponding LoS ratings.

Table 6.6: 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 6.7 have been used to describe the potential impact, based on the changes in the Qualitative Cycling LoS rating.

Table 6.7: Description of Impact for Cycling Qualitative Assessment

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

6.6.2.1.3 Bus Infrastructure

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

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

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

The magnitude of impact of the Proposed Scheme, applied to the qualitative review of the above factors, is set out in Table 6.8.

Table 6.8: Magnitude 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.

6.6.2.1.4 Parking and Loading

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

- Designated Paid Parking;
- Permit Parking;

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

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

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

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

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

6.6.2.2 Section 1 – N3 Blanchardstown Centre to R843 Snugborough Road

This section of the TIA assesses the impacts of the proposals along Section 1 of the Proposed Scheme during operation. 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 A6.5.1 (Pedestrian Infrastructure Assessment).

6.6.2.2.1.1 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 6.9. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

Table 6.9: Section 1 – Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Impact
R121 Blanchardstown Road North / R121 Old Navan Road	B800	D	C	Low Positive
R121 Blanchardstown Road South / Blakestown Way	B100	D	B	Medium Positive
Bus Interchange Western Access	F000	F	B	High Positive
Bus Interchange Eastern Access	F225	B	A	Low Positive

Junction	Chainage	Do Minimum LoS	Do Something LoS	Impact
Crowne Plaza Roundabout	F230	E	A	High Positive
Liberty Insurance	A600	E	A	High Positive
Section Summary		**D**	**B**	**Medium Positive**

The contents of Table 6.9 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 **Medium Positive impact** 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.

6.6.2.2.2 Cycling Infrastructure

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 Hub' 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 6.10 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. TIA Appendix 4.2 (Cycling Infrastructure Assessment) outlines in further detail the methodology behind each LoS rating given to the Do Minimum and Do Something scenarios.

Table 6.10: Section 1 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Impact
N3 slip road to R121 Blanchardstown Road North / South	C0 – C200	D	B	Medium Positive
Old Navan Road between N3 off slip and Blanchardstown Road North	C200-B800	B	B	Negligible
Blanchardstown Road North and Blanchardstown Road South between Old Navan Road and Blakestown Way junction	B800 – B100	B	A	Low Positive
Blakestown Way junction to Crowne Plaza Hotel	E100 – A200	B	A	Low Positive
Crowne Plaza Hotel to R843 Snugborough Road	A200 – A900	D	A	High Positive
Section Summary		**C**	**A**	**Medium Positive**

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 an 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.

Overall, it is anticipated that there will be a **Medium Positive impact** to the quality of the cycling infrastructure along Section 1 of the Proposed Scheme, during the Operational Phase.

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'

6.6.2.2.3 Bus Infrastructure

This section provides an assessment of the changes in the quality of bus stop infrastructure provision as a result of the Proposed Scheme between N3 Blanchardstown Centre to R843 Snugborough Road, including upgrades and any relocations. Any relocations of bus stops which need to be carried through to the EIAR for significance assessment are identified.

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. This assumes that multiple stops at the Blanchardstown Centre are counted as one stop in either direction.

Table 6.11 presents a summary of the changes in the number and location of bus stops as a result of the scheme.

Table 6.11: Section 1 – Overview of Amendments to Bus Stop Locations

Direction	Stop	Chainage	Do Something	Comment
Inbound	7475	B450	Retained	N/A
Inbound	4362	B50	Retained	N/A

Direction	Stop	Chainage	Do Something	Comment
Inbound	-	C250	Retained	N/A
Inbound	2959 & 4747	F100	Retained and enhanced - new Bus Interchange	New bus terminus at Blanchardstown Centre. Twelve bus stances and central waiting area with canopy.
Inbound	2960	A340	Retained	Stop retained for longer distance buses.
Inbound	-	A360	New	New stop 20m east of Stop 2960 at Blanchardstown Retail Park.
Inbound	1545	A660	Retained	N/A
Outbound	-	D000	New	New stop on N3 northbound off-slip, between Crowne Plaza slips.
Outbound	661	A675	Retained	Stop retained for longer distance buses.
Outbound	-	A710	New	New stop 20m west of Stop 661 at Westend Office Park.
Outbound	-	A340	New	New stop at Blanchardstown Retail Park, opposite inbound stop 2960.
Outbound	101281		Removed	N/A
Outbound	7025 & 7026	F100	Retained and enhanced - new Bus Interchange	New bus interchange at Blanchardstown Centre.
Outbound	1882	B000	Retained	N/A
Outbound	4323	-	Removed	N/A

Under the proposals, there will be a total of 13 stops – 7 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. The stop close to the Crowne Plaza Hotel will be removed.

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 6 saw toothbays, and kerbside space for a further 6 buses, and a central waiting area covered with a canopy. Table 6.12 provides a summary of the improvements to the bus stop infrastructure along Section 1 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the Do Minimum and Do Something scenarios.

Table 6.12: Section 1 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	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	40%	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 stops 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 6.12 show 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, but all are located inline within bus lanes. Bus lanes will be provided along the entirety of the corridor, replacing current intermittent provision.

Overall, the provision of a new bus interchange, along with the improvements in the provision of real-time information, shelters, seating and accessible kerbs throughout Section 1 of the Proposed Scheme is assessed as providing an overall **High Positive impact** for bus passengers.

6.6.2.2.4 Parking and Loading

There are no on-street parking or loading bays along Section 1 of the Proposed Scheme, and therefore no parking or loading impacts on this section.

6.6.2.3 Section 2 – R843 Snugborough Road to R102 Dunsink Lane

6.6.2.3.1 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 6.13. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

Table 6.13: Section 2 –Pedestrian Impact during Operational Phase

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

The contents of Table 6.13 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 there will be **Medium Positive impact** to the quality of the pedestrian infrastructure along Section 2 of the Proposed Scheme, during the Operational Phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor.

6.6.2.3.2 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.

6.6.2.3.3 Bus Infrastructure

There are currently 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.

Table 6.14 presents a summary of the changes in the number and location of bus stops along Section 2 of the Proposed Scheme.

Table 6.14: Section 2 – Overview of Amendments to Bus Stop Locations

Direction	Stop	Chainage	Do Something	Comment
Inbound	-	A1590	New	New stop on Navan Road, 40m to the east of the Mill Road overbridge, helping to serve Connolly Hospital and Blanchardstown.
Inbound	7374	A2250	Retained	N/A
Inbound	-	A2300	New	New in-carriageway stop on Navan Road at Castleknock health and leisure village, 30m to the east of Stop 7374.
Outbound	7389	A1925	Retained & New	Extended bus layby provided, with space for two buses.
Outbound	-	A1850	New	New stop on Navan Road, 40m to the east of the Mill Road overbridge, helping to serve Connolly Hospital and Blanchardstown.

Under the proposals, there will be a total of six stops – three inbound and three outbound (double bus stop at Stop 7389). 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 will also be a new stop on Navan Road, at Castleknock health and leisure village, to serve longer-distance buses.

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

Table 6.15: Section 2 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	0	0%	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 proposals will result in both of the existing stops being upgraded, and all new stops will also have the full range of passenger facilities. The existing stops will both be retained in their indented drop-off areas. The new stops will all be located inline within bus lanes.

Overall, the provision of the new stops close to Mill Road, along with the improvements to facilities at the existing stops in Section 2 of the Proposed Scheme is assessed as providing an overall **High Positive impact** for bus passengers.

6.6.2.3.4 Parking and Loading

There are no on-street parking or loading bays along Section 2 of the Proposed Scheme, and therefore no parking or loading impacts on this section.

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

6.6.2.4.1 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 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 6.16. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

Table 6.16: Section 3 – Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Impact
R147 Navan Road / Phoenix Park Avenue junction	A4500	F	B	High Positive
R147 Navan Road / Ashtown Road junction	A4875	F	A	High Positive
Castleknock Road / Blackhorse Avenue	A850	E	B	Medium Positive
Section Summary		F	**B**	**High Positive**

The contents of Table 6.16 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.

Overall, it is anticipated that there will be **High Positive impact** 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.

6.6.2.4.2 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 6.17 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 3, along with the resultant impact assessment. A detailed breakdown of the assessment can be found in TIA Appendix 4.2 (Cycling Infrastructure Assessment).

Table 6.17: Section 3 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	
R147 Navan Road: Dunsink Lane to Morgan's Place (Castleknock Manor in Do Something)	A2900 – A3400	D	C	Low Positive
R147 Navan Road: Morgan's Place to Ashtown Road	A3400 – A4875	C	A	Medium Positive
Section Summary		**D**	**B**	**Medium Positive**

The contents of

Table 6.17 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.

The contents of

Table 6.17 demonstrate that the scheme will have a positive impact on the cycling environment between the N3 / M50 junction and the Navan Road / Ashtown Road junction, and is predicted to result in a **Medium Positive impact.**

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'.

6.6.2.4.3 Bus Infrastructure

There is currently a total of six bus stops along Section 3, three 'inbound' stops towards the city centre and three 'outbound' stops heading towards the N3 / M50 Junction Roundabout.

Table 6.18 presents a summary of the changes in the number and location of bus stops along Section 1 of the Proposed Scheme.

Table 6.18: Section 3 – Overview of Amendments to Bus Stop Locations

Direction	Stop	Chainage	Do Something	Comment
Inbound	-	A2950	New	New bus stop on R147 Navan Road, 30m to the east of Dunsink Lane
Inbound	1845	A3270	Relocated	Stop moved 60m to the west, to a location close to the signalised pedestrian crossing across R147 Navan Road.
Inbound	7166	A3790	Retained	Retained in same location, but placed in a layby to serve longer-distance services.
Inbound	-	A3790	New	New bus stop located on R147 Navan Road Parkway eastbound on-slip
Inbound	-	A4400	New	New bus stop located on R147 Navan Road 70m west of Phoenix Industrial Park. Placed in a layby to serve longer-distance services.
Inbound	1847	A4550	Relocated	Stop relocated to a position 70m to the east of Phoenix Park Avenue, to help serve the Phoenix Park area.
Outbound	-	A4550	New	New stop located 30m east of Phoenix Park Avenue. Placed in a layby to serve longer-distance services.

Direction	Stop	Chainage	Do Something	Comment
Outbound	1807	A4440	Relocated	Stop moved 100m closer to Phoenix Park Avenue, to a position 70m west of the junction, to better serve the Phoenix Park area.
Outbound	7167	A3950	Retained	N/A
Outbound	-	A3920	New	New stop on Navan Road Parkway westbound on slip. Placed in a layby to serve longer-distance services.
Outbound	1808	A3200	Retained	N/A
Outbound	-	A2975	New	New stop located 50m to the east of Dunsink Lane.

Under the proposals, there will be a total of 12 stops, with three new inbound and three new outbound stops. 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 DublinBus 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 Dublin 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.

Table 6.19 provides 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 6.19: Section 3 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	1	17%	12	100%	RTPI to be added to all bus stops.
Timetable information	3	50%	12	100%	Timetable information 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 to be provided 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 longer distance services where buses may need to remain stationary for longer.

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
Total Stops	6		12		Six more bus stops along Section 3

Only half of the existing stops on this section currently 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. All proposed facilities have been designed in accordance with BusConnects Preliminary Design Guidance which has been developed with cognisance to the relevant accessibility guidance.

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.

Overall, the provision of six new bus stops (particularly those to the east of Dunsink Lane), 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.

6.6.2.4.4 Parking and Loading

There are no on-street parking or loading bays along Section 3 of the Proposed Scheme, and therefore no parking or loading impacts on this section.

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

6.6.2.5.1 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 6.20. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

Table 6.20: Section 4 – Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact
R147 Navan Road / Kempton Avenue signalised junction	A5100	F	A	High Positive
R147 Navan Road / Ashtown Grove signalised junction	A5425	D	A	Medium Positive
R147 Navan Road / Kinvara Avenue / Baggot Road signalised junction	A5900	E	A	High Positive
R147 Navan Road / Nephin Road signalised junction	A6650	C	A	Medium Positive
R147 Navan Road / Skreen Road signalised junction	A6975	E	A	High Positive
R147 Navan Road / Hampton Green signalised junction	A7125	E	A	High Positive

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact
R147 Navan Road / Cabra Library signalised junction	A2700 (north)	D	A	Medium Positive
R147 Navan Road / R805 Old Cabra Road signalised junction	A2700 (south)	D	B	Medium Positive
Section Summary		**E**	**A**	**High Positive**

The contents of Table 6.20 demonstrate that the Proposed Scheme will have a potential long-term very significant positive impact on the quality of the pedestrian infrastructure at road 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 **High Positive impact** 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.

6.6.2.5.2 Cycling Infrastructure

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 6.21 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 4, along with the resultant impact assessment. A detailed breakdown of the assessment can be found in TIA Appendix 4.2 (Cycling Infrastructure Assessment).

Table 6.21: Section 4 – Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Impact
R147 Navan Road: Ashtown Road to Kinvara Avenue / Baggot Road	A4875 – A5900	C	A	Medium Positive
R147 Navan Road: Kinvara Avenue / Baggot Road to Nephin Road.	A5900 – A6625	C	A	Medium Positive
R147 Navan Road: Kinvara Avenue / Baggot Road to R805 Old Cabra Road	A6625 – A7400	C	A	Medium Positive
Section Summary		**C**	**A**	**Medium Positive**

The contents of Table 6.21 demonstrate that the Proposed Scheme will have an overall 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 an 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 **Medium Positive impact** to the quality of the cycling infrastructure along Section 4 of the Proposed Scheme during the Operational Phase.

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'.

6.6.2.5.3 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. Table 6.22 presents a summary of the changes in the number and location of bus stops along Section 4 of the Proposed Scheme.

Table 6.22: Section 4 – Overview of Amendments to Bus Stop Locations

Direction	Stop	Chainage	Do Something	Comment
Inbound	1696	A5010	Retained	Changed to inline stop within bus lane.
Inbound	1697	-	Removed	This stop is located just 175m from Stop 1696, and therefore serves a similar catchment.
Inbound	1698	A5485	Relocated	Moved closer to controlled crossing facilities at Navan Road / Ashtown Grove signalised junction. Now positioned 40m to east of Ashtown Grove.
Inbound	1699	-	Removed	There are no side roads between this stop and the two adjacent stops. This means the stop only serves the houses along this stretch of the Navan Road
Inbound	1700	A5970	Retained	N/A
Inbound	1701	A6270	Retained	N/A
Inbound	1702	-	Removed	This stop is located just 175m from Stops 1701 and 1703, and therefore serves similar catchments.
Inbound	1703	A6700	Retained	Changed to inline stop within bus lane.
Inbound	1905	A7040	Relocated	Moved closer to controlled crossing facilities at Navan Road / Skreen Road signalised junction. Now positioned 40m to east of Skreen Road.
Outbound	-	A7350	Relocated Stop 1808 from Section 5	Relocated from the east of the junction. The new location is closer to pedestrian crossing facilities at the R147 / Cabra Road junction.
Outbound	1806	A7070	Relocated	Moved closer to controlled crossing facilities at Navan Road / Skreen Road signalised junction. Now positioned 50m to east of Skreen Road Changed to inline stop within bus lane.
Outbound	1660	A6560	Retained	Changed to inline stop within bus lane.
Outbound	1661	A6300	Retained	Changed to inline stop within bus lane.
Outbound	1662	A6000	Relocated	Moved 40m to the east, slightly further from Kinvara Avenue. Changed to inline stop within bus lane.

Direction	Stop	Chainage	Do Something	Comment
Outbound	1664	A5500	Retained	Changed to inline stop within bus lane.
Outbound	1665	-	Removed	This stop is only 200m from Stop 1666, and therefore serves a similar catchment.
Outbound	1666	A4980	Retained	N/A

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.

Table 6.23 provides a summary of the improvements to the bus stop infrastructure along Section 4 of the Proposed Scheme, with reference to the number and percentage of bus stops that provide each facility in the 'Do Minimum' and 'Do Something' scenarios.

Table 6.23 Section 4 – Overview of Changes in Bus Stop Facilities

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of Stops	
RTPI	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.

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.

The improvements in the provision of real-time information, shelters, seating and accessible kerbs throughout Section 4 is assessed as providing an overall **Medium Positive impact** for bus passengers.

6.6.2.5.4 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 be **Low Negative.**
- 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 be **Low Negative.**
- 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 6.24 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 6.24: 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

As shown in Table 6.24, 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 **Low**. Considering the availability of adjacent parking on private driveways, the overall impact is considered to be **Low Negative.**

6.6.2.6 Section 5 – R805 Old Cabra Road to Ellis Quay

6.6.2.6.1 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 6.25. A detailed breakdown of the assessment at each impacted junction, including a list of the junctions which experience no change, can be found in TIA Appendix 4.1 (Pedestrian Infrastructure Assessment).

Table 6.25: Section 5 – Significance of Effects for Pedestrian Impact during Operational Phase

Junction	Chainage	Do Minimum LoS	Do Something LoS	Magnitude of Impact
R805 Old Cabra Road / Earl's Court	A7600	D	B	Medium
R805 Old Cabra Road / Glenbeigh Road signalised junction	A7700	D	A	Medium

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

The contents of Table 6.25 demonstrate that the Proposed Scheme will have a long-term significant positive impact on the quality of the pedestrian infrastructure at road junctions within Section 5.

The LoS during the Do Minimum scenario ranges between C and E, with five of the fourteen junctions being assessed as C, eight as D and one. In the Do Something scenario, improvements are predicted at thirteen of these junctions, all of which have been assessed as achieving either an A or B rating. 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 **Medium Positive Impact** to the quality of the pedestrian infrastructure along Section 5 of the Proposed Scheme, during the operational phase, which aligns with the overarching aim to provide enhanced walking infrastructure on the corridor.

6.6.2.6.2 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 1.5 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, two-way 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 6.26 presents the overall Do Minimum LoS and Do Something LoS ratings for each segment within Section 5, along with the resultant impact assessment. A detailed breakdown of the assessment can be found in TIA Appendix 4.2 (Cycling Infrastructure Assessment).

Table 6.26: Section 5 Cycling Impact during Operational Phase

Location	Chainage	Do Minimum LoS	Do Something LoS	Impact
R805 Old Cabra Road: R147 Navan Road to R101 North Circular Road	A7400 – A8200	B	B	Negligible
R805 Prussia Street: R101 North Circular Road to Aughrim Street	A8200 – A8700	C	B	Low Positive
R805 Manor Street / Stoneybatter: Aughrim Street to Brunswick Street North	A8700 – A9100	C	B	Low Positive
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 Positive
Section Summary		**C**	**B**	**Low**

The contents of 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 a **Low Positive impact** to the quality of the cycling infrastructure along Section 5 of the Proposed Scheme during the Operational Phase.

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'

6.6.2.6.3 Bus Infrastructure

There is currently a total of 14 bus stops along Section 5, seven 'inbound' stops towards the city centre and seven 'outbound' stops heading towards Old Cabra Road.

Table 6.27 presents a summary of the changes in the number and location of bus stops along Section 5 of the Proposed Scheme.

Table 6.27: Section 5 – Overview of Amendments to Bus Stop Locations

Direction	Stop	Chainage	Do Something	Comment
Inbound	1906	A7475	Retained	N/A
Inbound	1907	A7750	Retained	N/A
Inbound	1908	-	Removed	This stop is only 220m from the Stop 1907. It is expected that users from the north would use Stop 1909 or nearby bus stops on North Circular Road.
Inbound	1909	A8250	Relocated	Stop relocated 30m to the south, where more space is available to allow users to congregate.
Inbound	1713	A8890	Retained	N/A
Inbound	1714	A9175	Relocated	Relocated 100m to the south to Blackhall Place, 30m south of King Street North
Inbound	1715	A9400	Retained	N/A
Outbound	1647	A9350	Retained	N/A
Outbound	1648	A9125	Relocated	Relocated 115m to the south between Arbour Hill and Brunswick Street North. In this location, there is more space created due to the new road layout. This location also achieves better spacing from Stop 1649.
Outbound	1649	A8800	Retained	N/A
Outbound	1911	A8280	Retained	N/A
Outbound	1913	-	Removed	Stop consolidated with relocated Stop 1914.
Outbound	1914	A7820	Relocated	Relocated to R805 Old Cabra Road, south of rail overbridge. This stop serves as a replacement for stops 1913 and 1914.
Outbound	1805	A7370	Removed from Section 5	Relocated to the west side of Old Cabra Road

Under the Proposed Scheme, 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.

Table 6.28 provides 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 6.28: 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	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.

Bus Stop Facility	Do Minimum		Do Something		Comment
	No. of Stops	Percentage of Stops	No. of Stops	Percentage of 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 R147Navan 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 6.30 lists the proposed Bus Gates in Section 5 and their proposed operating hours

Table 6.29: Section 5 – Bus Gates and Proposed Operational Hours

Bus Gate Location	Proposed Hours of Operation
Northbound only, between King St North and Brunswick 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.

The improvements in the provision of real-time information, shelters, seating and accessible kerbs throughout Section 5 is assessed as providing an overall **Medium Positive impact** for bus passengers.

6.6.2.6.4 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 considered to be **Low Negative**.
- 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 considered to be **Medium Negative**.
- 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 **Low Negative**.
- 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 considered to be **Medium Negative**.
- 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 **Medium Negative.**
- 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 impact on these spaces is considered to be **Low Negative.**

- 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 **Low Positive.**
- On Queen Street Pay & Display and Permit Parking for 3 cars will be removed as part of Proposed Scheme proposals. The overall impact on these spaces is considered to be **Low Negative**.
- 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 6.30 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 6.30: 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 6.30, the proposed amendments to parking / loading will result in a loss of 73 spaces along Section 5. Where parking is removed, the impact varies between low and medium. The overall impact is assessed as **Medium Negative**, primarily as a result of the designated paid spaces lost on Manor Street and Aughrim Street. This medium 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.

6.6.2.7 Summary of Corridor-Wide Infrastructure Works

6.6.2.7.1 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.

6.6.2.7.2 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.

6.6.2.7.3 Bus Priority Infrastructure

The Proposed Scheme will provide 9.1km inbound and 9km outbound of bus lanes across the corridor. This is an increased 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.

6.6.3 Quantitative Assessment

This quantitative assessment has been prepared with reference to the modelling outputs obtained from the four-tiered modelling approach outlined in Section 4.3. The following assessment topics have been considered:

- People Movements
  - 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:
  - Reductions in general traffic flows on the Direct Study Area; and
  - Redistributed flows and Junction Capacity Outputs on the Indirect Study Area.
- Overall Network-Wide Performance Indicators
  - Queueing;
  - Total Travel Times;
  - Total Travel Distance; and
  - Average Network Speed.

6.6.3.1 People Movement

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 of the modelling suite, 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 mode (Car, Bus, Walking and Cycling) comparing the Do Minimum and Do Something scenarios both in the inbound and outbound direction in the AM and PM peak periods for each forecast year (2028, 2043). This provides an estimate of the modal share changes on the direct study area 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)
  - Total Passengers Boarding Buses on bus routes that use any part of the Proposed Scheme for each forecast year (2028, 2043).

6.6.3.1.1 Peak Hour People Movement along the Proposed Scheme

To determine the impact that the Proposed Scheme has on modal share changes on 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 periods 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.

6.6.3.1.1.1 2028 AM Peak Hour People Movement

Diagram 6.4 illustrates the People Movement by mode travelling inbound towards the city centre during the AM Peak Hour in 2028.

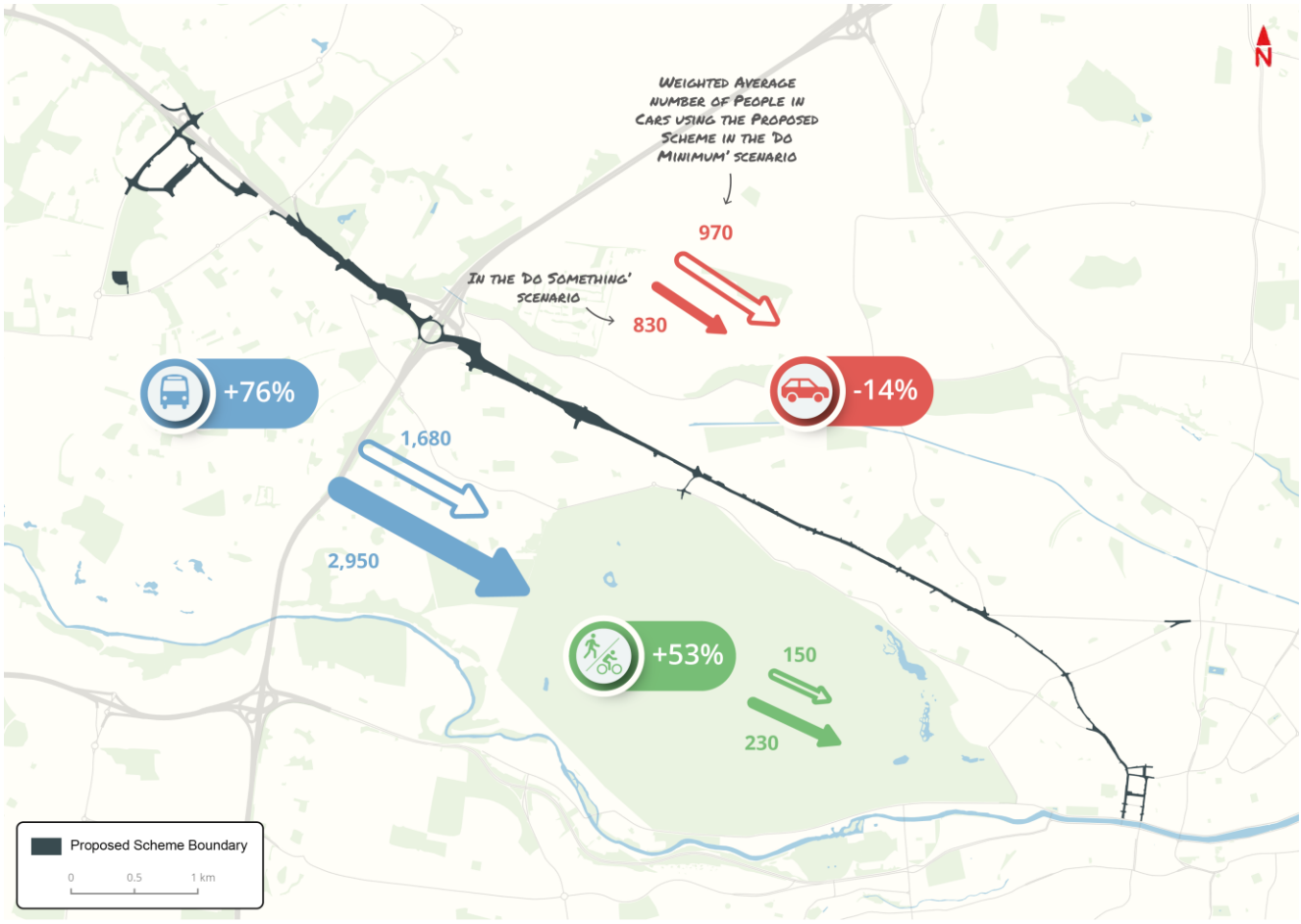

Diagram 6.4: People Movement by Mode travelling along the Proposed Scheme during 2028 AM Peak Hour

As indicated in Diagram 6.4, 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.

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 6.31 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 6.31: Modal Shift of 2028 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	Public Transport	1,680	60%	2,950	74%	1,270	76%
		General Traffic	970	35%	830	21%	-140	-14%
		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%**

6.6.3.1.1.2 2028 PM Peak Hour People Movement

Diagram 6.5 illustrates the People Movement by mode travelling outbound from the city centre during the PM Peak Hour.

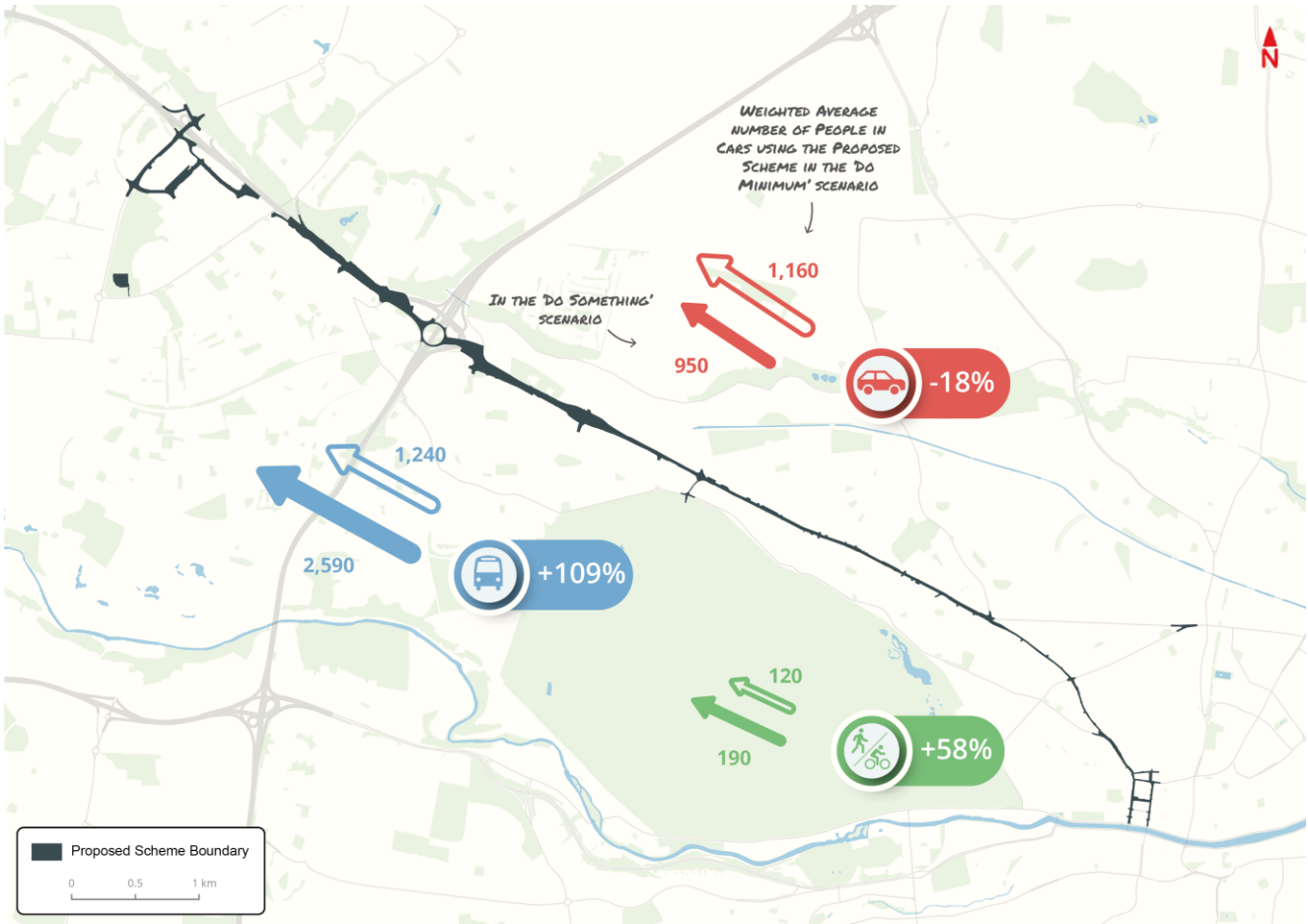

Diagram 6.5: People Movement by Mode travelling along the Proposed Scheme during 2028 PM Peak Hour

As indicated in Diagram 6.5, 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 6.32 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 6.32: Modal Shift of 2028 PM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	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%**

6.6.3.1.1.3 2043 AM Peak Hour People Movement

Diagram 6.6 illustrates the People Movement by mode inbound towards the city centre during the AM Peak Hour in 2043.

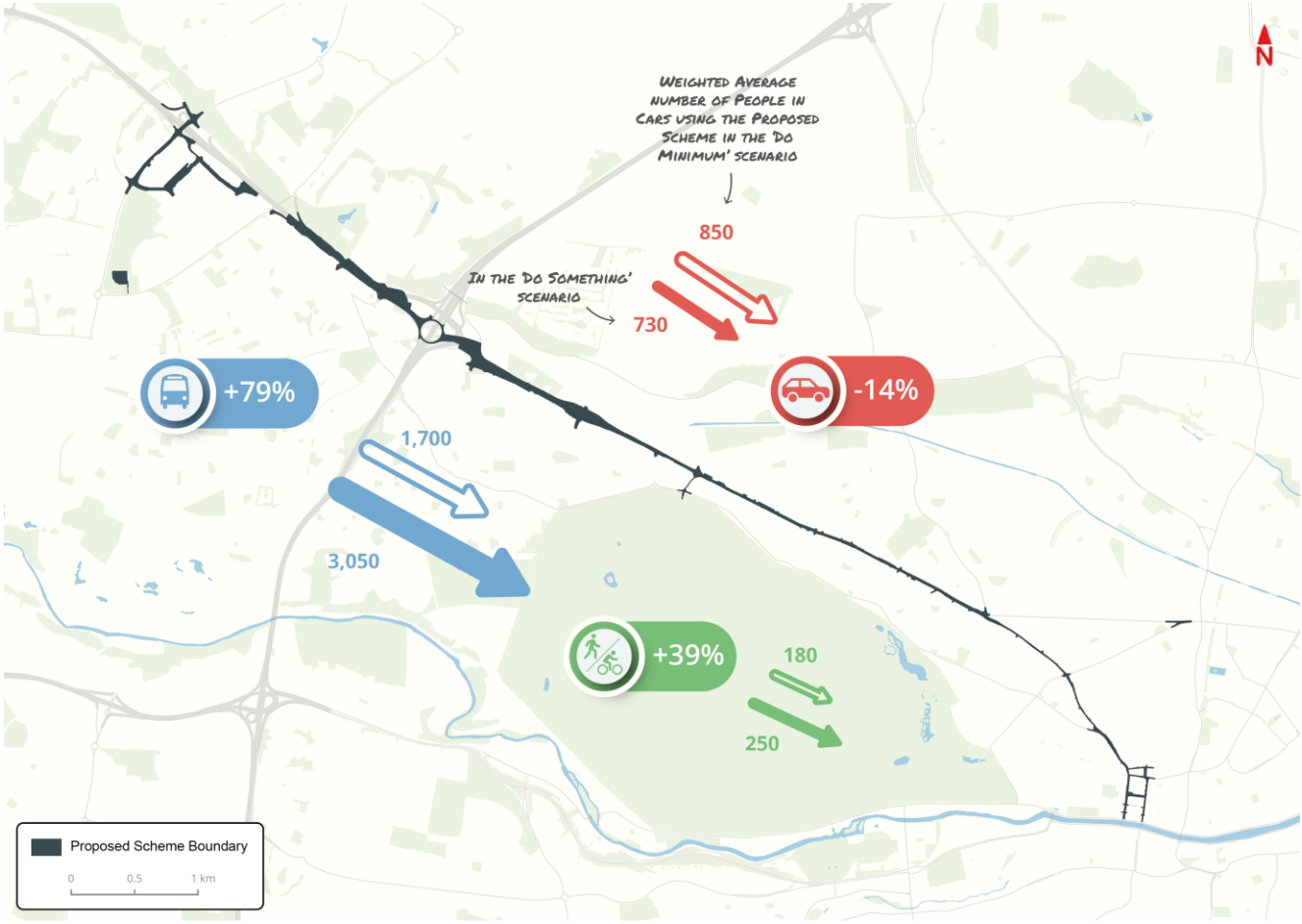

Diagram 6.6: People Movement by Mode travelling along the Proposed Scheme during 2043 AM Peak Hour

As indicated in Diagram 6.6, 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 6.33 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 6.33 Modal Shift of 2043 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	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%**

6.6.3.1.1.4 2043 PM Peak Hour People Movement

Diagram 6.7 illustrates the People Movement by mode travelling outbound from the city centre during the PM Peak Hour in 2043.

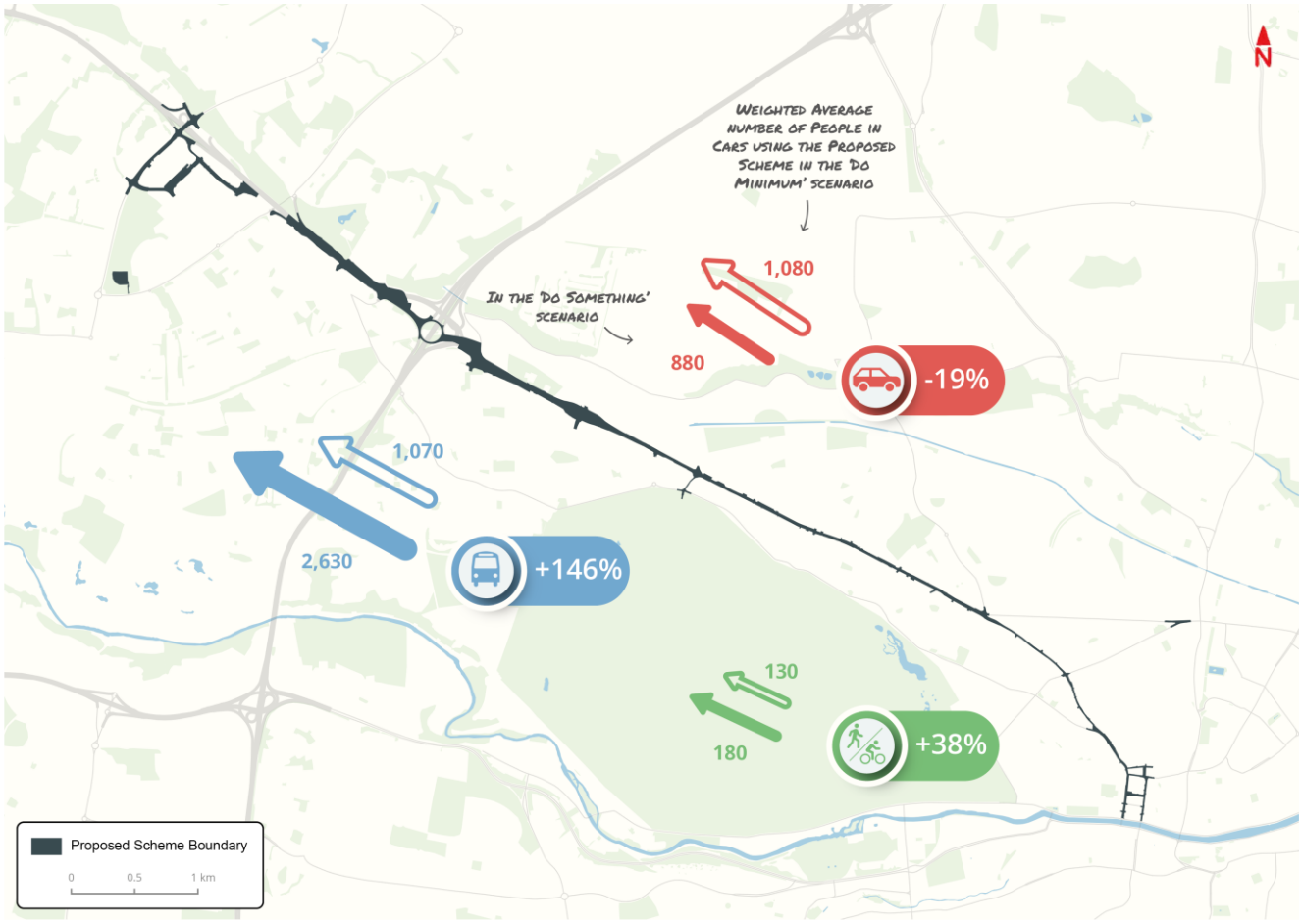

Diagram 6.7: People Movement by Mode travelling along the Proposed Scheme during 2043 PM Peak Hour

As indicated in Diagram 6.7, 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. Table 6.34 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 6.34 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%**

6.6.3.1.2 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.

6.6.3.1.2.1 2028 AM Peak Hour Bus Passengers

Diagram 6.8 presents the passenger loading profile comparing the 'Do Minimum' and 'Do Something' scenarios in the AM Peak Hour in the inbound direction in 2028.

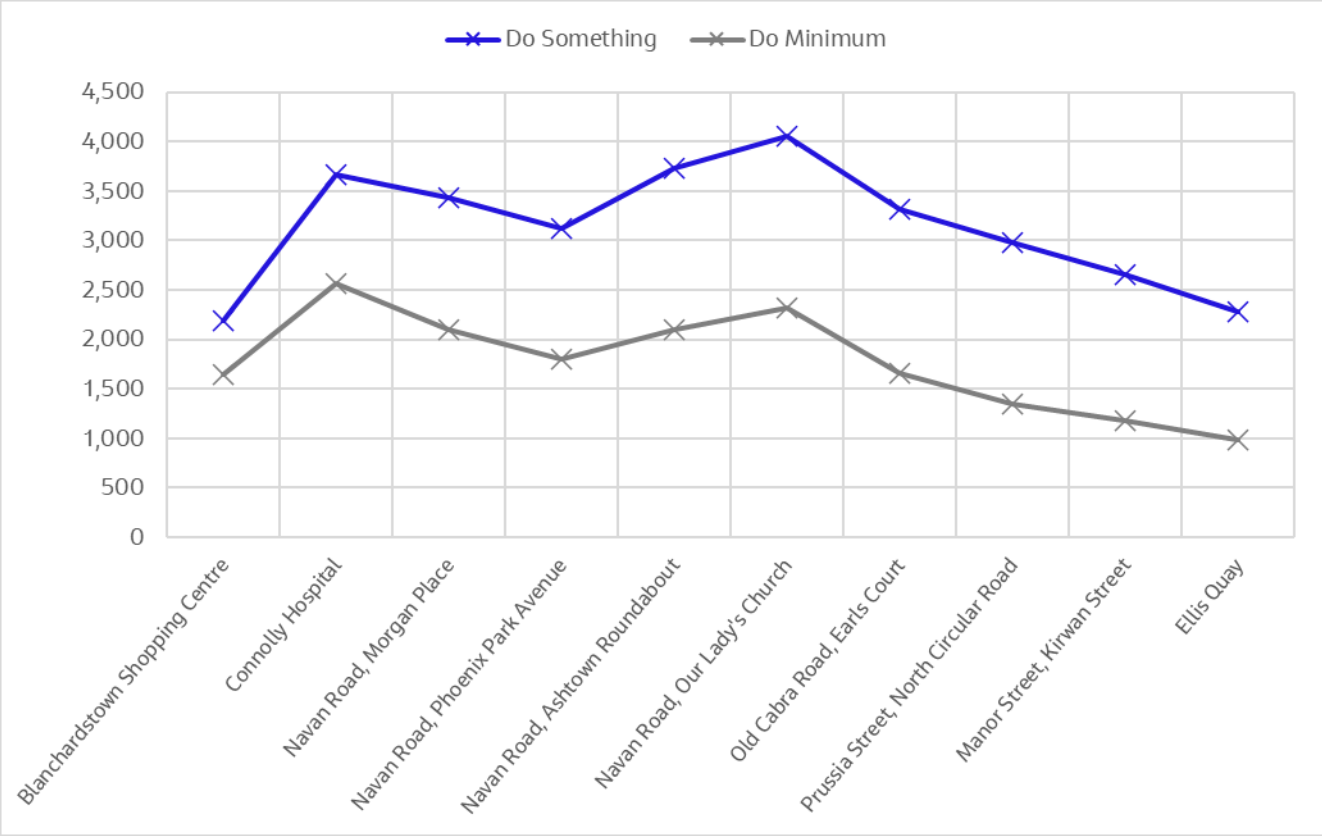

Diagram 6.8: 2028 AM Peak Hour Passenger Volume along Proposed Scheme (inbound direction)

Diagram 6.8 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.

6.6.3.1.2.2 2028 PM Peak Hour Bus Passengers

Diagram 6.9 presents the passenger loading profile comparing the Do Minimum and Do Something scenarios in the PM Peak Hour in the outbound direction in 2028.

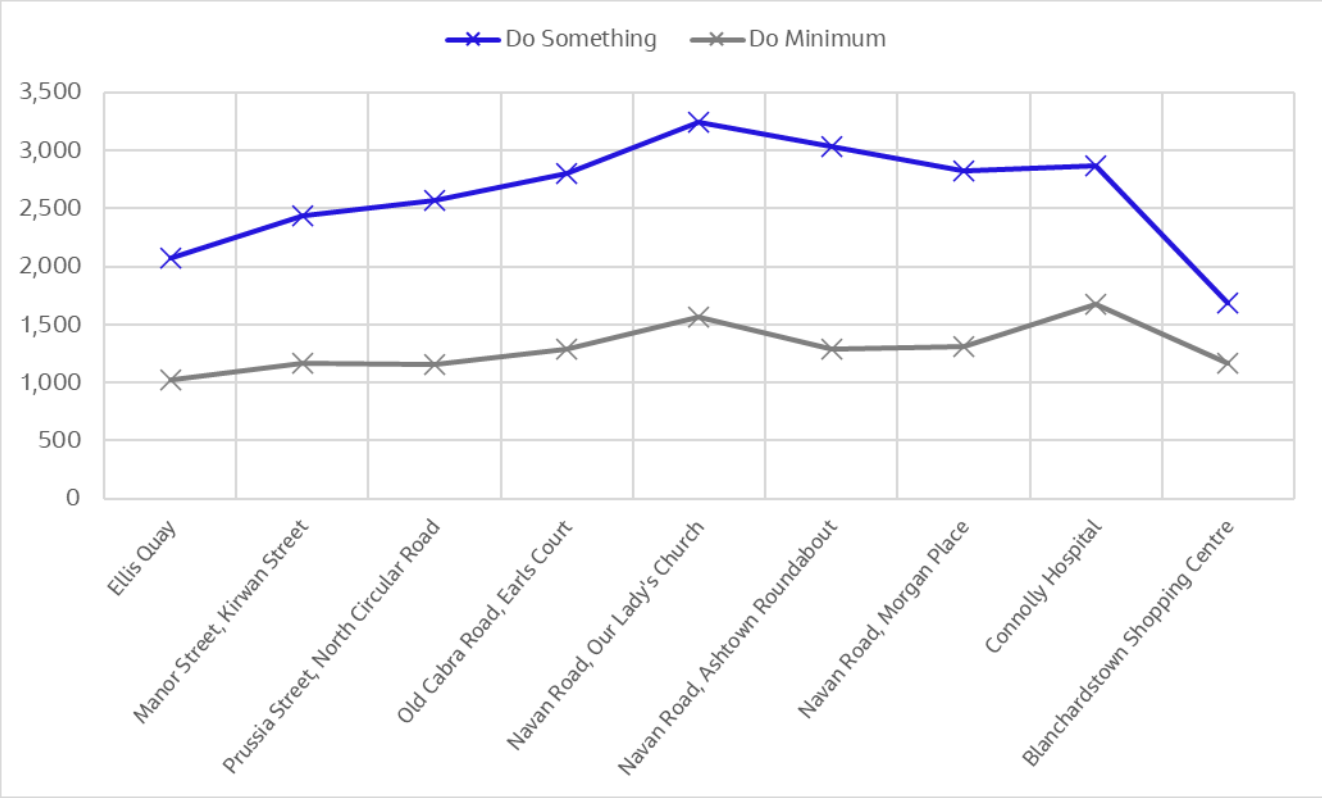

Diagram 6.9: 2028 PM Peak Hour Passenger Volume along Proposed Scheme (outbound direction)

Diagram 6.9 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.

6.6.3.1.2.3 2043 AM Peak Hour Bus Passengers

Diagram 6.10 presents the passenger loading profile comparing the Do Minimum and Do Something scenarios in the AM Peak Hour in the inbound direction in 2043.

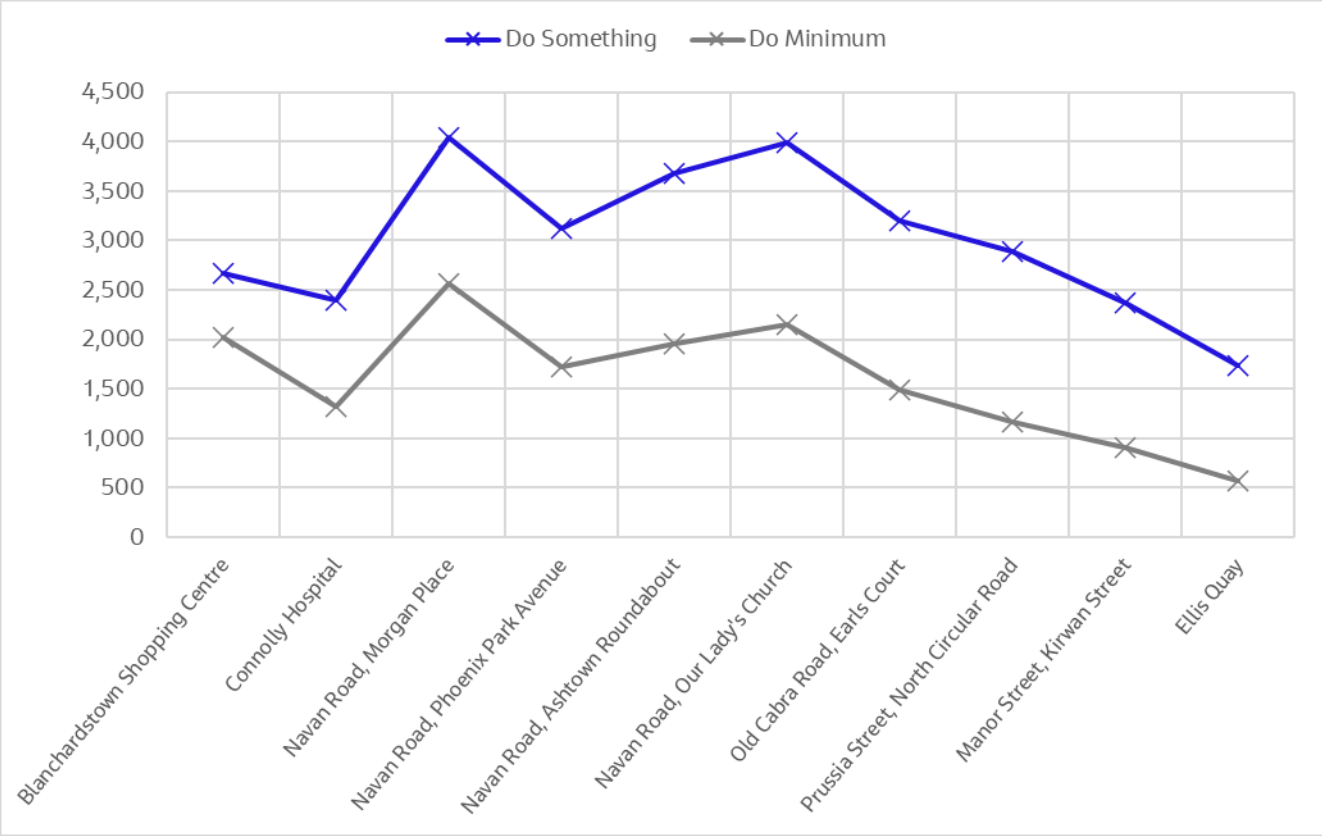

Diagram 6.10: 2043 AM Peak Hour Passenger Volume along Proposed Scheme (outbound direction)

Diagram 6.10 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at the junction with Morgan Place on R147 Navan Road, 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.

6.6.3.1.2.4 2043 PM Peak Hour Bus Passengers

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

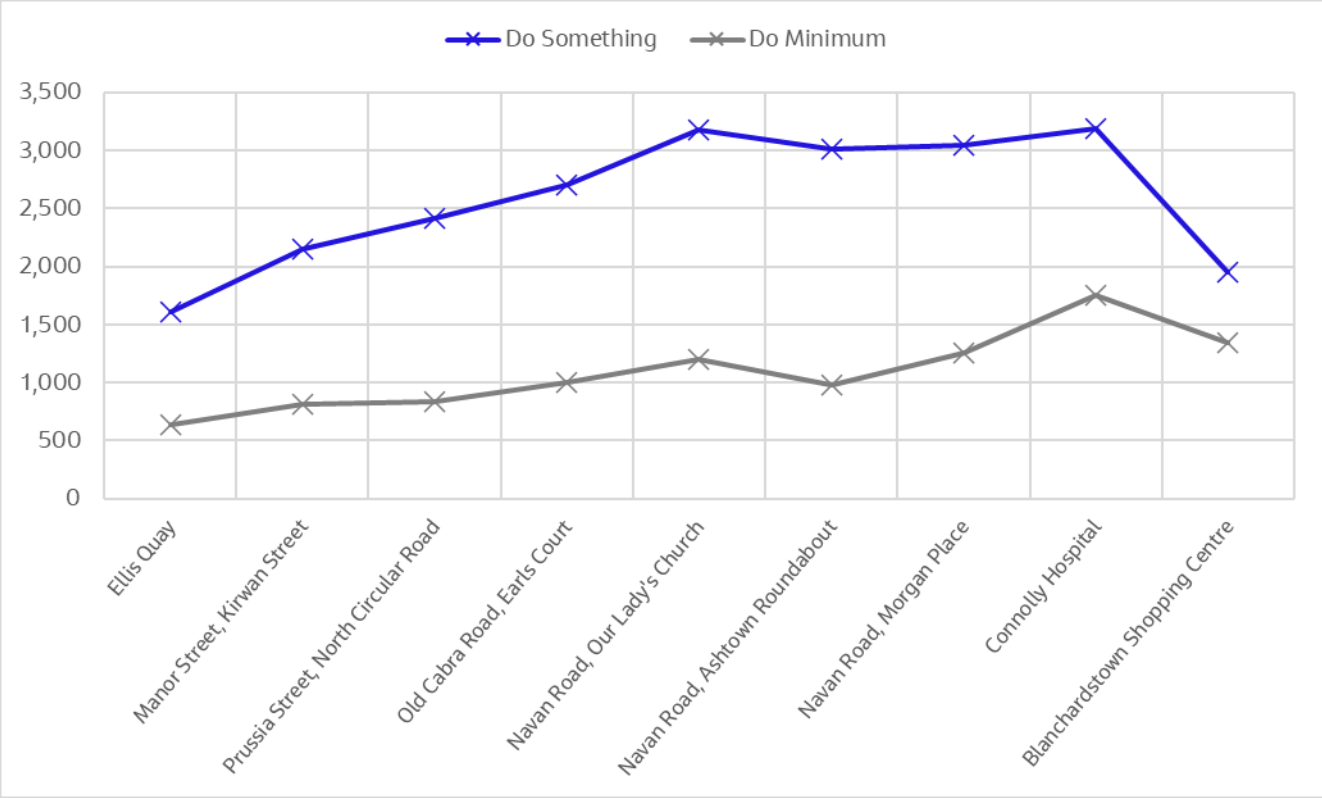

Diagram 6.11: 2043 PM Peak Hour Passenger Volume along Proposed Scheme (outbound direction)

Diagram 6.11 shows higher levels of bus passenger loadings along the Proposed Scheme with a peak at 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.

6.6.3.1.2.5 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.

Table 6.35: 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 in Boardings	Difference (%)
AM Peak Hour	11,040	13,360	2,320	21.0%
PM Peak Hour	8,780	10,830	2,050	23.3%

Table 6.35 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.

Table 6.36: 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 in Boardings	Difference (%)
AM Peak Hour	12,390	15,600	3,210	25.9%
PM Peak Hour	9,980	12,530	2,550	25.6%

Table 6.36 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.

6.6.3.2 People Movement – Summary of Impact

Taking into account the changes in mode share, demand changes by mode along the Proposed Scheme and bus usage, the Proposed Scheme will have a **High Positive** impact on people movement by sustainable modes along the direct study area.

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'

6.6.3.3 Operational Impacts for Bus Passengers and Operators

6.6.3.3.1.1 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.

6.6.3.3.1.2 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 **6.37**. A breakdown of the changes in average journey times for all other bus services using the Proposed Scheme can be found in TIA Appendix 4.3 (Average Bus Journey Times).

Table 6.37: 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 6.38 and Diagram 6.12 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 6.38: 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

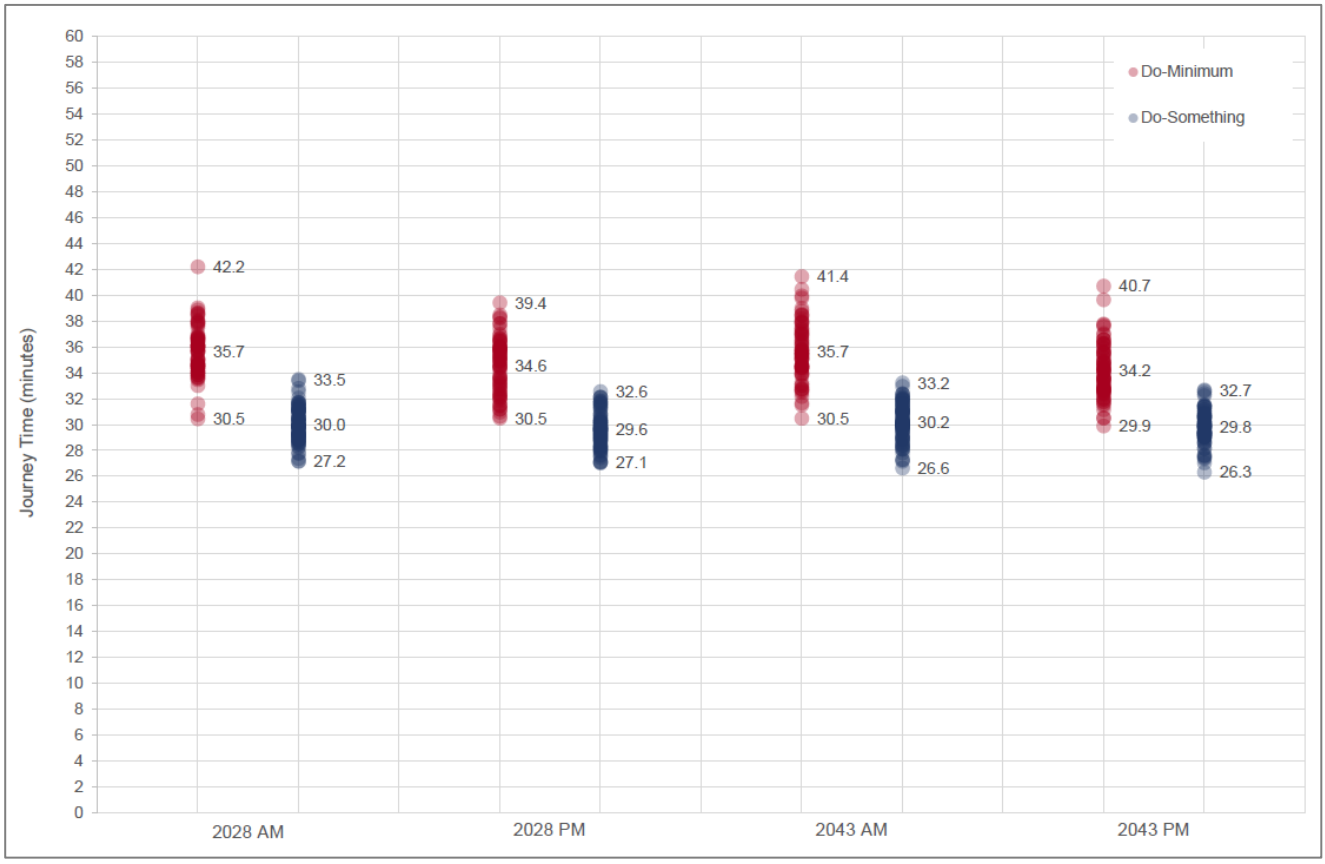

Diagram 6.12:B1 Bus Journey Times (Inbound Direction)

Based on the results presented in Table 6.37, 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 Diagrams 6.13 to 6.16.

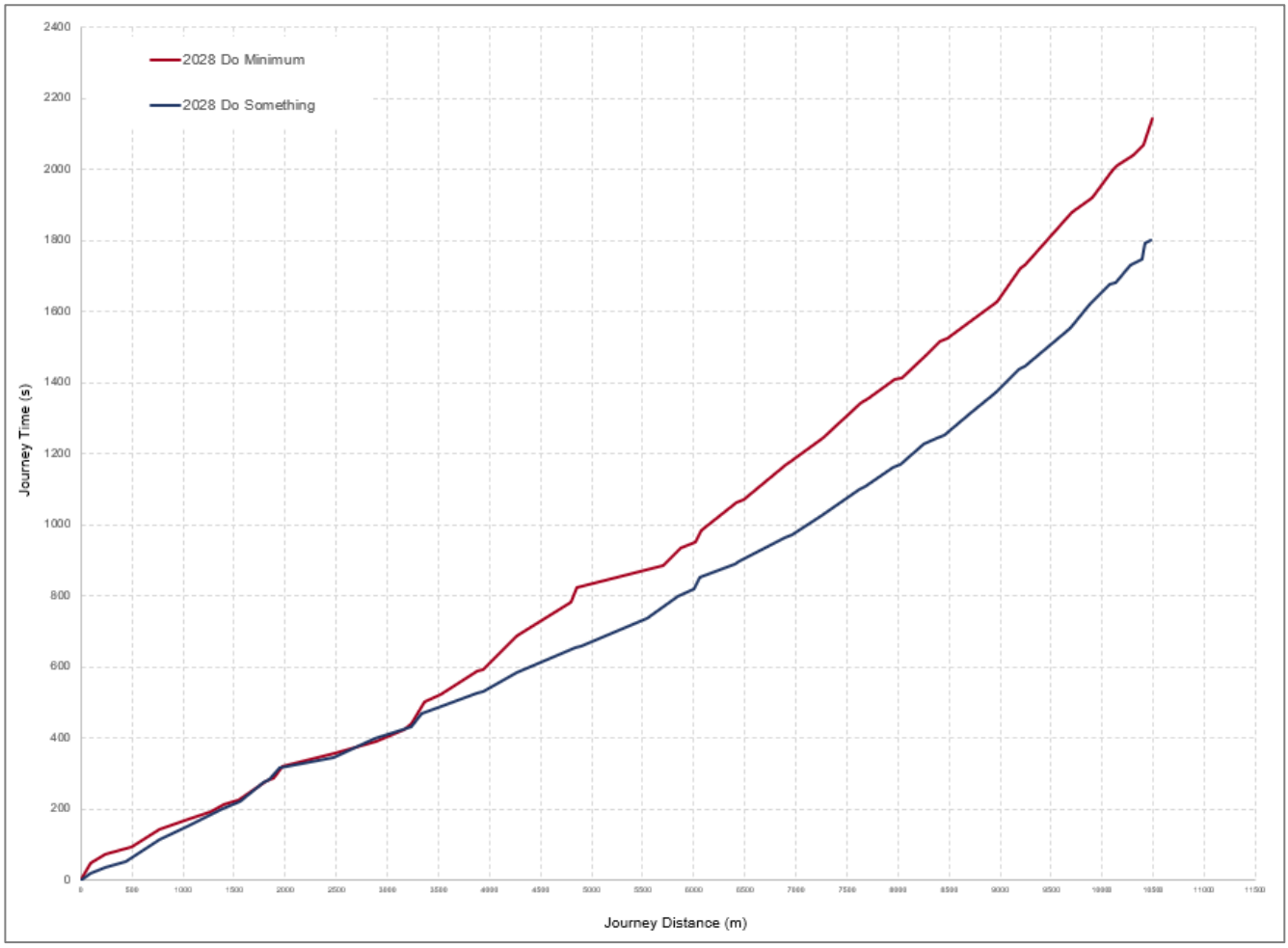

Diagram 6.13: B3 Bus Journey Time (2028 AM, Inbound)

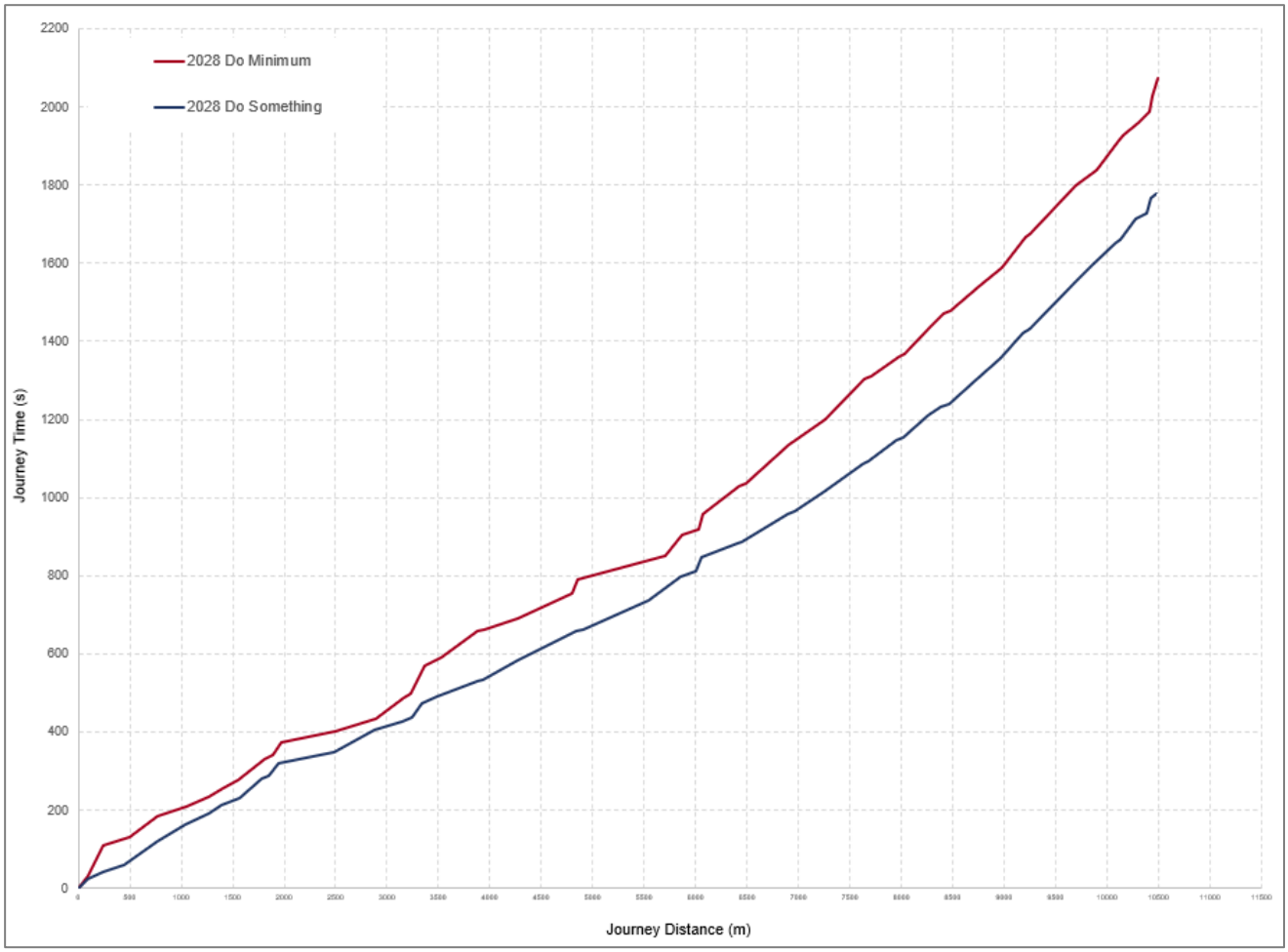

Diagram 6.14: B3 Bus Journey Time (2028 PM, Inbound)

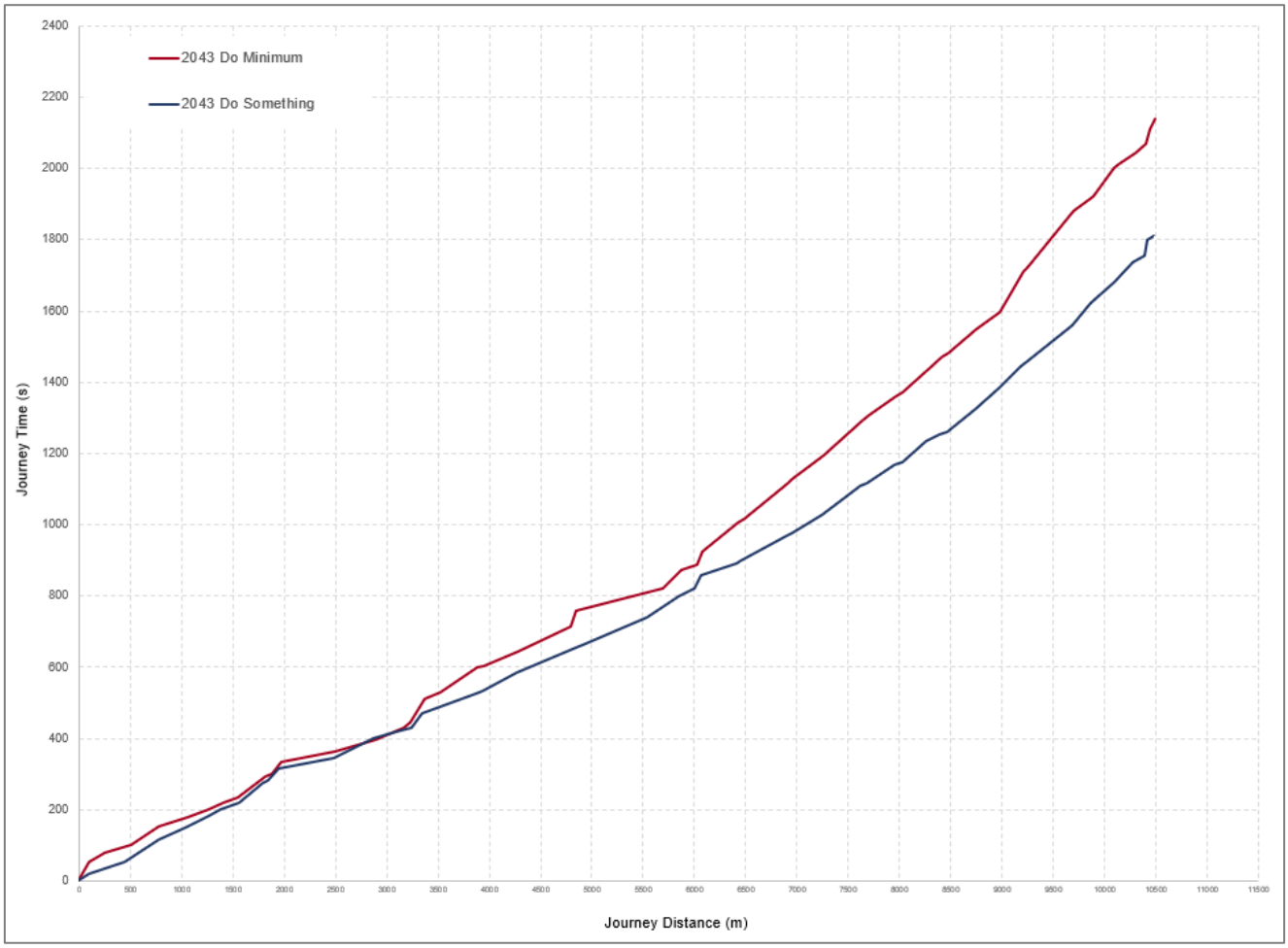

Diagram 6.15: B3 Bus Journey Time (2043 AM, Inbound)

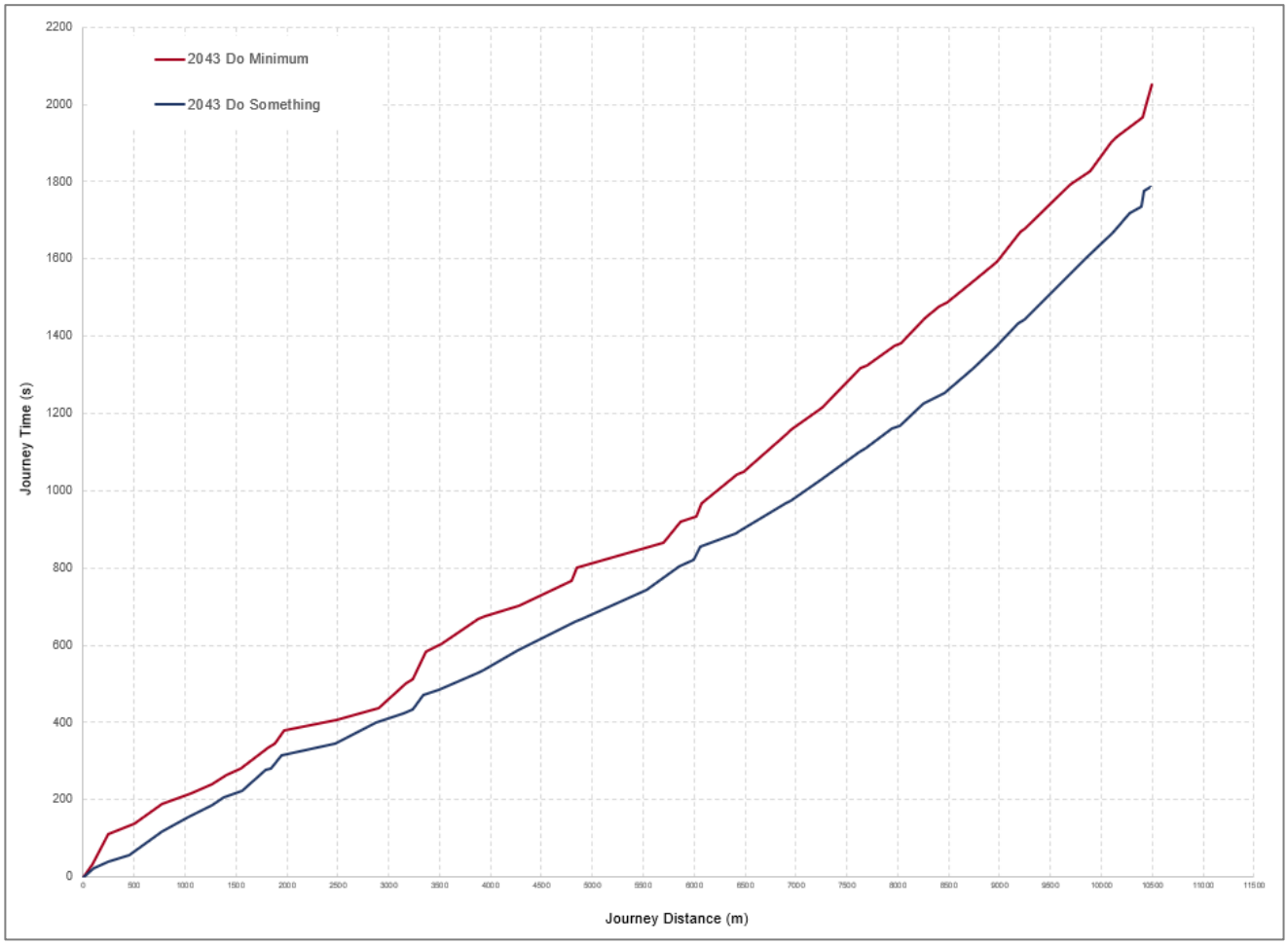

Diagram 6.16: B3 Bus Journey Time (2043 PM, Inbound)

Based on the results presented in Diagrams 6.13 to 6.16, 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 6.39. A breakdown of the changes in average journey times for all other bus services using the Proposed Scheme can be found in TIA Appendix 4.3 (Average Bus Journey Times).

Table 6.39: 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 6.40 and Diagram 6.17 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 6.40: 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

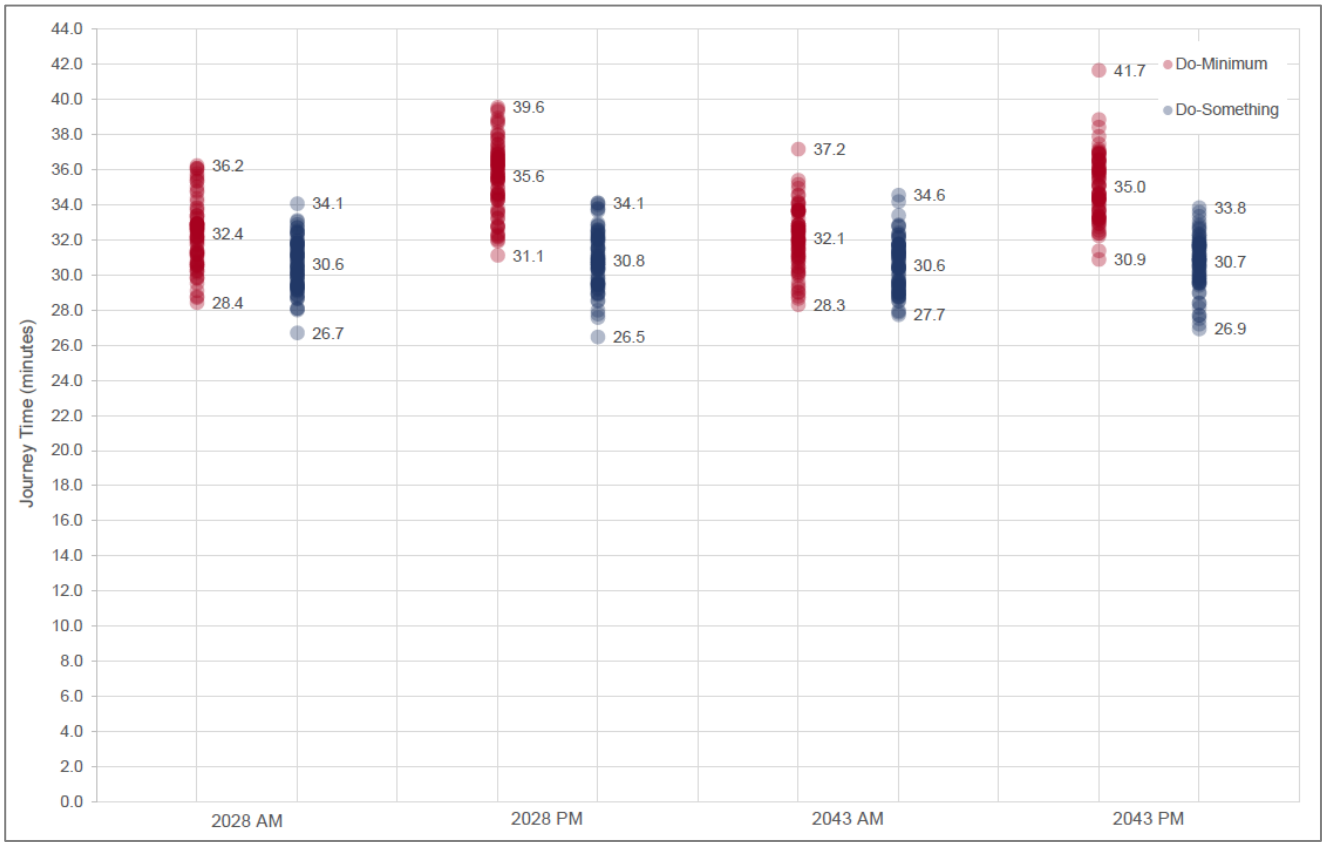

Diagram 6.17: B3 Bus Journey Times (Outbound Direction)

Based on the results presented in Table 6.39, 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 6.17 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 Diagrams 6.18 to 6.21.

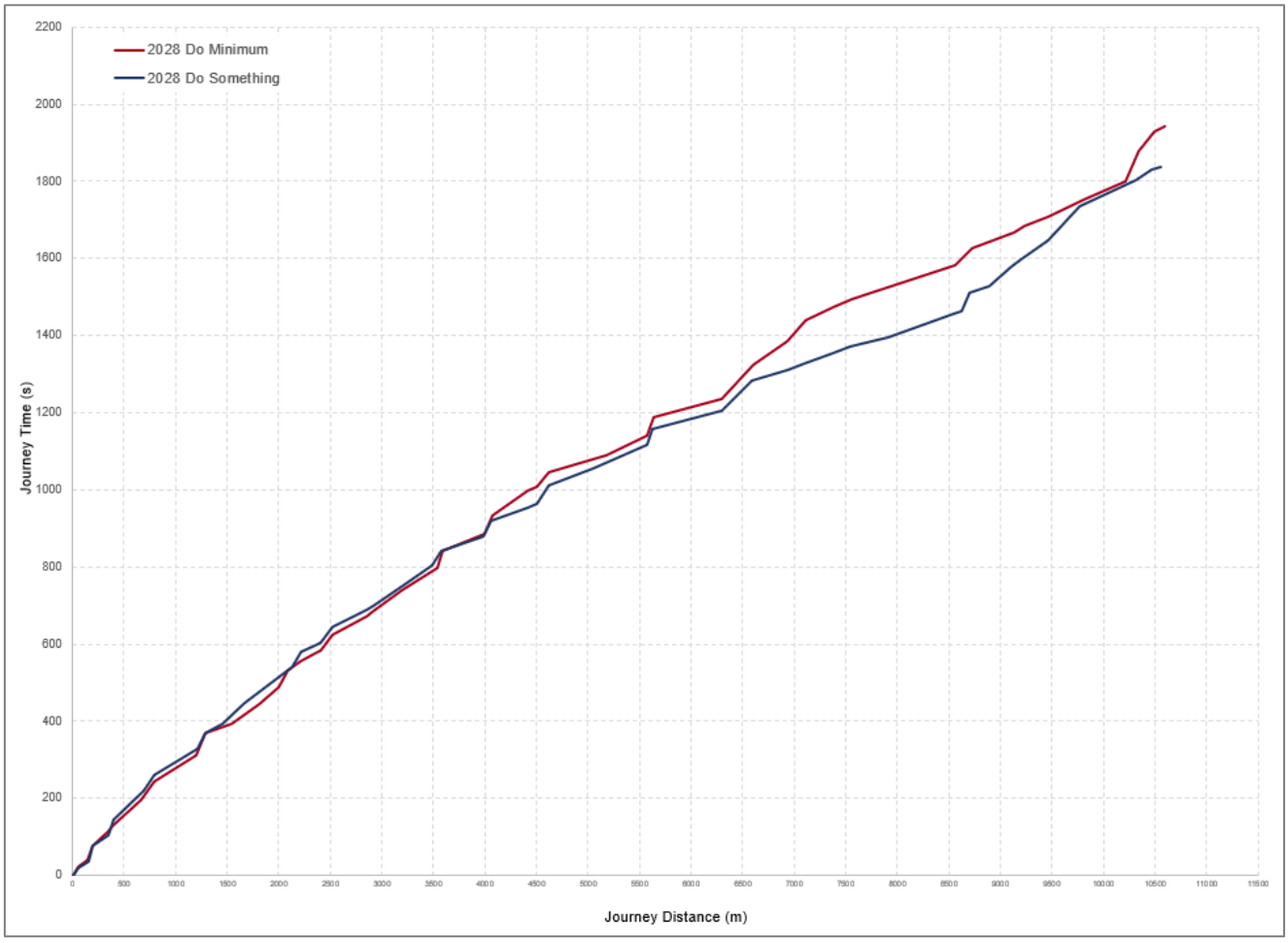

Diagram 6.18: B3 Bus Journey Time (2028 AM, Outbound)

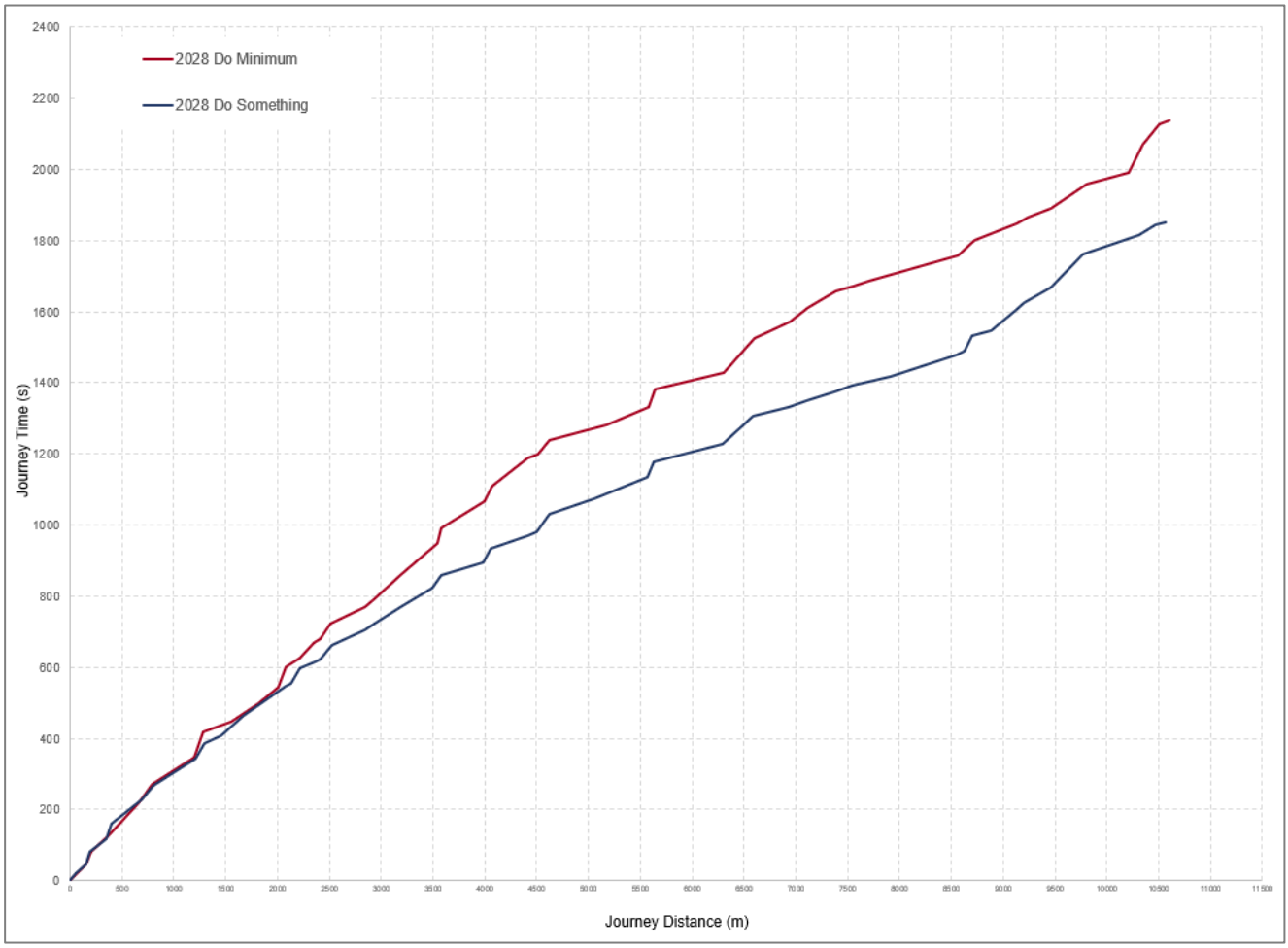

Diagram 6.19: B3 Bus Journey Time (2028 PM, Outbound)

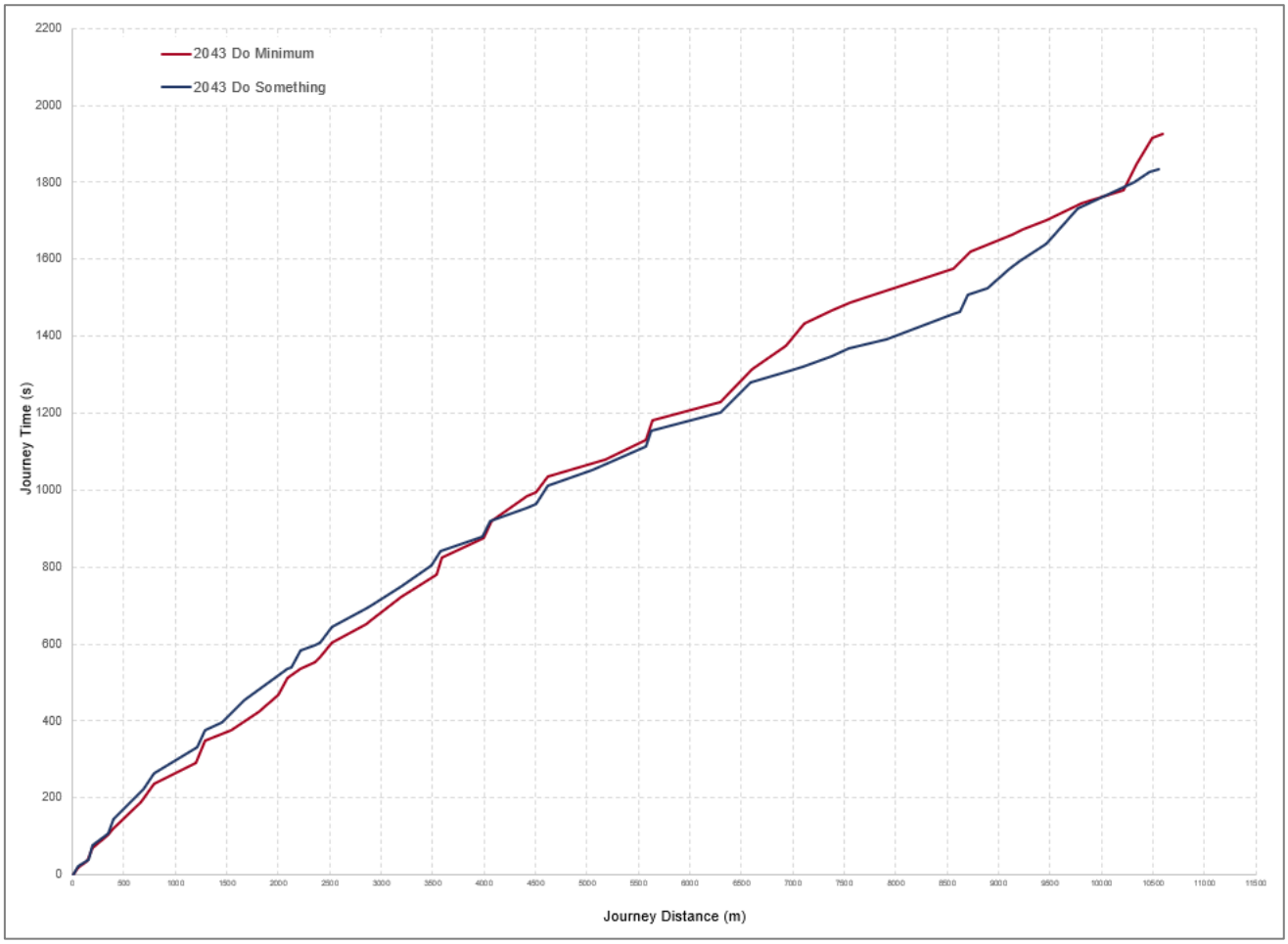

Diagram 6.20: B3 Bus Journey Time (2043 AM, Outbound)

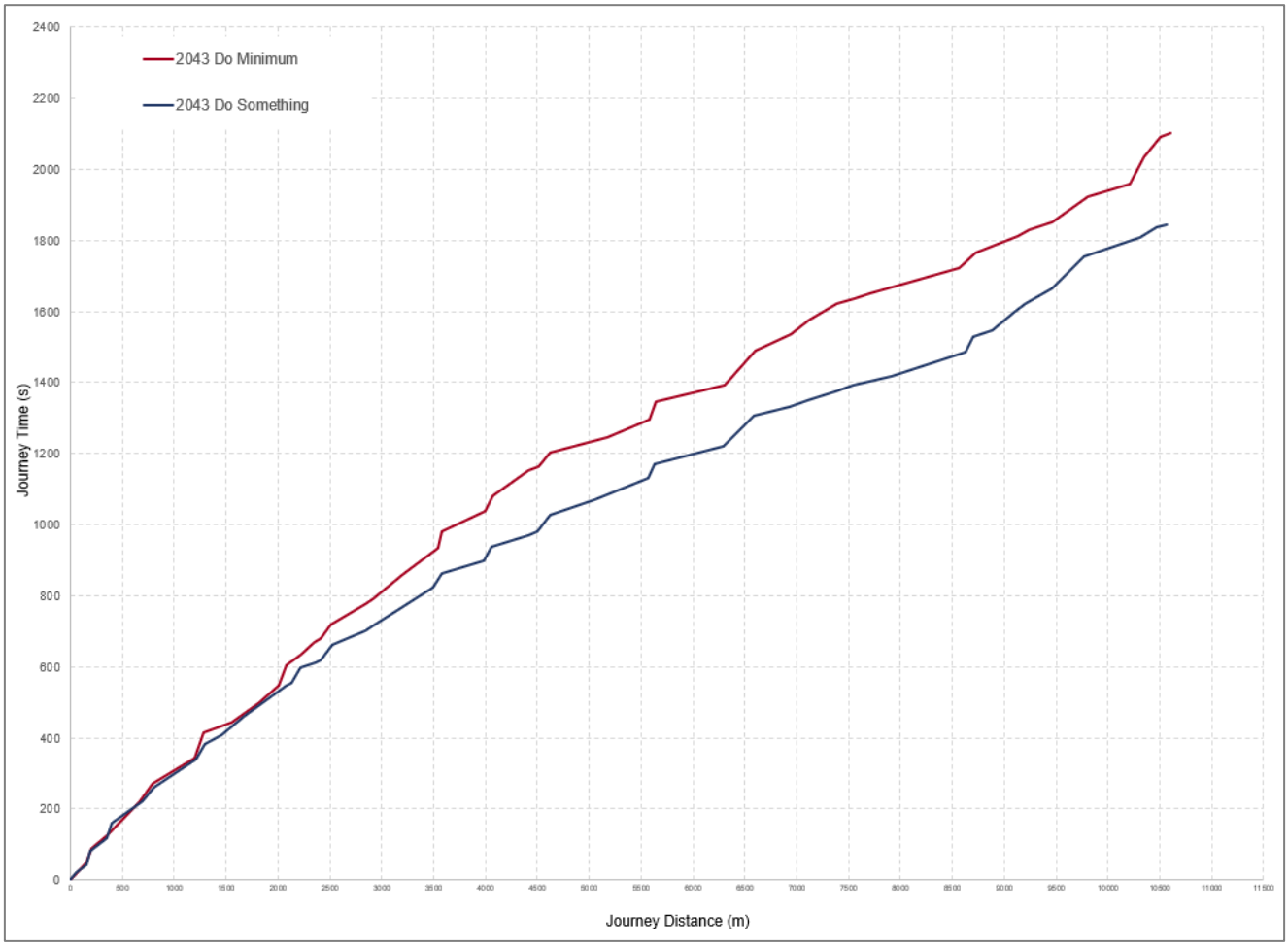

Diagram 6.21: B3 Bus Journey Time (2043 PM, Outbound)

Based on the results presented in Diagrams 6.18 to 6.21, 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 Aughrim 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.

6.6.3.3.1.3 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 6.41 in vehicle minutes.

Table 6.41: 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 6.41, 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 5,700 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.

6.6.3.3.2 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 **High Positive** impact overall.

6.6.3.3.3 Increased Bus Frequency - Resilience Sensitivity Analysis

6.6.3.3.3.1 Background

For the purposes of the 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 the 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.

6.6.3.3.3.2 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 6.42 below.

Table 6.42: 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 6.43 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 6.43: 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 6.22 below. The diagram displays the maximum, minimum and average journey times for each of the B3 bus services modelled.

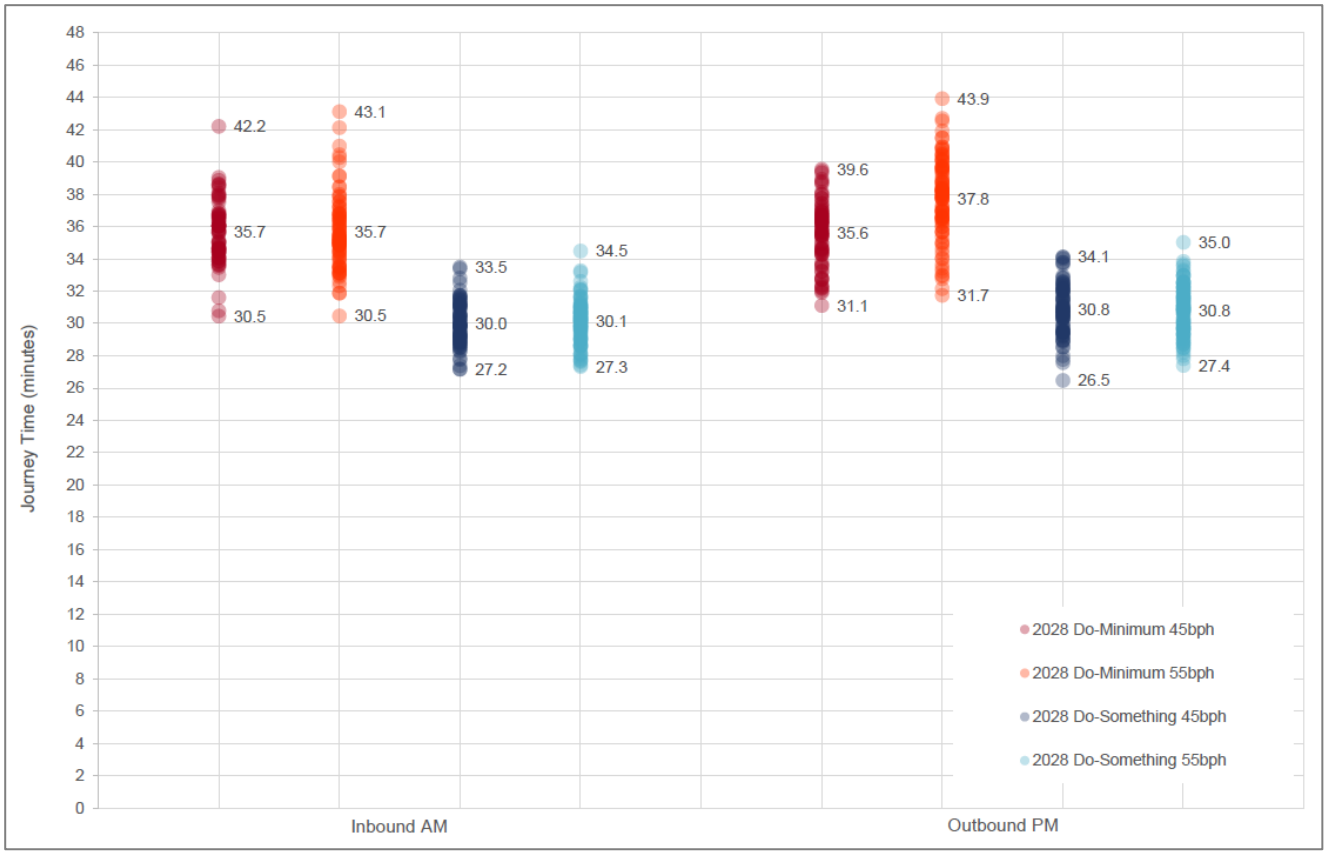

Diagram 6.22: Resilience Testing Bus Journey Time Reliability Indicators - Scenario Testing– Opening Year (2028)

As can be seen from Table 6.43 and Diagram 6.22, 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 the EIAR.

6.6.3.4 General Traffic Assessment

6.6.3.4.1 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. Given the nature of the development, overall, the Proposed Scheme will reduce general traffic volumes due to the projected modal shift from car to sustainable modes of transport, given the proposed implementation of improved bus, cycle and walking facilities along the direct study area.

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 facilities. This reduction in operational capacity for general traffic 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) (DCCAE 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.

6.6.3.4.2 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.

Reduction in General Traffic: For this assessment, the reductions in general traffic flows have been described as a positive impact to the environment.

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 1.1 of the EIAR. The full outputs of the results are available in the TIA Appendix 2 (Junction Design Report) which accompanies this application..

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

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

Diagram 6.23 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	*100 trips in / out combined in the Peak Hours for the proposed development*
	Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
	Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.

Diagram 6.23 Extract from the Traffic and Transport Assessments Guidelines (PE-PDV-02045, May 2014)

The basis of the guidance is to assess the impacts of additional trips that have been generated as part of a new development (for example, a new housing estate etc.). Noting that the guidance relates to National Roads only, for the purpose of this assessment, the principles of the guidance have been adapted for the assessment of the Proposed Scheme. This has been achieved by extending the threshold to cover all road types in the vicinity of the Proposed Scheme, not only National Roads. This ensures a robust and rigorous assessment 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 or on national roads in the AM and PM Peak Hours as a result of traffic redistribution comparing the Do Minimum to the Do Something scenario with the Proposed Scheme in place.
    - The guidelines indicate that a 10% threshold may be used, however, to ensure a rigorous assessment in this instance the lower 5% threshold for turning movements has been utilised.

Where road links have been identified as experiencing additional general traffic flow increases which exceed the above thresholds, a further assessment has been undertaken by way of a traffic capacity analysis on the associated junctions along the affected links. This further assessment is outlined in the following sections.

6.6.3.4.2.1 General Traffic Flow Difference – AM Peak Hour

Diagram 6.24 illustrates the difference in traffic flows on the road links within the indirect study area in the 2028 AM peak. TIA Appendix 4.4 (General Traffic Flow) provides further details of the LAM outputs.

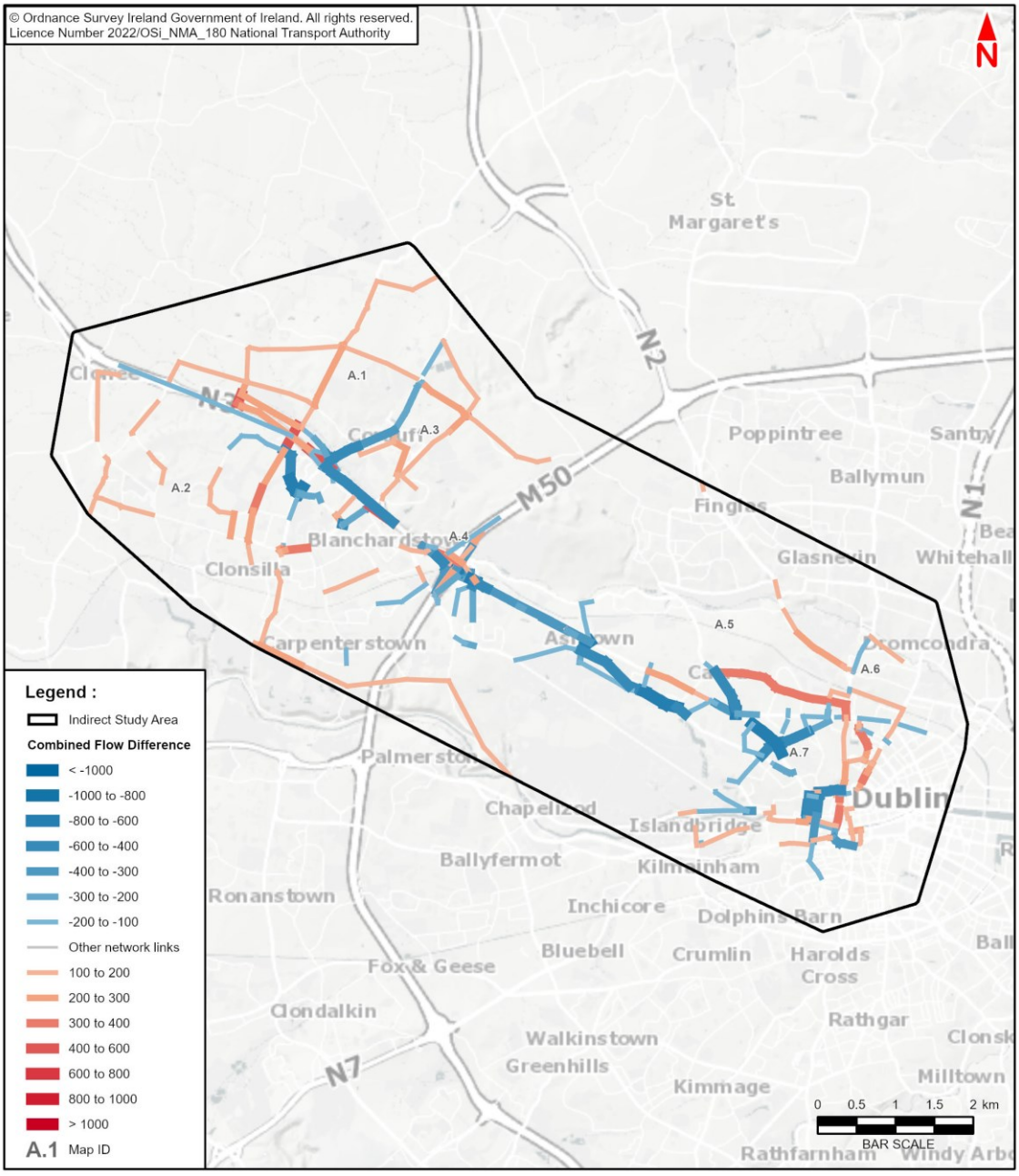

Diagram 6.24: Flow Difference on Road Links (Do Minimum vs. Do Something), AM Peak Hour, 2028 Opening Year

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 6.44.

The key reductions in traffic flows during the AM Peak Hour are outlined in Table 6.44.

Table 6.44 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	1035	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

As shown in Table 6.44 the traffic reductions vary between -195 and -1,097 combined flows. 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 medium positive impact 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 6.45.

Table 6.45 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 6.45 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

This increase in general traffic flow has been determined as an overall low negative impact on the direct study area.

Overall Impact on Direct Study Area: Overall, the scheme is predicted to have a **Medium** positive impact on traffic flows within the direct study area.

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 6.46.

Table 6.46 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

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
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
	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

Section	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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
	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	Pimlico	569	455	-114
	A7	Queen Street Bridge	612	378	-234
	A7	Usher's Quay	987	858	-129

As indicated in Table 6.46, the traffic reductions vary between -104 and -814 combined flows along the surrounding road network, although the majority are reduction of less than 300 pcu.

The biggest reductions are predicted on Blanchardstown Road South, North Circular Road, Castleknock Road, Blackhorse Avenue and Ratoath Road.

Indirect Increases in General Traffic: The key road links which experience additional traffic volumes are illustrated by the red lines in Table 6.47.

Table 6.47: 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

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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
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

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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
	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	,1059	+188

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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
	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 Johns 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 6.47, the additional traffic on the key road links varies between +104 and +486 combined flows during the AM peak hour. The biggest increases are predicted on the southbound N3 to the north of J3, Blakestown Road and Damastown Road.

6.6.3.4.2.2 National Roads – 5% Threshold Impact Assessment

The inbound flow differences between the Do Minimum and Do Something scenarios during the AM peak hour at the National road junctions within the indirect study area are presented in Table 6.48.

Table 6.48: National Road Links Traffic Threshold Assessment (AM Peak Hour)

Junction	Total Do Minimum Inbound Flows (vehicles)	Total Do Something Inbound Flows (vehicles)	Difference (vehicles)	Percentage Difference
N3 Junction 4a	6,700	6,580	-119	-1.8%
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 6.48 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 **Low Positive** impact on traffic flows at junctions with national roads in the PM peak hour.

No further assessment into the junctions with national roads during the AM peak hour has been undertaken, except for instances where the 100 vehicle threshold for additional traffic is exceeded, as shown in Table 6.47.

Overall Impact on Indirect Study Area: In the AM peak hour, traffic is displaced from the scheme corridor onto the surrounding road network. These increases in traffic flow are not concentrated in any one particular area, and are predicted to be spread across numerous links, the majority of which will experience a low negative impact.

The pattern of results is not straight-forward and shows that there will also be numerous links which will experience a reduction in traffic flows, with the majority of these resulting in **Low Positive** impacts. The impact on National roads was found to be generally positive, and no significant impacts are predicted.

6.6.3.4.2.3 General Traffic Flow Difference – PM Peak Hour

Diagram 6.25 illustrates the difference in directional traffic flows on road links in the PM peak hour for the 2028 Opening Year. Appendix A6.5.7 (General Traffic Flow) provides further details of the LAM outputs.

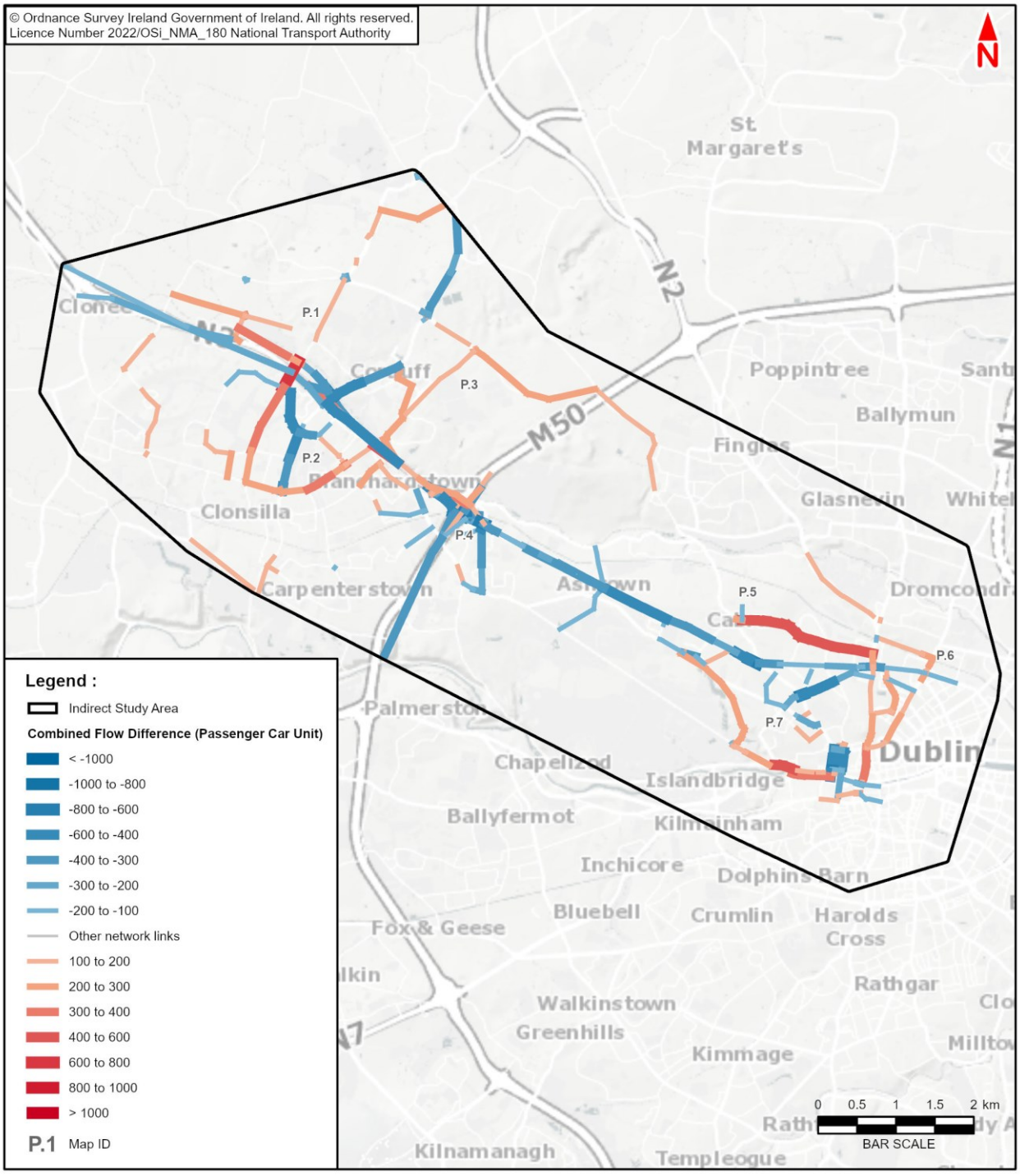

Diagram 6.25: Flow Difference on Road Links (Do Minimum vs. Do Something), PM Peak, 2028 Opening Year

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 6.49.

Table 6.49 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

Location	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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 6.49 the traffic reductions vary between -179 and -1,180 combined flows. The biggest positive impacts are predicted on Manor Street, Blanchardstown Road South and Stoneybatter

This decrease in general traffic flow has been determined as an overall **High Positive** impact 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 6.50.

Table 6.50 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 6.50 shows that there are predicted to be increases in traffic flows on four links on the Proposed Scheme, ranging from +155 to +409 combined peak hour flows.

This increase in general traffic flow has been determined as an overall low impact on the direct study area.

Overall Impact on Direct Study Area: Overall, the scheme is predicted to have a **High Positive** impact on traffic flows within the direct study area.

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 6.51.

Table 6.51 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
	P2	Huntstown Way	1,147	983	-164
	P2	N3 Eb Between J4 And J3	2,008	1,754	-253

Orientation	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	P2	N3 J3 Nb Off Slip	823	384	-439
	P2	R121 Blanchardstown Road South	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
	P6	Prospect Road	1,365	1,203	-162
	P7	Annamoe Road	348	187	-161

Orientation	Map I.D.	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
City Centre south and west of LUAS line	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

As indicated in Table 6.51, the traffic reductions vary between -101 and -1,120 combined flows along the surrounding road links, although the majority are less than 300 combined flows. he biggest reductions are predicted on Blanchardstown Road South

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 6.52.

Table 6.52: 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
	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

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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
	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

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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	+219
	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
	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

Orientation	Map ID	Road Name	Do Minimum Flows (PCUs)	Do Something Flows (PCUs)	Flow Difference (PCUs)
	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 6.52, the additional traffic on the indirect road links varies between +100 and +623 combined flows during the PM peak hour, although the majority of increases are less than 300. The biggest increases are predicted on Blakestown Road, Connaught Street, Fassaugh Road and Fassaugh Avenue.

6.6.3.4.2.4 National Roads – 5% Threshold Impact Assessment

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 6.53.

Table 6.53: National Road Links Traffic Threshold Assessment (PM Peak Hour)

Junction	Total Do Minimum Inbound Flows (vehicles)	Total Do Something Inbound Flows (vehicles)	Difference (vehicles)	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 6.53 show that traffic flows are predicted to decrease at four of the five junctions assessed, meaning that the 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.

Overall, the Proposed Scheme is expected to have a **Low Positive** impact on traffic flows at junctions with national roads 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-vehicle threshold for additional traffic is exceeded.

Overall Impact on Indirect Study Area: In the PM peak hour, traffic is displaced from the scheme corridor onto the surrounding road network. These increases in traffic flow are not concentrated in any one particular area, and are predicted to be spread across numerous links, the majority of which will experience **Low Negative** impacts. The impact on National roads was found to be generally positive.

6.6.3.4.3 General Traffic Impact Assessment

This section details the magnitude of the impacts as a result of the redistributed general traffic on the indirect study area. Note that further assessment is presented in Chapter 6 of the EIAR which considers the junction sensitivities and the significance of effects.

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 TIA, 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 traffic is operating well, with spare capacity, and does not experience queuing or delays throughout the hour. A value of 85% to 100% indicates that traffic is approaching its theoretical capacity and may experience occasional queues and delays within the hour. A value of over 100% indicates that traffic is operating above its theoretical capacity and experiences queues and delays regularly within the hour. The junctions have been described in the ranges outlined in Table 6.54.

Table 6.54 Junction Volume / Capacity Ranges

V/C Ratio	Traffic Condition
≤85%	Traffic is operating well within theoretical capacity.
85% - 100%	Traffic is approaching theoretical capacity and may experience occasional queues and delays.
≥100%	Traffic is operating above its theoretical capacity and experiences queues and delays regularly.

When comparing the V/C ratios during the Do Minimum and Do Something scenarios for the key junctions, the terms outlined in Table 6.55 have been used to describe the impact.

Table 6.55 Magnitude of Impact for Redistributed Traffic

		Do Something		
		≤85%	85% - 100%	≥100%
Do Minimum	≤85%	Negligible	Low Negative	High Negative
	85% - 100%	Negligible	Negligible	Medium Negative
	≥100%	Medium Positive	Negligible	Low Negative

As indicated in Table 6.55, 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.

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

Table 6.56 presents the road links which have been identified in the General Traffic threshold assessment with reference to the capacity at their associated junctions during the 2028 AM Peak Hour. Table 6.56 shows only those junctions with a predicted impact of Low or higher. A table of results containing all of the assessed junctions is provided in TIA Appendix 4.4.

Table 6.56: 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
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
Blakestown Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low
Diswellstown Road	Medium	Porterstown Link Road / Diswellstown Road		✓				✓	Medium
R121 Hollywoodrath Road	Medium	Church Road / Cruiserath Road / Damastown Avenue Roundabout	✓				✓		Low
Church Road	High	Church Road / Navan Road (Tolka Park Road)	✓				✓		Low
Damastown Road	Medium	Damastown Road / Damastown Drive Rbt		✓				✓	Medium
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low
Church Road	High	Ladys Well Road / Church Road (south)	✓				✓		Low
Blanchardstown Road South	Medium	Ongar Distributor Road / Blanchardstown Road South	✓				✓		Low
Castleknock Road	Medium	Roselawn Road / Castleknock Road / Castleknock Road	✓				✓		Low
Main Street	Low	Clonee Road / Main Street / R156		✓				✓	Medium
Dorset Street Lower	Low	Dorset Street Lower / Eccles Place / Dorset Street Lower	✓				✓		Low
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low
Dorset Street Upper	Low	Dorset Street Upper / Dorset Street Upper / Frederick Lane North	✓				✓		Low
Dorset Street Upper	Low	Dorset Street Upper / Wellington Street Lower / Dorset Street Upper	✓				✓		Low
Constitution Hill	Low	Constitution Hill / Western Way		✓				✓	Medium
Berkeley Road	Low	North Circular Road / Berkeley Road / North Circular Road	✓				✓		Low
James's Street	Low	Echlin Street / Echlin Street / James's Street / James's Street	✓				✓		Low

The results of the junction analysis shown in Table 6.56 demonstrate that of the 200 junctions assessed:

- 5 are predicted to experience Medium impacts;
- 13 are expected to experience Low impacts; and
- 177 are expected to experience Negligible impacts (not shown in Table 7.56); and
- Five are expected to experience Low Positive impacts (not shown in Table 7.56).

Capacity issues (>100% V/C) are noted at the following junctions:

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

Both of these junctions are predicted to be over 100% V / C in the Do Minimum scenario, and therefore any capacity issues are not a result of the Proposed Scheme.

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

2028 Opening Year - Do Minimum vs Do Something – PM Peak Hour

Table 6.57 presents the V / C ratios at the road junctions along the identified links in the PM Peak Hour for the 2028 Opening Year. Table 6.57 shows only those junctions with a predicted impact of Low or higher. A table of results containing all of the assessed junctions is provided in TIA Appendix 4.4.

Table 6.57: 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
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
Snugborough Road	Medium	Snugborough Road / Waterville Road	✓				✓		Low
Snugborough Road	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low
Snugborough Road Extension	Medium	R843 / Snugborough Road / Main Street	✓				✓		Low
Snugborough Road Extension	Medium	Porters Road / Snugborough Road Ext	✓				✓		Low
Navan Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low
Blakestown Road	High	Blakestown Road / Blakestown Way / Huntstown Way	✓				✓		Low
Snugborough Road	High	Edgewood Lawns / Snugborough Road / Snugborough Road	✓				✓		Low
Main Street	Low	Church Avenue / Main Street / Main Street / Mill Road	✓				✓		Low
Cappagh Road	Medium	Ballycoolin Road / Cappagh Road	✓				✓		Low
Main Street	Low	Clonsilla Road / Main Street /	✓				✓		Low
Dorset Street Lower	Low	Whitworth Place / Drumcondra Road Lower / Drumcondra Road Lower / Drumcondra Road Lower		✓				✓	Medium
Dorset Street Lower	Low	Dorset Street Lower / Dorset Street Lower	✓				✓		Low
Shandon Road	High	Connaught Street / St Peters Road / Connaught Street	✓				✓		Low
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low
King Street North	Low	King Street North / Church Street / Church Street Upper / King Street North	✓					✓	High
Church Street	Low	Father Mathew Bridge / Merchant's Quay / Bridge Street Lower / Usher's Quay	✓				✓		Low
Frank Sherwin Bridge	Low	St Johns Road West / R148 / Frank Sherwin Bridge	✓				✓		Low
Constitution Hill	Low	Constitution Hill / Western Way		✓				✓	Medium
Sarsfield Quay	Low	Liffey Street West / Sarsfield Quay / Wolfe Tone Quay	✓				✓		Low

The results of the junction analysis shown in Table 6.57 demonstrate that of the 156 junctions assessed:

- One is predicted to experience a High impact;
- Two are predicted to experience Medium impacts;
- 16 are expected to experience Low impacts;
- 133 are expected to experience Negligible impacts (not shown in Table 7.57); and
- Four are expected to experience Low Positive impacts (not shown in Table 7.56).

The King Street North / Church Street / Church Street Upper junction is predicted to experience a High impact as a result of the scheme. This is a large signalised junction that is designed for higher volumes of traffic, and it is considered to be of a low sensitivity. This localised High impact is considered to be acceptable in the wider context of the scheme.

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

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

Table 6.58 presents the V/C ratios at the road junctions along the identified links in the AM Peak Hour for the 2043 Opening Year + 15. Table 6.7 shows only those junctions with a predicted impact of 'Low' or higher. A table of results containing all of the assessed junctions is provided in TIA Appendix 4.4.

Table 6.58: 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
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
Navan Road West of Church Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low
Diswellstown Road	Medium	Porterstown Link Road / Diswellstown Road		✓				✓	Medium
R121 Hollywoodrath Road	Medium	Church Road / Cruiserath Road / Damastown Avenue Roundabout	✓				✓		Low
Church Road	High	Church Road / Navan Road (Tolka Park Road)	✓				✓		Low
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low
N3 J2 Nb Off Slip	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low
Castleknock Road	Medium	Roselawn Road / Castleknock Road / Castleknock Road	✓				✓		Low
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low
Dorset Street Upper	Low	Dorset Street Upper / Dorset Street Upper / Frederick Lane North	✓				✓		Low
Dorset Street Upper	Low	Dorset Street Upper / Wellington Street Lower / Dorset Street Upper	✓				✓		Low
Western Way	Low	Constitution Hill / Western Way		✓				✓	Medium
Berkeley Road	Low	North Circular Road / Berkeley Road / North Circular Road	✓				✓		Low
James's Street	Low	Echlin Street / Echlin Street / James's Street / James's Street	✓				✓		Low

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
James's Street	Low	James's Street / Watling Street / James's Street	✓				✓		Low

The results of the junction analysis shown in Table 6.58 demonstrate that that of the 200 junctions assessed:

- Two are predicted to experience Medium impacts;
- 13 are expected to experience Low impacts;
- 181 are expected to experience Negligible impacts (not shown in Table 6.58); and
- Three are expected to experience Low Positive impacts (not shown in Table 6.58).

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

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

Table 6.59 presents the V/C ratios at the road junctions along the identified links in the PM Peak Hour for the 2043 Scenario. Table 6.8 shows only those junctions with a predicted impact of 'low' or higher. A table of results containing all of the assessed junctions is provided in TIA Appendix 4.4.

Table 6.59: 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
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
Snugborough Road	Medium	Snugborough Road / Waterville Road	✓				✓		Low
Snugborough Road	Medium	N3 NB off slip / Snugborough Road	✓				✓		Low
Snugborough Road Extension	Medium	R843 / Snugborough Road / Main Street	✓				✓		Low
Navan Road	Medium	Blakestown Road / Tolka Park Road / Church Road	✓				✓		Low
Blakestown Road	High	Blakestown Road / Blakestown Way / Huntstown Way	✓				✓		Low
Church Road	High	Ladys Well Road / Church Road (north)	✓				✓		Low
Snugborough Road	High	Edgewood Lawns / Snugborough Road / Snugborough Road	✓				✓		Low
Main Street	Low	Church Avenue / Main Street / Main Street / Mill Road	✓				✓		Low
Cappagh Road	Medium	Ballycoolin Road / Cappagh Road	✓				✓		Low
Main Street	Low	Clonsilla Road / Main Street /	✓				✓		Low
Shandon Road	High	Connaught Street / St Peters Road / Connaught Street	✓				✓		Low
Phibsborough Road	Low	Devery's Lane / Phibsborough Road / Phibsborough Road / Connaught Street	✓				✓		Low
King Street North	Low	King Street North / Church Street / Church Street Upper / King Street North	✓				✓		Low

Road Name	Road Sensitivity	Junction Name	DM Max V / C Ratio			DS Max V / C Ratio			Magnitude of Impact
			<85%	85% - 100%	>100%	<85%	85% - 100%	>100%	
Church Street	Low	Father Mathew Bridge / Merchant's Quay / Bridge Street Lower / Usher's Quay	✓				✓		Low

The results of the junction analysis illustrated in Table 6.59 demonstrate that that of the 156 junctions assessed:

- 14 are expected to experience Low impacts;
- 137 are expected to experience Negligible impacts (not shown in Table 6.59); and
- Four are expected to experience Low Positive impacts (not shown in Table 6.59).

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

6.6.3.4.3.1 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 any of the Proposed Schemes will be **Negligible** during the night-time period.

6.6.3.4.3.2 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 6.45 and Table 6.47.
- **PM Peak Hour:** A total of 91 road links, as listed in Table 6.50 and Table 6.52.

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.

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 impact is deemed **Negligible.**

The junction analysis contained with the EIAR considers the sensitivity of each of the junctions, and combines this with the predicted magnitude of impact to produce an overall significance of effects. A summary of the EIAR findings is provided below. In the 2028 AM peak hour:

- 5 junctions are predicted to experience Medium impacts;
- 13 junctions are expected to experience Low impacts; and
- 177 junctions are expected to experience Negligible impacts; and
- Five junctions are expected to experience Low Positive impacts.

In the PM peak hour:

- One junction is predicted to experience a High impact;
- Two junctions are predicted to experience Medium impacts;
- 16 junctions are expected to experience Low impacts;
- 133 junctions are expected to experience Negligible impacts; and
- Four junctions r are expected to experience Low Positive impacts.

The King Street North / Church Street / Church Street Upper junction is predicted to experience a High impact as a result of the scheme. This is a large signalised junction that is designed for higher volumes of traffic, and it is considered to be of a low sensitivity. This localised High impact is considered to be acceptable in the wider context of the scheme.

No mitigation measures are therefore deemed to be required in either the AM or PM 2028 peak hours.

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 low positive impact 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 impact is deemed **Negligible.**

In the AM 2043 peak hour,

- Two junctions are predicted to experience Medium impacts;
- 13 junctions are expected to experience Low impacts;
- 181 junctions are expected to experience Negligible impacts; and
- Three junctions are expected to experience Low Positive impacts.

In the PM peak hour:

- 14 junctions are expected to experience Low impacts;
- 137 junctions are expected to experience Negligible impacts; and
- Four junctions are expected to experience Low Positive impacts.

No mitigation measures are therefore deemed to be required in either the AM or PM 2043 peak hours.

Overall Summary

Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be **Medium to High Positive** whilst the impact of the redistributed general traffic along the surrounding road network will be **Low Negative.**

It should be noted that while some high impacts 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.

6.6.3.4.3.3 Network-Wide Performance Indicators for General Traffic (Indirect Study Area)

The traffic and transport analysis considers the impact that the Proposed Scheme will have on the road network, within the direct and indirect study areas. To further quantify the impact of the Proposed Scheme on the traffic and transport conditions, network-wide performance indicators have been extracted for the general traffic conditions beyond the defined study areas, covering the full LAM modelled area.

The following indicators have been provided for both scenarios:

- **Transient Queues** (pcu.hrs) represent delay caused by reduced speeds approaching junctions and by waiting time at junctions. It does not include delay created whilst stopped in queues at over capacity junctions;
- **Over Capacity Queues** (pcu.hrs) measures the time spent queuing as a result of junctions operating over capacity and is a measure of network congestion;
- **Total Travel Time** (pcu.hrs) is the sum of the time spent in transient queues, over capacity queues and link cruise time;
- **Total Travel Distance** (pcu.kms) is the total distance travelled by all the vehicles in the model; and

- **Average Network Speed** (km/hr) is the average speed of all the vehicles in the network over the modelled period. It's calculated by dividing total travel distance by total travel time.

The contents of
Table 6.60 outline the impact that the Proposed Scheme will have on the wider transport network, both within and beyond the defined study areas.

Table 6.60 Network-Wide Performance Indicators with Proposed Scheme in Place

Scenario	Metric	Do Minimum	Do Something	% Difference	Impact
2028 Opening Year AM Peak Hour	Transient Queues (pcu hr)	19,220	18,710	-2.7%	Low Positive
	Over-capacity Queues (pcu hr)	5,543	5,086	-8.2%	
	Total Travel Times (pcu hr)	62,980	62,070	-1.4%	
	Total Travel Distance (pcu km)	2,018,000	2,022,000	0.2%	
	Average Speed (km/h)	32.04	32.58	1.7%	
2028 Opening Year PM Peak Hour	Transient Queues (pcu hr)	18,150	18,000	-0.8%	Negligible
	Over-capacity Queues (pcu hr)	4,723	4,688	-0.7%	
	Total Travel Times (pcu hr)	58,890	59,010	0.2%	
	Total Travel Distance (pcu km)	1,919,000	1,941,000	1.1%	
	Average Speed (km/h)	32.58	32.89	1.0%	
2043 Opening Year AM Peak Hour	Transient Queues (pcu hr)	18,630	18,070	-3.0%	Negligible
	Over-capacity Queues (pcu hr)	5,210	5,271	1.2%	
	Total Travel Times (pcu hr)	62,090	61,610	-0.8%	
	Total Travel Distance (pcu km)	2,052,000	2,057,000	0.2%	
	Average Speed (km/h)	33.05	33.39	1.0%	
2043 Opening Year AM Peak Hour	Transient Queues (pcu hr)	17,750	17,490	-1.5%	Negligible
	Over-capacity Queues (pcu hr)	4,468	4,392	-1.7%	
	Total Travel Times (pcu hr)	58,130	58,030	-0.2%	
	Total Travel Distance (pcu km)	1,925,000	1,944,000	1.0%	
	Average Speed (km/h)	33.12	33.5	1.1%	

The results in

Table 6.60 demonstrate that the changes to general traffic metrics as a result of the Proposed Scheme are typically in the range -2 to +2%, which is assessed as an overall **Negligible impact.**

6.6.4 Operational Phase Summary

The contents of Table 6.61 present a summary of the potential impacts of the Proposed Scheme during the Operational Phase.

Table 6.61: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.	Medium Positive
Cycling Infrastructure	Improvements to the quality of the cycling infrastructure along the Proposed Scheme.	Medium Positive

Bus Infrastructure	Improvements to the quality of the bus infrastructure along the Proposed Scheme.	Medium / High Positive
Parking and Loading	A total loss of 105 parking / loading spaces along the Proposed Scheme.	Low Negative.
People Movement	Increases to the total number of people travelling through the Proposed Scheme.	High Positive
Operational Impacts for Bus Passengers and Operators	Improvements to the network performance indicators for bus users along the Proposed Scheme.	High Positive
General Traffic Network Performance Indicators	Reduction in general traffic flows along the Proposed Scheme.	Medium / High Positive
	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.	Low Negative
	Deterioration to the network-wide queuing capacity, travel times, travel distances and average network speeds beyond the direct and indirect study areas	Negligible

As outlined within Section 6.6 (Operational Phase) and summarised in Table 6.61 above, the Proposed Scheme will deliver strong positive impacts to the quality in terms of People Movement, pedestrian, cycling and bus infrastructure during the operational phase. These improvements will help to provide an attractive alternative to the private car and promote a modal shift to walking, cycling and public transport, allowing for greater capacity along the corridor to facilitate the movement of people.

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. All of these changes combined will therefore cater for higher levels of future sustainable population and employment growth.

In the absence of the Proposed Scheme bus services will be operating in a more congested environment, leading to higher journey times and lower reliability for bus journeys. This limits their attractiveness to users which will lead to reduced levels of public transport use, making the bus system less resilient to higher levels of growth. The absence of walking and cycling measures that the Proposed Scheme provides will also significantly limit the potential to grow those modes into the future.

On the whole, the Proposed Scheme will make a significant contribution to the overall aims of BusConnects, the GDA Strategy and allow the city to grow sustainably into the future, which would not be possible in the absence of the Proposed Scheme. Further summary and conclusions of the assessment can be found in Section 7.

7. Cumulative Assessment

7.1 Construction Phase Cumulative Effects

The assessment of cumulative effects associated with the Construction Phase of the Proposed Scheme is contained within Chapter 21 (Cumulative Impacts & Environmental Interactions) in Volume 2 of the EIAR.

7.2 Operational Phase Cumulative Impacts

7.2.1 Introduction

This chapter also reports the assessment of cumulative effects associated with the Operational Phase of the Proposed Scheme. This includes the cumulative impacts of the Proposed Scheme on relevant transport receptors in combination with other existing and/or approved projects including all other Proposed BusConnects Schemes. The transport modelling undertaken as part of the Traffic and Transport assessment informs the cumulative impacts assessment of other environmental topics. Further details on the cumulative impacts of Air quality, Climate, Noise and vibration, Population and Human health are detailed within Chapter 21, Volume 2 of the EIAR.

7.2.2 Transport Schemes

As detailed in Section 6.1.3, 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. To this end, the modelling scenarios developed for the operational assessment of the Proposed Scheme(s) inherently accounts for the cumulative effects of complementary committed and proposed transport schemes within the GDA region.

The GDA Strategy provides is an appropriate receiving environment for the assessment of cumulative effects 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 (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.

7.2.3 Transport Demand

Cumulative transport demand 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 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 grow by 22% by 2028 and 49% by 2043 (Source: NTA Reference Case Planning Sheets 2028, 2043).

7.2.3.1 Strategic Trip Demand Assessment

As described previously in Section 6.1.3, 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.

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 (PT), Walking, Cycling). Private car demand may still grow in some areas but not linearly in line with demographics, as may have occurred in the past.

In terms of the transport modelling scenarios for the cumulative traffic and transport assessment, as per the Strategy proposals, there are no specific demand management measures included in the Do Minimum reference case (receiving environment) 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.

7.2.3.1.1 Trip Demand Growth within Study area of the Proposed Schemes.

To understand the background levels of demand growth within the study area of the Proposed Schemes in the assessment years (2028, 2043), the 24-hour demand outputs by mode from the NTA ERM have been analysed. A buffer of 500m beyond the extent of the Proposed Schemes has been chosen to capture the population that is most likely to interact with the Proposed Scheme, and which could reasonably be exposed to cumulative effects in combination with other developments. Diagram 7.1 below outlines the changes in total trip demand, comparing car demand with sustainable mode demand (public transport, walking and cycling). The figures are presented for both 2028 and 2043 Do Minimum scenarios (i.e., without the Proposed Schemes in place) in relation to the 2020 ERM demand levels.

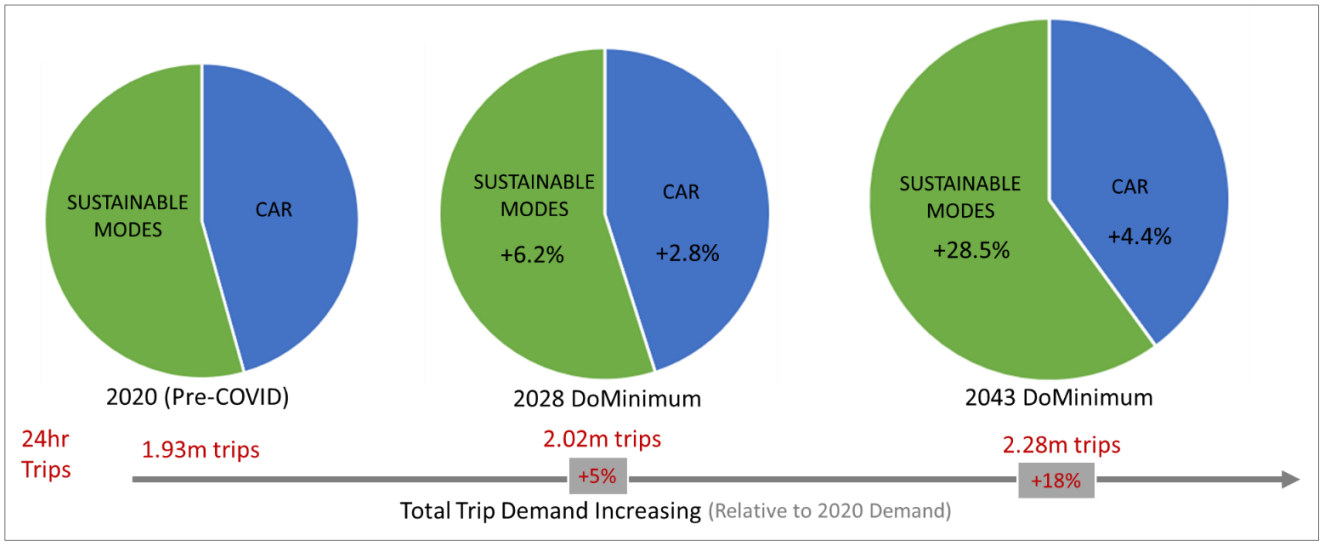

Diagram 7.1: Trip Demand Changes without the Proposed Schemes (in Relation to 2020 Demand)

As shown in Diagram 7.1 above, there are 1.93m trips[4] over a 24hr period within 500m of the Proposed Schemes. Total trip demand increases to 2.02m trips (5% increase) in 2028 and to 2.81m trips (+19% increase) in 2043.

In terms of the modal composition of the 5% increase in total demand in 2028, there will be a 6.2% increase in sustainable modes (PT, walk, cycle) and a 2.8% increase in private car demand above 2020 levels, without the Proposed Schemes in place. In 2043, the 18% increase in total trip demand (above 2020 levels) will be made up of a 28.5% increase in sustainable modes demand (PT, walk, cycle) and a 4.4% increase in private car demand, over 2020 (pre-COVID 19) levels. The analysis indicates that even without the Proposed Schemes in place, other GDA Transport Strategy measures and road network capacity constraints mean that private car demand is not

[4] Trips to/from ERM zones within a 500m distance from the Proposed Scheme to/from any destination

growing at the same rate as overall travel demand, however, car traffic levels will still increase over current / 2020 traffic levels.

The overall share of Sustainable modes trips on the network will increase from 57% in 2020, to 58% in 2028 and to 62% in 2043 with corresponding reductions in the private car share of overall travel demand.

7.2.3.1.2 Impacts of BusConnects Proposed Scheme Works on Travel Demand Growth

A similar assessment has been undertaken comparing 24-hour car demand with sustainable mode demand (public transport, walking and cycling) for both the 2028 and 2043 Do Something scenarios (i.e., with all Proposed Schemes in place) in relation to the 2020 ERM demand levels (and is shown in Diagram 7.2 below).

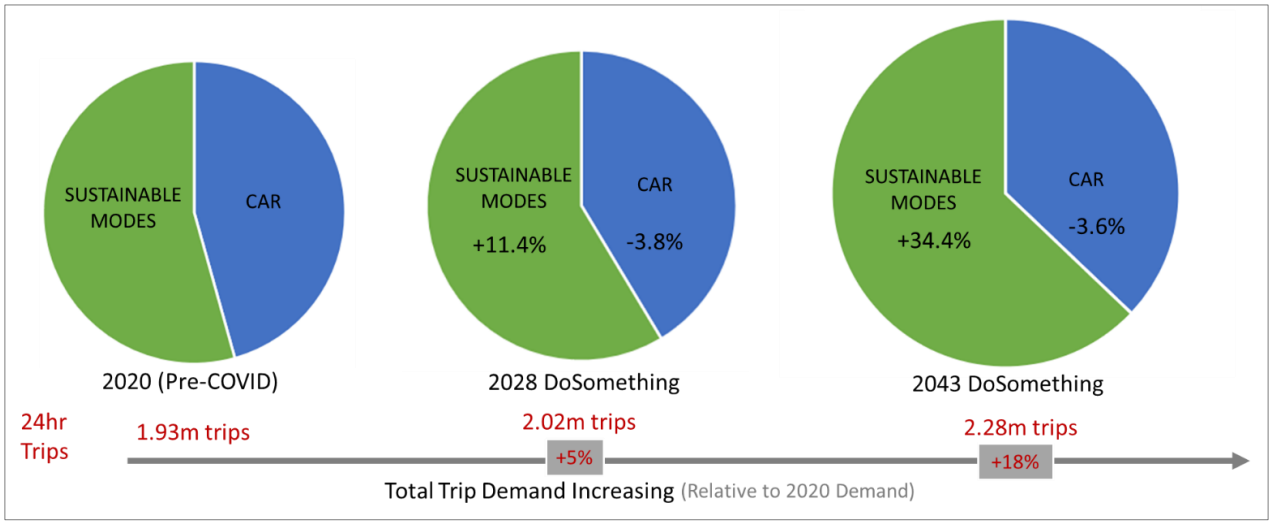

Diagram 7.2: Trip Demand Changes with the Proposed Schemes (in Relation to 2020 Demand)

As shown in Diagram 7.2 above, the same level of overall trip demand will occur, however, significantly higher levels of these trips will be made by sustainable modes due to the provision of the BusConnects Proposed Scheme Infrastructure Works. In terms of the modal composition of the 5% increase in total demand in 2028, there will be an 11.4% increase in sustainable modes (PT, walk, cycle) and a 3.8% decrease in private car demand compared to 2020 levels, with the Proposed Schemes in place. In 2043, the 18% increase in total trip demand (above 2020 levels) will be made up of a 33.4% increase in sustainable modes demand (PT, walk, cycle) and a 3.6% decrease in private car demand, compared to 2020 levels. The analysis indicates that the Proposed Schemes will have a significant impact on sustainable mode share. The schemes will prevent any increase in private car traffic within the study area and will instead result in a reduction in car trips below 2020 levels.

With the Proposed Schemes in place, the overall share of Sustainable modes trips on the network will increase from 57% in 2020, to 61% in 2028 and to 65% in 2043 with corresponding reductions in the private car share of overall travel demand.

7.2.4 People Movement Assessment

7.2.4.1 Overview

In order to understand the benefit with regards to the Movement of People following the full implementation of all 12 of the Proposed Schemes, a quantitative People Movement assessment has been undertaken using outputs of the modelling suite 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:

- Daily Mode share changes within a 500m catchment[5] of the Proposed Schemes comparing the Do Minimum and Do Something scenarios for trips to the City Centre and trips to any destination in the 2028 and 2043 assessment years;
- 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:
    - Total Passengers Boarding Buses on bus routes that use any part of the Proposed Scheme for each forecast year (2028, 2043).

7.2.4.2 Daily People Movement by Mode (Mode Share)

Daily (07:00-19:00 – weekday) mode share data has been extracted from the ERM for zones within a 500m catchment of the Proposed Schemes comparing the Do Minimum and Do Something scenarios for each of the forecast years (2028, 2043).

Diagram 7.3 and Diagram 7.4 illustrate the mode share changes (% increase and absolute) comparing the Do Minimum and Do Something (All Proposed Schemes) scenarios for Car, Public Transport and Cycling for the following:

- People travelling from the catchment area of the Proposed Schemes to any destination within the catchment (inclusive of the City Centre) in the Morning Peak period (AM) (07:00-10:00) and All-day (07:00-19:00) period; and
- People travelling from the catchment area[6] of the Proposed Schemes inbound towards the city centre (defined as the Canal Cordon) in the Morning Peak period (AM) 07:00-19:00 period.

[5] 500m recommended maximum walking distance to Core Bus Corridors - "Buses In Urban Development", CIHT 2018

[6] The analysis includes only trips from the defined catchment i.e., it does not include trips from external areas outside of the catchment that travel to the city centre

7.2.4.2.1 2028 Demand Changes by Mode

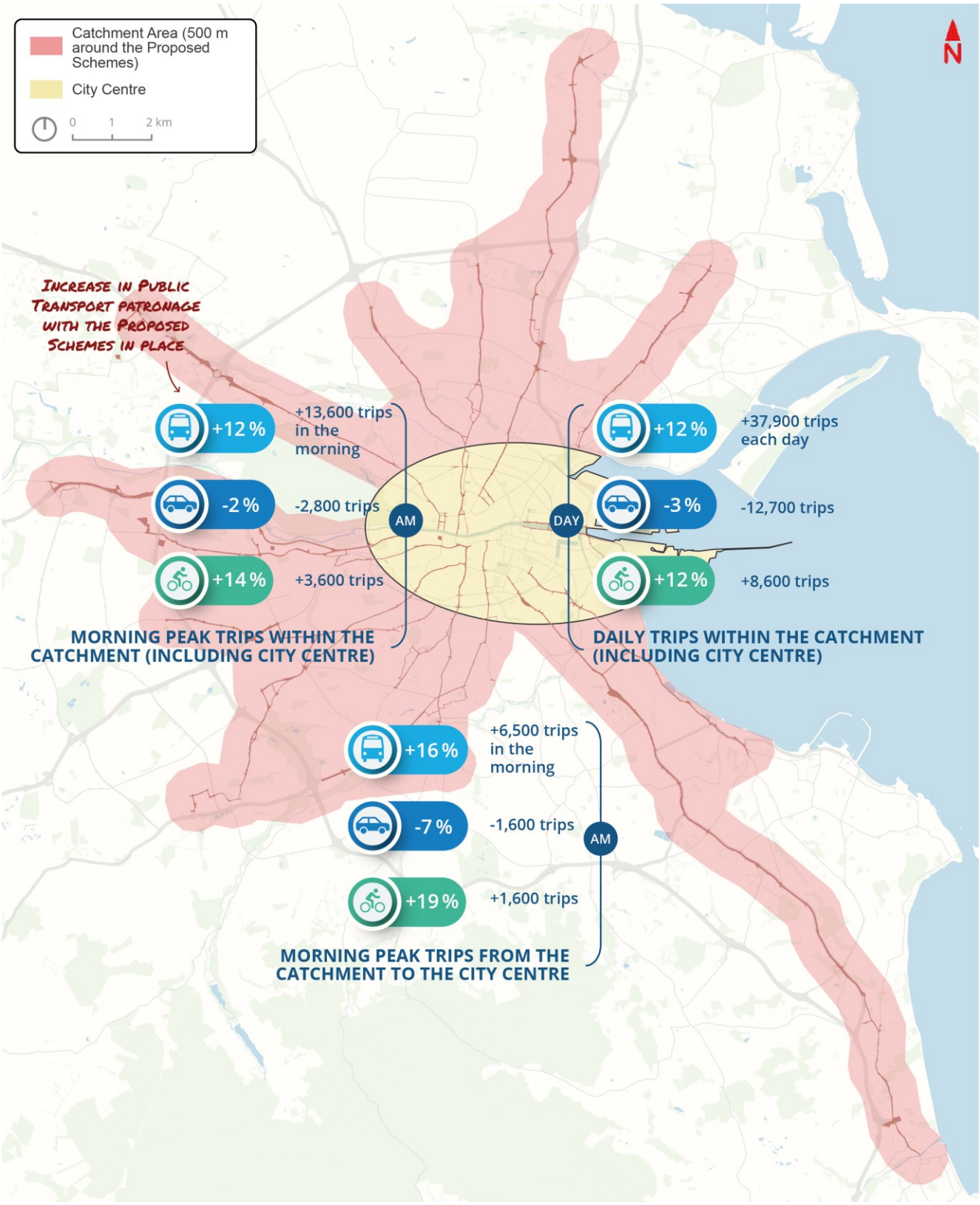

Diagram 7.3: Change in Trips by Mode within a 500m Catchment Area of the Proposed Schemes and the City Centre and Trips Originating from the Catchment Inbound to the City Centre in 2028

As indicated in Diagram 7.3, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 12% increase in public transport trips, 2% decrease in general traffic trips (i.e.

motorists) and a 14% increase in cycling trips in the morning peak period and a 12% increase in public transport, 3% decrease in general traffic and a 12% increase in cycling trips each day (07:00-19:00).

It is also estimated that for people travelling inbound to the city centre from the catchment area in the morning peak period there will be 16% increase in public transport trips, 7% decrease in general traffic trips (i.e. motorists) and a 19% increase in cycling trips.

Table 7.1 outlines the difference in trips and modal split between the Opening Year Do Minimum and Do Something scenarios for people travelling within the Catchment Area and the City Centre in the morning peak period and All-Day (07:00-19:00).

Table 7.1: 2028 Modal Share of Trips within a 500m Catchment Area from of the Proposed Schemes and the City Centre

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Daily Trips	Modal Split (%)	Daily Trips	Modal Split (%)	Daily Trips	Difference (%)
Within Catchment Area and City Centre	AM (07:00-10:00)	Public Transport	111,090	25.5%	124,700	27.7%	13,610	12.3%
		General Traffic	145,560	33.4%	142,730	31.7%	-2,830	-1.9%
		Cycling	25,670	5.9%	29,250	6.5%	3,580	13.9%
		Walking	154,000	35.3%	153,160	34.0%	-840	-0.5%
		Total	436,320	100%	449,840	100%	13,520	3.1%
Within Catchment Area and City Centre	Daily (07:00-19:00)	Public Transport	328,800	24.8%	366,730	27.0%	37,930	11.5%
		General Traffic	435,860	32.9%	423,140	31.2%	-12,720	-2.9%
		Cycling	70,680	5.3%	79,270	5.8%	8,590	12.2%
		Walking	487,880	36.9%	487,400	35.9%	-480	-0.1%
		Total	1,323,220	100%	1,356,540	100%	33,320	2.5%

As shown in Table 7.1, it is expected that there will be an approximate 3% (13,500) increase in People Movement within the Catchment Area (including City Centre) as a result of the Proposed Schemes in the morning peak period. The slight net increase in the total number of trips is due to the improved accessibility and reduced congestion for sustainable mode users provided with the Proposed Schemes in place. Over the whole day, approximately 46,000 additional trips will be made by bus and cycling.

It is also estimated that a modal shift will occur in the morning peak period consisting of an increase in Public Transport mode share from 25.5% to 27.7%, a decrease in general traffic share from 33.4% to 31.7% and an increase in the number of cyclists from 5.9% to 6.5%. The modal shift in the daily trips within the 500m catchment area and the City Centre will consist of an increase in Public Transport users from 24.8% to 27%, a decrease in general traffic share from 32.9% to 31.2% and an increase in the number of cyclists from 5.3% to 5.8%.

The number of walking trips is shown to remain broadly similar in the Do Something scenario. This is mainly due to a mode shift from walking to bus, due to the enhanced public transport provision in the Do Something scenario.

Table 7.2 outlines the difference in trips and modal split between the Opening Year Do Minimum and Do Something (All Proposed Schemes) scenarios for people travelling from the Catchment Area inbound towards the City Centre in the morning peak period.

Table 7.2: 2028 Modal Share of Trips Originating from a 500m Catchment Area from of the Proposed Schemes to the City Centre

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Daily Trips	Modal Split (%)	Daily Trips	Modal Split (%)	Daily Trips	Difference (%)
Within Catchment Area and City Centre	AM (07:00-10:00)	Public Transport	40,050	48.4%	46,500	52.5%	6,450	16.1%
		General Traffic	23,180	28.0%	21,540	24.3%	-1,640	-7.1%
		Cycling	8,530	10.3%	10,150	11.5%	1,620	19.0%
		Walking	11,030	13.3%	10,450	11.8%	-580	-5.3%
		Total	82,790	100%	88,640	100%	5,850	7.1%

As shown in Table 7.2 the modelling indicates that there will be an approximate 7% (6,000) increase in total People Movement travelling from the Catchment Area to the City Centre as a result of the Proposed Schemes in the morning peak period.

It is also indicated that a modal shift will occur consisting of an increase in Public Transport users from 48.4% to 52.5%, a decrease in general traffic mode share from 28% to 24.3% and an increase in the cycling mode share from 10.3% to 11.5% with the Proposed Schemes in operation.

7.2.4.2.2 2043 Demand Changes by Mode

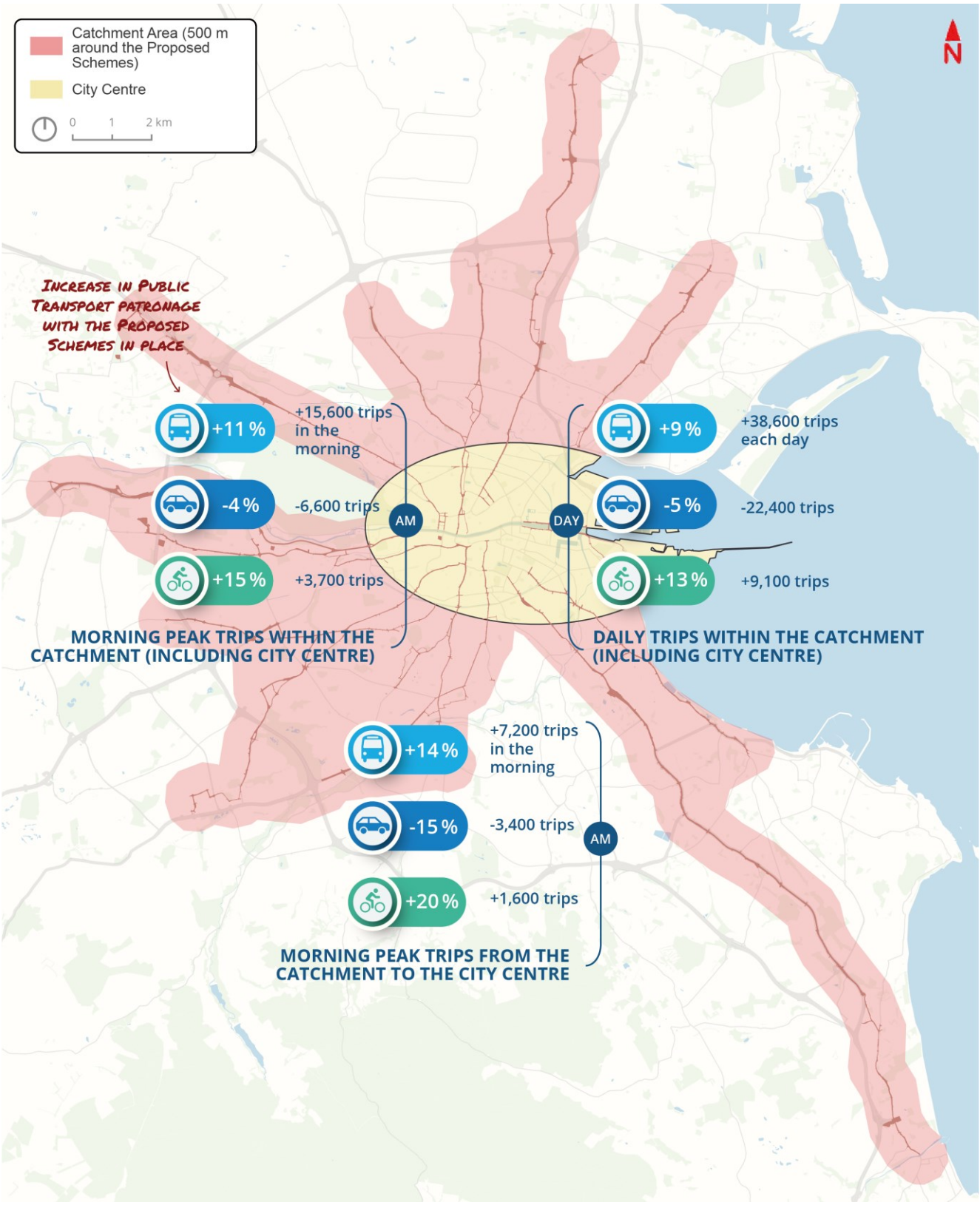

Diagram 7.4: Change in trips by mode within a 500m Catchment Area of the Proposed Schemes and the City Centre and Trips originating from the Catchment inbound to the City Centre in 2043

As indicated in Diagram 7.4, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 11% increase in public transport trips, 4% decrease in general traffic trips (i.e. motorists) and a 15% increase in cycling trips in the morning peak period and a 9% increase in public transport, 5% decrease in general traffic and a 13% increase in cycling trips each day (07:00-19:00).

The modelling shows that for people travelling inbound to the city centre from the Catchment Area in the morning peak period there will be a 14% increase in public transport trips, 15% decrease in general traffic trips (i.e., motorists) and a 20% increase in cycling trips.

Table 7.3 outlines the difference in trips and modal split between the Opening Year Do Minimum and Do Something (All Proposed Schemes) scenarios for people travelling within the Catchment Area and the City Centre in the morning peak period and All Day (07:00-19:00).

Table 7.3: 2043 Modal Shift of Trips within a 500m Catchment Area from of the Proposed Schemes and the City Centre

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Daily Trips	Modal Split (%)	Daily Trips	Modal Split (%)	Daily Trips	Difference (%)
Within Catchment Area and City Centre	AM (07:00-10:00)	Public Transport	144,880	29.4%	160,480	31.7%	15,600	10.8%
		General Traffic	156,670	31.8%	150,070	29.7%	-6,600	-4.2%
		Cycling	25,670	5.2%	29,410	5.8%	3,740	14.6%
		Walking	165,820	33.6%	165,890	32.8%	70	0.0%
		Total	493,040	100%	505,850	100%	12,810	2.6%
Within Catchment Area and City Centre	Daily (07:00-19:00)	Public Transport	444,900	29.4%	483,530	31.4%	38,630	8.7%
		General Traffic	473,200	31.3%	450,780	29.3%	-22,420	-4.7%
		Cycling	71,350	4.7%	80,400	5.2%	9,050	12.7%
		Walking	523,910	34.6%	526,400	34.2%	2,490	0.5%
		Total	1,513,360	100%	1,541,110	100%	27,750	1.8%

As shown in Table 7.3, it is expected that there will be an approximate 3% (12,800) increase in People Movement travelling within the Catchment Area (including City Centre) as a result of the Proposed Schemes in the morning peak period. The slight net increase in the total number of trips is due to the improved accessibility and reduced congestion for sustainable mode users provided with all the Proposed Schemes in place. Over the whole day, approximately 50,000 additional trips will be made by bus and cycling, which is a significant increase, when considering that other elements of the GDA Strategy will be place in 2043.

It is also estimated that a modal shift will occur in the morning peak period consisting of an increase in Public Transport share from 29.4% to 31.7%, a decrease in general traffic share from 31.8% to 29.7% and an increase in cycling from 5.2% to 5.8%. The modal shift in the daily trips within the 500m catchment area and the City Centre will consist of an increase in Public Transport users from 29.4% to 31.4%, a decrease in general traffic from 31.3% to 29.3% and an increase in cyclists from 4.7% to 5.2%.

General traffic is seen to have much higher levels of reduction in 2043 than when compared to 2028 due to the increased level of non-bus public transport infrastructure (MetroLink, Luas extensions and DART+ from the GDA Strategy) in tandem with the road capacity reduction measures as part of the Proposed Scheme leading to increased usage on all public transport modes. The number of walking trips is shown to remain broadly similar in the Do Something scenario. This is mainly due to a mode shift from walking to bus, due to the enhanced public transport provision in the Do Something scenario.

Table 7.4 outlines the difference in trips and modal split between the Opening Year Do Minimum and Do Something (All Proposed Schemes) scenarios for people travelling from the Catchment Area inbound towards the City Centre in the morning peak period.

Table 7.4: 2043 Modal Shift of Trips originating from a 500m Catchment Area from of the Proposed Schemes to the City Centre

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Daily Trips	Modal Split (%)	Daily Trips	Modal Split (%)	Daily Trips	Difference (%)
Within Catchment Area and City Centre	AM	Public Transport	51,700	55.1%	58,880	59.8%	7,180	13.9%
		General Traffic	22,930	24.4%	19,490	19.8%	-3,440	-15.0%
		Cycling	7,940	8.5%	9,510	9.7%	1,570	19.8%
		Walking	11,240	12.0%	10,660	10.8%	-580	-5.2%
		Total	93,810	100%	98,540	100%	4,730	5.0%

As shown in Table 7.4, the modelling indicates that there will be an approximate 5% increase in total People Movement travelling from the Catchment Area to the City Centre as a result of the Proposed Schemes, in the morning peak period.

It is also indicated that a modal shift will occur consisting of an increase in Public Transport mode share from 55.1% to 59.8%, a decrease in general traffic mode share from 24.4% to 19.8% and an increase in the cycling mode share from 8.5% to 9.7%.

7.2.4.3 Peak Hour People Movement along the Proposed Schemes

To determine the cumulative impact that the Proposed Schemes will have on modal share changes on the direct study areas as a result of their implementation, the weighted average number of people moved by each mode (Car, Bus, Active Modes) has been extracted from the modelling suite. The analysis compares the Do Minimum and Do Something (All Proposed Schemes) scenarios both in the inbound and outbound direction in the AM and PM Peak Hour periods for each forecast years (2028, 2043).

7.2.4.3.1 2028 AM Peak Hour People Movement

Diagram 7.5 illustrates the average People Movement by mode, across all Proposed Schemes, inbound towards the City Centre during the AM Peak Hour in 2028.

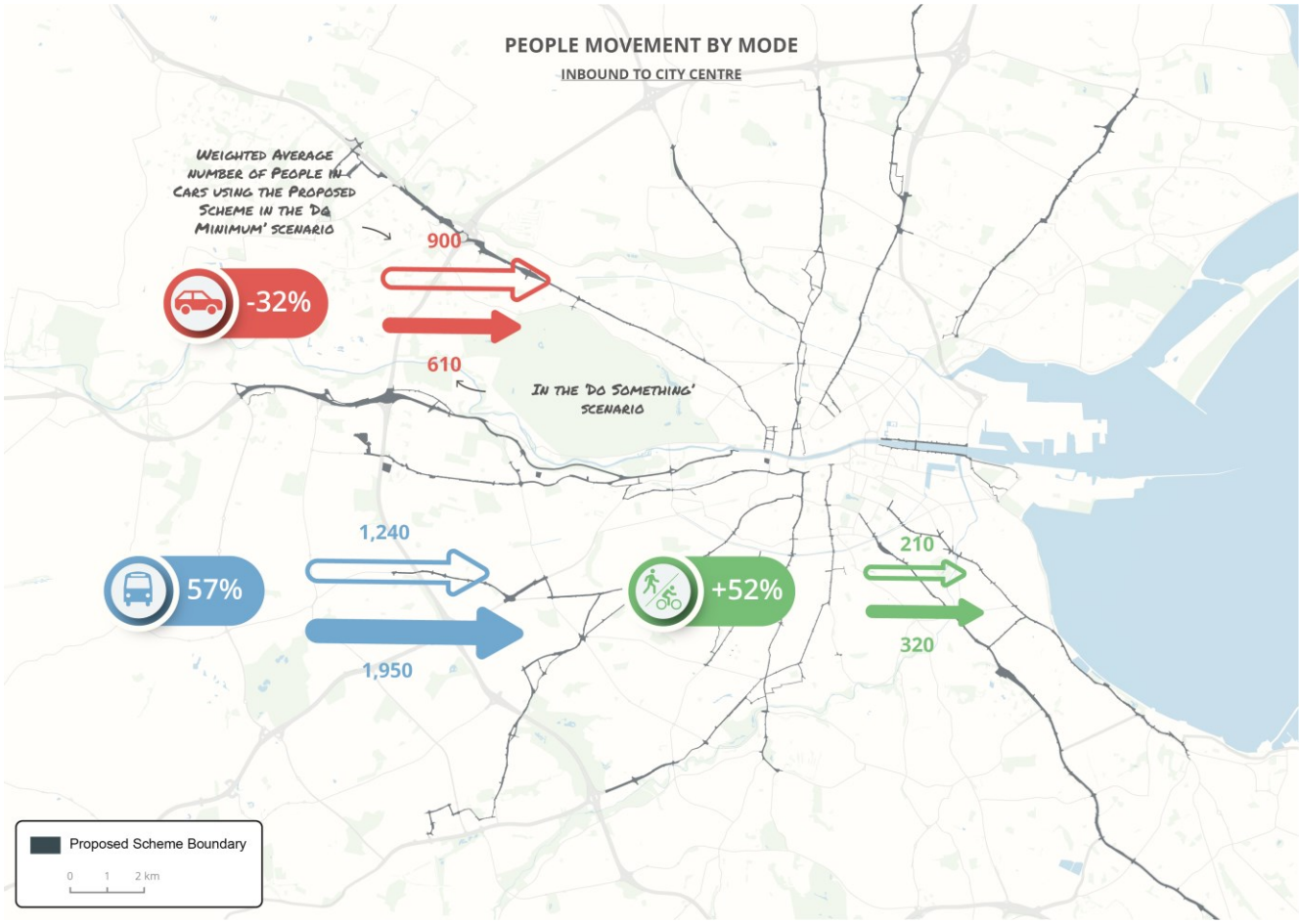

Diagram 7.5: People Movement by Mode during 2028 AM Peak Hour

As indicated in Diagram 7.5, on average across all Proposed Schemes, there is a predicted reduction of 32% in the number of people travelling via car, an increase of 57% in the number of people travelling via bus and an increase of 52% in people walking or cycling along the Proposed Schemes during the AM Peak Hour. It should be noted that the model predicts limited change in total walking trips between each scenario. This is due to the fact that walking trips in the Do Minimum scenario are also transferring to public transport and cycling due to the improved provision with any new walkers transferring from car replacing these trips.

The Proposed Schemes will facilitate a step change in the level of segregated cycling provision in comparison with existing conditions along the entire length of the corridor. The transport modelling undertaken, is therefore conservative in terms of the predicted cycling mode share. The Proposed Schemes have been designed to cater for much higher levels of cycling uptake and this will provide the opportunity for a significant increase in the movement of people travelling sustainably along the corridor, which would otherwise not be achieved in the absence of the Proposed Schemes.

Table 7.5 outlines 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 23% increase in total people moved as a result of the Proposed Schemes and a 57% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 7.5 Modal Shift of 2028 AM Peak Hour along Proposed Schemes

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
		General Traffic	900	38%	610	21%	-290	-32%
		Public Transport	1,240	53%	1,950	68%	710	57%

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	Walking	140	6%	140	5%	0	0%
		Cycling	70	3%	180	6%	110	157%
		Sustainable Modes Total	**1,450**	**62%**	**2,270**	**79%**	**820**	**57%**
		Total (all modes)	**2,350**	**100%**	**2,880**	**100%**	**530**	**23%**

7.2.4.3.2 2028 PM Peak Hour People Movement

Diagram 7.6 illustrates the average People Movement by mode, across all Proposed Schemes, travelling outbound from the city centre during the PM Peak Hour.

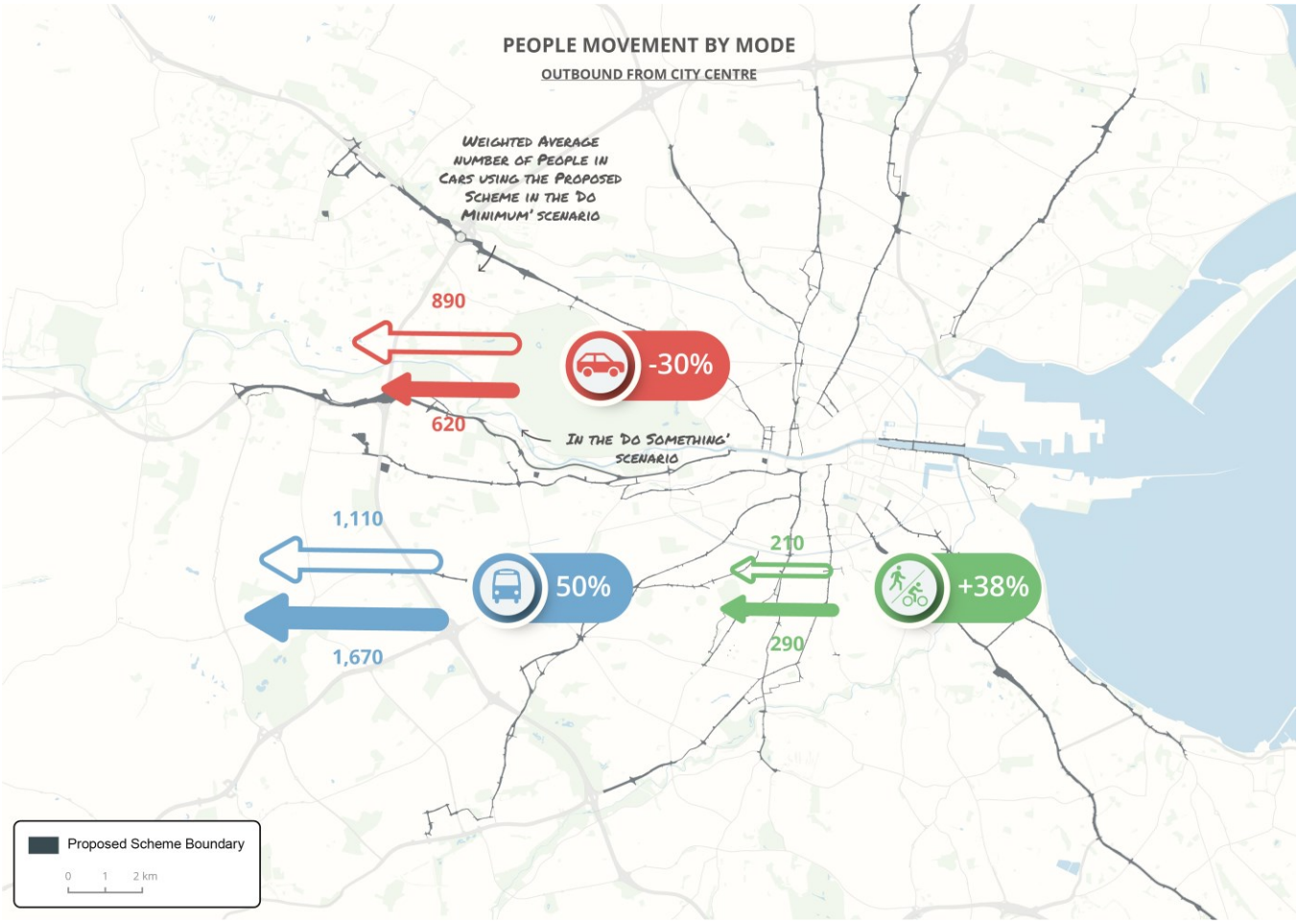

Diagram 7.6: People Movement by Mode during 2028 PM Peak Hour

As indicated in Diagram 7.6, on average across all Proposed Schemes, there is a predicted reduction of 30% in the number of people travelling via car, an increase of 50% in the number of people travelling via bus and an increase in 38% in the number of people walking or cycling along the Proposed Schemes during the PM Peak Hour.

Table 7.6 outlines the difference in modal split between the Do Minimum and Do Something (All Proposed Schemes) scenarios for each mode of transport in an outbound direction from the City Centre during the PM Peak Hour. The results indicate a 17% increase in total people moved as a result of the Proposed Schemes and a 48% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 7.6: Modal Shift of 2028 PM Peak Hour along Proposed Schemes

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	890	40%	620	24%	-270	-30%
		Public Transport	1,110	50%	1,670	65%	560	50%
		Walking	150	7%	140	5%	-10	-7%
		Cycling	60	3%	150	6%	90	150%
		Sustainable Modes Total	**1,320**	**60%**	**1,960**	**76%**	**640**	**48%**
		Total (All modes)	**2,210**	**100%**	**2,580**	**100%**	**370**	**17%**

7.2.4.3.3 2043 AM Peak Hour People Movement

Diagram 7.7 illustrates the average People Movement by mode, across all Proposed Schemes, inbound towards the City Centre during the AM Peak Hour in 2043.

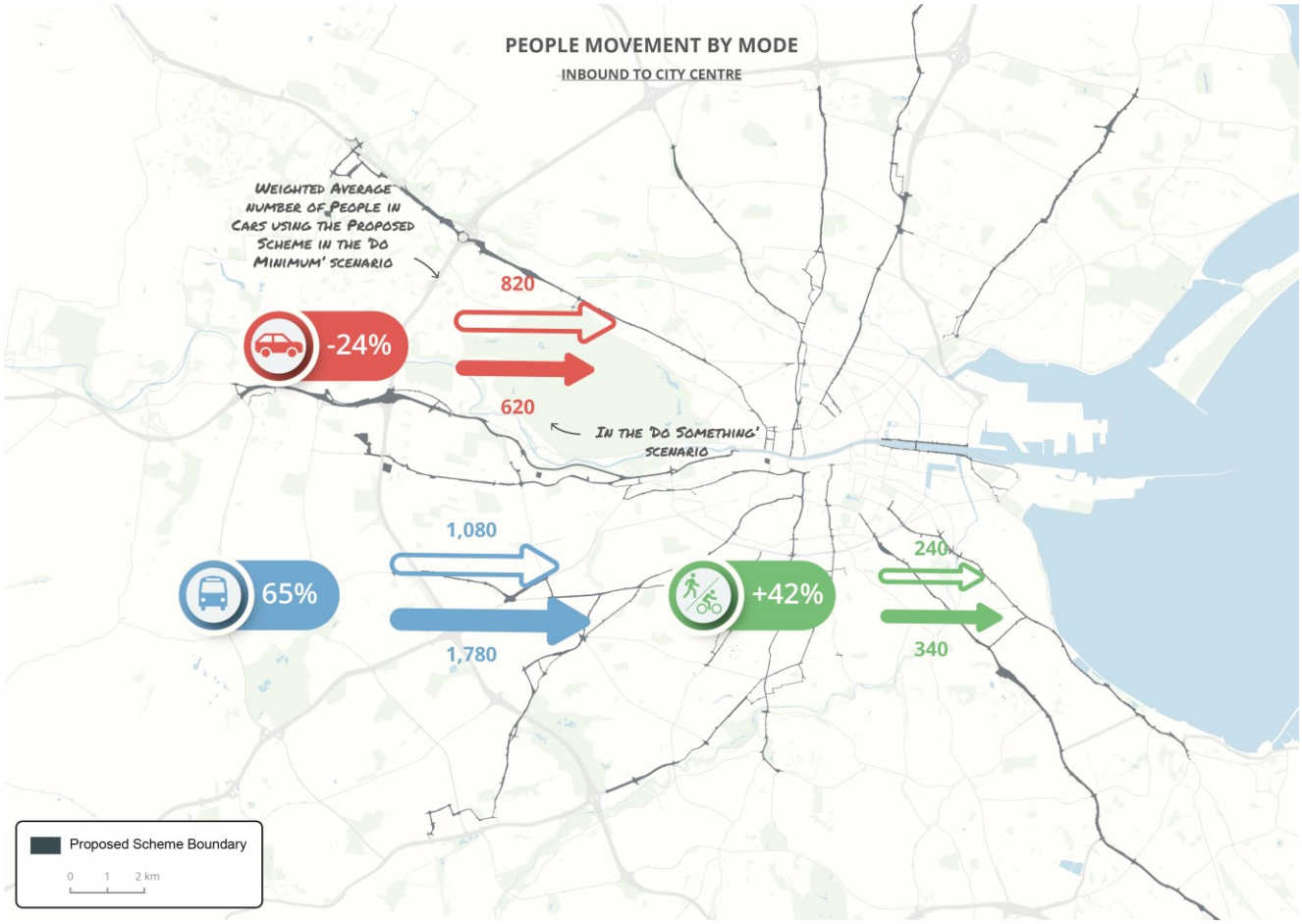

Diagram 7.7: People Movement by Mode during 2043 AM Peak Hour

As indicated in Diagram 7.7, on average across all Proposed Schemes, there is a predicted decrease of 24% in the number of people travelling via car, an increase of 65% in the number of people travelling via bus and an increase of 42% in the number of people walking and cycling along the Proposed Schemes during the AM Peak Hour.

Table 7.7 outlines the difference in modal split between the Do Minimum and Do Something (All Proposed Schemes) scenarios for each mode of transport in an inbound direction towards the City Centre during the AM Peak Hour. The results indicate a 28% increase in total people moved as a result of the Proposed Schemes and 61% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 7.7: Modal Shift of 2043 AM Peak Hour along Proposed Schemes

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	General Traffic	820	38%	620	23%	-200	-24%
		Public Transport	1,080	50%	1,780	65%	700	65%
		Walking	170	8%	160	6%	-10	-6%
		Cycling	70	3%	180	7%	110	157%
		Sustainable Modes Total	**1,320**	**62%**	**2,120**	**77%**	**800**	**61%**
		Total (All modes)	**2,140**	**100%**	**2,740**	**100%**	**600**	**28%**

7.2.4.3.4 2043 PM Peak Hour People Movement

Diagram 7.8 illustrates the average People Movement by mode, across all Proposed Schemes, travelling outbound from the City Centre during the PM Peak Hour in 2043.

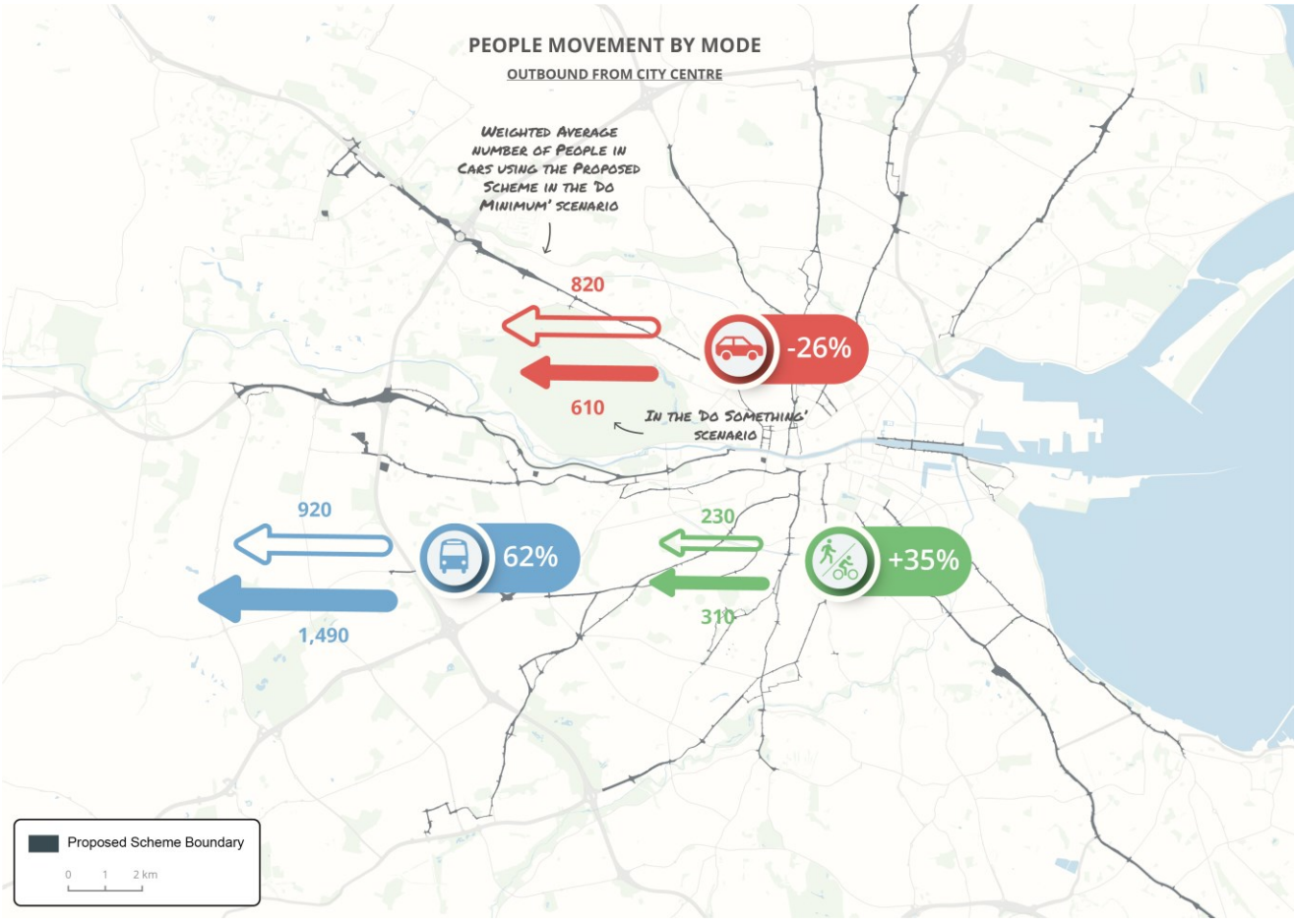

Diagram 7.8: People Movement by Mode during 2043 PM Peak Hour

As indicated in Diagram 7.8, on average across all Proposed Schemes, there is a predicted decrease of 26% in the number of people travelling via car, an increase of 62% in the number of people travelling via bus and an increase of 35% in the number of people walking and cycling along the Proposed Schemes during the PM Peak Hour in 2043.

Table 7.8 outlines the difference in modal split between the Do Minimum and Do Something (All Proposed Schemes) scenarios for each mode of transport in an outbound direction from the City Centre during the PM Peak Hour. The results indicate a 22% increase in total people moved as a result of the Proposed Schemes and a 57% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 7.8: Modal Shift of 2043 PM Peak Hour along Proposed Schemes

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	820	42%	610	25%	-210	-26%
		Public Transport	920	47%	1,490	62%	570	62%
		Walking	180	9%	180	7%	0	0%
		Cycling	50	3%	130	5%	80	160%
		Sustainable Modes Total	**1,150**	**58%**	**1,800**	**75%**	**650**	**57%**
		Total (All modes)	**1,970**	**100%**	**2,410**	**100%**	**440**	**22%**

7.2.4.4 Movement of People by Bus

The following section presents the modelling outputs for the Movement of People by Bus. The results indicate that the improvements in bus priority infrastructure with the Proposed Schemes in place results in a substantial increase in Bus patronage during the Peak Hours and throughout the day.

Diagram 7.9 to Diagram 7.12 present the difference in passenger loadings (Do Something minus Do Minimum loadings) on the Proposed Schemes in 2028 and 2043, AM and PM Peak Hours.

7.2.4.4.1 2028 AM Peak Hour Bus Passengers

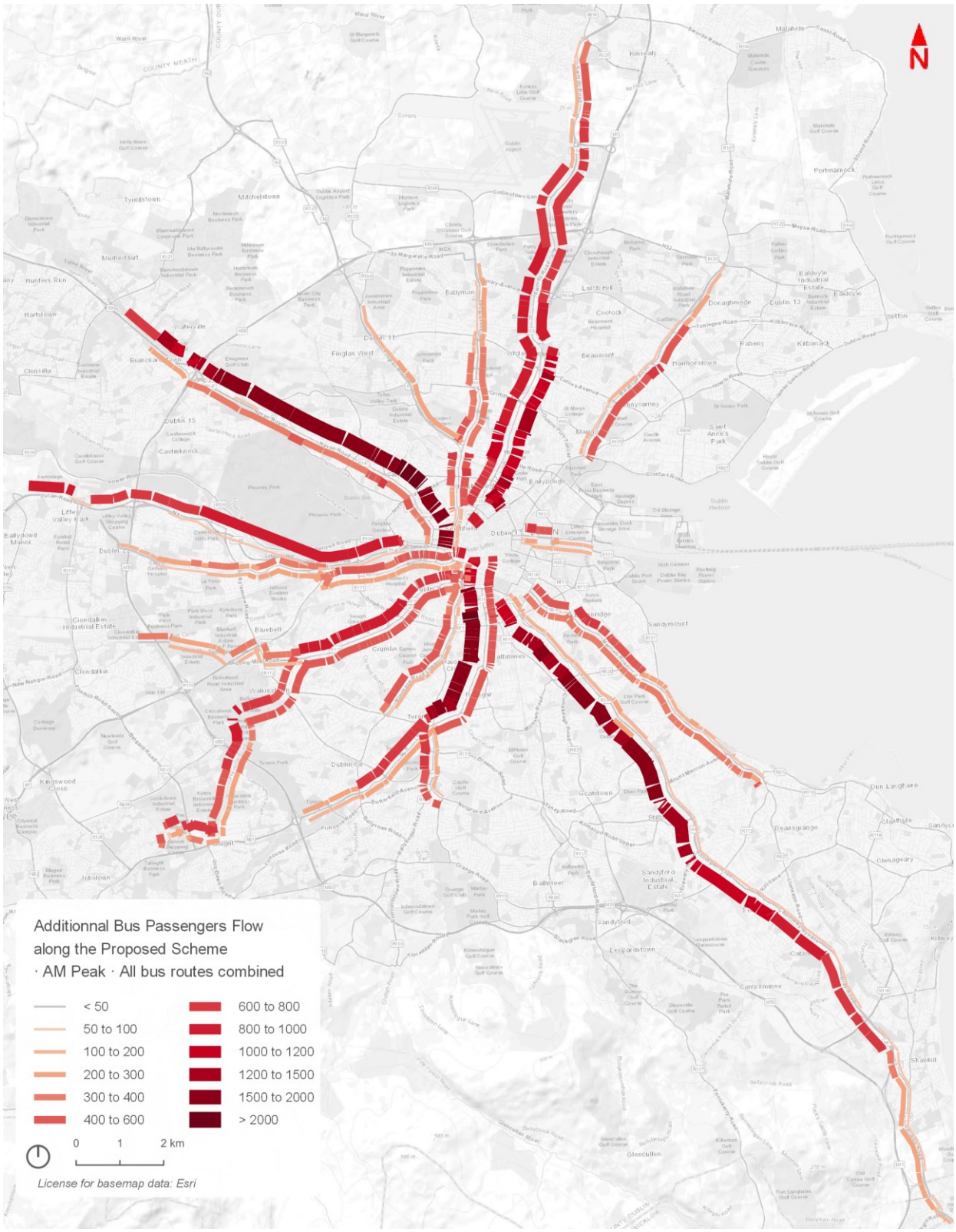

Diagram 7.9: AM Peak Hour Total Bus Passenger Flows Along the Proposed Schemes (All Bus Routes Combined)

As indicated in Diagram 7.9, there is a high growth in bus patronage along all the Proposed Schemes in the AM Peak Hour. Some of the bigger increases occur in the inbound direction on the Proposed Scheme, the Rathfarnham to City Centre and the Bray to City Centre schemes where the loadings reach more than 2,000 additional passengers per hour compared to the Do Minimum scenario.

Since many bus services commence and end further away from the direct alignment of the Proposed Schemes, but still benefit from the improvements provided, an assessment has been undertaken to compare the total passengers boarding 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. Table 7.9 below displays the results for the 2028 AM Peak Hour for the Blanchardstown to City Centre Core Bus Corridor Scheme as well as for all Proposed Schemes.

Table 7.9: 2028 AM Peak Hour Bus Boardings on Routes using the Proposed Schemes (inc. boarding at stops outside Proposed Schemes)

Scheme	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Blanchardstown to City Centre Scheme	11,040	14,460	3,420	31.0%
All Schemes	85,990	101,760	15,770	18.3%

As shown above there will be a 31% increase in people boarding bus routes which use any part of the Blanchardstown to City Centre Scheme during the AM Peak Hour. This represents an addition of 3,420 passengers.

There will be a 18% increase in people boarding bus routes which use any part of the Proposed Schemes, representing an additional 15,770 passengers due to the bus priority improvements.

7.2.4.4.2 2028 PM Peak Hour Bus Passengers

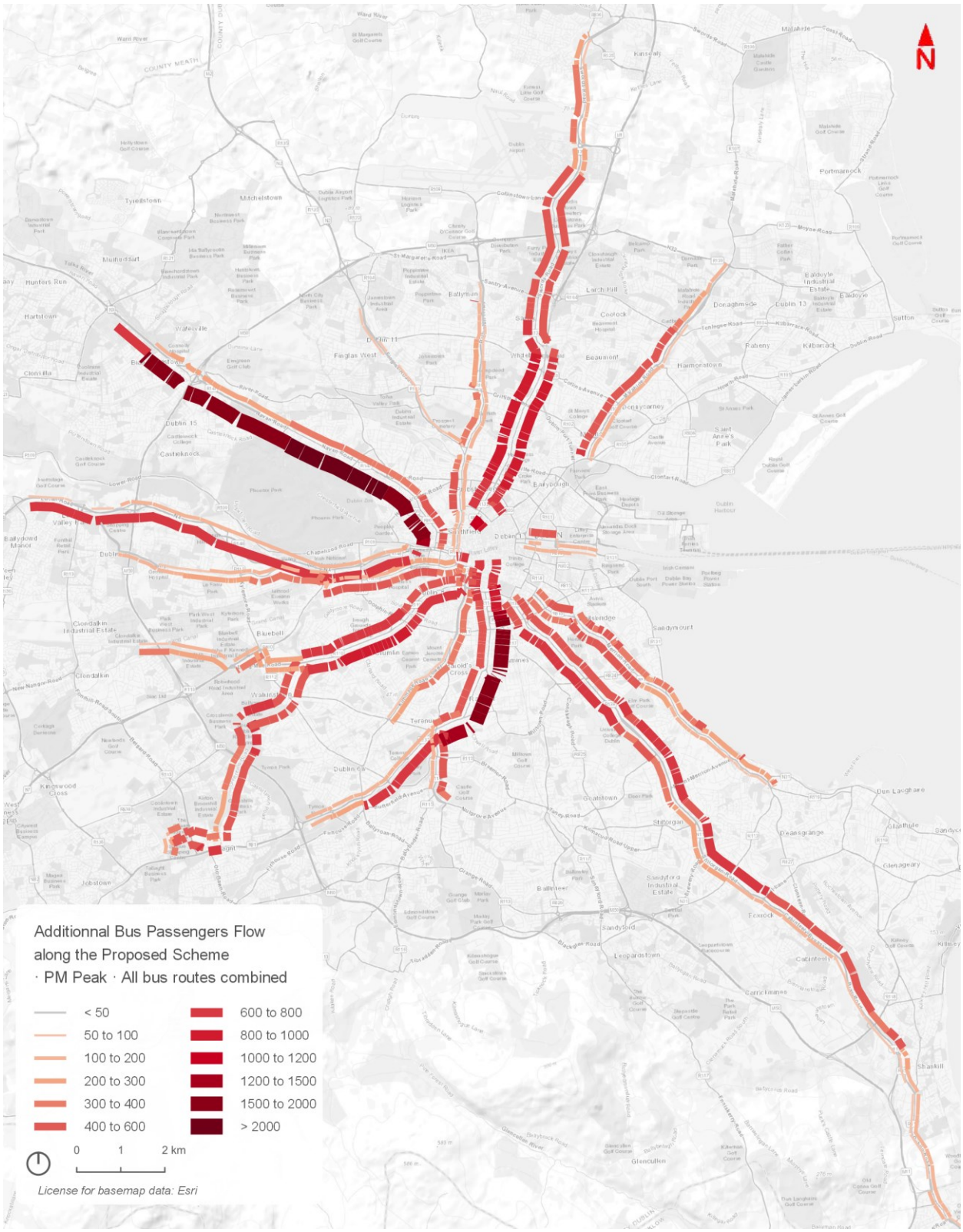

Diagram 7.10: PM Peak Hour Total Bus Passenger Flows Along the Proposed Schemes (All Bus Routes Combined)

As indicated in Diagram 7.10, there is a high growth in bus patronage along all the Proposed Schemes in the PM Peak Hour. Some of the bigger increases occur in the outbound direction on the Blanchardstown to City Centre and the Rathfarnham to City Centre where the loadings reach more than 2,000 additional passengers per hour

compared to the Do Minimum scenario. The Blanchardstown to City Centre Scheme shows an increase of approximately 2,100 passengers in the outbound direction.

Table 7.10 presents the total passengers boarding bus routes that use any part of the Proposed Scheme (including those stops not directly on the Proposed Scheme) in the 2028 PM Peak Hour for the Blanchardstown to City Centre Scheme as well as for all Proposed Schemes.

Table 7.10: 2028 PM Peak Hour Bus Boardings on Routes using the Proposed Schemes (inc. boarding at stops outside Proposed Schemes)

Scheme	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Blanchardstown to City Centre Scheme	8,780	11,960	3,180	36.2%
All Schemes	71,280	85,170	13,890	19.5%

As shown in Table 7.10, there will be a 36.2% increase in people boarding bus routes which use any part of the Blanchardstown to City Centre Core Bus Corridor Scheme during the PM Peak Hour. This represents an addition of 3,180 passengers.

There will be a 19.5% increase in people boarding bus routes which use any part of the Proposed Schemes, representing an additional 13,890 passengers due to the bus priority improvements.

7.2.4.4.3 2043 AM Peak Hour Bus Passengers

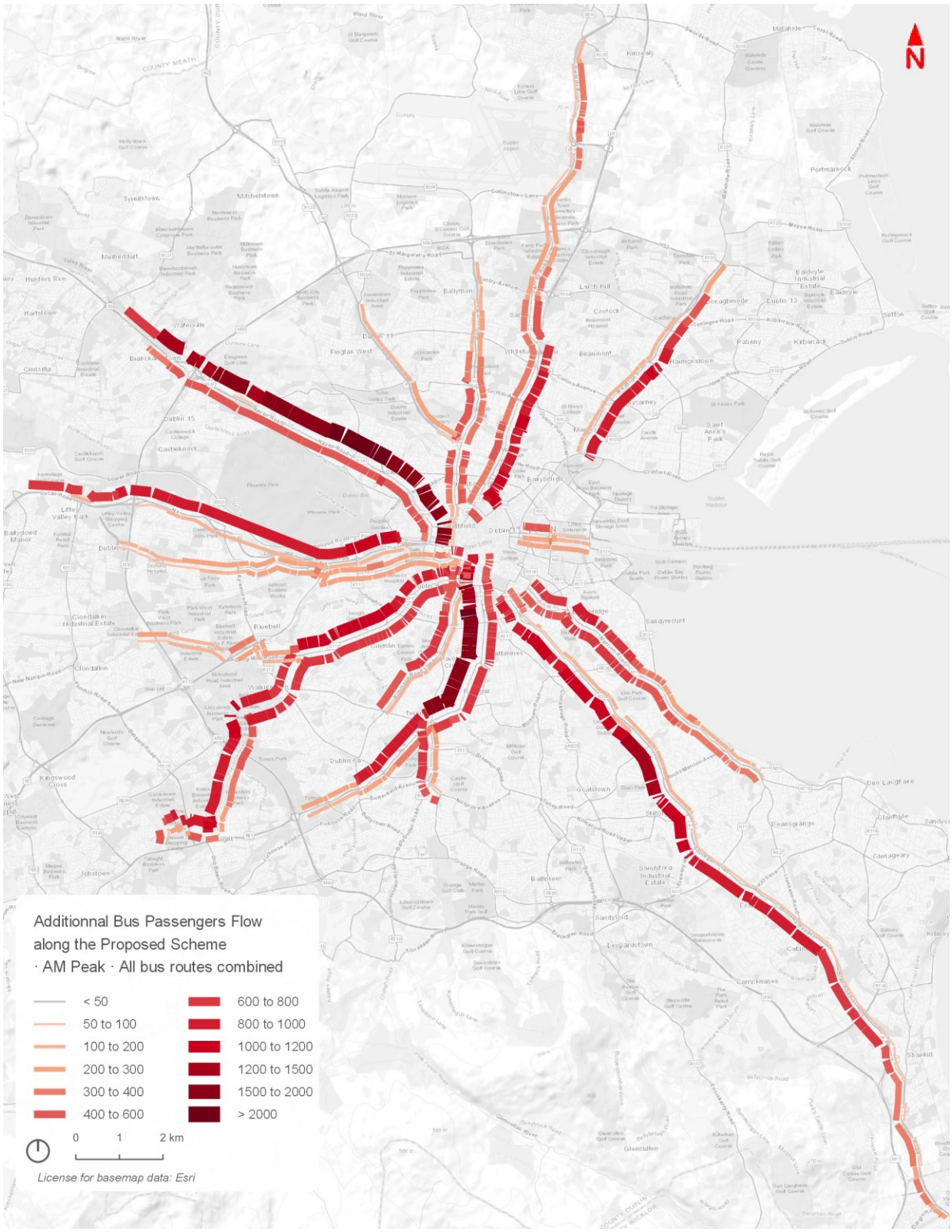

Diagram 7.11: AM Peak Hour Total Bus Passenger Flows Along the Proposed Schemes (All Bus Routes Combined)

As indicated in Diagram 7.11, there is a high growth in bus patronage along all the Proposed Schemes in the 2043 AM Peak Hour. Some of the bigger increases occur in the inbound direction on the Proposed Scheme and the Rathfarnham to City Centre where the loadings reach more than 2,000 additional passengers per hour

compared to the Do Minimum scenario. The Blanchardstown to City Centre Scheme shows an increase of approximately 2,100 passengers in the inbound direction

Table 7.11 presents the total passengers boarding bus routes that use any part of the Proposed Scheme (including those stops not directly on the Proposed Scheme) in the 2043 AM Peak Hour for the Blanchardstown to City Centre Core Bus Corridor Scheme as well as for all Proposed Schemes.

Table 7.11: 2043 AM Peak Hour Bus Boardings on Routes using the Proposed Schemes (inc. boarding at stops outside Proposed Schemes)

Scheme	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Blanchardstown to City Centre Scheme	12,390	17,470	5,080	41.0%
All Schemes	86,380	106,040	19,660	22.8%

As shown in Table 7.11, there will be a 41% increase in people boarding bus routes which use any part of the Blanchardstown to City Centre Core Bus Corridor Scheme during the AM Peak Hour. This represents an addition of 5,080 passengers in the AM Peak Hour.

There will be a 23% increase in people boarding bus routes which use any part of the Proposed Schemes, representing an additional 19,660 passengers due to the bus priority improvements.

7.2.4.4.4 2043 PM Peak Hour Bus Passengers

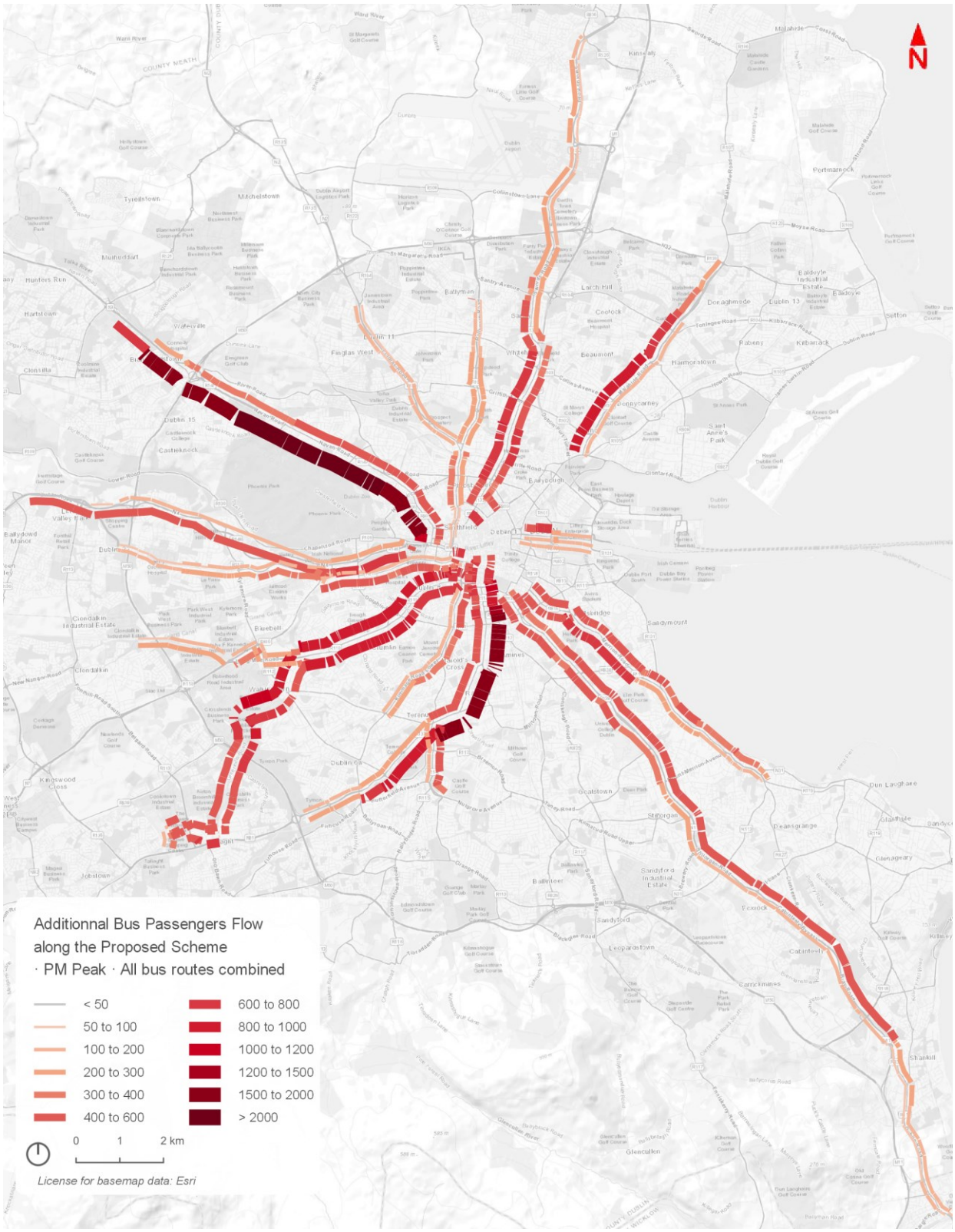

Diagram 7.12: PM Peak Hour Total Bus Passenger Flows Along the Proposed Schemes (All Bus Routes Combined)

As indicated in Diagram 7.12, there is a high growth in bus patronage along all the Proposed Schemes in the PM Peak Hour. Some of the bigger increases occur in the outbound direction on the Proposed Scheme and the Rathfarnham to City Centre where the loadings reach more than 2,000 additional passengers per hour compared

to the Do Minimum scenario. The Blanchardstown to City Centre Scheme shows an increase of approximately 2,300 passengers in the outbound direction.

Table 7.12 presents the total boardings on bus routes that use any part of the Proposed Scheme (including those stops not directly on the Proposed Scheme) in the 2043 PM Peak Hour for the Blanchardstown to City Centre Core Bus Corridor Scheme as well as all Proposed Schemes.

Table 7.12: 2043 PM Peak Hour Bus Boardings on Routes using the Proposed Schemes (inc. boarding at stops outside Proposed Schemes)

Scheme	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Blanchardstown to City Centre Scheme	9,980	13,790	3,810	38.2%
All Schemes	72,910	89,280	16,370	22.5%

As shown in Table 7.12, there will be a 38.2% increase in people boarding bus routes which use any part of the Blanchardstown to City Centre Scheme during the PM Peak Hour. This represents an addition of 3,810 passengers in the AM Peak Hour.

There will be a 23% increase in people boarding bus routes which use any part of the Proposed Schemes, representing an additional 16,370 passengers due to the bus priority improvements.

7.2.5 Integration with Other Public Transport Modes

The aim of the CBC Infrastructure Works is to provide improved walking, cycling and bus infrastructure, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor. In tandem with this aim a key objective of the Works applicable to the Proposed Scheme is to:

- 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.

The modelling suite has been used to assess the change in connectivity and integration with other public transport services and the following section presents this assessment based on the following metrics:

- Total Boardings by Public Transport (PT) Mode (including non-bus modes);
- Level of interchange with other public transport services; and
- Average Public Transport Networkwide Travel Speeds.

7.2.5.1 Passenger Boardings by Public Transport Mode

The following section presents the number of passenger boardings by each of the PT sub-modes (Rail, Luas, Bus and Metro) within the Study Area. The results are presented in Table 7.13 for the Do Minimum and Do Something scenarios for the 2028 and 2043 assessment years in the AM and PM Peak Hour periods.

Table 7.13: 2028 AM Peak Hour PT Boardings

Public Transport Mode	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Rail	26,060	25,820	-240	-1%
Luas	25,930	25,070	-860	-3%
Bus	81,790	95,710	13,920	17%
Total	**133,780**	**146,600**	**12,820**	**10%**

As presented in Table 7.13 with the Proposed Schemes in place, there will be an estimated 10% more passenger boardings across all PT services and 17% more boarding on bus services in the AM Peak Hour. The improved bus infrastructure results in slight reductions in boardings on Rail and Luas services, which will help provide additional resilience for these modes to accommodate future travel demand growth.

Table 7.14: 2028 PM Peak Hour PT Boardings

Public Transport Mode	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Rail	30,150	30,990	840	3%
Luas	21,520	20,740	-780	-4%
Bus	72,370	85,730	13,360	18%
Total	**124,040**	**137,460**	**13,420**	**11%**

As presented in Table 7.14 with the Proposed Schemes in place, there will be an estimated 11% increase in total passengers boarding PT services and 18% more boardings on buses services in the PM Peak Hour in 2028. The improved bus infrastructure results in a slight reduction in boardings on Luas services, which will help provide additional resilience for this mode to accommodate future travel demand growth in the PM peak period.

Table 7.15: 2043 AM Peak Hour PT Boardings

Public Transport Mode	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Rail	47,040	49,210	2,170	5%
Luas	37,560	34,890	-2,670	-7%
Bus	79,830	97,830	18,000	23%
Metro	18,520	17,960	-560	-3%
Total	**182,950**	**199,890**	**16,940**	**9%**

As presented in Table 7.15, with the Proposed Schemes in place, there will be a predicted 9% increase in total passengers boarding PT services and a 23% increase in boardings on bus services in the AM Peak Hour in 2043. The improved bus infrastructure results in slight reductions in boardings on Luas and MetroLink services, which will help provide additional resilience for these modes to accommodate future travel demand growth.

Table 7.16: 2043 PM Peak Hour PT Boardings

Public Transport Mode	Do Minimum	Do Something	Difference in Boardings	Difference (%)
Rail	55,240	56,730	1,490	3%
Luas	31,620	30,640	-980	-3%
Urban Bus	73,160	88,970	15,810	22%
Metro	14,290	13,760	-530	-4%
Total	**174,310**	**190,100**	**15,790**	**9%**

As presented in Table 7.16, with the Proposed Schemes in place, there will be an estimated 9% increase in total passengers boarding PT services and a 22% increase in boardings on bus services in the PM Peak Hour 2043. The improved bus infrastructure results in slight reductions in boardings on Luas and MetroLink services, which will help provide additional resilience for these modes to accommodate future travel demand growth.

7.2.5.1.1 Public Transport Interchange

To determine the impact the Proposed Schemes will have on the integration and complementarity between the different PT modes, the number of transfers between each PT modes (Bus, Rail, Luas and Metro) has been extracted from the modelling suite. The analysis compares the Do Minimum and Do Something in the AM Peak Hour period for each forecast year (2028, 2043).

Table 7.17: 2028 AM Peak Hour Transfers between PT Modes

	Do Minimum					Do Something			
To:	**Bus**	**Rail**	**Luas**	**Total**		**Bus**	**Rail**	**Luas**	**Total**
Bus	3,840	3,330	6,900	**14,070**		4,500	3,350	7,020	**14,870**
Rail	3,710	60	1,800	**5,570**		4,080	60	1,560	**5,700**
Luas	5,090	450	400	**5,940**		5,280	340	310	**5,930**
Total	**12,640**	**3,840**	**9,100**	**25,580**		**13,860**	**3,750**	**8,890**	**26,500**

As shown in Table 7.17, the total number of transfers between PT modes will increase by 4% from 25,580 in the Do Minimum scenario to 26,500 in the Do Something scenario, Transfers from Rail and Luas to buses will increase by 6% from 8,800 to 9,360 with the Schemes in place. This highlights the increased level of accessibility and transfer opportunities facilitated by the Proposed Schemes.

The Blanchardstown Scheme has significant interaction with Navan Road Parkway station in 2028. At this station, it is estimated that there will be approximately 500 transfers between Rail and buses, representing an 34% increase, with the Scheme in place, compared to the Do Minimum scenario.

The contents of Table 7.18 present the predicted AM Peak Hour transfers between each PT Mode (including Metrolink) in 2043.

Table 7.18: 2043 AM Peak Hour Transfers between PT Modes

	Do Minimum					Do Something				
To:	**Bus**	**Rail**	**Luas**	**Metro**	**Total**	**Bus**	**Rail**	**Luas**	**Metro**	**Total**
Bus	2,690	4,680	5,600	4,420	**17,390**	3,670	5,480	6,130	4,520	**19,800**
Rail	3,390	3,970	2,430	1,670	**11,460**	4,720	4,010	2,220	1,590	**12,540**
Luas	4,530	1,230	430	1,650	**7,840**	4,780	980	370	1,360	**7,490**
Metro	2,940	960	1,320	0	**5,220**	3,270	830	1,090	0	**5,190**
Total	**13,550**	**10,840**	**9,780**	**7,740**	**41,910**	**16,440**	**11,300**	**9,810**	**7,470**	**45,020**

As shown above, with the roll out of the GDA Strategy the level of interchange increases substantially in the period from 2028 to 2043 without the Proposed Schemes. The total number of transfers between PT modes is expected to increase by 7% from 41,910 in the Do Minimum scenario to 45,020 in the Do Something scenario (with the Proposed Schemes in place) with transfers from Rail, Luas and Metrolink to buses predicted to increase by 18% from 10,860 to 12,770. This highlights the increased level of accessibility and transfer opportunities facilitated by the Proposed Schemes.

At Navan Road Parkway station, it is estimated that there will be approximately 1,290 transfers between Rail and buses, representing a 34% increase, with the Scheme in place in 2043, compared to the Do Minimum scenario.

7.2.5.2 Average Public Transport Network Wide Travel Speeds

In order to assess the travel time and integration efficiencies provided by the Proposed Schemes, an average per passenger PT network-wide travel speed metric has been extracted from the modelling suite[7]. The metric considers the average speed across all public transport modes for the entire Study Area which covers all Proposed Schemes.

[7] This metric combines Public Transport Passenger Travel Time and Travel Distance and removes the variation in the number of trips between each scenario providing an indication of the overall efficiency of the PT network for each scenario.

Table 7.19: 2028 AM Peak Hour Average Journey Speed per PT Passenger (km/h)

Scenario	Do Minimum	Do Something	Speed Difference (%)
Blanchardstown to City Centre Scheme	21.13	21.34	+1%
All Schemes Scenario	21.13	23.08	+9.2%

As presented in Table 7.19, the average networkwide speed per PT passenger is expected to grow by 1%, with the Blanchardstown Scheme only in operation in the AM Peak Hour in 2028. With all Proposed Schemes operational, the average speed per PT passenger is expected to grow by 9.2%, representing a substantial increase in the average travel speeds for all PT users in 2028.

Table 7.20: 2043 AM Peak Hour Average Journey Speed per PT Passenger (km/h)

Scenario	Do Minimum	Do Something	Speed Difference (%)
Blanchardstown to City Centre Scheme	21.18	21.39	+1%
All Schemes Scenario	21.18	23.14	+9.3%

As presented in Table 7.20, the average networkwide speed per PT passenger is expected to grow by 1%, with the Blanchardstown Scheme only in operation in the AM Peak Hour in 2043. With all Proposed Schemes operational, the average speed per PT passenger is expected to grow by 9.3%, representing a substantial increase in the average travel speeds for all PT users in 2043.

7.2.6 People Movement – Cumulative Impact Summary

The cumulative impact for the movement of People Movement by sustainable modes with the Proposed Schemes in place has been appraised as a qualitative assessment, taking into account the changes in mode share, demand changes by mode along the Proposed Schemes as well as bus usage and integration with other public transport modes, as presented above. The Proposed Schemes have been adjudged to deliver a **High Positive** overall impact on People Movement by sustainable modes. The Proposed Schemes can be shown to deliver significant improvements in People Movement by sustainable modes along the direct Proposed Scheme alignments, particularly by bus and cycling, with reductions in car mode share due to the enhanced sustainable mode provision. The Proposed Schemes provide for enhanced integration and efficiencies for all public transport modes by facilitating substantial increases in public transport average network wide travel speeds.

8. Summary and Conclusions

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

- Enhance the capacity and potential of the public transport system by improving bus speeds, reliability and punctuality through the provision of bus lanes and other measures to provide priority to bus movement over general traffic movements;
- Enhance the potential for cycling by providing safe infrastructure for cycling, segregated from general traffic wherever practicable;
- Support the delivery of an efficient, low carbon and climate resilient public transport service, which supports the achievement of Ireland's emission reduction targets;
- Enable compact growth, regeneration opportunities and more effective use of land in Dublin, for present and future generations, through the provision of safe and efficient sustainable transport networks;
- Improve accessibility to jobs, education and other social and economic opportunities through the provision of improved sustainable connectivity and integration with other public transport services; and

- Ensure that the public realm is carefully considered in the design and development of the transport infrastructure and seek to enhance key urban focal points where appropriate and feasible.

The Proposed Scheme, from Blanchardstown to the city centre, comprises the development of improved bus priority along the entire route. This TIA provides a robust assessment of the scheme through qualitative assessment and quantitative analysis using a suite of multi-modal transport modelling tools.

The impacts during the construction phase have been outlined. During the construction phase, the Proposed Scheme will have temporary **Low Negative** impacts to pedestrian bus access and parking and loading.

The Proposed Scheme will have temporary **Medium Negative** impacts on cycle access. 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 on general traffic is anticipated to be a **Medium Negative** and temporary impact due to the short-term nature of any restrictions. It is anticipated that traffic flows along the scheme will to be maintained in both directions. There may be a requirement for some localised temporary lane closures for short durations of the daytime and night-time. 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 impact of construction traffic is anticipated to result in a **Low Negative** and temporary impact due to the low numbers of vehicles anticipated which are and below the thresholds set out in the Transport Assessments Guidelines.

Table 8.1:Summary of Predicted Construction Phase Impacts

Assessment Topic	Effect	Predicted Impact
Pedestrian Access	Restrictions to pedestrians along Proposed Scheme.	Low Negative
Cycling Access	Restrictions to cyclists along Proposed Scheme	Medium Negative
Bus Access	Restrictions to public transport along Proposed Scheme.	Low Negative
Parking and Loading	Restrictions to parking / loading along Proposed Scheme.	Low Negative
General Traffic	Restrictions to general traffic along Proposed Scheme	Medium Negative
	Additional construction traffic flows upon surrounding road network	Low Negative

During the Operational Phase, the Proposed Scheme will deliver positive impacts in terms of People Movement, pedestrian, cycling and bus infrastructure. These improvements will help to provide an attractive alternative to the private car and promote a modal shift to walking, cycling and public transport, allowing for greater capacity along the corridor to facilitate the movement of people. Some negative impacts for parking / loading availability are anticipated. The assessment demonstrates that the Proposed Scheme supports travel by sustainable modes and that the surrounding road network has the capacity to accommodate the associated traffic and transport impacts.

This TIA demonstrates that the Proposed Scheme results in the following impacts:

- **Pedestrian Infrastructure:** The Proposed Scheme consists of measures to enhance the existing pedestrian infrastructure along the direct study area. A LoS junction assessment was 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 impact of the improvements to the quality of the pedestrian infrastructure will be **Medium Positive** across all sections of 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, i.e. following the development of the Proposed Scheme, 84% of the assessed route sections had A or B LoS ratings, and 15% C ratings. The impacts of the improvements to the quality of the cycling infrastructure will be **Medium Positive** in Sections 1, 3 and 4, **Low Positive** in Section 5, and **Negligible** in Section 2.

- **Bus Infrastructure:** The implementation of the Proposed Scheme will result in improvements in the quality of bus infrastructure provision along the direct study area. 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 impact of the improvements to the quality of the bus infrastructure will be **High Positive** in Sections 1,2, 3 and 4, and **Medium Positive** in Section 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 **Negligible** in Section 4 and **Medium Negative** 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 of 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 of 21.0% and 23.3% in the number of passengers boarding buses during the 2028 AM and PM Peak Hours respectively. During the 2043 scenario there will be an increase of 25.9% and 25.6% in the number of passengers boarding buses during the AM and PM Peak Hours respectively. Overall, it is anticipated that the increases to the total number of people travelling along the Proposed Scheme will be **High Positive.**

- **Bus Network Performance Indicators:** 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 have a **High Positive impact.**

- **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 impact to the V / C ratio for each junction based on its sensitivity and magnitude of impact.

The results of the assessment demonstrate that the surrounding road network largely has the capacity to accommodate the redistributed general traffic as a result of the Proposed Scheme. The majority of assessed junctions that required further traffic analysis have V / C ratios that are broadly similar before and after the Proposed Scheme implementation.

Overall, it has been determined that the impact of the reduction in general traffic flows along the Proposed Scheme will be a **Medium Positive** impact whilst the impact of the redistributed general traffic along the surrounding road network will have a **Medium Negative impact**.

- **Network Wide Performance Indicators:** Given the impacts to the traffic conditions outlined above, there will be a knock-on effect to the operational efficiency of the road network beyond the direct and indirect study areas. A quantitative impact assessment has been undertaken using outputs from the NTA's ERM and LAM to determine the conditions to queuing, travel times, travel distances and network speeds during the Do Minimum and Do Something scenarios. The results of the assessment demonstrate that the impacts to the network performance indicators range between range -2 to +2% and will therefore have a **Negligible impact**.

- **Cumulative Assessment**: 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) as facilitated by the GDA Strategy implementation.

  The analysis indicates that the 12 BusConnects Proposed Schemes in place, there will be a high positive impact on sustainable mode share. The schemes will prevent any increase in private car traffic within the study area and will instead result in a reduction in car trips below 2020 levels.

  In the 2028 Opening Year scenario, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 12% increase in public transport trips, 2% decrease in general traffic trips (i.e. motorists) and a 14% increase in cycling trips in the AM Peak Hour and a 12% increase in public transport, 3% decrease in general traffic and a 12% increase in cycling trips each day (7am-7pm). In the 2043 Design Year scenario, it is estimated that for people travelling within the 500m catchment area (including City Centre) there will be a 11% increase in public transport trips, 4% decrease in general traffic trips (i.e. motorists) and a 15% increase in cycling trips in the morning peak hour and a 9% increase in public transport, 5% decrease in general traffic and a 13% increase in cycling trips each day (7am-7pm).

  General traffic levels reduce more in 2043 than when compared to 2028 due to the increased level of additional non-bus public transport infrastructure and services (MetroLink, Luas extensions and DART+ from the GDA Strategy) in tandem with the road capacity reduction measures as part of the Proposed Scheme leading to increased usage on all public transport modes.

  The modelling outputs for the 2028 Cumulative Opening Year scenario demonstrate that there is a high growth in bus patronage along all the Proposed Schemes in the AM Peak Hour. The bigger increases occur in the inbound direction on the Blanchardstown to City Centre, the Rathfarnham to City Centre and the Bray to City Centre schemes where the loadings reach more than 2,000 additional passengers per Hour compared to the Do Minimum scenario.

  In the 2028 Opening Year AM Peak Hour scenario with the Proposed Schemes in place, there will be an estimated 10% more passenger boardings across all public transport services and 17% more boardings on bus services. In the 2028 Opening Year PM Peak Hour scenario with the Proposed Schemes in place, there will be an estimated 11% increase in total passengers boarding Public transport services and 18% more passengers boarding buses services.

  In the 2043 Design Year AM and PM Peak Hour scenarios, increase in total passengers boarding all public transport services will be 9% respectively, and the increase in passengers boarding bus services will increase by 23% and 22% respectively.

  Overall, the Proposed Schemes are expected to deliver a **High Positive cumulative impact** on People Movement by sustainable modes.

Table 8.2 presents a summary of the predicted impacts of the Proposed Scheme during the operational phase.

Table 8.2: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.	Medium Positive
Cycling Infrastructure	Improvements to the quality of the cycling infrastructure along the Proposed Scheme.	Medium to High Positive
Bus Infrastructure	Improvements to the quality of the bus infrastructure along the Proposed Scheme.	Medium to High Positive
Parking and Loading	A total loss of 94 parking / loading spaces along the Proposed Scheme.	Negligible to Medium Negative
People Movement	Increases to the total number of people travelling through the Proposed Scheme.	High Positive
Operational Impacts for Bus Passengers and Operators	Improvements to the network performance indicators for bus users along the Proposed Scheme.	High Positive
General Traffic Network Performance Indicators	Reduction in general traffic flows along the Proposed Scheme.	Medium to High Positive
	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.	Low Negative
	Deterioration to the network-wide queuing capacity, travel times, travel distances and average network speeds beyond the direct and indirect study areas	Negligible
Cumulative Impact	Higher mode share for sustainable modes of travel (walking, cycling and buses), improvements in bus travel speeds.	High Positive

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

In the absence of the Proposed Scheme bus services will be operating in a more congested environment, leading to higher journey times and lower reliability for bus journeys. This limits their attractiveness to users which will lead to reduced levels of public transport use, making the bus system less resilient to higher levels of growth and leading to increased levels of car use and congestion. The absence of walking and cycling measures that the Proposed Scheme provides will also significantly limit the potential to grow those modes into the future. On the whole, the Proposed Scheme will make a significant contribution to the overall aims of BusConnects, the GDA Transport Strategy and allow the city to grow sustainably into the future, which would not be possible in the absence of the Proposed Scheme.

9. 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

DCCAE (2018). Sustainable Development Goals National Implementation Plan

DCCAE (2019). Climate Action Plan 2019

DCCAE (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.

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