

**Project**  
**Construction of Belmayne Main Street and  
Belmayne Avenue**

**Report Title**  
**Options Report for Belmayne Main St**

**Date**  
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## 1.0 INTRODUCTION

### 1.1 INTRODUCTION TO SCHEME

- 1.1.1 DBFL have been commissioned to undertake an Options assessment on behalf of Dublin City Council as part of the Design and Construction of Belmayne Main Street and Belmayne Avenue.
- 1.1.2 The overall scheme, which aims to extend and provide a new 'Main Street' in Belmayne that links the Malahide Road in the west to New Priory in the east, forms part of the Clongriffin – Belmayne Local Area Plan 2012. This statutory plan provides a planning framework by which this new route is to be delivered.
- 1.1.3 The scheme proposes an improvement for access and movement for road users through the Belmayne and Belcamp areas, including improved pedestrian and cycle facilities as well as providing improved bus lane facilities and bus gate.
- 1.1.4 This report focuses on a partial section of Belmayne Main Street from Belmayne Avenue to Churchwell Crescent, where the street currently terminates. Main Street will form a gateway into the proposed 'Town Centre' of Belmayne; therefore, the design proposals selected along this partial section of Main Street will influence the proposals that will continue in to Belmayne Town Centre.
- 1.1.5 The purpose of the report is to identify the preferred design option for Belmayne Main Street that incorporates an upgrade to the street that better accommodates the use of sustainable modes of travel such as walking, cycling and public transport.

## 1.2 OBJECTIVES

1.2.1 This report aims to consider a number of design options for Main Street, ranging from providing minimum interventions to existing facilities to providing optimum facilities for all users through Main Street in accordance with best practise with a comparison of these options being assessed with an MCA (Multi-Criteria Analysis).

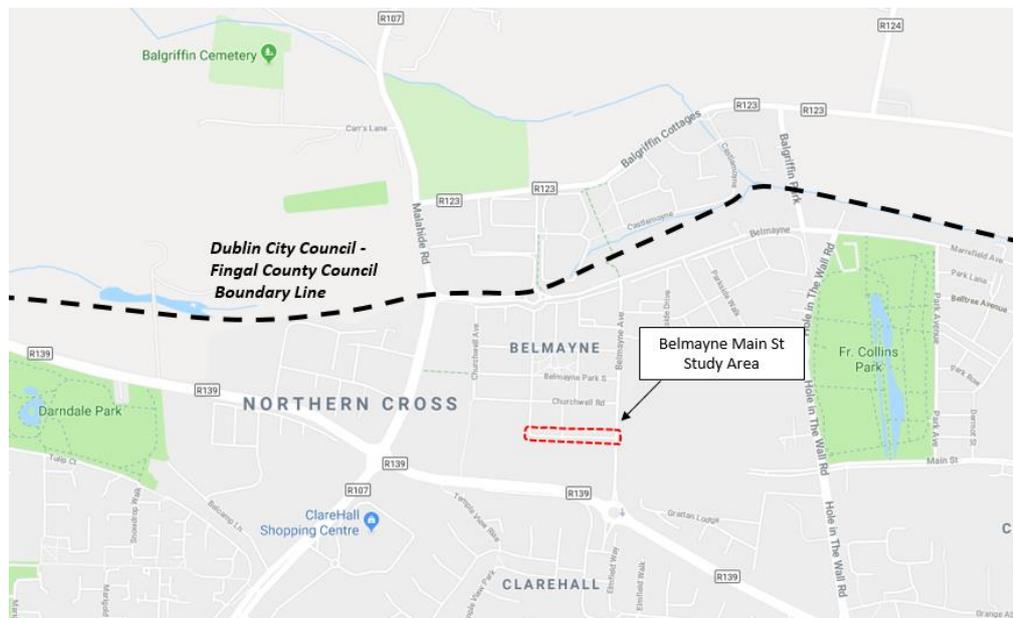
1.2.2 The report has the following aims and objectives:

- Review the existing study area and surrounding environs;
- Identify the relevant policies that support the scheme;
- Set out the current design guidance for the scheme;
- Outline the options considered for this section of the route;
- Undertake a Multi Criteria Analysis assessment for each option; and
- Identify an emerging preferred option for Belmayne Main Street.

## 2.0 STUDY AREA

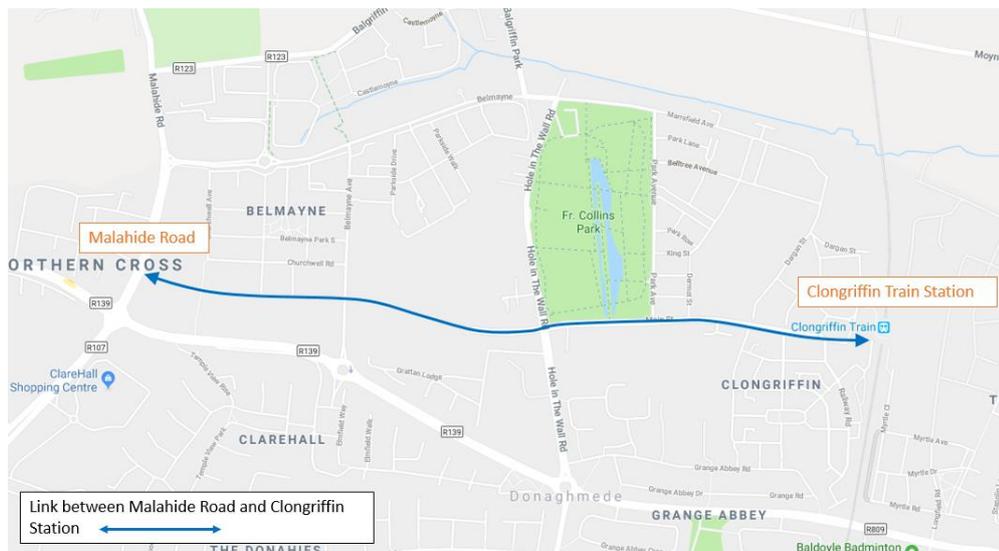
### 2.1 INTRODUCTION

- 2.1.1 The Clongriffin – Belmayne Local Area Plan, 2012, sets out the overall vision for Belmayne and Clongriffin. The Local Area Plan identifies lands to the north west of the Malahide Road Junction at Belmayne as a ‘Key Development Site’ as these lands form part of a Key District Centre, as designated in the 2016 – 2022 City Development Plan and in the 2012 LAP. The lands at Belmayne (and lands at Belcamp) are seen as critical to the delivery of the overall place making of Clongriffin-Belmayne through the creation of a mixed use urban district centred on high quality public transport and developed to sustainable densities.
- 2.1.2 The delivery of the vision for the Belmayne lands requires major roads infrastructure including the delivery of a proposed relief road and the provision / completion of Belmayne ‘Main Street’ along with sustainable transportation approaches.
- 2.1.3 The study area for this scheme, as shown in **Figure 2.1**, is along Main Street in Belmayne, situated in the north-eastern extent of Dublin City Council, close to the boundary with Fingal County Council.



**Figure 2.1: Belmayne Main Street Study Area** (Source: Google Maps)

- 2.1.4 Policy MTP1 of the Clongriffin – Belmayne Local Area Plan, 2012 seeks the completion of the existing road infrastructure network in the area (including ‘Main Street’). Funding has been approved for the completion of ‘Main Street’ west of New Priory to the Malahide Road under the Local Infrastructure Housing Activation Fund (LIHAF), as part of the Rebuilding Ireland programme. The funding facilitates the completion of the Main Street thereby linking Clongriffin Station to Malahide Road (via a bus gate) and providing an axis linking the west and east town centres along a central civic route with the potential for upgraded sustainable transport provision (including potentially a Core Bus Corridor). The completion of this road will facilitate the development of an adjacent housing development at Belmayne and the development of a new mixed use urban quarter at Belmayne.
- 2.1.5 When complete, Belmayne Main Street will provide a direct link between Malahide Road and Clongriffin, as shown in **Figure 2.2**, providing interchange opportunities with rail services at Clongriffin Station.



**Figure 2.2: Interchange Link between Malahide Road and Clongriffin Train Station** (Source: Google Maps)

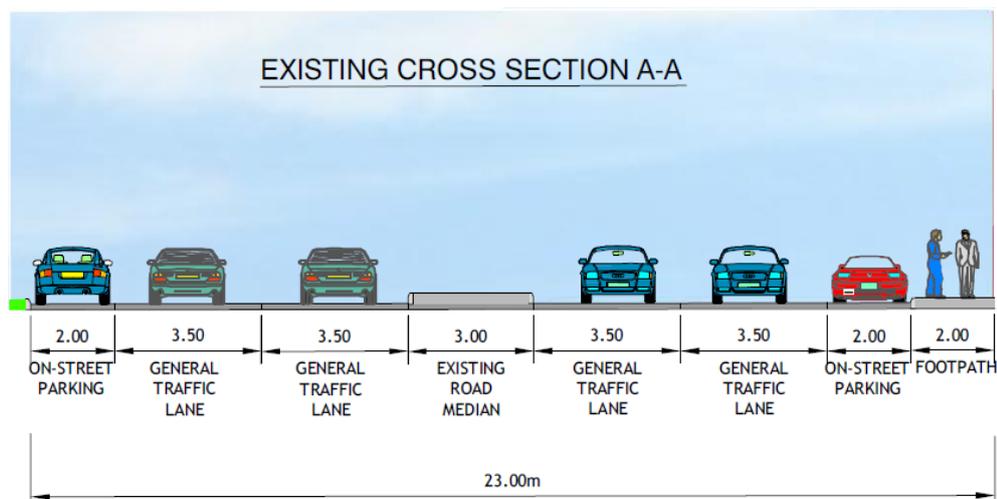
## 2.2 EXISTING CONSTRAINTS

2.2.1 Belmayne Main Street, as currently constructed, is a dual carriageway road, and is approximately 23m wide from kerb line to back of footpath. It is noted that the original planning application was approved for a 25m wide carriageway. The original design for the road included for one traffic lane and one bus lane as well as on street parking and footpaths either side of a central median. The street is currently partially constructed between the junction of Belmayne Avenue and Churchwell Crescent and, as such, there is no through route to the Malahide Road; therefore, it is currently used for local access only. Car parking is present on both sides of the street. A median island of 3m width runs the length of the street. The area south of the median island does not currently carry vehicular traffic, and is predominately used for local parking, as shown below in **Figure 2.3**.



**Figure 2.3: Belmayne Main Street Layout and Parking**

2.2.2 Cross Section A-A of the existing road layout is shown below in **Figure 2.4**.



**Figure 2.4: Cross Section A-A of Existing Street Layout**

2.2.3 As shown in **Figure 2.4**, the present layout for the street presents significant physical constraints and limits the potential improvement options

available. The footpath width varies along the street, and ranges from a sub-standard 1.5m to 2m. The presence of the median island within the centre of the street creates a barrier; should this be retained, there is not sufficient width either side of the street to provide adequate facilities for pedestrians, cyclists and buses in accordance with modern design standards which will be discussed in Section 3 below.

## **2.3 EXISTING PARKING**

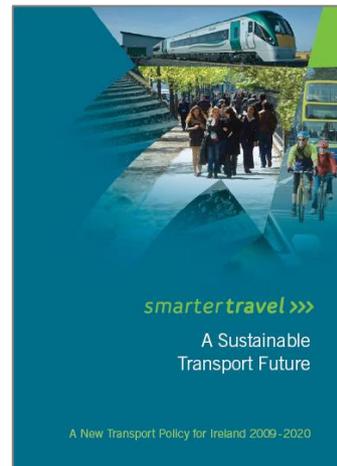
- 2.3.1 Existing parking on Main Street comprises of numbered parking spaces as well as non-dedicated parking areas. Numbered parking bays are provided on the northern side of the street. This parking is presumed to be residential; however, it is unclear as to whether the spaces are dedicated to any particular residents.
- 2.3.2 Parking on the southern side of the street before the median island is non-dedicated, however, there are no double yellow lines to prevent parking here. Parking south of the median island is also non-dedicated with no double yellow lines to prevent vehicles from parking here.
- 2.3.3 Parking surveys were undertaken in a number of locations in Belmayne as part of this scheme. These were carried out on the 20<sup>th</sup> February 2018 for a 12 hour period from 07:00 – 19:00. A number of parking locations were surveyed, including the study area along Main Street.
- 2.3.4 These surveys were carried out in order to determine the levels of parking within the area over a 12 hour period and to determine whether commuters were using the parking areas to park and ride.
- 2.3.5 Results of the survey showed that occupancy levels along Main Street are low, in particular on the southern side of the street where occupancy peaks at 31%. On the northern side of the street occupancy levels are on average 50% throughout the day.
- 2.3.6 The surveys also highlighted that long term parking in terms of commuter parking within Main Street is not apparent, with the majority of vehicles staying between 0 – 2 hours. There are a small number of vehicles that are parked for longer than 10 hours, however, these are presumed to be residential.

### 3.0 POLICY CONTEXT & DESIGN GUIDANCE

- 3.1.1 The majority of the existing and partially constructed infrastructure within the study area was built at a time when general guidance and policy differed from those in place today. As such, it is important that a review of current Policy is undertaken and used to inform the development of the options considered for Belmayne Main Street.
- 3.1.2 The following policy documents and design guidance have been reviewed as part of the development of this scheme.

### 3.2 SMARTER TRAVEL – A SUSTAINABLE TRANSPORT FUTURE 2009 - 2020

3.2.1 Smarter Travel - A Sustainable Transport Future, was published in February 2009, and represents a new transport policy for Ireland for the period 2009-2020. The policy recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development, but it also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport.



- 3.2.2 The policy is a direct response to the fact that continued growth in demand for road transport is not sustainable due to the resulting adverse impacts of increasing congestion levels, local air pollution, contribution to global warming, and the additional negative impacts to health through promoting increasingly sedentary lifestyles.
- 3.2.3 The following five key goals form the basis of the Smarter Travel policy document:
- Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport.

- Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks.
- Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions.
- Reduce overall travel demand and commuting distances travelled by the private car.
- Improve security of energy supply by reducing dependency on imported fossil fuels.

3.2.4 These aims will be achieved through 49 specific actions listed within the Smarter Travel Policy, which can be broadly grouped into 4 key areas:

- Actions to reduce distance travelled by private car and encourage smarter travel,
- Actions aimed at ensuring that alternatives to the private car are more widely available,
- Actions aimed at improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies, and
- Actions aimed at strengthening institutional arrangements.

3.2.5 The Smarter Travel policy also includes for a comprehensive range of supporting 'actions' including mode specific (e.g. walking, cycling and public transport etc.) and behaviour change initiatives which both encourage and provide for sustainable travel practices for all journeys.

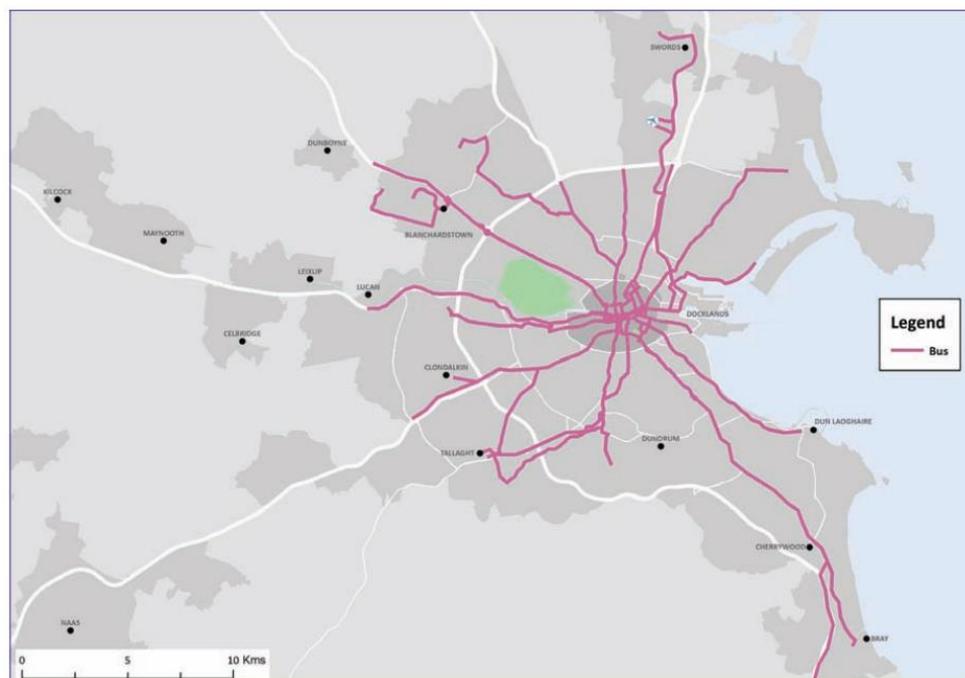
### 3.3 TRANSPORT STRATEGY FOR THE GREATER DUBLIN AREA 2016 – 2035

3.3.1 This strategy aims to provide for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades.

3.3.2 The Strategy Purpose of the document is “to contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods”.



3.3.3 As part of the strategy, a number of studies were undertaken which have identified routes where the demand for travel necessitates significant levels of infrastructural investment in order to minimise delays to bus services. From this, a 'Core Bus Network' was identified for the overall region. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors and six regional bus corridors. The 2035 Core Bus Network – Radial Corridors is shown below in the map in **Figure 3.1**.

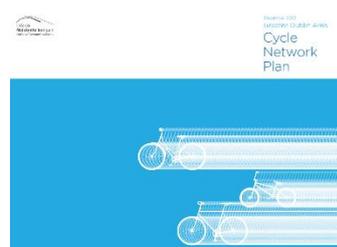


**Figure 3.1: 2035 Core Bus Network – Radial Corridors** (Source: Transport Strategy for the Greater Dublin Area)

- 3.3.4 This map outlines that one of the radial bus routes is proposed along the R107, Malahide Road. This forms part of the Clongriffin – Artane – Fairview bus route. This bus route is proposed to be developed as a Bus Rapid Transit route, where passenger numbers forecast on the route is approaching the limits of conventional bus route capacity.
- 3.3.5 The National Transport Authorities 'Bus Connects' scheme, launched in 2017, aims to overhaul the current bus system within the Dublin region. The main objectives for the scheme are the following:
- Build a network of 'next generation' bus corridors on the busiest routes in order to make bus journeys faster, predictable and reliable;
  - Introduce Bus Rapid Transit, a higher quality of bus system, on three of the busiest corridors;
  - Redesign the network of bus routes to provide a more efficient network, connecting more places and carrying more passengers;
  - Develop a state of the art ticketing system and cashless payment system to make payments more convenient and time saving;

### 3.4 GDA CYCLE NETWORK PLAN – DECEMBER 2013

- 3.4.1 The GDA Cycle Network Plan is a document, prepared on behalf of the National Transport Authority, that identifies and determines a consistent, clear and logical cycle network within the Greater Dublin Area.

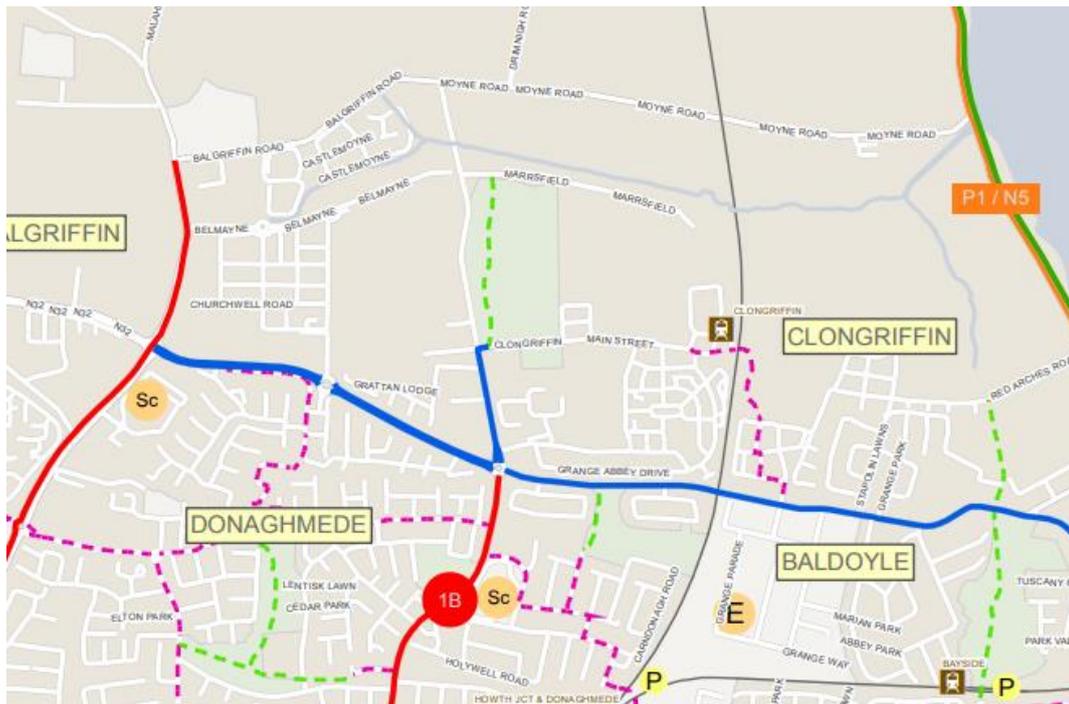


- 3.4.2 The plan aims to ensure that cycling as a transport mode is supported, enhanced and exploited in order to achieve strategic objectives and reach national goals. The steps undertaken within the plan include the following:
1. Collate existing and planned network information;
  2. Undertake quality of service review;
  3. Identify gaps in existing network;
  4. Cycle travel demand assessment;
  5. Develop cycle network plan;
  6. Target quality of service for routes;

7. Develop design concepts.

3.4.3 These seven steps proposed are in line with the National Cycle Manual methods for designing a Cycle Network.

3.4.4 The GDA Cycle Network map, shown in **Figure 3.2**, outlines the current proposals for the Belmayne/ Clongriffin area. This shows a primary cycle route 1C proposed along the R107, Malahide Road, and a secondary cycle route 1A proposed along the R139/R809.



**Figure 3.2: GDA Cycle Network Plan for Belmayne/Clongriffin Area** (Source: GDA Cycle Network Plan)

### 3.5 DUBLIN CITY COUNCIL DEVELOPMENT PLAN - 2016 – 2022

3.5.1 The Dublin City Council Development Plan states that “The continued delivery of an efficient, integrated and coherent transport network is a critical component of the development plan core strategy.” The development plan has the following aims and objectives:

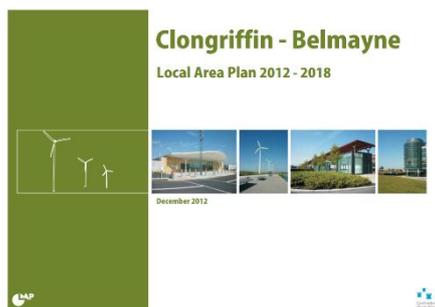
- To support the sustainability principles as set out in various planning documents;



- To continue to promote modal shift from private car use towards increased use of more sustainable forms of transport such as cycling, walking and public transport;
- To support and facilitate the development of an integrated public transport network;
- To improve the city's environment for walking and cycling through the implementation of improvements to thoroughfares and junctions and also through the development of new and safe routes; and
- To continue to promote improved permeability for both cyclists and pedestrians in existing urban areas.

### 3.6 CLONGRIFFIN – BELMAYNE LOCAL AREA PLAN - 2012

3.6.1 The Clongriffin – Belmayne area is a growing community. The LAP presents the opportunity to provide an updated strategy on how this area should be developed and managed in line with best practice in sustainable urban planning to meet the needs of all existing and future residents.



3.6.2 In terms of providing for movement and transport, the document highlights that its main aim is "*To promote ease of movement within and access to the area by incorporating a high quality, integrated transport network through improvements to the existing road, rail and public transport network, together with improved cycling and pedestrian facilities within the local area.*"

3.6.3 The Movement and Transport Strategy for the LAP is to focus in particular on maximising the connection potentials to and within the local area, and to design the area to enable people to move in a sustainable way, without use of private motor car as the predominant choice of travel.

The key aims of a sustainable movement and transportation strategy for the local area, as set out in the plan, include:

- To improve accessibility and maximise the use of public transport;

- Cater not only for travel demand but also for reductions in congestion and pollution;
- Place a stronger emphasis on sustainable forms of transport such as walking, cycling and public transport, particularly for short trips; and
- Take a pro-active approach to influencing travel behaviour and effective traffic management.

These aims underpin the key Movement and Transportation policies and objectives of the LAP, which are set out in Section 6.5 of the LAP, and include:

- Policy MTP1: To facilitate the completion of the existing road infrastructure network as identified in the movement and transport strategy.
- Policy MTP3: To promote increased cycling and pedestrian activity by the development of cycle and pedestrian network of routes that connect with local parks, community facilities, employment areas, retail areas and public transport facilities.
- Objective MTO2: To provide new patterns of pedestrian and cycle movement in both the east-west and north-south directions throughout the area that is coherent, direct, safe and convenient.
- Objective MTO4: To facilitate enhanced patronage and efficient utilisation of public transport and promote walking and cycling, through a range of means including a reduced provision of car parking for commercial development.
- Objective MTO8: To seek well integrated design solutions for adequate car parking within the design and layout of schemes with particular attention to visitor parking and car storage.
- Objective MTO10: That the design of all streets fully comply with the design standards and requirements of the Roads and Traffic Department of Dublin City Council to facilitate the orderly taking in charge process for all public roads. Requirements of Dublin City Council for street design including public lighting, traffic and pedestrian control signalling, street signage and traffic calming shall

be ascertained at the design stages and completed if requested before taking in charge.

- Objective MTO12: To liaise with Dublin Bus and the NTA on the operation of bus services and alignment of bus routes through the area having regard to the location of new housing, community facilities and other services and new street completions (offering the potential for new route options) as they occur in the LAP area.

### **3.7 DCC MASTERPLAN FOR BELMAYNE AND BELCAMP**

3.7.1 The Clongriffin – Belmayne Local Area Plan, 2012 seeks the preparation of an integrated Masterplan for the Belmayne and Belcamp areas to ensure that new development will positively and functionally integrate with the Northern Cross development and Clarehall Shopping Centre, etc. At the time of writing, a Masterplan for the Belmayne and Belcamp area is being developed.

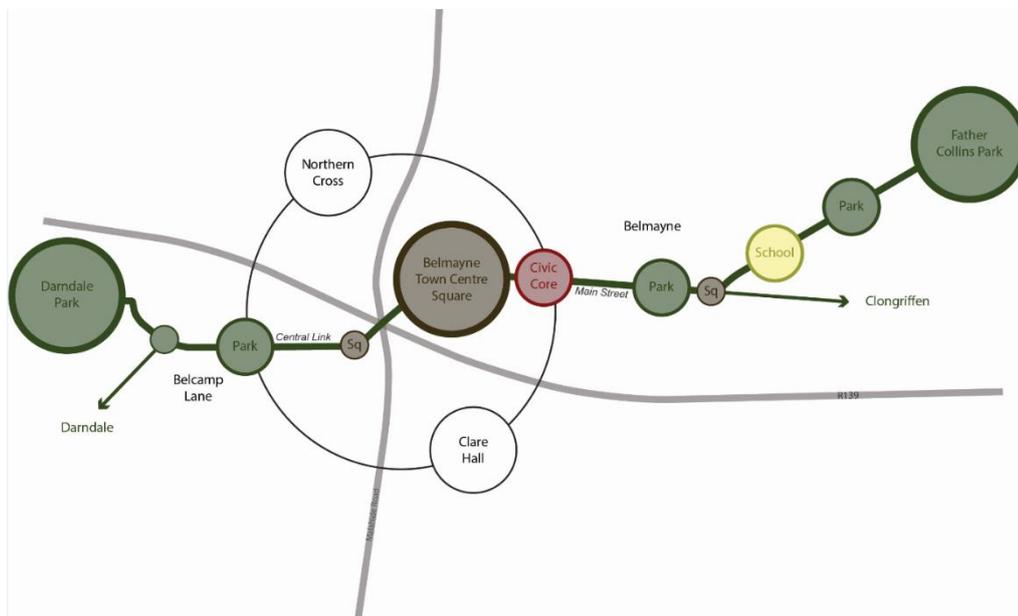
The LAP identifies 12 Key Masterplan Objectives which apply to the 3 masterplan sites identified in the LAP. In terms of access and movement these objectives include the need to:

- Demonstrate the proposed approach to pedestrian and vehicular movement and access, circulation, parking and traffic calming measures;
- Indicate an integrated relationship with public transport infrastructure.

3.7.2 More specifically, Key Objectives for the Belmayne masterplan include the need to deliver pedestrian links between Belmayne town centre and the surrounding environment and to create a new civic space on the site enclosed by a mix of retail, commercial, community and residential uses and the integration of the bus corridor into the town square setting.

3.7.3 At the time of writing, a Masterplan for the Belmayne and Belcamp area has been developed that aims to provide an improvement for access and movement through the 'Town Centre' that will cater for sustainable travel

modes. An initial sketch for this is illustrated in the image in **Figure 3.3**; this shows a strategic overview of the important links through the area.



**Figure 3.3: Strategic overview sketch for Belmayne and Belcamp**

3.7.4 The main design aims and objectives for this masterplan are the following:

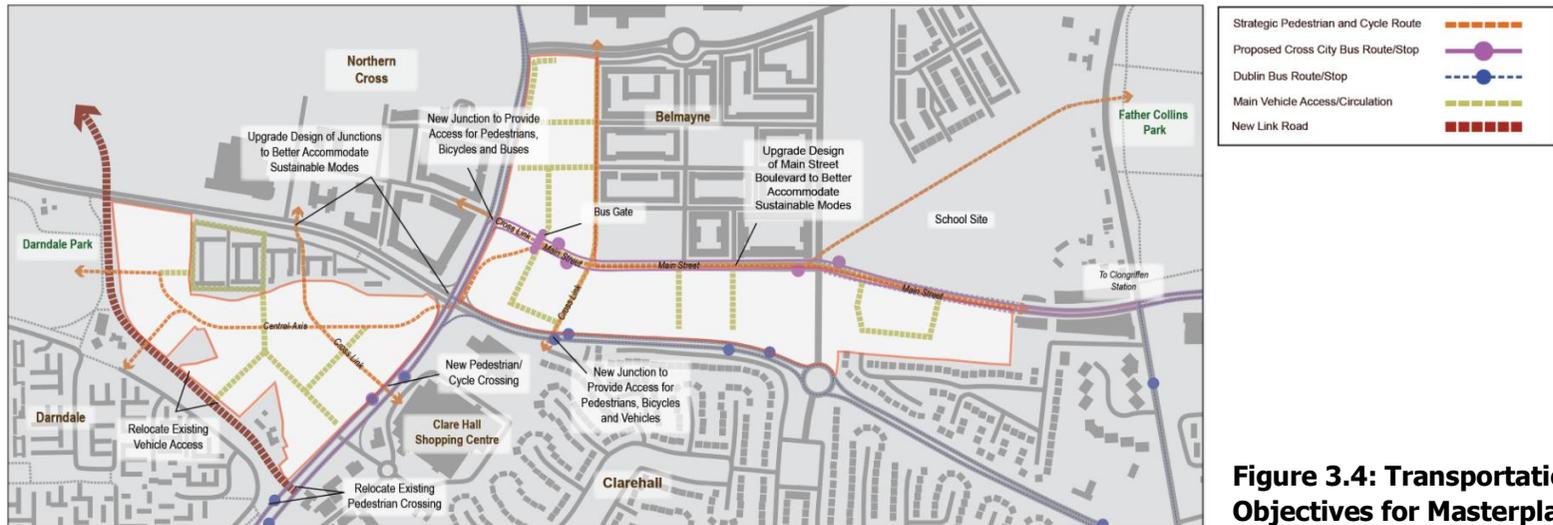
- Provide direct access through the two central corridors, Belcamp Lane and Main Street Belmayne, to the district centre for sustainable modes (pedestrians, cyclists and/or buses);
- To provide a major strategic pedestrian and cycle link from Belcamp and Belmayne Main Street between Darndale and Clongriffin;
- To provide additional crossings and upgraded junctions along the Malahide Road and the R139 that will service key pedestrian/cyclist desire lines and provide access for bus services to the Main Street and provide for local vehicle access; and
- The establishment of a traffic calmed, permeable and legible street network that integrates with and provides alternative means of access to established residential areas, ie, Belmayne.

3.7.5 A number of green links are also included within the Masterplan for Belmayne and Belcamp. These have the following design objectives:

- The creation of a range of passive and active open spaces, in the form of a Neighbourhood Park, pocket parks and Civic Squares;

- The creation of a town square, off Malahide Road that acts as a gateway to the Belmayne Town Centre site, marking the beginning of the Main Street, and facilitates the creation of a retail/commercial centre;
- The creation of landscaped 'green links' along the Central Axis/Main Street and Cross Links to increase legibility through the site, create a highly amenable pedestrian environment, and provide space for ecological features such as SUD's.

3.7.6 The design objectives for the overall Masterplan as well as the Green Links are illustrated below in **Figure 3.4** and **Figure 3.5** respectively.



**Figure 3.4: Transportation Design Objectives for Masterplan**



**Figure 3.5: Design Objectives for Green Links**

### 3.8 NATIONAL CYCLE MANUAL - 2011

3.8.1 The National Cycle Manual is a national guidance document that details the principles of sustainable safety that offers a safe traffic environment for all road user including cyclists. The manual provides guidance on integrating the bicycle in to the design of urban areas. The manual sets out five principle requirements for providing an adequate, safe cycle facility:

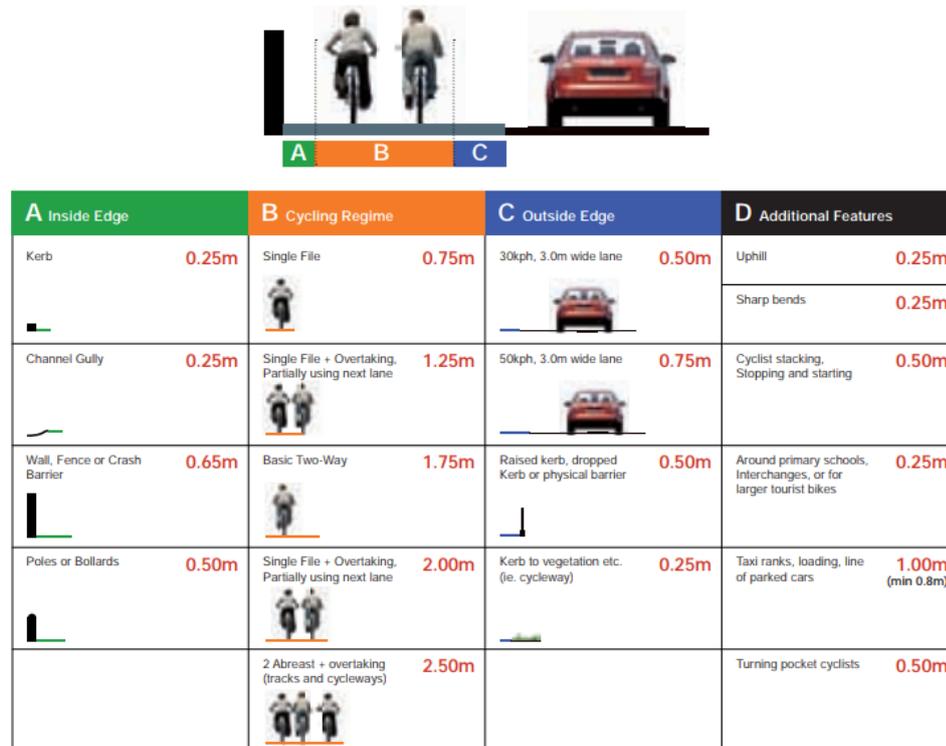


1. Road Safety: Providing cycle infrastructure along a route should seek to maximise road safety for all road users, including cyclists. Any perception of a lack of safety could be a deterrent to cycling.
2. Coherence: A cycling network should link all main origin and destination zones/centres for cyclists. Cycling routes should be logical and continuous.
3. Directness: Cycling infrastructure should be as direct as possible and should minimise delays or detours. A well designed urban cycle network should confer an advantage in terms of average distance or journey time when compared with other transport networks.
4. Attractiveness: The cycling environment along a route should be pleasant and interesting.
5. Comfort: Cycling infrastructure should be designed, built and maintained for ease of use and for comfort. This is particularly important for beginners, tourists and recreational cyclists. Providing adequate comfort includes design aspects such as width, gradients, surface quality, stopping and delays and shelter.

3.8.2 The width of a cycle facility as well as the type of facility proposed (Integrated or segregated) are two key factors for providing adequate, safe facilities and a sub-standard cycle lane/track is never recommended.

3.8.3 The designed width of a cycle facility is comprised of the effective width as well as clearances that are required in different circumstances. The Width Calculator table provides details for determining the actual width required

for cycle lanes and tracks. It comprises of three main factors, A,B and C, as well as an additional factor, D, which is only relevant in certain circumstances. The width calculator table is illustrated in **Figure 3.6**.



**Figure 3.6: Cycle width calculator – National Cycle Manual** (Source: NCM)

3.8.4 Considering a cycle lane/track facility along a 50kph 3m street with cyclists single file, the width of facility required is 1.75m, ie, A=0.25m, B=0.75m and C= 0.75m.

3.8.5 In terms of the type of facility proposed, integrated or segregated, there are a number of factors considered for determining the type of facility most appropriate. Segregated facilities are recommended in the following circumstances:

- The traffic regime cannot be rendered suitable for integrated cycling;
- To preclude traffic from queuing or parking on the facility;
- To confer an advantage on cyclists.

3.8.6 A guidance graph is illustrated in **Figure 3.7** that sets out relevant factors for determining the type of facility to provide.

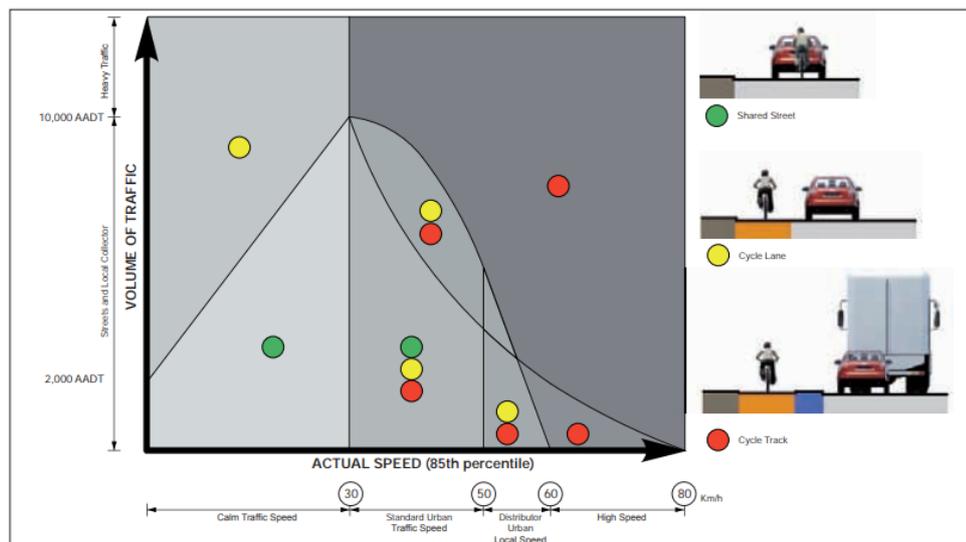
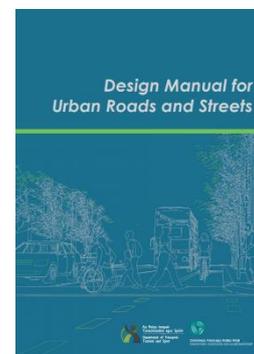


Figure 3.7: Guidance graph for determining type of cycle facility (Source: NCM)

3.8.7 The graph determines the type of facility necessary, whether the facility is shared, cycle lane or cycle track, based on vehicle speed and AADT of the road.

### 3.9 DESIGN MANUAL FOR URBAN ROADS AND STREETS (DMURS) - 2013

3.9.1 DMURS provides guidance relating to the design of urban roads and streets. It presents a series of principles, approaches and standards that are necessary to achieve balanced, best practice design outcomes with regard to street networks and individual streets.

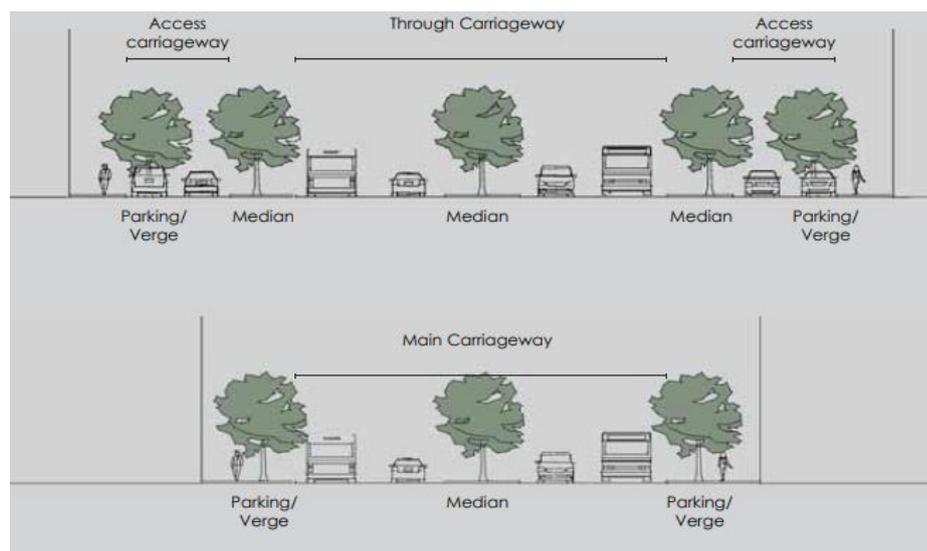


3.9.2 The manual places a significant emphasis on car dominance in Ireland and the implications this has had regarding the pedestrian and cycle environment. The document encourages more sustainable travel patterns and safer streets by proposing a hierarchy for user priorities. This hierarchy places pedestrians at the top, indicating that walking is the most sustainable form of transport and that by prioritising pedestrians first, the number of short car journeys can be reduced and public transport made more accessible.

3.9.3 Second in the hierarchy are cyclists with public transport third in the hierarchy and private motor vehicles at the bottom. By placing private vehicles at the bottom of the hierarchy, the document indicates that there

should be a balance on street networks and cars should no longer take priority over the needs of other users.

- 3.9.4 The manual emphasises that narrow carriageways are one of the most effective design measures that calm traffic. Standard width of an arterial and link street is 3.25m, however, this may be reduced to 3m where lower design speeds are being applied. Desirable footpath widths are between 2.5m – 4m. The 2.5m width should be implemented to allow for low to moderate pedestrian activity. A 3m – 4m footpath should be implemented to allow for moderate to high pedestrian activity.
- 3.9.5 The focus of the manual is to create a place – based sustainable street network that balances the pedestrian and vehicle movements. The manual references the different types of street networks, including arterial streets, link streets, local streets, and highlights the importance of movement.
- 3.9.6 The manual recognises that some roads are required to cater for the efficient movement of larger volumes of motorised traffic at faster speeds over longer distances.. The route should be integrated within the urban fabric so that a sense of place is maintained. A solution for this is to design a boulevard type street with planted medians and verges that provide a buffer between traffic and the pedestrian environment. A typical cross section from DMURS highlighting the use of median islands to this effect is illustrated in **Figure 3.8**.



**Figure 3.8: DMURS use of Median Islands to improve traffic and pedestrian environment.** (Source: DMURS)

- 3.9.7 This chapter focused on identifying the various Policy documents that are relevant to the scheme. As highlighted previously, the current infrastructure within the study area does not conform with current guidance and policies in place.
- 3.9.8 The Policy Documents outlined above have been reviewed with the aim of providing guidance to the scheme to increase accessibility, promote active travel modes, seek to reduce car use and to better integrate land use and transport planning on a national, regional and local basis.

## 4.0 ROUTE OPTIONS

### 4.1 INTRODUCTION

4.1.1 Three options were considered for the design improvements for Belmayne Main Street between the bus gate and Belmayne Avenue including:

- Option 1: Retain existing median island; Retain existing carriageway width.
- Option 2: Retain existing median island; Extend carriageway width.
- Option 3: Reposition median island; Extend carriageway width.

### 4.2 OPTION 1

4.2.1 Option 1, which could be considered to be a 'Do Minimum' scenario, uses the existing carriageway width of approximately 23m and retains the existing median island. The existing numbered parking spaces on the northern side of the street is also retained.

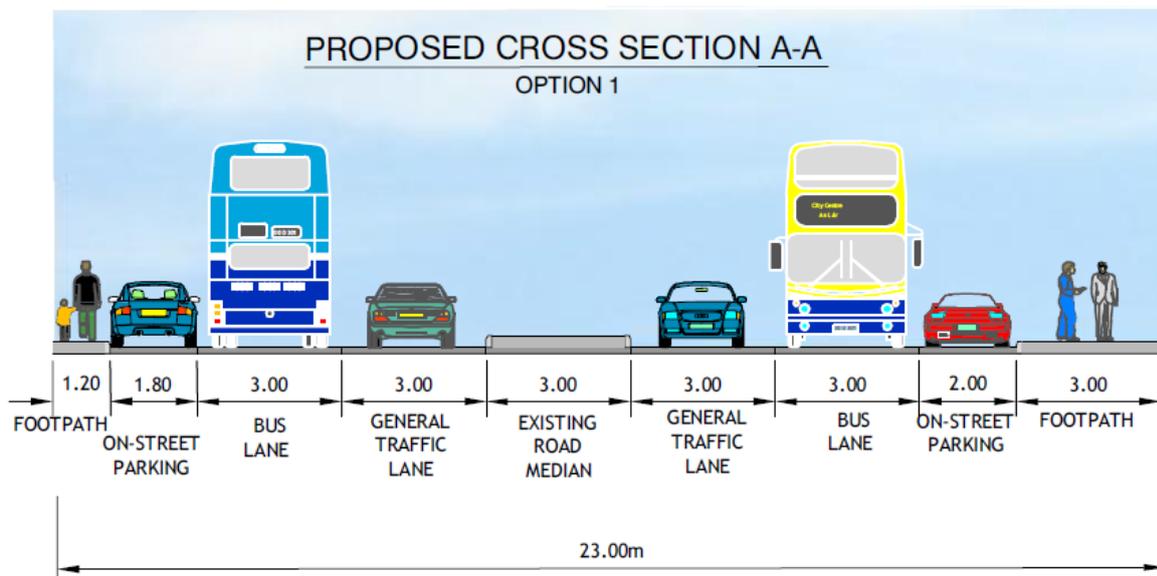
4.2.2 The provision of facilities is detailed in the schematic in **Figure 4.1** and includes for the following:

- 2 - 3m wide footpath on the northern side of street;
- 1.2m wide footpath on the southern side of street;
- 3m wide existing median island;
- 2m wide parking bay on northern side of street;
- 1.8m wide parking bay on southern side of street;
- 3m wide bus lanes;
- 3m wide traffic lanes.



**Figure 4.1: Schematic Diagram for Option 1** (Source: Google Maps)

4.2.1 A proposed cross section (Section A-A in Figure 4.1) is illustrated in **Figure 4.2**.



**Figure 4.2: Proposed Cross Section A-A for Option 1**

4.2.2 The area north of the median island will comprise of the existing sub-standard footpath being increased to provide a footpath width of between 2-3m over the length of the street, a proposed eastbound bus lane and traffic lane, both 3m width. The area south of the median island will comprise of a proposed westbound bus lane and traffic lane, both 3m width, proposed formal parking bays of 1.8m and a proposed sub-standard footpath of 1.2m width.

- 4.2.3 It is noted that a footpath width of 2m or less is not considered adequate in the context of Main Street as a strategic pedestrian route; however, due to width restrictions on the northern side of the carriageway, the footpath would vary between 2m and 3m and on the southern side of the carriageway would result in a 1.2m footpath.
- 4.2.4 Option 1 does not accommodate for segregated cycle facilities due to width restrictions within the carriageway. For this option, cyclists are proposed to cycle within the bus lanes in both directions.
- 4.2.5 It is estimated that this section for Option 1 will have an approximate cost of €550,000.
- 4.2.6 The constraints and opportunities associated with Option 1 are presented in **Table 4.1** below.

Table 4.1: Constraints and Opportunities for Option 1

Constraints		Opportunities	
<b>Median Island</b>	The median island creates a barrier within the centre of the street. Potential for improvements on the northern side of the carriageway are limited by the retention of the island.	<b>Bus lane</b>	A bus lane is proposed both westbound and eastbound along the street. However, with no cycle facility proposed, cyclists share the bus lane, resulting in a reduced level of service for both modes of travel.
<b>No Cycle Facility</b>	No dedicated cycle facilities are proposed for this option due to the restrictions in carriageway width. Cyclists are expected to cycle within the bus lane.	<b>Footpath Width</b>	The reduction of traffic lanes from 3.5m to 3m width on the northern side of the street allows for the increase in footpath width of 2-3m for this option.
<b>Footpath Width</b>	The width restrictions on the southern side of the street results in a sub-standard footpath of 1.2m.	<b>Capital Cost</b>	Retention of existing median and road cross section would require significantly less capital investment when compared to other options.

### 4.3 OPTION 2

4.3.1 Option 2 retains the existing dedicated parking as well as the existing median island. The carriageway width is extended to the south in this option, therefore this option requires land take of approximately 5.75m.

4.3.2 The provision of facilities is detailed in the schematic in **Figure 4.3** and includes for the following:

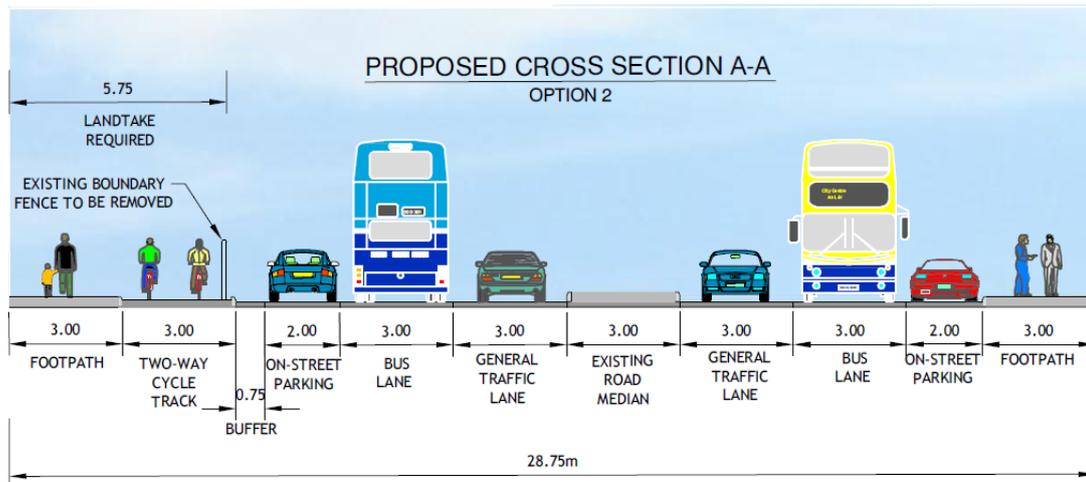
- 2-3m wide footpath on northern side of street;
- 3m wide footpath on southern side of street;
- 2m wide parking bays;
- 3m wide bus lanes;
- 3m wide existing median island;
- 3m wide traffic lanes;
- 3m wide two-way cycle track on southern side of street;
- 750mm wide buffer between parking and cycle track.



**Figure 4.3: Schematic Diagram for Option 2** (Source: Google Maps)

4.3.1 It is noted that a footpath width of 2m is not considered adequate in the context of Main Street as a strategic pedestrian route; however, due to width restrictions on the northern side of the carriageway, the footpath would vary between 2m and 3m.

4.3.2 A proposed cross section (Section A-A in Figure 4.3) is illustrated in **Figure 4.4**.



**Figure 4.4: Proposed Cross Section A-A for Option 2**

4.3.3 The area north of the median island comprises of providing a footpath width of between 2-3m along the length of the street, retaining the existing parking bay of 2m, a proposed outbound bus lane and traffic lane, both 3m width. The area south of the median island will comprise of a proposed inbound bus lane and traffic lane, both 3m width, proposed dedicated parking bay of 2m, a proposed 3m two-way cycle track on the southern side of the street, with a buffer of 750mm between the parking bay and the cycle facility, and a proposed footpath of 3m width. In total, the carriageway width proposed for Option 2 is 28.75m. Therefore, this option will require land take south of the carriageway of 5.75m.

4.3.4 It is estimated that this section for Option 2 will have an approximate cost of €635,000.

4.3.5 The constraints and opportunities associated with Option 2 are presented in **Table 4.2** below.

Table 4.2: Constraints and Opportunities for Option 2

Constraints		Opportunities	
<b>Median Island</b>	The median island creates a barrier within the centre of the street. Improvements on the northern side of the carriageway are restricted by the retention of the island.	<b>Bus lane</b>	A bus lane is proposed both inbound and outbound along the street.
	A Two-way cycle facility is proposed for this option on the southern side of the street. The retention of the median island creates difficulties for cyclists trying to access from the residential units on the northern side of the street.	<b>Two – Way Cycle Facility</b>	The extension of the carriageway results in a two-way cycle facility being proposed.
<b>Capital Cost</b>	The extension of the carriageway requires road widening on the southern side of the street, leading to increased costs in comparison to other options.	<b>Footpath Width</b>	The extension of the carriageway provides for a proposed footpath on the southern side of the street to 3m. The footpath on the northern side of the street is increased to between 2-3m along its length.
		<b>Capital Cost Land Take</b>	The extension of the carriageway requires reduced land take than Option 3, resulting in decreased costs when compared to this option.

## 4.4 OPTION 3

4.4.1 Option 3, which could be considered as a 'Do Maximum' scenario, provides for an upgraded altered layout for the street including footpaths of a desirable width, dedicated parking as well as dedicated bus and cycle facilities on both carriageways. The existing median island is removed in this option and is replaced with an alternatively located median island.

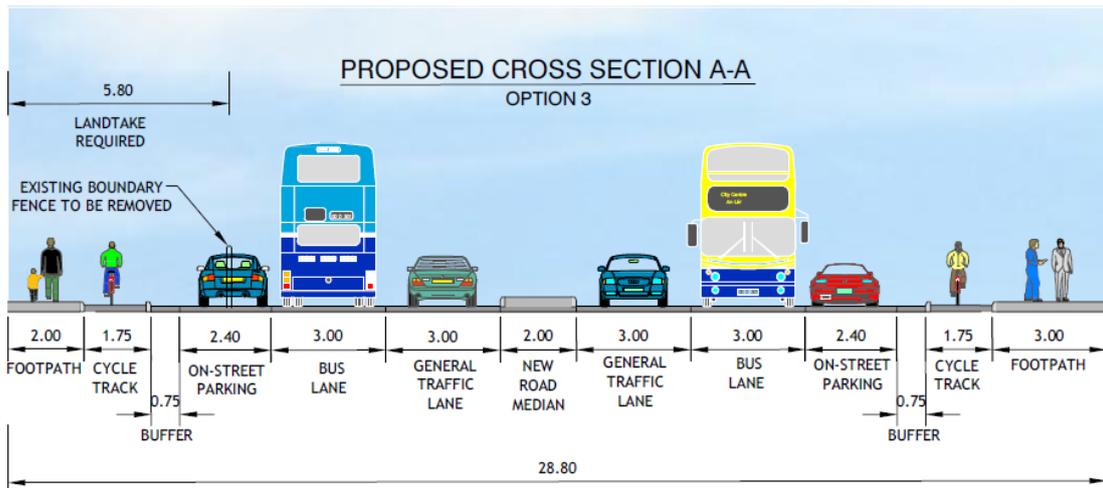
4.4.2 The provision of facilities is detailed in the schematic in **Figure 4.5** and includes for the following:

- 3m wide footpath on the northern side of street ; 2m wide footpath on southern side of street;
- 2.4m wide parking bays;
- 3m wide bus lanes;
- 2m wide proposed median island;
- 3m wide traffic lanes;
- 1.75m wide cycle tracks on both sides;
- 750mm wide buffer between parking and cycle track.



Figure 4.5: Schematic Diagram for Option 3 (Source: Google Maps)

4.4.3 A proposed cross section (Section A-A in Figure 4.5) is illustrated in **Figure 4.6**.



**Figure 4.6: Proposed Cross Section for Option 3**

4.4.4 The proposed street layout, from north to south of the street, consists of a 3m wide footpath, 1.75m cycle track with a 750mm buffer between the cycle track and the parking bays, a proposed parking bay width of 2.4m, proposed outbound bus lane and traffic lane, both 3m width, proposed median island of 2m width, proposed inbound traffic lane and bus lane, both 3m width, proposed parking bay of 2.4m width, proposed 1.75m cycle track with 750mm buffer and a 2m wide footpath. In total, the carriageway width proposed for Option 3 is 28.8m. Therefore, this option will require land take south of the existing carriageway of 5.8m width.

4.4.5 It is estimated that this section for Option 3 will have an approximate cost of €830,000.

4.4.6 The constraints and opportunities associated with Option 3 are presented in **Table 4.2** below.

Table 4.3: Constraints and Opportunities for Option 3

Constraints		Opportunities	
<b>Capital Cost</b>	The extension of the carriageway requires land take of approximately 6m. This has increased costs in comparison to other options.	<b>Bus lane</b>	A bus lane is proposed both westbound and eastbound along the street.
		<b>Median Island</b>	The median island is reconstructed for this option. This creates an opportunity to provide improved facilities along the street without creating a barrier.
		<b>Footpath</b>	A footpath is proposed of adequate width both sides of the street.
		<b>Cycle Track</b>	A cycle track is proposed both sides of the street. This provides for adequate access for cyclists to and from the residential area.
		<b>Wider Road Reservation</b>	The road reservation of 29m is 6m greater than the existing situation but would be fully compliant with DMURS. DMURS advocates increased heights of buildings fronting on to generously wide boulevards. As such, there would be a significant opportunity to achieve greater density of development if it were served by the wider road.

## 5.0 MULTI CRITERIA ANALYSIS (MCA)

### 5.1 INTRODUCTION

- 5.1.1 In order to determine the preferable design option along Main Street, it is necessary to undertake an appraisal of each scheme option. This appraisal is based on a number of criteria as set out by the Department of Transport, Tourism and Sport (DTTAS).
- 5.1.2 The 'Guidelines on a Common Appraisal Framework for Transport Projects and Programmes' published by the DTTAS, March 2016, requires schemes to undergo a 'Multi-Criteria Analysis' (MCA) under the following criteria:
- **Economy** – The impacts of a transport investment or economic growth and competitiveness are assessed under the economic impact criteria;
  - **Integration** - Integration considers the extent to which the project being evaluated promotes integration of transport networks and is compatible with Government policies, including national spatial and planning policy;
  - **Accessibility and Social Inclusion** - Accessibility and social inclusion embraces the notion that some priority should be given to benefits that accrue to those suffering from social deprivation, geographic isolation and mobility and sensory deprivation;
  - **Physical Activity** - This relates to the health benefits derived from using different transport modes;
  - **Safety** - Safety is concerned with the impact of the investment on the number of transport related accidents; and
  - **Environment** - Environment embraces a range of impacts, such as emissions to air, noise, and ecological and architectural impacts.
- 5.1.3 These criteria were tailored to have commonality to the Common Appraisal Framework guidelines where practical.

## 5.2 MCA CRITERIA ASSESSMENT

5.2.1 **Table 5.1** presents a summary of the assessment criteria and sub criteria used as part of the MCA option assessment process.

Table 5.1: Assessment Criteria

Assessment Criteria	Assessment Sub-Criteria
1.Economy	1a. Capital Cost
	2a. Land Use Policy
2.Integration	2b. Residential Population and Employment Catchments
	2c. Public Transport Network Integration
	2d. Cycle Network Integration
	2e. Pedestrian Network Integration
	2f. Traffic Network Integration
	3a. Deprived Geographic Areas
3.Accessibility and Social Inclusion	
4.Safety	4a. Pedestrian Safety
	4b. Cycle Safety
5.Environment	5a. Flora & Fauna
	5b. Soils, Geology & Hydrology
	5c. Landscape & Visual
	5d. Air Quality/Noise & Vibration
	5e. Land Use Character
6. Physical Activity	6a. Health Benefits

### 1. Economy

**1a. Capital Cost:** Capital Cost estimates consist of both the indicative infrastructure cost estimate and land acquisition costs.

### 2. Integration

**2a. Land-Use Policy:** This criterion identifies the extent to which a route would encourage or support planned development and provide for economic opportunities. The interaction of route and design options with Local Area Plans (LAPs), masterplans or specific objectives in the County Development Plan are also considered under this criterion.

**2b. Residential Population and Employment Catchments:** This criterion compares the existing residential populations within 5 and 10 minute walk catchments and is representative of potential users for a particular route. Considering that all three options consider the same catchment area, this criteria will provide for an equal scoring within the MCA table.

- 2c. Public Transport Network Integration:** This criterion identifies the extent to which the options would maximise wider public transport usage and reach in terms of facilitating efficient interchange between transport modes.
- 2d. Cycle Network Integration:** This criterion is established to assess the options for the practicality of achieving cycle track segregation and their potential to integrate high quality cycle facilities.
- 2e. Pedestrian Network Integration:** This criterion is established to assess the options for the practicality of achieving high quality pedestrian facilities.
- 2f. Traffic Network Integration:** This criterion identifies and addresses the promotion of the integration of traffic infrastructure and services.

### **3. Accessibility and Social Inclusion**

- 3a. Deprived Geographic Areas:** This criterion assesses the potential impact that the provision of infrastructure including enhanced walking and cycling facilities would have on a particular demographic.

### **4. Safety**

- 4a. Pedestrian Safety:** This criterion assesses the safety of pedestrians for each option. This is predominately concerned with footpath facilities proposed for each option.
- 4b. Cycle Safety:** This criterion assesses the safety of cyclists for each option. This is predominately concerned with the level of cycle segregation provided as well as the quality of that provision.

### **5. Environment**

- 5a. Flora & Fauna:** This criterion assesses the impact on specific flora or fauna or on defined habitats should the construction, presence or the operation of transport infrastructure impact on this.
- 5b. Soils, Geology & Hydrology:** This criterion assesses the impact of the options on soil and geology as a result of land-take and possible ground excavation.
- 5c. Landscape & Visual:** This criterion assesses the potential to impact on townscape/streetscape quality.

**5d. Air Quality:** Provision of traffic and bus infrastructure has the potential to impact on both the air quality and noise environment. Considering each option provides segregated bus facilities, this criteria will provide an equal scoring for each option.

**5e. Land Use Character:** This criteria assesses each option in terms of the impact that the proposals have on the character of the street. This is assessed in terms of the relevant policies outlined for the area; for each options proposals to accommodate for sustainable travel modes.

## 6. Physical Activity

**6a. Health Benefits:** This criteria assesses the impact of the potential health benefits associated with each option.

5.2.2 For each option proposed, a summary table in Project Appraisal Balance Sheet (PABS) format has been prepared which collates and summarises the appraisal of the options under each of the assessment criterion.

5.2.3 For each assessment criterion considered, options have been relatively compared against each other based on a five – point scale, ranging from having significant advantages to having significant disadvantages over other route options. For illustrative purposes, this five-point scale is colour coded as presented in **Table 5.2**, with advantageous options graded to 'dark green' and disadvantageous options graded to 'red'.

Table 5.2: MCA Colour Coded Ranking Scale

Colour	Description
	Significant advantages over other options
	Some advantages over other options
	Neutral compared to other options
	Some disadvantages compared to other options
	Significant disadvantages compared to other options

5.2.4 Shown below in **Table 5.3** is the MCA assessment for the three options considered in this report. Each option is ranked using the 5 point scale as referenced in **Table 5.3** with regard to each criteria and sub-criteria set out.

Table 5.3: MCA Assessment for Options

Appraisal Criteria	Sub-Criteria	Option 1	Option 2	Option 3
1.Economy	1a. Capital Cost	Green	Yellow	Red
2.Integration	2a. Land Use Policy	Yellow	Green	Green
	2b. Residential Population & Employment Catchments	Yellow	Yellow	Yellow
	2c. Public Transport Network Integration	Yellow	Green	Green
	2d. Cycle Network Integration	Red	Yellow	Green
	2e. Pedestrian Network Integration	Red	Green	Green
	2f. Traffic Network Integration	Yellow	Green	Green
3.Accessibility and Social Inclusion	3a. Deprived Geographic Areas	Yellow	Green	Green
4. Safety	4a. Pedestrian Safety	Yellow	Green	Green
	4b. Cycle Safety	Red	Yellow	Green
5.Environment	5a. Flora & Fauna	Green	Yellow	Yellow
	5b. Soils, Geology & Hydrology	Green	Yellow	Yellow
	5c. Landscape & Visual	Red	Green	Green
	5d. Air Quality/Noise & Vibration	Yellow	Yellow	Yellow
	5e. Land Use Character	Red	Green	Green
6. Physical Activity	6a. Health Benefits	Yellow	Green	Green

5.2.5 In terms of 'Economy', the primary differentiator is the Capital Costings for each option. This shows that Option 3 will require the highest costings as a result of providing the optimum design for the street which will be approximately €830,000. Option 2 will require an approximate cost of €635,000. Option 1 will require the lowest costings, approximately €550,000, and therefore is ranked as having significant advantages for this criteria.

5.2.6 In terms of 'Integration' into the network, there are six criteria assessed. In general, Option 2 and Option 3 present a higher number of advantages over Option 1. Option 2 and Option 3 provide a better integration in terms of provision of infrastructure into the road network as well as aligning with relevant government policies set out for sustainable transport. Option 1 scores low on all sub-criteria, in particular, pedestrian and cycle integration, due to the sub-standard footpath provision on the southern side of the street as well as a lack of dedicated cycle facilities.

5.2.7 In terms of 'Accessibility and Social Inclusion', the primary differentiator is provisions for Deprived Geographic Areas. Option 2 and Option 3 present higher advantages for this criteria in comparison to Option 1. Providing high quality sustainable modes of travel with adequate footpath and cycle

facilities as well as bus routes, provides a necessary link from this location towards areas such as Clongriffin, Belcamp, Clarehall etc. which provide connections and provisions to link to other locations via other travel modes.

- 5.2.8 In terms of 'Safety', there are two primary criteria assessed, pedestrian and cycle safety. Option 1 results in a lower ranking than Option 2 and Option 3 and has some disadvantages over these options. Option 1 does not provide a dedicated segregated cycle facility and so cyclists are required to cycle on road which reduces safety considerably. Option 1 also provides a sub-standard pedestrian footpath of 1.2m on the southern side of the street. Option 3 results in higher ranking in comparison to Option 2 and has higher advantages in terms of segregated cycle facilities both sides of the carriageway in comparison to a two-way provision as specified in Option 2.
- 5.2.9 In terms of 'Environment' there are five criteria assessed. Overall, Option 1 and Option 2 result in a lower ranking than Option 3 and have some disadvantages over this option. For criteria 5a and 5b, Option 1 is actually the preferable option as this option remains within the existing carriageway and therefore, there would be minimal impact on flora & fauna or soils in terms of excavations. Option 1, however, has significant disadvantages in comparison to other options in relation to the visual and landscape quality as well as land use character. This option provides for minimal improvements to the streetscape and offers little in terms of visual quality.
- 5.2.10 In terms of 'Physical Activity', the primary differentiator is the health benefits criteria. The results of this show that Option 2 and Option 3 show some advantages over Option 1. Both Option 2 and Option 3 provide for optimum sustainable facilities including improved footpaths as well as segregated cycle facilities.
- 5.2.11 A summary table displaying the overall results for the main appraisal criteria is displayed in **Table 5.4**.

Table 5.4: Summary Table for Appraisal Criteria

Appraisal Criteria	Option 1	Option 2	Option 3
1 Economy	Green	Yellow	Red
2 Integration	Red	Light Green	Light Green
3 Accessibility and Social Inclusion	Yellow	Light Green	Light Green
4 Safety	Yellow	Light Green	Green
5 Environment	Yellow	Yellow	Light Green
6 Physical Activity	Yellow	Light Green	Light Green

5.2.12 The summary table highlights that the preferred option is Option 3. This option scores well in five of the six appraisal criteria assessed with the Economy criteria showing disadvantages for this option.

5.2.13 Option 2 also scores well in a number of the appraisal criteria, however shows disadvantages for both Economy and Environment.

5.2.14 Option 1 shows disadvantages in five of the six appraisal criteria but scores highest for the Economy criteria.

5.2.15 Option 3 is discussed further in the Emerging Preferred Option chapter below.

## 6.0 EMERGING PREFERRED OPTION

### 6.1 INTRODUCTION

- 6.1.1 This section details the emerging preferred option for Main Street. This section is based on the results for the Multi-Criteria Analysis undertaken in Chapter 5 above.

### 6.2 EMERGING PREFERRED OPTION

- 6.2.1 The emerging preferred option for Main Street is Option 3. This option comprises of the following improvements:

#### Pedestrian Environment

- 6.2.2 Option 3 increases the footpath width to 3m on the northern side of the street and provides a 2m footpath on the southern side of the street. This will provide ample and sufficient space to accommodate a high volume of pedestrians through the street.
- 6.2.3 It is also proposed to provide a sufficient number of pedestrian crossing facilities along the street.
- 6.2.4 The provision of an improved median island with additional planting creates an inviting environment for pedestrians to walk through. The median island also provides a refuge area for pedestrians crossing the street.
- 6.2.5 This option complies fully with DMURS recommendations and is designed to reflect a boulevard street type. This will create a street environment that protects pedestrians from vehicle activity by proposing buffers and planting through the street.
- 6.2.6 These improved facilities will provide a connection with the existing greenway routes within the area and provide good walking links to other locations as well as bus stop facilities.

#### Cyclist Environment

- 6.2.7 This option provides for 1.75m cycle track facilities on both sides of the street in accordance with the requirements of the NCM. This width and segregation provides an adequate facility for a 50kph street network. Buffer

areas, 750mm width, are proposed between cycle track and proposed parking in order to protect cyclists passing parked vehicles.

- 6.2.8 Toucan crossings will also be proposed for cyclists wanting to enter and exit the facility both sides of the road.
- 6.2.9 These cycle facilities will form a key connection with the existing greenways within the area as well as with the green links proposed from the Masterplan for the area.

### Public Transport

- 6.2.10 Public transport is adequately provided for with Option 3. A Bus lane, 3m width, is proposed both sides of the street.
- 6.2.11 These bus lanes will provide a vital connection from Belmayne to Clongriffin and will provide interchange opportunities with rail services at Clongriffin Station as envisaged as part of the BusConnects scheme.

### Traffic Environment

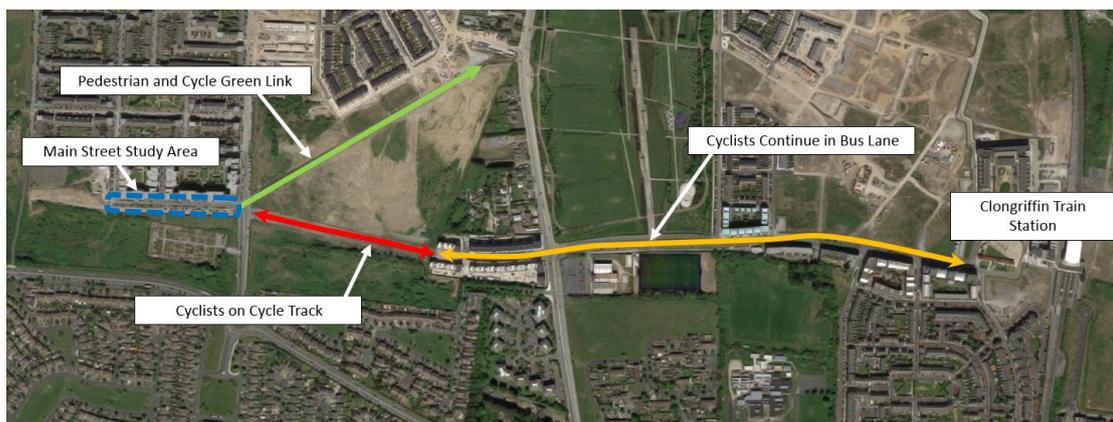
- 6.2.12 Option 3 provides 3m traffic lanes both sides of the street. Parking provisions are also proposed, 2.4m width, both sides of the street. The street is designed as a boulevard type street, and therefore provides a balance between vehicles and pedestrian activity.
- 6.2.13 The proposal to include additional planting within the median island and build outs will create a sense of enclosure and contribute to overall traffic calming through the street.

## 6.3 EMERGING PREFERRED ROUTE

- 6.3.1 The options proposed for Main Street between Belmayne Avenue & Churchwell Crescent will merge with the different character areas that are proposed to the east and west of this section.
- 6.3.2 West of the Main Street section, it is proposed to continue the bus lane facility both sides where it will terminate and proceed to a bus gate. The bus gate will accommodate for buses only. No vehicular traffic will route through this section. The bus gate will continue and will form a new signalised junction along the Malahide Road. Cycle and pedestrian facilities

will be continued along this section also. The street network to the west will comprise of a town centre with retail and community facilities proposed.

6.3.3 Travelling east of Main Street, there is an un-opened green link, that travels in a northeast direction, that could provide additional pedestrian and cycle facilities. The cycle track will continue along this section and will terminate at the Hole in the Wall junction where cyclists will continue within the bus lane both sides of the route. This is illustrated below in **Figure 6.1**. Footpath facilities will continue east of Main Street for the length of the section. A typical cross section east of Main Street where cycle facilities terminate will consist of adequate footpath facilities both sides of the road, 3m bus lane facilities which accommodate cyclists and 3m traffic lanes both sides of the street.



**Figure 6.1: Schematic of cycle facilities east of Main Street study area** (Source: Google Maps)

## 7.0 SUMMARY AND CONCLUSION

- 7.1.1 DBFL have been commissioned to undertake an Options assessment on behalf of Dublin City Council as part of the Design and Construction of Belmayne Main Street and Belmayne Avenue.
- 7.1.2 The overall aim is to extend and provide a new 'Main Street' in Belmayne that links the Malahide Road in the west to New Priory in the east. This forms part of the Clongriffin – Belmayne Local Area Plan 2012. This statutory plan provides a planning framework by which this new route is to be delivered.
- 7.1.3 The overall vision for Belmayne is to implement a masterplan that will provide the necessary community services and amenities to support the residential development of the surrounding lands. As part of this masterplan for Belmayne, it is proposed to implement upgraded sustainable transport links within the area, including upgraded pedestrian facilities, cycle links and facilities, public transport improvements including dedicated bus lanes as well as a proposed bus gate.
- 7.1.4 The study area for the options assessment is along Main Street between Belmayne Avenue and Churchwell Crescent.
- 7.1.5 Main Street is currently partially constructed. The width of the street is 23m from kerb line to back of footpath. A median island is located along its length. This creates a physical constraint along the street as the location negates appropriate facilities being proposed either side of the street. Car parking comprises of both numbered parking bays and non-dedicated parking bays. The numbered parking bays are presumed to be residential; however, it is unclear as to whether the spaces are dedicated to any particular residents.
- 7.1.6 Since the implementation of the current street layout along Main Street, various policy documents have been developed that propose alternative sustainable recommendations to that provided currently along Main Street.
- 7.1.7 Three options were developed for the assessment:
- Option 1: Retain existing median island; Retain existing carriageway width.

- Option 2: Retain existing median island; Extend carriageway width.
- Option 3: Reposition median island; Extend carriageway width.

7.1.8 These options were assessed using Multi-Criteria Analysis (MCA) under the following appraisal criteria:

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

7.1.9 The results of the assessment indicated that **Option 3** provided the most optimal design for the main criteria assessed.

7.1.10 The emerging preferred option, therefore, provided for an improved pedestrian and cycle environment with optimal facilities. This option also provided for key green link connections as well as interchange connection opportunities at Clongriffin.

7.1.11 Option 3 aligns with one of the key Movement and Transportation policies of the Clongriffin – Belmayne LAP, which is to promote increased cycling and pedestrian activity by the development of a cycle and pedestrian network of routes that connect with local parks, community facilities, employment areas, retail areas and public transport facilities.

7.1.12 This option also supports a number of design measures, such as substantial tree planting and wider footpaths, which are necessary to fulfil the objectives of the LAP in relation to quality place-making at this location, and sustainable transportation.

7.1.13 The options proposed for Main Street between Belmayne Avenue & Churchwell Crescent will merge with the different character areas that are proposed to the east and west of this section.

## Appendix A: MCA Option Evaluation

Appraisal Criteria	Sub Criteria	Option 1	Option 2	Option 3
1 Economy	1a Capital Cost	<p>Option 1 remains within the constraints of the carriageway width.</p> <p>The existing median island is retained in the same location.</p> <p>This option requires the lowest cost, approximately €550,000.</p>	<p>Option 2 requires land take of almost 5m south of the carriageway.</p> <p>The existing median island is retained in the same location.</p> <p>This Option requires an approximate cost of €635,000.</p>	<p>Option 3 requires land take of approximately 6m south of the carriageway.</p> <p>The existing median island is removed and relocated.</p> <p>This option requires the highest cost, approximately €830,000.</p>
	Rank:			
	2a Land Use Policy	<p>Option 1 does not provide segregated cycle facilities in line with various policies. Cyclists have to share the proposed bus lane, reducing the quality of bus service provided.</p>	<p>Option 2 provides improved sustainable facilities in line with relevant policies and masterplan proposals.</p>	<p>Option 3 provides improved sustainable facilities in line with relevant policies and masterplan proposals.</p>
	Rank:			
	2b Residential Population and Employment Catchments	<p>Option 1 serves along Main Street.</p>	<p>Option 2 serves along Main Street.</p>	<p>Option 3 serves along Main Street.</p>
Rank:				
2 Integration	2c Public Transport Network Integration	<p>Option 1 provides dedicated bus lane facilities along both sides of Main Street. Cyclists are required to share the bus lane.</p>	<p>Option 2 provides dedicated bus lane facilities along both sides of Main Street.</p>	<p>Option 3 provides dedicated bus lane facilities along both sides of Main Street.</p>
	Rank:			
	2d Cycle Network Integration	<p>Option 1 does not provide segregated cycle facilities.</p>	<p>Option 2 provides a two-way cycle track along the southern side of Main Street.</p> <p>Access to and from the cycle track is more difficult for two way facilities.</p>	<p>Option 3 provides a cycle track facility both sides of the street.</p>
	Rank:			
	2e Pedestrian Network Integration	<p>Option 1 provides for limited footpath facilities on the southern side of the street due to the</p>	<p>Option 2 provides for limited footpath facilities on the northern side of the street due to the</p>	<p>Option 3 provides a 2-3m wide footpaths on both sides of the street.</p>

<b>3 Accessibility and Social Inclusion</b>		retention of the median island as well as remaining within the carriageway.	retention of the median island. A 2m footpath is proposed. The footpath width on the southern side of the street is proposed as 3m.	
	Rank:			
	2f Traffic Network Integration	Option 1 provides car parking both sides of the street. However, there is no buffer allocated to provide sufficient space for access/egress.	Option 2 provides 2m parking bays both sides of the street as well as adequate buffer between car spaces and cycle facility.	Option 3 provides 2.4m parking bays both sides of the street as well as adequate buffer between car spaces and cycle facility.
	Rank:			
	3a Deprived Geographic Areas	Option 1 proposes a lack of sustainable facilities. This limits travel connections for residents within this disadvantaged area to access areas such as Clongriffin which provides for further transport links throughout the city.	Option 2 provides adequate facilities for sustainable travel and as such provides access to key green links within the area. It also provides access opportunities for residents within this disadvantaged location to locations such as Clongriffin which provides interchange opportunities to the city.	Option 3 provides adequate facilities for sustainable travel and as such provides access to key green links within the area. It also provides access opportunities for residents within this disadvantaged location to locations such as Clongriffin which provides interchange opportunities to the city.
	Rank:			
	4a Pedestrian Safety	Option 1 provides a footpath on the northern side of the carriageway that is 2-3m width. However, the southern side of the carriageway has a sub-standard footpath width of 1.2m.	Option 2 provides a footpath both sides of the carriageway, ranging from 2m width for the northern footpath to 3m width for the southern footpath.	Option 3 provides a footpath both sides of the carriageway that is 2-3m width.
	Rank:			
	4b Cycle Safety	Option 1 requires cyclists to share the bus lanes on both sides of the street.	Option 2 requires cyclists to travel within a 2 way cycle track facility on the southern side of the carriageway. This creates potential access difficulties for people wanting to access and egress the facility to and from the	Option 3 requires cyclists to travel within cycle track both sides of the carriageway.
	<b>4 Safety</b>			

5 Environment			northern side of the street.	
	Rank:			
	5a Flora & Fauna	Option 1 remains within the carriageway of the street and therefore, impacts on flora and fauna are not altered within the area.	Option 2 may impact on existing flora and fauna with the extension into the southern carriageway.	Option 3 may impact on existing flora and fauna with the extension into the southern carriageway.
	Rank:			
	5b Soils, Geology & Hydrology	Option 1 remains within the carriageway of the street.	Option 2 requires excavations with regard to extension of the carriageway.	Option 3 requires excavations with regard to extension of the carriageway.
	Rank:			
	5c Landscape & Visual	Option 1 provides for limited facilities along Main Street with little visual quality within the surrounding area.	Option 2 provides adequate facilities along Main Street. Extension into the carriageway requires allotments to be relocated, however, provision of additional planting results in a high quality streetscape.	Option 3 provides high quality facilities along Main Street. Extension into the carriageway requires allotments to be relocated, however, provision of additional planting, including within the central median, results in a high quality streetscape.
	Rank:			
	5d Air Quality/Noise & Vibration	Option 1 does not propose significant impacts with regard to air quality or noise in comparison to other options.	Option 2 does not propose significant impacts with regard to air quality or noise in comparison to other options.	Option 3 does not propose significant impacts with regard to air quality or noise in comparison to other options.
	Rank:			
	5e Land Use Character	Option 1 does not align with policies set out in DMURS with regard to provision of facilities as well as safety aspects and visual quality.	Option 2 aligns with policies set out in DMURS with regard to provision of adequate sustainable facilities as well as safety and visual quality.	Option 3 aligns with policies set out in DMURS with regard to provision of adequate sustainable facilities as well as safety and visual quality.
	Rank:			
6 Physical Activity	6a Health Benefits	Option 1 provides footpath facilities, however does not provide cycle facilities. This will discourage cycle activity through the area and provide a disconnect to other areas.	Option 2 provides optimum facilities for pedestrians and cyclists and provides great potential to encourage pedestrian and cyclist activity through the area.	Option 3 provides optimum facilities for pedestrians and cyclists and provides great potential to encourage pedestrian and cyclist activity through the area.
	Rank:			

