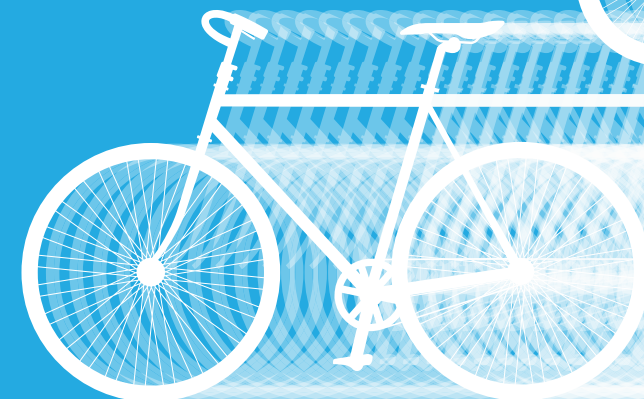
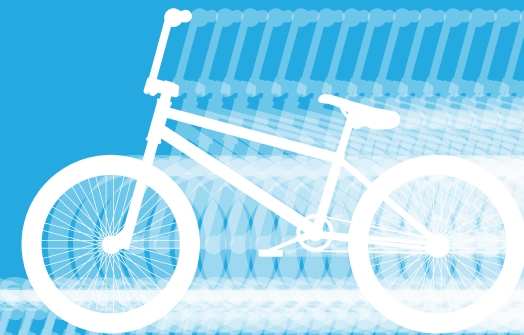
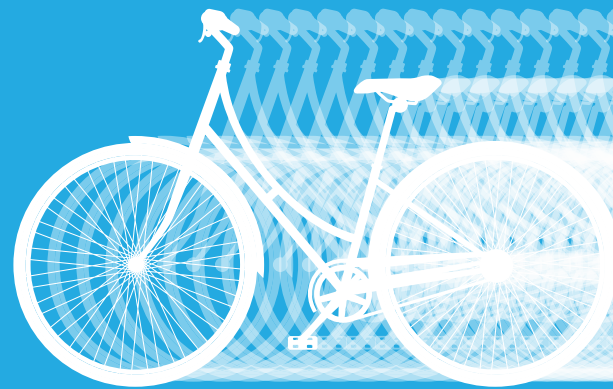


# Cycle Network Plan





# Draft Greater Dublin Area Cycle Network Plan

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## INTRODUCTION

The National Transport Authority (NTA) commissioned AECOM Roughan & O'Donovan (AECOM-ROD) to prepare a Cycle Network Plan, comprising the Urban Network, Inter-Urban Network and Green Route Network, for each of the seven Local Authority areas comprising the Greater Dublin Area (GDA), being:

- Dublin City Council (DCC)
- South Dublin County Council (SDCC)
- Dun Laoghaire Rathdown County Council (DLRCC)
- Fingal County Council (FCC)
- Meath County Council (MCC)
- Kildare County Council (KCC)
- Wicklow County Council (WCC)

The Brief for the project requires the Cycle Network Plan to identify and determine in a consistent, clear and logical manner the following cycle networks within the GDA:

- The Urban Cycle Network at the Primary, Secondary and Feeder level;
- The Inter-Urban Cycle Network linking the relevant sections of the Urban Network and including the elements of the National Cycle Network within the GDA. It shall also include linkages to key transport locations outside of urban areas such as airports and ports; and
- The Green Route Network being cycle routes developed predominately for tourist, recreational and leisure purposes.

Unlike area-based plans prepared previously by Local Authorities, this Cycle Network Plan is to be consistent across county boundaries such that there is continuity of route networks across these administrative boundaries.

### Context for this Study

The Irish Government, the NTA and various State Agencies are committed to ensuring that cycling as a transport mode is supported, enhanced and exploited, in order to achieve strategic objectives and reach national goals. Current policy is set out in various documents produced by the Department of Transport, Tourism & Sport and its Agencies. However, the National Cycle Policy Framework (NCPF) is the key document that sets out 19 specific objectives, and details the 109 individual but integrated actions, aimed at ensuring that a cycling culture is developed in Ireland to the extent that, by 2020, 10% of all journeys will be by bike. This document proposes a comprehensive package of planning/infrastructure and communication/education measures, and emphasises the need for stakeholder participation and adequate funding of the required initiatives. The NCPF requires that cycle-friendly planning principles be incorporated in all national, regional, local and sub-local plans. These ambitious targets can only be achieved if a much higher proportion of trips by bicycle is undertaken in urban areas, in particular within the GDA, where the use of bicycle for many types of trips is already much more common.

In order to ensure that national resources are applied in an efficient manner that will help in reaching these ambitious targets, the NTA and the Local Authorities within the GDA need to know what bicycle facilities are currently available, where they are missing sections, what is their condition and what improvements are likely to be required. In addition, a strategic cycle network map of the GDA needs to be prepared which will help the NTA in allocating funding towards the implementation of strategically important schemes. Information outlined in this report will allow cycle infrastructure projects to be prioritised in terms of the importance to the strategic network and the likely cycle demand for such a scheme.

## Background

The National Cycle Manual (NCM) defines a cycle network as:

*'a collection of connected routes. Routes are a set of connected links and junctions that follow logical corridors between zones or urban centres. The purpose of the cycle network is to connect the main zones of origin and destination within an urban area and should provide effective through-movement for cyclists. A well-planned cycle network will carry the vast majority of cycle journeys.'*

Urban Cycle Networks are generally presented as a hierarchy of corridors that provide differing levels of importance for cyclists and they are:

- Primary Network: Main cycle arteries that cross the urban area, and carry most cycle traffic;
- Secondary Network: Links between the principal cycle routes and local zones; and
- Feeder:, Connections from zones to the network levels above and/or cycle routes within local zones.

These facilities provide the backbone of cycle infrastructure in the GDA. This report also deals with National and Inter-Urban Cycle Routes which have not been addressed in previous studies.

The National Cycle Manual outlines a seven step method of designing a Cycle Network which must be followed to ensure that the investment in infrastructure is justified. These steps are listed below:

- Step 1: Inventory of Existing Cycling Regime;
- Step 2: Understanding Trip Demand and the Potential for Cycling Trips;
- Step 3: Trip Assignment to the Network;
- Step 4: Trip Forecast;
- Step 5: Urban and Transport Planning;
- Step 6: Prioritising Improvements; and
- Step 7: Programme, Consultation, Budgets.

This project comprises Steps 1 to 5 for the GDA area, with Steps 6 and 7 to be addressed as part of a separate investment funding process.

### Study Methodology

The development of this Cycle Network Plan has followed a series of logical steps, which are outlined on the graphic below.

The identified 'needs' of cyclists (outlined in the NCM) and key principles of functionality, homogeneity, legibility, forgivingness and self-awareness have been taken into account by the Project Team, in preparing this Cycle Network.

### Data Collection & Management

Information on existing and proposed cycle facilities was provided by all the Local Authorities within the GDA, through their representative who sat on the Joint Project Team for this study. This information was provided in various formats and has been converted to GIS-based mapping in a common format which can be updated into the future as the cycle network changes and grows. All mapping has been undertaken using a GIS process which is INSPIRE-compliant, thus this mapping will be the basis for many future NTA applications far beyond the scope of this project.

In order to confirm data and to undertake Quality of Service Assessments, site visits were undertaken throughout the existing cycle network by the Project Team, although it is acknowledged that not every facility was visited, due to the size of the study area.

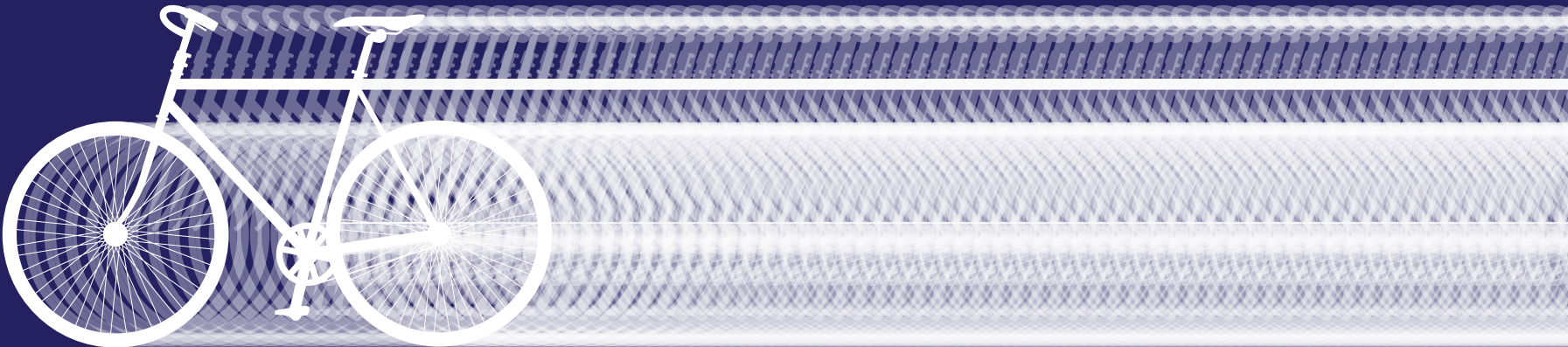


*Cycle Network Plan - Study Methodology*

**Consultation with the Local Authorities**

The Project Team met with representatives of each of the seven Local Authorities on a number of occasions during the lifetime of the project. The Local Authorities were the primary stakeholders for the project. This group was consulted on an ongoing basis throughout the project in order to provide information, confirm proposals and contribute to the development of the future Cycle Network Plan.

**(Note on Source of Images:** Some of the photographs contained in this report were obtained from *Google Streetview* but were cropped to best suit the presentation of the image. The *Google* trademark does not therefore appear on all such images, and the authors hereby acknowledge the source).







## CHAPTER 1 EXISTING CYCLE ROUTE NETWORK

In this chapter a summary is presented of the existing cycle route network within each Local Authority area. This chapter should be read in conjunction with the maps E1 to E25 in Part 6 of this Volume 1. The cycle route network for each Local Authority is summarised in the following sections.

### 1.1. Quality of Service Assessments

The National Cycle Manual describes the five needs of a cyclist.

- (i) Road Safety
- (ii) Coherence
- (iii) Directness
- (iv) Attractiveness
- (v) Comfort

Quality of Service (QoS) is a measurement of the degree to which these needs of the cyclist are met. In order to attract risk-averse cyclists, Quality of Service should increase as cycle routes approach main destinations.

The National Cycle Manual provides guidance on the criteria that input into the QoS assessment. This study involved one of the first major applications of the QoS evaluation process since the Manual was published. The methodology was adapted slightly with the agreement of the NTA so as to enable practical application on a large scale basis, with the following criteria utilised:

- (i) Pavement Condition by visual assessment;
- (ii) Width: ranging from <1.5m for single file at the lower end to wider routes of up to 2.5m that cater for cycling two abreast and/or overtaking;
- (iii) Conflict frequency due to parking, accesses and other interferences with cycling progress;
- (iv) Junction time delay on a qualitative basis ranging from none to significant; and
- (v) Comfort Factor to describe the proximity to other traffic and the associated sense of safety.

QoS scores were assigned on a 5 point scale between A+ and D.

Quality of Service was assessed for several of the main cycle routes in each local authority area and details of the scores are included on the tables and maps in Volume 2.

### 1.2. Existing Cycling Facilities in the Dublin City Council Area

The administrative area of Dublin City Council has a population of 506,211 (2011 Census) and is the most densely populated county in the state. The city centre has a dense, mixed use, urban character between the Royal and Grand Canals. Outside the city centre, there are urban villages and residential areas to the north including Clontarf, Raheny, Drumcondra, Cabra, Glasnevin, Ballymun, Santry and Finglas and to the south Ringsend, Sandymount, Donnybrook, Ranelagh, Rathmines, Terenure, Crumlin and Ballyfermot.

The city area has an extensive existing network of cycling facilities, mainly in the form of on-street cycle lanes and bus lanes. Elements of the existing network are well connected and link key origins and destinations. However, there are significant gaps in certain areas of the network where, historically, road space has been prioritised for general traffic and buses.

There are several recent schemes in the city area that have been very well received by cyclists such as the Grand Canal Cycle Route from Guild Street to Portobello, which has delivered a significant increase in cyclists along the canal since its opening in 2011. A summary of the main types of provision for cyclists in the City Council area is provided below.

#### On Street Cycle Lanes in Dublin City Council Area

The predominant provision for cycling in the City Council area is by means of either on street cycle lanes (both advisory and mandatory) or bus lanes. These facilities are generally of a low Quality of Service in the city area mainly due to the lack of width for cyclists and the discomfort caused by large volumes of vehicular traffic sharing the road space. Typically the cycle lanes achieve a QoS score of C or D. Recent improvements in the pavement quality in the city centre have lifted the Quality of Service from D to C on several of these routes.

There has been difficulty in providing for cycle lanes in the city centre, where there is considerable competition for street space and provisions for the bus and on street parking are often prioritised. The recent application of a 30 km/h speed limit in the core of the city centre shopping districts has contributed to improved conditions for use of these streets by cyclists and traffic. There remains, however, an extensive network of streets between the core and the canal cordon where cycling facilities are limited to a few radial routes.



Cycle lanes in Ranelagh Village

#### Bus Lanes in Dublin City Council Area

A significant portion of the City Council cycle network consists of bus lanes which are shared by cyclists, buses and taxis, with many lanes only operational in peak periods or for 12 hours of the day. Issues such as inadequate widths for buses to safely pass cyclists in bus lanes, conflicts at bus stops and left turns (where bus lanes end temporarily), and the volume of taxis in the city centre and on main radial routes, diminish the quality of these routes for cycling. Most city bus lanes achieve a QoS score of D as they poorly serve the needs of cyclists.



*Bus lane on Pearse Street*



*Sutton to Sandycove greenway along the East Coast at Raheny / Dollymount*

### Greenways in Dublin City Council Area

A number of high quality greenways have been provided in the city area including:

- Grand Canal greenway from Goldenbridge to the city boundary;
- East Coast greenway from Clontarf to Sutton (with a 2km gap at Dollymount);
- River Liffey greenway from the Memorial Gardens to Chapelizod; and
- River Tolka greenway from Finglas Road to Ratoath Road.

Greenways generally score highly for Quality of Service due to segregation from traffic and limited conflicts. For some of the older greenways the width may be narrower than desirable in the context of shared or adjoining pedestrian use and the pavement condition may be poor in places due to wear and tear over time. Typically the existing greenways achieve a QoS score in the range of B to A+.

The Grand Canal Greenway between Inchicore and Park West is a very high quality route for cycling with excellent pavement quality, signage and lighting. However, the quality of the route is greatly diminished by the presence of 'barrier gates' along the route, which causes unnecessary delay for regular cyclists to negotiate, and great difficulty to those cycling with child seats, panniers and cargo bikes who cannot effectively avail of the route. The QoS for this route therefore drops from A+ to as low as C on the section at Bluebell with frequent barriers. Similar barriers in the form of kissing gates exist on the recently opened River Tolka Greenway, although at less frequent intervals. Such barriers are a pervasive problem across the Dublin City area (and in the adjoining South Dublin County area) and are not compatible with the need to make best use of off-road cycle routes through green spaces and public parks to deliver a high Quality of Service for cyclists in lieu of the road network where the scope for good quality cycle routes is constrained. There may be a perceived requirement to restrict access to the greenways for vehicles and animals, but alternative solutions to kissing gates should be provided which do not force cyclists to dismount and make multiple manoeuvres to pass through the restriction.

Among the important issues to be considered in the planning and design of greenways are security of users, hours of operation, frequency of access points, lighting and CCTV, especially if the greenways function as cycle routes to school in winter time. Greenways must be easy to access from the various zones in the network if they are to be successful, and prior agreement with Parks Departments, the Gardaí and local residents are key to this.



### 1.3. Existing Cycling Facilities in South Dublin County Area

The administrative Area of South Dublin County Council has a population of 265,205 (2011 Census) and is predominately urban in nature with the third largest population in the state, after Dun Laoghaire-Rathdown and Dublin City. The county has a rural character along the south-east boundary, at the edge of the Dublin and Wicklow Mountains and along the western boundary with Kildare. An extensive network of cycling facilities has been provided over the last 15 years as part of infrastructural works. However, cycle usage remains relatively low at approximately 3% (cycle to work and education, 2011 Census), particularly in the context of the relatively high density of the county. Of particular note is the low level of usage for trips to Education, which is on a similar level to Fingal which has a much lower population density.

Many of the facilities within the county have been provided as part of infrastructure schemes within the county, including roads projects and Quality Bus Corridors (QBCs). This has given the county a significant length of cycle lane and cycle track provision ranging in QoS from D to B. Some of the better quality cycle tracks are in newly developing areas and have a very low level of usage. In older parts of the urban area adjoining the eastern boundary with Dublin City, there are cycle lanes and tracks that were retro-fitted onto existing roads, some of which are of poor quality with a QoS score of D, but the majority are moderately good and achieve a QoS score of C.

#### Cycling Facilities on New Road Projects in South Dublin

Many of the cycle facilities in the southern and western parts of the South Dublin area were provided as part of new road schemes and generally consist of one-way segregated cycle tracks on both sides of the new road. Examples can be seen along the Outer Ring Road and Firhouse Road below. Such routes have a QoS score of B or C due to typical widths of less than 1.8m, which makes overtaking difficult, and, more importantly, loss of priority at side road junctions in some cases.

Of interest is that some of these cycle tracks are provided in lieu of verge space which leads to a hard and harsh landscape. However, where the verge is retained, as on the Firhouse Road, and the cycle lane is behind the verge a much more pleasant environment is created.



Existing Cycle Tracks on R136 Outer Ring Road / Cheeverstown Road



Existing Cycle Tracks on R114 Firhouse Road

#### Retrofitted Cycle Lanes in South Dublin

Many cycle lanes have been retrofitted to the existing road network in many parts of the county. These facilities are generally on-road cycle lanes or have been provided in place of the existing verge area. Often the residual traffic lane is too narrow and as a result the advisory cycle lane is encroached upon by traffic which leads to a low QoS score of C or D. Cycle tracks in the verge would provide a higher Quality of Service for cyclists.



Existing Cycle Lanes on Wainsfort Road, Templeogue

#### Green Routes in South Dublin

There are some Green Routes through public park lands or along the Grand Canal and the River Dodder in the South Dublin area. A good example is indicated in the photograph below, which is the new facility along the Grand Canal between Park West and Adamstown. However, a common problem within the county is the difficulty in accessing these facilities due to the use of severely restrictive gates at the entries. It is clear that these have been provided to secure the facilities from vehicles, animals, etc. However, they lead to considerable difficulty for cyclists and reduce the attractiveness and utility of the route in several cases, as indicated through feedback to the authors of this report.





*Grand Canal Greenway with restrictive barriers*

If these barriers were removed and replaced with simple bollards at 1.5m centres, as is common practice in other countries, it would open up a potentially extensive off-road, high-quality cycle route network through the large number of public parks and open spaces across the South Dublin County area.

#### **Cycle Crossings at the M50 Motorway in South Dublin**

The M50 motorway severs much of South Dublin in two and forms a barrier to the movement of cyclists in the county. While all M50 interchanges have dedicated pedestrian and cycle facilities, several of these crossings are difficult for cyclists to find and are of a relatively poor quality and, as a result, require significant upgrade. These upgrades need to include a clearly signposted route to the M50 crossing, and continuous and legible cycle facilities that are attractive for existing and new cyclists to use. There are upgrade projects proposed by the NRA for the crossings at Junction 7 (N4), Junction 9 (N7) and Junction 11 (N81).



*Cyclist at an M50 Crossing in South Dublin*

### 1.4. Existing Cycling Facilities in Dun Laoghaire-Rathdown Area

The administrative Area of Dun Laoghaire Rathdown County Council has a population of 206,261 (2011 Census) and is primarily urban in nature with little rural hinterland (apart from near the southern boundary with Wicklow County Council). The area has an extensive network of cycle facilities provided over the last 20 years and, from the 2011 Census, it has the second highest cycle modal share in the GDA for travelling to education and work, at 5.1%. In addition, the county has recorded some of the higher levels of growth of this mode in the State.

Facilities are generally available on many of the radial routes leading to Dublin City Centre from this county, with most provided as part of Quality Bus Corridor (QBC) projects. While in general the Quality of Service of many of these facilities is low at C, there are ongoing upgrade works on the N11 Stillorgan Road aimed at improving its Quality of Service.

Other facilities have been provided by the council along new roads or retrofitted to existing roads that were being upgraded at the time. The QoS of these facilities varies from a low of D on older roads such as Leopardstown Road East to a high of B on newer roads such as Murphystown Way.



Recently upgraded Cycle Lane at Bus Stop on N11



Existing Cycle Lanes within Bus Lanes on Rock Road

### Greenways in Dun Laoghaire-Rathdown

Several parks within this county have cycle lanes provided through them, some running to quite significant lengths. These facilities provide local links and also form part of the radial commuter route network. Some good examples can be seen in Kilbogget Park between Cabinteely and Ballybrack, in Blackrock Park and along the River Dodder at Milltown. There is also a new greenway along the River Slang between Dundrum and Marlay Park. Unlike other local authority areas, there are fewer barriers at access points to these greenways and no kissing gates, thus making these routes cycle-friendly.



River Slang Greenway, Dundrum

### Cycle Crossings at the M50 Motorway in Dun Laoghaire-Rathdown

There are severance issues for cyclists at the M50 motorway Junction 13 West at Ballinteer, Junction 13 East at Sandyford and at Junction 15 Carrickmines. Upgrade works are required at these crossings.



### 1.5. Existing Cycling Facilities in Fingal County Area

The administrative Area of Fingal County Council has a population of 273,051 (2011 Census) and has a mixture of densely populated urban centres in the south and sparsely populated rural areas in the north. The population in Fingal has steadily increased over the past 15 years and between Census 2006 and Census 2011, a 13.8% population increase was recorded in the county, while the comparable figure nationally was 8.1%. This was the second highest population increase in the country.

The major towns and urban areas in Fingal are:

- Blanchardstown / Castleknock;
- Swords / Malahide / Portmarnock;
- Howth / Sutton / Baldoyle / Clongriffin;
- Balbriggan / Skerries / Rush / Lusk; and
- Donabate / Portrane.

Within these urban areas there are limited extents of cycling facilities, mostly consisting of cycle tracks provided along with new roads or bus lanes. Generally there has been limited retro-fit of cycle lanes on older roads in the Fingal area. The following examples illustrate the range of existing conditions for cyclists.



Castleknock Road with no cycling facilities



Cycle Lane on R132 Swords Road between Swords and Dublin Airport  
(QoS score of D due to lack of segregation from high-speed traffic and narrowness)



Cycle Lanes on River Valley Road in Swords

In some of the areas that grew significantly in the past 20 years, such as Blanchardstown, the existing cycle track network is quite extensive as a result of provisions alongside new roads. However, in most cases these cycling facilities score quite poorly for Quality of Service due to loss of priority at junctions. It would be a straightforward matter to upgrade these cycle tracks with junction improvements, which would lift the Quality of Service significantly for relatively small cost.



Cycle Tracks on Ongar Distributor Road in Blanchardstown

#### Rural Cycle Links between Towns in Fingal

There are no cycling facilities outside the towns in the rural areas of Fingal, apart from a short section along the coast between Portmarnock and Malahide. There are several clusters of towns that could benefit from linking cycle routes across the short separating rural areas, such as Balbriggan and Skerries, Rush and Lusk, Portrane and Donabate to Swords, and Malahide to Swords.



## 1.6. Existing Cycling Facilities in County Meath

The population of Meath County, according to Census 2011, is 184,135. This study focused on establishing an inventory of the cycling facilities within the larger towns of Meath County, which provide approximately 45% of Meath's population.

**Table 1.6 Urban Populations in Meath**

TOWN	POPULATION*
Navan	28,600
Ashbourne	11,400
Laytown - Bettystown	10,900
Ratoath	9,000
Trim	8,300
Dunboyne	7,000
Kells	5,900
Dunshaughlin	3,900
Stamullen	3,100
Enfield	2,900
Clonee	600

\*Source: Census 2011 rounded to the nearest 100

### Navan

Within Navan, dedicated facilities for cyclists are provided on the N51, between the Kells Road and the Slane Road, on the N51 Navan Inner Relief Road and on the local road between the R162 and the Ratholdren Road. These facilities along new roads include cycle tracks that are separated from and immediately adjacent to the road. The older roads do not have cycling facilities and this has resulted in a fragmented cycle network in Navan.



Existing Cycle Facilities along the N51 in Navan

### Kells

There are no existing cycle facilities in Kells, which is 15km distant from Navan.

### Trim

Within Trim, dedicated facilities for cyclists are provided on the R154, the R160, the R161 and in the Knightsbrook complex off the R154. These facilities include cycle tracks that are separated from and immediately adjacent to the road, and cycle lanes.

### Enfield

Cycling facilities are provided on both sides of the R148 Dublin Road. These consist of advisory cycle lanes along the majority of the route but there are also some small sections of cycle tracks immediately adjacent to the road. The cycle lanes provide connectivity along the entire length of Enfield Main Street.

### Ashbourne

Within Ashbourne, facilities are provided on sections of the R135, the Ballybin Road, Cluian Ri, Bourne Avenue, Hunters Lane and in the Churchfields and White Ash Park residential estates. The majority of these facilities consist of cycle tracks immediately adjacent to roads but there are also some cycle tracks separated from the road by grass verges and cycle lanes. There is also a trail that connects the R135 Dublin Road and Deerpark via Broad Meadow Water. The cycle track provided along Bourne Avenue provides connectivity with the local GAA Club and Gaelscoil.



Existing Cycle Facilities in Ashbourne

### Ratoath

There are cycle tracks provided along a short section of the R125 and in the Milltree Park and Steeplechase residential estates. In Milltree Park the cycle track provides connectivity to St. Paul's National School, Ratoath College and the local Scout Den.



Existing Cycling Facilities in Ratoath



**Dunshaughlin**

There is a limited provision of cycle facilities in Dunshaughlin. Cycle facilities are confined primarily to the bus lane on the R147 Navan Road. A short section of cycle track is also provided on the R147 at Main Street.

**Dunboyne & Clonee**

There are no cycling facilities in Dunboyne and no suitable route for the short connection to nearby Clonee and onward to Dublin.

In Clonee there is a cycle track provided along a short section of the R149 Clonee Road. Cycle lanes are also provided on both sides of the R156 Main Street through Clonee Village. The village is not connected by a cycle route to the adjacent Littlepace and Hansfield areas of Blanchardstown and the rest of the Dublin metropolitan area network, despite the very short separation distance.



*Existing Cyclists Facilities along the R149 and R156 in Clonee*



*Existing advisory cycle lanes at Stamullen*

**Rural Cycle Links between Towns in County Meath**

There are no cycling facilities outside the towns in the rural areas of Meath, even though some are closely clustered such as Ashbourne, Ratoath and Dunshaughlin.

**Laytown and Bettystown**

There are no existing cycle facilities in Laytown or Bettystown and no route to nearby Drogheda, which is the main regional centre.

**Stamullen**

Stamullen and Gormanston are well connected with the provision of advisory cycle lanes on both sides of the road between Stamullen Village and Gormanston College.



### 1.7. Existing Cycling Facilities in County Kildare

The population of Kildare County, according to Census 2011, is 210,312. This study focused on establishing an inventory of the cycling facilities within the larger towns of Kildare County, which accommodate approximately 50% of Kildare’s population.

**Table 1.7 Urban Populations in Kildare**

TOWN	POPULATION*
Naas	20,700
Celbridge	19,500
Newbridge	21,600
Leixlip	15,500
Maynooth	12,500
Athy	9,900
Kildare Town	8,100
Clane	6,700
Kilcock	5,600

\*Source: Census 2011 rounded to the nearest 100

#### Naas / Newbridge / Kildare

Within Naas, dedicated facilities for cyclists are provided on the Millennium Link Road, South Ring Road, Monread Avenue and sections of Sallins Road and Dublin Road. Generally the more recently constructed roads included for dedicated cycle facilities but the older roads do not contain a similar provision. This has resulted in a fragmented network in Naas with relatively good facilities on the outskirts but no dedicated facilities approaching the town centre.



*Existing Shared Pedestrian and Cyclists Facilities on Dublin Road, Naas*

There is an extremely limited provision of cycle facilities in Newbridge with a cycle lane along a short section of the Athgarvan Road and along sections of Roseberry Hill in the vicinity of Sarsfield GAA club. There are no facilities at all in Kildare Town.

#### Celbridge / Leixlip / Maynooth

Within Celbridge, facilities are provided on Oldtown Road, along Willbrook Road and the Maynooth Road. These facilities involve a variety of cycle tracks, lanes and shared use in bus lanes. Celbridge and Leixlip are relatively well connected with the provision of a cycle track along the R449. A cycle track is provided along Simmonstown Manor, Hazelhatch Park and sections of Hazelhatch Road providing connectivity with Hazelhatch and Celbridge Train Station.

Cycle facilities in Leixlip are confined primarily to Station Road and sections of Green Lane (L5058). There is an unofficial route to Lucan via St Catherine’s Park and a bridge crossing over the River Liffey to the cycle track adjacent to the N4. There is also a route that connects Hewlett Packard and the R404 through Castletown Demense to Main Street, Celbridge.

Cycle tracks are provided on the Straffan Road between Meadowbrook Link Road and the Royal Canal. Facilities are also provided on the footpath along Main Street. Cycle lanes are provided on the Kilcock Road in the vicinity of National University of Ireland Maynooth, sections of Parsons Street and Meadowbrook Link Road.



*Existing Cyclists Facilities on Straffan Road, Maynooth*

#### Athy, Clane, Kilcock

There are no dedicated cycle facilities in Athy, Clane (except along the new ring road), or Kilcock.

#### Rural Cycle Links between Towns in Kildare

There are generally no cycling facilities outside the towns in the rural areas of Kildare, even though some are closely clustered such as Naas and Newbridge. An exception is in the North Kildare cluster where there are cycle tracks linking Celbridge to Leixlip across M4 Junction 6, but these do not extend to Maynooth.

### 1.8. Existing Cycling Facilities in Wicklow

The population of County Wicklow, according to Census 2011, is 136,640. This study focused on establishing an inventory of the cycling facilities within the larger towns and villages, which accommodate approximately 55% of Wicklow’s population.

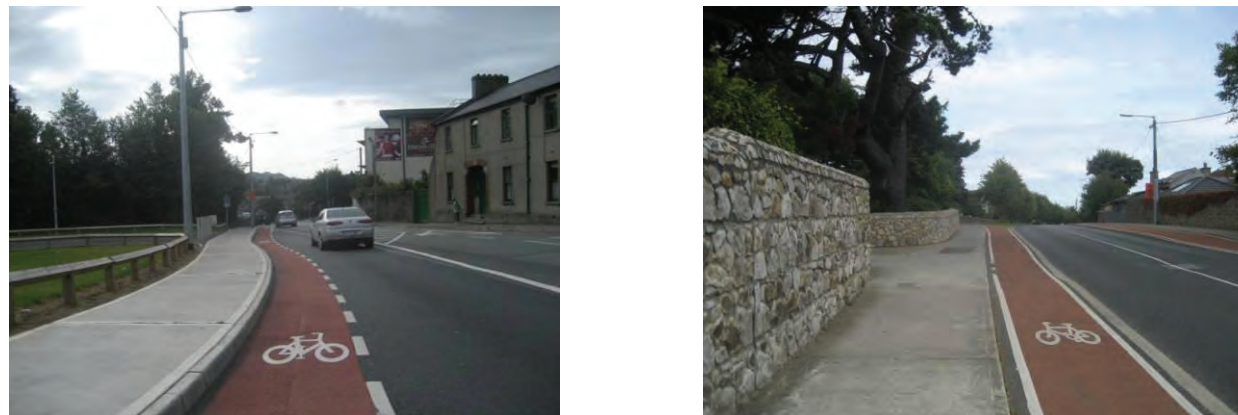
**Table 1.8 Urban Populations in Wicklow**

TOWN	POPULATION*
Bray	31,900
Greystones	17,500
Arklow	13,000
Wicklow	10,400
Blessington	5,000
Kilcoole	4,100
Newtownmountkennedy	2,400

\*Source: Census 2011 rounded to the nearest 100

#### Bray

Within Bray, dedicated facilities for cyclists are provided on the R119/R761 Dublin Road, the Killarney Road, Vevay Road, Boghall Road, Church Road and Herbert Road. The majority of these facilities include cycle lanes but there are also some cycle tracks that are separated from and immediately adjacent to the road.



Existing Cycling Facilities along the R761 and the Killarney Road, Bray

#### Greystones

Within Greystones, facilities are provided on the newer roads at the southern end of the town at Charlesland. These facilities generally consist of cycle tracks separated from the road by grass verges. Recently cycle lanes are being retro-fitted along older roads in the town and a coastal cycle track is being provided.

#### Wicklow Town

Within Wicklow Town, dedicated facilities for cyclists are provided on the Town Relief Road, Port Access Road, R750 Dublin Road, Dunbur Road, Broomhall Court and Seaview Heights. These facilities include cycle tracks that are separated from and immediately adjacent to the road, and cycle lanes.



Existing Cycling Facilities in Wicklow Town

#### Arklow



Existing Cycling Facilities on the R772 Wexford Road, Arklow

Within Arklow, there are cycle lanes provided along a short section of the R772 Wexford Road.

#### Rural Cycling Links between Towns in Wicklow

There are no cycling facilities outside the towns in the rural areas of Wicklow, even though some are closely clustered such as Bray and Greystones.



## CHAPTER 2 FUTURE CYCLE NETWORK PLANNING

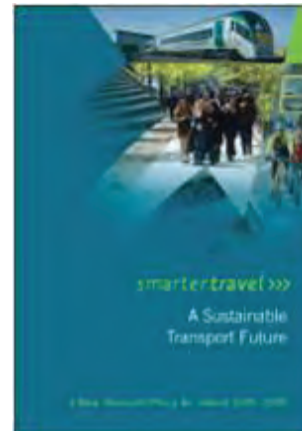
### 2.1. Strategic Urban and Transport Planning

The proposed Cycle Network Plan for the Greater Dublin Area has been developed having regard to various other plans and policies that will affect the outcome of the strategy. The following policies, studies, guidelines, plans and schemes are relevant to the cycle network:

- (i) The Government's Smarter Travel initiative;
- (ii) The National Cycle Policy Framework;
- (iii) The National Cycle Network Scoping Study;
- (iv) The National Cycle Manual;
- (v) The Regional Planning Guidelines;
- (vi) The Draft GDA 2030 Strategy; and
- (vii) The Development Plans of the Local Authorities in the GDA.

#### Smarter Travel: A Sustainable Transport Future 2009 – 2020

In 2009, the Department of Transport unveiled Smarter Travel as the new national transport policy document for Ireland. The document was developed as an umbrella document under which all other transport policy in the state would be guided. One of the main aims of the policy is to develop walking and cycling as viable commuter modes in the short to medium term with the long term aim of fostering a lasting walking and cycling culture in Ireland.



The government has set a key national target for a reduction in the levels of those commuting by private car from 65% to 45% by 2020 with the remainder of trips made up of sustainable travel modes such as cycling, walking and public transport.

The document acknowledges that:

*“pedestrian and cycle facilities will be most successful where they form a coherent network, place an emphasis on safety, directly serve the main areas where people wish to travel, provide priority over vehicular traffic at junctions, are free from obstruction and have adequate public lighting.”*

#### National Cycle Policy Framework

The National Cycle Policy Framework (NCPF) 2009-2020, uses the targets outlined in Smarter Travel and focuses more specifically on cycling as a sustainable transport mode. The document sets out with the stated aims of creating a strong cycling culture in Ireland and making cycling the norm, rather than an exception, for all short trips undertaken in Ireland.



The vision is that all cities, towns, villages and rural areas will be bicycle friendly. Next to walking, cycling will be the most popular means of getting to school, university, college and work. The bicycle will be the transport mode of choice for all ages. We will have a healthier and happier population with consequent benefits for the health service. We will all gain economically as cycling helps in easing congestion and providing us with a fitter and more alert work force.

The NCPF recognises the potential of cycling to significantly improve various aspects of people’s lives through the obvious personal benefits of improved health and finance but also, in a more communal

sense, it benefits society in terms of lower CO<sub>2</sub> emissions and also has positive social impacts in that it gets people out walking and cycling together.

The overarching objective of the NCPF is that 10% of all trips in Ireland will be made by bike by 2020.

#### National Cycle Network Scoping Study

The National Cycle Network Scoping Study was an objective contained within the National Cycle Policy Framework, which saw the establishment of a specialist advisory group whose primary objective was to develop an indicative network of rural cycling corridors throughout Ireland. These routes would primarily focus on recreation and tourism and would in turn connect into the major urban hubs around the country, Dublin being the primary one.

This GDA Cycle Network Plan has taken account of the emergent proposals for a National Cycle Network (NCN) and has integrated them into the metropolitan area network. These routes are likely to encourage tourist and local leisure and amenity cycling, which can in turn lead to greater commuter use of the bicycle.

In the Dublin area the NCN will comprise 3 key routes:

- East Coast Route from Rosslare to Northern Ireland through Dublin;
- Galway to Dublin (also part of EuroVelo Route 2 extending eastwards across Europe to Moscow), which follows the Royal Canal within the GDA; and
- Cork to Dublin via Kilkenny and probably along the Grand Canal.

#### National Cycle Manual

The National Cycle Manual was published by the NTA in 2011. It is based on the Five Principles of Sustainable Safety. It aims to bring a standardised and more logical approach to the design of cycling facilities in Ireland, which have traditionally being designed haphazardly where space allowed with very little consistency or coherence. Another concept introduced by the Cycle Manual was Quality of Service (QoS), which is ranked from A+ to D, with A+ being a route which is designed to the highest possible standard. The development of this approach meant that designers or local authorities could target a particular Quality of Service, which would then need to be met through the fulfilment of certain criteria.

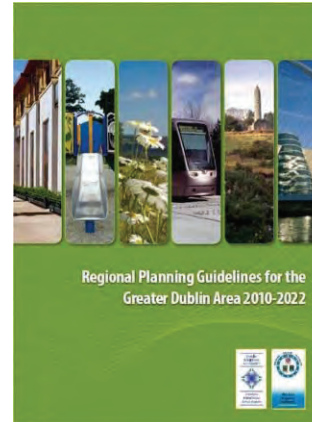


The GDA Cycle Network Plan has established appropriate target QoS levels for various routes to best cater for the anticipated level of demand along each route.

### Regional Planning Guidelines (RPGs) for the Greater Dublin Area 2010 - 2022

The Regional Planning Guidelines for the Greater Dublin Area (GDA) set out the macro planning context for the area covered by this study. The RPGs identify the National Transport Authority as the principal agency having responsibility for the planning and implementation of transport infrastructure.

In terms of physical infrastructure, the RPGs place considerable emphasis on future settlement patterns and the integration of land use and transportation policy in the GDA. Emphasis is placed on these settlement patterns as they will effectively decide the modal split for the region in the future. The RPGs also state that it is vitally important that any transport strategy developed dovetails closely with objectives for employment, sustainability, environment and climate change in the region.



The Guidelines envisage a population increase for the GDA from 1.73m to 2.1m inhabitants by 2022.

In terms of walking and cycling, the RPGs set ambitious targets regarding cycling as a viable and mainstream transport mode in a “relatively compact urban form” such as Dublin. It targets the 10% modal split for cycling as set out in the NCPF as one which should not just be met but should be exceeded. The RPGs acknowledge the potential of walking and cycling as tourism generators in the GDA, which can be facilitated through improvements to the local walking and cycling network.

The continued development and delivery of the regional and local cycle network is listed as a proposed strategic transport investment for the GDA.

### Greater Dublin Area: Draft Transportation Strategy 2011 – 2030

The GDA draft transportation strategy was prepared by the NTA to provide guidance on the development of transport strategy and policy within the GDA up until 2030.

Potential measures for the encouragement of cycling in the GDA include improvements to the cycling environment and facilities, bike parking and more public bike rental stations. As part of the preferred strategy, cyclists and pedestrians are ranked 1 and 2 on the hierarchy for the public domain.

The strategy envisages Dublin and the other large towns in the region becoming a walking and cycling city-region with *“a street environment that is attractive, safe and designed with the pedestrian and cyclist in mind at all times”*.

Some of the softer measures specified, which are proposed to increase the walking and cycling modal share in Dublin city centre, include the closure of certain streets to general traffic and access only for motorised vehicles on other streets. Other measures which are proposed, though not stated objectives of the strategy, include improving the cycling environment in Dublin city centre, new or enhanced leisure facilities for cycling, the expansion of dublinbikes, and greater provision of cycle parking. The strategy further acknowledges that **to produce a quality cycling environment, an emphasis needs to be placed on measures for central areas and inner approaches first**.

The strategy recognises that for a culture of cycling to be embraced within the GDA, it is not just commuter cyclists who need to be accommodated. Recreational cyclists need to be provided for also and one of the measures outlined is to provide cycle tracks of high amenity value along coastal, canal and riverside routes.

### Local Authority Development Plans

Each of the local authority development plans were reviewed and the relevant proposals for cycling facilities are included in the cycle route network proposed in this report.

### Other Relevant Studies and Schemes

#### Luas Cross City Tram Line

The cross city Luas line commenced construction on site in June 2013 and will link the two existing Luas lines and connect beyond to Grangegorman and Broombridge. The scheme will involve considerable revisions to the city centre traffic circulation network. Luas Cross City Line will run along:

- Dawson Street;
- Nassau Street West;
- Lower Grafton Street;
- College Green;
- Westmoreland Street (northbound) / Hawkins Street (southbound);
- O Connell Street (northbound) / Marlborough Street (southbound);
- Parnell Street; and
- Dominick Street.

The scheme will make use of the new public transport bridge from Marlborough Street to Hawkins Street.

Cyclists can experience problems in crossing tram lines where there is a risk of a bicycle wheel becoming caught in the groove of the embedded rail. Such difficulties are likely to increase as the tram system is further expanded in the city centre where the streets are shared by a variety of transport modes. This study will assess where main cycle routes will cross the tram lines and where the safety issue will be most acute.

#### dublinbikes Expansion Plans

dublinbikes currently has 44 bicycle stations located throughout Dublin City with approximately 550 bicycles available for rent. Due to the success of this scheme since it was launched in 2009 an expansion is now underway, which will treble the existing provision of bicycles to 1,500 and increase the number of bicycle stations to 100. Many of these stations will also be strategically located in areas of high demand such as Heuston Station and the Docklands area.

There is also a longer term plan to further increase the number of dublinbikes to 5,000, which may include the construction of dublinbikes stands as far out as UCD (Belfield). This has the potential to significantly increase the number of cyclists in Dublin.



### NTA Bus Rapid Transit (BRT) Report

The NTA published a report in October 2012 outlining emerging proposals for the introduction of BRT schemes in Dublin. The initial schemes to be developed are:

- Clongriffin to Tallaght;
- Blanchardstown to UCD (Belfield); and
- Swords to South City.

BRT generally requires segregation from other modes and the introduction of BRT facilities along a road might involve the displacement of other road users. The schemes are still at feasibility stage and are not developed to a level of detail sufficient to fully establish the extent of impacts on cyclists. Nevertheless, the proposed routings need to be considered in the formulation of a Cycle Network Plan for Dublin City.

### Other Future Transport Schemes

The following schemes are longer term and while they have not been considered in terms of their impact on the cycle network plan, it is envisaged that, at the development stage of these projects, their impact on the cycle network will be considered and appropriately addressed. These schemes include:

- Metro North;
- Metro West;
- Rathfarnham Luas Line;
- Lucan Luas Line;
- DART Underground; and
- Other rail schemes.

## 2.2. Cycling Trip Demand Analysis

This section sets out the methodology for a demand assessment of current and future cycling patterns in the Greater Dublin Area (GDA). It sets out the data used to develop a base year cycling model for the GDA and also outlines the assumptions used to derive forecasts for growth in cycling demand throughout the region over a 10 year horizon period. This process comprises Steps 2 to 4 of the seven step method of planning a cycle network as outlined in the NTA National Cycle Manual.

### **Sources of trip demand data used**

To develop a detailed understanding of cycling demand in the GDA, data was collated from the following sources:

- Place of Work, School & College Census Anonymised Records (POWSCAR) from the 2011 Census;
- NTA 2006 & 2030 Demand data (all modes) by time period and journey purpose;
- 2006 NTA Household Survey; and
- 2011 NTA Canal Cordon Report.

### **Work and Education Trips**

The Census POWSCAR database was released in August 2012, and reports all journeys to work and education by District Electoral Division (DED) for 2011. This information can be extracted for input to traffic models, thereby giving good Origin-Destination information without the necessity for widespread Roadside Interview Surveys. The POWSCAR information also provides travel mode and time of departure, thereby allowing journeys by bicycle during the AM period to be isolated.

### **Other Journey Purposes**

Data for other journey purposes including shopping, business and leisure trips is not included in the 2011 Census results. However this information is available from the 2006 NTA Demand Model (total for all modes) and was extracted for addition to the work and education trips.

### **Trip Assignment**

The cycling demand matrices were assigned onto the existing road network supplemented by cycling network links that are not part of the road network. In the assignment procedure, the route choice in the model was based on the network distance alone. Therefore no delay or congestion is modelled and the model does not account for complex cycling route choice decisions based on cycle provision and Quality of Service or gradient.

### **Cycle Model Calibration**

An assignment of the cycle matrix to the base year model enabled a comprehensive check of the network to be undertaken.

The accuracy of the base year model has been checked using the GEH statistic. The GEH statistic is a measure of comparability that takes account of not only the difference between the observed and modelled flows, but also the significance of this difference with respect to the size of the observed flow.

When comparing assigned volumes with observed volumes a GEH parameter of 5 or less indicates an acceptable fit whilst a value greater than 10 requires closer attention. The base year model check involved comparing modelled flows against observed counts on 27 no. links. A GEH statistic of less than 5 was achieved at 70% of these links, with no links having a GEH value in excess of 10. This level of accuracy is consistent with that achieved for other NTA transport models for the other modes.

In addition, cycle count data on the 'Canal Cordon' (i.e. entry points into Dublin City) was used to compare the modelled flows to observed data. A comparison of observed two-way cycle flows across the major canal cordon crossing points to the modelled cycle flow is presented in Table 2.1. An exact match would not be expected between the model and the measured flows, but the degree of variation is low and within the acceptable range for a strategic transport model.

While the radial demand is well modelled, orbital trip demand at the city centre differs considerably from the actual flows recorded on the streets. The peak two way daily flows recorded at the Grove Road cycle counter on the Grand Canal near Rathmines were just under 3,000 on Tues June 4, 2013; the 2 way flow is usually over 2000, and very tidal (800+ in morning peak period from 7am to 10am). This difference arises because model is based around shortest distance movement and cannot account for other factors that can significantly affect route choice such as quality of cycling facility. The under-representation of the orbital Canal cycle numbers reflects the fact that cyclists who might otherwise cycle through the city are attracted to and diverted to the canal route by virtue of its high quality, flat topography and moderately low traffic flows in the adjoining single lane in each direction compared to alternative routes on wider and busier streets with one-way systems in various places.

**Table 2.1: Comparison of Observed and Modelled 2-way Cyclist Flows across Canal Cordon (3 hour AM peak period two-way flow)**

ROAD	OBSERVED	MODELLED
Conyngnam Road	136	124
Chesterfield Avenue	292	301
North Road	72	57
Blackhorse Avenue	84	101
Old Cabra Road	148	146
New Cabra Road	169	127
Phibsborough Road	387	351
Dorset Street	652	715
Summerhill	227	283
North Strand	<b>907</b>	854
Sheriff Street	61	46
North Wall Quay	468	367
Ringsend Road	413	295
Grand Canal Street	338	272
Northumberland Road	390	548
Baggot Street	344	489
Leeson Street	491	665
Ranelagh Road	523	577
Rathmines Road	<b>762</b>	1011
Clanbrassil Street	<b>676</b>	627
Clogher Road	147	216
Crumlin Road	152	229
Herberton Road	184	127
South Circular Road	104	25
Old Kilmainham Road	50	55
Kilmainham Lane	77	116
St. John's Road West	118	175

The flows in Table 2.1 show North Strand Road as the busiest cycle route in Dublin with existing flows of over 900 cyclists in the morning peak period. Rathmines Road is the next busiest at over 700 cyclists, with Clanbrassil Street not far behind. These high cyclist flows are despite the poor Quality of Service on these busy radial routes where cyclists must share bus lanes or be confined to narrow cycle lanes.

A plot of the assigned base year cycling matrix to the network in VISUM is shown in Figure 2.1 and in larger scale on Sheet DD2 in Part 7 of this volume.

The 2011 Census data for cycling trips, when transposed onto the route network through the cycle model as plotted on the map in Figure 2.1, is very revealing of the true scale and extent of cycling traffic in Dublin. The data shows higher than expected volumes of cyclists on the longer radial routes to the city centre from the north-eastern areas of Sutton, Malahide Road and Swords Road, from Blanchardstown in the northwest and from the south-eastern corridors through Stillorgan and Blackrock.



Figure 2.1: Plot of base year GDA Cycle Model assignment

### Forecasting Future Cycle Demand

This aim of this project is to propose a cycle network for the GDA for a 10 year horizon period. Therefore the forecast year for the GDA Cycle Model is 2021. Over this 10 year period, the demand for cycling in the GDA is forecast to increase due to two factors - population growth and changes to cycling mode share.

The methodology employed to forecast the growth in cycling due to these factors is outlined below.

### Population Growth

The NTA strategic model for the GDA was used to forecast growth in cycling demand due to projected new development. As part of the development of this model, assumptions on future population and employment growth in the GDA were developed by the NTA, in consultation with the seven local authorities and with reference to the Regional Planning Guidelines.

The NTA demand data was analysed and a set of origin and destination trip ends for each DED zone was output for 2006 and 2030. Using these forecasts, an annualised growth factor was calculated for the trip totals of each zone. Following checks between the 2006 NTA demand data and the 2011 POWSCAR data, it became evident that the 2011 transport demand in a number of zones had exceeded the 2030 projections. In these cases the development growth was capped at 2011 levels and no further growth was applied to these zones.

The adjusted annualised growth factors were then applied to the 2011 base year cycling matrix over the 10 year horizon period to produce a forecast 2021 cycling demand matrix. Table 2.2 outlines the overall matrix growth factors applied to the base year matrices to account for development growth only to 2021.



**Table 2.2: Overall Matrix Growth Factors due to Development Growth (2011-2021)**

PURPOSE	FACTOR
Work	1.13
Education	1.09
Other	1.14
Total	1.11

**Cycling Modal Share by Distance**

The vision of the 2009 ‘National Cycle Policy Framework’ (NCPF) is that “a culture of cycling will have developed in Ireland to the extent that, by 2020, 10% of all trips will be by bike”. For this study, it was necessary to examine mode shift targets in further detail by analysing a combination of journey purpose, trip distance and area types.

The first stage in developing target mode shifts for cycling in the Greater Dublin Area was to examine the baseline data from the 2011 GDA Cycle Model. This provides data for work, education and other journey purposes. To analyse the data in further detail the following distance bands were set:

- 0–5 km;
- 6–10 km;
- 11-15 km and;
- greater than 15 km.

The 2011 base year cycling mode share is presented in Table 2.3.

**Table 2.3: 2011 Cycling Mode Share by Area Type, Distance and Journey Purpose**

Distance Band	Dublin City				Dublin Suburban			
	Work	Education	Other*	All	Work	Education	Other*	All
0-5 km	6.7%	3.4%	0.7%	3.6%	5.6%	4.1%	0.7%	3.6%
6-10 km	5.0%	5.1%	0.7%	3.5%	4.7%	3.4%	0.7%	3.6%
11-15 km	2.0%	1.9%	0.7%	1.7%	2.4%	1.8%	0.7%	2.1%
> 15 km	1.6%	1.3%	0.0%	1.0%	0.9%	0.9%	0.0%	0.7%
ALL	5.8%	3.6%	0.7%	3.4%	4.1%	3.8%	0.7%	3.3%

Distance Band	GDA Satellite Towns				Rural Areas			
	Work	Education	Other*	All	Work	Education	Other*	All
0-5 km	1.8%	1.8%	0.7%	1.6%	1.3%	1.1%	0.7%	1.1%
6-10 km	1.6%	0.6%	0.7%	1.2%	1.2%	0.6%	0.7%	0.9%
11-15 km	1.4%	0.7%	0.7%	1.2%	1.1%	0.2%	0.7%	0.8%
> 15 km	0.3%	0.4%	0.0%	0.3%	0.2%	0.5%	0.0%	0.3%
ALL	1.1%	1.4%	0.6%	1.1%	0.7%	0.8%	0.5%	0.7%

\* 2011 data for ‘Other’ journey purposes developed from 2006 Household Survey data

The cycling mode share for commuting trips below 5km in the Dublin City and Dublin Suburban areas is on track for achieving a 10% mode share by 2020. However, commuting trips outside the M50 in both

the satellite towns and rural areas is some way off the 10% target. The analysis also shows that as trip distance increases cycling mode share decreases, which is to be expected.

Therefore, for this study, it was necessary to develop more focused targets for cycling mode share in the 2021 forecast year. There is scope to achieve high cycling mode share targets for short trips within urban areas. However, there are significant challenges to achieving a shift to cycling for other trip types such as long distance trips in rural areas. Considering the above, a set of mode share targets has been developed for the GDA. The target in the Dublin City and Suburban areas is an increase in the overall cycling mode share (for all purposes and distances) from approximately 3% to 10% over the 10 year horizon of this study. Targets have been set for all journey purposes for trips less than 15km in length.

**Intra-Zonal Trip Movements**

Intra-Zonal trips are trips that originate and end in the same transport zone and usually represent short distance local trips. In a strategic transport model such as the GDA Cycling Model, intra-zonal trips are not loaded on to the transport network. The level of intra-zonal cycling trips will be higher than traditional vehicular traffic models due to the shorter trip lengths. In addition, as the transport zone system is consistent with Census Electoral Divisions, the size of the zones increases outside urban areas. Therefore the level of intra-zonal trips outside the Dublin Metropolitan Area is greater where a transport zone could represent the entire area of a town and its environs. The cycle model is therefore only properly applicable in the main urban area of Dublin where it represents 80% to 90% of cycle trips.

**Interpretation of Cycle Traffic Model Results**

The GDA Cycle model provides a comprehensive representation of existing and projected future cycling demand patterns in the Greater Dublin Area. The modelled link flow data presented in this report represents a typical 3 hour morning peak period demand between 07:00 and 10:00.

Trip assignment and route choice in the model is based on trip distance alone to provide a strategic plot of cycling desire lines on the network. As the complex decisions involved in cycling route choice are not taken into account in the model, the interpretation of results from the model at a local level should be carefully considered.

### 2.3. Strategic Cycle Route Network Proposals

#### Network Categorisation

The National Cycle Manual (Section 3.2) contains advice on network categorisation as shown in the table below:

#### Cycle Route Network Categorisation

NETWORK	ROUTE CATEGORY	DESCRIPTION
Urban Cycle Network	Primary	Main cycle arteries that cross the urban area and carry most cycle traffic
	Secondary	Link between principal cycle routes and local zones
	Feeder	Cycle routes within local zones and/or connections from zones to the network levels above
Inter Urban Cycle Network		Links the towns and city across rural areas and includes the elements of the National Cycle Network within the GDA
Green Route Network		Cycle routes developed predominately for tourist, recreational and leisure purposes but may also carry elements of the utility cycle route network above. Many National Cycle Routes will be of this type.

#### Target Quality of Service

Targets for the appropriate Quality of Service were selected on the basis outlined in the following Table. There are two facets to the QoS that require to be considered separately. These are:

- In terms of conflicts, level of comfort, junction time delays and pavement quality, a minimum Quality of Service Level B should be provided on all cycle routes, regardless of the volume of demand; and
- The width factor depends on the peak volume of cyclist demand. Above 500 cyclists per hour it is desirable to provide Width Level A+/A, with 2+1 conditions for social cycling and passing. Where the peak volume is less than 500 cyclists per hour, Level A/B will provide sufficient capacity with room for overtaking by faster cyclists.

#### Basis for Target Quality of Service

ROUTE TYPE	PRIMARY / NATIONAL	PRIMARY	SECONDARY
Cycle Volume Existing (3 hour peak period)	n/a	200 -1000	100-500
Target QoS - Width Factor	A+ 2+1	A+/A 2+1	A/B 1+1
Target QoS - Other Factors	A	B	B



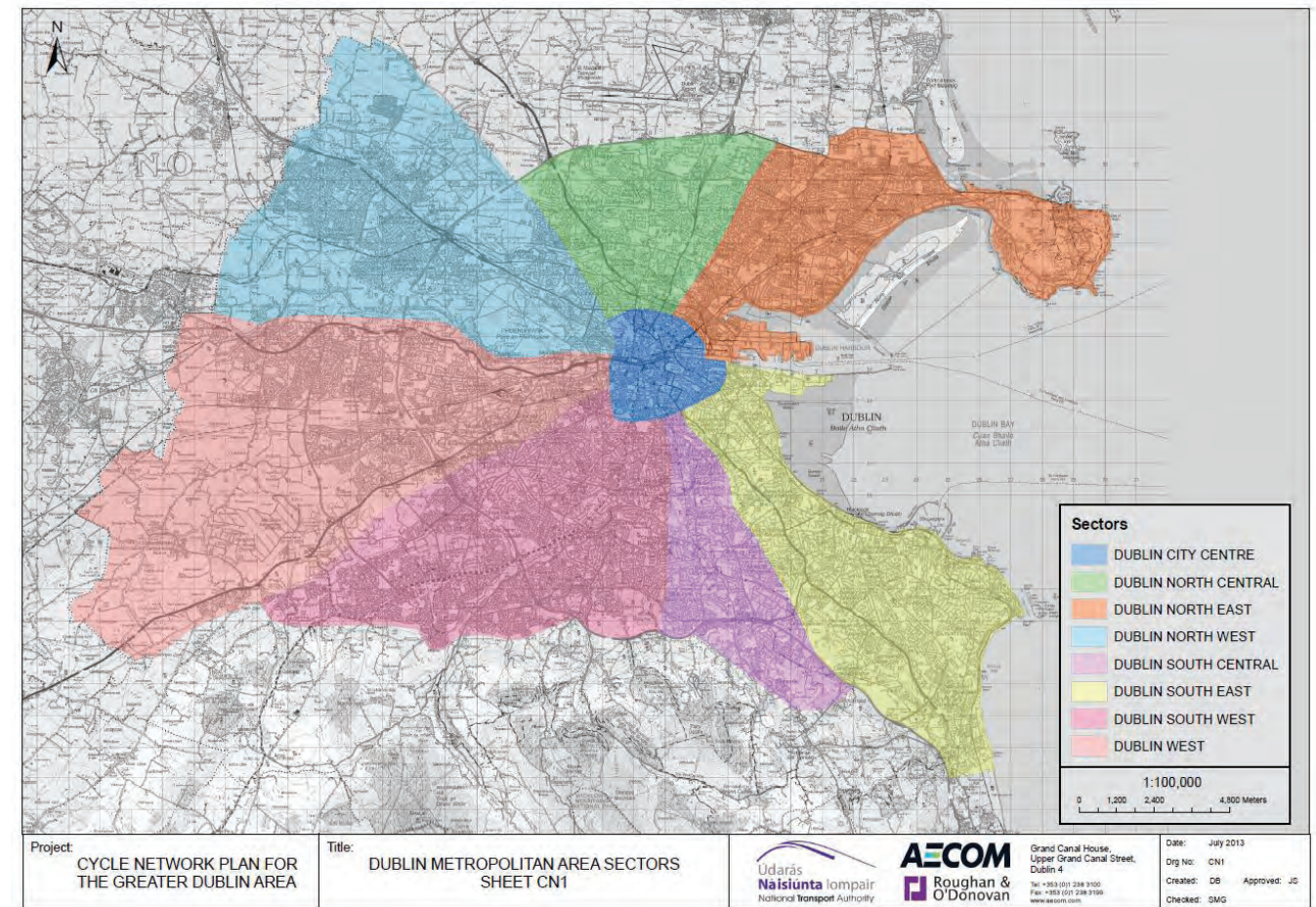
2+1 Width: Two-abreast cycling with room for overtaking



### Proposed Radial Routes to Dublin City Centre

From an analysis of cycling demand, 13 primary radial cycle routes have been identified that link the city centre to the seven sectors comprising key suburban areas shown on the following map, as follows:

- Route 1: Beresford Place to the North East Sector via Amiens Street, North Strand and Fairview;
- Route 2: Parnell Square to the North Central Sector via Dorset Street and Drumcondra, with variant or alternative routes proposed within the same general corridor;
- Route 3: Parnell Square to the North Central Sector via Blessington Street, Royal Canal Bank and Phibsborough, where it branches towards Ballymun and Finglas;
- Route 4: Bolton Street to the North West Sector via King's Inns, DIT campus in Grangegorman and Old Cabra Road;
- Route 5: Docklands to the North West Sector along the Liffey Quays to Heuston Station, and then through the Phoenix Park to Castleknock and Blanchardstown;
- Route 6: Parkgate Street to the West Sector via the River Liffey valley to Chapelizod and Lucan. Joins Route 5 for the connection to the City Centre;
- Route 7: College Green to the West Sector via Dame Street and Thomas Street;
- Route 8: Patrick Street to the South West Sector via Cork Street and then through Crumlin, Greenhills and Walkinstown towards the Tallaght and Clondalkin areas with various branches;
- Route 9: Patrick Street to the South West Sector via Harold's Cross;
- Route 10: Camden Street to the South West Sector via Rathmines, Rathgar and Terenure to Rathfarnham;
- Route 11: Camden Street to the South Central Sector via Ranelagh;
- Route 12: St. Stephen's Green to the South East Sector via Leeson Street and Donnybrook; and
- Route 13: College Green to the South East Sector via Merrion Square and Ballsbridge.



Dublin Metropolitan Area Sectors Map

In addition a series of 6 orbital routes have been identified to link the radial corridors and suburban centres around the city. Of these routes, three are considered to merit categorisation as primary routes:

- Orbital Route 1: following the Grand Canal and Royal Canal around the edge of the City Centre between Harold's Cross on the south side and Phibsborough on the north side;
- Orbital Route 4: on the north side from Killester to Ballymun to Finglas; and
- Orbital Route 5: on the south side from Lucan via Clondalkin, Tallaght and Dundrum to Dun Laoghaire.



### National Cycle Route Network in the Dublin Area

Proposals for the National Cycle Network (NCN) are at an early stage, with a general network outlined in the "Scoping Study" prepared by the National Roads Authority on behalf of the Department of Transport in August 2010.

The NCN study identified a network of 13 national cycle routes, 3 of which connect to Dublin as follows:

**NCN Route 1** along the East Coast from Rosslare through Dublin to the border with Northern Ireland and onward to Belfast and Larne. This route has been described in this study as the *East Coast Trail* and will incorporate other local amenity cycle routes such as the *Sutton to Sandycove* promenade;

**NCN Route 8** from Galway to Dublin as part of the longer distance trans-European *EuroVelo Route 2*. This route is currently at design stage and will approach Dublin along the Royal Canal through Maynooth. The exact route through the Dublin area remains to be confirmed. The Dublin cycle route network will provide various route options along suitably high-quality cycle tracks into the city area to various destinations including the main railway stations, the airport and ferry port. Perhaps the Phoenix Park route will provide the most impressive approach to the city centre that will best suit the tourism purpose; and

**NCN Route 9** from Cork to Dublin via Kilkenny. This route will most likely follow the Grand Canal into Dublin city.

In relation to the type of cycling facility to be provided on these routes, the NCN Scoping Study states the following:

*"The length of the network that is off road or of greenway standard should be maximised with the aim of minimising the interaction with motorised vehicles. The network should use existing cycle routes if appropriate. Special attention should be given to the opportunities of using both the disused rail network and canal / river towpath networks as cycling / walking routes."*

This key objective has been taken into account in this GDA Cycle Network Plan, which proposes that the national cycle routes would mostly follow greenways and high-quality cycle tracks.





### EuroVelo International Cycle Route Network

There is an international dimension to the long-distance cycle route network in Ireland as part of the *EuroVelo* network across the European continent as shown on the map below.

Two of these routes are in Ireland:

**EV1** from Norway to Portugal along the west coast of Europe, which extends in Ireland from Larne, County Antrim in the northeast, around the northern, western and southern coasts to Rosslare, County Wexford in the southeast; and

**EV2** from Galway through Dublin to London, Berlin, Warsaw and Moscow.



*EuroVelo International Cycle Routes Network Map*

### Proposed Greenway Route Network

There are numerous natural corridors through the Dublin metropolitan area that provide opportunities for greenway routes, and these have been identified in this study. By and large these routes follow rivers, streams, canals and the coastline. While many such greenways may be of local interest only, there are several that are of strategic value in terms of their length as an amenity, provision of access to

major recreational areas in the mountains, on the coast or in significant public parks, and also as part of long-distance national and international routes. These strategic greenways are set out below.

In a few cases there may be significant environmental sensitivities where a greenway might pass along the edge of or through an area with designated environmental protections. Careful environmental assessment will be required at such locations through a staged process to determine if the suggested route is actually viable or if an alternative route is necessary and preferable. These possible issues are noted where relevant in this report and on the maps with a dashed green line instead of a solid green line.

#### East Coast trail

This route is part of National Cycle Route No.1 and would extend within the Greater Dublin Area from Arklow in the south to Drogheda in the north. This study has identified an indicative route for the trail, mostly along greenways separated from traffic, and with some localised use of quiet minor roads in the areas most removed from the city. It avoids busy road corridors such as the R132 route north of Dublin, which would not achieve the objective for a high-quality and attractive cycle route. Each section is described in detail in the relevant chapter for the area in question along the route.

#### Grand Canal way / Barrow way

A high quality cycling facility is already in place on the canal towpath over a length of 8.5km from Adamstown south of Lucan to Blackhorse at Inchicore, with a further 1.5km of reasonably good but undesignated cycle track extending to Suir Road at Rialto. This is identified as Primary Radial Route 7B in the city network. In addition there is a further section of segregated cycle track along the canal bank from Portobello at Rathmines to the Docklands, which is part of Orbital Route SO1. The gap between these two sections of cycle route is the subject of a current design study to complete a high-quality cycleway connection.

#### Royal Canal way

There is no formal cycle route along the Royal Canal at present, apart from the very short section at Spencer Dock in the Dublin Docklands. The canal towpath is paved from North Strand Road as far as Ashtown, with a good quality gravel surface from there to Blanchardstown. This path is in use by cyclists as a de-facto cycleway at present. A number of design studies are underway to develop a high-quality cycle track along the canal westward to Maynooth. From there onward the NRA is currently managing a project for the NCN Route 8 from Dublin to Galway along the canal to Mullingar and beyond.

#### River Liffey way

The geographic centrepiece of Dublin City is the River Liffey, which provides the main access corridor on the western side. There are design projects currently underway to develop a high-quality segregated cycle route along the river corridor from Dublin Port in the east to the Phoenix Park and Heuston Station in the west and onward to Chapelizod village. This would serve Primary Radial Cycle Route 5 to Blanchardstown and Route 6 to Lucan and Leixlip. Cross-connections are proposed at Islandbridge to the adjoining Phoenix Park and Royal Canal way to the north and to the Grand Canal way to the south, so as to enable loop recreational cycle routes within the city.

#### Dodder Valley way

A feasibility study was completed in 2012 for a greenway route along the River Dodder from the city at Grand Canal Dock through Ballsbridge, Milltown, Templeogue and Firhouse to the Dublin Mountains at Bohernabreena Reservoirs. Apart from a strong recreational function, this route would also serve as a commuter cycle route to the significant employment district at Ballsbridge from the south-western suburbs. In the area from Ballsbridge to Milltown, it will also form part of Orbital Route SO3.



Other Greenways in Dublin

Several other greenways have been identified in various sectors as follows:

- *Tolka Valley way* across the inner northern suburbs between Fairview and Ashtown;
- *Santry River way* across the outer northern suburbs from the coast at Bull Island, through Raheny and Coolock to Santry; and
- *River Poddle way* from Harold's Cross to Greenhills and Tymon Park as an alternative route to the poor facilities along Radial Route 9A.

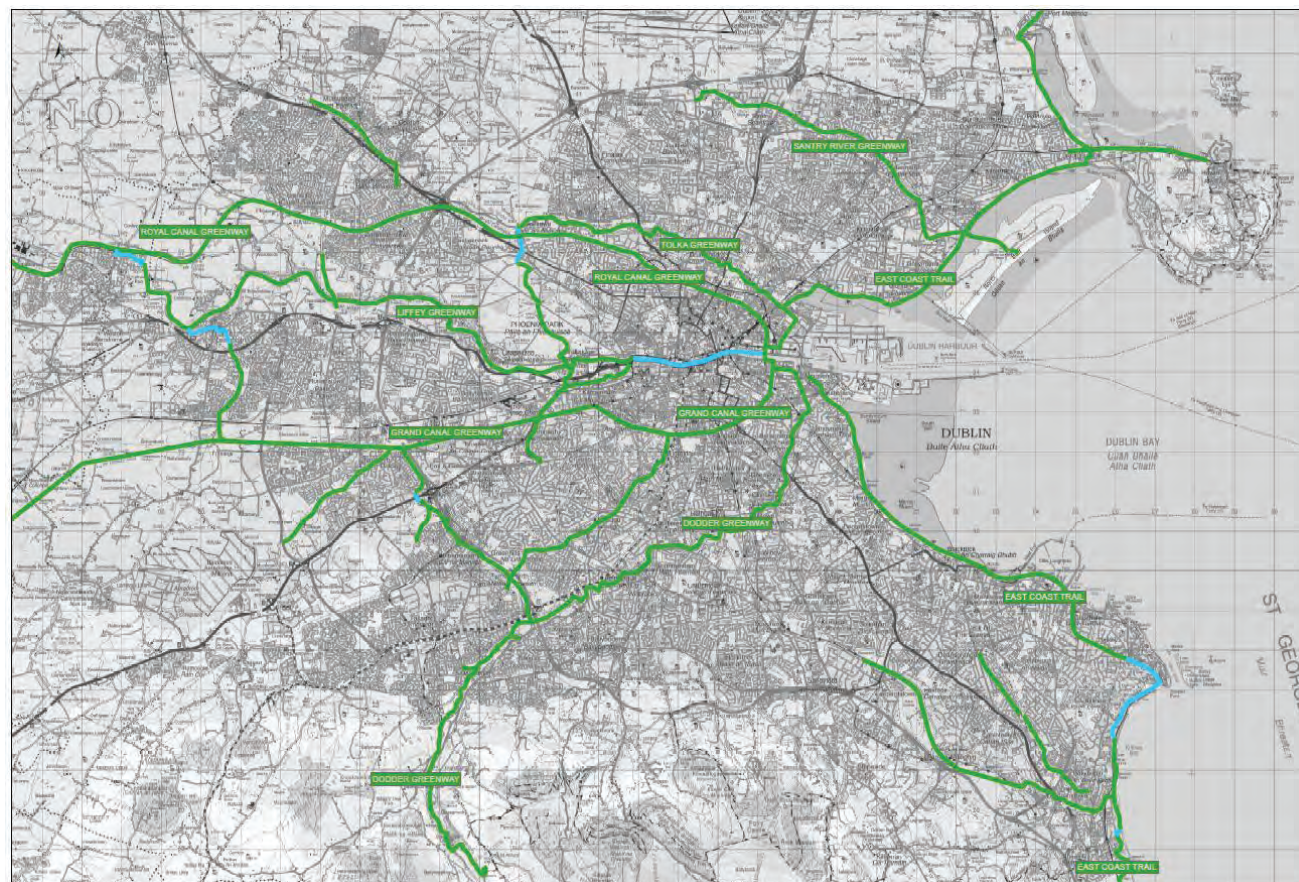
River Boyne way

This 50km long route is identified as Corridor 13 in the National Cycle Network, and will link between Corridor 5, *East Coast Trail* at Drogheda, and Corridor 8 from Dublin to Galway & Clifden on the Royal Canal near Longwood southwest of Trim.

Meath County Council is developing this cycle route along the River Boyne from Drogheda upstream through Navan to Trim. This will provide access for walkers and cyclists to numerous important tourist sites such as the *Battle of the Boyne* visitor centre at Oldbridge near Drogheda, *Brú na Bóinne* visitor centre for the ancient sites of Newgrange, Knowth and Dowth, Hill of Tara, Bective Abbey and Trim Castle. A feasibility study for the greenway was completed in 2010, and the project is now progressing through design and planning for the first phases from Drogheda to *Brú na Bóinne* visitor centre. The greenway will largely follow the old towpath of the River Boyne Navigation Canal upstream to Navan. Further upstream the route may follow suitable local roads as an interim measure pending an off-road route across agricultural lands along the river bank.

Green Route Network Map

The following Map DGN shows the proposed Green Route Network in the Dublin Metropolitan area. (A full A3 size version is included in Part 8a of this report).



*Proposed Green Route Network in the Dublin Metropolitan area*

A few non-greenway links are shown in key locations to complete connections within this element of the cycle route network. Loop trips could be devised using this network with varying lengths.

**Local Cycle Route Network Factors**

This plan proposes a cycle route network at a strategic level across the large study area. It is assumed that short distance trips are cycleable within each local zone. Most local streets and roads within the urban areas and towns should be suitable for shared use by cyclists and traffic due to low-speed and low-volume traffic conditions in accordance with the National Cycle Manual.

*Cycle Routes to Schools*

Many schools are located within neighbourhoods with access via local roads and streets, which may be more or less suitable for cycling according to the local conditions. A high Quality of Service is required on routes to schools so as to encourage as many pupils and staff as possible to cycle. In some cases there may be no suitable cycle network route directly to the school and it may be necessary to develop local infrastructure on link routes that have not been identified on the cycle network maps in this report.

*Permeability Links / Shortcuts*

Traditionally there has been good permeability in our towns and urban areas that allows for direct and convenient walking and cycling trips. However, for a period of several decades from the 1970s to the end of the 20th century, many suburban residential areas were developed on a cellular basis with restricted connectivity to surrounding areas. Distributor roads are provided in these areas and carry most of the local traffic, with associated cycle tracks provided in many cases. In these areas cycling and walking trips are longer than necessary and must follow busy traffic routes, with the result that many short local trips tend to be by car.

It is desirable to tip the balance back in favour of local trips by bike and walking through provision of permeability links within neighbourhoods. In this report a number of such potential links have been identified and are shown on the proposed cycle network maps with a "P" symbol. In certain locations the proposed permeability link may unlock a strategic cycle route that can deviate away from busy traffic corridors. There is likely to be greater scope for such permeability links that should be identified through local cycle network plans as much of the network will depend on them.

*Future Road Proposals*

Some of the cycle route proposals shown on the network maps may follow the planned routes of future roads as indicated on local authority Development Plans. Such a proposed cycle route should not be taken as justification for the overall road proposal, which should be subject to independent assessment according to suitable criteria.



### Cycle Route Networks in Towns

Chapter 4 describes the cycle network proposals for the towns in each of the rural counties within the Greater Dublin Area.

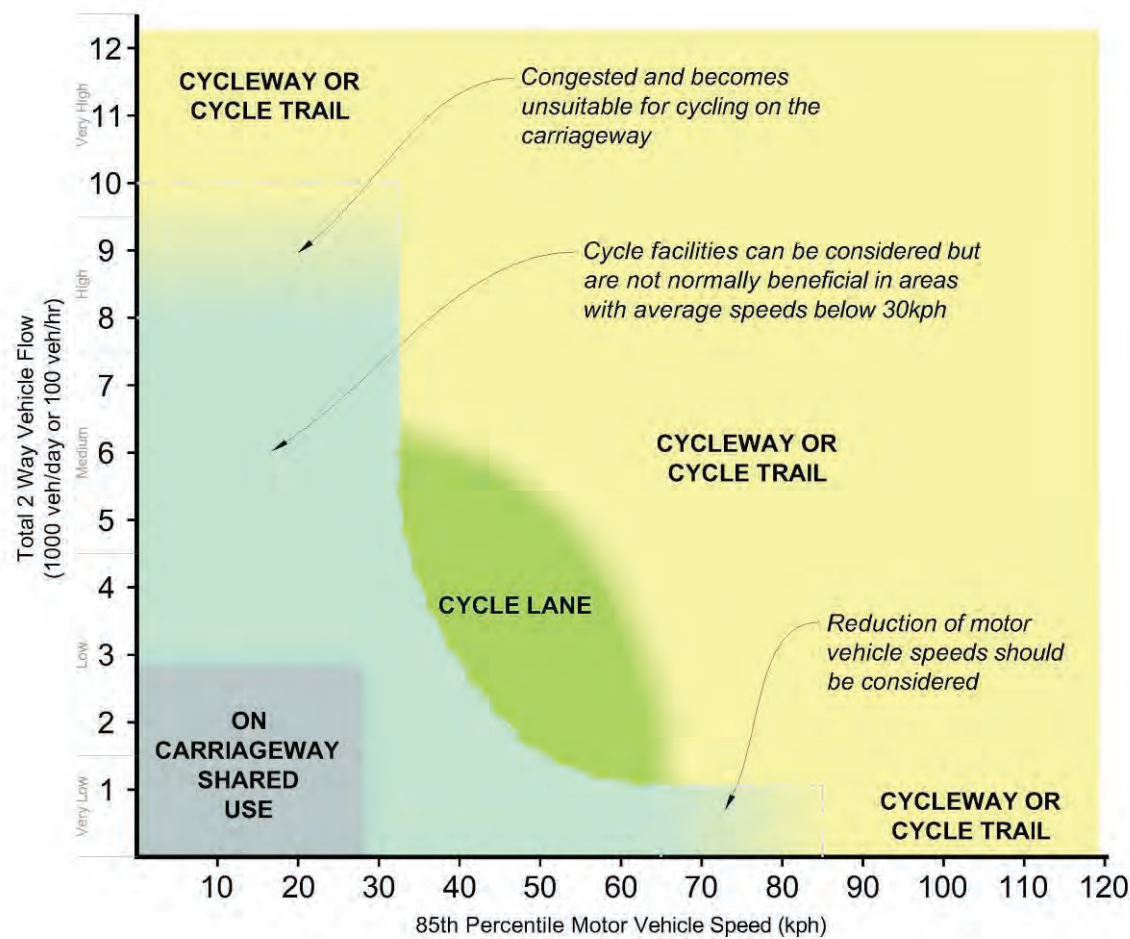
### Inter-Town Cycle Routes in Rural Areas

The final set of cycle route proposals consists of links between towns across rural areas and these are described in detail in Chapter 4 for each county, with an associated numbering system for ease of reference.

The rural sections of these routes, which are remote from main towns (>5km), would mostly serve for recreational cycling on rural roads, which is a fast growing leisure activity despite the lack of formal identification of suitable cycle routes. In many cases there is considerable risk involved for cyclists along busy and narrow regional roads, especially on the main access routes into towns.

Within 5km to 10km of the main towns the rural cycle routes should also cater for utility cycling trips for employment, education or other social and commercial purposes. In certain areas there are clusters of towns and villages that generate close inter-action, and greater potential demand for cycling trips would be expected along the connecting routes.

The chart below is based on the internationally accepted principles established in the Dutch cycle manual (CROW), which indicates that a suitable rural road for cycling typically carries fewer than 1,000 vehicles per day with average traffic speeds of 70 km/h or less.



Selection Chart for Type of Cycling Facility (based on the Dutch CROW Manual)

This study has generally selected minor rural roads with low volumes of traffic and moderate speeds for identification as suitable cycle routes that can be promoted through cycle directional signs, similar to the current provisions in the tourist cycling hubs around the country. In some cases there may be several suitable route options available and further study will be required at local level to select the preferred route.

This proposed rural cycle route network is comprehensive and links all towns in the study area, as well as major towns beyond the study boundary such as Drogheda, Mullingar and Portlaoise. The rural cycle routes interconnect with the town cycle networks and with the strategic long-distance greenways described earlier.

Unfortunately not all cycle routes can be directed along low-volume and low speed roads due to the limitations of the local road network. An example is between Celbridge and Clane in County Kildare, where the only route available is partially along the busy and fast R403 regional road. In such cases it will be necessary to provide a rural cycle track along the road verge as is standard practice in Denmark, Germany and other European countries. Such cycling facilities have been provided on a number of recent national secondary route improvements in Galway, Mayo and Donegal as shown in the following example.



Cycle Track alongside the N59 at Newport, County Mayo

Where rural roads are proposed for designated cycle routes, it may be appropriate to provide some measures to maximise safety for cyclists. Measures that could be considered include:

- Warning signs for drivers of the likelihood they will encounter cyclists;
- Visibility improvements at sharp bends through localised verge widening; and
- Special speed limit of 60 km/h on wider roads that could encourage higher speeds.

Each route would need to be assessed to identify the particular safety issues involved.

## 2.4. Strategic Environmental Assessment

The development of the GDA Cycle Network Plan has been accompanied by consideration of environmental issues through, in particular, the Strategic Environmental Assessment process and the Habitats Directive Assessment process. These have identified impacts and, where appropriate, mitigation, to address these issues (See SEA Environmental Report Chapter 10 and the Natura Impact Statement.). However it should be noted that the mitigation presented in these reports has been compiled at a strategic level where the particulars of each project are not yet fully known. The process of environmental assessment and more specific site level mitigation will continue through the project development stage for individual schemes forming part of the plan.

In delivering the plan, the Authority will, in collaboration with the relevant agencies, actively address the protection and enhancement, where practical, of the natural, built and historic environment associated with these schemes. Projects which are taken forward to development consent stage will be supported by environmental appraisal, Habitats Directive Assessment and Environmental Impact Assessment (EIA) where appropriate. All cycle routes will be constructed in accordance with applicable design standards and environmental regulations and mitigation measures in accordance with good practice will be incorporated into the design and construction of these schemes.

The Authority, in conjunction with other agencies and the local authorities, will not pursue any schemes arising out of this plan, or in-combination with other plans, which will adversely affect the integrity of a Natura 2000 site, unless there are no alternative solutions and that it has been demonstrated that the project is of overriding public interest. In all cases where a potential impact has been identified in the plan, the Authority will seek to avoid the impact by means of mitigation. Mitigation measures are proposed in the Natura Impact Statement and these will be incorporated into the final plan prior to adoption. At detailed project-level appropriate assessment, further measures are likely to emerge and these will also be implemented. For schemes whose impacts cannot be mitigated, the Authority will seek alternative ways to meet the strategic objectives of the plan. Further information is contained in the accompanying Natura Impact Statement.



## CHAPTER 3 DUBLIN METROPLITAN AREA CYCLE NETWORK

### 3.1. Dublin City Centre Cycle Network

This section provides a summary of the analysis of cycle network requirements in the city centre sector.

The Dublin City Centre Sector is defined by the Royal Canal and Grand Canal ring on the northern, eastern and southern side. The western boundary is taken as about 0.5km west of a north-south line between Phibsborough and Harold's Cross, and includes areas such as Pimlico, Thomas Street, Manor Street and Grangegorman. This area includes the commercial heart of the city where most employment is concentrated. It excludes the mostly residential areas within the canal ring further west, as these are in effect inner suburbs that do not attract significant numbers of non-local inward trips. On the other hand, the recently redeveloped Docklands area spreads a little way east of the canal ring and has been included in the City Centre sector as it contains significant employment.

Refer to Map E1 in Part 6 of this Volume 1 for illustration of the existing cycle routes in this sector, with the existing cycle traffic flows shown on Map DD1 in Part 7.

#### 3.1.1 Gateways on the Main Radial Access Corridors into City Centre

The geography of Dublin has greatly influenced the layout of the street and road network in the city centre and the surrounding inner suburbs. A major factor is the presence of 5 watercourses that extend from east to west across the city as follows:

- (i) The **River Liffey** through the heart of the city centre with 16 bridges suitable for cyclists;
- (ii) The **Royal Canal** around the northern edge of the city centre with 5 bridges between Phibsborough and Fairview;
- (iii) The **River Tolka** up to 1km north of the Royal Canal with 7 general traffic bridges on approaches to the city;
- (iv) The **Grand Canal** at the southern edge of the city centre with 8 bridges between Harold's Cross and Grand Canal Dock;
- (v) The **River Dodder** typically 2km south of the Grand Canal with 9 general traffic bridges across the river between Terenure and Ringsend.

The radial routes from the outer suburban areas towards the city centre must therefore cross 2 bridges in succession, first over a river and then a canal. This arrangement has created a pronounced funnel effect on the city road network where the number of key radial routes is constrained to 8 major corridors in the more populous eastern parts of the city as follows:

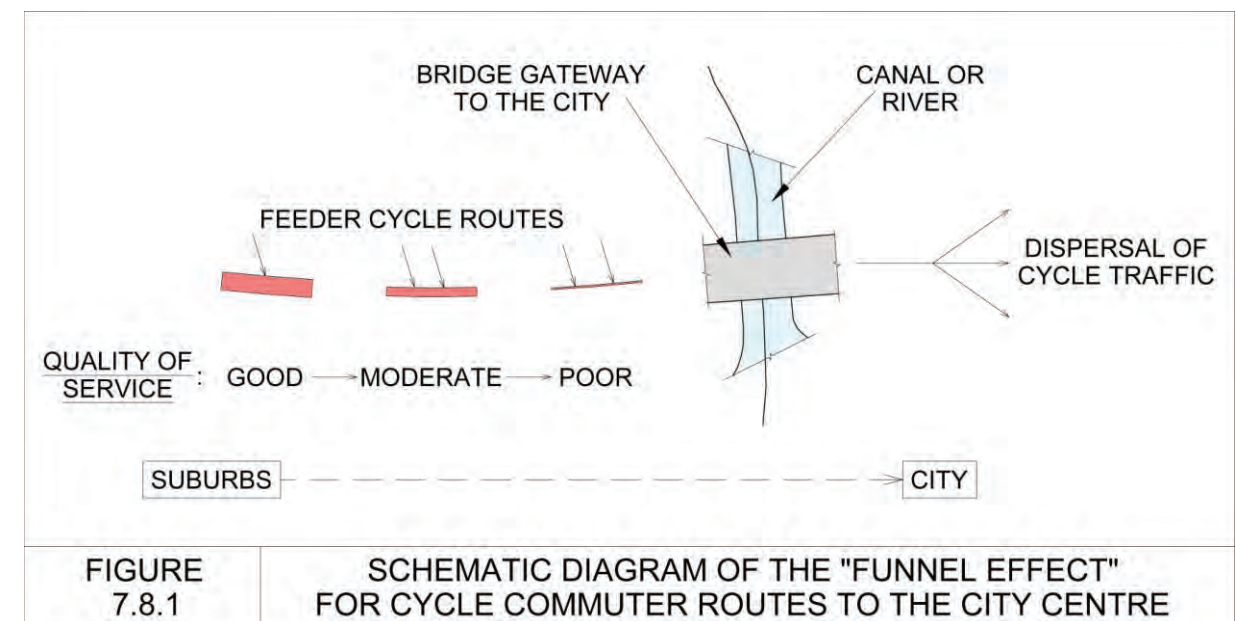
- (i) North Strand Road;
- (ii) Drumcondra Road;
- (iii) Botanic Road / Prospect Road;
- (iv) Harold's Cross Road;
- (v) Rathmines Road;
- (vi) Ranelagh Road;
- (vii) Morehampton Road; and
- (viii) Northumberland Road (with two forks of Baggot Street and Shelbourne Road).

The main transport demand toward the city centre is concentrated on these 8 corridors, and this is reflected in the cycle traffic flow patterns as shown on Maps DD1 and DD3 in Part 7 of this Volume.

The following schematic diagram illustrates the manner in which cycle traffic converges from feeder routes and secondary routes onto a main primary radial route as it progresses towards one of the gateway entry points on a canal ring bridge.

The volume of cycling traffic grows substantially as the primary routes gets closer to the city centre. Once across the gateway point, the cycle traffic immediately disperses across a range of routes towards destinations spread across the city centre.

Quality of Service actually reduces along the primary radial routes as they near the city centre, even though the demand is increasing. For example, on the Stillorgan Road there is a high quality segregated cycle track with QoS B inward as far as Donnybrook Village. The quality of the route then diminishes dramatically to QoS D as the route changes to a mix of narrow advisory cycle lanes and bus lane shared with a high volume of buses. This presents an acute problem in the provision of an attractive and consistent cycle route network that is commensurate with demand. As mentioned in the National Cycle Manual, and in line with good transport planning principles, the quality of cycling facility should increase with demand along the busiest routes as they approach the edge of the city centre and cross the canal cordon to enter the city centre area. The various sector descriptions have described what interventions are required to redress the shortcomings of the busiest radial primary cycle routes.



Schematic Diagram of "Funnel Effect" at Gateways to the City

In some places it may be feasible to develop bypass routes along nearby quiet streets where traffic conditions are suitable for a high Quality of Service. Such alternative routes will depend on the continuity of the adjacent street network in parallel with the main radial roads. Additional bridges may be required across the rivers and canals to complete these alternative routes. However, the bypassing of important local destinations and urban villages is not generally recommended.

#### Cycling Traffic Distribution across the Wider City Area

The existing morning peak period cycle traffic distribution in 2011 across the city and towards the city centre is shown on Map No.DD1 in Part 7. This map shows a heavy concentration in the eastern part of the city area, with strong cycle demand east of a line between the Swords Road in the North Central Sector and Harold's Cross Road in the South West Sector. This is probably due to the absence of major employment zones west of this line and a tradition of city-based employment. On the other hand there is a large amount of industrial employment in the western suburbs, and it is likely that many people have chosen to live on that side of the city so as to be close to work in the nearby areas. As a consequence the total transport demand (including cycling) towards the city centre from west of the





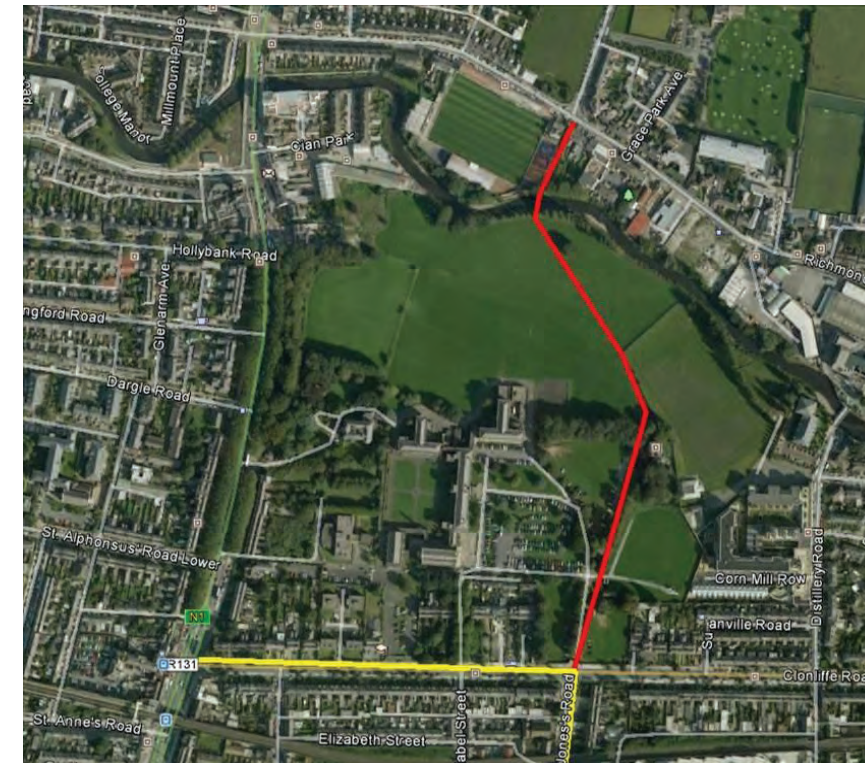
There is scope to consolidate the left-turning cycle traffic along a single connecting route to the east of Dorset Street, which will diminish the volume continuing along Dorset Street where scarce road space is needed for the high volume of bus services along this key transport corridor of the Swords QBC. It is unlikely that the Quality of Service for cyclists on Dorset Street can be raised higher than level C in this context, which would only suit a Secondary route.

An alternative for this route would be divert eastward along Clonliffe Road and then turn south along Jones's Road past Croke Park to enter the city centre area away from the restrictions that apply on Drumcondra Road Lower and Dorset Street. These streets are wide enough to accommodate segregated cycle tracks even with on-street parking where necessary.



Alternative Cycle Route from Drumcondra Road to Mountjoy Square

This bypass cycle route via Clonliffe Road could be extended by a new cycle route from Clonliffe Road to Grace Park Road across the River Tolka at Richmond Road. This would enable cyclists to avoid the busy Swords Road Radial Route 2 and to follow Route 2B instead.



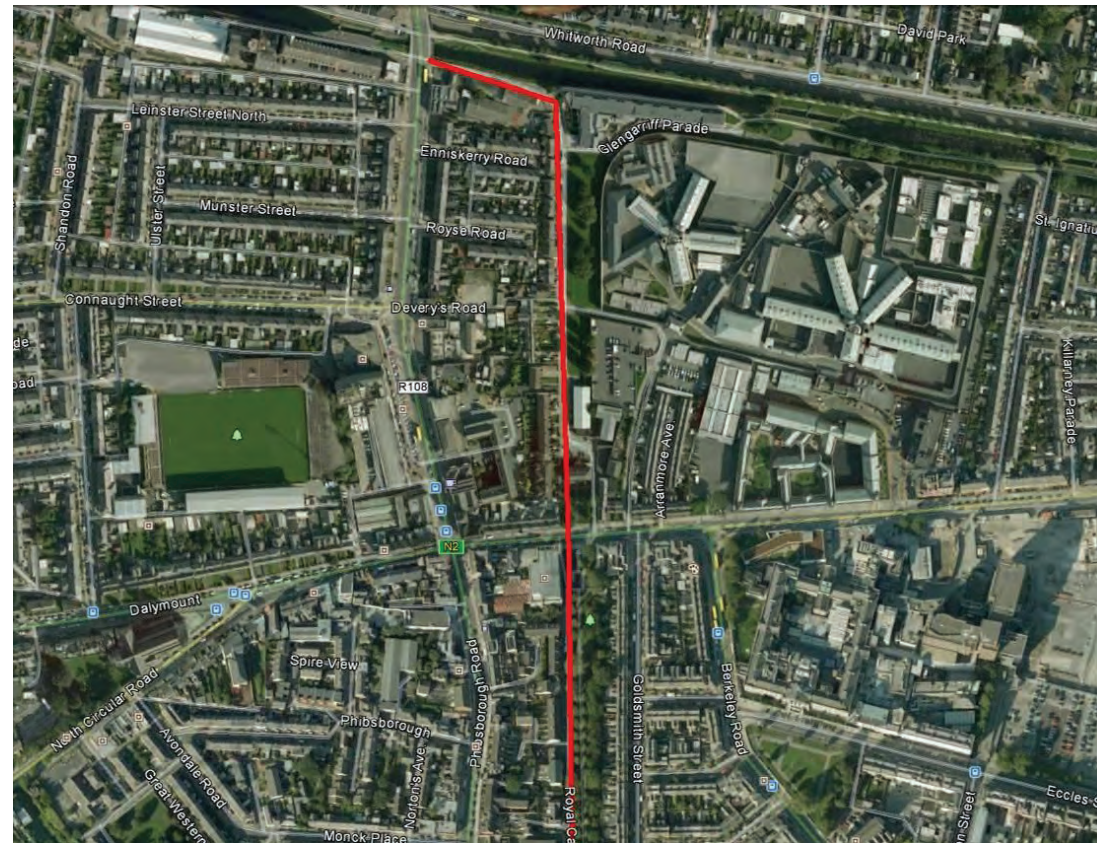
Proposed River Tolka Link from Grace Park Road to Clonliffe Road

### Gateway 3: Phibsborough

Conditions for all road users in Phibsborough Village and at Doyle's Corner on North Circular Road are particularly poor due to limited road and footpath space. At this 'hot-spot' there is major competition for road space between buses, general traffic on the major intersecting radial and orbital routes, cyclists and large numbers of pedestrians in this busy urban village centre. There are no bus lanes or cycle lanes through the junction where the road space is allocated to two narrow traffic lanes on each approach.

The recommended option for the primary cycle route, serving the large suburbs of Glasnevin, Ballymun and Finglas, approaching the Gateway 3 entry point into the city centre is to avoid Phibsborough Village and the Doyle's Corner junction altogether. Fortunately there is a highly suitable alternative route just to the east along Royal Canal Bank that once brought a spur from the Royal Canal to the Blessington Street Basin as part of an old water supply system for Dublin City Centre. The canal is now filled-in and serves as a small linear park for the local community. A cycle route can be developed along the park, and this can serve as the Gateway 3 Primary cycle route into the city centre via Blessington Street to Parnell Square and O'Connell Street.





Royal Canal Bank Bypass at Phibsborough

This route would provide a high Quality of Service for the forecast volume of 1,400 cyclists in the morning peak period in 2021.

Local cycling access to Phibsborough village itself will also need to be provided.

North of Cross Gun's Bridge on the Royal Canal the Hart's Corner Gyrotory system at the junction of Prospect Road, Finglas Road and Botanic Road requires improvement for cyclists and a feasibility study should include assessing the scope for two-way segregated cycle tracks to permit contra-flow cycling on the direct routes.

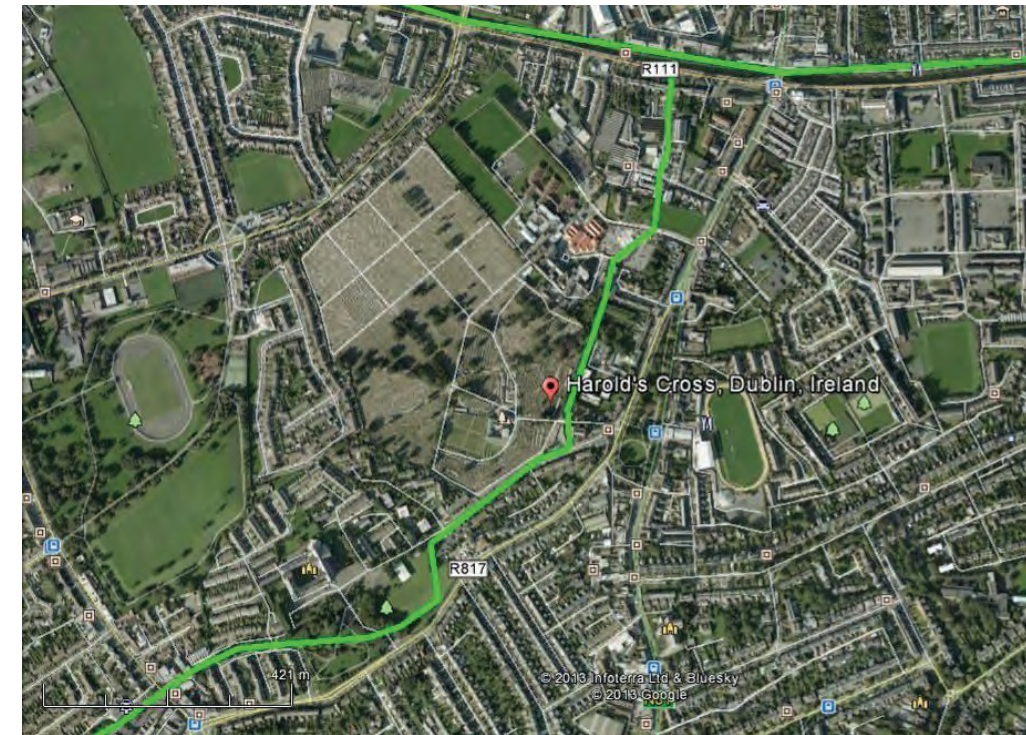
### Western Access Routes

The cycle traffic demand is relatively weak on the western side of the city centre for reasons described earlier. This demand arrives at the edge of the city centre spread across 4 main access points on Primary Radial Routes 4 to 8 (with Routes 5 & 6 shared). In most cases there are no particular physical constraints to cause a concentration of cycle traffic at specific gateway points at the western approach to the city centre area. Indeed there are possibly several access routes available for cyclists approaching the city centre from the west such that they can switch between routes at various points and are not faced with the same limitations as cyclists approaching from the north or south of the city. The proposed cycle network for this part of the city has identified a number of suitably quiet streets for cycle routes that avoid the busiest traffic routes and junctions such as High Street at Christchurch Cathedral.

### Gateway 4: Harold's Cross Bridge

This gateway is on Primary Radial Route No.9 from Tallaght, Templeogue, Terenure and Harold's Cross. The approach route from Kimmage on Primary Route 9A is poor for cyclists over a length of 3km out past the Kimmage Cross Roads (KCR) and there is no real scope for improvement within the restricted road width. An alternative route would be desirable if one could be found.

The recommended high quality cycle route to this gateway is the potential for a *River Poddle Greenway* parallel to the road to the west. This proposal is described in Section 3.6 for the South West Sector. The Primary Cycle route from the Kimmage, Templeogue, Greenhills and Tallaght areas could be directed along the River Poddle route and away from Kimmage Road. This river route could be brought all the way to the Grand Canal past Mount Jerome cemetery and across a number of properties with limited impact.



Potential River Poddle Greenway at Harold's Cross

There will need to be improvements to the Harold's Cross bridge junction for cycling; these could include, *inter alia*, a parallel bridge provided over the Grand Canal for cyclists at Harold's Cross Bridge in order to provide adequate space bypassing the existing restriction on the road bridge and so as to accommodate a comfortable right-turn onto the canal cycleway.

### Gateway 5: Rathmines Road / Portobello Bridge

This is one of the two busiest cycle routes in the city with existing demand of 760 in the AM peak, and a future forecast of 2,600 in 2021. Conditions for cyclists along Rathmines Road vary according to time of day and the level of other activity present, with a Quality of Service score of C, which is better than many other primary radial routes. It would be difficult to seek to provide a high-quality segregated cycle route along Rathmines Road as the street also needs to cater for a wide range of other activities. Extension of the existing arrangement on Rathgar Road, comprising inbound bus lane, outbound cycle lane and two general traffic lanes, is an obvious option. Another could be the application of a formal 30 km/h speed limit. This may allow for comfortable shared use of the road by all traffic modes and especially for cyclists and buses in a common lane. On Camden Street and Richmond Street, southbound cyclists should be accommodated by means of contra-flow facilities along the western side of the traffic gyrotory at Camden Street Upper, rather than diverted around the block via Charlotte Way to Harcourt Street and Harcourt Road.





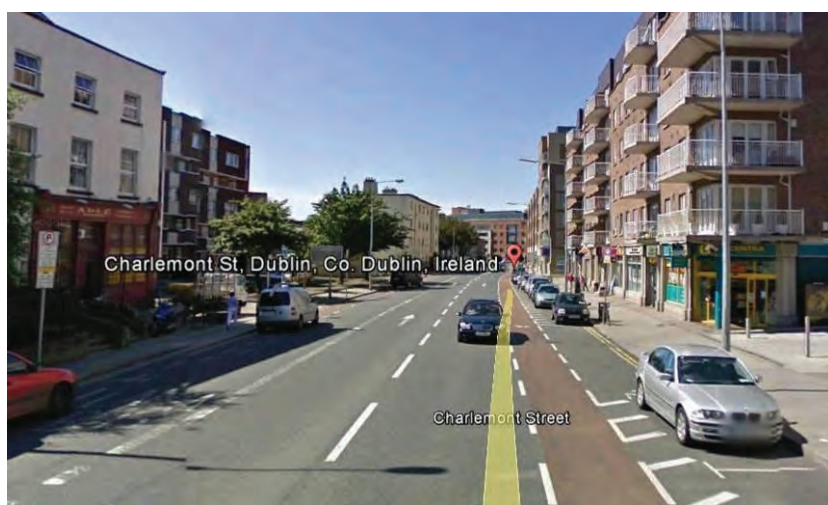
Rathmines Road

There is also an alternative route available along Palmerston Road and Mountpleasant Avenue to the east that has the potential to provide a higher Quality of Service and can divert some cyclist traffic away from Rathmines Road. Cycling direction signs should be provided to encourage use of this route. There should also be improvements at the Grand Canal and Portobello Bridge to enable easier turning movements.

**Gateway 6: Ranelagh Road / Charlemont Bridge**

Charlemont Bridge is just 280m east of Portobello Bridge and carries Primary Radial Cycle Route 11 from Ranelagh into the city centre where it converges with Radial Route 10 from Rathmines at the Charlotte Way gyratory. Both routes share common links onward into the heart of the city centre.

The key link between the Grand Canal crossing and the Harcourt Street route to St. Stephen's Green is along Charlemont Street. This is a wide street that currently is arranged with one traffic lane in each direction, a part-time northbound bus lane, advisory cycle lanes, and parking on part of the street. The existing Quality of Service score for cyclists is D, largely because of the advisory cycle lanes that are often obstructed by parked cars. The value of the bus lane on this street is questionable as it serves a minor bus route that is now duplicated by the Luas Green Line tram service. Wide segregated cycle tracks could be provided along this route from Ranelagh and over Charlemont Bridge where there are 3 traffic lanes when 2 would be sufficient. These cycle tracks should link to Harcourt Street and Camden Street via a revised traffic layout at the Charlotte Way Gyratory to provide for two-way cycling on all sides.



Charlemont Street: Provide segregated cycle tracks

**Gateway 7: Leeson Street Bridge**

Primary Radial Cycle Route 12 at Leeson Street Bridge differs somewhat from the other gateways to the west in that the approach route is more directly aligned with desire lines towards the city centre. There is still a strong turning movement to the east along the Grand Canal towards the main office districts, but of the remainder that continues towards the city, most cyclists wish to reach the St. Stephen's Green area. This indicates that the focus should be on the provision of a high-quality cycle route along Leeson Street.

Leeson Street Bridge is very narrow in terms of provisions for cyclists and pedestrians, especially on the western northbound side. The road space between kerbs is allocated to 3 northbound and 2 southbound traffic lanes shared with buses. This arrangement is provided to suit the traffic requirements at the major junction with Fitzwilliam Place and Adelaide Road on the South Circular Route just north of the bridge. Cyclists are provided with very narrow advisory cycle lanes within the left-hand traffic lanes. This layout has not been adjusted to suit the heavy turning movement onto the new Grand Canal Cycle Route (SO1). The footpaths are also too narrow for the large volumes of pedestrians. Significant improvements are required for cyclist and pedestrian facilities at this bridge.

There are difficult constraints at this bridge formed by major watermain pipes outside the parapets on both sides and due to the proximity of the canal lock gate on the upstream, western side. The more practical improvements that could be considered at this major gateway are as follows:

- (a) Fit a 4m or 5m wide footbridge outside the western parapet and arched above the lock gate arms. This bridge would carry right-turning northbound cyclists wishing to make a box turn to join the cycle route along the northern side of the canal.
- (b) Provide a 4m or 5m wide pedestrian and cycle bridge on the eastern, downstream face of the bridge to allow cyclists to cross to Mespil Road (and possibly Sussex Road so as to bypass the difficult corner on the southbound cycle route past the Leeson Lounge pub). There is plenty of room for this new bridge which would have the necessary vertical clearance over the canal.
- (c) Convert the existing footpaths on the bridge to cycle tracks and widen into the traffic lanes to achieve an appropriate width of at least 2m. (It may be preferable to divert the southbound cycle route away from the road bridge altogether on to the new separate bridge proposed above).
- (d) Review the layout of the traffic and bus lanes on the bridge as part of a revised overall traffic circulation system.
- (e) Provide a southbound cycle link to Leeson Park and onward to Ranelagh for branch Radial Route 11A. This would involve a short section of contra-flow cycle track on Leeson Street Upper with removal of some on-street parking.



Leeson Street Bridge - Western side



### Gateway 8: Mount Street Bridge (or Ballsbridge)

This gateway on Primary Radial Route 13 is in reality further south at Ballsbridge on the River Dodder crossing where most of the approach routes are funnelled through a bottleneck. There is greater flexibility in the street network at the south-eastern approach to the city centre and Cycle Route 13 has 4 potential entry points as follows:

- (a) Northumberland Road / Mount Street on the most direct route to Merrion Square and the city centre core;
- (b) Pembroke Road and Baggot Street bridge towards St. Stephen's Green and across the southern side of the city centre;
- (c) Shelbourne Road and Grand Canal Street Bridge towards the south Docklands area; and
- (d) Ringsend Road and Pearse Street from the coastal route at Merrion.

This range of options helps to spread cyclist traffic and reduces the concentration on the canal crossing bridges entering the city.

Further cycle traffic demand arises at Ballsbridge from the orbital Route SO3 along the River Dodder corridor via Anglesea Road and Herbert Park towards the Dublin 2 and 4 office districts. North of the River Dodder crossing, more route options are available for cyclists who begin to fan out onto Shelbourne Road to the east and Pembroke Road to the west.

At each of the subsidiary gateway entry points for Route 13 the proposals for improved cycling facilities are as follows:

- (a) Mount Street Bridge (Route 13): The northbound advisory cycle is inadequate, with cyclists pinched out by buses and turning vehicles. This needs to be upgraded to a segregated cycle track connecting into the orbital cycle track on the Grand Canal. There is surplus road space on the southbound side of the road over the canal bridge that should be allocated to segregated cycle tracks, possibly with an upstream bus gate on Mount Street.
- (b) Baggot Street bridge (Route 13A): Narrow the road to accommodate cycle tracks.
- (c) Grand Canal Street Bridge (Route 13B): Provide westbound cycle track to complement the recently installed eastbound cycle track. Reduce the approach to a single traffic lane to suit.
- (d) Ringsend Road Bridges (Route 13E): Provide new pedestrian and cycle bridges outside the parapets of the humpback bridge over the River Dodder and narrow the traffic lanes on the approaches to accommodate cycle lanes. The bus lanes over the canal bridge are lightly used and provide a good Quality of Service for cyclists.

### 3.1.2 Dublin City Centre - Context for the Cycle Route Network

In the city centre sector there is considerable competition for road space between the various modes of transport of bus, tram, car, truck, bicycle and pedestrian. Only the widest streets have sufficient width to potentially accommodate all of these modes with their own appropriate space. Examples are Westmoreland Street and Pearse Street. On most streets choices have to be made as to which mode should receive priority, if any, or more likely that all modes must share the space at a suitably low speed.

#### Bus Corridors

Key bus corridors into the city require dedicated bus lanes so as to provide for high-capacity, fast and reliable public transport by the mode that carries the largest share of commuter trips. Traditionally these bus corridors have also catered for cyclists within shared bus lanes in the city centre and inner suburbs. However, as the Quality Bus Network has been developed and expanded, the volume of buses on these inner corridors has greatly increased and their speed requirement is higher in order to achieve

good journey times. This report suggests some alternative possibilities for cycle routes that avoid busy bus corridors.

#### Light Rail Tram Lines

Ideally, the tram mode would be segregated from the cycling mode. The proposed network of designated cycle routes is intended to minimise close interface with tram lines (existing and planned). However, in some city centre locations, the lack of viable alternative routes suggests it will be necessary to share the street between trams and bicycles. The new Cross-City Luas line coincides with some of the main north-south and east-west cycle desire lines through the heart of the city centre. While there would appear to be street space for cyclists to avoid cycling closely alongside or across the tram rails, there will be pinch points such as Nassau Street, Lower Grafton Street and Parnell Square South, where the bike, tram and other vehicles will be required to share the street area.

The NTA has commissioned consultants to propose technical solutions (including surface infrastructure in use in other cities) to provide a street layout that is suitably safe for trams, other public transport, and cyclists. If no acceptable solution can be found, the cycle network for the city will be revisited, to direct cyclists away from the tram-only sections.

The following photograph shows an example of shared use of a quiet street by trams and bicycles in France.



*Cyclists on a Tram Street in Bordeaux, France*

#### Main Traffic Circulation Routes:

Within the city centre area there are a number of main traffic circulation routes where facilities for cyclists may be constrained due to the road space allocation to general traffic. These include:

- (a) Outer Traffic Orbital Route: North Circular Road / Portland Row / Seville Place / Samuel Beckett Bridge / Macken Street / Fitzwilliam Street / Adelaide Road / South Circular Road;
- (b) Western Edge Route: Clanbrassil Street / Patrick Street / High Street / Bridge Street / Father Mathew Bridge / Church Street / Constitution Hill / Phibsborough Road;
- (c) North Inner Tangent Route: Dorset Street / Bolton Street / North King Street / Queen Street-Blackhall Place Gyratory;
- (d) Gardiner Street / Beresford Place;
- (e) South Inner Tangent Route: Leeson Street / St. Stephen's Green South / Cuffe Street / Kevin Street;
- (f) Eastern Edge Route: Amiens Street / Beresford Place / Memorial Bridge & Butt Bridge / Townsend Street & Pearse Street / Holles Street; and
- (g) Liffey Quays East-West Route.



It would be difficult to achieve a high Quality of Service for cyclists on all these main traffic routes and it is therefore desirable to identify alternative streets for cycle routes where possible. QoS Level C is probably the most that can be provided on such main streets. This would consist of a 1.75m wide mandatory cycle lane.

**Alternative Routes for Cyclists on Quiet Streets**

The Environmental Traffic Cell system provides quiet streets that are suitable for integrated cycling without need for segregated cycling facilities. The following photograph is an example of a link between two traffic cells at Bull Alley Street and Hanover Lane that crosses busy Patrick Street just north of St. Patrick's Cathedral. This shortcut enables cyclists to avoid the very busy junction at Christchurch Cathedral to make a route from Thomas Street to the George's Street area via Francis Street.



*Bull Alley Street Link to Hanover Lane - through arch in rear of picture: an example of a cycle route that avoids main traffic streets*

**Pedestrian Zones**

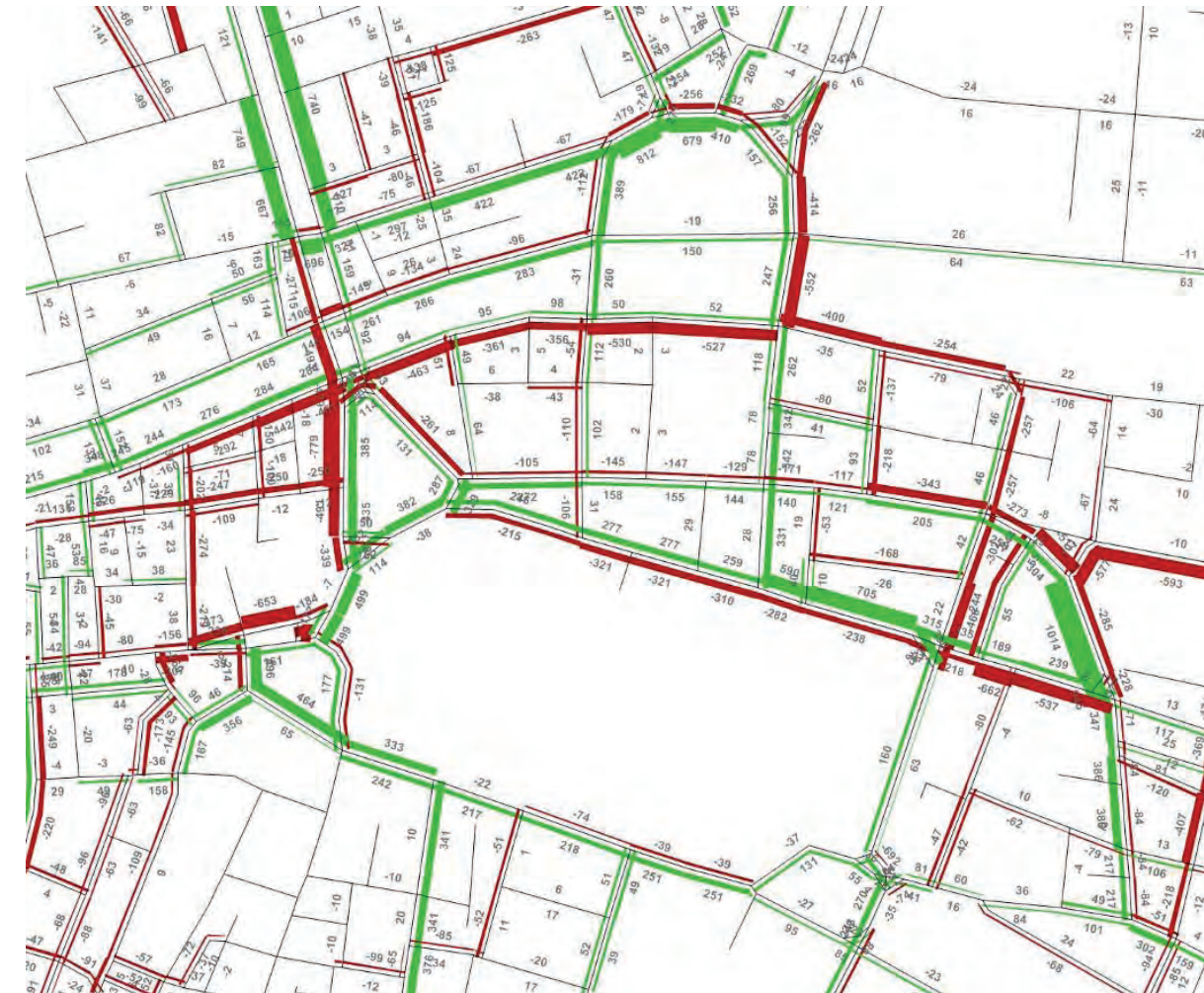
At a number of key locations within the city centre there are sizeable blocks of streets that are pedestrianised at the main shopping districts. These are the Henry Street area on the north side and the Grafton Street area on the south side. While there may be cycle route desire lines that would wish to cross these districts, it is not appropriate to direct main cycle routes across these pedestrianised areas where there would be significant conflict. Cycle routes can be directed around the edges of these zones rather than across them, with cycle parking areas provided at the edges.

**Benefits of Removal of One-way Street Restrictions**

There are quite a number of one-way streets intended to facilitate smooth traffic circulation. These street systems are not good for cyclists as they invariably result in longer journeys, create fast multi-lane streets that are hard to cross or weave within and involve complex junctions with long signal cycle times. The following image shows the benefit for cyclists of a completely un-restricted two-way street system. The green lines show where cycle volumes would increase and the red lines where they would decrease, with the scale shown by the line thickness. This analysis provides a clear case for the provision of contra-flow cycle routes on all one-way streets where these would provide for shorter cycle trip lengths. Even where the streets are very narrow, contra-flow cycling should be possible but without formal designation of a cycle lane within a very low speed environment.

**New Links across Impermeable Blocks**

For example a potential cycle route across the middle of Trinity College in the north-south direction would provide a valuable shortcut for cyclists who could avoid the busy alternative streets of College Green and Westland Row.



*Impact of Two-way Cycling on all streets in the Core City Centre*



### 3.1.3 Dublin City Centre - Proposed Cycle Route Network

The cycle route hierarchy in the city centre is shown on Map N1a (Part 8).

#### Radial Routes in the Dublin City Centre Sector

As described in Chapter 2 for the strategic cycle network, there are 13 Primary radial cycle routes (of which some sections reduce to Secondary), with a number of branches, that link the city centre to the other 7 urban sectors as follows:

Route 1: Beresford Place - Amiens Street - North Strand.

Route 1D: Parnell Square - Summerhill - Ballybough.

Route 1E: Docklands - East Wall - Clontarf Road.

Route 2: Parnell Square - Mountjoy Square - Jones's Road.

Route 2C: Smithfield - North King Street - Bolton Street - Dorset Street.

Route 3: Parnell Square - Blessington Street - Royal Canal Bank - Phibsborough.

Route 3A via the proposed Cross-City Luas Line D corridor at Broadstone west of Phibsborough to Finglas. This links to Route 4 for connection into the city centre.

Route 4: Bolton Street to the North West Sector via King's Inns, DIT campus in Grangegorman and Old Cabra Road.

Route 4D branch from Route 4 at Manor Street to Route 5 at the River Liffey, and with onward connection to the southwestern zone.

Route 5: Docklands to the North West Sector along the Liffey Quays to Heuston Station, and then through the Phoenix Park to Castleknock and Blanchardstown.

Route 6: From Route 5 at Parkgate Street to the West Sector via the River Liffey valley to Chapelizod and Lucan.

Route 7: College Green to the West Sector via Dame Street and Thomas Street.

Route 8: George's Street to the South West Sector via Cork Street.

Route 9: Christchurch via Patrick Street to the South West Sector at Harold's Cross.

Route 10: Temple Bar to Camden Street to the South West Sector via Rathmines.

Route 11: Grafton Street to the South Central Sector via Ranelagh.

Route 12: St. Stephen's Green to the South East Sector via Leeson Street and Donnybrook.

Route 13: College Green to the South East Sector via Merrion Square and Ballsbridge.

Route 13A branch to St. Stephen's Green via Baggot Street.

Route 13B branch to Beresford Place via Grand Canal Street.

#### Dispersal of Cycle Traffic within the City Centre and Cross-City Cycle Traffic Demand

The City Centre Cycle Demand flow diagrams shown in Drawings No. DD1 (Volume 1 Part 7) for 2011 and on DD2 for 2021 illustrate the dispersal of cycle traffic across the city centre area. From Select Link Analysis it is clear that much cycle traffic terminates within the city centre and that the volume of through traffic is fairly small. The radial routes have been tailored to suit the dispersal of this cycle traffic as it reaches its destinations.

The mesh of radial cycle routes into the city centre provides a basic grid that will serve many cyclists' requirements. However, there are a few further links required to complete the grid and to ensure ease of access by cyclists to and from all parts of the city.

#### Linking Cycle Routes in the Dublin City Centre Sector

Route C1: North-South Central Spine:

Parnell Square - O'Connell Street - Westmoreland Street - College Green.

Route C2: East-West Central Spine:

Merrion Square - Nassau Street - College Green - Dame Street - Christchurch.

Route C3: Southeast to West:

St. Stephen's Green - Cuffe Street - Mercer Street - Golden Lane - Bull Alley Street - Francis Street - Thomas Street - James's Street - Steeven's Lane - Heuston Station.

Route C4: Northwest to East:

Bolton Street - Parnell Street - Top of O'Connell Street - Cathal Brugha Street - Sean McDermott Street - Corporation Street - Talbot Street - Connolly Station - Harbourmaster Place - George's Dock - Sean O'Casey Bridge.

Route C5: Southwest to East:

Harold's Cross Bridge - Portobello - Harcourt Street - Hatch Street - Earlsfort Terrace - St. Stephen's Green East - Hume Street - Merrion Street - Westland Row - Lombard Street - Sean O'Casey Bridge.

Route C6 - South to North at Western Perimeter:

Portobello - Heytesbury Street - Bride Street - Werburgh Street - Christchurch - Fishamble Street - **new bridge over River Liffey** - Ormond Quay - Chancery Place - Greek Street - Beresford Street - Coleraine Street - Constitution Hill - Royal Canal Bank to Royal Canal at Mountjoy.

Route C7 - South Circular Road West:

From Harcourt Street westwards through Rialto past St. James's Hospital to Islandbridge.

Route C8 - North Circular Road East:

From Royal Canal Bank at Phibsborough eastward to Docklands.

Several other links are also shown on Map N1A:

- (a) South William Link parallel to Grafton Street to the west between South King Street and Dame Street;
- (b) Jervis Link from Parnell Street to Ormond Quay using the parallel one-way Capel Street and Jervis Street;
- (c) Church Street from North King Street to Thomas Street;
- (d) New Marlborough Street Bridge from Eden Quay to College Green; and
- (e) Fitzwilliam Street from Leeson Street Bridge to Holles Street.

In general, these cycle routes do not exist at present, either in terms of physical cycling facilities or through identification by directional signs along quiet streets that require no formal cycling facilities. On sections of busy street, such as Westmoreland Street or Westland Row, there will need to be segregated cycle tracks provided.



## 3.2. Dublin North East Sector

The Dublin North East Sector extends outward from the city centre to Howth and Balgriffin at the edge of the urban area, and from the East Coast at Dublin Bay inland to a line between the Marino and Beaumont areas. Refer to Maps E2 and E3 in Part 6 for illustration of the existing cycle routes in this sector, with the existing cycle traffic flows shown in Part 7 Sheet DD3.

### 3.2.1 Dublin North East - Proposed Cycle Route Network

The proposed cycle route hierarchy is shown on Maps N2 and N3 in Part 8.

#### Radial Routes in the Dublin North East Sector

There is one primary radial cycle route that links this sector to the city centre, with five branches or variants, as follows:

**Route 1:** Beresford Place to Fairview via Amiens Street and North Strand;

**Route 1A** to Howth along the coast, with a branch at Sutton to Baldoyle and onward to Portmarnock and Malahide in the Fingal suburban area;

**Route 1B** along the Howth Road to Raheny and Donaghmede;

**Route 1C** along the Malahide Road to Balgriffin;

**Route 1D** provides an alternative link to the northern part of the city centre from Fairview via Ballybough and Summerhill to Parnell Square; and

**Route 1E** branches off Route 1A at Clontarf Road and provides an alternative link to the Docklands area via East Wall.

Peak period cyclist volumes along these radial routes range from a high of 760 on Route 1 at North Strand to fewer than 100 on the coastal Route 1A north of Clontarf. On the basis of the existing cycle traffic volumes, the primary radial routes in this sector are Routes 1, 1B and 1C. The other radials are classified as secondary routes.



Route 1 - North Strand

#### Links from the Dublin North East Sector to Satellite Towns

The identified radial routes extend out from the city centre as far as the northern edge of the existing city urban area at Baldoyle, Clongriffin and Balgriffin. Further north there is a wide green-belt under the flight path for Dublin Airport that separates the city area from the satellite towns of Portmarnock and Malahide. At the narrowest point, the separation distance is 2km between Baldoyle and Portmarnock. Along the Malahide Road the separation increases to over 4km between the urban areas. For cyclist commuters the overall distance from Malahide to the city is about 15km, which is too far to attract many

to cycle the entire route. This is reflected in low numbers of cyclists on the R107 Malahide Road, or the R106 coast road from Portmarnock.

Provision of a cycling facility along the rural section of the Malahide Road, which is a winding and narrow road that carries significant traffic, would be hard to justify on the basis of the current low number of users. A more suitable route for linking Malahide to the city is via Portmarnock and the coast, where the rural section is only half the length, (even if this is 3km or 20% longer). The coastal route would double up with a recreational function giving access to the open sea and to Howth, which is a major destination in the region. It would also coincide with the National Cycle Network East Coast Trail route linking to the string of towns further north in Fingal, including Donabate, Rush, Skerries, Balbriggan and the next major town of Drogheda in Louth.

#### Orbital Routes in the Dublin North East Sector

Five orbital routes in this sector provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining North Central sector:

**Route NO1:** North Circular Route at the outer edge of the city centre, from Route 1 at Five Lamps westwards to Phibsborough and eastwards to the Docklands;

**Route NO2:** Tolka Valley route from Route 1D at Ballybough to Drumcondra, Glasnevin and Finglas South;

**Route NO3** from Route 1A at Clontarf to Griffith Avenue via Hollybrook Road and Copeland Avenue;

**Route NO4** along Seafield Road and Castle Avenue from the coast at Clontarf and Dollymount to Killester and along Collins Avenue to Donnycarney; and

**Route NO5** from the coast at Kilbarrack to Donaghmede and Coolock.

Peak period cyclist volumes along these orbital routes vary considerably, from a high of over 500 on the Docklands section of Route NO1, to fewer than 100 on the orbital routes further out from the city centre. Routes NO1 and NO3 are important in sections for access to major destinations such as the Mater Hospital, Dublin City University and Beaumont Hospital.

Few greenways exist at present in this sector apart from the major amenity of the coastal promenades at Clontarf and Kilbarrack. There is considerable potential to develop new or extended greenways along natural corridors such as the coastline, the Royal Canal, the River Tolka and the Santry River, and within large public parks such as Saint Anne's Park in Raheny. More greenways would provide attractive public amenities to encourage more recreational cycling as a stepping stone towards everyday utility cycling for children and new adult cyclists. Such greenways can also provide for partial routing of commuter cycling trips along routes that are more enjoyable away from the busy arterial roads.

### 3.2.2 Dublin North East - Cycle Route Network Additions

From a gap analysis along cyclist desire lines as defined by the cycle network maps, it becomes clear where there is a need for new cycling facilities.

In the Dublin North East sector the following is where new cycling facilities are required to complete the cycle route network at Primary and Secondary Route levels:

- Radial Route 1A** extension through Sutton Cross towards Howth in a loop and through Baldoyle to Portmarnock;
- Radial Route 1B** along Raheny Road and Grange Road between Raheny and Clongriffin through Donaghmede;
- Radial Route 1D** from Fairview to Ballybough and Summerhill;

- (d) Orbital Route NO2 along the River Tolka / Richmond Road from Fairview to Drumcondra;
- (e) Orbital Route NO3 along Hollybrook Road and Copeland Avenue, which are residential roads with some traffic calming, so cycle lanes are not necessary;
- (f) Orbital Route NO4 along Seafield Road, Castle Avenue and Collins Avenue; and
- (g) Orbital Route NO5 along Tonlegee Road from Kilbarrack to Coolock and Oscar Traynor Road from Coolock to Kilmore at Northside Shopping Centre and onward to Santry.

### Greenways in the Dublin North East Sector

The following greenway routes are proposed in the Dublin City North East Sector so as to avail of the natural corridors for a mix of amenity and commuter cycling:

- (a) **East Coast Trail** from Fairview to Howth, incorporating the Sutton to Sandycove proposal at north Dublin Bay;
- (b) **Royal Canal Greenway** from Sheriff Street in the Docklands to Drumcondra Road past Croke Park stadium (partly in place west of North Strand);
- (c) **River Tolka Greenway** from Fairview to Drumcondra, subject to a feasibility study, and possibly using Richmond Road where the river banks are developed;
- (d) **Santry River Greenway** from Dollymount through Raheny to Santry via a series of public parks and open spaces; and
- (e) Various local greenways within large public parks such as Saint Anne's Park in Raheny and Edenmore Park, similar to the new cycle track loop within Father Collins Park in Clongriffin.



Route 1A - Coastal Cycleway at Bull Island

### Enhanced Permeability for Cyclists in the Dublin North East Sector

The existing cycle network maps have identified where cyclists can permeate through blocks within the road network by using quiet streets and roads that do not require cycling facilities due to the low volumes and speed of traffic. Such permeability is enhanced in various locations by laneways that provide shortcuts that cannot be used by motor traffic. There are places along the DART railway line where pedestrian and cyclist underpasses or bridges provide additional route possibilities for cyclists to avoid the main road system. Examples are the underpass at Bayside Station, and the footbridge with spiral ramps at Kilbarrack Station.

Such permeability requires local knowledge and, as a result, cyclists are unlikely to be aware of these routes outside their own neighbourhood. Little investment would be required to capitalise on this latent network to greatly expand the route choices available for cyclists. A system of cycling direction signs

would make cyclists aware of the quiet alternative routes that are available. In the Dublin North East sector there are directions signs to several DART stations that are not on main roads, such as Killester, Harmonstown, Kilbarrack and Bayside. These signs provide clues to cyclists that it should be possible to find a through-route beyond the station. Supplementary cycle route signs could be added to formalise these routes, such as from Baldoyle to Kilbarrack via Bayside Station or Raheny to Coolock via Harmonstown Station.

In addition, there are potential new links that could be developed between adjoining areas which are cut off from each other. One example would be from Clare Hall to Grangemore and Donaghmede. Local network studies are required to assess the scope for enhanced permeability links within local districts.

It is acknowledged that local residents may not be keen about new links through their areas for fear of anti-social behaviour or security risks. Careful selection of where to introduce new links can ensure passive surveillance and avoid secluded blind-spots which might facilitate crime.

### Bike & Ride to the DART Railway Line in the Dublin North East Sector

The catchment area of the DART Railway line can be greatly expanded from a 1km walking distance to a 3km cycling distance by the active promotion of high quality Bike & Ride facilities. There is some cycle parking provided at the DART stations in the North East sector with access routes of varying quality from the surrounding areas. A good example is at Clongriffin Station, where there are cycle tracks on the approaches from both east and west and a large amount of cycle parking provided. On the other hand, at Howth Junction Station there is no formal cycle route from the Donaghmede side to the station. There is potential to provide a high-quality cycleway to the station from the west via a corridor of green open spaces that runs parallel to Saint Donagh's Road to Grange Road and beyond to the Millbrook area. The cycle parking at the station is limited in capacity (only 6 racks) and requires a shelter, as well as possibly better security. At all locations, cycle parking quantum and security will need to be assessed.

The cycle route network maps have identified cycle routes to all DART stations in this sector. Most of these routes are along suitable quiet roads and do not require cycling facilities. A promotional campaign and an upgrade of the cycle parking facilities could encourage better use for multi-modal trips. The recent change in operational rules that allows bicycles on trains at off-peak times facilitates recreational trips using the train service to reach farther areas.

### 3.2.3 Dublin North East - Existing Quality of Service

Map Sheets 2 & 3 in Volume 2 illustrate the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin North East sector. The QoS is generally in the range of C and D on most existing routes where the cycling facility consists of advisory cycle lanes of minimum width or shared bus lanes, while the seaside promenade at Clontarf and Kilbarrack has a higher quality segregated facility. Significant upgrade work is required to achieve the desirable QoS of A or B on the primary cycle routes in this sector.



### 3.3. Dublin North Central Sector

The Dublin North Central Sector extends between the Malahide Road to the east, the M50 motorway to the north, Finglas to the west and the North Circular Road to the South. Refer to Map E3 in Part 6 for illustration of the existing cycle routes in this sector, with the existing cycle traffic flows shown on Map DD1 in Volume Part 7.

#### 3.3.1 Dublin North Central - Proposed Cycle Route Network

The proposed cycle route hierarchy is shown on Map N3 in Part 8.

##### Radial Routes in Dublin North Central

There are two primary radial cycle routes that connect this sector with the city centre, with branches or variants, as follows:

Route 2: O'Connell Street to Drumcondra Road via Jones's Road;

Route 2A to Swords via Drumcondra, Whitehall and Santry;

Route 2B Clonliffe Road to Beaumont Hospital via a new bridge over the River Tolka to Richmond Road, Grace Park Road and Beaumont Road; and

Route 2C along Dorset Street and Bolton Street to Smithfield;

Route 3: Parnell Square to Phibsborough via Royal Canal Bank;

Route 3A via Botanic Road, St. Mobhi Road and the Ballymun Road to Glasnevin and Ballymun; and

Route 3B along the Finglas Road, to Glasnevin, Finglas and Charlestown via Finglas Village, McKee Avenue and St. Margaret's Road.

The cycle model indicates that existing morning peak cycling demand along these routes ranges from a high in the region of 500 inbound cyclists on Route 2 at Drumcondra Road to fewer than 100 inbound cyclists on Route 2B north of Richmond Road, Route 3A in Ballymun and Route 3B in Finglas.

##### Links to the Airport and Satellite Towns in Dublin North Central

The identified radial routes extend out from the city centre as far as the northern edge of the existing city urban area at Clonshaugh, Santry, Ballymun and Finglas. Further north there are rural areas and a green-belt surrounding Dublin Airport that separates the city area from the large satellite town of Swords. The distance from the centre of Santry to the Airport is approximately 4km, with a further 3.5km to Swords Village. The overall commuting distance from Swords to the city centre (O'Connell Bridge) is approximately 13.5km. Notwithstanding this distance, there are reasonable levels of cycling demand along primary Route 2A on the R132 Swords Road between Swords and Santry.

North of Finglas the R135 (former N2) Slane Road extends to the satellite town of Ashbourne at a distance of 13km from the edge of the city at the M50 crossing. Since the M2 motorway was developed there is a lot less traffic along the R135 North Road and it is more suitable for cycling than previously, and there are hard shoulders available for much of the way. There is a segregated cycle bridge through the M50 Junction 5 towards Finglas, but there is a gap in the cycling facilities south of the Charlestown Junction.

Another rural route, a short way east of the R135, is the R122 route to the small village of St. Margaret's at a distance of 3km from the M50. This is also a back road around the western side of the Airport to Swords at a further distance of 4.5km. These roads are very busy with traffic and are not suitable for cycling unless a cycle track is developed to link from the city to the quieter local roads north of St. Margaret's. A large fruit and vegetable processing centre north of the Airport attracts a fair number of staff from the city direction for whom a safe cycle route would be beneficial.

##### Orbital Routes in Dublin North Central

Four orbital routes in this sector provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining North Central sector:

Route NO2: Tolka Valley route from Route 1D at Ballybough to Drumcondra, Glasnevin and Finglas South;

Route NO3: Griffith Avenue extending to Copeland Avenue to the east and Tolka Valley Road to the west;

Route NO4: along Collins Avenue from the coast at Clontarf via Killester, Donnycarney, Dublin City University, Ballymun and Finglas Village; and

Route NO5: from the coast at Kilbarrack to Donaghmede, Coolock, Santry and Finglas.

Peak period cyclist volumes along these orbital routes vary with fewer than 100 on the orbital routes further out from the city centre. Despite having low existing cycle volumes, Routes NO4 is important for access to several urban village centres and to the major destination of Dublin City University. The other orbital routes are classified as Secondary Routes.

##### Existing Greenways in Dublin North Central

The only greenway at present in this sector is the recently opened Tolka Valley Greenway from the Finglas Road to Ratoath Road and Ashtown beyond the western boundary of the sector.

#### 3.3.2 Dublin North Central - Cycle Route Network Additions

Proposals for additions to the cycle network were derived from a gap analysis along cyclist desire lines informed by the cycle demand model and the existing cycle network maps presented. In the Dublin North Central sector, new cycling facilities are required to complete the cycle route network at Primary and Secondary Route levels in the following locations:

- (a) Radial Route 2B from Clonliffe Road, through Holy Cross College over the River Tolka on a new bridge, to Richmond Road and along Grace Park Road to Collins Avenue and Beaumont Road with a feeder route from (and ideally through) Beaumont Hospital;
- (b) Radial Route 3B extension northward from Finglas Village along St. Margaret's Road from Finglas Road to Charlestown;
- (c) Radial Route 3C: new route directly from Dublin City University to the city mid-way between the Swords Road and Ballymun Road. This route would either connect to Drumcondra Road Lower, or could possibly continue to the Mater Hospital with a number of difficult railway and canal bridge crossings;
- (d) Radial Route 3D: new route through Ballymun West / Finglas East to join up with the possible *Broadstone Greenway* described later;
- (e) Orbital Route NO2 along the River Tolka with short sections on Richmond Road and Botanic Avenue;
- (f) Orbital Route NO3 along Griffith Avenue from Philipsburgh Avenue to Finglas Road;
- (g) Orbital Route NO4 along Castle Avenue and Seafield Road on Collins Avenue from Killester to Whitehall and on Glasnevin Avenue from Ballymun Road to Finglas Road; and
- (h) Orbital Route NO5 from Donaghmede to Ballymun on Kilbarrack Road, Tonleagee Road, Oscar Traynor Road, Coolock Lane and Santry Avenue.

### New Greenways in Dublin North Central

The following new greenway routes are proposed in the Dublin North Central Sector so as to avail of the natural corridors for a mix of amenity and commuter cycling:

- (a) **Royal Canal Greenway** from Croke Park stadium to Shandon in Phibsborough. This route is already paved and suitable for cycling but with some difficult road crossings;
- (b) **River Tolka Greenway** from Drumcondra to Tolka Valley Park via Griffith Park and National Botanic Gardens;
- (c) **Broadstone Greenway (potential route subject to feasibility study)** from north of the River Tolka Greenway at Glasnevin heading southward between the western edge of the National Botanic Gardens and Glasnevin Cemetery to cross the Finglas Road Primary Radial Route 3B. This section is feasible by following internal roads along the perimeter of the cemetery. It may then be feasible to continue southward via Prospect Cemetery extension with a new bridge (with difficult levels to be resolved) over the Maynooth Railway Line to the Royal Canal Greenway opposite Shandon Park. From there it would be more straightforward to provide a bridge over the Royal Canal to Shandon Park and then to follow the proposed new Luas tram line to Broadstone and the new DIT campus at Grangegorman. From Faussagh Road southward to Cabra Road, North Circular Road and onward for a short distance, the old railway line is in a cutting until it reaches ground level near Broadstone. On this section the cycleway would be supported on a structure along the lip of the railway cutting. This route will link directly to the new Dublin Institute of Technology campus at Grangegorman. It will also provide an alternative to primary Routes 3A and 3B with a bypass to the west of busy Phibsborough Village;
- (d) **Santry River Greenway** from the back of Northside Shopping Centre to Northwood at Santry via a series of public parks and open spaces; and
- (e) Various local greenways within public parks such as Albert College Park on the Ballymun Road, Johnstown Park in Finglas East, Ellenfield Park in Whitehall and Santry Demesne.

### Enhanced Permeability for Cyclists in Dublin North Central

The proposed cycle network maps show where cyclists can permeate through blocks within the road network by using quiet streets and roads that do not require cycling facilities due to the low volumes and speed of traffic. Such permeability is enhanced in various locations by laneways that provide shortcuts that cannot be used by motor traffic. This requires local knowledge and, as a result, many cyclists are unlikely to be aware of these routes outside their own neighbourhood. Little investment would be required to capitalise on this latent network to greatly expand the route choices available for cyclists. A system of cycling direction signs would make cyclists aware of the quiet alternative routes that are available.

There are potential new links that could be developed between adjoining areas which are cut off from each other. The proposed cycle network map suggests a number of these new links at the following locations:

- Clearwater to Poppintree via Jamestown Road;
- Cremore to Poppintree via Ballygall Road East and Willow Park Road;
- Ballygall to Beaumont via St. Canice's Road, Albert College Park, DCU, Larkhill and Shantalla Road;
- Clonshaugh to Beaumont via Lorcan Avenue and Shantalla Road;
- Santry to Northern Cross Business Park via Shangan Road, Balbutcher Lane, Poppintree and the new Charlestown link road; and
- Plunkett College to Ballygall via Hillside Farm, Hampstead Avenue and St. Canice's Road.

It is acknowledged that local residents may not be keen about new links through their areas for fear of anti-social behaviour or security risks. Careful selection of where to introduce new links can ensure passive surveillance and avoid secluded blind-spots which might facilitate crime.

### Bike & Ride to the Maynooth Commuter Railway Line

The railway stations in the Dublin North Central area are at Drumcondra and Broombridge in the south of the sector. There is minimal cycle parking provided at Drumcondra station where street space is limited. The station is well connected by existing cycle Radial Route 2 (Drumcondra Road) and the opportunity to improve the cycle parking at the station should be explored to provide additional capacity, a shelter and improved security. At Broombridge there will be an interchange with the proposed Luas Cross City tram line and this should attract more cyclists from the residential areas of Finglas to the north and Cabra to the south, for whom there should be a substantial and secure cycle parking area. At all locations, cycle parking quantum and security will need to be assessed.

### 3.3.3 Dublin North Central - Existing Quality of Service

Map Sheet 2 in Volume 2 illustrates the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin North Central sector. The QoS typically is in the range of C and D on most existing routes where the cycling facility consists of advisory cycle lanes of minimum width or shared bus lanes.



### 3.4. Dublin North West Sector

The Dublin North West Sector extends from Finglas and Phibsborough in the east, to the Fingal-Meath County boundary to the north and west and to the River Liffey to the south. Refer to Maps E1, E3 and E4 in Part 6 for the existing cycle routes in this sector, with the cycle traffic flows shown on Sheet DD2 in Part 7.

#### 3.4.1 Dublin North West - Proposed Cycle Route Network

The proposed cycle route hierarchy is shown on Maps N1, N3 and N4 in 8.

##### Radial Routes in Dublin North West

There are two primary radial cycle routes that connect this sector with the city centre, with branches or variants, as follows:

**Route 4:** City Centre to Navan Road via Grangegorman, Prussia Street, North Circular Road at Hanlon's Corner and Old Cabra Road;

Route 4A to Ashtown along the Navan Road; and

Route 4B to Finglas West via Ratoath Road.

**Route 5:** Liffey Quays and Phoenix Park to Blanchardstown, with a secondary route extension westward through Littlepace to the county boundary at Clonee; and

Route 5A branch from Phoenix Park via White's Road and Carpenterstown to Blanchardstown from Coolmine.

##### Links to Satellite Towns in Dublin North West

The radial routes extend out from the city centre as far as the north-western edge of the urban area at Tyrellstown and Ongar. The satellite town of Dunboyne is located 3km northwest from the Fingal County boundary, via Clonee Village. The overall commuting distance from Dunboyne to the city centre (O'Connell Bridge) is approximately 17.5km and this is reflected in the low cycling numbers from Dunboyne to the city. However, there is a reasonable demand for cycling trips between Dunboyne and the employment areas surrounding Blanchardstown. Therefore a cycle link is warranted between Blanchardstown and Dunboyne (via Clonee). This route would continue northward from Dunboyne to the cluster of towns in south Meath of Dunshaughlin, Ratoath and Ashbourne.

##### Orbital Routes in Dublin North West

Three orbital routes in this sector could provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining North Central and West sectors:

**Route NO2:** From Glasnevin and Finglas via Ashtown along the Royal Canal Greenway to Blanchardstown;

**Route NO5:** Finglas West to Blanchardstown via Ratoath Road, Cappagh Road, Ballycoolin Road, and Snugborough Road. Two variants are available, either into the town centre of Blanchardstown, or skirting it on the eastern side. This route then continues southward via Porterstown to cross the River Liffey Valley and connect to Lucan via a new greenway link and bridge over the river about 1km west of the high-level M50 West Link bridge; and

**Route NO6:** From Ashtown on the River Tolka and Royal Canal Greenways southward to the Grand Canal Greenway via Ashtown Road, Phoenix Park and a new bridge over the River Liffey to the War Memorial Park in Kilmainham. This loop would form an inner city greenway loop leading around to the coast in the Docklands.

##### Existing Greenways in Dublin North West

The only formal greenway at present in this sector is the new Tolka Valley greenway from the Finglas Road to Ashtown on the eastern boundary of the sector. There are plans to upgrade the existing

walkways along the Royal Canal to include for cyclists, although the route is already in such use on an informal basis from the city out as far as the 12th Lock in Blanchardstown.

#### 3.4.2 Dublin North West - Cycle Route Network Additions

Proposals for additions to the cycle network were derived from a gap analysis along cyclist desire lines informed by the cycle demand model and the existing cycle network maps compared to the proposed cycle route network shown on Maps N1, N3 and N4.

In the Dublin North West sector, new cycling facilities are required to complete the cycle route network at Primary and Secondary Route levels in the following locations:

- Radial Route 4B** along Ratoath Road from Navan Road to Tolka Valley Road;
- Radial Route 5** along Castleknock Road from Phoenix Park to Blanchardstown;
- Radial Route 5A** from White's Road to Carpenterstown;
- Orbital Route NO5** along Cappagh Road to Finglas; and
- Orbital Route NO6** along Ashtown Road from River Road to Phoenix Park.

##### New Greenways in Dublin North West

The following new greenway routes are proposed in the Dublin North West Sector so as to avail of the natural corridors for a mix of amenity and commuter cycling:

- Royal Canal Greenway** from the city centre via Cabra, Ashtown, Casleknock, Coolmine and Clonsilla;
- River Tolka Greenway** connection from the Royal Canal east of the M50 to Damastown via Waterville Park and Castle Curragh Park; and
- Western Canals Loop Link** a largely greenway route from the Royal Canal at Leixlip to the Grand Canal at Adamstown via Lucan Village.

##### Enhanced Permeability for Cyclists in Dublin North West

In the North West sector, the layout of the urban and residential streets generally provides good permeability for cycling away from the main road network as shown on Map N4. This feeder network can be enhanced by new short greenway links through public parks and green areas to complete links between residential areas and local centres.

##### Bike & Ride to Railway Lines in Dublin North West

There are several stations in the Dublin North West Sector, at Ashtown, Navan Road Parkway, Castleknock, Coolmine and Clonsilla on the Maynooth line, and at Hansfield and Dunboyne on the new Navan Line branch from Clonsilla. There is some cycle parking provided at the rail stations in the sector with cycle access routes of varying quality from the surrounding areas. As the local cycle network is developed, this should lead to more Bike & Ride to these stations, which is likely to generate more demand for cycle parking that should be monitored and responded to. At all locations, cycle parking quantum and security will need to be assessed.

#### 3.4.3 Dublin North West - Existing Quality of Service

Map Sheets 1, 3 and 4 in Volume 2 illustrate the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin North West sector. Separate maps are provided for each of the 5 criteria and the overall combined QoS rating as described in Chapter 3. The QoS ranges from B to D on most existing routes in the sector with some good quality existing segregated facilities in places and other facilities comprising shared use with bus lanes.

### 3.5. Dublin West Sector

The Dublin West Sector extends southward from the N4 and River Liffey, to a line south of the N7 and the Ballymount and Walkinstown areas. Refer to Maps E1 and E5 in Part 6 for illustration of the existing cycle routes in this sector, with the existing cycle traffic flows shown on Map DD2 in Part 7.

#### 3.5.1 Dublin West - Proposed Cycle Route Network

The cycle route hierarchy is shown on Maps N1 and N5 in Part 8.

##### Radial Routes in the Dublin West Sector

There are two primary radial cycle route that links this sector to the city centre, with branches or variants, as follows:

**Route 6:** From Route 5 at Parkgate Street to Lexlip via Chapelizod, Palmerstown and Lucan along the N4 dual carriageway; and

Route 6A from Heuston Station to Ballyfermot along St. John's Road.

**Route 7:** Christchurch - Thomas Street - Pimlico;

Route 7A: Bridgefoot Street to Lucan South via Kilmainham, Inchicore, Ballyfermot and Liffey Valley shopping centre. Variant via Heuston Station and St. John's Road West, or through the Royal Hospital;

Route 7B: Pimlico to Rialto, Clondalkin, Adamstown via Grand Canal;

Route 7C: *Camac River Greenway* branch from the Grand Canal through Clondalkin Village to Corkagh Park and City West;

Route 7D: Inchicore - Naas Road- new bridge over M50 north of Red Cow - Clondalkin - Kingswood; and

Route 7E: Cross link from Route 8A at Walkinstown to Clondalkin via Ballymount and with a new bridge over the M50 south of Red Cow.

**Route 8C:** Cross-links to Ballymount and Crumlin in the South West sector via Nangor Road and Long Mile Road through Park West to Lucan South, with spur 8C1 to Route 7A at Palmerstown and Spur 8C2 to Grange Castle.

Peak period cyclist volumes along these radial routes range from a high of 280 on Route 7 along Thomas Street/James's Street to a low of 50 on the Coldcut Road south of Liffey Valley on Route 7A. On the basis of the existing cycle traffic volumes, the primary radial routes in this sector are Routes 6, 7/7B. The other radials are classified as secondary routes.

##### Links from the Dublin West Sector to Kildare Towns

The identified radial routes extend from the city centre as far as Lucan, Adamstown and Clondalkin. The towns of Lexlip, Celbridge and Maynooth are located further west and are satellite towns to the metropolitan area. The N4 provides segregated cycle tracks as far as N4 Junction 5 at Lexlip East. The route links up with Lexlip via Saint Catherine's Park with a bridge of the River Liffey at the sewage treatment works. The Grand Canal Route currently extends as far west as the 12th lock at Lucan and has the potential to be extended further to connect with Celbridge, Sallins and Naas. This could ultimately form the national route to Cork as referenced in the National Cycle Network Scoping Report.

##### Existing Greenways in Dublin West

The main greenway in Dublin West is the Grand Canal Greenway that extends for nearly 10km from Kilmainham to Adamstown. There is a greenway link northward from the canal at Adamstown to Lucan through the Griffeen Valley Park (this currently has difficult kissing gates at several locations).

##### Orbital Routes in the Dublin West Sector

Four orbital routes in this sector provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining North West and South West sectors:

**Route NO6:** an extension from the Phoenix Park north of the Liffey to the Grand Canal at Goldenbridge via Richmond Park football stadium in Inchicore;

**Route SO4:** Chapelizod to Blackrock (Chapelizod to Walkinstown in this sector);

**Route SO5:** from Liffey Valley Shopping Centre southward Fonthill Road and Ninth Lock Road to Clondalkin Village and Tallaght (with a parallel variant SO5a along Neilstown Road and Fonthill Road west of Clondalkin Village). A northward link will extend across the River Liffey to Blanchardstown;

**Route SO6:** Lucan (Esker) - Grange Castle - Kingswood - Jobstown along the R136; and

**Route SO7:** Lucan - Newcastle Road to Grange Castle and Nangor Road. (Continuation to Newcastle along rural route D6.)

Cyclist volumes along these orbital routes are currently quite low with fewer than 100 during the peak periods, but the routes warrant categorisation as Secondary Orbital routes because of their importance for access to major destinations such as the various town centres and the Ballymount employment zone.

#### 3.5.2 Dublin West - Proposals for Cycle Route Network Additions

In the Dublin West sector new cycling facilities are required to complete the cycle route network at Primary and Secondary Route levels at the following locations:

- Radial Route 6 along Palmerstown Village, Stewart's Hospital, and through Chapelizod Village;
- Radial Route 7: Bridgefoot Street, Oliver Bond Street and Cook Street;
- Radial Route 7A: Kilmainham Road and Sarsfield Road;
- Radial Route 7B: Marrowbone Lane and James's Walk;
- Orbital Route SO4: Chapelizod Hill Road and Kylemore Road; and
- Orbital Route SO5: Liffey Valley Shopping Centre to Newland's Cross via Clondalkin Village.

##### New Greenways in Dublin West

The following new greenway routes are proposed in the Dublin West Sector so as to avail of the natural corridors for a mix of amenity and commuter cycling:

- Chapelizod to Heuston Greenway** from Chapelizod village and Heuston station via the War Memorial Gardens with a link via Orbital Route NO6 across the river to the Phoenix Park. This greenway would significantly improve the offer for cyclists who might currently be travelling along Route 6 and Route 7A;
- River Camac Greenway** in two separate sections, west of Clondalkin (mostly developed in 2013) and at Drimnagh / Inchicore;
- Western Canals Loop Link**, a largely greenway route linking the Grand Canal at Adamstown to the Royal Canal at Lexlip via Griffeen Valley Park, Lucan Village and the Liffey Valley Park / St. Catherine's Park to enable a 40km long greenway route around the city; and
- Western Parkway** cycle route parallel to the M50 ring motorway through open green spaces to provide a link from the Grand Canal to the River Dodder. (Alternative to Orbital Route SO5.)

##### Enhanced Permeability for Cyclists in Dublin West

The existing cycle network maps have identified where cyclists can permeate through blocks within the road network by using quiet streets and roads that do not require cycling facilities due to the low



volumes and speed of traffic. Such permeability is enhanced in various locations by laneways that provide shortcuts that cannot be used by motor traffic. Examples include the access road to Gaelscoil Naomh Padraig and Colaiste Cois Life which, via Esker Manor Road, would provide a useful shortcut for access to Griffeen Valley and ultimately the Grand Canal Route.

Such permeability requires local knowledge and, as a result, cyclists are unlikely to be aware of these routes outside their own neighbourhood. Little investment would be required to capitalise on this latent network to greatly expand the route choices available for cyclists. A system of cycling direction signs would make cyclists aware of the quiet alternative routes that are available. In the Dublin West sector there is very limited cycle directional signage.

### **3.5.3 Dublin West - Existing Quality of Service**

Maps 1 and 5 in Volume 2 illustrate the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin West sector. The QoS typically is in the range of C and D on most existing routes where the cycling facility consists of advisory cycle lanes of minimum width or shared bus lanes. The two exceptions are the Grand Canal route which is a higher quality segregated facility with a QoS of A in sections and the Grange Castle Road which achieves a B rating in large sections.

### 3.6. Dublin South West Sector

The Dublin South West Sector extends outward from the twin corridors of Camden Street and Clanbrassil Street in the city centre, through the inner suburbs of Rathmines and Harold's Cross, to serve the areas of Terenure, Kimmage, Walkinstown, Tallaght, Firhouse and Rathfarnham. There is considerable overlap between the West and South West sectors, with interconnecting routes between the two. Some radial cycle routes originate in one sector at the city centre but end up in the neighbouring sector.

Refer to Maps E1, E6 and E7 in Part 6 for illustration of the existing main cycle routes in this sector. The existing cycle traffic flows in this sector are shown on Map DD3 in Part 7.

#### 3.6.1 Dublin South West - Proposed Cycle Route Network

The cycle route hierarchy is shown on Maps N1, N6 & N7 in Part 8.

##### Radial Routes in the Dublin South West Sector

Due to the peculiarities of the general road network in this sector, which lacks high capacity main traffic arteries unlike most of the rest of the city, the cycle route network is quite complex. The main cycle routes in this sector form a web of criss-crossing routes, with various spurs and cross links, as follows:

Route 8 from South Great George's Street via the Coombe area and Dolphin's Barn to the junction of Crumlin Road and Sundrive Road (Route SO2);

Route 8A follows Crumlin Road past the Children's Hospital, Bunting Road to Walkinstown, through Ballymount to cross the M50 and out to Citywest / Fortunestown via Belgard;

Route 8B branches off Route 8A midway along Crumlin Road at Windmill Road and follows a slightly meandering route mainly along minor residential streets through Crumlin Cross and Greenhills to Tymon Park and onward to Tallaght via the outer end of the Greenhills Road. It is a much better alternative to the existing route via the very busy and intimidating Walkinstown Roundabout and the narrow section of Greenhills Road along the edge of the Ballymount industrial area; and

Route 8C from Donore Avenue south of Cork Street via Clogher Road and Kildare Road through the heart of the Crumlin residential district to Our Lady's Children's Hospital on Crumlin Road where it crosses Route 8A; then along Drimnagh Road and Long Mile Road to cross the Naas Road (at a very difficult junction), and then via Nangor Road to the Park West area, with two branches towards Palmerstown to the north and to outer Clondalkin further west

Route 9 towards Tallaght along Clanbrassil Street and through Harold's Cross, where it branches into two main spurs;

Route 9A follows Kimmage Road to the Kimmage Cross Roads (KCR), then Fortfield Road and Wainsfort Road to join the N81 Templeogue Road and onward out to Tallaght town centre. (The section of this route through Kimmage and Harold's Cross is poor for cyclists with minimal and part-time advisory cycle lanes. There is no scope for improvement due to the narrowness of the road and close proximity of buildings. A better alternative is available via the proposed *River Poddle Greenway* as described later, which follows closely parallel to the west of the road. West of the KCR the route improves considerably for cyclists with better cycle lanes or cycle tracks);

Route 9B splits from Route 9A at Harold's Cross and follows Terenure Road through Terenure Cross and then Templeogue Road through Templeogue Village to re-join Route 9A at Templeogue Bridge. Provides inter-connection with Route 10 towards the southeast city centre via Rathmines;

Route 9C is an alternative to the Harold's Cross route from Route 8C at Clogher Road via Stannaway Road west of Kimmage and then along Wellington Lane to join Route 9A at Spawell

to connect to Tallaght. It also provides a continuation from Route 9A west of Tallaght via Fortunestown and Citywest to Saggart;

Route 9D would provide a traffic-free option branching off Route 9A at Kimmage Cross Roads and following the *River Poddle Greenway* to Tymon Park where a new bridge is required over the M50 in the centre of the park to connect with Castletymon Road and rejoin Route 9A. West of Tallaght it provides a loop through Jobstown along the N81 and then northward into Citywest; and

Route 7E is a cross-link from the West sector into the South West sector. It branches off Route 7D on the Naas Road at Kylemore and follows Robinhood Road through the Ballymount industrial area to cross the M50 at Junction 10 and then outward through the areas of Kingswood, Belgard, Cookstown, Fettercairn and Cheeverstown at the northern edge of the Tallaght suburbs.

Route 10 from Camden Street through Rathmines, Rathgar and Terenure to Rathfarnham, where it splits into several branches. South of Rathfarnham there are 3 branch routes that extend southward through the surrounding suburban area to connect with Orbital Route SO6 along Grange Road and Taylor's Lane;

Route 10A turns south-westward along Butterfield Avenue and runs parallel to the River Dodder to Firhouse and Oldcourt beside Old Bawn Bridge on Orbital Route SO6. Knocklyon Road and Ballycullen Road are local secondary routes that branch off southward at various points. There are also northward links across the River Dodder to Radial Route 9 at Spawell and Templeogue Bridge;

Route 10B follows Willbrook Road and Ballyboden Road southward;

Route 10C along Grange Road; and

Route 10D along Nutgrove Avenue for a short section and then turns south via Stonemason's way to Ballinteer.

Traffic data for the radial routes indicates peak period volumes ranging from about 800 cyclists on Route 10 at Rathmines Road, nearly 700 cyclists on Route 9 at Clanbrassil Street and 150 cyclists on both Route 8C at Clogher Road and Route 8A at Crumlin Road. Further out in the suburbs, the cycle traffic model indicates moderately strong demand of 200 to 400 cyclists on Routes 9 and 10 out to just beyond Rathfarnham and Templeogue. Otherwise there are fairly low flows in the range of 100 to 200 on the various secondary routes in the South West sector, and also on Primary Route 9 to Tallaght, which is about 10km from the edge of the city centre. There are likely to be more local trips on the various routes that are not reflected in the model.

##### Orbital Routes in the Dublin South West Sector

There are six orbital routes in this sector that provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining West and South Central sectors:

Route SO1: Grand Canal Route linking from Rialto eastwards via Harold's Cross Bridge and Portobello Bridge to the Dublin 2 and Docklands office district;

Route SO2: From Kilmainham in the northwest through Crumlin, Kimmage, Harold's Cross and Rathmines to Ranelagh and Ballsbridge via Sundrive Road, Kenilworth Road and Castlewood Avenue;

Route SO3: From Rathgar and Dartry to Milltown, Clonskeagh and Ballsbridge, mostly along the proposed *Dodder Valley Greenway*. This route links to UCD at Clonskeagh. Connection from Tallaght via Route 9A at Oldbridge Road in Templeogue;

Route SO4: from Dundrum, Churchtown and Nutgrove through Rathfarnham and Templeogue to Greenhills and Walkinstown;

Route SO5: Dundrum to Tallaght via Ballyboden and Knocklyon and Firhouse. It will require new permeability links between Nutgrove, Ballyboden and Templeogue. Otherwise the route could overlap with SO6 for a short section along Taylor's Lane; and



Route SO6: Dun Laoghaire to Tallaght via Ballycullen and Old Bawn.

### Other Secondary Cycle Routes in the Dublin South West Sector

In addition to the numbered radial and orbital cycle routes named above, there are also several other local secondary cycle routes that extend the network across the wide suburban area. Examples are Ballyroan Road in the Rathfarnham area, Knocklyon Road, Ballycullen Road, Kiltipper Road and Cookstown Road with a link to Fortunestown Way in the Tallaght area. Route numbers are not proposed for these routes as they are of local function only and do not form part of the long distance cycle routes that extend across the wider city area.

### Existing Permeability for Cyclists in the Dublin South West Sector

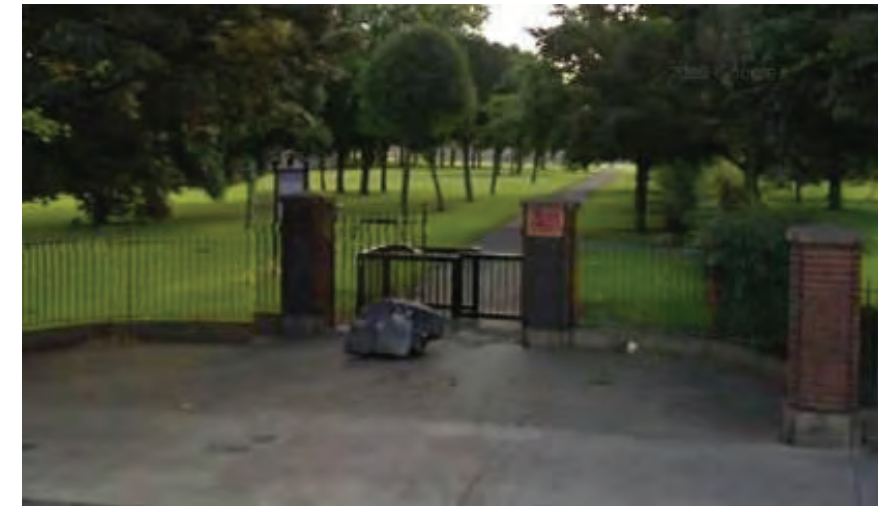
The cycle network maps N6 and N7 show where cyclists can permeate through blocks within the road network by using quiet streets and roads that do not require cycling facilities due to the low volume and speed of traffic. Most residential areas in the southwest are quite permeable with a dense network of local roads that provide many convenient route options for cyclists. This feature did give rise to some difficulties of inappropriate through traffic and traffic calming has been installed on many roads in areas such as Crumlin and Templeogue.

Where there are obstacles to permeability, there are several good examples of pedestrian and cycle links as follows:

- Cowper Link from Dartry to Sandford: This crosses the Luas Green line at the Cowper stop and follows quiet residential streets for form an orbital connection between the Dartry/Rathgar area at Highfield Road and Sandford Road in the southern part of Ranelagh;
- River Poddle crossing at Bangor Road: There is a footbridge that provides a link between the Crumlin area and Kimmage Road Lower;
- Templeogue Woods link to Templeogue Road and Cypress Grove Road; and
- In the outer areas of this sector, there are many open public green areas that enable walking and cycling links between housing estates. Good examples are in the areas of Cookstown and Fortunestown as shown on Map N6. Formal cycle tracks should be provided through these green areas with dished kerb accesses and toucan crossings of main roads such as shown in the following photograph.

### Existing Greenways in the Dublin South West Sector & Problems at Public Parks

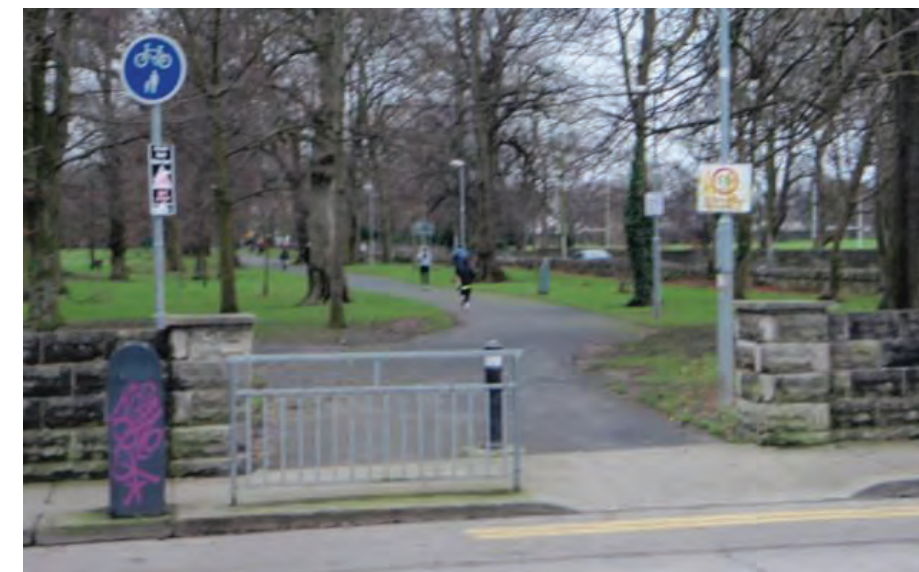
There are no formal greenways at present in the Dublin South West sector, although there is great scope to provide an extensive network of such traffic-free cycle routes through public parks and less formal open green spaces. South Dublin County Council has provided barriers at most entry points to certain parks in the county, which limits cyclists' access to an extensive network of parks with potential for pleasant and safe cycling away from traffic. The situation is similar in the older parts of this sector within the Dublin City Council area, such as at Eamonn Ceannt Park and Stannaway Park in Crumlin.



Route 9C: Barrier at Entrance to Eamonn Ceannt Park on Sundrive Road

The proposed cycle route network includes a suggested feeder cycle route along Stannaway Road and through Eamonn Ceannt Park to link to Secondary Radial Route 8C at Clogher Road. This would pass through the gate shown in the photo above.

A good example of cycle-friendly access is shown in the following photograph of the edge of Bushy Park alongside Templeogue Road where there is a formally designated shared footpath and cycleway.



Shared Walkway/Cycleway at Bushy Park, Templeogue Road, Terenure

### 3.6.2 Dublin South West - Proposals for Cycle Route Network Additions and Improvements

A cycle network study for the Tallaght area was previously prepared by South Dublin County Council (SDCC) in 2011. This study addressed the cycle access routes to the central county town of Tallaght and links towards Dublin City Centre. These proposals include the following key routes:

- (a) New cycle facilities along parts of Radial Cycle Route 9A from Templeogue to Tallaght, and the N81 Blessington Road dual carriageway adjoining westward to the R136 Cookstown Road junction;

- (b) Dodder Valley Greenway from Templeogue to Bohernabreena: a joint study (along with NTA, DCC and DLRCC) was completed in late 2012;
- (c) Wellington Lane cycle route from Spawell to Templeville Road at Greenhills (Route 9C);
- (d) Tallaght to Ballyboden cycle route along Old Bawn Road and via the Dodder Valley Park and Knocklyon with a new bridge across the River Dodder (Route SO5);
- (e) Upgrades to Orbital Cycle Route SO6 between Scholarstown and Old Bawn via the Ballycullen area;
- (f) Upgrades to Orbital Cycle Route SO5 along the Belgard Road between Tallaght and Clondalkin;
- (g) Upgrades to Greenhills Road, which forms part of Radial Cycle Route 8B from Tallaght towards the city centre via Tymon Park and Greenhills. North of the M50 bridge crossing Greenhills Road becomes very narrow and bendy with increasing frontage constraints nearer to Walkinstown. This section of road is proposed as a feeder route only, with a better through route 8B available to the south that avoids the very busy Walkinstown Roundabout;
- (h) Upgrades along Whitestown Way and Cookstown Way, a local Secondary Cycle Route that passes just west of Tallaght Town Centre;
- (i) Jobstown Stream Greenway from Sean Walsh Park on Old Bawn Road through the Killinarden area to Jobstown;
- (j) New cycle facilities and upgrades along the Route 9C at Fortunestown Way/Lane towards Saggart; and
- (k) Improvements on Orbital Route SO6 at Kingswood Interchange on the N7 Naas Road crossing (linking to Radial Routes 7C and 7D).

The current proposals by Dublin City Council for additional or improved cycle routes in this sector consist of the following:

- (a) Grand Canal Greenway extension westward from Portobello Bridge to Blackhorse;
- (b) New cycling facilities along Radial Cycle Route 8C from South Circular Road along Clogher Road and Kildare Road to Crumlin Hospital;
- (c) Improvements to cycle lanes along Bunting Road (Route 8A) from Crumlin Hospital to Walkinstown Roundabout;
- (d) New cycle facilities along Orbital Route SO4 from Walkinstown Roundabout to Kylemore and Ballyfermot;
- (e) Upgrades to Radial Cycle Route 9B along Harold's Cross Road, Terenure Road and Templeogue Road; and
- (f) Upgrades to Radial Cycle Route 10 along from Portobello Bridge on the Grand Canal along Rathmines Road and Rathgar Road to Terenure Cross.

#### Additional Cycle Route Network Proposals

A gap analysis has confirmed that the existing local authority proposals are quite comprehensive and there is limited need for significant additions to the proposed cycle network in this sector as follows:

- (a) Missing section of Radial Route 10A along Butterfield Avenue to Rathfarnham as an extension of the existing cycle tracks along Firhouse Road;
- (b) Radial Route 9D along the Blessington Road from Jobstown westwards to Citywest;
- (c) Radial Route 8A from Fortunestown to Walkinstown: Complete missing sections and upgrade this route that crosses the M50 at Junction 10, Ballymount, for access to the major employment area;
- (d) New traffic-free cycle crossing of the M50 on route 7E from Ballymount to Clondalkin and Belgard;

- (e) Radial Route 8B from Tallaght to Greenhills and Crumlin via Tymon Park (New radial route to bypass Walkinstown Roundabout);
- (f) Tallaght Town Centre Cycle Network; and
- (g) Local route permeability in Tallaght through large blocks of industrial estates:
  - (i) Mayberry Road Link to Broomhill Road, which connects to Airton Road, into the grounds of I.T. Tallaght and through to Tallaght Village centre;
  - (ii) Belgard through Cookstown Industrial Estate to Tallaght Hospital and onward to Tallaght Town Centre at Belgard Square North, plus an eastward spur to Airton Road via the Belgard Retail Park; and
  - (iii) Kingswood to Ballymount Link across the M50 on a new bridge.

#### New Greenways in Dublin South West Sector

The following new greenway routes are proposed in the Dublin South West Sector so as to avail of the natural corridors for a mix of amenity and commuter cycling:

- (a) **Dodder Valley way:** This major greenway will extend for a distance of 18km from the City Centre at the Docklands south-westwards to the Dublin Mountains at Bohernabreena.
- (b) **River Poddle way & Tymon Park Greenways**

Alternative for Radial Route 9A/9D that is severely constrained in the Harold's Cross and Kimmage areas due to the narrow road corridor. The river corridor is mostly open and accessible between Mount Argus in Harold's Cross and Tymon Park between Greenhills and Tallaght. At Tymon Park there are numerous possibilities for link routes into the surrounding residential areas, with crossings of the M50 on two existing footbridges and one new bridge.



*River Poddle at Kimmage Manor*

- (c) **Jobstown Stream Greenway:** along a tributary of the River Dodder just west of the M50 at Junction 11 and extending westwards for 5km through the southern part of the Tallaght areas of Killinarden and Jobstown to Fortunestown.
- (d) **Western Parkway Greenway:** Orbital greenway for cycling along the M50 motorway corridor from the Dodder Valley way at the southern end to the Grand Canal way at the northern end. This route would also provide a second connection between the Tallaght area and the Clondalkin area as an alternative to the busy traffic route of Belgard Road.

#### Bike & Ride to Public Transport Corridors in the Dublin South West Sector

The main radial public transport corridor in the western part of this sector is the Luas Red Line tram service that extends from the city centre to Tallaght, with a branch from Belgard westwards to Saggart.



This tram line runs generally parallel to Radial Cycle Routes 7B, 7D and 7E. There are a small number of cycle parking stands at each tram stop, but these lack shelter. Each tram stop is comfortably accessible by bicycle with cycle tracks along busy access routes, or quiet local roads to stops like Kingswood and Cookstown. At all locations, cycle parking quantum and security will need to be assessed.

In the eastern part of this sector, the main public transport services are bus routes through Terenure and Kimmage. Cycle parking is not provided at bus stops along these routes. Consideration should be given to provision of a few cycle parking stands at key stops along these routes close to intersections with designated main cycle routes.

### Rural Cycle Links from the Dublin South West Sector

#### National Cycle Network Routes in the Dublin South West Sector

Long-distance National Cycle Route No.9 will link Dublin to Cork and Waterford via Kilkenny as outlined in the National Cycle Network (NCN) Scoping Study published in 2010. While no formal route selection studies have yet been undertaken for this route, it is reasonable to assume that it may follow the Grand Canal towpath in the Dublin and north Kildare area because of the very high quality existing facility that is already in place from the city out to Adamstown, which will coincide with Dublin Radial Cycle Route 7B.

#### Cycle Routes to Rural Towns and Villages in Southwest Dublin

The nearest large towns beyond the Dublin area in this sector are Naas in County Kildare and Blessington in County Wicklow. There are several villages between these towns and the edge of Dublin at Tallaght. Two main routes extend in a south-westerly direction from the city towards these towns as follows:

- (a) **Naas Route:** From Naas, cyclists have a choice of two routes to get to Dublin. The most attractive route in terms of Quality of Service will be along the Grand Canal way at Sallins, once it is paved for National Cycle Route 9, even though this is slightly the longer of the two options. The more direct route is generally along the corridor of the existing N7 Naas Road, the main traffic route to the city. This main road is currently unsuitable for cyclists as, apart from the M50 motorway, it is the busiest national route in the country with a high-speed dual 3-lane carriageway and mostly grade-separated junctions. Cyclists are currently better off following an alternative route via parallel local roads from Naas through the villages of Johnstown and Kill, where there is a good quality shared cycleway/footway provided between the urban areas. East of Kill the local road network is of a lesser quality, without cycle tracks, and deviates southward away from the Naas Road. Traffic volumes are low, however, and cyclists can follow these rural roads towards the Dublin suburb of Rathcoole via the Killeel Road. This route is shown on the proposed Inter-Urban Cycle Routes Map Sheet RN5 as K4/K14 from Kill to the Dublin County Boundary and then on Map RN10 as D5 into Rathcoole and Saggart, where it connects with Route 8A towards Dublin city via Ballymount, and Route 9C towards Tallaght and the city via Terenure.
- (b) **Blessington Route:** The direct route from Tallaght to Blessington is along the N81 national secondary road, which is a very poor route to cycle because of heavy traffic and lack of hard shoulders for much of the distance in the section between Jobstown and Brittas. A large amount of construction material is supplied from the Blessington area to the Dublin market and there is a significant number of trucks hauling gravel and concrete products along the N81 route. A better route to Blessington is proposed via the R114 regional road that extends from Firhouse via Bohernabreena and over the Ballinascorney Gap. This route is shown on the proposed Inter-Urban Cycle Routes Map Sheet RN8 as W18 through Kilbride to the Dublin County Boundary and then on Map RN10 as D5 into Oldbawn and Firhouse, where it connects with the *Dodder Greenway* or Route 10A towards Dublin city via Rathfarnham.

- (c) **Saggart / Rathcoole / Newcastle:** These 3 villages at the southwestern edge of the city have grown substantially in recent decades and now form moderately significant dormitories. There is also a large logistics and warehouse park at Greenogue between Rathcoole and Newcastle that attracts trips by staff as well as numerous truck movements. Rural cycle route D5 is shown on Map RN10 as a link between these 3 satellite settlements along the R120 road and onward via city Route 8A to the greater Tallaght area at Fortunestown. This route continues north-westward along the R405 road from Newcastle to Hazelhatch railway station on the Dublin to Cork line, and from there connects into Celbridge in County Kildare. Route D6 links Newcastle north-eastward along the R120 road to Grange Castle and onward to either Clondalkin via Route 8C2 or to Lucan via Route SO7. These two regional roads (R120 and R405) are not comfortable for cycling due to narrow carriageway, bendy alignment and busy traffic including many trucks. Segregated cycle tracks would be required.

#### Cycling Access Routes to the Dublin Mountains

This sector is bounded to the south by the Dublin Mountains and includes the area of foothills at the northern and north-western side of the mountains. The mountains attract large numbers of recreational cyclists, especially at weekends, who enjoy the challenges of the steep climbs, quiet roads and rugged weather conditions.

Access for cyclists to the mountains is principally available on 3 routes in addition to the Blessington Route at Ballinascorney Gap:

- (a) Upper Dodder Vallley, Glenasmole;
- (b) The *Military Road* from Rathfarnham along the spine of the Dublin and Wicklow Mountains through the Sally Gap to Laragh and beyond. This is shown as Route D2 on Map RN10; and
- (c) The Rockbrook Route is a variation on the Route D2 Military Road that is less direct and carries less traffic. There is a branch eastwards to Glencullen that allows a shorter return route to the city via Kiltarnan or Stepside in the South East sector. This is shown as Route D2a on Map RN10.

These routes can be combined as a parallel *Dublin Mountain Cycleway* that follows roughly the same line as the *Dublin Mountain Way* walking route. It could form a great loop for a cycling day trip from Dublin City to the mountains via the Dodder Valley (18km), across the northern edge of the mountains to the sea at Shankill (30km) and then back to the city along the East Coast Trail (18km) to make an overall trip of roughly 70km. This is shown as Route D4/D3/D5 on Map RN10. In the westward direction Route D5 extends from the mountains towards Kildare and the village of Rathcoole.

### 3.6.3 Dublin South West Sector - Existing Quality of Service

Maps Sheets 1, 6 & 7 in Volume 2 illustrate the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin South West sector. The QoS is mostly in the range of D and C in the eastern and older parts of this sector. There are extensive lengths of QoS level B on the newer roads in the southern and western areas, mostly along the lightly used orbital routes.

### 3.7. Dublin South Central Sector

The Dublin South Central Sector extends outward from the city centre through Ranelagh and fans out to include the areas of Clonskeagh, Milltown, Goatstown, Dundrum, Ballinteer, Sandyford and Stepside. The western edge coincides roughly with the boundary between Dun Laoghaire-Rathdown and South Dublin County Councils. The eastern edge lies along a line through the UCD campus at Belfield, Mount Merrion and the Sandyford Business Estate to where the M50 motorway turns southeast and effectively creates a boundary between the foothills of the Dublin Mountains and the coastal strip in the Dublin South East Sector.

Refer to Map E7 in Part 6 for illustration of the existing main cycle routes in this sector, with the existing cycle traffic flows in this sector shown on Map DD3 in Part 7.

#### 3.7.1 Dublin South Central - Proposed Cycle Route Network

The cycle route hierarchy is shown on Map N10 in Part 8

##### Radial Routes in the Dublin South Central Sector

The spine of this sector consists of a single Primary Radial Cycle Route with various spurs:

Route 11 along Ranelagh Road and Clonskeagh Road to Goatstown Cross with branches;

Route 11A branch from Ranelagh via Leeson Park to the SE city centre and Route 12 at Leeson Street Bridge on the Grand Canal;

Route 11B Milltown Road and Lower Churchtown Road;

Route 11C south from Goatstown Cross on Drummartin Link Road / Kilgobbin Road / Ballyogan Road to Carrickmines;

Route 11D Taney Road / Overend Way / Wyckham Way to Ballinteer; and

Route 11E from Dundrum along Sandyford Road / Enniskerry Road to Stepside (and rural route onward to Enniskerry and the Wicklow Mountains), with spur north into Dundrum Village.

Radial Route 11 is generally a good quality cycle route that does not share road space with bus lanes as is the case for the nearest routes, Route 10 to the west through Rathmines or Route 12 to the east through Donnybrook. The more direct route to Dundrum via Milltown and Dundrum Road is a narrow road with no opportunity for high-quality cycling facilities. Clonskeagh Road provides a much better cycle route, and there are various feeder routes linking westward to Dundrum through residential areas.

##### Orbital Routes in the Dublin South Central Sector

Six orbital routes in this sector provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining South West and South East sectors:

Route SO1: Grand Canal Route linking westwards to Harold's Cross and eastwards to the Docklands;

Route SO2: From Ballsbridge in the east through Ranelagh via Appian Way and Charleston Road to Rathmines and onward to the Kenilworth area and Kimmage;

Route SO3: Partly along The *Dodder Valley Greenway* from Ballsbridge to Milltown and on through Dartry to Rathgar and Terenure. Links to UCD Belfield campus from Milltown;

Route SO4: from Blackrock to Dundrum via UCD, Mount Merrion and Goatstown, and then heading westwards through Churchtown and Nutgrove to Rathfarnham;

Route SO5: Dun Laoghaire via Stillorgan to Dundrum and westward to Ballyboden; and

Route SO6: Dun Laoghaire to Tallaght via Sandyford and Ballinteer.

#### Existing Greenways in the Dublin South Central Sector

There are 2 greenways at present in this sector as follows:

*Dodder Valley Greenway at Milltown*: there is a short 1.4km long section of existing greenway along the banks of the River Dodder in Milltown; and

*River Slang Greenway*: This is a new greenway that extends for 3km from Dundrum to Marlay Park via Ballinteer.

#### 3.7.2 Dublin South Central - Cycle Route Network Additions

A cycle network study was previously prepared by DLRC in 2011 and covered the full county area. There are no current proposals by Dublin City Council for cycle route improvements in this sector. Both local authorities were involved in a joint study (along with NTA and South Dublin) for a major Greenway along the River Dodder, which was completed in late 2012. The network additions previously proposed by the local authorities are as follows:

- (a) Lower Churchtown Road;
- (b) Dundrum Road North at River Dodder crossing (link from Milltown to UCD via Maple Road and Nutgrove Park);
- (c) Taney Road / Mount Anville Road / Foster Avenue (Primary Orbital Route SO4);
- (d) Lower Kilmacud Road (Orbital Route SO5);
- (e) Dundrum Road South / Dundrum Main Street / Sandyford Road (Feeder);
- (f) Upper Kilmacud Road West / Ballinteer Road North (Feeder);
- (g) Nutgrove Way Route (10D);
- (h) Ballinteer Avenue (Orbital Route SO6);
- (i) Blackthorn Road within the Sandyford Business Estate (Orbital Route SO6);
- (j) Sandyford Road to Enniskerry Road at Lamb's Cross (Radial Route 11E); and
- (k) Enniskerry Road at Stepside Village (Radial Route 11E).

#### Additional Network Proposals

A gap analysis along cyclist desire lines as defined by the cycle network maps has confirmed that the existing local authority proposals are quite comprehensive and there is limited need for significant additions to the proposed cycle network in this sector. The network additions required on top of those previously proposed by the local authorities and their categorisation in the cycle route network are as follows:

- (a) Radial Route 11B from Sandford Road along Milltown Road;
- (b) Orbital Route SO2: From Ballsbridge in the east through Ranelagh via Appian Way and Charleston Road to Rathmines and onward to the Kenilworth area and Kimmage;
- (c) Orbital Route SO3: westward from The *Dodder Valley Greenway* at Milltown through Dartry to Rathgar and Terenure;
- (d) Radial Route 13C between Sandyford and Ballyogan across the M50 at Junction 13 East. (Route options for this difficult link were identified in a feasibility study completed for DLRC in 2011 that proposed a long bridge spanning over the motorway on the west side of Junction 13 East.); and
- (e) Possible alternative routes for Primary Orbital Route SO4 where it climbs the steep hill of Mount Merrion.



### New Greenways in Dublin South Central

- (a) **Dodder Valley Greenway:** Docklands to the Dublin Mountains at Bohernabreena linking up various short sections of existing routes through public parks and open spaces along the river.
- (b) **Windy Arbour Greenway:** 1.7km long route as an alternative to the narrow Dundrum Road.
- (c) **Nutgrove Greenway:** a short local greenway in the Churchtown area that follows the Little Dargle River.
- (d) **Barton Greenway:** Nutgrove to Grange Road on Orbital Route SO5.

### Bike & Ride to Public Transport Corridors in the Dublin South Central Sector

The main radial public transport corridor in this sector is the Luas Green Line tram that runs generally parallel to Radial Cycle Route 11 & 11C. Cycle parking is provided at each tram stop with bike lockers in some places. At all locations, cycle parking quantum and security will need to be assessed.

### Rural Cycle Links from the Dublin South Central Sector

This sector is bounded to the south by the Dublin Mountains and includes the area of foothills at the north-eastern side of the mountains. Urban Cycle Route 11E / Rural Cycle Route D1/W1 (shown on Map RN10) extends southward along the eastern foot of the mountains towards North Wicklow and the gateway village of Enniskerry. There is little population in this area to generate commuter cycling demand towards Dublin City. However, there is a strong demand for recreational cycling out from the city into the mountains, especially at weekends when the Enniskerry Road is probably the busiest rural cycle route in the country. There is no practical alternative route available for recreational cyclists, which explains the concentration on the Enniskerry Road.

The following measures should be considered on this route:

- 60 km/h speed limit from Kiltarnan to Enniskerry (all adjoining local roads in the DLRCC area already have a general speed limit of 50 km/h);
- Improved lighting;
- Cycle lanes within the existing generous road width;
- Modest road widening in places where possible to accommodate cycle lanes; and
- At The Scalp and southward where cycle lanes cannot be provided, traffic calming measures should be considered or better a cycle track through the adjoining fields.
- Link at Stepside along Kilgobbin Road to Primary Route 11C towards Dublin City via Sandyford and Goatstown. (This road is narrow and bendy and there is no scope for cycle lanes, so a traffic calming arrangement will be necessary).

### New Cycle Route across M50 at Ticknock

There is a mountain biking park in Ticknock Forest on Three Rock Mountain just south of Ballinteer. This facility could be accessed by cycling along Route 11D, except that the old Ticknock Road was severed by the M50 motorway at Junction 13 West. This severance most severely affects the new residential community at Ticknock Hill just south of the motorway, which is confined to a poor and indirect road access from the south via Blackglen Road and Harold's Grange Road, both being unsuitable for cycling or walking. DLRCC has recognised this problem and completed a feasibility study for a new pedestrian and cyclist bridge across the motorway at this location. Such a link would serve a dual purpose as a local feeder route and as an access route for recreational cycling to the Dublin Mountains.

### 3.7.3 Dublin South Central Sector - Existing Quality of Service

Map Sheet 7 in Volume 2 illustrates the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin South Central sector. The QoS

typically is in the range of B and C, with some A on existing routes where the cycling facility consists of a mix of cycle tracks in the outer suburbs and advisory cycle lanes of minimum width closer to the city at Ranelagh or shared bus lanes.

### 3.8. Dublin South East Sector

The Dublin South East Sector extends outward from the city centre towards Dun Laoghaire and Cabinteely, at the edge of the urban area, and from the East Coast at Dublin Bay inland to a line between the Donnybrook and Sandyford areas. Refer to Maps E1, E7 and E8 in Part 6 for illustration of the existing cycle routes in this sector, with the existing cycle traffic flows shown on Maps DD1 and DD3 in Part 7.

#### 3.8.1 Dublin South East - Proposed Cycle Route Network

The proposed cycle route hierarchy is shown on Maps N7 and N8 in Part 8.

##### Radial Routes in the Dublin South East Sector

There are two primary radial cycle routes that link this sector to the city centre, with five branches or variants, as follows:

Route 12: College Green to Bray via Leeson Street and Stillorgan Road.

Route 13: College Green to Blackrock via Mount Street, Northumberland Road, Merrion Road and Rock Road with numerous branches;

Route 13A St. Stephen's Green to Ballsbridge, via Baggot Street and Pembroke Road;

Route 13B Beresford Place to Ballsbridge, via Sandwith Street, Grand Canal Street, and Shelbourne Road;

Route 13C Blackrock to Cabinteely and Route 12 via Deansgrange Road;

Route 13D Blackrock to Ballybrack/Cherrywood, via Rochestown Avenue with a spur along Pottery Road to Cabinteely;

Route 13E North: Pearse Street - Sandymount - Merrion (Route 13);

Route 13E South: Booterstown - Blackrock Park - Seapoint - Dun Laoghaire - Dalkey with two options either via a coastal route through Blackrock Park and Seapoint Avenue, or branching from Route 13C at Temple Hill and along Monkstown Road; and

Route 13F Monkstown Farm and Glenageary.

Peak period volumes along Route 12 and 13 routes range from 600 to 700 cyclists.

##### Links from the Dublin South East Sector to Satellite Towns and the Wicklow Mountains

The identified radial routes extend out from the city centre as far as the southern edge of the existing city urban area at Shankill. Bray is located two kilometres south of Shankill and can be accessed via the Dublin Road on Route 13. For cyclist commuters the overall distance from Bray to the city ranges from 15 to 20km (depending on work place). While this is too far to attract a high number of long-distance commuters to cycle the full route, the facilities nevertheless cater for a range of shorter local trips and for a number of longer distance cycle commuters (22% of northbound cyclists passing UCD travel more than 10 km).

For linkage to the south of Bray, to Greystones and beyond, the route is via the R761 over Windgate Hill. There are also various rural roads available for recreational cycling trips into the Wicklow Mountains via Kiltarnan and Enniskerry. Glenamuck Road is one such route from Route 12 at Cornelscourt but it crosses the M50 at the busy Junction 15 at Carrickmines where the cycling facilities are poor and Glenamuck Road to the west has become too busy for comfortable cycling in recent years. The routes further south at Tully and Rathmichael are better options. The best of these is a traffic-free link over the M50 from Cabinteely through Lehaunstown and Tully to Ballycorus Road. There are stiles on this route, which could be easily upgraded to accommodate cyclists. The proposals for the Cherrywood SDZ will open up this route for greater use.

##### Orbital Routes in the Dublin South East Sector

Six orbital routes in this sector provide cross-links between the radial routes and give access to destinations within this sector, and in the adjoining South Central sector:

Route SO1: Beckett Bridge to Dolphin's Barn, via the Grand Canal, Leeson Street, Portobello and Dolphin's Barn in the adjoining sector;

Route SO2: Waterloo Road to Drimnagh, via Ranelagh and Rathmines;

Route SO3: Ballsbridge to Rathgar, via Donnybrook and Milltown, mainly following the River Dodder;

Route SO4: Blackrock to Chapelizod, via Goatstown, Dundrum, Rathfarnham and Walkinstown;

Route SO5: Dun Laoghaire to Stillorgan and Dundrum; and

Route SO6: Dun Laoghaire to Sandyford (and on to Tallaght), via Kill Lane and Leopardstown Road.

Peak period cyclist volumes along these orbital routes vary considerably, from a high of approximately 1,000 on the Grand Canal section of Route SO1, to fewer than 100 on the orbital routes further out from the city centre. Routes SO1 and SO5 warrant categorisation as Primary Orbital routes on a strategic basis.

##### Existing Greenways in Dublin South East

A small number of important greenways exist in this sector, including Kilbogget and Blackrock Parks. There is considerable potential to develop new or extended greenways along natural corridors such as the coastline (through the East Coast Trail), the River Dodder or as connections through the many parks located within this sector. Such greenways can also provide for partial routing of commuter cycling trips along routes that are more enjoyable, away from the busy arterial roads. The East Coast Trail in particular has the potential to attract many recreational cyclists and walkers due to the scenic nature of the route.

#### 3.8.2 Dublin South East - Proposals for Cycle Route Network Additions and Improvements

Proposals for additions to the cycle network were derived from a gap analysis by matching of the existing cycle route network against the proposed network. In the South East sector new cycling facilities are required to complete the cycle route network at Primary and Secondary Route levels at the following locations:

- (a) Both Radial Routes 12 and 13 in the city centre and inner suburbs require improved facilities to be provided where gaps or one-way systems cause detours/discontinuity of routes and the current cycle lanes or shared bus lanes are inadequate;
- (b) Radial Route 13, Rock Road, inbound between Trimleston Road and the access to the Elms and between Ailesbury Road and Nutley Lane;
- (c) Radial Route 13A, from St Stephen's Green to Merrion Road, via Baggot Street and Northumberland Road;
- (d) Radial Route 13E along the coast through Sandymount;
- (e) Radial 13C to 13F, an extensive network of cycle facilities is required south of Blackrock to connect to large residential areas;
- (f) Orbital Route SO1 to be continued west from Portobello;
- (g) Orbital Route SO3 along the river Dodder to connect the south east business area to UCD and beyond;
- (h) Orbital Route SO4 to be extended east of Dundrum to the Stillorgan Road;



- (i) Orbital Route SO5 extension along Monkstown Avenue and York Road into Dun Laoghaire, or probably better through the quiet residential area at Tivoli Terrace and contra-flow on Patrick Street; and
- (j) Orbital Route SO6 improvement through Mounttown and Deansgrange and along Leopardstown Road with extension through Sandyford Business Estate and Ballinteer.
- (k) Permeability links into the University College Dublin Campus at Belfield from Beech Hill Road to the North and Foster's Avenue to the South.
- (l) Permeability link through the National Rehabilitation Hospital at Rochestown Avenue for a quiet route from Cornelscourt across Clonkeen Park and Pottery Road, to Sallynoggin and Dun Laoghaire.
- (m) Access from Shankill to the LUAS at Cherrywood via Loughlinstown Hospital and the old Harcourt Street Railway line viaduct over Cherrywood Road.

**New and Extended Greenways in Dublin South East**

The following greenway routes are proposed to avail of the natural corridors for a mix of amenity and commuter cycling:

- (a) *East Coast Trail* from the City to Bray, incorporating the Sutton to Sandycove proposal shown on the maps as Route 14 extending from Route 13E at Dun Laoghaire. This route can follow the existing *Metals* greenway from Dun Laoghaire to Dalkey, and then use quiet coast roads around Killiney Hill. There are existing paths and links along the coast from Killiney through Shankill to Shanganagh Park. A continuation could follow the railway line across Woodbrook Golf Club to reach Bray Harbour directly instead of the busy Dublin Road;
- (b) *River Dodder Greenway* from the River Liffey to Tallaght, via Ballsbridge, Milltown, Churchtown and on to the south west;
- (c) Shanganagh to Blackrock along the Clonkeen Stream through *Kilbogget Park*; and
- (d) *Shanganagh* to Sandyford along the *Carrickmines Stream* and Ballyogan.

**Enhanced Permeability for Cyclists in Dublin South East Sector**

The existing cycle network maps have identified where cyclists can permeate through blocks within the road network by using quiet streets and roads that do not require cycling facilities due to the low volumes and speed of traffic. Such permeability is enhanced in various locations by laneways that provide shortcuts that cannot be used by motor traffic.

Dun Laoghaire Rathdown County Council has put in place directional signage along the *Metals* within the South East Sector, which could be extended throughout the Sector to identify cycle routes away from the main traffic routes.



In addition, there are potential new links that could be developed between adjoining areas which are cut-off from each other. The proposed cycle network map suggests a number of these new links at the following locations:

- A route from Pottery Road to Rochestown Avenue (Cornelscourt to Dun Laoghaire), via the National Rehabilitation Hospital grounds and Sallynoggin;
- Routes via Honey Park (Dun Laoghaire Golf Club Lands), linking Sefton and Tivoli Road; and
- Route from Stepside, via Stepside Park and Clay Farm Development Lands to Ballyogan and the Luas Green Line.

**Bike & Ride to the DART/Luas Lines**

The catchment area of the DART Railway line, or Luas on western edge of Sector, can be greatly expanded from a 1km walking distance to a 3km cycling distance by the active promotion of high quality Bike & Ride facilities. There is some cycle parking provided at the DART stations in the South East sector with access routes of varying quality from the surrounding areas. A good example is the facility at Salthill & Monkstown Dart Station, where covered facilities have been provided and are well utilised. A new facility (photo to the right) was provided in recent months at the same DART station and is underutilised due to the poor cycle stands that were included, which do not facilitate secure parking.



Cycle Parking at Monkstown/Salthill DART Station

The proposed cycle network will provide high quality links to DART and Luas stations from the surrounding areas which will increase the catchment area of these stations, assuming high quality cycle parking is available at all stations. One such example is the route from UCD to Sydney Parade, currently in development. A promotional campaign and an upgrade of the cycle parking facilities could encourage better use for multi-modal trips. The recent change in operational rules that allows bicycles on DART trains at off-peak times facilitates recreational trips using the train service to reach farther areas. At all locations, cycle parking quantum and security will need to be assessed.

**3.8.3 Dublin South East - Existing Quality of Service**

Maps 1, 7 and 8 in Volume 2 illustrate the existing Quality of Service (QoS) assessments for the primary cycle routes and a sample of the secondary routes in the Dublin South East sector. The QoS typically is in the range of C and D on most existing routes where the cycling facility consists of advisory cycle lanes of minimum width or shared bus lanes. A small number of newer segregated facilities achieve a B rating.

## CHAPTER 4

## GDA HINTERLAND CYCLE NETWORK

### 4.1 Fingal County Cycle Route Network

The cycling network proposals for the Fingal County area outside of the Dublin city suburbs such as Blanchardstown, Baldoyle and Howth are addressed in the following sectors:

- South Fingal Sector: Swords, Malahide and Portmarnock;
- Central Fingal Sector: Rush, Lusk and Donabate;
- North Fingal Sector: Balbriggan and Skerries; and
- Regional Cycle Links in Fingal.

This study takes account of the planning work for cycling facilities across the county area by Fingal County Council as communicated through the local authority consultation process.

In accordance with the *National Cycle Manual* cycle routes should be categorised as primary / secondary routes on the basis that "they are the main cycle arteries that cross the urban area, that carry the most cycle traffic, or provide cross-links between other cycle routes and provide access to major destinations". Due to the relatively small geographical areas in these towns it was not appropriate to distinguish between primary and secondary cycle routes as the volume of cyclists to be accommodated is low compared to the main Dublin city area.

#### 4.1.1 South Fingal Sector

The South Fingal Sector includes the towns of Swords, Malahide and Portmarnock. Refer to Maps E9, E10 and E11 in Part 6 for illustration of the existing cycle routes in this sector. There is a partial cycle network in Swords, and effectively none in Malahide and Portmarnock.

#### South Fingal - Proposed Cycle Route Network

The proposed cycle route network is shown on Map N9 (Part 8).

##### Swords

- Route Sw1 R132 from the M1 Junction 4 crossing at Lissenhall southward and along R836 Main Street, linking to Dublin Route 2A.
- Route Sw2 Pavilion Shopping Centre eastward to Feltrim Road.
- Route Sw2a Main Street - Ridgewood Green via Forrest Road.
- Route Sw2b Main Street - River Valley.
- Route Sw3 Brackenstown / Main Street / Pavilions / R106 Malahide Road.
- Route Sw4 R125 Rathbeale Road / Bridge Street / Seatown Road.
- Route Sw5 Dublin Road at Pinnock Hill through Airside to Drinan over the M1 at Junction 3.
- Route Sw6 Orbital route: Drinan - Airside - Boroimhe - River Valley - Brackenstown - Oldtown - Glen Ellan - Balheary.

##### Malahide

- Route M1 R106 Swords Road / Dublin Road (possibly partially through Malahide Demesne) / Coast Road to Portmarnock.
- Route M2 Estuary Road - Yellow Walls Road.
- Route M3 Church Road.

##### Portmarnock

- Route P1 From Baldoyle along the R106 Coast Road / Strand Road northwards to Malahide.
- Route P1a Portmarnock Railway Station spur.
- Route P2 Burrow Court - Carrickhill Road Upper.

##### Greenways in South Fingal

The proposed greenway facilities shown on the Map N9 are as follows:

- East Coast Trail from Baldoyle to Donabate via Portmarnock and Malahide (P1/FG1);
- Broadmeadow River Greenway, Swords (FG2);
- Ward River Valley Greenway, Swords (FG3);
- Broadmeadow Estuary Loop: Malahide - Swords - Donabate (FG1/FG2/FG4);
- Castlefarm Greenway, Swords;
- Malahide Demesne Greenway: Swords Road to Back Road / Church Road (FG5); and
- Biscayne Park Greenways from The Hill in Malahide to Dal Riada in Portmarnock and through public park area to the coast (P2/P3/P4).

##### East Coast Trail: Sutton-Baldoyle-Portmarnock-Malahide-Donabate

The *National Cycle Network* Route 1 will extend along the East Coast between Wexford and Carlingford Lough in County Louth. Preferably this major long-distance cycle route will follow the coastline which will maximise the amenity value of the route. The alternative inland route along the R132 road will be much less attractive as it is a major traffic corridor. In the Dublin City area the *East Coast Trail* will incorporate the *Sutton to Sandycove* cycleway that is already well developed on the northern side of Dublin Bay as far as Sutton. From there northward the *East Coast Trail* will follow the coast through Baldoyle and across the greenbelt to Portmarnock.

The existing R106 coast road north of Baldoyle is narrow with no provision for cyclists. A separate cycle route can be developed alongside the road on either the coastal or inland side. There is already a short stretch of cycle track in place on the inland side at the Red Arches residential development at the northern edge of Baldoyle.

Through Portmarnock there is a wide verge along most of the western side of the road edge than can accommodate a cycle track. Northward to Malahide there is an established coastal path that can be widened for a cycle track. There are quiet streets in the centre of Malahide that lead to the railway viaduct that crosses the Broadmeadow Estuary to Donabate. Fingal County Council is currently developing a scheme for a greenway alongside the railway across the estuary.

##### Bike & Ride to Public Transport Corridors in South Fingal

The cycle route network maps have identified cycle routes to Malahide and Portmarnock DART stations in this sector. The potential greenway along the East Coast would also provide an alternative off-road route for cyclists to the DART stations.

The Quality Bus Corridor from Swords to Dublin city has limited bicycle parking at a few bus stops. There is scope to widen the catchment areas of this QBC by providing more and sheltered bike parking with CCTV for security. For example residents of the outlying residential areas that have an infrequent bus service could cycle to the R132 at Airside where the bus routes are concentrated and more frequent. At all locations, cycle parking quantum and security will need to be assessed.



### Rural Cycle Route Links between the South Fingal Sector Towns

The *East Coast Trail* Greenway will provide connections between the coastal towns in Fingal. Likewise the Broadmeadow Estuary Loop will provide links between the three towns of Malahide, Swords and Donabate. The R126 Hearse Road link between Swords and Donabate is too busy for comfortable cycling and it would be better to direct cyclists along the Estuary Route and partially through Newbridge House Demesne.

Cycle links from the satellite towns in south Fingal to Dublin city are somewhat problematic. Only Swords is currently connected to the city by a proper cycle route as part of the Swords Quality Bus Corridor along the R132 route. Improved cycling facilities are proposed along this route as part of an upgrade of the QBC. By extension, this route can also serve the towns further north.

For Malahide, there is a distance of 4.5km along the R107 rural road to the edge of the city at Balgriffin. This is a busy road that is not suitable for cycling, but it would be difficult to justify the provision of a cycle track along this route. There will be a suitable alternative available along the *East Coast Trail* through Portmarnock to the east, or the R132 Swords Road to the west.

Swords and Malahide are only separated by a short green belt. Local cycle tracks will extend along most of the R106 road that connects the two neighbouring towns, and it will be a simple matter to complete the cycle route across the short rural section. This route is shown as Sw3/M1 on Map N9.

### 4.1.2 Central Fingal Sector

The Central Fingal Sector includes the towns of Rush, Lusk, Donabate and Portrane. Refer to Map E10 in Part 6 for illustration of the existing cycle routes in this sector, which are confined to the Lusk Ring Road and a few other isolated sections.

#### Central Fingal - Proposed Cycle Route Network

The proposed cycle route network is shown on Map N10 (Part 8) and this has been defined as described below.

#### Lusk

- Route L1 Lusk to Rush: Ashgrove, Minister's Road, Barrack Lane, Church Road, R128 Station Road / Whitestown Road and Healy's Lane.
- Route L2 R127 Dublin Road, Main Street.
- Route L3 Ring Road loop.

#### Rush

- Route Ru1 From Lusk: R128 Whitestown Road to Skerries Road.
- Route Ru1a Main Street to the Harbour.
- Route Ru2 Channel Road and Palmer Road to Kenure Park.

#### Donabate / Portrane

- Route D1 R126 Hearse Road through Donabate Main Street to Portrane. At the southern end this route should extend to link with the proposed Broadmeadow Estuary crossing to Malahide.
- Route D2 New Road to Donabate Beach.

### Greenways in Central Fingal

#### East Coast Trail: Malahide - Donabate - Portrane - Rush - Skerries

At the southern end the coastal trail will connect from Malahide to Donabate across the Broadmeadow Estuary railway viaduct. From there northwards there is a quiet rural road along the coastline and beside Donabate Beach at the Martello Tower. A coastal footpath continues northward to Portrane Beach, around the headland at St. Ita's Hospital and this could be upgraded to cater for cyclists. This path continues along the shore at the back of Portrane Beach to the headland overlooking the Rogerstown Estuary channel separating it from Rush opposite.

This is a difficult section of the proposed *East Coast Trail* as it will entail a new bridge connection from the Donabate peninsula across Rogerstown Estuary to Rush. The shortest crossing point is full of sailing boat moorings, and a less direct route further west would be required for a bridge. There are environmental sensitivities at Rogerstown Estuary, and a low impact bridge crossing may be most appropriate. One possibility is a floating pontoon bridge as shown below in an example from Barley Cove Beach on the Mizen Peninsula in West Cork. Alternatively the route may cross the estuary at the railway viaduct further west and then follow the northern shore to Rush.



Example of a possible floating bridge for Rogerstown Estuary Crossing

At Rush there is a coastal walking route behind the South Beach, around the headland and along the North Beach that could be upgraded as a cycle route to north of the town. From there onward the R128 road to Skerries is quite narrow and fairly busy. It would be preferable for the *East Coast Trail* to follow the coast through Loughshinny, but this will entail agreement with private landowners along the route where fields extend to the top of the small coastal cliff.

#### Local Greenways

There is limited scope for other greenway routes in the small towns in the Central Fingal sector, apart from within public open spaces in residential areas. One particular possibility is within the extensive public parkland at Newbridge Demesne on the western side of Donabate, which could also link to the Broadmeadow Estuary Greenway Loop at Kilcrea Lane.

#### Rural Cycle Route Links in Central Fingal Sector

The rural road network in this area is not extensive, and consists mainly of quite busy regional roads such as:

- R126 Hearse Road from Swords at the R132/M1 Lissenhall Junction 4;
- R127 Lusk, Rush and Skerries Road from the R132 at Blake's Cross; and
- R128 Coast Road through Rush to Skerries.

These roads are not really suitable as regional connections for cyclists between the main towns in Central Fingal, or as recreational cycling routes. Rural cycle tracks are desirable along selected sections of these routes, or alternative routes on more suitable quieter local roads as shown on Map RN1 and as described in Section 4.1.4.

### Bike & Ride to the East Coast Railway Line

There are two railway stations in this sector at Donabate and at Rush & Lusk. In Donabate the station is centrally located and accessible from all residential areas by the proposed local cycle route network. The other railway station is located 1km from Lusk and 2km from Rush. Proposed cycle route L1 will provide a route with a cycle track to this station from the nearby towns where cycling is not provided for at present along the busy R128 road. At all locations, cycle parking quantum and security will need to be assessed.

### 4.1.3 North Fingal Sector

The North Fingal Sector extends from Balbriggan in the north to Skerries in the south. It includes the towns of Balbriggan and Skerries and the smaller village of Balrothery that is a satellite of the larger population centres and is included in the analysis of cycle route requirements. Refer to Map E11 in Volume 2 for illustration of the existing cycling facilities which are limited to some sections of new road in Balbriggan and the Drogheda Road on the northern side.

#### North Fingal - Proposed Cycle Route Network

The proposed cycle route network is shown on Map N11 (Part 8).

##### Skerries

- Route Sk1 Newtown Parks / St. Patrick's Close / R127 Dublin Road / Miller's Lane / Shenick Road / R128 Rush Road.
- Route Sk2 R127 Dublin Road to the harbour.

##### Balbriggan

- Route Ba1 Through Balrothery / R132 Dublin Road into Balbriggan Main Street / R132 Drogheda Road / Flemington Lane / Flemington Road.
- Route Ba2 Inner Ring Road to R127 Skerries coast road.
- Route Ba3 R122 Naul Road.
- Route Ba4 South Ring Road from R132 Dublin Road to R122 Naul Road.

#### Greenways in North Fingal

##### East Coast Trail: Rush - Skerries - Balbriggan - Gormanston

As described for the Fingal Central sector, it is desirable for the *East Coast Trail* to follow a coastal path northward from Rush rather than the R128 coast road. Through Skerries there is a good coastal path available that can be upgraded for a cycleway and quiet streets in the town centre. North of the town there is a coastal strip of open space available along the shore to Barnageeragh where the land rises and there is a fairly high cliff beside the road. At this point the East Coast Rail Line joins the road on the western side. A side connection to the regional park at Ardgillan Castle should be provided at this point. Between Skerries and Balbriggan the R128 road is narrow and quite busy, and a segregated cycle route is desirable. It should be possible to develop a cycle track on the coastal side of the road through scrub land and across some small fields.

At Balbriggan there are quiet local roads and paths that could accommodate the *East Coast Trail* as far as the Martello Tower at the northern end. From there a quiet road leads back to the R132 Drogheda Road where there is a two-way cycle track on the western side as far as Flemington Lane. The rural cycle route could then turn west for 1.5km along the local road and then head north via local roads

through Gormanston and onward to Mosney and Laytown in County Meath, ultimately reaching Drogheda via Mornington and the River Boyne Estuary.

##### Local Greenways in North Fingal

There is potential to develop local greenways in Skerries and Balbriggan as follows:

- Central Greenway in Skerries through housing estates near the railway line; and
- River Bracken Greenway and several other routes through green spaces in Balbriggan.

### Bike & Ride to the East Coast Railway Line in North Fingal

The cycle route network maps have identified cycle routes to Skerries and Balbriggan Railway stations in this sector. At all locations, cycle parking quantum and security will need to be assessed.

### 4.1.4 Rural Cycle Routes in Fingal

There are opportunities to select suitable existing rural roads for regional connectivity for cyclists between the main towns in Fingal and the adjoining County Meath, via the following routes as shown on Maps RN1 and N4.

- F1 East Fingal Towns: Swords - Balbriggan - Gormanston (Meath).  
There are hard shoulders on the R132 road that serve as effective cycle lanes all the way from the crossing of the M1 at Junction 4 Lissenhall to Balbriggan. These shoulders should be widened and the road resurfaced. The existing carriageway is excessively wide at 10m or more and the traffic speeds appear to exceed the 80 km/h speed limit as a result.  
North of Balbriggan the route avoids the narrow and busy R132 (former N1) Belfast Road which has no hard shoulders, and instead follows a local road to the west via Flemingtown to the northwest corner of Balbriggan to link northward to Drogheda via Gormanston and the coastal towns of Laytown and Bettystown along the *East Coast Trail*. (See Section 4.2 for County Meath.
- F2 This is an eastward spur to Donabate and Portrane from Route F1 at the M1 Lissenhall crossing. It follows the R126 Hearse Road for a section and then diverts through Newbridge House Demesne park.
- F3 An eastward spur from Route F1 along a local road through Lusk and the R128 Regional Road to Rush by the railway station. Cycle tracks are required on the R128.
- F4 Lusk to Skerries via a local road east of the busy R127 regional road.
- F5 Rush to Skerries, or preferably provide *East Coast Trail* along the coast as an alternative route to the busy R128.
- F6 Balbriggan - Balrothery - Skerries via Ardgillan Demesne park.
- F7a Swords - Blanchardstown: Most direct route.  
This route follows fairly busy roads from Swords around the north of Dublin Airport via St. Margaret's and Kilshane Cross to the industrial Ballycoolin area. Cycle tracks would be required for safety and comfort.
- F7b Swords - Blanchardstown: Most suitable route.  
This is a less direct route to the north of Route F2A along quieter roads through the Rivermeade area to Tyrrelstown.
- F8 Dublin to Ashbourne along the R135 (former N2) where there are hard shoulders.
- F9 Blanchardstown - Clonee - Dunboyne: mostly urban roads and the R156 where a cycle track is required because of high traffic flows.
- F10/M14 Clonee/Ongar - Hansfield - Westmanstown - Lucan (Meath/Dublin): This would partly follow the R149 regional road just west of the Dublin suburban area. Connects with the



Royal Canal Greenway and Liffey Valley regional Park between Lucan and Leixlip. Preferably this route would be diverted away from the narrow R149 through the new Hansfield development area to join the Royal Canal near Barberstown.

The provision of cycling facilities along most of these winding and narrow rural routes would not be necessary on the basis of the low traffic volumes and speeds which make the roads amenable to cycling. In some cases, however, there may be a need to provide cycle tracks for comfort and safety, which should be assessed on a case by case basis.

#### **Potential for Cycling Tourism in Fingal**

Given the proximity to the major population centre of Dublin, there is potential for cycling tourism (both national and international) in the Fingal area. The main attractions would be the *East Coast Trail* and *The Royal Canal Greenway*, which links onward to Galway as a cross-country national and European route.

In addition this study has identified a network of pleasant and quiet roads that can be promoted as touring cycle routes in South Fingal with connectivity into the adjoining counties of Meath and Kildare. The rural cycle routes connect into all of the main towns using suitable urban cycling facilities that are justified in any case for utility trips in those locations.

The investment cost required would be very low to provide a top-class cycle route network in Fingal based on a number of "Cycle Hubs" in the main towns that have excellent transport connections by rail and main road. This concept is already working successfully in other locations around the country. All that is needed are direction signs for numbered cycle loops radiating from each town, occasional information sign boards and some special maps. Such a new tourism network would provide great economic potential for the existing communities in the towns and villages in the Fingal area.

## 4.2 County Meath Cycle Route Network

The cycling network proposals for County Meath are presented in the following sectors:

- South Meath Sector: Dunshaughlin, Ratoath, Ashbourne, Dunboyne/Clonee and Enfield;
- Central Meath Sector: Kells, Navan, Trim, Ballivor, Athboy and Oldcastle;
- East Meath Sector: Slane, Duleek, Drogheda Southern Fringe, Bettystown and Laytown; and
- Rural Cycle Links in Meath.

Refer to Maps E12, E13, E14 & E15 in Part 6 for illustration of the existing cycle routes in this sector. The 2011 census indicates very low volumes of cycling trips in County Meath, with a maximum of 80 trips in Navan during the morning peak period, and lower volumes in the smaller towns.

### 4.2.1 South Meath Sector Towns Cycle Networks

The cycle route network shown on Map N4 in Part 8 is as follows.

#### Dunboyne

- Db1 R156 Station Road / Summerhill Road, Dunboyne linking to Clonee.
- Db2 R157 Navan Road to Maynooth Road, Dunboyne.

#### Clonee

- C1 R156, Clonee Main Street, linking to Blanchardstown and Dublin Route 5A at Littlepace.

The cycle route network shown on Map N15 in Part 8 is as follows.

#### Ashbourne

- As1 R135 Regional Road through Ashbourne.
- As2 Ballybin Loop on west side of Ashbourne to business park.

#### Ratoath

- Rh1 R125 Main Street Ratoath.
- Rh2 Fairyhouse Road & Curraha Road, with spur on Skryne Road.

#### Dunshaughlin

- Du1 R147 Main Street Dunshaughlin, with a short branch feeder along the R125 Ratoath Road;
- Du2 Drumree Road, Dunshaughlin (potential link to the proposed future railway station west of the town) and Lagore Road linking eastward to Ratoath on a quiet rural route that is more suitable for cycling than the R125.

In **Enfield** the main cycle route will be the existing corridor of the R148 Dublin Road, with a branch southward to nearby Johnstown Bridge on the Edenderry Road just over the county boundary in Kildare.

#### Greenways in South Meath

A number of strategic and potential local greenway routes are shown on the cycle network maps for the South Meath area.

- MG1 Ashbourne: Broad Meadow Water Greenway between R135 and Deerpark
- MG2 Dunboyne: Castle River Greenway
- MG3 Enfield & Longwood: Royal Canal Greenway
- MG4 River Boyne Greenway at Longwood to Trim

### Bike & Ride to the Dunboyne and Enfield Railway Stations

The cycle route network maps have identified cycle routes to both Dunboyne and Enfield Rail stations in this sector. In Enfield, existing cycle tracks provide access from the Main Street. The greenway along the Royal Canal would also provide an alternative off-road route for cyclists to Enfield Rail station.

In Dunboyne there are two stations, at M3 Parkway to the north of the town and at Dunboyne station on the eastern side, the latter being closer to most residential areas and therefore likely to be the station that would attract most cycling trips. At all locations, cycle parking quantum and security will need to be assessed.

### 4.2.2 Central Meath Sector Town Cycle Networks

The proposed cycle route network is shown on Maps N12 for Navan, N13 for Kells and N14 for Trim.

#### Navan

- Na1 R147 Dublin/Kells Road between the N51 and Old Balreask Woods.
- Na2 Metges Road / East Orbital.
- Na3 Fairgreen to Johnstown with a new bridge over the River Boyne.
- Na4 Southern Ring from Johnstown to Athboy Road.
- Na5 Northern Cross from Athboy Road to Slane Road.
- Na6 Windtown Road to Commons Road.
- Na7 Proudstown Road to Trim Road.

#### Kells

- Ke1 Cookstown Road (link from Navan) to Ardee Road.
- Ke2 R164 Athboy Road to Moynalty Road.
- Ke3 R147 Navan Road to Virginia Road.
- Ke4 R163 Slane Road to Oldcastle Road (Lloyd's Tower Park).

#### Trim

- T1 R154 and R160 Ring Road.
- T2 R154 Dublin Road to R161 Longwood Road.
- T3 R161 Navan Road.
- T4 Dunleever Road.
- T5 Summerhill Road / Emmet Street / Loman Street.

#### The River Boyne Greenway: Longwood to Navan

This would be a major greenway of regional and national importance along the River Boyne, between Longwood and Drogheda via Trim and Navan. This cycleway would form part of the National Cycle Network and would be directly linked to the East Coast Cycle Route between Belfast and Wexford at Drogheda and to the Dublin to Galway route along the Royal Canal south of Longwood.

### 4.2.3 East Meath Sector Town Cycle Networks

The East Meath Sector extends from the County Boundary in the north between Slane and Drogheda to Kentstown in the southwest, and eastward to the coast at Bettystown and Laytown. There are no cycling facilities in this sector apart from a small area on the southern edge of Drogheda at the *Southgate* shopping centre at Colp Cross on the R132 Dublin Road gateway to the town.



The housing estates in Laytown and Bettystown have extensive open green areas through which a local cycleway network could be developed. Such new routes should link to the *East Coast Trail*, and also to the railway station at Laytown, which at present is poorly and indirectly connected to the nearby residential areas.

The proposed cycle route network in East Meath consists of rural cycle routes between the various towns, including the regional centre of Drogheda. These routes are shown on Map RN2.

#### 4.2.4 Rural Cycle Routes in Meath

##### The Royal Canal way

The Dublin to Galway National Cycle Route will follow the Royal Canal westward to Mullingar and will pass along the southern edge of County Meath through the small town of Enfield and near the village of Longwood. This scheme is advancing through the planning process and should be constructed by Summer 2014.

##### Boyne Valley Greenway: Drogheda - Navan - Trim - Longwood

The proposed Boyne Valley Greenway will extend through the heart of County Meath and will provide a valuable amenity for leisure cycling and as a link between Drogheda, Slane, Navan and Trim. The first section of this route, from Drogheda along the Ramparts and the south bank of the Boyne as far as the *Battle of the Boyne* visitor centre at Oldbridge, is currently at planning and design stage. The route will follow the towpath of the Boyne Navigation along the south bank of the river as far west as Navan. Towards Trim the route may follow suitable local roads rather than the river bank.

West of Trim the most suitable route will be along a local road north of the river via Dunleever and Bellewstown to Stonyford Bridge on the R156 road between Rathmolyon and Ballivor. It would then cross the River Boyne at Scarriff Bridge on the R156 and turn south along local roads near Longwood to join the Royal Canal at Blackshade Bridge.

##### East Coast Trail in County Meath

There has been no route selection study so far for this national route along the coastal section of county Meath. It should follow the River Boyne Estuary eastward from Drogheda to Mornington, where it can turn south to Bettystown. There are environmental sensitivities along the estuary and careful assessment will be required for the selected route, which should be segregated from the R151 regional road that carries considerable traffic between Drogheda and the satellite villages on the coast. There may be potential for the route to run along the back of the beach above high tide level as far south as the River Nanny Estuary at Laytown. This wide beach is very firm as attested by the annual Laytown (horse) Races. An alternative, but less attractive option, would be to develop a cycle track in the roadside verge along the R151 coast road.

There is a pedestrian bridge over the River Nanny at Laytown that provides access to a quiet rural area around Mosney. Southward towards Gormanston, Stamullen and the large town of Balbriggan in the adjoining Fingal County area, there are potential route options, either along the beach or, possibly more practically, along quiet local roads about 1km inland from the coast. The R132 regional road is very busy north of Junction 7 on the M1 at Gormanston and would not provide an attractive cycle route. South of Gormanston this road is narrow and unsafe for cycling towards Balbriggan. The inland route via Flemingtown is a better option.

##### Old Railway Lines in Central Meath

There are two former railway lines in the central Meath area that could potentially be followed by cycle routes:

- Navan to Kingscourt Railway Line: Recently disused and route intact; and

- Navan to Kells to Virginia Railway Line and Oldcastle Branch: long disused and likely to be quite fragmented. May be available in sections that could provide an alternative to local roads.

The proposed rural cycle routes between towns in Meath and adjoining counties are shown on Maps RN1, RN2, RN3, RN4 and RN5. These routes overlap with the town cycle routes previously listed.

- M1 *East Coast Trail* from the Fingal boundary at Gormanston to Drogheda via Laytown and Bettystown.
- M2 Alternative inland route along the East Coast via local roads to Painsetown on the R132 about 1km south of Colp Cross at the edge of Drogheda. Avoids the more direct and busy traffic routes.
- M3 Navan - Kentstown - Duleek - Donore - Drogheda along a number of local roads that mostly avoids the busy R150 and R152 regional roads. This route follows the R153 for 2km east of Kentstown to Balrath Cross on the N2, where a cycle track would be required.
- M4 Duleek to Laytown along the R150 Regional Road and link to the East Coast Trail. The lane widths along the R150 should be reduced and the verge used for a cycle track.
- M5 *Boyne Valley Greenway* from Drogheda to Navan to Trim to the *Royal Canal Greenway* at Longwood.
- M6 Navan to Kingscourt Railway line greenway.
- M7 From the *East Coast Trail* in County Louth through Dunleer and Ardee to Kells via Nobber and local roads north of the N52.
- M8 Navan to Kells via quiet local roads to the west of the M3 Motorway near Cortown. Alternative or complementary routes could follow the local road east of the River Blackwater through Donaghpatrick and Oristown, but this would use the R163 regional road for 5km through Headfort, which would be less suitable for cyclists due to traffic volumes and speed, and a cycle track may be required. Another option is the R147 (former N3) with hard shoulders. However, traffic volumes are still quite high on this route and there are narrow sections without hard shoulders.
- M8a Kells to Carlanstown via a local road east of the N52.
- M9 Kells to Oldcastle via the Lough Crewe historic site. This route follows quiet local roads to the north of the R163 and R154 regional routes. Preferably this route would largely follow the former railway line to Virginia for much of the way, as described earlier.
- M10 Navan to Trim via Dunderry and Rathcairn. (Shared initially with Route M9.)
- M11 Navan to Athboy via a spur from Route M10 at Dunderry southwest of Navan.
- M12 Trim to Ballivor via the Boyne Valley way along a local road west of the river to the R156 at Stonyford Bridge. The direct route for the remaining distance of 3.5km to Ballivor along the R156 follows a busy and narrow regional road that is not suitable for cycling. A better but less direct alternative exists to the north via local roads through Cloncarneel or Kildalkey.



Rural Route M12

- M13 Trim - Summerhill - Kilcock: via local roads instead of the R158.
- M13a Trim to Dunshaughlin via a link from M13 to M14 at Dunsany.
- M14 Navan - Tara - Dunsany - Dunshaughlin on quiet local roads. South of Dunshaughlin to Clonee and Dublin via Dunboyne along the R147 (old N3) on hard shoulders and with a cycle track between Dunboyne and Clonee.
- M15 Dunshaughlin to Ashbourne via Ratoath along quiet back roads, avoiding the busy R125.
- M16/F11 Ashbourne to Duleek via Garristown in Fingal.
- M17/F9 Ashbourne to Dublin along the R135 (old N2) on hard shoulders.  
Ashbourne to Swords: The direct route along the R125 is not suitable for cycling due to traffic conditions. Instead branch off Route M17 at Ward Cross and follow the proposed route F7b from Blanchardstown to Swords.
- M18 Dunboyne to Leixlip and Maynooth via a local road through Cappaghreen that avoids the busy R157 and R149 routes, to the Royal Canal way at Confey.

The provision of cycling facilities along these winding and narrow rural routes would be generally unnecessary where traffic volumes and speeds on these routes are low and therefore relatively amenable to cycling. On one route, for example, the total two-way vehicle flow was recorded as 96 vehicles per hour. The speed limit on this road is 80kph, but due to the winding nature of the road, vehicles rarely travel above 60kph. Such quiet rural roads are suitable as designated cycle routes that can be promoted through direction signs.

#### **Potential for Cycling Tourism in County Meath**

Given the proximity to the major population centre of Dublin and tourist attractions like the Brú Na Bóinne World Heritage site, the Hill of Tara, Trim Castle and Lough Crewe, there is strong potential for cycling tourism (both national and international) in Central Meath. The *Boyne Valley Drive* is a touring route from Drogheda to Navan to Kells to Oldcastle to Trim and back to Drogheda. The *Táin Trail* Cycling Route is already promoted through mid-County Meath on the cross-country route from the Cooley Peninsula in County Louth to *Croghan Aí* at Tulsk in County Roscommon. These tourist routes are currently directed along many busy national and regional roads that are not pleasant for cycling. There is potential for more suitable and attractive routes for cyclists on these trails. This report has identified an extensive network of pleasant and quiet roads that can be promoted as touring cycle routes in Central Meath in addition to the two existing touring trails.



### 4.3 County Kildare Cycle Route Network

The cycling network proposals are presented in the following sectors:

- North Kildare Sector: Leixlip, Celbridge, Maynooth & Kilcock;
- Mid-Kildare Sector: Clane/Prosperous, Sallins/Naas, Newbridge, Kildare;
- South Kildare Sector: Athy; and
- Rural Cycle Routes in Kildare.

Refer to Maps E15 to E19 in Part 6 for illustration of the existing cycle routes in this sector, with the Quality of Service ratings shown on Q15-Q19 of Volume 2.

#### 4.3.1 North Kildare Sector Town Cycle Networks

The proposed cycle route network is shown on Map N16 in Part 8 for Leixlip, Celbridge and Maynooth.

##### Leixlip

- K1 Royal Canal Greenway: Clonsilla - Leixlip - Maynooth, with several feeder and local greenway routes.
- Lp1 R148 Main Street and Maynooth Road to Intel plant.
- Lp2 Barnhall Road to Celbridge via Castletown Demesne.

##### Celbridge

- C1 R405 Newcastle Road to Hazelhatch railway station and the Grand Canal Greenway.
- C2 Clane Road to Main Street.
- C3 Oldtown (Ring) Road to Church Road.
- C4 R403 Clane Road & Oldtown Road to Maynooth Road.
- C5 Willowbrook Road.
- C6 R405 Maynooth Road.
- C7 R449 Celbridge to Leixlip Link Road (across M4 Junction 6).
- C8 Castletown Demesne Greenway to Barnhall Road, Leixlip and links to C6 & C7.

##### Maynooth

- K1 Royal Canal Greenway.
- M1 NUIM and Moyglare Road - Leinster (Main Street) - R148 Dublin Road towards the Intel plant at Leixlip and with a link to the Royal Canal Greenway about 1.5km east of the town edge.
- M2 Straffan Road.
- M3 Celbridge Road.
- M4 Rathcoffey Road.

##### Kilcock

- Kk1 R148 Church Street to R407 Clane Road.

#### 4.3.2 Mid-Kildare Sector Town Cycle Networks

The proposed town cycle routes in the mid-Kildare sector are shown on Maps N17 for Clane & Prosperous, N18 for Naas and N19 for Newbridge & Kildare.

##### Clane - Prosperous

- CP1 R403 Dublin Road through Clane and west to Prosperous.
- CP2 R407 Naas Road to southern edge of the town

##### Naas

- K10/K13 Grand Canal Greenway through Sallins with spur through Naas.
- N1 Kill - Johnstown - Dublin Road - Main Street - Newbridge Road.
- N2 Sallins Road - Main Street, Naas - Kilcullen Road.
- N3 Blessington Road.
- N4 Caragh Road.
- N5 South Ring and Ballycane Road.
- N6 Monread Road - Millennium Park - Newbridge Road.
- N7 Link through Lakelands Estate between Kilcullen Road and Blessington Road

##### Newbridge

- NB1 R445 Naas Road - Main Street Newbridge - Standhouse Road.
- NB2 College Park to Newbridge Station.
- NB3 Green Road / The Park / Athgarvan Road (southern loop road).
- NB4 R445 Moorefield Road (to The Curragh).

##### Kildare Town

- KT1 Melitta Road - R415 Station Road - The Square.
- KT2 R445 Dublin Road / Monasterevin Road, Kildare.
- KT3 Greyabbey Road.

#### 4.3.3 South Kildare Sector Town Cycle Networks

The only proposed town cycle routes in the South Kildare sector are in Athy (no town map required).

##### Athy (Map RN7)

- A1 N78 Dublin Road - Kilkenny Road.
- A2 River Barrow Greenway - east bank (alternative to R417 Kildare Road).
- A3 Barrow Canal Greenway (Alternative to R428 Stradbally Road).

#### 4.3.4 Rural Cycle Routes in Kildare

The proposed rural cycle routes between towns in Kildare and adjoining counties are shown on Maps RN5, RN6 and RN7. These routes overlap with the town cycle routes previously listed. There are several very busy regional roads in Kildare that should be avoided by cyclists where possible due to the volume and speed of traffic. Examples are the R407 Kilcock-Clane-Naas road and the R406 Maynooth to Straffan road. There are quieter local roads available in most such cases that are better suited for cycling. However, in some cases such as the R403 Celbridge to Clane road, there is no alternative route on some sections, and a rural cycle track will be necessary in the road verge for parts of the route.

- K1 *Royal Canal Greenway: Clonsilla - Leixlip - Maynooth - Kilcock - Enfield.*
- K2 Celbridge to Maynooth along local road through Ballygoran south of the busy R405.
- K3 Celbridge to Clane via Straffan mostly avoiding the busy R403, but with a need for cycle tracks along 5km of the regional road approaching each town.
- K4 Celbridge - Ardclough - Kill (Naas via N1).
- K5 Maynooth - Rathcoffey (to Clane via K6 & K3).
- K6 Kilcock - Rathcoffey - Straffan - Ardclough, intersecting routes K3, K4 and K5.
- K7 Clane to Naas via Millicent North and Grand Canal (K10 & K13).

- K8 Enfield to Edenderry (Co. Offaly): Greenway along former railway line.
- K9 Derrinturn cross link north to Edenderry railway line and south to Grand Canal.
- K10 *Grand Canal Greenway*: Dublin - Sallins (Naas) - Edenderry.
- K11 *Barrow Canal Greenway*: from Grand Canal at Robertstown to Rathangan, Monasterevin, Athy and Carlow.
- K12 *Pollardstown Feeder Greenway*: from the Barrow Canal 3km west of Robertstown to near Pollardstown Fen northwest of Newbridge and then linking by regional and local roads to Newbridge and Kildare. (Pollardstown Fen is a highly environmentally sensitive site of considerable interest for a visit on foot as a side trip from this cycle route. A way across the fen for walkers and cyclists may be developed in future by NPWS. In the meantime the cycle route will skirt the fen on existing roads).
- K13 *Naas Canal Greenway*: From Grand Canal at Sallins through Naas to Herbertstown east of Newbridge and onward to Kilcullen.
- D5/K14/N1 (Dublin) Rathcoole - Killeel - Kill – Naas.
- K15 Naas - Newbridge (R405) - Kildare (R413) - Monasterevin (local roads south of M7).
- K16 Naas - Blessington via R410 briefly and local roads east of Beggar's End Cross at Punchestown.
- K17 Greenway along former Naas to Baltinglass railway line through Dunlavin, Co. Wicklow.
- K18 Newbridge to Naas via Greatconnell to *Naas Canal Greenway* at Herbertstown. Less direct but more attractive alternative to the direct route along the busy R405 dual carriageway.
- K19 Newbridge - Athgarvan - Kilcullen (R416/R413): short rural sections between urban areas. Hard shoulders in places, but cycle track required elsewhere.
- K20 Newbridge - Curragh - Suncroft – Athy.
- K21/W14 Rathangan - Kildare - Curragh - Kilcullen - Ballymore Eustace - Hollywood, Co. Wicklow.
- K22/W17 Blessington (Wicklow) - Ballymore Eustace - Dunlavin (Wicklow) - Baltinglass: Alternative to busy and fast N81.



*Naas Canal (K13)*



## 4.4 County Wicklow Cycle Route Network

The cycling network proposals for County Wicklow are presented in the following sectors:

- North Wicklow: Bray, Greystones, Kilcoole;
- South Wicklow: Wicklow Town & Arklow;
- West Wicklow: Blessington & Baltinglass; and
- Rural Cycle Routes in Wicklow.

Refer to Maps E19 to E24 in Part 6 for illustration of the existing cycle routes in this sector, with the Quality of Service ratings shown on Q9-Q24 of Volume 2.

### 4.4.1 North Wicklow Sector Town Cycle Networks

The North Wicklow Sector extends from the County Boundary in the north to Roundwood, Newtownmountkennedy and Newcastle in the south, and from the East Coast inland to the edge of the Wicklow Mountains. It includes the towns of Bray and Greystones, and the large villages of Kilcoole, Newtownmountkennedy and Roundwood. There are several smaller villages such as Enniskerry, Kilmacanogue and Delgany that are satellites of the larger population centres and are included with them in the analysis of cycle route requirements.

Refer to Map E20 in Part 6 for illustration of the existing cycle routes in this sector.

The proposed cycle route network is shown on Map N20 for Bray and N21 for Greystones in Part 8 and as described below.

- Bray** (Map N20)
- B1 Continuation of Route 12 from Dublin from Little Bray along Main Street and Vevay Road towards Greystones (W4).
  - B1a Old Connaught Avenue spur westwards from Dublin Road.
  - B2 Bray DART Station - Quinsborough Road / Florence Road - Main Street - Killarney Road to N11.
  - B3 Church Road.
  - B4 Vevay Road - Boghall Road - Kilbride Lane - Herbert Road to N11
  - B5 R768 Southern Cross Road.
  - B6 Putland Road from Vevay Road to Headlands.
  - B7 N11 from Fassaroe to Kilmacanogue where there is no alternative route for cyclists on the busy dual carriageway.
  - B7a Potential greenway link from Kilmacanogue to Bray Retail Park on Southern Cross Road.

#### Local Greenways in Bray

- W11 *Bray Promenade Greenway*: part of the *East Coast Trail* with continuation southward to Greystones around the western slopes of Bray Head at Newcourt to Windgates.
- BG1 *River Dargle Greenway*.
- BG2 *Swan River Greenway*.

#### **Greystones** (Map N21)

- G1 R761 from Bray at Windgate Hill (W4) - R762 Rathdown Road - Church Road - Mill Road – Delgany.
- G1a Victoria Road - Greystones Harbour.
- G2 From the R762 Mill Road along the R774 Charlesland Road dual carriageway as far as

the N11 and Kilpedder.

- G3 R761 Kindlestown Road.
- G4 Bellevue Road.
- G5 Greenway from the GAA and Rugby clubs on Mill Road southwards through Charlesland towards Kilcoole via the Charlesland Sports Centre.
- W11 *East Coast Trail Greenway* from the Bray Head Cliff Walk to South Beach via Greystones Harbour.

#### **Kilcoole** (Map N21)

- K1 Greenway from Charlesland along Lott Lane as an alternative to the busy R761 road.
- K2 R761 Coast Road.
- K3 Sea Road to railway station.
- K4 Newtown Road.

#### **Newtownmountkennedy** (Map RN10))

- N1 R765 Roundwood Road.
- N2 R772 Main Street.
- N3 Rossmore Road (southern ring route).

There are also potential local cycle links shown on the maps such as from Newtownmountkennedy to Kilpedder along the western side of the N11, or less directly via a back road.

#### **Bike & Ride to the DART and East Coast Railway Line**

The cycle route network maps have identified cycle routes to both Bray and Greystones DART stations in this sector. Most of these routes in Bray are along suitable quiet roads and do not require cycling facilities. In Greystones, existing cycle tracks provide access from the South. The potential greenway along the East Coast would also provide an alternative off-road route for cyclists to both DART stations. There is extensive sheltered cycle parking provided at both DART stations, but additional capacity may be required if demand increases significantly through active promotion to avail of the expanded local cycle networks. At all locations, cycle parking quantum and security will need to be assessed.



High quality and well located cycle parking shelter at Greystones DART station

#### 4.4.2 South Wicklow Sector Town Cycle Networks

The South Wicklow Sector extends from Laragh and Ashford in the north to Carnew in the far south of the county, and inland from the East Coast to Auhgrim. It includes Wicklow Town, Rathnew, Ashford, Rathdrum, Arklow, Auhgrim, and Tinahely.

Refer to Maps E22 and E23 in Part 6 for illustration of the existing cycle routes in this sector.

The proposed cycle route network for the major towns is shown on Map N22 for Wicklow and N23 for Arklow in Part 8.

##### Wicklow Town

- WT1 R750 - Rathnew - Dublin Road - The Mall - Dunbur Road.
- WT2 Wicklow Port Access Road - Station Road with new bridge over railway line at Wicklow Station and spur to the coast at The Murrough.
- WT3 Wicklow Western Ring Road.
- WT4 Rockey Road.
- WT5 R751 Marlton Road - Fitzwilliam Street - Bridge Street - Harbour.
- W11 *East Coast Trail from The Murrough to Wicklow Port and town centre.*

##### Arklow

- Ar1 R772 Dublin Road to Wexford Road through Main Street.
- Ar2 R750 Sea Road from Route Ar1 northwards towards Brittas Bay and Wicklow Town.
- Ar3 Lower Main Street, Tinahask Road and Dock Road to South Quay.
- Ar4 R747 Vale Road to the edge of town but not further towards Auhgrim as the road is too narrow and busy and there is a better alternative on north bank of the Avoca River.
- Ar5 Station access from Main Street along St.Mary's Road to Wexford Road (Ar1).
- Ar6 North Quay from Ferrybank by Bridgewater Shopping Centre with new bridge across to South Quay and link to Ar3 at South Green. (This will need to avoid the boat moorings in the river).

#### 4.4.3 West Wicklow Sector Town Cycle Networks

Refer to Map E24 in Part 6 for illustration of the existing cycle routes in Blessington. The town is quite small with a simple street network and quite wide streets that can accommodate cycling facilities on the approaches from the outlying residential areas to the town centre on the main roads from Dublin, Naas and Baltinglass.

In Baltinglass the approach roads are too narrow for cycling facilities and traffic flows are moderate on the main routes into the town centre from Blessington (N81), Arklow (R747), and Tullow (N81). Traffic calming will be sufficient to ensure suitable road conditions for cycling.

#### 4.4.4 Rural Cycle Routes in Wicklow

##### East Coast Trail Greenway in Wicklow

There is an opportunity to develop a major greenway along the East Coast, between Bray and Newcastle, with links to Kilcoole and Newcastle villages. This route would form part of the National Cycle Network Route No.5 between Dublin and Wexford.

Between Bray and Greystones the greenway cycle route will need to overcome the significant obstacle of Bray Head that rises steeply to an elevation of 240m above sea level. There is a narrow coastal

footpath, *the Cliff Walk*, which skirts along the eastern side of the hill at low to mid-level above the railway line. This is a very popular walking route that can be crowded at weekends. It is too narrow and rugged to accommodate shared use with cyclists. There would be excessive costs and environmental impacts involved in widening this route to make it suitable for cycling. The existing route available for cyclists between Bray and Greystones is along the busy R761 road over Windgates Hill that rises to an elevation of 150m above sea level. It is desirable and feasible to make provision for commuting cyclists on this main road as a link between the two towns, while also providing a suitable facility to meet the objectives of the National Cycle Network for a largely traffic-free and enjoyable amenity. A feasibility study has been commissioned by Wicklow County Council for this route, and this has identified an option for a segregated two-way cycleway along the eastern side of the R761 road. This route would link to the Bray Promenade at the northern end via Newcourt, and then could connect from Windgate to the Cliff Walk south of Bray Head and then follow the coastal route into Greystones.

Southward from Greystones towards Wicklow Town there is a well established coastal walking route along the back of the beach beside the railway line. This route could possibly be upgraded to suit cycling through provision of a flexible mattress type structure laid on top of the beach material. This type of construction would be light-weight and suitable for a sensitive marine environment where coastal erosion is an issue and access for heavy machinery would be very difficult and inappropriate. There are environmental sensitivities in certain places where bird life is concentrated in swamp lands inland from the beach. There will also be a need for small bridges across river-mouths at a few locations. If environmental considerations rule out this coastal route, then an alternative route will be required further inland.



*Existing rugged coastal path beside the railway line at Kilcoole*

Feeder routes are proposed from the East Coast Trail inland to the nearby villages of Kilcoole and Newcastle that are about 1km off the route, as well as at a few rural locations where local roads reach the coast. In some cases these feeder routes also serve as access routes to the railway stations, such as Sea Road in Kilcoole.

In Wicklow Town the coastal cycle route can follow the promenade at the harbour and into the town centre along a proposed cycling facility that was the subject of a feasibility study by Wicklow County Council in 2012. A section of the promenade, to the North of Castle View has recently been upgraded and widened.





Coastal Promenade in Wicklow Town

South of Wicklow Town towards Arklow the East Coast Trail can follow the R750 coast road past Brittas Bay, which is lightly trafficked, but should have a 60 km/h speed limit applied for safety of cyclists and warning signs provided to alert motorists that they are sharing the road with a designated national cycle route.

Routes Ar2 and Ar1 will carry the *East Coast Trail* through Arklow. It is not feasible to follow the coastline directly from the South Beach past Arklow Head due to a major quarry and industrial harbour. Instead the trail can take local roads from the southern edge of the town on the Wexford Road to Clogga Beach. From there southwards there is a quiet rural road near the coast past Kilmichael Point towards Courtown in County Wexford.

#### Rural Cycle Routes in South Wicklow

The rural cycle routes are shown on Maps RN6, RN7, RN8 and RN9 and follow suitable roads between the main towns in Wicklow, as well as providing recreational cycling routes in the Wicklow Mountains and to major tourist sites such as Glendalough.

- W1/D1 Dublin - Kiltiernan - The Scalp - Enniskerry - Djouce: the main access route from Dublin to the Wicklow Mountains for recreational cyclists. (See the Dublin South Central section in Chapter 3 for discussion of the improvements required in the Dun Laoghaire-Rathdown County area on this route as far as the northern edge of Enniskerry.) Joins Route W3 at Ballybawn near Powerscourt.
- W2 Bray - Enniskerry - Glencree - Military Road: There are several possible routes between Bray and Enniskerry. The route shown is via Ballyman Road (in DLRCC). The main R117 Cookstown Road is busy with traffic although slow due to many bends, but probably best avoided.
- W2a Bray to Enniskerry via Berryfield Lane to the south (partly private road) connecting to Fassaroe.
- W2b Bray to Enniskerry via local road at Cookstown near River Dargle and avoiding the main R117 Cookstown Road.
- W3 Bray & Enniskerry to Roundwood along the eastern edge of the Wicklow Mountains. This route avoids the busy R755 main road from Bray to Roundwood and instead follows a much quieter local road via Ballinastoe about 1km to the west. It also provides access the Ballinastoe Wood Mountain Biking Centre.
- W4 Bray to Wicklow via Greystones and Kilcoole along the R761 Regional Road with suitable cycling facilities on the busier sections north of Kilcoole.
- W5 Kilcoole to Roundwood via Newtownmountkennedy past the Druid's Glen Golf Club, linking the Wicklow Mountains to the East Coast Trail along quiet roads.
- W6/D2 *Military Road* from Dublin to Laragh via Rathfarnham and the Sally Gap: the highest and one

of the wildest cycle routes in Ireland reaching an altitude of 530m above sea level.

- W7 Roundwood to Blessington via Sally Gap, with a spur to Manor Kilbride and Route W18 to Dublin.
- W8 Roundwood to Laragh via Oldbridge on local roads west of the busy R755.
- W9 Roundwood to Wicklow via Ashford on R764 with quiet alternative from Ashford to Route W4 at Hunter's Hotel north of Rathnew.
- W10 Laragh/Glendalough to Blessington over the Wicklow Gap and through Vallemount, with a spur W10a westward to Hollywood and the rural cycle network in Kildare through Ballymore-Eustace.
- W11 *East Coast Trail* from Wicklow to Arklow and County Wexford. Greenway north of Wicklow Town and quiet coastal roads south of there.
- W12 Wicklow to Rathdrum via The Beehive and Kilmanoge, with a spur northwards to Glenealy through the *Deputy's Pass*.
- W13 Laragh to Rathdrum along the east side of the Avonmore Valley instead of the busy R755 road on the west bank of the river, with a shortcut section through forest lands south of Clara. This route then continues on the west bank by Avondale House and Forest Park to the Meetings of the Waters. It then switches back to the east bank of the river to Avoca on local roads. From Avoca to Arklow there are forest trails along the east side of the valley through private lands to Shelton Abbey. It should be possible to secure permissive access for cyclists along these tracks, which would need to be paved with gravel. This route is better than the busy R747 road on the west bank of the river from Woodenbridge to Arklow.
- W14 A circuit around the southern end of the Wicklow Mountains. It follows the Military Road from Laragh to Glenmalure and Aughavanagh over two high mountain passes. The route then continues around to Glen of Imaal in West Wicklow and the villages of Donard and Hollywood. Extends to Blessington and Dublin via Kildare Routes K21 and K22.
- W15 Aughavanagh to Auhgrim to Baltinglass: Overlap with Route W14.
- W16 *Old Auhgrim Railway Line*: a greenway from Route W13 at Woodenbridge on the former railway line to Auhgrim, Tinahely and Shillelagh, with local roads continuing the route southward via Coolattin Woods to Carnew and into County Wexford.
- W17 / K22 Baltinglass to Blessington, via Dunlavin and Ballymore Eustace, along local roads west of the N81. Potentially the old railway line from Naas through Dunlavin could also be developed as a greenway. (See Kildare Route K17).
- W18 Blessington to Dublin via Manor Kilbride, Ballinascorney Gap and Bohernabreena instead of the busy N81 main road.

#### Potential for Cycling Tourism in Wicklow

Given the proximity to the major population centre of Dublin and the spectacular mountain and coastal scenery available in County Wicklow, there is great potential for cycling tourism (both national and international) in the county. This is partially reflected at present in the large numbers of recreational cyclists that can be seen at weekends on the roads in North Wicklow in and around Enniskerry and Roundwood on the eastern side. However, most such cyclists are of the hardy road-biker type that is not discouraged by busy roads and steep hills.

This report has identified an extensive network of pleasant and quiet roads that can be promoted as touring cycle routes in North Wicklow. These routes have been selected to link to the main tourist attractions and to facilitate a wide range of route options in terms of length and difficulty. The rural routes connect into all of the main towns using suitable urban cycling facilities that are justified in any case for utility trips in those locations. The investment cost required would be very low to provide a top-class cycle route network in Wicklow based on a number of "Cycle Hubs" in the main coastal towns that have excellent transport connections by rail and main road. This concept is already working successfully in over a dozen locations around the country such as Clifden, Westport and Doolin. All

that is needed are direction signs for numbered cycle loops radiating from each town, occasional information sign boards and some special maps. Such a new tourism network would provide great economic potential for the existing communities in the towns and villages in Wicklow, many of which are bypassed by car and coach tourists that head quickly to hot-spots such as Glendalough that are over-subscribed.



## CHAPTER 5

## SUMMARY AND CONCLUSIONS

This report presents the *National Transport Authority Cycle Network Plan* for the Greater Dublin Area. When completed, the cycle route network will comprise urban cycle routes in the full urban area of Dublin and the major towns in the surrounding counties, as well as rural cycle routes and greenways across the region consisting of 7 local authority areas and with a population of 1.7 million people. This Cycle Network Plan will provide for a consistent network across the local authority boundaries.

### Policy Context for the Cycle Network

Policy at national and local government level is committed to ensuring that cycling as a transport mode is supported, enhanced and exploited to a much greater degree than heretofore. The key goal is aimed at ensuring that a cycling culture is developed in Ireland to the extent that by 2020 10% of all journeys will be by bike. A high quality and extensive cycle route network will be central to the realisation of this objective.

### Cycle Network Planning

In accordance with the *National Cycle Manual* the cycle network consists of a hierarchy of corridors that provide differing levels of importance for cyclists:

- Primary Network: Main cycle arteries that cross the urban area, and carry most cycle traffic;
- Secondary Network: Links between the principal cycle routes and local zones; and
- Feeder: Cycle routes within local zones, and/or connections from zones to the network levels above.

The cycle network in the Greater Dublin Area will also include a number of long-distance cycle routes as part of the *National Cycle Network* and the *EuroVelo* system of trans-European cycle routes.

While this report sets out certain proposals in respect of individual network links, these proposals have been developed at a strategic level. Accordingly, these individual link proposals are subject to possible refinement and amendment as part of the planning and development process of each scheme, while maintaining the overall intent of the proposal.

### Study Methodology

The development of this Cycle Network Plan followed a series of logical steps:

- (i) Mapping of the existing and planned cycle network;
- (ii) Assessment of the Quality of Service of the existing main cycle routes;
- (iii) Identification of gaps between existing and planned routes to serve the key destinations throughout the GDA area;
- (iv) Development a cycle demand model for the GDA;
- (v) Identification of potential alignments and design solutions for each route; and
- (vi) Preparation of a consolidated future cycle network plan for the Greater Dublin Area.

### National and Trans-National Cycle Routes

In the Greater Dublin area the National Cycle Network will comprise 3 key routes:

- East Coast Route from Rosslare to Northern Ireland through Dublin;
- Galway to Dublin (also part of EuroVelo Route 2 extending eastwards across Europe to Moscow) along the Royal Canal to the edge of Dublin; and
- Cork to Dublin via Kilkenny along the Grand Canal.

These routes are included in the proposed GDA Cycle Network insofar as feasibility assessments and route planning to date has indicated their likely alignments. The final routes may vary following more detailed route studies.

### Cycling Trip Demand Forecasts

A cycling demand model of the Greater Dublin Area was developed for a 2011 base year using Census 2011 POWSCAR data for work and education trip purposes, and the NTA 2006 Household Survey for other trip purposes such as retail and leisure. The input data was adjusted to reflect a typical weekday and recorded approximately **22,000 cycling trips in the GDA during the weekday morning peak period (07:00-10:00)**. This equates to a modal share by bike that varied up to a high of 6.7% for work trips of less than 5km length in the Dublin City area. The cycle model allowed estimation of volumes of cyclists on each route in the study area. Cycle traffic counts validated the model flows on the main city routes and indicated volumes of 800 cyclists or more in the peak period on several streets including North Strand and Rathmines Road.

Future cyclist volume forecasts were developed in line with the Government policy objectives and targets. To achieve a national average mode share of 10% will require a higher mode share in the urban areas to compensate for a likely lower mode share in rural areas. For this plan a range of variable mode share targets were applied for the future year cycle traffic forecasts taking account of trip type, distance and location. The highest future cycling mode share target assumed was up to 18% for short distance city trips to work, which is the trip type most amenable to cycling.

The future forecasts estimated an increase by 2021 to **75,000 cycling trips in the GDA during the weekday morning peak period**. On this basis the maximum flows on certain streets could well exceed 2,000 cyclists which would require substantial additional capacity in wider cycle facilities.

### Cycle Route Network Summary Lengths

The existing cycle route network in the Greater Dublin Area is **500km in length**, of which 400km is in the metropolitan area and 100km in the hinterland towns.

The proposed cycle route network will consist of the following key elements:

- (i) 235 km of Primary Cycle Route in the Dublin metropolitan area;
- (ii) 400 km of Secondary Cycle Route in the Dublin metropolitan area;
- (iii) 300 km of Primary/Secondary Cycle Route in the towns within the GDA hinterland;
- (iv) 110 km of Greenway routes in the metropolitan area;
- (v) 1,485 km of strategic cycle route in urban areas (excluding extensive local feeder routes);
- (vi) 1,355 km of rural cycle routes (including greenways) between towns; and
- (vii) 2,840 km Overall Total Network Length of urban and rural cycle routes.

The completed network will facilitate safe and comfortable cycling between all origins and destinations in the Greater Dublin Area.

### SUMMARY OF PROPOSED CYCLE NETWORK LENGTHS

Route Category	Length of Proposed Cycle Network (km)							
	Greater Dublin Area	Dublin CC	Fingal CC	South Dublin CC	Dun Laoghaire Rathdown CC	Meath CC	KCC	WCC
Primary (Metropolitan area)	235	109	23	47	55	0	0	0
Secondary (Metropolitan area)	383	149	56	124	55	0	0	0
Cross-City Link	19	19	0	0	0	0	0	0
Feeder (Metropolitan area)	434	114	59	119	142	0	0	0
Greenway - Metropolitan Area	110	67	0	27	15	0	0	0
Greenway - Hinterland	458		83			126	166	83
Inter-Urban	897	0	82	24	9	264	183	335
Primary/Secondary (Hinterland Towns)	303	0	78	1	0	75	78	70
<b>Total</b>	<b>2,840</b>	<b>460</b>	<b>381</b>	<b>341</b>	<b>277</b>	<b>466</b>	<b>427</b>	<b>488</b>
<b>Existing Routes</b>	501	169	84	58	90	22	38	39
<b>New Routes</b>	2,339	291	298	283	187	443	389	449