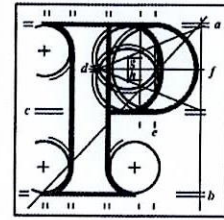


**Our Case Number:** ABP-316272-23

**Planning Authority Reference Number:**

**Your Reference:** Terenure & Templeogue Sustainable  
Community Assoc.



**An  
Bord  
Pleanála**

Transport Analysis & Advocacy Ltd  
631 Lisburn Road  
Belfast

**Date:** 18 August 2023

**Re:** Bus Connects Templeogue/Rathfarnham to City Centre Core Bus Corridor Scheme  
Templeogue/Rathfarnham to City Centre

Dear Sir / Madam,

An Bord Pleanála has received your recent submission in relation to the above-mentioned proposed road development and will take it into consideration in its determination of the matter. Please accept this letter as a receipt for the fee of €50 that you have paid.

Please note that the proposed road development shall not be carried out unless the Board has approved it or approved it with modifications.

The Board has also received an application for confirmation of a compulsory purchase order which relates to this proposed road development. The Board has absolute discretion to hold an oral hearing in respect of any application before it, in accordance with section 218 of the Planning and Development Act 2000, as amended. Accordingly, the Board will inform you in due course on this matter. The Board shall also make a decision on both applications at the same time.

If you have any queries in relation to this matter please contact the undersigned officer of the Board at [laps@pleanala.ie](mailto:laps@pleanala.ie)

Please quote the above-mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

Eimear Reilly  
Executive Officer  
Direct Line: 01-8737184

HA02A

Tell	Tel	(01) 858 8100
Glaos Áitiúil	LoCall	1890 275 175
Facs	Fax	(01) 872 2684
Láithreán Gréasáin	Website	<a href="http://www.pleanala.ie">www.pleanala.ie</a>
Ríomhphost	Email	<a href="mailto:bord@pleanala.ie">bord@pleanala.ie</a>

64 Sráid Maoilbhríde	64 Marlborough Street
Baile Átha Cliath 1	Dublin 1
D01 V902	D01 V902

**Submission to An Bord Pleanála**

**HA29N.316272**

**Templeogue/Rathfarnham to City Centre Core Bus Corridor Scheme**

**Expert Report on Issues arising from the proposed BusConnects programme for  
the Templeogue/Rathfarnham – Dublin City Centre Corridor**

**Report**

prepared by

**Professor Austin Smyth**

Transport Analysis & Advocacy Ltd

on behalf of

**Terenure & Templeogue Sustainable Community Association CLG**

15<sup>th</sup> August 2023



**Expert Report on Issues arising from the proposed BusConnects programme for the Templeogue/Rathfarnham – Dublin City Centre Corridor: Proposal and Work Programme**

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**Expert Report on Issues arising from the proposed BusConnects programme for the Templeogue/Rathfarnham – Dublin City Centre Corridor: Proposal and Work Programme**

**Preface**

**Templeogue Rathfarnham Scheme reference 316272**

Dear Bord

**Terenure & Templeogue Sustainable Community Association CLG** respectfully submits that having regard to the:

- Significant public interest nature of this Proposed Scheme
- The need to more fully investigate and test the implications of the scheme as set out in this submission.
- The issues identified and recommendations contained in this submission cannot be readily addressed by means of written submissions only.

We hereby request **An Bord Pleanála** hold an Oral Hearing into the matters raised in this submission with a view to their resolution.

**Transport Analysis & Advocacy Ltd** (Registered Office: 631 LISBURN ROAD, 631 LISBURN ROAD BT9 7GT) has been instructed by its client Terenure & Templeogue Sustainable Community Association CLG to make this observation on its behalf. The CLG is an Irish company incorporated in September 2022 with registration number 725695 and has its registered office at 88 Parkmore Drive, Terenure, D6W X657.

We have been duly authorised by its board to make this submission. *We have received certain factual information from the CLG related to the corridor and services on it and have been instructed that we can rely on that information without the need for full verification.*



**Report Author: Professor Austin Smyth**

Professor Austin Smyth has forty years experience in transport consultancy and research worldwide. He has acted as lead economist/project manager in securing in the region of €2,000 million investment in transport infrastructure in the UK, the Republic of Ireland and internationally.

Austin has experience of working for a variety of public and private sector clients in various EU States, Russia and Eastern Europe as well as North America, the Middle East and Thailand. He has advised Governments, Devolved Administrations and Local Authorities, as well as public transport operators on urban rail systems and intercity rail systems in the UK, the Republic of Ireland, USA, The Middle East, Russia and Ireland. Professor Smyth has been at the forefront for developing both bus and rail based systems in the UK, Ireland and internationally. He has specialised in conventional bus systems, BRT and LRT systems.

Professor Smyth's special fields of competence and technical experience includes: The economics and planning of public transport systems with particular reference to bus and rail projects and systems; economic appraisal techniques; multi criteria analysis, cost benefit analysis and other appraisal procedures; analytical issues relating to impact assessments, health and safety, and other policy initiatives; the contribution of innovative funding including PPP/PFI and bonds to infrastructure development; adviser on transport modelling to a variety of UK government agencies and public/private sector clients in the UK, mainland Europe and the United States ; He is an expert on discrete choice modelling particularly employing stated preference techniques; econometric techniques, land use/spatial allocation modelling procedures; psychological /attitudinal studies; transport and urban sustainability; transport and urban planning policy development with particular regard to promoting equity in access to opportunities and social cohesion; peripherality and its impact on economic competitiveness.

He has been an Examining Inspector (Planning Inspectorate England and Wales) (formerly Registered Commissioner to the UK's Infrastructure Planning Commission (IPC) 2010 to 2018. He has represented a number of bodies as Expert Witness at hearings held by the Civil Aviation Authority (CAA) and by the PAC in relation to Public Inquiries into Major Transport Strategies. He is experienced in scrutinising, probing and challenging and in providing analysis of reports submitted to Boards that inform decision making.

**1. Introduction**

1.1. The BusConnects Dublin – Core Bus Corridor Infrastructure Works as it relates to the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme is intended to enable and deliver efficient, safe and integrated sustainable transport movement along the corridor. Arising from concerns felt by Terenure & Templeogue Sustainable Community Association CLG Transport Analysis & Advocacy has been requested to prepare a report on behalf of the CLG setting out an independent assessment of those and other matters that might arise during the course of the review and table a series of recommendations to An Bord Pleanála in its consideration of:

**Templeogue/Rathfarnham to City Centre Core Bus Corridor Scheme ref. HA29N.316272**

**2. Proposal Context**

2.1. The National Transport Authority (NTA) have given notice of their applications under Section 51(2) of the Roads Act 1993 (as amended) to An Bord Pleanála for approval in relation to a proposed road



development including construction of the Templeogue / Rathfarnham to City Centre Scheme, one of twelve schemes that make up the BusConnects Dublin – Core Bus Corridor Infrastructure Works.

2.2. Formal statutory public consultation processes have been triggered in respect of this and other schemes contained within the BusConnects Dublin – Core Bus Corridor Infrastructure Works programme. In addition to the Templeogue / Rathfarnham Scheme the programme includes:

- Swords to City Centre Core Bus Corridor Scheme;
- Tallaght / Clondalkin to City Centre Core Bus Corridor Scheme;
- Lucan to City Centre Core Bus Corridor Scheme;
- Ballymun/Finglas to City Centre Core Bus Corridor Scheme;
- Liffey Valley to City Centre Core Bus Corridor Scheme Core Bus Corridor Scheme;
- Blanchardstown to City Centre Core Bus Corridor Scheme;
- Belfield/Blackrock to City Centre Core Bus Corridor Scheme;
- Clongriffin to City Centre Core Bus Corridor Scheme;
- Kimmage to City Centre Core Bus Corridor Scheme;
- Ringsend to City Centre Core Bus Corridor Scheme; and
- Bray to City Centre Core Bus Corridor Scheme.

Included within the process of applying to An Bord Pleanála for approval the NTA has prepared Environmental Impact Assessment Reports in addition to Compulsory Purchase Orders and Natura Impact Statements. The public has been provided with an opportunity to have their views heard and considered by An Bord Pleanála for the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme as part of the statutory consultation process to inform the board's decision on the scheme. The decision by CLG to commission preparation of a comprehensive report on issues arising from the National Transport Authority's plans and assessment of the Templeogue / Rathfarnham to City Centre BusConnects Bus Corridor Infrastructure Works Scheme takes advantage of the invitation issued to interested parties to prepare a submission under the consultation process for consideration by An Bord Pleanála in arriving at its conclusions on the merits of the scheme.

### **3. Methodology, Sources and Reporting**

3.1. To realise the objectives of that phase of the provisions of the agreement between TAA and Terenure and Templeogue Sustainable Community Association/Terenure West Residents Association, it was deemed necessary to initiate a preliminary examination of a limited set of 'relevant' documents collated by the CLG's and Professor Smyth and a site visit to Templeogue/Rathfarnham – Dublin City Centre Corridor to provide a realistic estimate of that phase of the work. That preliminary examination of 'relevant' documents and the experience of Professor Smyth has informed the design of the main work programme.

3.2. The remaining programme of work has been based on an in-depth reviews of the need for the proposed scheme including consideration of;

- the approach to appraising the case for BusConnects.



- alternatives encompassing mode alternatives, demand management options, technological programmes and route alternatives. This will also embrace cycling options, their preferred route and design alternatives.
- The economic case for BusConnects Bus Corridor Infrastructure Works Scheme and its applicability to the Templeogue/Rathfarnham City Centre corridor versus other corridors. This will include wider benefits/disbenefits consideration including the economic impact for the corridor, the implications of the scheme design for non-bus travellers or non cyclists, together with the consequences for residents in areas within the corridor, reflected in the wider impacts of the scheme for the local economy, archaeological and cultural heritage, architectural heritage and landscape (townscape) and visual impacts as well as health, air quality, climate impacts, noise and risk of accidents.
- Consideration of scheme impact assessment and transport and traffic modelling tools including the scheme transport modelling system employed encompassing:
  - The Regional Modelling System, Local Area Models, Micro-Simulation Model, Junction Design Models
  - Data Inputs including data collection and collation, establishment of baseline conditions, bus journey times, traffic count data, population related indicators.
  - Model Calibration and Validation
- In particular it will review elements of the travel demand modelling methodology, its assumptions and outputs as these relate to trips by bus, private car or cycling as well as the timeliness of the data employed in generating forecasts. It will consider the appropriateness of the travel demand models applied to generating the corridor travel demand forecasts for 'Do Nothing', 'Do Minimum' and 'Do Something' Scenarios reflecting implementation of the corridor infrastructure.

### 3.3. The report provides conclusions on:

- The overall efficacy of the scheme.
- The impacts for selected stakeholders including residents, bus users and car users.

The report will also table observations on alternatives to the current scheme should the investigation highlight uncertainties linked to the current proposal and /or reveal opportunities to investigate options that might yield overall improved net levels of economic outcomes.

### 3.4. The programme of work has been informed by access to a range of published sources including:

- Department of Public Expenditure and Reform, Major Projects Advisory Group Review of the NTA's BusConnects Preliminary Business Case.
- EU Joint Assistance to Support Programmes for European Regions Guidance Note 3 on BusConnects: Project Review: Phase 3 (Preliminary Business Case).
- National Transport Authority: Greater Dublin Area Transport Strategy 2016 – 2035 as it relates to BusConnects and specifically in relation to the Templeogue/Rathfarnham – Dublin City Centre Corridor

- National Transport Authority: BusConnects Dublin Cover Note to Preliminary Business Case
- National Transport Authority: Greater Dublin Area Transport Strategy 2022-2042 as it relates to BusConnects and specifically in relation to the Templeogue/Rathfarnham – Dublin City Centre Corridor
- National Transport Authority: BusConnects Dublin Preliminary Business Case

It also draws on other evidence relating to the projected travel by bus, cycle trips and car trips and the literature relating to transport and traffic forecasting models as appropriate.

- 3.5. To address the issues of concern raised by and fulfil the commission from Terenure & Templeogue Sustainable Community Association CLG it is essential to understand in detail the provisions of the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme submitted by the National Transport Authority to An Bord Pleanála prior to the board's assessment of the scheme.



#### 4. Proposed Scheme Description

4.1. Chapter 4 of the Environmental Impact Assessment Report (EIAR) provides a comprehensive description of the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme. Here we provide a comprehensive description of the Proposed Scheme, drawing largely on the content of Chapter 4 as a precursor to reviewing the case for the scheme as tabled by the NTA. To facilitate cross referencing to the EIAR the section numbering employed in the EIAR is retained and the summarised content highlighted.

4.2. Chapter 4 of the Environmental Impact Assessment Report (EIAR) provides a detailed description of the Proposed Scheme. The aim of the scheme is to provide an upgrade of the existing bus priority and cycle facilities. As a result of this scheme the level of bus priority provided along the alignment, including the provision of additional lengths of bus lane will see a substantial increase. In addition, bus stops will be enhanced throughout the Proposed Scheme in an effort to improve the overall journey experience for bus passengers. 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. Upgraded pedestrian facilities will include additional signalised crossings. Urban realm works will be undertaken at key locations with higher quality materials, planting and street furniture provided to enhance the pedestrian experience.

The scale of the scheme is reflected in the following summary of changes to infrastructure, land use and associated traffic management facilities:

<b>Total Length of Proposed Scheme</b>		10km (+3.5km offline cycle routes)
<b>Bus priority</b>	<b>Existing (km)</b>	<b>Proposed Scheme (km)</b>
<b>Bus Lanes</b>		
Inbound	4.4	6.1
Outbound	1.5	5.4
<b>Total Length of Proposed Scheme</b>		10km (+3.5km offline cycle routes)
<b>Bus priority</b>	<b>Existing (km)</b>	<b>Proposed Scheme (km)</b>
<b>Bus Priority Through Traffic Management</b>		
Inbound	0.1	2.9
Outbound	0.3	3.0
<b>Total Bus Priority (both directions)</b>	<b>6.3</b>	<b>17.4 (+175%)</b>
<b>Bus Measures</b>		
<b>Proportion of Route with Bus Measures</b>	<b>32%</b>	<b>87%</b>
<b>Cycle Facilities Segregated</b>		
Inbound	1.3	9.6
Outbound	1.8	10.3
<b>Cycle Facilities – Non segregated</b>		
Inbound	3.3	1.7
Outbound	4.6	1.7
<b>Cyclist Facilities – Overall</b>		
<b>Total Cyclist Facilities (both directions)</b>	<b>11</b>	<b>23.3 (+112%)</b>
<b>Proportion segregated</b>	<b>28%</b>	<b>85.4%</b>
<b>Pedestrian Facilities</b>		
<b>Number of Pedestrian Signal Crossings</b>	<b>76</b>	<b>106</b>



#### 4.5 Description of the Proposed Scheme

The Proposed Scheme will consist of two main alignments, primarily from Templeogue to Terenure (3.7km), and secondly from Rathfarnham to the City Centre (6.3km). The overall length of The Proposed Scheme is approximately 10km from end to end online. There are additional offline upgrades and quiet street treatment of approx. 2km and 1.5km respectively.

The Proposed Scheme is detailed in 4 geographical sections:

- Section 1: Tallaght Road to Rathfarnham Road;
- Section 2: Nutgrove Avenue to Terenure Road North – Grange Road, Rathfarnham Road;
- Section 3: Terenure Road North to Charleville Road – Terenure Road East, Rathgar Road; and
- Section 4: Charleville Road to Dame Street.

##### 4.5.1 Section 1: Tallaght Road to Rathfarnham Road

The Proposed Scheme will commence on the R137 Tallaght Road, east of the M50 junction 11 interchange. The existing bus and traffic lane configuration on the R137 will be retained. Between the M50 interchange and the Spawell Roundabout junction the existing two-way cycle track will relocate to the carriageway side of the footpath to better tie in with proposals at the Spawell Roundabout junction. The Spawell Roundabout will convert to a signalised junction with kerb protection for cyclists.

Between the Spawell Roundabout and Cypress Grove Road junction, it is proposed to retain the existing bus and traffic lane configuration on the R137. The existing cycle track on the northern side of the carriageway will be relocated to the carriageway side of the footpath, and a new cycle track provided on the southern side of the carriageway between Cheeverstown and the Spawell Roundabout Junction. Enhanced cycle facilities will be provided at this junction with the introduction of kerb protection. At the Cypress Grove Road junction, general through traffic may divert to Old Bridge Road for access to the City Centre via the R114. The existing free standing stone arch adjacent to the R137 Templeogue Road will be conserved in its existing location and opened up to the public realm.

Between the Cypress Grove Road junction and the Ashfield Place development it is proposed to provide bus lanes and traffic lanes in each direction. Land take will be required from a number of residential properties on the northern side of the carriageway to achieve this cross section. Dedicated cycle facilities are provided on the approach to the Cypress Grove Road junction. However, these will end 100m from the junction where cyclists will share the bus lane in an inbound direction and the general traffic lane in an outbound direction. It is proposed to introduce a 30kph speed limit between Cypress Grove Road and Templeogue Village in an effort to improve cyclist safety. Outside the Ashfield Place Development, there is insufficient space for a bus lane and a general traffic lane in each direction. Therefore, it is proposed to stop the outbound bus lane for a distance of approximately 170m and use Signal-controlled priority along this section.



The existing service/access road serving 252 to 256 Templeogue Road will be converted to provide a shared surface for vehicles and pedestrians. This will enable an outbound bus lane to be provided to the stop line at the Cypress Grove Road junction, minimising land take from properties to the north of Templeogue Road.

Between Ashfield Place and the Templeogue Tennis Club, it is proposed to utilise a limited amount of land take to provide a bus lane and a general traffic lane in each direction.

Within Templeogue Village, between Templeogue Tennis Club and the Templeville Road junction, it is proposed to manage bus priority through the use of signal controlled priority.

North of Templeogue Village, a cross section consisting of a general traffic lane, and bus lane and a cycle track in each direction is resumed. Between the village and the Springfield Avenue junction, the width of the proposed cycle tracks is reduced locally to minimise the impact on existing mature trees.

A reintroduction of the right turn onto Springfield Avenue at the junction with Templeville Road, could facilitate general inbound through traffic diverting to the R112 and further to the R114. Kerb protection measures will be introduced at this junction.

Between the Templeville Road junction and Fortfield Road it is proposed to provide one bus lane, one general traffic lane and cycle tracks in each direction. The proposed cycle tracks have been narrowed to 1.5m along this section to minimise impacts on mature trees on the eastern side of the road. The Fortfield Road junction will be upgraded to provide a direct, protected cycle crossing for inbound cyclists to a proposed two-way cycle facility on the eastern side of Templeogue Road north of the junction.

Between Fortfield Road and Terenure Road West, the Templeogue Road width is heavily constrained. Within this section it is proposed to maintain one outbound bus lane, one outbound general traffic lane and one inbound general traffic lane. A segregated two-way cycle track and footpath is proposed on the southern side of the carriageway within Bushy Park along the alignment of the existing shared path.

This cycle track will link to a quiet street treatment on Rathdown Drive. The existing dirt path through the green space adjacent to Rathdown Drive will be formalised as a footpath, through shallow dig construction methods to minimise impacts on the existing trees within this area.

It is proposed to provide an inbound Bus Gate at the junction of Olney Grove. This will restrict northbound general traffic on Templeogue Road from accessing Terenure Road West or Terenure Place during the hours of operation of the Bus Gate (06:00 – 20:00 - 7 days a week). A right turn ban is proposed from Fergus Road to Templeogue Road, and a left turn ban from Olney Grove to Templeogue Road.

Right turn bans are also proposed from Templeogue Road to Rathdown Park and to Rathdown Avenue and from Fortfield Road to Greenlea Road and to Lavarna Grove in order to prevent through traffic diverting inappropriately. A quiet street treatment to Rathdown Crescent is intended to tie into the proposed quiet street treatment on Rathdown Park.



## **Chapter 4**

### **Observations, Commentary and Issues**

This is the key section of the corridor the CLG commissioning the work is concerned about and especially the recommendation for a bus gate in the preferred Option S2-12. Of Options S2-1 – Option S2-12, Options S2-1, S2-8, S2-9, S2-10, S2-11 and S2-12 all provide for a bus gate on Templeogue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Templeogue Road junction to Rathdown Park/Templeogue junction.

This concern stems from;

- doubts about the transport and traffic effectiveness of this proposal;
- concern for the quality of access to a range of facilities between Terenure Cross and Rathmines and the city centre for selected mobility impaired residents of areas bounded by Cypress Grove Road/Wainsfort Road /Fortfield Road/Terenure Road West;
- availability of alternatives to this proposal including upgrading the existing bus priority light to take on the characteristics of a redesigned bus lane queue relocation site managed by priority lights favouring buses - 'hurry lights';
- the potential for redistribution of private vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and a range of detrimental environmental effects;
- the potential for redistribution of freight vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and a range of detrimental environmental effects; and
- the potential for development of informal Park & Ride parking accumulation by existing private vehicle car user traffic that currently uses Templeogue Road (northbound direction) in residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and accumulation of additional parked vehicles on sections adjoining or linking to the proposed scheme. *Terenure & Templeogue Sustainable Community Association CLG have advised us that it can confirm there are no plans in the immediate future or medium term to provide a purpose designed Park & Ride facility adjacent to*



*Spawell. The same situation applies to the use of cashless payment facilities (bank and credit cards) on board buses.*

Similar concerns apply to areas north of Rathgar Village to the west of Rathgar Road on the section of the Proposed Scheme linking Rathgar Village at the junction of Rathgar Avenue and Rathgar Road and Rathmines Road Lower.

This submission addresses these concerns through a review of the Proposed Scheme as it relates to the robustness of the evidence put forward by the NTA's consultants in the EIAR, the methodology employed and the data underpinning their conclusions and recommendations, together with consideration of the implications of the observations for the efficacy of the proposed scheme in formal investment appraisal terms. Moreover, the review will address the compatibility of the proposed scheme with public policy values and goals, and consideration of the consistency of the Proposed Scheme with Proposed Schemes elsewhere in the city under the same programme.

#### 4.5.2 Section 2: Nutgrove Avenue to Terenure Road North – Grange Road, Rathfarnham Road

##### 4.5.2.1 General overview of the Proposed Scheme

Section 2 of the Proposed Scheme commences at the junction of Grange Road and Nutgrove Avenue, tying into the Grange Road Cycle scheme. Kerb protection for cyclists will upgrade this junction. An amount of land take from the entrance to the Rathfarnham Wood development is therefore required. It is proposed reconfiguring the existing car park adjacent to this junction will facilitate the revised road arrangement. A new island bus stop layout will be installed in this location.

Between this junction and the Castleside Drive junction it is proposed to provide a single bus lane alongside general traffic lanes and cycle tracks in both directions. Land take from adjacent properties is proposed to accommodate the road layout and will include setting back the existing boundary wall to Rathfarnham Castle Park.

The junctions at Rathfarnham Road and Willbrook Road and Rathfarnham Road and Butterfield Avenue will be upgraded through the provision of kerb protection for cyclists. This will require the removal of general traffic lanes on the Butterfield Avenue arm of this junction.

On Rathfarnham Road between Castleside Drive and Dodder Park Road, it is proposed to provide an inbound bus lane, two general traffic lanes and a 1.5m wide outbound cycle track, with outbound bus priority provided through signal-controlled priority. Construction related constraints mean that the inbound cycle track will be curtailed over approximately 270m, with cyclists utilising the bus lane over this section. A section of inbound cycle track will be provided at either end of this section, on approach to junctions. The scheme proposes to introduce a 30



kph speed limit from Rathfarnham Road at this point to the City Centre due to the fact that inbound cyclists will be sharing the bus lane through this section as well as in other sections and due to the presence of multiple urban villages along the route. It is considered that this consistent speed limit will ensure legibility for road users along the route and avoid increases and decreases in speed limits.

Further land take from adjacent properties on the western side of the road, south of Brookvale Road is proposed to accommodate the new configuration on Rathfarnham Road between Castleside Drive and Dodder Park Road.

Bus priority through the Dodder Park Road and Rathfarnham Road junction is proposed to be maintained by providing signal-controlled priority on the southern and northern approaches to the junction. This junction is to be upgraded through the provision of kerb protection for cyclists, which will tie into the proposed Dodder Greenway on Dodder View Road and Dodder Road Lower.

The Scheme proposes to provide bus priority, through a combination of signal-controlled priority and partial bus lanes, with 1.5m wide cycle tracks provided between Dodder Park Road and Rathdown Park. The new configuration within this section will require land take from adjacent properties on the western side of the road.

No bus lanes are proposed Between Rathdown Park and Bushy Park Road. However, bus priority is proposed by providing signal-controlled priority in both directions and managing traffic queues in this area.

From Bushy Park Road to Terenure Road North it is proposed to provide 1.5m wide cycle tracks, bus lanes and traffic lanes in both directions. To accommodate these new bus lanes on this section of Rathfarnham Road, the Scheme proposes to take land from adjacent properties on the eastern side of Rathfarnham Road.

At the Terenure Road North junction it is intended to extend the existing bus lane and proposed cycle track as far as the junction stop line. The Scheme proposes to manage bus movements through this junction with signal-controlled priority. Furthermore, a number of existing parking spaces on the approach to Terenure Village will be removed to facilitate the proposed cross section.

#### **4.5.3 Section: 3 Terenure Road North to Charleville Road – Terenure Road East, Rathgar Road**

##### **4.5.3.1 General overview of the Proposed Scheme**

On Terenure Road East, between the Terenure Road North junction and St. Joseph's Church, the Scheme proposes to provide a single general traffic lane in each direction. This is due to the proximity of existing built form to the carriageway. Bus priority will be provided through this



section by signal-controlled priority. Within this section the Scheme proposes to widen footpaths and improve the urban realm within Terenure Village.

Between St. Joseph's Church and the Rathgar Avenue junction it is intended to provide a bus lane and general traffic lane in both directions. To accommodate the proposed cross section, the Scheme proposes to land- take from adjacent properties on both sides of Terenure Road East.

It is proposed to provide an alternative cycle facility consisting of cycle tracks in each direction along Terenure Road North and Harold's Cross Road, connecting to the Kimmage to City Centre Core Bus Corridor Scheme at Harold's Cross. An additional alternative cycle facility is proposed along Bushy Park Road, Wasdale Park, Wasdale Grove, Victoria Road, Zion Road and Orwell Road to provide a secondary east-west route for cyclists travelling between Rathfarnham Road and Rathgar Road.

At Rathgar Avenue, it is proposed to maintain bus priority through the junction with signal-controlled priority.

Along Rathgar Road it is proposed to provide bus lanes and 1.5m wide cycle tracks in each direction and a one-way inbound general traffic lane only. Local access for residents on Rathgar Road and adjoining streets will be maintained through the surrounding road network via Rathgar Avenue or Rathmines Road Upper including Frankfort Avenue, Leicester Avenue, Garville Avenue, Garville Road and Highfield Road.

The junction of Rathgar Road and Grosvenor Road is to be upgraded through the provision of kerb protection for cyclists.

The Scheme proposes to facilitate outbound general traffic movements by removing the current right turn ban from Rathmines Road Upper to Highfield Road as well as the right turn ban from Highfield Road onto Rathgar Road.

#### **Chapter 4**

##### ***Observations, Commentary and Issues***

This is a key section of the Proposed Scheme that gives rise to similar concerns to that represented by the CLG commissioning the work. The particular recommendation for a bus gate on Rathmines Road Lower poses questions about;

- the transport and traffic effectiveness of this proposal;
- the quality of access to a range of facilities between Terenure Cross and Rathmines and the city centre for selected mobility impaired residents of areas to the west and east of Rathgar Road;



- the assessment of available alternatives to this proposal including upgrading, and relocating/expanding to two way the existing in-bound bus priority light on Rathgar Road on the approach to Grosvenor Road/Charleville Road to take on the characteristics of a redesigned bus lane queue relocation site to facilitate routes serving Rathmines Road Lower managed by priority lights favouring buses - 'hurry lights' and an off-line already assessed cycle route option;
- the potential for redistribution of private vehicle traffic that currently uses Rathgar Road east and north of its junction with Rathgar Avenue in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects;
- the potential for redistribution of freight vehicle traffic that currently uses Rathgar Road east and north of its junction with Rathgar Avenue in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects; and
- the potential for development of informal Park & Ride parking accumulation by existing private vehicle car user traffic that currently uses Rathgar Road east and north of its junction with Rathgar Avenue in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects.

This submission addresses these concerns through a review of the Proposed Scheme as it relates to the robustness of the evidence put forward by the NTA's consultants in the EIAR, the methodology employed and the data underpinning their conclusions and recommendations, together with consideration of the implications of the observations for the efficacy of the proposed scheme in formal investment appraisal terms. Moreover, the review will address the compatibility of the proposed scheme with public policy values and goals, and consideration of the consistency of the Proposed Scheme with Proposed Schemes elsewhere in the city under the same programme.

#### 4.5.4 Section: 4 Charleville Road to Dame Street

On Rathgar Road and Rathmines Road Lower between Charleville Road and Castlewood Avenue it is proposed to provide an inbound bus lane, an inbound and outbound traffic lane and cycle tracks in each direction. Outbound bus priority will be provided through signal-controlled



priority. It is proposed to upgrade the junction of Rathmines Road Upper with Rathmines Road Lower/Rathgar Road through the provision of kerb protection for cyclists. A proposed upgraded public realm is to be provided at this junction via the reallocation of road space.

The Scheme proposes a general traffic lane and a cycle track in each direction between Castlewood Avenue and Grove Road, with the provision of a Bus Gate between Richmond Hill and Lissenfield . This proposed Bus Gate will restrict general traffic movements during the hours of operation of the Bus Gate (06:00 – 20:00 - 7 days a week). This proposal also allows for some increase to footpath widths through Rathmines and the provision of 2m wide cycle tracks in each direction through the village.

It is proposed to reverse the existing one-way traffic regime on Williams Park to facilitate traffic to turn off from the Proposed Scheme main corridor at Military Road in advance of the Bus Gate and return via Williams Park. It is proposed to provide a mini roundabout outside of St Mary's College to facilitate school drop off.

It is proposed to restrict movements on Mountpleasant Street Lower, north of the junction with Richmond Hill to pedestrians and cyclists only through the introduction of planted buildouts. It is also proposed to reintroduce the right turn from Richmond Hill to Mountpleasant Avenue Upper, to facilitate general traffic to turn off of the Proposed Scheme main corridor at Richmond Hill in advance of the Bus Gate and return via Mountpleasant Avenue Upper.

However, due to the restricted road width at this location, a traffic light shuttle system is proposed to manage these traffic movements.

The Scheme proposes to provide an inbound bus lane and an outbound general traffic lane along with a segregated cycling facility at La Touche Bridge. This is to facilitate connectivity with the Grand Canal cycleway. Inbound general traffic will be required to turn left onto Grove Road at this point. Outbound bus priority across the bridge will be provided through signal-controlled priority from a proposed traffic signal on Richmond Street South approximately 70m north of the bridge.

On Richmond Street South, it is proposed to maintain the outbound traffic lane with a bus lane and cycle tracks in both directions. Immediately south of the junction of Harrington Street/Harcourt Road/Richmond Street South, the outbound bus lane will be curtailed due to space constraints.

It is proposed to restrict movements into and out of Lennox Street to pedestrians and cyclists only through the introduction of planted buildouts. The Scheme also proposes to upgrade the junction of Richmond Street South and Harrington Street through the provision of kerb protection for cyclists.



On Camden Street Upper between Harcourt Road and Charlotte Way, one bus lane in each direction and one inbound general traffic lane is proposed, with a cycle track provided in each direction.

Between Charlotte Way and Cuffe Street it is proposed to provide bus lanes in each direction and a single outbound general traffic lane on Camden Street/Wexford Street. The outbound bus lane will not commence until just south of Montague Street due to the proximity of existing built form to the carriageway. Again, bus priority will be achieved by signal-controlled priority over this section. Under this proposal, inbound traffic will reroute to Harcourt Street to access Cuffe Street and beyond. Cycle tracks of 1.5m wide are proposed in this section to enable sufficient footpath space in this area of significant pedestrian activity.

Between Cuffe Street and Dame Street it is proposed to provide one general traffic lane and one cycle track in each direction. No bus lanes will be provided on this section of the route. The Scheme states that where practicable, on-street parking bays and loading bays will be retained. The Proposed Scheme ties into the existing road network on Dame Street.

Turning restrictions are proposed at a number of locations off the immediate Proposed Scheme main corridor to prevent through traffic diverting inappropriately. These locations are summarised below:

- Proposed right turn ban from Grand Parade onto Dartmouth Place;
- Proposed right turn ban from Cullenswood Road onto Ranelagh Road;
- Proposed right turn ban from Ashfield Road onto Ranelagh Road;
- Proposed left turn bans from Chelmsford Lane and Sallymount Avenue onto Ranelagh Road; and
- Proposed right turn ban from Merton Drive onto Sandford Road.

#### **Chapter 4**

##### ***Observations, Commentary and Issues***

This is a key section of the Proposed Scheme that gives rise to similar concerns to that represented by the CLG commissioning the work. The particular recommendation for a bus gate on Rathmines Road Lower poses questions about;

- the transport and traffic effectiveness of this proposal;
- the quality of access to a range of facilities between Terenure Cross and Rathmines and the city centre for selected mobility impaired residents of areas to the west and east of Rathgar Road south and west of the junction with Rathmines Road Upper;



- the assessment of available alternatives to this proposal including upgrading and expanding two way the existing in-bound bus priority light to take on the characteristics of a redesigned bus lane queue relocation site managed by priority lights favouring buses - 'hurry lights' and an off-line already assessed cycle route option;
- the potential for redistribution of private vehicle traffic that currently uses Rathgar Road south of its junction with Rathmines Road Upper in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects;
- the potential for redistribution of freight vehicle traffic that currently uses Rathgar Road south of its junction with Rathmines Road Upper in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects; and
- the potential for development of informal Park & Ride parking accumulation by existing private vehicle car user traffic that currently uses Rathgar Road east and north of its junction with Rathgar Avenue in a southbound direction to impact on residential areas bounded to the west and east of Rathgar Road located between Rathgar Avenue and Rathmines Road Upper; this would include impacts on road safety risks and a range of detrimental environmental effects.

This submission addresses these concerns through a review of the Proposed Scheme as it relates to the robustness of the evidence put forward by the NTA's consultants in the EIAR, the methodology employed and the data underpinning their conclusions and recommendations, together with consideration of the implications of the observations for the efficacy of the proposed scheme in formal investment appraisal terms. Moreover, the review will address the compatibility of the proposed scheme with public policy values and goals, and consideration of the consistency of the Proposed Scheme with Proposed Schemes elsewhere in the city under the same programme.



## 5. The Need for the Proposed Scheme

### **Chapter 2 of EIAR**

#### **Commentary**

It was noted in the previous section that the concerns identified in relation to certain specific features of the Proposed Scheme prompts a requirement to review not only the evidence put forward by the NTA's consultants in the Environmental Impact Assessment Report (EIAR), the methodology employed and the data underpinning their findings but also the efficacy of their recommendations and the consistency of the Proposed Scheme with Proposed Schemes elsewhere in the city under the same programme.

The first stage in addressing this requirement is the need to investigate the case for the proposal described above (Chapter 4 of the EIAR) before reviewing in depth the efficacy of the scheme and potential alternatives to the Proposed Scheme.

Chapter 2 of the EIAR provides initially an outline of the requirement for the Templeogue/Rathfarnham to City Centre Core Bus Corridor Scheme. Having set out the context and the strategic need for the scheme in this section (Section 5) we provide a more detailed investigation of the need identified for and the benefits yielded to in the corridor by the Proposed Scheme, drawing on the content of Chapter 2 before reviewing the assessment of alternatives to the Proposed Scheme undertaken by the NTA and its consultants in the next section (Section 6) of this submission that draws on Chapter 3 of the EIAR. To facilitate cross referencing to the EIAR the paragraph/sub-section numbering employed in the EIAR from section 2.2.2 of the EIAR Chapter 2 is retained and the summarised content highlighted in this section (Section 5) of our submission.

#### **Overview of the Context and Transport Need for the Proposed Scheme**

- 5.1. The Proposed Scheme states its aim is 'To reduce journey times for modes of transport with higher person carrying capacity (bus, walking and cycling), which in turn provides significant efficiencies and benefits to users of the transport network and the environment'.

The Scheme claims that it will deliver efficient, safe, and integrated sustainable transport movement along the corridor through the provision of enhanced walking, cycling and bus infrastructure on this corridor. Among its objectives are the following;

- Bus speeds, bus reliability and punctuality, it claims, will be improved through prioritising bus movements over general traffic movements thereby enhancing both the capacity and potential of the bus transport system.
- The Scheme states that the potential for cycling will be provided through infrastructure for cycling, segregated from general traffic where feasible.



- The Scheme claims it supports the realisation of Ireland's emission reduction targets.
- Compact growth, regeneration opportunities and more effective use of land in Dublin can be promoted through the sustainable transport system along the corridor. It claims that public realm will be carefully considered in the design and development of the transport infrastructure.
- The Scheme claims it will improve accessibility to jobs, education and other social and economic opportunities. This will be achieved through the provision of improved sustainable connectivity and integration with other public transport;
- Journey times for (bus, walking and cycling), modes of transport the Scheme claims will be reduced which in turn could provide significant efficiencies and benefits to users of the transport network and the environment.

The Scheme states that addressing the challenges posed by realisation of these objectives has underpinned preparation and subsequent adoption of the recent GDA Transport Strategies (for the period 2016 - 2035 and the new Strategy for 2022 - 2042).

In preparing the GDA Transport Strategy 2016 – 2035, a number of studies were undertaken by the NTA to assess the transport options within broad corridors and to examine a number of supporting transport policy measures. Transport demand and supply issues were examined and the transport interventions required to meet future demand were derived.

#### **Bus Network, Cycle and Pedestrian Infrastructure**

The Core Bus Network Report (NTA 2015) identified those routes on which there needed to be a focus on high capacity, high frequency and reliable bus services, and where investment in bus infrastructure should be prioritised and concentrated. On the basis of both demand and supply considerations corridors where investment is to be prioritised in the network were identified and mapped.

The Core Bus Network presented in the prior GDA Transport Strategy 2016-2035 comprises of 16 radial corridors, three orbital corridors and six regional corridors. A number of radial routes were then combined to form the 12 BusConnects schemes, a multi-faceted programme comprising several elements of which the Core Bus Corridors (CBCs) will provide approximately 230km of bus priority and approximately 200km of cycle routes.

The BusConnects Dublin – Core Bus Corridor Infrastructure Works forms part of the BusConnects programme that seeks to greatly improve bus services to ensure journeys by bus will be fast, reliable, punctual, convenient and affordable. BusConnects Dublin includes a range of interlinked and complementary proposals including:

- Management elements: Redesigning the network to increase the number of homes, jobs and services with coverage, improving orbital accessibility and restructuring radial routes into spines;



- Technological elements: Introducing new ticketing systems to improve convenience and reduce dwell time at bus stops;
- Fleet elements: Replacing the bus fleet with low emission vehicles, introducing branding and livery to give a new “look and feel”;
- Policy elements: Introducing a 90-minute ticket to remove the financial penalty for interchanging between buses or changing mode during trips; and
- Infrastructure elements: Creating infrastructure to separate buses and cyclists from other traffic to make sustainable travel a faster, safer and more reliable choice. Developing interchange hubs. Improving pedestrian facilities around bus stops.

The BusConnects Dublin programme contains nine elements, one of which is the BusConnects Dublin – Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works). The nine elements are:

- Core Bus Corridor Infrastructure Works;
- Dublin Area Bus Network Redesign;
- Transitioning to a new low emissions bus fleet;
- State of the art ticketing system;
- Cashless payment system;
- Simpler fare structure;
- New Park and Ride sites in key locations;
- New bus livery providing a common style across all operators; and
- New bus stops and shelters with better signage and information.

In preparing the GDA Transport Strategy (2022 - 2042) the NTA also carried out a review of the GDA Cycle Network Plan leading to preparation of the 2022 Greater Dublin Area Cycle Network that in turn closely aligns with the 2013 GDA Cycle Network Plan. The updated GDA Transport Strategy 2022 – 2042 indicates key elements of the Cycling Network Plan for the GDA will be delivered as part of the Core Bus Corridor schemes.

According to the EIAR Chapter 2 Vol 2 each of the other elements while individually bringing benefits, will generate cumulative benefits, dependent on the completion of the entire programme, given the network interdependencies between measures. However, the EIAR acknowledges implementation of these other elements will progress independently of the CBC Infrastructure Works element.

## **Chapter 2 of EIAR**

### **Observations and Commentary**

Assessing the efficacy of the scheme requires a review of the business case as reflected in the findings of the investment case produced in support of the scheme. This in turn will be based on the improvements the scheme offers to potential beneficiaries of the investment, both users of the facilities and non-users taking into account the ‘costs’ imposed on others both travellers and non-travellers residing, working or visiting the wider corridor.



The benefits attributable to the Proposed Scheme will reflect the size of improvements in the level of service offered to current or prospective bus users, cyclists and walkers afforded by enhancements that would be brought about by the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor.

It must be emphasised in assessing the Proposed Scheme the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor excludes the benefits attributable to the other main elements of the BusConnects Dublin programme as they apply to the Templeogue/Rathfarnham City Centre corridor. These encompass:

- The Dublin Area Bus Network Redesign;
- Transitioning to a new low emissions bus fleet;
- State of the art ticketing system;
- Cashless payment system;
- Simpler fare structure;
- New Park and Ride sites in key locations;
- New bus livery providing a common style across all operators;
- New bus stops and shelters with better signage and information.

The impacts of the BusConnects Dublin programme are restricted to the benefits of Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) that encompass:

- Creating infrastructure to separate buses and cyclists from other traffic.
- Developing interchange hubs; and
- Improving pedestrian facilities around bus stops.

Chapter 2 Vol 2 of the EIAR acknowledges 'each of the other elements while individually bringing benefits, will generate cumulative benefits, dependent on the completion of the entire programme, given the network interdependencies between measures'.

The EIAR also 'acknowledges implementation of these other elements will progress independently of the CBC Infrastructure Works element'.

These acknowledgements are reflected in the case drawn up by the NTA's consultants in presenting the case for the scheme (Chapter 2) and in tabling the detailed transport and traffic evidence (Chapter 6). They also have an important bearing in our review of the EIAR overall and the efficacy of the Proposed Scheme in particular.



## **Chapter 2 of EIAR**

### **Observations and Commentary**

It is important to note that the EIAR Chapter 2, Vol 2 page 16 also notes the *'Section 5.5.4 of the GDA Transport Strategy (NTA 2016) it states that '[a] number of the Core Radial Bus Corridors are proposed to be developed as Bus Rapid Transit routes, where the passenger numbers forecast on the routes are approaching the limits of conventional bus route capacity.'*

It also points out *'as design and planning work was progressed by the BusConnects Infrastructure team, it became clear that the level of differentiation between the Bus Rapid Transport (BRT) corridors and the Core Bus Corridors (CBC) would, ultimately, be limited, and that all of the radial CBCs should be developed to provide a similarly high level of priority service provision (i.e. to provide a consistency in terms of bus priority and infrastructure to support all bus services).'*

This is an important point we return to in next section (Section 6) of this submission.

### **2.2.2 The Local Transport Need**

Both the previous and updated GDA Transport Strategy commit to provide continuous bus priority, as far as is practicable, along the core bus routes, with the objective of supporting a more efficient and reliable bus service with lower journey times, increasing the attractiveness of public transport in these areas and facilitating a shift to more sustainable modes of transport.

The Proposed Scheme connecting Templeogue / Rathfarnham to City Centre serves a significant public transport demand between these locations. There are a number of high frequency public bus services along the routes to be improved by the Proposed Scheme (including the 9, 14, 15, 15b, 16 and 140 bus routes).

According to the EIAR Chapter 2, Vol 2 the Templeogue/Rathfarnham to City Centre corridor currently bus infrastructure is provided along 45% and 19% of the corridor (inbound and outbound respectively). However, within the boundaries of the Proposed Scheme route, bus lanes are currently provided on only approximately 44% and 15% of route inbound and outbound respectively.

There are shared cycle/bus lanes along parts of the route where no dedicated cycling infrastructure is available. However, the Templeogue/Rathfarnham to City Centre corridor is one of three main bus corridors in the south central Dublin area with varying degrees of bus priority linking outer suburbs to the City Centre.

The Core Bus Network study included a recommended route from Terenure/Rathfarnham to the City Centre on the basis of the need to serve significant demand along this entire corridor, and the need to address service deficiencies (lack of bus priority and associated journey time reliability) for a high level of scheduled bus services already operating along this corridor.



Within the boundaries of the Proposed Scheme route, bus priority infrastructure is currently provided along approximately 32% of the length of the route. Currently there are sections along the route of the Proposed Scheme with poor bus priority resulting in poor journey time reliability particularly at peak times. Automatic Vehicle Locator (AVL) data from existing bus services operating along the Proposed Scheme corridor has been used to examine the current standard deviation for bus services along the corridor. The AVL data indicates that current bus journey times have a standard deviation of approximately 14 minutes along the route of the Proposed Scheme with any further increase in traffic levels likely to exacerbate this unreliability.

The Proposed Scheme will facilitate almost 100% bus priority and will complement the rollout of the Dublin Area Bus Network Redesign. As part of the BusConnects revised bus network proposals, the proposed scheme will serve the A Spine bus services between Templeogue Road and Rathfarnham Road (A1, A3, A2 and A4), and from Terenure Road, the City Centre (A1, A3, A2 and A4). Demand for travel by bus is anticipated to continue to grow in this corridor into the future, in line with population growth. The bus priority measures forming part of the Proposed Scheme are required to accommodate this growth in travel demand and to facilitate the revised bus network (A-Spine) by providing journey time savings and reliability for passengers.

The CBC Infrastructure Works are also intended to enhance walking and cycling infrastructure in this corridor. The Proposed Scheme is intended to provide extensive segregated cycling facilities, including two primary cycle routes running along the majority of the Proposed Scheme, as well as Secondary Cycle Routes on Templeogue Road, Camden Street, Aungier Street and South Great George's Street.

Within the extents of the proposed scheme there are mandatory cycle lanes provided on only 26% and 7% of the route outbound and inbound respectively, while advisory cycle lanes provided on only approximately 26% and 24% of the route outbound and inbound respectively, while segregated cycle lanes are provided on only approximately 18% and 13% of the route outbound and inbound respectively.

The Scheme proposes to provide safe, segregated cycling infrastructure throughout and to greatly enhancing the potential for cycling and address many of the deficiencies in the existing network. The Proposed Scheme includes significant improvements to the pedestrian environment along the route in terms of footpath improvements and through upgrading facilities for pedestrians at junctions and crossings.

#### **2.4 Benefits of the Proposed Scheme**

The Proposed Scheme has been designed to facilitate improved efficiency of the transport network through the improvement of the infrastructure for active (walking and cycling) and public transport modes making them attractive alternatives to car-based journeys.



In addition to reduced journey times and improved punctuality and reliability of bus services the Proposed Scheme will facilitate an increase in the bus network capacity of services operating along the corridor and thereby further increase the attractiveness of public transport.

Chapter 2, Volume 2 of the EIA also argues cyclists and pedestrians require significantly less roadway space than general traffic users to move safely and efficiently. According to the EIA providing space for improved pedestrian and cycle infrastructure can significantly benefit these sustainable modes and encourage greater use of these modes.

Chapter 2, Volume 2 of the EIA includes a quantitative people-movement assessment as part of its transport impact assessment, for Do Minimum and Do Something peak-hour scenarios for the forecast years (2028 and 2043). The Do Something scenario provides for implementation of the infrastructure works and related traffic management changes while the Do Minimum scenario assumes no such works are undertaken. It is important to note that the Do Minimum does provide for implementation of the other measures provided for under the BusConnects programme. Therefore the differences between the two scenarios relates solely to the road infrastructure changes and associated traffic management changes.

The transport modelling employed by the NTA's consultants provides demand outputs for people movement.

In relation to the impact of implementation of the Do Something scenario compared to a Do Minimum scenario for 2028 the data presented projects an increase of 123% in the number of people travelling by bus, an increase of 79% in people walking or cycling, and a reduction of 30% in the number of people travelling by car along the route of the Proposed Scheme.

The transport modelling employed by the NTA's consultants also presents demand outputs for people movement by bus in terms of passenger loadings along the corridor for both the Do Minimum and Do Something scenarios in the 2028 AM Peak Hour in the inbound direction. It points to high levels of bus passenger loadings along the Templeogue to Terenure section with a peak loading at Terenure Cross where the volume of passengers reaches 2,400 passengers in the AM Peak hour, compared to approximately 1,100 in the Do Minimum scenario. According to the model projections the increase in bus passengers remains at approximately 1,000 additional users on this section of the corridor, compared to the Do Minimum scenario.

For the inbound direction for the Rathfarnham to City Centre section of the Proposed Scheme the model projections predict higher levels of bus passenger loadings with a large increase at Terenure Cross where the two corridor sections (Templeogue to Terenure section and Rathfarnham to City Centre section) come together and the A Spine bus services combine. At Rathmines Road Lower / Castlewood Avenue the volume of passengers reaches 3,900 passengers in the AM Peak hour, compared to approximately 1,700 in the Do Minimum scenario. The increase in bus passengers remains at a high level with approximately 2,000 additional users on the corridor between Terenure Cross and the City Centre, compared to the Do Minimum scenario.



A key objective of the Proposed Scheme is to enhance the potential for cycling along the route. Currently within the existing boundaries of the Proposed Scheme segregated cycle tracks cover approximately 18% and 13% of the route outbound and inbound respectively. Under the scheme cycling facilities are to increase to 100% overall, with the 84% being fully segregated.

The Scheme proposes to make significant improvements to pedestrian infrastructure through the provision of increased signal crossings, introduction of traffic calming measures, improved accessibility, increased pedestrian directness and wider footpaths and crossings. The number of pedestrian signal crossings will increase by approximately 39% as a result of the Proposed Scheme.

## **Chapter 2 of EIAR**

### **Observations, Commentary and Issues**

The projected growth forecasts for bus travel in this corridor up 123% in the AM Peak Hour in the number of people travelling by bus, for the 'opening year' 2028 (5 years from now) are remarkable, particularly when it is noted these are in response solely to time savings/service punctuality improvements attributable to the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor increasing the extent of infrastructure to separate buses and cyclists from other traffic, developing interchange hubs, and improving pedestrian facilities around bus stops.

The 123% increase excludes the impact of any other main elements of the BusConnects Dublin programme as they apply to the Templeogue/Rathfarnham City Centre corridor. The size of this increase warrants an in-depth review of the evidence and the basis on which that estimate has been presented by the NTA's consultants.

We are unaware of any evidence of an outturn increase in bus patronage in Ireland or the United Kingdom attributable to any similar programme of infrastructure works to separate buses and cyclists from other traffic, developing interchange hubs, and improving pedestrian facilities around bus stops.

Moreover, the projections also point to a 74% increase in TOTAL AM peak hour trips in the defined corridor attributable totally to the bus and cycle infrastructure works and associated traffic management measures.

We are unaware of any precedents in Ireland or the United Kingdom for an outturn increase of 74% increase in TOTAL AM peak hour trips in the opening year of any similar scheme for a defined corridor attributable totally to the bus and cycle infrastructure works.

These and other projections quoted in Chapter 2 of the EIAR warrant closer and more detailed inspection and review of the evidence presented by NTA's consultants to support claims for such an increase in total and bus travel solely attributable to the CBC infrastructure bus priority



measures. We will also review projections for Proposed Schemes for other core corridors in the GDA.

It should be noted peak hour travel typically reflects non-discretionary trip purposes, e.g. to/from work, study, school etc. A 74% increase seems entirely out of line with what could reasonably be expected or from any verifiable empirical evidence of similar schemes.

This poses questions about the robustness of any transport models employed to generate those forecasts and the validation and reliability of model parameters.

Any questions over the forecasts also raises questions about the robustness of the business case tabled in support of the investment in the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor.

We turn to consideration of the transport models in Section 7 of our submission. This draws on the detail provided by the NTA's consultants in the EIAR's Chapter 6 (Traffic & Transport) on the modelling and transport analysis, which also assesses the impact of the Proposed Scheme against key metrics and comparatively between Do Minimum and Do Something (i.e. with the Proposed Scheme) scenarios.

## **Chapter 2 of EIAR**

### ***Observations, Commentary and Issues***

Implementation of the Do Something scenario compared to a Do Minimum scenario for the opening year of the scheme in 2028 projects an increase of 79% in the number of people walking or cycling.

As part of the wider observations on projected travel changes outlined above attributable to increasing the extent of infrastructure to separate buses and cyclists from other traffic, developing interchange hubs, and improving pedestrian facilities around bus stops that make up the CBC Infrastructure Works serving the Templeogue/Rathfarnham City Centre corridor the impact on cycling and walking is very large.

The size of this increase also warrants closer and more detailed inspection and review of the evidence presented by NTA's consultants to support claims for such an increase in cycling and walking and the robustness of any transport models employed to generate those forecasts and the validation and reliability of model parameters.



Any questions over the forecasts also raises questions about the robustness of the business case tabled in support of the investment in the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor.

We turn to consideration of the transport models in Section 7 of our submission. This draws on the detail provided by the NTA's consultants in the EIA's Chapter 6 (Traffic & Transport) on the modelling and transport analysis, which also assesses the impact of the Proposed Scheme against key metrics and comparatively between Do Minimum and Do Something (i.e. with the Proposed Scheme) scenarios.

The EIA claims the Proposed Scheme and its objectives fit within the current planning frameworks that are described in Section 2.3. The Proposed Scheme will help deliver many of the objectives on an international, national, regional and local level. Overall, the Proposed Scheme claims to make a significant contribution to the overall aims and objectives of BusConnects, the GDA Transport Strategy 2022 - 2042 and allow the city to grow sustainably into the future.

#### ***Chapter 2 of EIA***

##### ***Observations, Commentary and Issues***

The EIA's claims the Proposed Scheme's objectives fits within the current planning and 'will help deliver many of the objectives on an international, national, regional and local level' and 'to make a significant contribution to the overall aims and objectives of BusConnects, the GDA Transport Strategy 2022 - 2042 and allow the city to grow sustainably into the future'.

Performance against these goals and objectives depends upon the projected scale of travel behaviour changes being credible and occurring. The review contained in this submission can inform the likelihood that these will be realised.



## **6. Consideration of Reasonable Alternatives**

- 6.1. Chapter 2 of the Environmental Impact Assessment Report (EIAR) addressed the need for and reviewed evidence of the benefits yielded by the Proposed Scheme in the corridor. This identified a series of critical issues and posed questions about the efficacy of the Proposed Scheme. In the light of those issues it is important to review the consideration of reasonable alternatives as required by the planning legislation. The review draws substantially on the content of Chapter 3 before reviewing the assessment of alternatives to the Proposed Scheme undertaken by the NTA and its consultants in the next section of this submission. To facilitate cross referencing to the EIAR the section numbering employed in the EIAR is retained and the summarised content highlighted from Section 3.2.4 of Chapter 3 of the EIAR.

The Environmental Impact Assessment Directive requires consideration of reasonable alternatives. Article 5(1)(d) of Directive 2011/92/EU as amended by Directive 2014/52/EU (“the EIA Directive”) requires that an Environmental Impact Assessment Report (EIAR) contains ‘a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and the main reasons for the option chosen, taking into account the effects of the project on the environment’. Annex IV to the EIA Directive, provides that the EIA shall include: “A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”.

Given the proposed road development for which approval is sought in this instance, section 50(2)(b)(iv) of the Roads Act 1993, as amended (“the Roads Act”) states that that the EIAR shall contain the same information. Section 50(2)(b)(vi) of the Roads Act also requires that “any additional information specified in Annex IV [quoted above] that is relevant to the specific characteristics of the particular proposed road development or type of proposed road development and to the environmental features likely to be affected” are also be included in the EIAR.

Chapter 3, Volume 2 of the EIAR sets out the ‘reasonable’ alternatives assessed and the main reasons for the selection of the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme. It has considered the alternatives at three levels as follows:

- Strategic Alternatives;
- Route Alternatives; and
- Design Alternatives.

In referencing the Transport Strategy for the Greater Dublin Area 2022-2042 (Transport Strategy) replacing the GDA Transport Strategy 2016 – 2035 Chapter 3 notes the provisions of the 2016 – 2035 strategy were evaluated for potential significant effects, and measures integrated into the prior Strategy. These prior studies included the GDA Cycle Network Plan (2013), Bus Rapid Transit – Core Network Report (2012), Fingal / North Dublin Transport Study (2015), Review of the DART Expansion Programme (2015), various Luas studies published in 2008 as well as analysis of a 2011 Draft Transport Strategy.



It points out however, the bus system in the Dublin metropolitan area still accounts for 65% of public transport passenger journeys in the Dublin region. It goes on point out bus-based transport is the appropriate public transport mode for passenger demand levels of up to about 4,000 passengers per hour per direction. (UITP 2009). Light rail provision would generally be appropriate to cater for passenger demand of between 3,500 and about 7,000 passengers per hour per direction. Passenger demand levels above 7,000 passengers per hour per direction would generally be catered for by heavy rail or metro modes.

The development of the 2016 – 2035 GDA Transport Strategy considered the likely public transport passenger demand levels across the region using the NTA's transport model. That consideration also took into account various other studies, including an investigation into a potential light rail scheme within the area of this corridor. Projected passenger flows however, were within the capacity of bus transport and did not reach the threshold for provision of higher capacity rail solutions. Nevertheless the EIAR Chapter 3 did consider the case for Bus Rapid Transit (BRT), Light Rail, Metro and Heavy Rail alternatives to the proposed scheme as set out from section 3.2.4.

#### 3.2.4 Bus Rapid Transit (BRT) Alternative

Bus Rapid Transit (BRT) has various manifestations worldwide. Definitions of BRT range from a Quality Bus Corridor (QBC) to a fully guided, fully segregated bus system. A Bus Rapid Transit (BRT) – Core Network Report, prepared in 2012 (NTA 2012) at feasibility study level, investigated the demand, technical, environmental, and economic feasibility of a proposed core BRT network.

The feasibility study recommended that further and more detailed work should proceed on two cross city corridors, one of which was the Clongriffin to Tallaght. Prior to the completion of these studies, the prior GDA Transport Strategy identified the development of a number of Core Bus Corridors as BRT schemes. These BRT routes formed part of the overall Core Bus Corridor network set out in the prior GDA Transport Strategy. As design and planning work progressed on the Core Bus Corridors, it became clear that the level of differentiation between the BRT corridors and the other Core Bus Corridors would, ultimately, be limited, and that all the corridors should be developed to a consistent standard, providing a more integrated, legible and coherent overall bus system.

Moreover, the identified Core Bus Corridors are proposed to be developed to provide a high level of priority for the bus vehicles, which is an essential component of a BRT system. Integrated, cashless ticketing systems are planned under the overall BusConnects Programme, delivering the type of functionality often required for a BRT system. While different type vehicles are used around the world on BRT schemes, the longer routes present in Dublin, due to the low density nature of the city, favours the use of double deck vehicles on both BRT and conventional bus corridors, given the better ratio of seated to standing passengers on such vehicles.

Accordingly, it is intended that all of the Core Bus Corridor Infrastructure Works, including the Proposed Scheme, will be developed to provide a BRT level of service, rather than establishing a separate mode on some corridors.



Consequently, the Proposed Scheme as a separate BRT mode was not progressed given the limited differentiation from the Core Bus Corridors and the advantages identified above of a unified integrated bus system.

Environmentally the BRT option compared to the Core Bus Corridor proposal would be more impactful in terms of construction impacts, including flora and fauna, heritage, air and noise. BRT typically requires continuous unbroken physical lane infrastructure to achieve high-priority. This would involve significantly more land take and potentially involve demolition of buildings at pinch-points. In the case of the Core Bus Corridor proposals bus priority can be achieved through short lengths at pinch-points by the use of signal-control priority.

### 3.2.5 Light Rail Alternative

It was concluded that a bus-based transport system would be the proposed public transport solution in the corridor of the Proposed Scheme. It was considered that there would be insufficient demand to justify the provision of an additional light rail alternative above what is proposed above, particularly given the low to medium density nature of development in this corridor. Similar to BRT, environmentally the light rail option compared to the Core Bus Corridor proposal would be more impactful in terms of construction impacts.

### 3.2.6 Metro Alternative

Metro systems are a higher capacity form of light rail, generally designed for peak hour passenger numbers exceeding about 7,000 passengers per hour per direction. The prior GDA Transport Strategy identified that a metro solution would not be economically justified within the area covered by this corridor. Accordingly, it was concluded that a high-quality bus-based transport system would be part of the proposed public transport solution in the corridor of the Proposed Scheme.

Environmentally the metro option compared to the Core Bus Corridor proposal would be more impactful in terms of construction impacts, including more land take and potentially involve demolition of buildings at pinch-points. In the case of the Core Bus Corridor proposals bus-priority can be achieved through short lengths at pinch-points by the use of signal-control priority.

### 3.2.7 Heavy Rail Alternative

Commuter heavy rail systems are generally designed for high levels of passenger demand, usually designed to carry in excess of 10,000 passengers per hour per direction. Where a surface corridor does not already exist in a built-up urban area, there are major challenges in creating sufficient surface space for such provision, requiring large amounts of property acquisition and building demolition.

Environmentally the heavy rail option compared to the CBC proposal would be more impactful in terms of construction impacts, including involve significantly more land take and potentially involve demolition of buildings at pinch-points. The prior GDA Transport Strategy did not consider



that a new heavy rail solution would be required along this corridor and would not be economically justifiable.

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The EIAR tabled the claim bus-based transport is the appropriate public transport mode for passenger demand levels of up to about 4,000 passengers per hour per direction. (UITP 2009). Light rail provision would generally be appropriate to cater for passenger demand of between 3,500 and about 7,000 passengers per hour per direction. Passenger demand levels above 7,000 passengers per hour per direction would generally be catered for by heavy rail or metro modes. It also noted in developing the 2016 – 2035 GDA Transport Strategy projected demand levels provided the basis for choice of modes. While the evidence from an investigation into a potential light rail scheme within this corridor suggested numbers for which Light Rail Transit (LRT) could be appropriate projected passenger flows were also within the capacity of bus transport and LRT was rejected.

For a Bus Rapid Transit (BRT) alternative previous research by NTA investigated the demand, technical, environmental, and economic feasibility of a proposed core BRT network. The feasibility study recommended more detailed work on two cross city corridors, one of which was the Clongriffin to Tallaght. Prior to the completion of these studies, the prior GDA Transport Strategy concluded as design and planning work progressed on the Core Bus Corridors, there would be little to distinguish between BRT and conventional buses operating on Core Bus Corridors and all the corridors should be developed to a consistent standard operated by conventional double deck vehicles. This led to the rejection of BRT in this corridor with other objections against BRT also levelled in terms of construction impacts and significantly more land take and potentially involve demolition of buildings at pinch-points. We are of the opinion that the decision to reject both BRT and LRT was premature and certain objections to BRT are not sustainable based on actual experience of its implementation and operational performance in other locations. A case in point is the BRT system introduced in Belfast in 2018 that has addressed the challenges posed by pinch-points through short lengths without the provision of segregated bus lanes.

#### **3.2.8 Demand Management Alternative**

One of the primary aims of the prior GDA Transport Strategy was to significantly reduce demand for travel by private vehicles, particularly during the commuter peaks, and to encourage use of walking, cycling and public transport. One of the mechanisms to achieve such reduction of private vehicle use is the use of measures to discourage travel by car – i.e. demand management.

Demand management can take many different forms from restricting car movement or car access through regulatory signage and access prohibitions, to parking restrictions, to fiscal measures such



as tolls, road pricing, congestion charging, fuel/vehicle surcharges and similar. A key success factor of demand management is greater use of alternative travel modes, in particular public transport.

The EIAR contends the existing public transport system does not currently have sufficient capacity to cater for large volumes of additional users. It goes on to state in advance of a significant uplift in overall public transport capacity in the Dublin metropolitan area, the implementation of major demand management measures across that area would be unsuccessful. Effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer, would not deliver an effective overall transport system (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*).

Instead, the capacity of the public transport system needs to be built up in advance of, or in conjunction with, the introduction of major demand management measures in the Dublin metropolitan area. This is especially true in the case of the bus system where a major increase in bus capacity through measures such as the Proposed Scheme would be required for the successful implementation of large scale demand management initiatives.

While the foregoing addresses the dependency of demand management measures on public transport capacity, it is equally correct that the provision of greatly enhanced cycling facilities will also be required to cater for the anticipated increase in cycling numbers, both in the absence of demand management measures and, even more so, with the implementation of such measures. Consequently, the progression of demand management proposals will not secure the enhanced safe cycling infrastructure envisaged under the Proposed Scheme.

Accordingly, the implementation of demand management measures would not remove the need for additional infrastructure to serve the bus transport needs of the corridor covered by the Proposed Scheme, nor would it obviate the need to develop the cycling infrastructure required along the route of the Proposed Scheme.

### **Chapter 3 of EIAR**

#### **Observations, Commentary and Issues**

In seeking to reduce demand for travel by private vehicles the 2016 -2035 GDA Transport Strategy one mechanism referred to in EIAR Chapter 3 section 3.2.8 is demand management. It also notes this can take many different forms from restricting car movement or car access through regulatory signage and access prohibitions, to parking restrictions, to fiscal measures such as tolls, road pricing, congestion charging, fuel/vehicle surcharges and similar.

The EIAR contends the existing public transport system does not currently have sufficient capacity to cater for large volumes of additional users. It goes on to state in advance of a significant uplift in overall public transport capacity in the Dublin metropolitan area, the



implementation of major demand management measures across that area would be unsuccessful. Effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer, would not deliver an effective overall transport system (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*).

For this corridor however, illustrative timetables for the A spine routes in the corridor under the BusConnects network revamp offer little change overall in the public transport carrying capacity in the Templeogue/Rathfarnham – Dublin City Centre Corridor compared to existing arrangements. Indeed, I am instructed by the CLG that services on Templeogue Road are reduced to an hourly frequency of 10 as compared to currently as many as 23.

The 30% scale of the reduction in private vehicle use projected by NTA's consultants can therefore be interpreted as 'effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer' in this corridor. As the EIAR notes this 'would not deliver an effective overall transport system' (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*). These projections and changes in travel behaviour warrant specific consideration as a key element of the wider review of behavioural changes and transport models referred to above that draws on the detail provided in the EIAR's Chapter 6 (Traffic & Transport) on modelling and transport analysis, and the impact of the Proposed Scheme against key metrics and scenarios.

It is also appropriate to review behavioural change in other corridors designated for implementation of Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works). This will yield insight into the extent to which effectively people in the in the Templeogue/Rathfarnham City Centre corridor would be constrained from making journeys by car and be required to use other modes and whether demand management of this type is intended to be uniformly and consistently applied to all the CBC Infrastructure Works/ BusConnects served corridors. It is likely that the most stringent tool of traffic restraint to be applied in the Templeogue/Rathfarnham City Centre corridor is the bus gate. It will be important to establish evidence of its effectiveness and its intended application to other CBC Infrastructure Works/ BusConnects served corridors. Certainly their application to main urban arterial roads such as Templeogue Road and Rathmines Road Lower in other medium size/large cities is not common.

### 3.2.9 Technological Alternatives

Technological advances have opened up new areas of potential in the delivery of transport infrastructure. Driverless trains and smart highways are two examples. Some of these initiatives, such as driverless trains, are now in use.

Alternatives have to be able to accomplish the objectives of the project in a satisfactory manner.....there is no evidence that such developments will displace the need for mass transit,



which is essential to the operation of a modern city. Accordingly, the need to improve the overall bus system will still remain.

Overall, while certain technological advances do provide new opportunities in the transport area, particularly in the area of information provision, they do not yet provide viable alternatives to the core need to provide for the movement of more people by non-car modes, including the provision of safe, segregated cycling facilities. Accordingly, there are no viable technological alternatives to meet the transport needs of this sector of the city.

### **Chapter 3 of EIAR**

#### **Observations and Commentary**

The above is an important claim that may be impacted by changes in travel demand and patterns attributable to large increases in working from home, on line shopping and other activities. These trends have been significantly boosted by the impact of the COVID-19 Pandemic. It begs the question about the timeliness of the data input to the modelling processes implemented in the supporting assessment of the proposed scheme and alternatives.

#### **3.3 Route Alternatives**

Following consideration of strategic alternatives the EIAR sets out the process by which route alternatives were considered. Development of the Proposed Scheme involved the following stages:

- 1) Feasibility and Options Reports, which were associated with the Proposed Scheme (Rathfarnham to City Centre Core Bus Corridor (CBC) Feasibility Study and Options Assessment Report and Terenure to Tallaght CBC Feasibility Study and Options Assessment Report), were prepared in 2017 and set out the initial route options and concluded with the identification of the Emerging Preferred Route;
- 2) A first round of non-statutory Public Consultation was undertaken on the Emerging Preferred Route from 23 January 2019 to 30 April 2019;
- 3) Development of Draft Preferred Route Option (April 2019 to March 2020). Informed by feedback from the first round of public consultation, stakeholder engagement and the availability of additional design information, the design of the Emerging Preferred Route evolved with further alternatives considered;
- 4) A second round of non-statutory Public Consultation was undertaken on the Draft Preferred Route Option from 4 March 2020 to 17 April 2020. COVID-19 restrictions resulted in planned in-person information events being cancelled;



5) Further development of an updated Draft Preferred Route Option was undertaken subsequent to the second round of public consultation, continuing stakeholder engagement and additional design information;

6) A third round of non-statutory Public Consultation was undertaken on the updated Draft Preferred Route Option from 4 November 2020 to 16 December 2020; and

7) Finalisation of the Preferred Route Option - the Proposed Scheme. Informed by feedback from the overall public consultation process, continuing stakeholder engagement and the availability of additional design information.

### 3.3.1 Initial High-Level Route Alternatives

The Feasibility and Options Reports identified feasible options along the corridor, assessed these options and arrived at an Emerging Preferred Route. The Feasibility and Options Reports used a two-stage assessment process to determine the Emerging Preferred Route, comprising:

- Stage 1 – an initial high-level route options assessment, or ‘sifting’ process, which appraised routes in terms of ability to achieve scheme objectives and whether they could be practically delivered. The assessment included consideration of the potential high level environmental constraints as well as other indicators such as land take (particularly the impact on residential front gardens); and
- Stage 2 - Routes which passed the Stage 1 assessment were taken forward to a more detailed qualitative and quantitative assessment.

### 3.3.2 Stage 2 – Route Options Assessment

Stage 2 of the assessment process involved a more detailed qualitative and quantitative assessment using criteria established to compare the route options. The indicative scheme for each route option was progressed to a multi-criteria assessment.

The ‘Common Appraisal Framework for Transport Projects and Programmes’ published by the Department of Transport, Tourism and Sport (DTTAS), March 2016, requires schemes to undergo a ‘Multi-Criteria Analysis’ (MCA) which evaluated the route options under the following criteria:

1. Economy;
2. Integration;
3. Accessibility & Social Inclusion;
4. Safety; and
5. Environment.



Under each headline criterion, a set of sub-criteria were used to comparatively evaluate the options. For the Environment criterion the following sub-criteria were considered in the assessment to inform the Emerging Preferred Route:

- Archaeological, Architectural and Cultural Heritage
- Flora and Fauna
- Soils and Geology
- Hydrology
- Landscape and Visual
- Air Quality
- Noise & Vibration
- Land Use Character

The study area for the Tallaght to Terenure corridor comprised of two main sections;

- Section 1 examined feasible route options from the N81/M50 interchange to the Springfield Avenue/Templeville Road corridor.
- Section 2 examined feasible route options from the Springfield Avenue/Templeville Road corridor to Terenure Road West.

The study area for the Rathfarnham to City Centre corridor comprised of three main sections:

- Section 1 examined feasible route options from Taylors Lane and Grange Road to the River Dodder.
- Section 2 examined feasible route options from the River Dodder to the Grand Canal.
- Section 3 examined feasible route options from the Grand Canal to the River Liffey.

#### Route Options

##### 3.3.2.1 Tallaght to Terenure Corridor: Route Option Assessment

The Stage 2 Assessment for the Tallaght to Terenure scheme followed the same two sections as per the Stage 1 assessment.

##### 3.3.2.1.1 Section 1: Route Options Assessment

Following the Stage 1 sifting process, only one viable route option for Section 1 remained. Due to a number of existing constraints within Templeogue Village, it required specific consideration which enabled the identification of 5 alternative scheme options. In the Rathfarnham to City Centre Core Bus Corridor CBC Feasibility Study and Options Assessment Report it was determined that the route being assessed should stop at the junction of Nutgrove Avenue and Grange Road.

The MCA identified Option 5 (designated Option S1-5) as having significant benefits over other options in relation to Transport Reliability and Quality, Traffic Network Integration, Road Safety, Archaeology and Cultural Heritage and Land Use Character. Option S1-5 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route.

Option S1-5 would consist of providing continuous bus lanes in each direction along Templeogue Road between the Cypress Grove Road/Old Bridge Road junction and the Springfield Avenue /



Templeville Road junction. Cycle lanes would be provided along each side of the carriageway on the approaches to/from Templeogue Road/Cypress Grove Road/Old Bridge Road junction and the Templeogue Road/Springfield Avenue /Templeville Road junction.

#### 3.3.2.1.2 Section 2: Route Options Assessment

Following the Stage 1 sifting process, only one viable route option for Section 2 remained. Due to a number of identified constraints, the section of Templeogue Road between the Fortfield Road/Templeogue Road junction and the Terenure Road East/Templeogue Road junction, required specific consideration consultants to the NTA who identified 12 alternative scheme options (Option S2-1 – Option S2-12) for this section. An MCA was undertaken on these alternative scheme options in order to determine the most appropriate scheme for this section of Templeogue Road. The assessment sub-criteria included Capital Cost, Transport Reliability and Quality, Residential Population and Employment Catchments, Cycle Network Integration, Traffic Network Integration, Key Trip Attractors, Road Safety, Pedestrian Safety, Flora and Fauna, Landscape and Visual, Air Quality, Noise and Vibration and Land Use Character.

### **Chapter 3 of EIAR**

#### ***Observations, Commentary and Issues***

It has been noted above this is the key section of the corridor the CLG commissioning the work is concerned about and especially the recommendation for a bus gate in the preferred Option S2-12. Among Option S2-1 – Option S2-12 Options S2-2, S2-8, S2-9, S2-10, S2-11 and S2-12 all provide for a bus gate on Templeogue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Templeogue Road junction to Rathdown Park/Templeogue junction.

This poses real issues for residents in adjacent areas about rat running as traffic is redistributed through currently very quiet neighbourhoods with attendant safety risk to the young and elderly in particular.

It has also been highlighted that traffic restraint measures in these areas are 'effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer' in this corridor. And as the EIAR notes this 'would not deliver an effective overall transport system' (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*). It is likely that the most stringent tool of traffic restraint to be applied in the Templeogue/Rathfarnham City Centre corridor is the bus gate. There is also a concern that demand management of this type may not be applied uniformly and consistently to all the CBC Infrastructure Works/ BusConnects served corridors. It will be important to establish evidence of its effectiveness and its intended application to other CBC Infrastructure Works/ BusConnects served corridors. Certainly their



application to main urban arterial roads such as Templeogue Road and Rathmines Road Lower in other medium size/large cities is not common.

It has also been emphasised concern stems from;

- doubts about the transport and traffic effectiveness of this proposal;
- concern for the quality of access to a range of facilities between Terenure Cross and Rathmines and the city centre for selected mobility impaired residents of areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West;
- availability of alternatives to this proposal including upgrading the existing bus priority light to take on the characteristics of a redesigned bus lane queue relocation site managed by priority lights favouring buses - 'hurry lights';
- the potential for redistribution of private vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and a range of detrimental environmental effects;
- the potential for redistribution of freight vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and a range of detrimental environmental effects; and
- the potential for development of informal Park & Ride parking accumulation by existing private vehicle car user traffic that currently uses Templeogue Road (northbound direction) in residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and accumulation of additional parked vehicles on sections adjoining or linking to the proposed scheme.

- Option S2-1 would consist of providing continuous bus lanes in each direction along Templeogue Road from the Fortfield Road/Templeogue Road junction to Templeogue Road/Terenure Road West junction. Segregated cycle facilities would be provided along each side of Templeogue Road between Fortfield Road/Templeogue Road junction and the Terenure Road West/Templeogue Road junction.

- Option S2-2 would consist of providing bus lanes in each direction from Fortfield Road/Templeogue Road junction to Templeogue Road/Terenure Road West with the exception of a 50m section of Templeogue Road approaching Rathdown Park. Segregated cycle facilities would be provided along each side of the Templeogue Road between Fortfield Road/Templeogue Road junction and the Terenure Road West/Templeogue Road. A bus gate would be implemented on Templeogue Road at Rathdown Park/Templeogue Road junction and Terenure Road



West/Tempoegue Road junction to ensure only buses and cyclists are permitted, local access traffic would share with buses in the proposed bus lanes.

- Option S2-3 would consist of providing continuous bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to Tempoegue Road/Terenure Road West junction. Segregated cycle facilities would be provided along each side of the Tempoegue Road between Fortfield Road/Tempoegue Road junction and the Terenure Road West/Tempoegue Road junction. A bus gate would be implemented on Tempoegue Road at Rathdown Avenue/Tempoegue Road junction and Terenure Road West/Tempoegue Road junction to ensure only buses and cyclists are permitted, local access traffic would share with buses in the proposed bus lanes.

- Option S2-4 would consist of providing bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to the Rathdown Park/Tempoegue junction. An inbound bus lane would be provided on Rathdown Park and then connecting with the Rathfarnham CBC on Rathfarnham Road. An outbound bus lane would be provided on Fergus Road connecting Rathfarnham Road to Tempoegue Road. From the Fergus Road/Tempoegue Road junction to Rathdown Park/Tempoegue Road junction outbound buses will share with general traffic in the general traffic lane. Cycle lanes would be provided along each side of Tempoegue Road between Fortfield Road/Tempoegue Road junction and the Terenure Road West/Tempoegue Road junction.

- Option S2-5 would consist of providing continuous bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to Tempoegue Road/Terenure Road West junction. Segregated cycle facilities would be provided along each side of Tempoegue Road between Fortfield Road and Lakelands Park. Between Lakelands Park/Tempoegue Road junction and Terenure Road West/Tempoegue Road cyclists would be able to divert onto an alternative route via Lakelands Park – Greenlea Grove – Greenlea Road – Terenure Road West.

- Option S2-6 would consist of providing continuous bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to Tempoegue Road/Terenure Road West junction. The outbound general traffic lane on Tempoegue Road from Rathdown Park to Terenure Cross would be removed to reduce the required land acquisition on residential properties approaching Terenure Cross. Segregated cycle facilities would be provided along each side of Tempoegue Road between Fortfield Road and Lakelands Park. Between Lakelands Park/Tempoegue Road junction and Terenure Road West/Tempoegue Road cyclists would be able to divert onto an alternative route via Lakelands Park – Greenlea Grove – Greenlea Road – Terenure Road West.

- Option S2-7 would consist of providing continuous bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to Tempoegue Road/Terenure Road West junction. The inbound general traffic lane on Tempoegue Road from Rathdown Park to Terenure Cross would be removed to reduce the required land acquisition on residential properties approaching Terenure Cross. Segregated cycle facilities would be provided along each side of Tempoegue Road between Fortfield Road and Lakelands Park. Between Lakelands



Park/Tempoegue Road junction and Terenure Road West/Tempoegue Road cyclists would be able to divert onto an alternative route via Lakelands Park –Greenlea Grove – Greenlea Road – Terenure Road West.

- Option S2-8 would consist of providing continuous bus lanes in each direction along Tempoegue Road from the Fortfield Road/Tempoegue Road junction to Tempoegue Road/Terenure Road West junction. A bus gate would be implemented on Tempoegue Road to ensure only buses and cyclists would be permitted entry from the Fortfield Road/Tempoegue Road junction to Terenure Road West/Tempoegue Road junction. Between the aforementioned bus gates, local access traffic would share with buses in the proposed bus lanes. Segregated cycle facilities would be provided along each side of Tempoegue Road between Fortfield Road and Lakelands Park.

- Option S2-9 would consist of providing bus lanes in each direction for the majority of the route along Tempoegue Road, with the exception of a 300m section of Tempoegue Road from Rathdown Park to Terenure Cross where an outbound bus lane would not be provided. The inbound general traffic lane on Tempoegue Road from Rathdown Park to Terenure Cross would be removed to reduce the required land acquisition on residential properties approaching Terenure Cross. A bus gate would be implemented on Tempoegue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Tempoegue Road junction to Rathdown Park (Local access would be permitted). Segregated cycle facilities would be provided along each side of Tempoegue Road between Fortfield Road and Lakelands Park. Between Lakelands Park/Tempoegue Road junction and Terenure Road West/Tempoegue Road cyclists would be able to divert onto an alternative route via Lakelands Park – Greenlea Grove – Greenlea Road – Terenure Road West.

- Option S2-10 would consist of providing an outbound bus lane along Tempoegue Road from Rathdown Park to Fortfield Road. An inbound bus lane would be provided along from Rathdown Park/Tempoegue Road junction to Terenure Road West/Tempoegue Road junction. A bus gate would be implemented on Tempoegue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from the Springfield Avenue/Tempoegue Road junction to Rathdown Park/Tempoegue junction (Local access would be permitted). No inbound traffic lane would be provided between the Fortfield Road/Tempoegue Road junction and the Rathdown Park/Tempoegue junction (Local access would be permitted). Outbound cycle facilities would be provided along Tempoegue Road from Terenure Cross to Rathdown Park. Between the Lakelands Park/Tempoegue Road junction and the Terenure Road West/Tempoegue Road junction cyclists would be able to divert onto an alternative route via Lakelands Park – Greenlea Grove – Greenlea Road – Terenure Road West. The removal of the inbound general traffic lane is proposed on Tempoegue Road from Rathdown Park to Terenure Cross to reduce the required land acquisition on residential properties approaching Terenure Cross.

- Option S2-11 would consist of providing bus lanes in each direction for the majority of the route along Tempoegue Road, with the exception of a 300m section of Tempoegue Road from Rathdown Park to Terenure Cross where an outbound bus lane would not be provided. The removal of the inbound general traffic lane is proposed on Tempoegue Road from Rathdown Park to Terenure Cross to reduce the required land acquisition on residential properties approaching Terenure Cross.



A bus gate would be implemented on Templeogue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Templeogue Road junction to Rathdown Park (Local access would be permitted). Outbound cycle facilities provided along Templeogue Road from Terenure Cross to Rathdown Park. Between Lakelands Park/Templeogue Road junction and Terenure Road West/Templeogue Road cyclists would be able to divert onto an alternative route via Lakelands Park – Greenlea Grove – Greenlea Road – Terenure Road West.

- Option S2-12 would consist of providing an outbound bus lane along Templeogue Road from Rathdown Park to Springfield Avenue. An inbound bus lane would be provided between the Olney Grove/Templeogue Road junction and the Terenure Road West/Templeogue Road junction. A bus gate would be implemented on Templeogue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Templeogue Road junction to Rathdown Park/Templeogue junction (Local access would be permitted). No inbound traffic lane would be provided between the Fortfield Road/Templeogue Road junction and Rathdown Park/Templeogue junction (Local access would be permitted). A two-way cycle route would be provided through Bushy Park adjacent to Templeogue Road. A shared/mixed street would be provided along Rathdown Drive. Segregated cycle facilities would be provided in the outbound direction from the Terenure Road West/Templeogue Road junction to Rathdown Drive pedestrian access/new proposed Toucan crossing. The inbound general traffic lane on Templeogue Road would be removed from Olney Grove to Terenure Cross, to reduce the required land acquisition on residential properties approaching Terenure Cross.

Under the Economy criteria, Options S2-10, S2-11 and S2-12 all performed significantly better than other options due to the lower infrastructure costs and land acquisition costs associated with these options. In terms of Transport Quality and Reliability, Options S2-1, S2-3 and S2-5 to S2-8 all performed significantly better than other options as full bus priority would be provided along the corridor with these options.

Under the Integration criteria, all options performed marginally better than Option S2-4 due to the fact that Option S2-4 would serve a smaller residential and employment catchment due to its routing along Fergus Road. Options S2-1 to S2-4 and S2-8 performed significantly better than other options in terms of Cycling Integration due to the fact that the proposed cycle route is adjacent to the CBC along Templeogue Road.

In terms of Traffic Network Integration, Option S2-1, S2-4 and S2-5 performed significantly better than other options due to the fact that they would have little to no impact on existing traffic movements.

Under the Accessibility and Social inclusion criteria, Option S2-4 scored marginally lower than all other options due to its routing along Fergus Road.

In terms of Road Safety, a number of Options including S2-4, S2-20 **(\* TAA NOTE)** and S2-12 performed marginally worse than other options due to the fact that fully segregated bus lanes were



not proposed along the entire section. In terms of Pedestrian Safety, Options S2-11 and S2-12 performed marginally worse than all other options as no footpath would be provided on the eastern side of Templeogue Road from Fortfield Riad to Rathdown Park.

One of the primary criteria applied to the multi-criteria assessment is 'Environment', under which there was a number of sub-criteria which each route option was considered against comparatively.

All 12 route options were considered neutral when compared against one another under the Archaeological, Cultural Heritage and Architectural Heritage impacts sub-criterion, given none presented any appreciable impacts.

With regard to Flora and Fauna, options S2-12 was considered to have significant advantages over the other options as it would not impact on any existing trees along the route, whereas all other options had varying degrees of impact on existing trees.

All 12 route options were considered neutral when compared against one another under the Soils and Geology sub-criterion, given none presented any appreciable impacts.

All route options were considered neutral when compared against one another under the Hydrology sub criterion, given none presented any appreciable impacts.

With regard to Landscape and Visual, it was considered that options S2-10, S2-11 and S2-12 had significant advantages over other options due to the fact that property acquisition would be minimised under these options.

With regard to Air Quality, it was considered that options S2-10, S2-11 and S2-12 had significant advantages over other options due to the fact that residential access only would be permitted on Templeogue Road, due to the proposed bus gate. It was noted that these options would also minimise the number of vehicles rerouting to residential roads such as Rathdown Park.

With regard to Noise and Vibration, it was considered that options S2-10, S2-11 and S2-12 had significant advantages over other options due to the fact that residential access only would be permitted on Templeogue Road, due to the proposed bus gate. It was noted that these options would also minimise the number of vehicles rerouting to residential roads such as Rathdown Park.

With regard to Land Use Character, it was considered that option S2-4 had significant advantages over other route options due to the greater impacts that other options would have on the accessibility to the businesses in Terenure Village.

Option S2-12 was identified as having significant benefits over other options in relation to Capital Cost, Flora and Fauna, Landscape and Visual, Air Quality and Noise and Vibration.

Option S2-12 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route.



*\* In the NTA's submission S2-20 is referred to as performing poorly in relation to safety – it must be pointed out there is no option S2-20.*

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*\*In the NTA's submission S2-20 is referred to as performing poorly in relation to safety – it must be pointed out there is no option S2-20.*

It has been noted above this is the key section of the corridor the CLG commissioning the work is concerned about and especially the recommendation for a bus gate in the preferred Option S2-12. Among Option S2-1 – Option S2-12 Options S2-1, S2-8, S2-9, S2-10, S2-11 and S2-12 all provide for a bus gate on Templeogue Road to ensure only inbound (north-eastbound) buses and cyclists would be permitted entry from Springfield Avenue/Templeogue Road junction to Rathdown Park/Templeogue junction.

This poses real issues for residents in adjacent areas about rat running as traffic is redistributed through currently very quiet neighbourhoods with attendant safety risk to the young and elderly in particular.

It has also been highlighted that traffic restraint measures in these areas are 'effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer' in this corridor.

In the light of these and the other observations the residents have a range of concerns (cited above);

- about the transport and traffic effectiveness of this proposal;
- concern for the quality of access to a range of facilities between Terenure Cross and Rathmines and the city centre for selected mobility impaired residents of areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West;
- the potential for redistribution of private vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and a range of detrimental environmental effects;
- the potential for redistribution of freight vehicle traffic that currently uses Templeogue Road in a northbound direction to impact on residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West;



this would include impacts on road safety risks and a range of detrimental environmental effects; and

- the potential for development of informal Park & Ride parking accumulation by existing private vehicle users that currently use Templeogue Road (northbound direction) in residential areas bounded by Cypress Grove Road/Wainsfort Road Templeville Road/ /Fortfield Road/Terenure Road West; this would include impacts on road safety risks and accumulation of additional parked vehicles on sections adjoining or linking to the proposed scheme.

We are of the view that the assessment of the MCA concerning options may not be robust and alternatives to this proposal could provide an improved net outcome for society overall from a revised assessment of options. These would include upgrading the existing bus priority light to take on the characteristics of a redesigned bus lane queue relocation site managed by priority lights favouring buses - 'hurry lights'.

### 3.3.2.2 Rathfarnham to City Centre Corridor: Route Options Assessment

The Stage 2 Assessment for the Rathfarnham to City Centre scheme followed the same three sections as per the Stage 1 assessment.

#### 3.3.2.2.1 Section 1: Route Options Assessment

Following the Stage 1 sifting process, three viable route options for Section 1 were taken forward for assessment and further refinement:

- Route Option SA1: A route option via Grange Road and Rathfarnham Road;
- Route Option SA2: A route option via Grange Road and Rathfarnham Road with a parallel cycle route via Rathfarnham Wood and Castleside Drive;
- Route Option SB1: A route option via Nutgrove Avenue, Nutgrove Way, Braemor Road and Dodder Park Road.

These were further split into Sub-options NAC 1 and NAC2 and further sub-sections along Nutgrove Avenue between Grange Road and Nutgrove Way.

A multi-criteria assessment of all scheme options was undertaken. Following a detailed MCA, sub-option NAC1 was identified as the preferred sub-option for this sub-section and was brought forward for assessment as part of Option SB1.

Option SA1 was identified as having significant benefits over other options in relation to Transport Quality and Reliability and Cycle Network Integration. Option SA1 was identified as the preferred option for this section and was brought forward into the Emerging Preferred Route.

#### 3.3.2.2.2 Section 2: Route Options Assessment

Following the Stage 1 sifting process, seven viable route options for Section 2 were taken forward for assessment and further refinement:



- Route Option CB1 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Inbound traffic only on Rathgar Road, Outbound traffic only Rathmines Road);
- Route Option CB2 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Inbound traffic only on Rathgar and Rathmines Road);
- Route Option CB3 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Outbound traffic only on Rathgar and Rathmines Road);
- Route Option CB4 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Parallel cycle route via Charleville Road, Grosvenor Lodge and Cathal Brugha Barracks);
- Route Option CB5 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Inbound bus lane provided on Rathmines Road Lower from Rathmines Road Upper to Military Road junction and outbound bus lane provided from Grove Road to Military Road junction);
- Route Option CB6 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Outbound traffic only on Rathmines Road Lower); and
- Route Option CB7 - A route option via Rathfarnham Road, Terenure Road East, Rathgar Road, Rathmines Road Lower (Bus lanes via Highfield Road/Rathmines Road Upper) (Parallel cycle route).

Within these route options, two constrained sections required specific consideration. These constrained locations are Terenure Village to Rathgar Village denoted TVR, and Cycle Route options between Bushy Park Road junction and Grand Canal.

A multi-criteria assessment was carried out within each of these two sub-sections.

#### 3.3.2.2.2 Sub-section - Parallel Cycle Route Options between the Dodder Crossing and the Grand Canal

There were six scheme sub-options (CR1 to CR6) considered for the section between the Bushy Park junction on Rathfarnham Road to the Grand Canal Crossing via Rathmines Village which are discussed below.

- Sub-option CR1: This route sub-option would include the provision of a cycle route via Rathfarnham Road, Terenure Road East, Highfield Road, Rathmines Road Upper, Castlewood Avenue and Mount Pleasant Avenue. The route would also include a new cycle bridge crossing the Grand Canal;
- Sub-option CR2: This route sub-option would include the provision of a cycle route via Rathfarnham Road, Terenure Road East, Rathgar Avenue, Kenilworth Square, Grosvenor Square,



Mount Drummond Avenue, and O'Hara Avenue. The route would also include a new cycle bridge crossing the Grand Canal;

- Sub-option CR3: This route sub-option would include the provision of a cycle route via Rathfarnham Road, Terenure Road East, Rathgar Road, Grosvenor Road, Grosvenor Square, Mount Drummond Avenue, and O'Hara Avenue. The route would also include a new cycle bridge crossing the Grand Canal;
- Sub-option CR4: This route sub-option would include the provision of a cycle route via Terenure Road East, Rathgar Road, Charleville Road, Wynnefield Road, Prince Arthur Terrace, Leinster Square, Louis Lane, Ardee Road, Lissenfield, and Grove Park. The route would also include a new cycle bridge crossing the Grand Canal;
- Sub-option CR5: This route sub-option would include the provision of a cycle route via Terenure Road East, Rathgar Road, Charleville Road, Grosvenor Lodge and Cathal Brugha Barracks. The route would also include a new cycle bridge crossing the Grand Canal; and
- Sub-option CR6: This route sub-option would include the provision of a cycle route via Terenure Road East, Rathgar Road and Rathmines Road Lower. Due to width constraints on La Touche Bridge a new cycle bridge is proposed to the west of the bridge, connecting with Martin Street.

A specific set of criteria were used to assess the relative merits of each of the cycle routes outlined above. The assessment sub-criteria which were differentiators between scheme sub-options included Capital Cost, Road Safety, Coherence, Directness, Attractiveness, Comfort, and Environment. Sub-option CR5 was identified as having significant benefits over other sub-options in relation to Attractiveness and Comfort, and some benefits over other sub-options in relation to Road Safety, Coherence and Directness. Following an MCA, sub-option CR5 was identified as the preferred option for this sub-section and was brought forward for assessment as part of the principal route options.

Following the assessment of the two constrained sub-sections as outlined above, an MCA has been undertaken of the 7 principal route options along this section of the scheme in order to determine the most appropriate scheme for this section of the Proposed Scheme. These options are set out in the table below :

- Option CB1 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross and a 70m section along Rathmines Road Lower between Rathmines Road Upper and Castlewood Avenue). Outbound traffic would be removed from Rathgar Road and, inbound traffic would be removed from Rathmines Road. Segregated cycle facilities would be provided along the majority of the CBC route;
- Option CB2 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross and a 70m section along Rathmines Road Lower between Rathmines Road Upper and Castlewood Avenue). Outbound traffic would be removed from Rathgar Road and Rathmines Road. Segregated cycle facilities would be provided along the majority of the CBC route;



- Option CB3 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross and a 70m section along Rathmines Road Lower between Rathmines Road Upper and Castlewood Avenue). Inbound traffic would be removed from Rathgar Road and Rathmines Road. Segregated cycle facilities would be provided along the majority of the CBC route;
- Option CB4 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross). It is proposed to provide segregated cycle facilities on Rathfarnham Road, Terenure Road East and Rathgar Road. Cyclists would be catered for via a parallel cycle route along Charleville Road, Grosvenor Lodge and Cathal Brugha Barracks (see CR5).
- Option CB5 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and Rathmines Village (with exception of a 100m section at Terenure Cross). An inbound bus lane would be provided on Rathmines Road Lower from Rathmines Road Upper to the Military Road junction, whilst an outbound bus lane provided from Grove Road to the Military Road junction. Segregated cycle facilities would be provided along the majority of the CBC route;
- Option CB6 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross). It is proposed to remove general traffic in the northbound (inbound) direction along Rathmines Road Lower between Castlewood Avenue and Grove Road. It is also proposed to provide segregated cycle facilities along the majority of the CBC route; and
- Option CB7 would include the provision of segregated bus facilities between the Dodder River crossing at Pearse Bridge and the Grand Canal crossing at La Touche Bridge (with exception of a 100m section at Terenure Cross). This option would be routed via Highfield Road and Rathmines Road Upper. It is proposed to provide segregated cycle facilities along Rathfarnham Road and Terenure Road East. Cyclists would also be catered for via parallel cycle routes via Rathgar Road, Charleville Road, Grosvenor Lodge and Cathal Brugha Barracks.

The assessment sub-criteria which were differentiators between scheme options included Capital Cost, Transport Reliability and Quality, Residential Population and Employment Catchments, Cycle Network Integration, Traffic Network Integration, Key Trip Attractors, Road Safety, Architectural Heritage, Flora and Fauna, Landscape and Visual and Land Use Character.

Under the Economy criterion, in terms of Capital Cost, Options CB1, CB2 and CB3 performed marginally better than the other options due to the reduced requirement for land acquisition for these options. In terms of Transport Quality and Reliability Options CB4 and CB6 performed significantly better than other options due to the fact that full priority would be provided along the majority of the route.

In terms of Integration, Option CB7 performed marginally better than all other options in relation to Residential Population and Employment Catchments due to the alternative routing for buses along Highfield Road and Rathmines Road Upper.



In relation to Cycling Integration, Option CB1, CB2, CB3 and CB5 performed significantly better than other options due to the fact that these routes provide online cycling facilities along the entire route corridor.

In relation to Traffic Network Integration, Options CB1, CB2 & CB3 perform significantly worse than other options as they provide for only one-way traffic on Rathmines Road and Rathgar Road which would have a significant traffic impact in terms of movement restrictions and increased traffic/congestion on Rathmines Road.

In terms of 'Road Safety', Options CB4 and CB6 performed marginally better than other options as these options have fewer junctions than other options.

As mentioned previously each route option was evaluated using a multi-criteria assessment with one of the primary criteria is 'Environment', under which there was a number of sub-criteria which each route option was considered against comparatively.

- All seven route options were considered neutral when compared against one another under the Archaeology and Cultural Heritage sub-criterion, given none presented any appreciable impacts.
- With regard to Architectural heritage, options CB1, CB2, CB3 and CB7 were considered to have moderate advantages over the other options due to the fact that other options require more significant impacts on the curtilage of protected structures on Rathgar Road.
- With regard to Flora and Fauna, options CB1, CB2, CB3 were considered to have moderate advantages over the other options as these options would impact on fewer existing trees along the route.
- All three route options were considered neutral when compared against one another under the Soils, Geology and Hydrology sub-criterion.
- With regard to Landscape and Visual, it was considered that options CB1, CB2 and CB3 had moderate advantages over other options as options CB4, CB5 and CB6 require more significant impacts on adjacent properties on Rathgar Road and option CB7 would require significant re-engineering of Highfield Road to provide bus lanes.
- All seven route options were considered neutral when compared against one another under the Air Quality criterion.
- All seven route options were considered neutral when compared against one another under the Noise and Vibration criterion.
- With regard to Land Use Character, it was considered that options CB4 and CB5 had significant advantages over other route options due to the greater impacts that other options would have on access to the commercial amenities within Rathmines Village and the residential properties on Rathgar Road.

Option CB4 was identified as having significant benefits over other options in relation to Transport Quality and Reliability, Traffic Network Integration, Road Safety and Land Use Character. Option CB4 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route. CB4 incorporates the parallel CR5 cycle facility.



It is noted that subsequent to the preparation of the 'Rathfarnham to City Centre Core Bus Corridor CBC Feasibility Study and Options Assessment Report', it was decided that an option which provided online bus and cycle lanes along the route and one-way traffic outbound through Rathmines should be given further consideration. As a result, both Option CB4 and Option CB6 were presented for consideration by the public in the first non-statutory public consultation.

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The Multi Criteria Assessment (MCA) of the 7 route options incorporated the following sub-criteria to differentiate between scheme options: Capital Cost, Transport Reliability and Quality, Residential Population and Employment Catchments, Cycle Network Integration, Traffic Network Integration, Key Trip Attractors, Road Safety, Architectural Heritage, Flora and Fauna, Landscape and Visual and Land Use Character.

It is noted Options CB4 and CB6 performed significantly better than other options due to the fact that full priority would be provided along the majority of the route.

In relation to Cycling Integration, Option CB1, CB2, CB3 and CB5 performed significantly better than other options due to the fact that these routes provide online cycling facilities along the entire route corridor.

For Traffic Network Integration, Options CB1, CB2 & CB3 perform significantly worse than other options as they provide for only one-way traffic on Rathmines Road and Rathgar Road which would have a significant traffic impact in terms of movement restrictions and increased traffic/congestion on Rathmines Road.

In terms of 'Road Safety', Options CB4 and CB6 performed marginally better than other options as these options have fewer junctions than other options.

Each route option was evaluated using a multi-criteria assessment with one of the primary criteria is 'Environment'.

- All seven route options were considered neutral when compared against one another under the Archaeology and Cultural Heritage sub-criterion.
- With regard to Architectural heritage, options CB1, CB2, CB3 and CB7 were considered to have moderate advantages over the other options.
- With regard to Flora and Fauna, options CB1, CB2, CB3 were considered to have moderate advantages over the other options. All three route options were considered neutral when compared against one another under the Soils, Geology and Hydrology sub-criterion. With regard to Landscape and Visual, it was



considered that options CB1, CB2 and CB3 had moderate advantages over other options.

- All seven route options were considered neutral when compared against one another under the Air Quality criterion and under the Noise and Vibration criterion.
- With regard to Land Use Character, it was considered that options CB4 and CB5 had significant advantages over other route options due to the greater impacts that other options would have on access to the commercial amenities within Rathmines Village and the residential properties on Rathgar Road.
- Option CB4 was identified as having significant benefits over other options in relation to Transport Quality and Reliability, Traffic Network Integration, Road Safety and Land Use Character.
- **Option CB4 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route. CB4 incorporates the parallel CR5 cycle facility.**

It is noted however, that subsequent to the preparation of the 'Rathfarnham to City Centre Core Bus Corridor CBC Feasibility Study and Options Assessment Report', it was decided that an option which provided online bus and cycle lanes along the route and one-way traffic outbound through Rathmines should be given further consideration. As a result, both Option CB4 and Option CB6 were presented for consideration by the public in the first non-statutory public consultation.

#### 3.3.2.2.3 Section 3: Route Options Assessment

Following the Stage 1 sifting process, two viable route options for Section 3 were taken forward for assessment and further refinement:

- Option CC1- A route option via Richmond Street, Camden Street and Wexford Street; and
- Option CC2 - A route option via Richmond Street, South Circular Road, Clanbrassil Street and New Street South.

These routes are presented in Image 3.16

Route Option CC1 would include the provision of segregated bus facilities along Richmond St/Camden St/Wexford St between La Touche Bridge/Richmond Street South and Wexford Street/Kevin Street Lower junction (with the exception of a 75m section of Richmond Street and a 60m section of Wexford Street). Cyclists would be catered for via a parallel cycle route along Martin Street/Heytesbury Street/Bride Street.

Route Option CC2 would include the provision of segregated bus facilities along Richmond Street/South Circular Road/Clanbrassil Street/Patrick Street between La Touche Bridge/Richmond Street South and New Street South/Kevin Street Upper junction (with the exception of a 75m section of Richmond Street). Cyclists would be catered for via a parallel cycle route along Grove



Road (existing cycle facilities)/Longwood Avenue/Emorville Avenue and would reconnect with the CBC route at Lombard Street West.

An MCA has been undertaken of the principal route options along this section of the scheme in order to determine the most appropriate scheme for this section of the Proposed Scheme.

Option CC1 was identified as having moderate benefits over other options in relation to Capital Cost, Transport Quality and Reliability, Cycle Network Integration, Key Trip Attractors, Road Safety, Pedestrians Safety, Flora and Fauna and Landscape and Visual. Option CC1 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route.

#### **Further Changes to the Choice of Route Option**

Following the completion of the public consultation process in relation to the Emerging Preferred Route, various amendments were made to the scheme proposals to address a number of the issues raised in submissions. These amendments were incorporated into the designs and informed a draft Preferred Route Option.

##### **3.4.1.1 Alternatives Considered at Draft PRO Stage**

The main alternatives considered within these three sections during the development of the draft Preferred Route Option include the following:

###### **3.4.1.1.1 Templeogue Road between Cypress Grove Road and Springfield Avenue**

The EPR Option proposal within Templeogue Village required land acquisition within Templeogue Village as well as reducing the available public realm space and impacting on a number of parking spaces within the village. Alternative options for bus priority through this scheme section were explored. At the draft Preferred Route Option stage Option TG2 - the provision of bus priority traffic signals provided on either side of Templeogue Village, with signal controlled priority provided through the village - was identified as the preferred option.

Additional options were considered and assessed for cycling facilities on the proposed scheme between Rathfarnham to City Centre. Option PC8 - a parallel cycle route along St Mary's Avenue and the Owendoher River connecting to the Dodder Greenway and new bridge to Rathdown Park was identified as the preferred option for this sub-section and was brought forward for assessment as part of the principal route options.

###### **3.4.1.1.2 Grange Road to Rathdown Park - Principal Route Options**

Following the initial assessment of Parallel Cycle Route options, a number of principal route options for the delivery of the CBC scheme from Grange Road to Rathdown Park were developed.

Option RF3: One-way inbound general traffic on Rathfarnham Road between Castleside Drive and Dodder Park Road with two bus lanes and online cycle tracks on the CBC was taken forward as on balance, it best met the Proposed Scheme objectives when compared to the other options.

###### **3.4.1.1.3 Terenure to Grosvenor Road**



The EPR Option within this section of the Proposed Scheme proposed to provide bus and traffic lanes in each direction along Terenure Road East, except for a short section between Terenure Cross and Aldi where only an outbound bus lane was proposed. Cycle lanes were proposed in each direction between Ferrard Road and Rathgar Avenue. It was highlighted through the public consultation process that this proposal impacted on several properties with heritage value, including the loss of mature trees from within these properties. On Rathgar Road the EPR Option proposed bus lanes, traffic lanes and cycle tracks in each direction along Rathgar Road. This would result in impact on heritage properties along the length of Rathgar Road as well as the loss of trees from within these properties. These impacts were noted as being of concern to many local residents during the public consultation. Five alternative design solutions were therefore explored in this area in determining a draft Preferred Route Option stage.

Option RG2 – the provision of bus lanes and general traffic lanes on Terenure Road East, a one-way outbound regime on Rathgar Road and alternative cycle facilities on Terenure Road North/Harold's Cross Road and Bushy Park Road, Wasdale Park, Wasdale Grove, Victoria Road, Zion Road and Orwell Road - was identified as the preferred option as it best aligned with the objectives for the Proposed Scheme.

#### 3.4.1.1.4 Rathmines to Grand Canal

As noted in Section 3.3.2.2.2, the EPR Option identified two potential options for Rathmines Village, both taken forward to public consultation and for more detailed assessment as part of this process.

Option A proposed keeping cyclists on Rathmines Road Lower with bus lanes provided in each direction and only a single traffic lane to accommodate outbound traffic. Option B proposed diverting cyclists to an alternative cycle route to the west of Rathmines Road Lower with bus and traffic lanes provided in each direction along Rathmines Road Lower.

The responses to the public consultation showed a clear preference for Option A on the basis that the cycle route proposed in Option B was indirect and unattractive compared to Option A. However, Option A would require reductions to footpath width along Rathmines Road Lower that could impact on the public realm within Rathmines Village. More detailed alternative design solutions have therefore been explored in this area in determining a draft PRO.

These options are briefly outlined below:

- Option RM1: Two Bus lanes, one outbound traffic lane and two 1.5m wide cycle tracks through Rathmines Village. (Previously EPR Option A);
- Option RM2: Two Bus lanes and two general traffic lanes through Rathmines Village with an alternative offline cycle route provided. The offline route commences by directing cyclists down Charleville Road and Wynnefield Road. It is proposed to run a cycleway access through Wynnefield Park connecting to Prince Arthur Terrace and on to Leinster Square. The cycle route would cross Leinster Road and down Louis Lane through a proposed entry point to the lands at the rear of DIT Conservatory of Music and Drama into William Park and Ardee Road. The proposed cycleway would then cross Military Road and across the sports ground in front of St. Mary's College Rathmines Senior School. The cycle lane would then be routed through Cathal Brugha Barracks around the boundary with the Lissenfield Development and the rear of the Grove Park properties. The



proposed cycle route then crosses Grove Road onto a new canal crossing and continues on other streets to the city centre. (Previously EPR Option B); and

- Option RM3: Two general traffic lanes and two 2m wide cycle tracks through Rathmines Village with a bus gate located between Richmond Hill and Military Road.

Option RM3 was identified as the preferred option as it best aligned with the objectives for the Proposed Scheme by providing the appropriate level of bus priority and fully segregated cycle tracks throughout this section of the Proposed Scheme, while acknowledging the urban village function of Rathmines Village through proposed footpath widening. The preferred option performed equally to other options under all other environmental criteria.

#### 3.4.1.1.5 Grand Canal to Christchurch Place

The previous MCA undertaken determined that a route along Richmond Street, Camden Street and Wexford Street was the EPR Option. The EPR Option proposed that Camden Street/Wexford Street between Harrington Street and Cuffe Street would be upgraded to include bus lanes in each direction along its length except for a short section on Wexford Street where only an inbound bus lane would be provided. No cycle tracks were proposed in this area and the published drawings stated that 'Additional cycle facilities along Camden Street (secondary cycle route 10) to be considered as part of next design development stage'. More detailed alternative design solutions were explored in this area in determining a draft PRO.

Three options were specified and assessed. Option CS3 - a one-way outbound traffic arrangement on Camden Street and Wexford Street with online bus lanes and cycle tracks in this section, with inbound traffic diverted to Harcourt Street - was identified as the preferred option as it best aligned with the objectives for the Proposed Scheme by providing physical bus priority and fully segregated cycle tracks throughout the majority of this section of the Proposed Scheme.

#### 3.4.2 Consideration following Draft Preferred Route Option Consultation (March 2020)

The draft Preferred Route Option was published in March 2020 and a second round of public consultation occurred between 4 March 2020 to 17 April 2020. Due to COVID-19 restrictions in mid-March, the planned Public Information Events were impacted. There was a total of 93 submissions received during this second round of public consultation.

A number of changes to the design were made based on feedback received during the second round of public consultation and dialogue with stakeholders. However, the changes made to the draft Preferred Route Option were relatively small scale and no further option assessments using the MCA described in Section 3.3.2 were required.

These key changes for the Proposed Scheme implemented in the design of the Updated Draft PRO were limited for the sections relating to the Tallaght to Terenure Core Bus Corridor. For the portion of the Proposed Scheme relating to the Rathfarnham to City Centre Core Bus Corridor they include:

- The provision of an east-west connection for cyclists between R114 Rathfarnham Road and R114 Rathgar Road using a route along Bushy Park Road, Wasdale Grove, Zion Road and Orwell Road;



- The redesign of the Terenure Cross junction to provide direct pedestrian crossings and to minimise traffic island widths;
- The positioning of the Bus Gate in Rathmines just north of Richmond Hill, instead of south of it, and the closure of Mountpleasant Avenue Lower to traffic;
- The closure of Mountpleasant Avenue Lower to general traffic through the provision of kerb build outs. It is noted that cyclists would still be permitted to access Mountpleasant Avenue Lower.

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As noted in Section 3.3.2.2.2, the EPR Option identified two potential options for Rathmines Village, both taken forward to public consultation and for more detailed assessment as part of this process. These were Option CB4 was identified as having significant benefits over other options in relation to Transport Quality and Reliability, Traffic Network Integration, Road Safety and Land Use Character. Option CB4 was therefore identified as the preferred option for this section and was brought forward into the Emerging Preferred Route. CB4 incorporates the parallel CR5 cycle facility. Under CR5 Cyclists would be catered for via a parallel cycle route along Charleville Road, Grosvenor Lodge and Cathal Brugha Barracks .

**At a subsequent stage, and this is difficult to follow for the reader of the NTA's documents, options were redesignated with a different nomenclature.**

Under Option A proposed keeping cyclists on Rathmines Road Lower with bus lanes provided in each direction and only a single traffic lane to accommodate outbound traffic. Option B proposed diverting cyclists to an alternative cycle route to the west of Rathmines Road Lower with bus and traffic lanes provided in each direction along Rathmines Road Lower.

However contrary to the recommendations of the NTA's advisers the public consultation showed a clear preference for Option A on the basis that the cycle route proposed in Option B was indirect and unattractive compared to Option A. Option A would require reductions to footpath width along Rathmines Road Lower that could impact on the public realm and the practicality of accommodating cycle, bus and general traffic within Rathmines Village. More detailed alternative design solutions were therefore explored in this area.

These options are briefly outlined below:

- Option RM1: Two Bus lanes, one outbound traffic lane and two 1.5m wide cycle tracks through Rathmines Village. (Previously EPR Option A);
- Option RM2: Two Bus lanes and two general traffic lanes through Rathmines Village with an alternative offline cycle route provided. The offline route commences by directing cyclists down Charleville Road and Wynnefield Road. It is proposed to run a cycleway access through Wynnefield Park connecting to Prince Arthur Terrace and on to Leinster Square. The cycle route would cross Leinster Road and down Louis Lane through a proposed entry point to the lands at the rear of DIT Conservatory of Music and Drama into William Park and Ardee Road. The proposed cycleway would then cross Military Road and across the sports ground in front of St. Mary's College Rathmines Senior School. The cycle lane would then be routed through Cathal Brugha Barracks around the boundary



with the Lissenfield Development and the rear of the Grove Park properties. The proposed cycle route then crosses Grove Road onto a new canal crossing and continues on other streets to the city centre. (Previously EPR Option B); and

- Option RM3: Two general traffic lanes and two 2m wide cycle tracks through Rathmines Village with a bus gate located between Richmond Hill and Military Road.

Notwithstanding the recommendations of the NTA's advisers that CB4 (now effectively RM2) was their preferred at the earlier stage, Option RM3 was subsequently identified as the preferred option. This led to the Bus Gate proposal that emerged belatedly in conjunction with RM3. This proposal seems at odds with original assessment of CB4 by the NTA's advisers that CB4 in conjunction with CR5 was their recommended option.

It has already been noted in relation to this corridor that a bus gate is likely that the most stringent tool of traffic restraint to be applied. There is also a concern that demand management of this type may not be applied uniformly and consistently applied to all the CBC Infrastructure Works/ BusConnects served corridors.

There are also doubts about the transport and traffic effectiveness of this proposal, concern for the quality of access to a range of facilities for selected mobility impaired residents of affected areas, the potential for redistribution of private vehicle and freight traffic to impact on other residential areas, the potential for development of informal Park & Ride parking accumulation by existing private vehicle traffic before the gate in addition to the availability of alternatives to such a proposal.

**3.4.3 Further Consideration following Updated Draft Preferred Route Option Consultation (November 2020)** The third round of public consultation on the updated draft Preferred Route Option took place from the 04 November to 16 December 2020 and was held virtually due to the continuing effect of the COVID-19 pandemic and associated restrictions. There was a total of 1,543 submissions received during this round of public consultation. Arising from the feedback received during this consultation process, a number of changes to the design were made based on feedback received during the third round of public consultation and dialogue with stakeholders. The changes made to the draft PRO in two specific locations required further options assessments using the MCA. The additional options assessment carried out are summarised below.

#### **3.4.3.1 Templeogue Road between Cypress Grove Road and Springfield Avenue**

Following feedback received as part of the public consultation and further traffic assessment, an additional option was developed for consideration within this section to minimise the impact on properties to the north of Templeogue Road. Option TG3-Bus priority traffic signals provided on either side of Templeogue Village, with signal controlled priority provided through the village was identified as an improved option as it best aligned with the objectives for the Proposed Scheme by providing physical bus priority and fully segregated cycle tracks throughout the majority of this section of the Proposed Scheme while minimising impacts on adjacent properties.

#### **3.4.3.2 Grange Road to Rathdown Park**



Following feedback received as part of the public consultation in addition to further environmental constraints identified through further environmental investigations, additional assessment was considered warranted for this section of the Proposed Scheme. Option RF5 - an inbound bus lane, two general traffic lanes and two 1.5m wide cycle tracks provided on Rathfarnham Road south of the River Dodder. A combination of bus lanes and signal-controlled priority, with two general traffic lanes and two 1.5m wide cycle tracks provided on Rathfarnham Road between the River Dodder and Bushy Park Road. Two bus lanes, two general traffic lanes and two 1.5m wide cycle tracks provided on Rathfarnham Road between Bushy Park Road and Terenure Cross - was identified as the preferred option as it best aligned with the objectives for the Proposed Scheme by balancing the provision of physical bus priority and segregated cycle with engineering and construction constraints.

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### **Chapter 3 of EIAR**

#### **Observations**

These further rounds of consultation and consideration and subsequent amendments to the updated draft Preferred Route Option leading to changes made to further changes to the draft PRO are noted.



## 7. Traffic and Transport Impacts of Proposed Scheme – An In-depth Assessment

### Context

7.1. Chapter 2 of the Environmental Impact Assessment Report (EIAR) addressed the need for and reviewed evidence of the benefits yielded by the Proposed Scheme in the corridor. We now turn to consideration of the transport models in Section 7 of our submission. This draws on the detail provided by the NTA's consultants in the EIAR's Chapter 6 (Traffic & Transport) on the modelling and transport analysis, which also assesses the impact of the Proposed Scheme against key metrics and comparatively between Do Minimum and Do Something (i.e. with the Proposed Scheme) scenarios.

This identified a series of critical issues and posed questions about the efficacy of the Proposed Scheme. In the light of those issues, it is important to investigate the case for and impacts of the Proposed Scheme in more depth. A more detailed assessment of transport impacts arising from the delivery of the Proposed Scheme is presented in Chapter 6 (Traffic & Transport). Further detail is provided in Chapter 6 (Traffic & Transport) on the modelling and transport analysis carried out as part of the EIAR, which assesses the impact of the Proposed Scheme against key metrics and comparatively between Do Minimum and Do Something (i.e. with the Proposed Scheme) scenarios.

This review draws substantially on the content of Chapter 6 and supporting documents as well as additional material relating to the tools employed in the forecasting and investment appraisals that have informed assessment of the efficacy of the Proposed Scheme. To facilitate cross referencing to the EIAR the section numbering employed in the EIAR is retained and the summarised content highlighted from Section 6.1 of Chapter 6 of the EIAR.

Assessing the efficacy of the scheme requires a review of the business case as reflected in the findings of the investment case produced in support of the scheme. This in turn will be based on the improvements the scheme offers to potential beneficiaries of the investment, both users of the facilities and non-users taking into account the 'costs' imposed on others both travellers and non-travellers residing, working or visiting the wider corridor. The benefits attributable to the Proposed Scheme will reflect the size of improvements in the level of service offered to current or prospective bus users, cyclists and walkers afforded by enhancements that would be brought about by the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor.

#### **Chapter 6 of EIAR**

##### **Observations and Commentary**

We have noted already the projected growth forecast for bus travel in this corridor, up 123% in the AM Peak Hour in the number of people travelling by bus, for the 'opening year' 2028 (5 years from now) is remarkable, particularly when it is noted these are in response solely to time savings/service punctuality improvements attributable to the CBC Infrastructure Works in the corridor. The projected 74% increase in TOTAL AM peak hour trips is equally extraordinary. The scale of these increases warrants an in-depth review of the evidence and the basis on which that estimate has been presented by the NTA's consultants.



These and other projections quoted in Chapter 2 of the EIAR warrant detailed inspection and review of the evidence, including the basis of its estimation, presented in support of claims for such increases in total and bus travel solely attributable to the CBC infrastructure bus priority measures.

Any doubt about the accuracy of these large forecast changes in travel behaviour also pose questions about the robustness of transport models employed to generate those forecasts and the validation and reliability of model parameters.

Any questions over the forecasts also raises questions about the robustness of the business case tabled in support of the investment in the Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works) in the Templeogue/Rathfarnham City Centre corridor.

## Assessment of Traffic and Transport Impacts of Proposed Scheme – The Approach and Methodology Adopted

### 6.1 Introduction

The Environmental Impact Assessment Report (EIAR) has considered the potential traffic & transport impacts associated with the Construction and Operational Phases of the Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme. The chapter describes the traffic and transport impacts in accordance with the requirements of the relevant Environmental Protection Agency's (EPA) guidance on the information to be contained in EIARs. To accompany this chapter, a Transport Impact Assessment (TIA) has been prepared. The TIA presents a comprehensive review of the traffic and transportation impacts associated with the Proposed Scheme. The TIA should be read in conjunction with this EIAR chapter and is included as Appendix A6.1 (Transport Impact Assessment Report) in Volume 4 of this EIAR.

Here are the key elements of the Proposed Scheme.

Total Length of Proposed Scheme		10km (+3.5km offline cycle routes)
Bus priority	Existing (km)	Proposed Scheme (km)
<b>Bus Lanes</b>		
Inbound	4.4	6.1
Outbound	1.5	5.4



Total Length of Proposed Scheme		10km (+3.5km offline cycle routes)
Bus priority	Existing (km)	Proposed Scheme (km)
<b>Bus Priority Through Traffic Management</b>		
Inbound	0.1	2.9
Outbound	0.3	3.0
Total Bus Priority (both directions)	6.3	17.4 (+175%)
<b>Bus Measures</b>		
Proportion of Route with Bus Measures	32%	87%
<b>Cycle Facilities Segregated</b>		
Inbound	1.3	9.6
Outbound	1.8	10.3
<b>Cycle Facilities – Non segregated</b>		
Inbound	3.3	1.7
Outbound	4.6	1.7
<b>Cyclist Facilities – Overall</b>		
Total Cyclist Facilities (both directions)	11	23.3 (+112%)
Proportion segregated	28%	85.4%
<b>Pedestrian Facilities</b>		
Number of Pedestrian Signal Crossings	76	106

#### 6.1.2 Iterative Design Process and Mitigation by Design

The development of the Preliminary Design for the Proposed Scheme involved various design stages. The multi-tiered modelling framework referred to above was developed to support this iterative design process.

Diagram 6.1 illustrates how the emerging design for the Proposed Scheme have been tested using the transport models as part the iteration. The transport models are intended to inform understanding of impacts of the proposals (mode share changes, traffic redistribution, bus performance etc.) with traffic flow information intended to provide indicators of other environmental parameters(e.g. Air Quality, Noise and Vibration, Climate etc.). This can provide 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 and adjustments to traffic signals as well as traffic management arrangements.



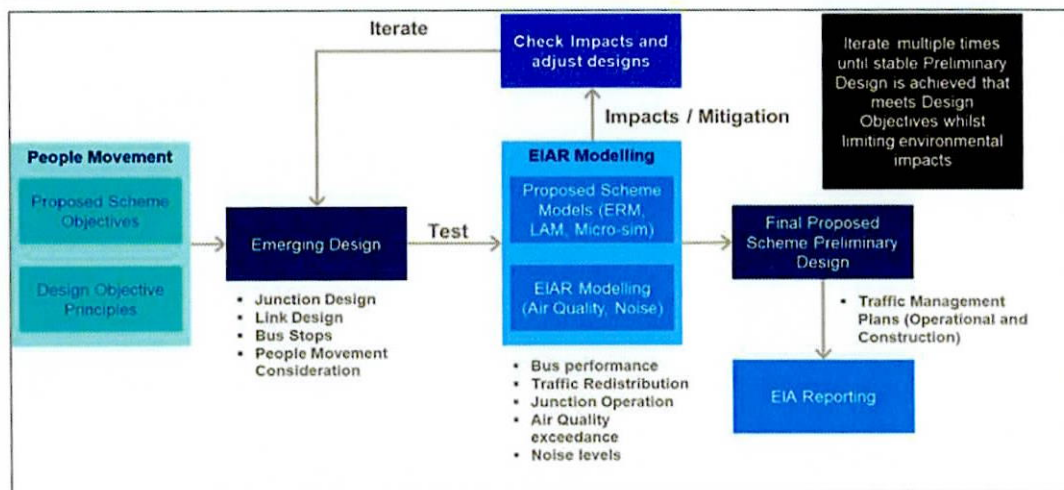


Diagram 6.1 Proposed Scheme Impact Assessment and Design Interaction

### 6.2.3 Scheme Impact Assessment Modelling Tools

The modelling tools that have been developed as part of the assessment, work as a combined modelling system, the foundations for which is the NTA's East Regional Model (ERM) as the primary source for multi-model demand and trip growth. Demand information is fed from the ERM to the cordoned Local Area Model (LAM), corridor micro-simulation models and junction models which have been refined and calibrated to represent local conditions to a greater level of detail than that contained in the ERM.

Four tiers of transport modelling have been used to assess the impacts of the Proposed Scheme as follows:

- 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) 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 input to 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 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.

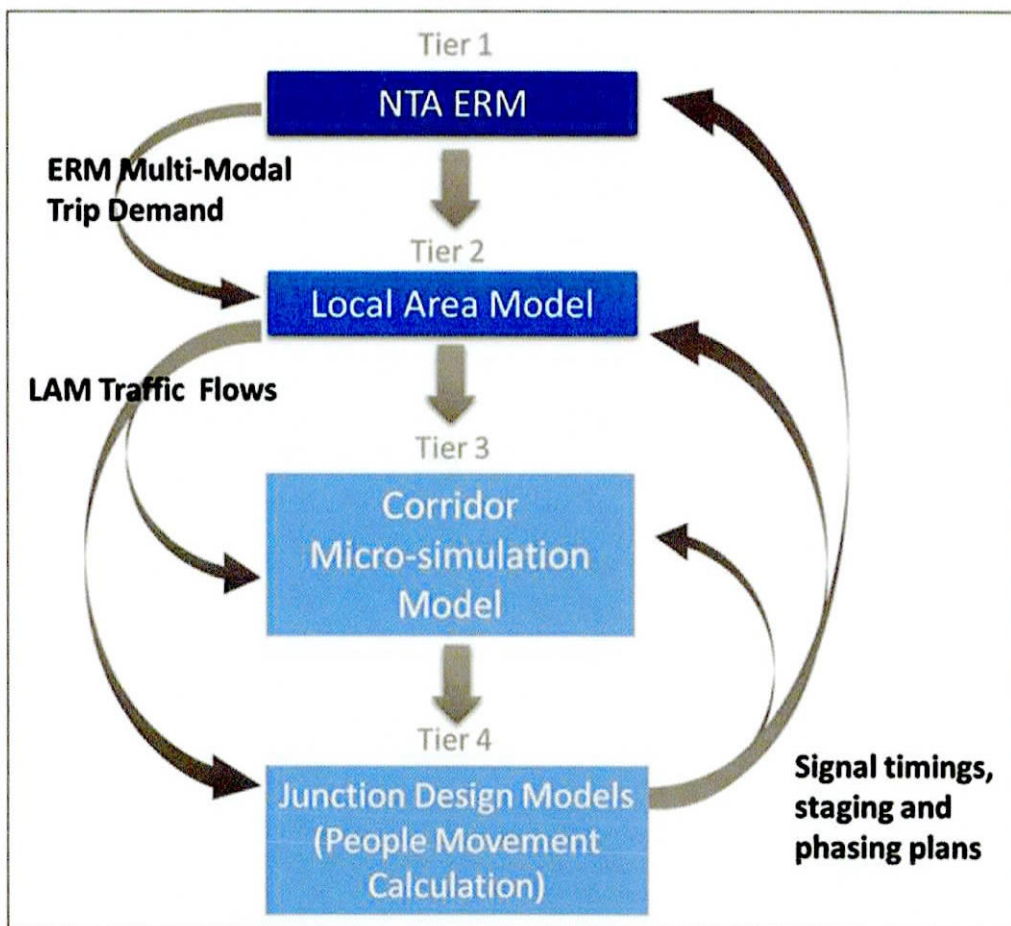


Diagram 6.3: Proposed Scheme Modelling Hierarchy



## **Chapter 6 of EIAR**

### **Observations**

Details on the transport model development process, the traffic data inputs used, the calibration, validation and forecast model development for the suite of transport models are set out in the Transport Modelling Report, in Appendix A6.2 (Transport Modelling Report) and Appendix A6.3 (Junction Design Report) in Volume 4 of the EIAR.

### **6.2.4 Appraisal Method for the Assessment of Impacts**

#### **6.2.4.1 Overview**

The approach to assessing impacts encompasses outlining the assessment topics, determining the predicted magnitude of impacts, defining the sensitivity of the environment and determining the significance of effects. The approach has been carried out in accordance with procedures described in the Guidelines to be contained in EIARs (EPA 2022) and methodologies outlined in the 'Traffic and Transport Assessment Guidelines (TII 2014), using a Multi-Modal Level of Service (LoS) approach.

#### **6.2.4.3 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 implemented with reference to three types of scenarios:

- 'Do Nothing' – The 'Do Nothing' scenario represents the current baseline traffic and transport conditions of the direct and indirect study areas without the Proposed Scheme in place and other GDA Strategy projects. 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.



## **Chapter 6 of EIAR**

### **Observations**

It is important to note 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). For 2043 the Do Minimum scenario assumes the full implementation of the GDA Strategy schemes, so therefore 'assumes' that proposed major transport schemes such as MetroLink, Luas line extensions to Lucan, Finglas, Poolbeg and Bray are all fully operational.

In terms of the transport modelling scenarios for the traffic and transport assessment, 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, demand management is included in the Do Minimum in line with the Strategy's Core Demand Management Measures, including reduction of free workplace parking in urban areas, increased parking charges and adjustment of traffic signal timings to facilitate movement by sustainable modes.

- 'Do Something' – The 'Do Something' scenario represents the likely traffic and transport conditions of the direct and indirect study areas including 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 same demographic assumptions (population, employment levels) are included in both the Do Minimum and Do Something scenarios.



### 6.2.5 Data Collection and Collation

The assessment of the Traffic & Transport impacts of the proposed scheme has two distinct parts namely, qualitative methods which consider the physical changes to transport networks and quantitative methods which are based upon traffic modelling.

#### 6.2.5.1

The qualitative assessment data collection encompasses site surveys, including walkovers of the route of the Proposed Scheme and photographs to record locations of particular importance, three sources of mapping data have been used to inform the analysis, Ordnance Survey Mapping (OSM), NavStreets and OpenStreet Map.

#### 6.2.5.2

Data collection to support the quantitative assessment included a review of existing traffic survey data available for the area of interest, including the NTA Traffic Count Database and TII traffic counters. Information on bus passenger volumes was already available and included in the modelling process as part of the ERM base model calibration and validation, which includes the annual canal and M50 cordon counts as well as ticketing data.

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

#### 6.2.5.2.3

##### Road and 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. Road Journey time data for the Proposed Scheme models has been sourced from TomTom.

### **Chapter 6 of EIAR Observations and Commentary**

#### **6.4.3.2 Do Minimum Transport Demand**



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

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.

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.

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

#### 6.4.4 'Do Something' Scenario

The Do Something scenario represents the likely conditions of the direct and indirect study areas with the Proposed Scheme in place.

### **Chapter 6 of EIAR**

#### **Observations and Commentary**

As the bus network and frequency assumptions are the same in both scenarios the NTA consultants argue that the assessment of demand impacts attributable to the scheme is conservative in terms of the level of people movements forecast under the Do Something scenario.

The Do Something scenario will facilitate opportunities to increase bus network capacity while the segregation and safety improvements to walking and cycling infrastructure 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.

### Traffic and Transport Impacts of Proposed Scheme – Key Projected Changes in Travel Behaviour

#### 6.4.6.1.8 Peak Hour People Movement along the Proposed Scheme

To determine the impact that the Proposed Scheme has on modal share in the direct study area as a result of its implementation, the weighted average number of people moved by each mode (Car, Bus, Active Modes) has been extracted from the ERM / LAM. The analysis compares the Do Minimum and Do Something scenarios both in the inbound and outbound direction in the AM and PM peak hours (8-9am, 5-6pm) for each forecast year (2028, 2043).

##### 6.4.6.1.8.1 2028 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 2028.

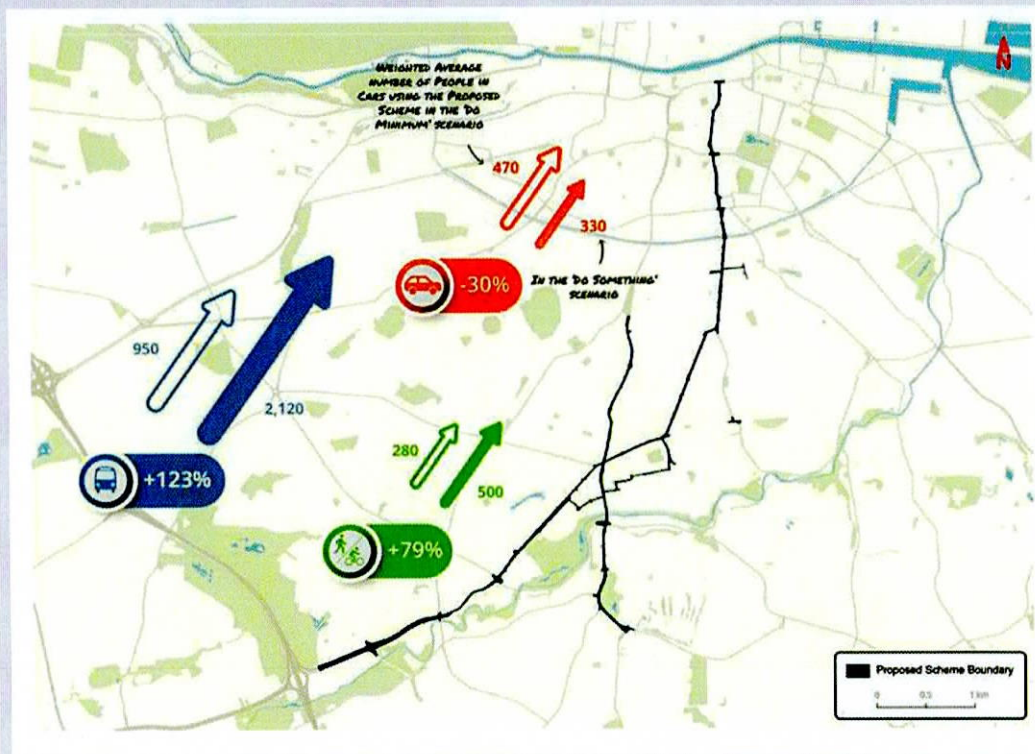


Diagram 6.6 People Movement by mode inbound towards the City Centre during the AM Peak Hour in 2028.



As indicated in Diagram 6.6, there is a reduction of 30% in the number of people travelling via car, an increase of 123% in the number of people travelling via bus and an increase of 79% in people walking or cycling along the Proposed Scheme during the AM Peak Hour.

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. According to the NTA’s consultants 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 are assumed to make sustainable travel lifestyle choices.

Table 6.42 outlines the difference in modal split between the Do Minimum and Do Something scenarios for each mode of travel in an inbound direction towards the City Centre during the AM Peak Hour. The results indicate a 74% increase in people moved as a result of the Proposed Scheme and 113% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.42: Modal Shift of 2028 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	General Traffic	470	28%	330	11%	-140	-30%
		Public Transport	950	56%	2,120	72%	1,170	123%
		Walking	170	10%	140	5%	-30	-18%
		Cycling	110	6%	360	12%	250	227%
		Combined Walking/Cycling	280	16%	500	17%	220	79%
		<b>Sustainable Modes Total</b>	<b>1,230</b>	<b>72%</b>	<b>2,620</b>	<b>89%</b>	<b>1,390</b>	<b>113%</b>
		<b>Total (All modes)</b>	<b>1,700</b>	<b>100%</b>	<b>2,950</b>	<b>100%</b>	<b>1,250</b>	<b>74%</b>

#### 6.4.6.1.8.2 2028 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



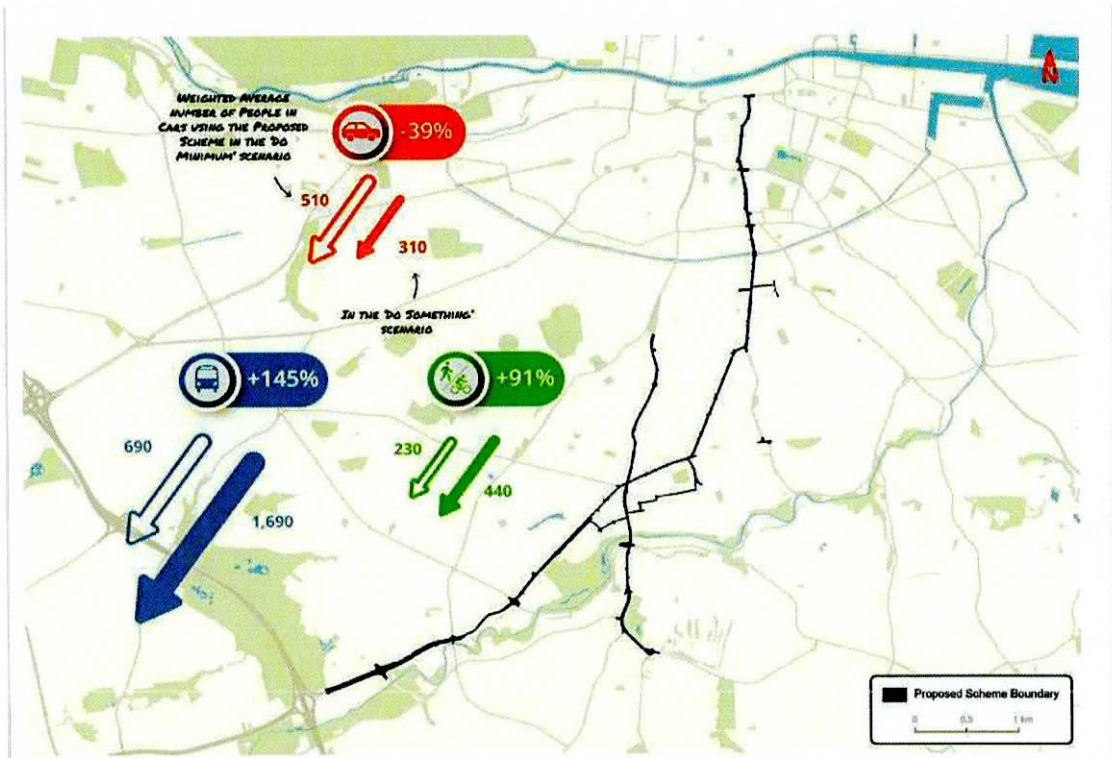


Diagram 6.7: Average People Movement by Mode during 2028 PM Peak Hour.

Diagram 6.7 points to a reduction of 39% in the number of people travelling via car, an increase of 145% in the number of people travelling via bus and an increase in 91% in the number of people walking or cycling during the PM Peak Hour.

Table 6.43 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 71% increase in people moved as a result of the Proposed Scheme and 132% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).



Table 6.43: Modal Shift of 2028 PM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	510	36%	310	13%	-200	-39%
		Public Transport	690	48%	1,690	69%	1,000	145%
		Walking	150	10%	130	5%	-20	-13%
		Cycling	80	6%	310	13%	230	288%
		Combined Walking/Cycling	230	16%	440	18%	210	91%

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
		<b>Sustainable Modes Total</b>	<b>920</b>	<b>64%</b>	<b>2,130</b>	<b>87%</b>	<b>1,210</b>	<b>132%</b>
		<b>Total (All modes)</b>	<b>1,430</b>	<b>64%</b>	<b>2,440</b>	<b>87%</b>	<b>1,010</b>	<b>71%</b>

#### 6.4.6.1.8.3 2043 AM Peak Hour People Movement

For 2043 there is a decrease of 38% in the number of people travelling via car, an increase of 61% in the number of people travelling via bus and an increase of 83% in the number of people walking and cycling along the Proposed Scheme during the AM Peak Hour. Table 6.44 outlines the difference in modal split between the Do Minimum and Do Something scenarios for the 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 67% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).



Table 6.44: Modal Shift of 2043 AM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Inbound towards the City Centre	AM Peak Period	General Traffic	370	18%	231	7%	-140	-38%
		Public Transport	1,298	62%	2,094	68%	797	61%
		Walking	196	9%	207	7%	12	6%
		Cycling	215	10%	546	18%	331	154%
		Combined Walking/Cycling	411	20%	753	24%	342	83%
		<b>Sustainable Modes Total</b>	<b>1,708</b>	<b>82%</b>	<b>2,847</b>	<b>93%</b>	<b>1,139</b>	<b>67%</b>
		<b>Total (All modes)</b>	<b>2,079</b>	<b>100%</b>	<b>3,078</b>	<b>100%</b>	<b>999</b>	<b>48%</b>

6.4.6.1.8.4 2043 PM Peak Hour People Movement

For 2043 outbound there is a decrease of 38% in the number of people travelling via car, an increase of 66% in the number of people travelling via bus and an increase of 133% in the number of people walking and cycling along the Proposed Scheme during the PM Peak Hour. Table 6.45 outlines the difference in modal split in an outbound direction from the City Centre during the PM Peak Hour. The results indicate a 55% increase in people moved as a result of the Proposed Scheme and a 81% increase in people moved by sustainable modes (Public Transport, Walk, Cycle).

Table 6.45: Modal Shift of 2043 PM Peak Hour along Proposed Scheme

Direction	Time Period	Mode of Transport	Do Minimum		Do Something		Difference	
			Hourly Trips	Modal Split (%)	Hourly Trips	Modal Split (%)	Hourly Trips	Difference (%)
Outbound from the City Centre	PM Peak Period	General Traffic	369	22%	230	9%	-139	-38%
		Public Transport	1,032	61%	1,715	66%	684	66%
		Walking	86	5%	173	7%	88	102%
		Cycling	198	12%	488	19%	289	146%
		Combined Walking/Cycling	284	17%	661	25%	377	133%
		<b>Sustainable Modes Total</b>	<b>1,316</b>	<b>78%</b>	<b>2,376</b>	<b>91%</b>	<b>1,061</b>	<b>81%</b>
		<b>Total (All modes)</b>	<b>1,685</b>	<b>100%</b>	<b>2,606</b>	<b>100%</b>	<b>921</b>	<b>55%</b>



#### 6.4.6.1.9 People Movement by Bus

With regard to 2028 AM peak hour passenger volumes (inbound direction – Templeogue to Terenure) higher levels of bus passenger loadings are projected along the Templeogue to Terenure section of the Proposed Scheme with a peak at Terenure Cross (2,400 for the Do Something scenario) (in 2043 the equivalent figures are 2,900 in the AM Peak hour, compared to approximately 1,600 in the Do Minimum scenario). The increase in bus passengers remains at a high level along this section of the Proposed Scheme with approximately 1,000 additional users on most of the corridor, compared to the Do Minimum scenario. The equivalent figures for 2043 are 1,000 to 1,400 additional users.

In the case of 2028 AM peak hour (inbound direction – Rathfarnham to City Centre) higher levels of bus passenger loadings along the Rathfarnham to City Centre section of the Proposed Scheme exhibit a large increase at Terenure Cross where the two corridors join and peak at Rathmines Road Lower / Castlewood Avenue where the passenger loadings reach 3,900 passengers in the AM Peak hour, ( 4500 in 2043 ) compared to approximately 1,700 in the Do Minimum scenario ( 2500 in 2043 ) . The increase in bus passengers remains at a high level along the Proposed Scheme with approximately 2,000 additional users on the corridor between Terenure Cross and the Grand Canal, compared to the Do Minimum scenario. The equivalent figures for 2043 are 2,000 additional users.

#### **Bus Journey Time and Reliability Changes accredited to the Proposed Scheme.**

##### ***Chapter 6 of EIAR***

##### ***Observations***

The projected large increases in bus travel presented above (published in Chapter 6) and earlier in evidence sourced from Chapter 2 of the EIAR are attributed by the consultants solely to Bus Journey Time and Reliability changes accredited to the CBC infrastructure bus priority measures to be implemented under the Proposed Scheme.

A key element to forecasting changes in travel behaviour is the scale of improvements that are expected to result from implementation of the Proposed Scheme. These improvements provide an input to the demand forecasting suite of transport and traffic models. In the case of forecasting modal shift to bus for instance, the East Regional Model (ERM) is the primary tool which yields strategic multi-modal demand outputs for the opening year and subsequent forecast years.

A prerequisite for reviewing the robustness of any transport models employed to generate demand forecasts and the validation and reliability of model parameters are the input values for



journey time, service level and reliability. Chapter 6 contains modelled estimates of improvements in these levels of service indicators resulting from implementation of the Proposed Scheme.

Growth forecasts in bus use purely attributable to the CBC infrastructure bus priority measures seem remarkably large when linked to the estimated bus journey time savings and indicators of improved bus service punctuality applied by the consultants in their analysis.

Equally unexpected are the projected increases in total trips in the am and pm peak hours purely linked to time savings/service punctuality attributed to the CBC infrastructure bus priority measures, improvements to cycling infrastructure included in the Proposed Scheme and the associated traffic management measures to be imposed on general traffic.

A projected increase of 73% in total am peak hour travel seems entirely out of line with what could reasonably be expected or supported by verifiable evidence from similar schemes. This scale of increase would imply a significant level of induced demand for travel as a result of the scheme that seems incompatible with the typical travel profile of peak hours. Peak hour travel is characterised by trips to work, school, third level education or associated service trips, rather than discretionary trip types that would need to make up the additional total trips attributable to the CBC infrastructure bus priority measures and associated cycle facilities programme in the Templeogue/Rathfarnham – Dublin City Centre Corridor.

#### 6.4.6.1.11.2 - 6.4.6.1.11.3 Bus Journey Time and Reliability changes as a result of the Proposed Scheme

Estimated improvements have been based on the assumption of the full implementation of the BusConnects network re-design in both the Do Minimum and Do Something scenarios.

#### Templeogue to Terenure Section

To give an overview of how the Proposed Scheme will impact on bus journey times along the corridor, outputs for the A3 service derived from the transport model.

#### Outbound Direction

The estimates presented in Table 6.50 indicate the Proposed Scheme will deliver average inbound journey time savings for A3 service bus passengers of up to 1.6 minutes (15%) in 2028 (PM) and 0.8 minutes (8%) in 2043 (PM).



Table 6.50: A3 Service Bus Journey Times (Outbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	10.7	9.3	-1.4	-13%
2028 PM	10.9	9.3	-1.6	-15%

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2043 AM	10.4	9.3	-1.1	-11%
2043 PM	10.2	9.4	-0.8	-8%

#### Templeogue to Terenure Section

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for inbound A3 buses in the Do Minimum and Do Something can be seen in Table 6.51. The findings suggest an improvement in bus journey time reliability in all cases, demonstrated by the reduced ranges of journey times achieved (lower standard deviation) in the Do Something scenario with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario.

Table 6.51: A3 Service – Range of Journey Times (Outbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	8.4	13.4	10.7	1.1	8.1	10.8	9.3	0.6
2028 PM	9.3	13.2	10.9	1.0	8.2	10.7	9.3	0.5
2043 AM	8.4	13.0	10.4	1.0	8.2	10.6	9.3	0.5
2043 PM	9.1	12.0	10.2	0.8	8.0	11.3	9.4	0.7

#### Rathfarnham to City Centre Section

To give an overview of how the Proposed Scheme will impact on bus journey times along the Rathfarnham to City Centre section, outputs for the A2 service have been extracted from the model.

#### Inbound Direction

The estimates presented in Table 6.52 indicate the Proposed Scheme will deliver average inbound journey time savings for A3 service bus passengers of up to 6 minutes (16%) in 2028 (AM) and 4 minutes (12%) in 2043 (AM)



Table 6.52: A2 Service Bus Average Journey Times (Inbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	35.2	29.4	-5.8	-16%
2028 PM	31.1	29.1	-2.0	-6%
2043 AM	33.2	29.3	-3.9	-12%
2043 PM	30.7	29.3	-1.4	-5%

Additional information regarding the range of journey times (minimum, maximum, average and standard deviation) for inbound A2 buses in the Do Minimum and Do Something can be seen in Table 6.53. The findings suggest an improvement in bus journey time reliability in all cases, demonstrated by the reduced ranges of journey times achieved (lower standard deviation) in the Do Something scenario with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario.

Table 6.53: A2 Service – Range of Journey Times (Inbound Direction)

Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	31.1	40.7	35.2	2.0	25.9	32.4	29.4	1.5
2028 PM	25.8	35.0	31.1	2.2	24.1	33.2	29.1	1.8
2043 AM	29.8	37.6	33.2	1.7	23.3	32.9	29.3	1.6
2043 PM	25.4	34.7	30.7	1.9	25.8	33.6	29.3	1.7

#### Outbound Direction

The estimates presented in Table 6.54 indicate the Proposed Scheme will deliver average outbound journey time savings, in the peak direction of travel, for A2 service bus passengers of up to 8.2 minutes (23%) in 2028 (PM) and 4.6 minutes (15%) in 2043 (PM).

Table 6.54: A2 Service Bus Journey Times (Outbound Direction)

Peak Hour	Do Minimum (minutes)	Do Something (minutes)	Difference (minutes)	% Difference
2028 AM	29.5	28.9	-0.6	-2%
2028 PM	35.2	27.0	-8.2	-23%
2043 AM	28.4	28.1	-0.3	-1%
2043 PM	31.1	26.5	-4.6	-15%

The findings presented in Table 6.55 suggest an improvement in bus journey time reliability in all cases, demonstrated by the reduced ranges of journey times achieved (lower standard deviation) in the Do Something scenario with the Proposed Scheme in place compared to the more dispersed range in the Do Minimum scenario.

Table 6.55: A2 Service – Range of Journey Times (Outbound Direction)



Peak Hour	Do Minimum				Do Something			
	MIN	MAX	AVG	STDEV	MIN	MAX	AVG	STDEV
2028 AM	25.8	33.8	29.5	1.8	24.7	32.2	28.9	1.7
2028 PM	29.3	41.8	35.2	2.4	23.7	30.0	27.0	1.3
2043 AM	25.1	32.8	28.4	1.7	23.6	31.9	28.1	1.6
2043 PM	26.1	35.7	31.1	1.9	23.2	29.4	26.5	1.4

**Projected Changes in Travel Behaviour, Bus Journey Times and Reliability – Methodological Perspectives**

**Chapter 6 of EIAR**

**Observations**

The projected large increases in bus travel presented above (published in Chapter 6) and earlier in evidence sourced from Chapter 2 of the EIAR are attributed by the consultants solely to Bus Journey Time and Reliability changes accredited to the CBC infrastructure bus priority measures to be implemented under the Proposed Scheme.

A key element to forecasting changes in travel behaviour is the scale of improvements that are expected to result from implementation of the Proposed Scheme. These improvements provide an input to the demand forecasting suite of transport and traffic models. In the case of forecasting modal shift to bus for instance, the East Regional Model (ERM) is the primary tool which yields strategic multi-modal demand outputs for the opening year and subsequent forecast years.

A prerequisite for reviewing the robustness of any transport models employed to generate demand forecasts and the validation and reliability of model parameters are the input values for journey time, service level and reliability. Chapter 6 contains modelled estimates of improvements in these levels of service indicators resulting from

A projected increase of 73% in total am peak hour travel seems entirely out of line with what could reasonably be expected or supported by verifiable evidence from similar schemes. This scale of increase would imply a significant level of induced demand for travel as a result of the scheme that seems incompatible with the typical travel profile of peak hours. Peak hour travel is characterised by trips to work, school, third level education or associated service trips, rather than discretionary trip types that would need to make up the additional total trips attributable to the CBC infrastructure bus priority measures and associated cycle facilities programme in the Templeogue/Rathfarnham – Dublin City Centre Corridor.



The projections of very large increases in total trips and modal shift set out above pose important questions concerning the robustness of the forecasts generated by the forecasting tools employed. Addressing questions about the robustness of these projections would require in-depth review of the validation performance of the models, as well as application of realism testing and sensitivity testing. Our initial investigation of the implied model responses to projections seems these are not consistent with the relevant elasticities employed in the strategic ERM model implemented in this case.

The uncertainty over projections of travel demand extends to cycling. An inspection of the methodology applied to forecasts of trips by bicycle reveals an absence of validated behavioural models capable of generating robust estimates of demand, and projections mainly rely on limited counts of cycle movements across cordons, consideration of the supply of capacity for bicycles and professional judgment and extrapolation of the quantum of potential trips.

## **The Proposed Scheme and Impacts on Private Vehicles and Freight Traffic**

### **6.4.6.1.15 General Traffic Assessment**

#### **Overview**

The Proposed Scheme aims to provide an attractive alternative to the private car the assessment recognised that there will be an overall reduction in operational capacity for general traffic along the direct study area attributable to implementation of the proposed changes. The NTA recognises this reduction in operational capacity for general traffic along the Proposed Scheme will likely create some level of trip redistribution onto the surrounding road network.



The Local Area Model (LAM) indicates that during the 2028 Opening Year scenario, there are reductions in general traffic noted along the Proposed Scheme during the AM Peak Hour, as illustrated by the blue lines in Diagram 6.40. The key reductions in traffic flows during the AM Peak Hour along the direct study area during the AM Peak Hour, are attributed to the Proposed Scheme and the associated modal shift as a result of its implementation. The most significant effect occurs along the Terenure Place. The road links which experience additional traffic are illustrated by the orange / red lines in Diagram 6.40.

The Local Area Model (LAM) Opening Year 2028 model results were used to identify the impact in traffic flows between the Do Minimum and Do Something scenarios. The assessment of General Traffic Network Performance demonstrates the impact of an overall reduction in operational capacity for general traffic along the direct study area, attributable to the Proposed Scheme.

Diagram 6.40: Flow Difference on Road Links (Do Minimum vs. Do Something), AM Peak, 2028 Opening Year Impact on Direct Study Area (AM Peak Hour)

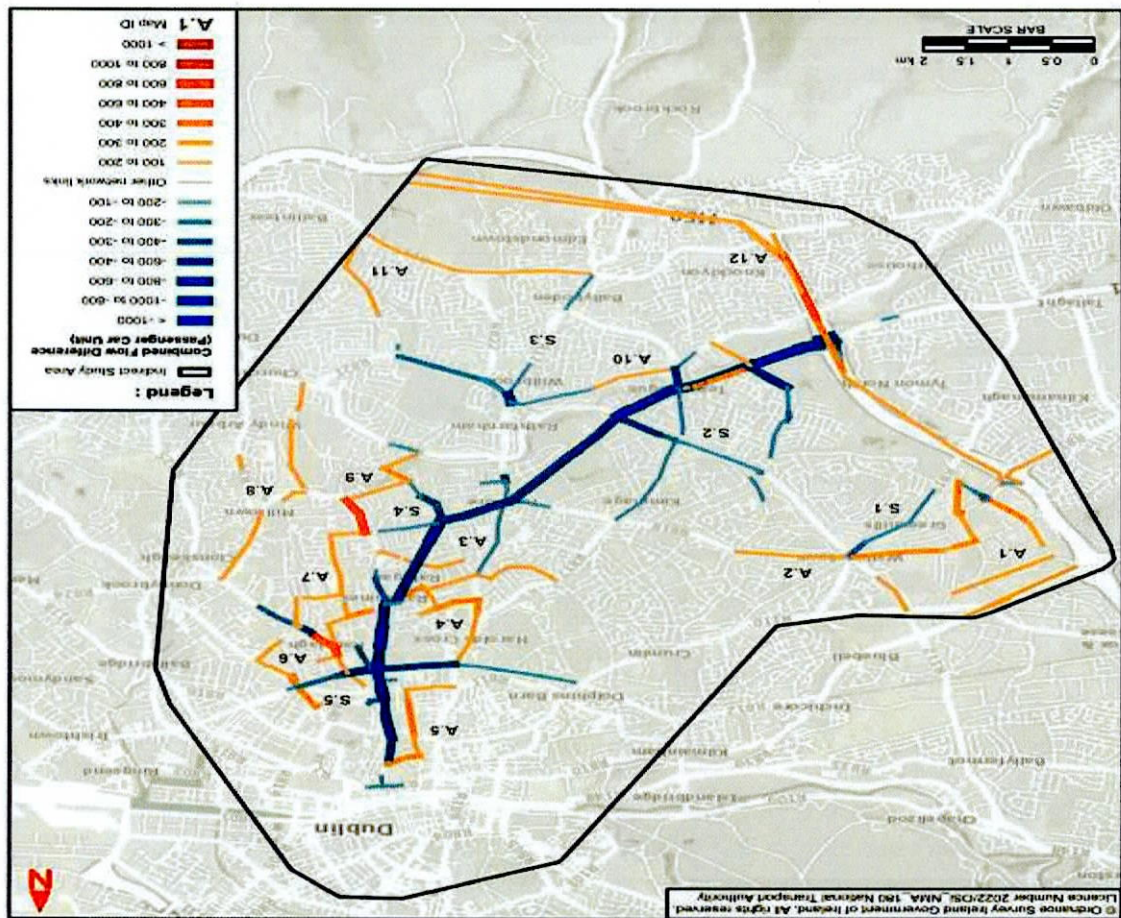


Diagram 6.40 in traffic flows on the road links in the AM Peak Hour for the 2028 Opening Year.

6.4.6.1.15.3 AM Peak Hour – General Traffic Flow Difference



In addition to the general traffic flow reductions occurring along the direct study area, there are key reductions in general traffic noted along certain road links within the indirect study area during the AM Peak Hour. The road links which experience additional traffic are also illustrated by the orange / red lines in Diagram 6.40.

Diagram 6.41 (extract from Figure 6.8 in Volume 3 of this EIAR) illustrates the difference in traffic flows on road links in the PM Peak Hour for the 2028 Opening Year. The analysis generates a similar pattern of change in traffic flows overall to the AM peak.

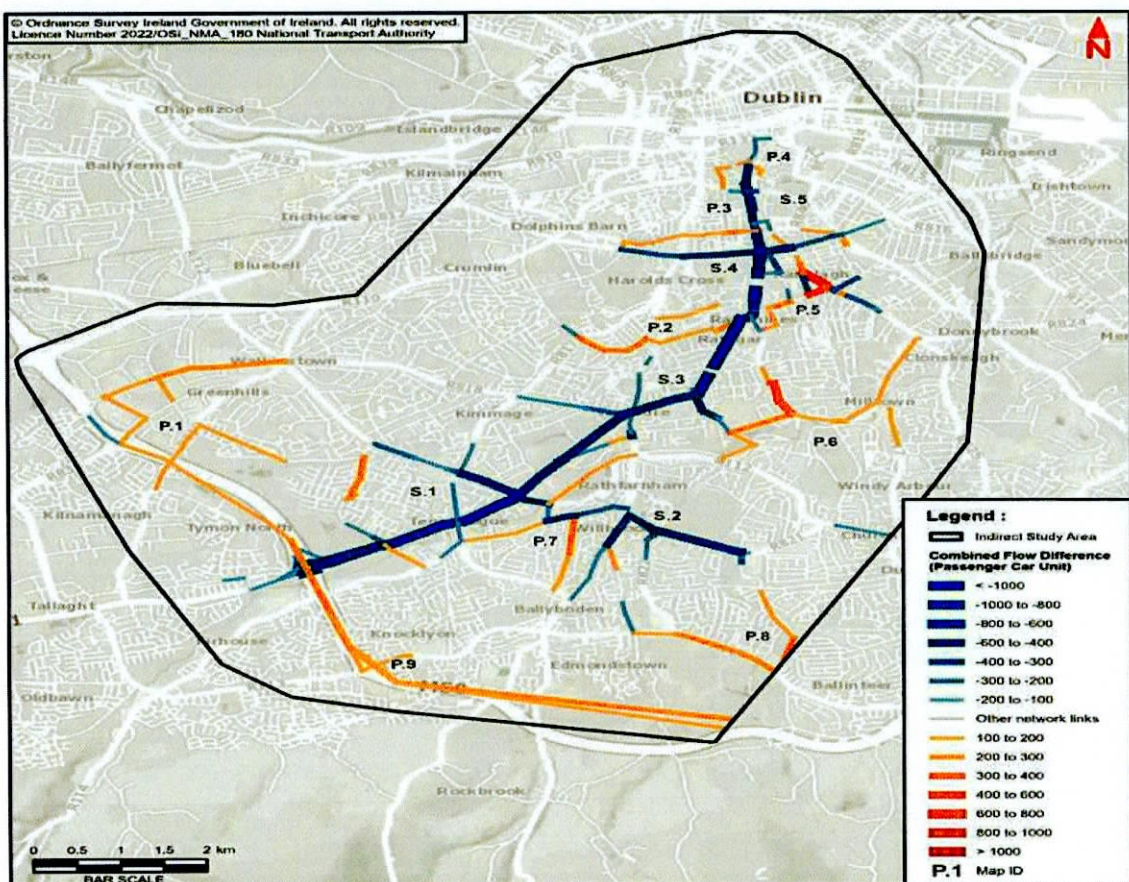


Diagram 6.41: Flow Difference on Road Links (Do Minimum vs. Do Something), PM Peak, 2028 Opening Year

While 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. Operational capacities were extracted from the LAM at the associated junctions of the key road links to identify the impact that the Proposed Scheme will have on the Volume / Capacity ratios. The results are presented in terms of the significance of the impact to the V / C ratio for each identified junction based on its sensitivity and magnitude of impact.



Based on the LAM defined network the results of the NTA Consultants' 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 resulting in a Not Significant and Long-term effect. Overall, the NTA consultants has been determined there will be no significant deterioration in the general traffic environment in the study area as a consequence of meeting the scheme objectives of providing enhanced sustainable mode priority along the direct study area.

## **Chapter 6 of EIAR**

### **Observations and Commentary**

This reduction in operational capacity for general traffic will create traffic redistribution from the Proposed Scheme onto the surrounding road network in the absence of the implementation of severe traffic restraint measures in key locations in the corridor. The Proposed Scheme does not claim that to be a defined goal of the proposed changes to the Templeogue/Rathfarnham – Dublin City Centre Corridor.

The majority of instances where a projected reduction in general traffic flow occurs are located along or adjacent to the Proposed Scheme (i.e. the direct study area). The analysis published in the NTA's planning submission claims the majority of instances where a projected reduction in general traffic flow occurs are located along or adjacent to the Proposed Scheme (i.e. the direct study area). The analysis indicates no or little change in roads that potentially offer an alternative route for private vehicles and freight traffic currently making use of the Templeogue/Rathfarnham – Dublin City Centre Corridor to reach their destinations.

It is my opinion that there is a significant risk that a substantial volume of traffic will divert from the corridor either at Spawell roundabout, which is the first opportunity inside the M50 or at the Templeogue Road, Fortfield Road junction, the last opportunity to avoid the bus gate.

It might reasonably be expected that in the event of adopting a traffic restraint measure such as a bus gate on Templeogue Road a significant proportion of any diverted traffic would make use of the Wellington Lane / Whitehall Road axis to approach inner Dublin. Diagram 6.40 shows no such effect or any similar alternative to the Templeogue Road towards Terenure Cross.

We are unclear and not convinced about the apparent pattern of traffic redistribution exhibited in Diagram 6.40 or Diagram 6.41.

*Note: The projected changes in traffic patterns in Diagram 6.40 seem unclear. For instance, Fortfield Road does not appear as an affected 'link' and the thickness of the blue line after Fortfield remains constant to Terenure. With a bus gate in place one would expect an even greater fall in traffic levels as the section into Terenure will be restricted solely to buses, taxis and local access in the AM Peak. It may be this is a limitation in the extent of the network defined for and subject to traffic modelling.*



**8. Projected Changes in Travel Behaviour, Bus Journey Times and Reliability – Questions about the efficacy of the Proposed Scheme for the Templeogue/Rathfarnham – Dublin City Centre Corridor**

These uncertainties about the robustness of the forecasts of travel demand also pose very substantial questions about the efficacy of the Proposed Scheme for the Templeogue/Rathfarnham – Dublin City Centre Corridor. The Proposed Scheme is a key element of the overall BusConnects Dublin programme.

The main preparatory work on the BusConnects Dublin Preliminary Business Case (PBC) was carried out during 2019. The cost estimation work for input to the Preliminary Business Case (PBC) economic and financial analysis was finalised in 2020, using Q4 2019 base estimates. An updated cost estimate was prepared to reflect the impact of revised inflation parameters and provided to Government Q1 2022 as part of the PBC approval process.

The Preliminary Business Case for the overall proposed BusConnects programme has been published by the NTA only for the city area as a whole. In addition to the complete BusConnects programme, including the Proposed Scheme, for the Templeogue/Rathfarnham – Dublin City Centre Corridor it encompasses an additional 11 other such schemes.

Overall, the quantitative economic CBA results for BusConnects Dublin under the 2019 costs suggest a benefit to cost ratio (BCR) of 1.6 for an assumed base scenario (range 1.1 – 2.0). This reflects significant benefits for both new and existing public transport users – through improved services, reduced journey times and increased frequencies. These benefits offset negative impacts on other road traffic (car and goods vehicles). The economic appraisal of the Base Case presents a positive if modest case for the BusConnects Dublin programme based on the current designs and information provided.

Of the total incremental costs for BusConnects Dublin totalling €2.578 billion(excl. VAT) over a Do-Minimum cost base the Core Bus Corridors works total some €1.09 billion excluding an amount for inflation and VAT or an average of €90 million per corridor.

The PBC was subject to review by the Major Projects Advisory Group (MPAG) that is tasked to support the application of the Public Spending Code and consider major public investment proposals (in particular in relation to costs, scheduling, delivery and risk) in advance of a Government decision. The MPAG in its review of the PBC referring to demand forecasting, economic appraisal and financial appraisal advised *'the Sponsoring Agency and Approving Authority should continue to assess demand forecasts for the programme, the sensitivity of the economic case to emerging patterns of mobility and commuting post-COVID-19 and the implications for demand forecasts of other transport megaprojects planned for Dublin. In particular, the specific impact on particular route corridors should be monitored. As more granular detail becomes available, demand sensitivities should assess the implications for overall programme impact in the event that particular route corridors are curtailed, delayed or amended. Given the recent high rates of construction inflation and the base case – using 2020 prices – shows a BCR of 1.6 and a downside BCR of 0.9, the economic case for the project needs to be monitored carefully as further information becomes available'*.



Given the scale of public spending involved and evident uncertainty about the robustness of the forecast travel demand patterns attributable to the Proposed Scheme there is an urgent requirement to undertake a review of the Preliminary Business Case for the BusConnects programme including the Proposed Scheme as it currently applies to the Templeogue/Rathfarnham – Dublin City Centre Corridor. This will help ensure it offers society value for money.

In seeking to reduce demand for travel by private vehicles the 2016 -2035 GDA Transport Strategy one mechanism referred to in EIAR Chapter 3 section 3.2.8 is demand management. It also notes this can take many different forms from restricting car movement or car access through regulatory signage and access prohibitions, to parking restrictions, to fiscal measures such as tolls, road pricing, congestion charging, fuel/vehicle surcharges and similar.

The EIAR contends the existing public transport system does not currently have sufficient capacity to cater for large volumes of additional users. It goes on to state in advance of a significant uplift in overall public transport capacity in the Dublin metropolitan area, the implementation of major demand management measures across that area would be unsuccessful. Effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer, would not deliver an effective overall transport system (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*).

For this corridor however, illustrative timetables for the A spine routes in the corridor under the BusConnects network revamp offer little change overall in the public transport carrying capacity in the Templeogue/Rathfarnham – Dublin City Centre Corridor compared to existing arrangements. The 30% scale of the reduction in private vehicle use projected by NTA's consultants can therefore be interpreted as 'effectively constraining people from making journeys by car and requiring them to use other modes, in this corridor. As the EIAR notes this 'would not deliver an effective overall transport system' (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*).

These projections and changes in travel behaviour warrant specific consideration as a key element of the wider review of behavioural changes and transport models referred to in this submission. It is also appropriate to review behavioural change in other corridors designated for implementation of Core Bus Corridor Infrastructure Works (the CBC Infrastructure Works). This will yield insight into the extent to which effectively people in the in the Templeogue/Rathfarnham City Centre corridor would be constrained from making journeys by car and be required to use other modes and whether demand management of this type is intended to be uniformly and consistently applied to all the CBC Infrastructure Works/ BusConnects served corridors.

It is likely that the most stringent tool of traffic restraint to be applied in the Templeogue/Rathfarnham City Centre corridor is the bus gate. It will be important to establish evidence of its effectiveness and its intended application to other CBC Infrastructure Works/ BusConnects served corridors.



## **9. Key Issues and Recommendations arising from the Proposed BusConnects CBC programme for the Templeogue/Rathfarnham – Dublin City Centre Corridor**

### **Overview of Key Issues**

Growth forecasts in bus use purely attributable to the CBC infrastructure bus priority measures seem remarkably large when linked to the estimated bus journey time savings and indicators of improved bus service punctuality applied by the consultants in their analysis.

Equally unexpected are the projected increases in total trips in the am and pm peak hours solely linked to time savings/service punctuality improvements attributable to the CBC infrastructure bus priority measures, improvements to cycling infrastructure included in the Proposed Scheme and the associated traffic management measures to be imposed on general traffic.

A projected increase of 73% in total am inbound peak hour travel and 71% pm outbound seems entirely out of line with what could reasonably be expected or supported by verifiable evidence from similar schemes. This scale of increase would imply a significant level of induced demand for travel as a result of the scheme that seems incompatible with the typical travel profile of peak hours. Peak hour travel is characterised by trips to work, school, third level education or associated service trips, rather than discretionary trip types that would need to make up the additional total trips attributable to the CBC infrastructure bus priority measures and associated cycle facilities programme in the Templeogue/Rathfarnham – Dublin City Centre Corridor.

It is important to remember the Do Minimum scenarios (in both 2028 and 2043) include all 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.

These projections of very large increases in total trips and modal shift pose important questions concerning the timeliness of the travel related data employed, together with the robustness of the forecasts generated, by the forecasting tools employed. Addressing questions about the robustness of these projections would require in-depth review of the validation performance of the models, as well as application of realism testing and sensitivity testing. Our initial investigation of the implied model responses to projections seems these are not consistent with the relevant elasticities employed in the strategic ERM model implemented in this case.

Moreover, the argument made in the EIAR 'effectively constraining people from making journeys by car and requiring them to use other modes, without those modes having the necessary capacity to cater for such transfer, would not deliver an effective overall transport system' (*Environmental Impact Assessment Report (EIAR) Main Report Volume 2 of 4 Chapter 3 Page 8*). This seems at odds with the evidence presented elsewhere in the EIAR. In this corridor a key element of the Proposed Scheme appears to constrain existing car users from making journeys by car and require them to use other modes. However, as the EIAR acknowledges the Proposed Scheme, in particular bus gates will likely lead to redistribution of trips in certain locations in the corridor, including the area to the north



and west of Templeogue Road bounded by Cypress Grove Road - Terenure Road West as well as areas accessed by existing journeys affected by the bus gate proposed for Rathmines Road Lower. This would have the effect of producing 'rat running' through currently relatively quiet residential areas and generating longer journeys for those continuing to travel by car with the attendant environmental effects, including impacts on overall emissions and other safety indicators. Elsewhere there is likely to be an increase in informal park & ride use of inner suburban residential streets as car users are unable to complete their journeys to destinations within walking distance.

The uncertainty over projections of travel demand extends to cycling. An inspection of the methodology applied to forecasts of trips by bicycle reveals an absence of validated behavioural models capable of generating robust estimates of demand, and projections mainly rely on limited counts of cycle movements across cordons, consideration of the supply of capacity for bicycles and professional judgment and extrapolation of the quantum of potential trips.

These uncertainties about the robustness of the forecasts of travel demand also pose very substantial questions about the efficacy of the Proposed Scheme for the Templeogue/Rathfarnham – Dublin City Centre Corridor. The Proposed Scheme is a key element of the overall BusConnects Dublin programme.

The Preliminary Business Case for the overall proposed BusConnects programme has been published by the NTA only for the city area as a whole. In addition to the complete BusConnects programme, including the Proposed Scheme, for the Templeogue/Rathfarnham – Dublin City Centre Corridor it encompasses an additional 11 other such schemes.

Overall, the quantitative economic CBA results for BusConnects Dublin under the 2019 costs suggest a benefit to cost ratio (BCR) of 1.6 for an assumed base scenario (range 1.1 – 2.0) suggest a benefit to cost ratio (BCR) of 1.6. This reflects significant benefits for both new and existing public transport users – through improved services, reduced journey times and increased frequencies. These benefits offset negative impacts on other road traffic (car and goods vehicles). The economic appraisal of the Base Case presents a positive if modest case for the BusConnects Dublin programme based on the current designs and information provided.

Of the total incremental costs for BusConnects Dublin totalling €2.578 billion(excl. VAT) over a Do-Minimum cost base the Core Bus Corridors works total some €1.09 billion excluding an amount for inflation and VAT or an average of €90 million per corridor.

The Major Projects Advisory Group (MPAG) in its review of the PBC referring to demand forecasting, economic appraisal and financial appraisal advised *'the Sponsoring Agency and Approving Authority should continue to assess demand forecasts for the programme, the sensitivity of the economic case to emerging patterns of mobility and commuting post-COVID-19 and the implications for demand forecasts of other transport megaprojects planned for Dublin. In particular, the specific impact on particular route corridors should be monitored. As more granular detail becomes available, demand sensitivities should assess the implications for overall programme impact in the event that particular route corridors are curtailed, delayed or amended. Given the recent high rates of construction*



*inflation and the base case – using 2020 prices – shows a BCR of 1.6 and a downside BCR of 0.9, the economic case for the project needs to be monitored carefully as further information becomes available’.*

Given the scale of public spending involved and evident uncertainty about the robustness of the forecast travel demand patterns attributable to the Proposed Scheme there is an urgent requirement to undertake a review of the Preliminary Business Case for the BusConnects programme including the Proposed Scheme as it currently applies to the Templeogue/Rathfarnham – Dublin City Centre Corridor. This will help ensure it offers society value for money.

### **Recommendations**

- I. Pause advancement of the Proposed Scheme pending;
  - an independent review of the Templeogue/Rathfarnham – Dublin City Centre Corridor scheme design development stages and the implementation and interpretation of the Multi Criteria Assessment (MCA) outcomes of key stages with potential changes to findings.
  - an independent comparative review of the impacts and effectiveness of bus gates and alternatives, including bus lane queue relocation sites managed by priority lights favouring buses - ‘hurry lights’.
  - determination of the outcomes of execution of recommendations II-VIII.
  - *replacement of the Proposed Scheme for the Templeogue/Rathfarnham – Dublin City Centre Corridor with a revised scheme to reflect the outcomes of execution of recommendations I-VIII.*
- II. Detailed assessment to be undertaken of the compatibility of the EIAR Statement concerning NTA’s position on traffic restraint with the measures implemented in this corridor and compare that with other corridors that will see implementation of the BusConnects Programme of projects including the CBC Infrastructure Works elements.
- III. Comprehensive review to be undertaken of key elements of the Easternn Region Model (ERM) and Local Area Model (LAM) in conjunction with corridor micro-simulation models and junction models, and their application to assessing the Proposed Scheme for the Templeogue/Rathfarnham – Dublin City Centre Corridor. This would pay particular attention to behavioural sensitivity to various level of service, validation performance and in relation to other performance indicators. The task would include reviewing the elasticities employed in yielding demand projections for a range of public policy interventions. It would also involve applying realism testing and sensitivity testing. It would seek to reconcile the demand forecasts generated for the EIAR with the model parameter values and provide an in-depth explanation of the findings of a series of specified realism and sensitivity tests.
- IV. Specification, development and application of a robust cycle trip forecasting tool including undertaking comprehensive validation of the model. Ensure it is compatible with the existing suite of travel demand and traffic models employed by NTA to inform development and or refinement of the Proposed Scheme.



- V. Independent review to be undertaken of the timeliness of and coverage of the data inputs to the suite of transport models employed in developing forecasts of travel demand and associated spatial travel and traffic patterns. This would take into account the changes in activity behaviour patterns that have been emerging since the beginning of the COVID-19 pandemic including the incidence and pattern of working from home as well as other changes in spatial movement patterns.
- VI. Comprehensive survey to be undertaken of travel behaviour, access to transport alternatives among residents of and visitors to the corridor including commuters, as well as their demographic characteristics.
- VII. Updated and independent comprehensive review to be undertaken of the performance of 'reasonable alternatives' to the Proposed Scheme across the range of realistic potential options. This would encompass submitting findings to public consultation and a comprehensive survey of residents, businesses, regular users of facilities in the corridor as well as other stakeholders.
- VIII. Updated and independent review to be undertaken of the Preliminary Business Case (PBC) for the BusConnects programme (including the Proposed Scheme (or variants)) as it applies to the Templeogue/Rathfarnham – Dublin City Centre Corridor, and undertake an updated PBC for a 'Do Something' scenario and a 'Do Minimum' scenario (Opening Year 2028, Design Year 2043). The updated PBC would be informed by completion and delivery of recommendations III – VII. This will ensure an appropriate scheme for this corridor could offer society value for money.

#### **Request for Oral Hearing**

**Terenure & Templeogue Sustainable Community Association CLG** respectfully submits that having regard to the:

- Significant public interest nature of this Proposed Scheme.
- The need to more fully investigate and test the implications of the scheme as set out in this submission.
- The issues identified and recommendations contained in this submission cannot be readily addressed by means of written submissions only.

We hereby request **An Bord Pleanála** hold an Oral Hearing into the matters raised in this submission with a view to their resolution.



## **10 Bibliography Key Sources**

Department of Public Expenditure and Reform, Major Projects Advisory Group Review of the NTA's BusConnects Preliminary Business Case.

EU Joint Assistance to Support Programmes for European Regions Guidance Note 3 on BusConnects: Project Review: Phase 3 (Preliminary Business Case).

National Transport Authority: BusConnects Dublin Cover Note to Preliminary Business Case

National Transport Authority: Greater Dublin Area Transport Strategy 2016 – 2035 as it relates to BusConnects and specifically in relation to the Templeogue/Rathfarnham – Dublin City Centre Corridor

National Transport Authority: Greater Dublin Area Transport Strategy 2022-2042 as it relates to BusConnects and specifically in relation to the Templeogue/Rathfarnham – Dublin City Centre Corridor

National Transport Authority: BusConnects Dublin Preliminary Business Case