

## GREATER DUBLIN AREA DRAFT CYCLE NETWORK PLAN



2021

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## Cycling in the Greater Dublin Area...

The Greater Dublin Area Cycle Network seeks to be an inclusive cycling environment that is safe for all cycling abilities and ages with strong functional and recreational connectivity between homes and key destinations.

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#### 1 Introduction

In late 2020 the National Transport Authority (NTA) initiated this updated Greater Dublin Area (GDA) Cycle Network Plan 2021. It accompanies the GDA Transport Strategy.

The GDA Cycle Network comprises of substantial primary and secondary urban networks, as well as comprehensive Greenways, interurban and feeder networks.

The update sought input from each of the seven Local Authority areas making up the GDA as presented in Figure 1.1, and listed following.





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

This 2021 GDA Cycle Network Plan provides a substantial update and expanse of the 2013 GDA Cycle Network Plan, supported with technical assessment and stakeholder input.

Whereas the 2013 GDA Cycle Network Plan focused on identifying the links necessary for providing an adequate network for the cyclists, this 2021 GDA Cycle Network Plan aims to strengthen access and local permeability within Dublin and GDA towns, and cycling connectivity between them.

The revised network sets out to cater for the increasing number of cyclists, attracted by a quality cycling network and infrastructure. The network will grow and improve the safety, efficiency and directness of cycling for trips under 10km, acknowledging longer distance cycling commutes and recreational trips will also take place.

Unlike area-based plans, this 2021 GDA Cycle Network Plan seeks a consistent cycling network across county boundaries such that there is continuity across administrative areas. In the preparation of this study, national, regional and local strategies,



plans and guidance has been reviewed to create a navigable, comprehensive network, appreciating aspects such as rural and urban settings, reasonable cycling trip distances and purposes, user groups and the need to expand the network to keep up with growth.

This Cycle Network Plan outlines an evolved set of classifications based on a progression of the existing, and supported by the review of international cycle network examples.

Each of the network classifications are primed for suitable interventions, themselves informed by current and future iterations of the National Cycle Manual and associated, international cycling research.

#### 1.1 Context for this plan

The Government, Department of Transport, NTA and other State Agencies have commitments to enable promote higher levels and of sustainable transport and are therefore tasked with increasing active travel mode shares – supporting new cyclists, those transitioning from other non-sustainable modes and improving conditions for existing cyclists.

Current policies are set out in various documents and describe the of sustainability importance in transport. The National Cycle Policy Framework (NCPF, with its roots based in Smarter Travel А Sustainable Transport Future) is a key document that sets out the objectives and actions necessary for ensuring that a cycling culture is developed in Ireland. The NCPF presents all aspects of a proactive cycle culture, from the planning stages to education of cyclists and placing an emphasises on the stakeholder role in supporting and participating in projects. The NCPF necessitates the inclusion of cycle planning principles into the development of all national, regional, local and sub-local plans.

The NCPF's overarching initiative, Smarter Travel, A Sustainable Transport Future is to be updated imminently, with enabling cycling expected to remain as a core focus.

To ensure that investment is targeted efficiently and that a coherent network is delivered across the widespread GDA a multi-stakeholder approach is adopted. The NTA and Local Authorities within the GDA require a full overview of existing cycle facilities and their current quality, the progress of any ongoing cycle related works and locations the lacking cycling infrastructure.

The strategic cycle network developed as part of this plan supports cycling as a mode and delivers a framework for appropriating funding towards strategically important regional schemes. Therefore, this update of the GDA Cycle Network Plan for 2021 is kev in supporting NTA's cycling progression.



#### 1.2 GDA Cycle Network Plan update

The development of this updated Cycle Network Plan has followed a series of summarised steps, as below.



Existing and proposed cycle facilities, count data, crowd-sourced trip information, geographic and survey data have been collated from the NTA, Local Authorities and data providers. Data was standardised, brought into a central repository and used as the basis for many cycling analyses.

## 2. Stakeholder consultation

Key stakeholders, including Local Authorities, wider NTA groups and Transport Infrastructure Ireland were consulted with to obtain relevant data, interim network updates, proposals and feedback, ultimately ensuring a common understanding and approach to developing the 2021 GDA Cycle Network.

# ී3. Mapping and<br/>analysis

Key towns, cycling links, community facilities, places of work and education were assessed for necessary connections in the updated GDA Cycle Network. Cycle network classifications have been advanced for 2021, reflecting growth and cyclist expectations



With previous steps completed, the 2021 GDA Cycle Network was re-cast with new connections and an updated classification.



A detailed description of each step is presented in chapter 6 Network update methodology. The identified 'needs' of cyclists outlined in the National Cycle Manual (NCM), and of the Principles of Sustainable Safety (functionality, homogeneity, legibility, forgivingness and self-awareness) have been taken into account in the preparation of this Cycle Network Plan update.

#### 1.3 Report structure

Chapter 1 – Introduces this 2021 GDA Cycle Network Plan update

Chapter 2 - Details the Vision, Goals and Barriers to cycling

Chapter 3 – Presents the 2021 GDA Cycle Network

Chapter 4 - Details the strategic context

Chapter 5 – Outlines current cycling conditions

Chapter 6 – Details the update methodology to enhance cycling

Chapter 7 – Details cycling assessments and cycling programmes

Chapter 8 – Show how cycling accessibility will be enhanced

Chapter 9 – Assesses the plan's achievement against its Goals

# 02 Vision, goals and barriers



#### 2 Vision, goals and barriers to cycling

The 2021 Cycle Network Plan established a vision for cycling across the GDA, alongside the setting of four goals.

The vision provides an overarching aspiration for the network, while goals allow for ongoing monitoring and measurement of success.

The vision seeks to build upon the recent, strong growth in cycling as well as progressing cycling in a safe and sustainable manner. The vision reflects, on balance, the views of the many stakeholders involved in preparation of this GDA Cycle Network Plan and the future realisation of it.

#### 2.1 Vision statement



The Greater Dublin Area Cycle Network seeks to be an inclusive cycling environment that is safe for all cycling abilities and ages with strong functional and recreational connectivity between homes and key destinations.



#### 2.2 Goals

A series of cycling objectives developed at the outset of the 2021 GDA Cycle Network update have been translated into four manageable goals, presented below.



Figure 2.1 - GDA Cycle Network Plan Goals

#### Increase participation

The plan proposes an optimised cycle network accessible by cyclists of all abilities, regardless of users' level of confidence or skill. Specific attention is given to increasing cycling for school, education and recreational trips.

#### Improve connectivity

Barriers will be removed or mitigated where they obstruct direct and continuous cycling. Initiatives and infrastructure will be designed, developed and delivered to enhance permeability and enable the connection to key destinations.

#### Improve safety and accessibility

Safety and accessibility will be improved on the GDA Cycle Network, such that actual and perceived safety concerns are reduced. Users should be able to quickly access the network from home, work and/or education settings.

## Create a navigable and coherent network

The GDA Cycle Network will be enhanced to improve connections between cycle routes with suitable infrastructure, ancillary supporting facilities and wayfinding signage.



Goal development focused on making cycling safe and attractive. The four goals may be progressed with specific groups in mind, allowing targeted delivery and appropriate monitoring over the life of the plan.

Though increasing participation is a goal in its own right, it may also be an outcome of the plan.

The National Travel Survey, conducted most recently in 2019 (notably before the onset of the global Covid-19 pandemic), compiled statistical indicators for journey purposes and modes of travel. Respondents who cycle indicated their reasons for choosing cycling along with the factors that would encourage them to cycle more or make it more attractive for new users.

The main reason for choosing to cycle was enjoyment of cycling (55.7%), followed by keeping fit/exercise (49%). All reasons are presented in Figure 2.2.

The most significant factor for changing mode to cycling is safety improvements, followed by better health and the existence of a specific and continuous route.



Figure 2.2 – Reasons for cycling (source: cso.ie)<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Multiple answers were permitted, meaning the sum for cycling factors can be greater than 100%.



#### 2.3 Barriers to cycling

In preparing the vision and goals, the report 'Bike Life 2019 Dublin Metropolitan Area' (Bike Life) was consulted in depth.

This report details a recent and widespread view of the 'state of the network', notably outlining the barriers and impediments to cycling for both cyclists and non-cyclists. Figure 2.3 outlines the reported issues of cycling in the Dublin Metropolitan Area – many of these mirror the feedback received through stakeholder consultation across the GDA.

Safety concerns stand out as the main barriers to cycling (also reflected in the 2019 National Travel Survey).

Bike Life respondents also raised concerns of cycle facility features, infrastructure availability and quality, traffic speeds and interactions with other groups.

Overcoming or substantially mitigating such barriers would rationally lead to a high-quality cycle network and support increased participation.



Figure 2.3 - Barriers to cycling, multiple responses allowed<sup> $\ell$ </sup>

<sup>&</sup>lt;sup>2</sup> Bike Life was produced as a partnership of Sustrans and the NTA and used a survey of 1,106 GDA residents conducted in July 2019 in addition to local cycling data and modelling

# 03 GDA Cycle Network





### 3 GDA Cycle Network

A map of the 2021 GDA Cycle Network is provided in Figure 3.1. A set of network plans are available alongside this report. Details of its development follow.



Figure 3.1 - 2021 GDA Cycle Network





### **Network expansion**

The 2021 update of the GDA Cycle Network delivers a progressive, forward-looking network which enables cycling over a wider geographic area, catering for a growing population.

The expanded geographic coverage will itself enable several of the goals, notably, increased participation and connectivity.

The network notably expands into widespread areas of the GDA, including Strategic Development

Zones (SDZs), district centres, towns and urban fringe areas.

There are also network improvements put forward for 'utility' movements, such as access to work, education, community services and transport interchanges. Equally, the network expansion provides for more recreation, leisure and family-focused cycling trips, with access to sports and recreational facilities, cycling loops, rural areas and tourist destinations.

#### Responding to growth of the region

The population of the GDA has expanded in recent years placing increasing pressure on the existing, conventional transport network. Since 2006, an additional 250k residents live within the four counties and seven Local Authorities of the GDA. This represents a 14% increase in population.

Looking ahead, Project Ireland 2040 forecasts a population increase of around 1 million in the state by 2040, with the Eastern and Midland Region accommodating around half the growth, or 500,000 new residents.

The 2021 GDA cycle network proposes a substantial expansion (38% increased length compared to the 2013 network) and densification pattern to facilitate cycling in the region.



#### Table 3.1 - Focus areas of expanded 2021 GDA Cycle Network

#### The GDA Cycle network has been expanded in a number of key areas:

#### Strategic Development Zones (SDZs)

The cycle network has been densified in a number of SDZs, in anticipation of a continued trend for increasing cycling and walking, among other sustainable modes. Key links through the following SDZs are included in the 2021 GDA Cycle Network update:

Cherrywood, Sandyford (LAP), Grangegorman, North Lotts and Grand Canal, Clonburris, Adamstown, Naas Road (LAP), Ballymum (LAP), Clongriffin and Hansfield

#### **District centres**

14 District (town) centres have been identified across the GDA, mirroring those of the GDA Transport Strategy. Each District centre has its cycle network enhanced in the vicinity as well as outward connections. The district centres identified are:

Blackrock, Stillorgan, Nutgrove, Cherywood, Lucan, Rathfarnham, Clongriffin and Belmayne, Northside, Rathmines, Ballymun, Docklands, Balbriggan, Wicklow Town, Arklow, Blessington, Maynooth, Newbridge and Athy.

#### **County towns**

Similar to District centres, a series of county towns have been identified for localised cycle network improvements, including densification. County towns identified are:

Blanchardstown, Bray, Dublin City, Dundrum, Dún Laoghaire, Naas, Navan, Swords and Tallaght.

#### **Dublin City fringe**

With the gradual expansion of Dublin City into the surrounding hinterland, the city fringe has been targeted for an enhanced cycle network. These enhancements support improved permeability between green-field development sites, recently constructed housing and commercial areas, and existing urbanised city areas. An example of this in 2021 is the enhanced cycle network among Dublin City's northern suburbs, Swords and Malahide, though many city fringes gain such benefits.





### Appropriate network density

The 2021 GDA cycle network recognises the need for different areas to have different levels of cycling connectivity. For example, residential and dense urban areas require a comprehensive, prioritised cycling network, whereas a more sparse network may be appropriate in rural settings for recreational cycling.

In consultation with stakeholders, the network has been updated to provide access where it is readily needed and avoiding an overprovision where it is not.

2021 GDA Cycle Network densities are provided in Figure 3.2 for each Local

Authority area, indicating that a denser network is delivered where more people reside or work (Dublin City Council). The network intentionally becomes dispersed as it radiates outwards from Dublin City, but still delivers strong connections among many towns and villages, and the respective intra-town networks.

Increasingly rural Local Authorities with larger geographic areas and/or more challenging terrains (Wicklow, Meath and Kildare county councils), notably exhibit relatively lower network densities.



Figure 3.2 - GDA cycle network densities by area and population (size represents 2016 pop.)





### Network classifications

Updating the network in 2021 enabled a revision of cycle network classifications. These represent a step change towards more tailored cycling environments.

GDA 2021 Classification
 Primary Arterial
Main cycling arterials enabling high levels of utility movemen among town centres and Dublin City in a radial manner.
Primary Orbital
Main cycling arterials enabling high levels of utility movemen orbitally among Dublin's suburban town centres.
Secondary
Moderately trafficked cycling connections between local zone and other network classifications, and provides resilience to the Primary Networks.
Greenway – Utility
Parkland, coastal or waterway links providing utility functions for commuting, education, community service access and onwa transport connections.
Greenway - Leisure
Parkland, coastal or waterway links providing recreational ar leisure functions.
Inter Urban
Routes which connect towns and urban centres over longed distances throughout the GDA.
Feeder
Localised cycling connections providing access amor residential areas and local zones as well as providing access onto other classifications.



#### 3.1 Route classifications

In order to categorise the GDA Cycle Network research was conducted into international cycle network examples.

The cycle network classifications of some cities across the world are presented in Table 3.2 and indicated a

broad range of locally customised network classifications. It was therefore determined that this 2021 GDA Cycle Network update would deliver a light-touch update to the existing (2013) network classifications.

City	Classifications	City	Classifications
Dublin	Primary Network	London	Cycleways
(2013 class.)	Secondary Network		Quietways
	Feeder		Low traffic neighbourhoods
	Green Routes		Superhighways
Copenhagen	Roadside cycle tracks	Melbourne	Principal Bicycle network
	Independent bikeways		Bicycle Priority Routes
	Super bikeways		Strategic Cycling Corridors (SCC)
			Metropolitan Trail Network (MTN)
Paris	Piste cyclable	Belfast	Radial routes
	Bande cyclable		Quiet routes
			Greenways
Amsterdam	Amsterdam operates a 'Pri information on new connect they may be beneficial to c classification of the route.	oritising Tool'. tions being pro yclists, it does	This tool assesses posed and identifies how not make a specific

Table 3.2 – Types of cycle network classification – international examples



Investment in the network will be targeted where it delivers on the greatest need for many users, while also taking cognisance of specific areas of need (such as schools, educational institutes and transport hubs). Cyclists can therefore expect the most comfortable, direct facilities on the Primary networks, followed by Secondary networks, while also having the accompanying Inter urban, Feeder and Greenway networks to serve their wider social and recreational needs. The classifications are such that the majority of trips will be undertaken on the highest quality corridors, while being mindful of finite budgets and delivery capacity.

The 2021 classifications will deliver a navigable and coherent network, one of the Plan goals. Consequential improvements in cyclist safety. confidence connectivity and are ultimately expected, and the encouragement of more trips by sustainable modes.



Access to services and onward connections

Better access to services through a continuous, connected and safe cycle network would encourage people to cycle more for daily commuting. Decarbonisation of transport would be advanced with such a modal shift to cycling also.

An Access to Services analysis was conducted, aiming to evaluate the level

of connection in the 2021 cycle network using various key destinations as points of reference.

The analysis identified accessibility gaps and further improvements were considered in areas with available space for providing a well-connected cycle network – Section 7 outlines the analysis and details the outcomes.



## Strategic context





#### 4 Strategic context

The 2021 GDA Cycle Network Plan delivers on a necessary national and regional shift towards active travel planning.

This plan has been informed by many strategic plans, policies, guidelines, and Government statements. Many of those documents relevant to developing the network and enabling cycling are outlined in Table 4.1. Several key updates are pending.



#### Table 4.1 - Strategic context review

Document	Description and / or applicability for the 2021 GDA Cycle Network	
Programme for Government: Our Shared Future (PfG)	Cycling and walking has been given a high level of prominence and ongoing importance in the October 2020, PfG Statement. Significant funding is earmarked to improve the facilities and functions to enable people to travel by bicycle (and foot), ultimately improving people's quality of life, air quality, as well as Ireland's commitments to sustainability and decarbonisation.	
	As well as the mandated development of cycle network planning, delivery and positioning of qualified personnel, the PfG seeks more cycling to schools, widening of cycling incentives for employment (Bike to Work) and ongoing enhancement of safety through policy and legislation review.	
Greater Dublin Area, Cycle Network Plan, 2013	The 2013 plan identified and determined the urban, inter-urban network and the Greenways based on a	
(Update pending)	quality of service, the identified five main needs of cyclists and a cycle demand analysis. This plan identified possible future route upgrades and began the preparation of a consolidated future cycle network for the GDA. The 2021 GDA Cycle Network Plan acts as an update to this comprehensive precursor.	



Greater Dublin Area Transport Strategy 2016- 2035 (Update pending)	This Strategy incorporates the GDA Cycle Network Plan and notes that it is an aim to implement the GDA Cycle Network plan in full. The strategy highlights the provision of on and off-street cycling at key destinations.
Bike Life 2019 – Dublin Metropolitan Area	Bike Life is the biggest assessment of cycling in urban areas in the UK and Ireland, assessing 17 urban areas in the two countries. The report notes health and environmental benefits, and reduction of social and economic exclusion due to increased cycling. Future Bike Life assessments will also help the GDA track its progress towards the cycling goals of this plan.
Smarter Travel initiative (Update pending)	A primary aim of this initiative was to reduce the distance travelled by private car by investing in walking and cycling and developing both into viable commuter modes for the long-term in Ireland (reduce commuting by private car from 65% to 45% by 2020). It acknowledges that a coherent, safe network is crucial, which serves areas people want to travel to, with priority at junctions, free of obstacles and adequate lighting.
The Permeability Best Practice Guide, 2015	This guide identified how to best accommodate demand for walking and cycling in existing built-up areas. It analysed the concept of permeability and outlined best practice for providing permeability.
The National Cycle Policy Framework (NCPF) 2009- 2020 (Update pending)	The framework's main goal is to create a strong cycling culture and to make cycling the norm for short trips undertaken in Ireland. It shares the same targets as the Smarter Travel, with a key goal of 10% of trips made by bicycle by 2020. It identified interventions required in planning, infrastructure and in cycle education and training, along with potential financial and legislative tools to provide a high-quality cycle network.
The National Cycle Manual (Update pending)	The manual aims to provide a standardised procedure for designing a cycling facility in Ireland based on the five main needs of a cyclist. It provided the Quality of Service (QoS) as an assessment tool in order to measure the degree that the cyclists' needs are



achieved. The manual also includes the basic principles of the cycle facilities and the current policies and legislation for cycling.

Regional Spatial andThe Regional Spatial and Economic Strategy points to<br/>the ongoing enablement of active travel and increasing<br/>its modal share. Delivery of a safe and attractive<br/>cycling network in the region is also highlighted.<br/>Regional policy objectives note the requirement to<br/>improve the efficiency of existing transport network.

A series of county and local area plans were reviewed in preparation of this plan and updating of the network. A summarised list of those reviewed are below:

- Fingal Development Plan 2017 2023
- South Dublin County Development Plan 2016-2022
- Dún Laoghaire County Development Plan 2016-2022
- Meath County Development Plan 2013-2019 (and variations)
- Dublin City Development Plan 2016-2022
- Kildare County Development Plan 2017-2023
- Wicklow County Development Plan 2016-2022 & Draft Wicklow County Development Plan 2021-2027
- Bray Local Area Plan 2018-2024
- Greystones, Delgany and Kilcoole Local Area Plan 2013-2019
- Wicklow Town Rathnew Local Area Plan 2013-2019
- Navan Development Plan 2009-2015 & Navan Transport Plan 2014-2019
- Trim Development Plan 2014-2020
- Naas Draft Local Area Plan 2019-2023
- Maynooth Local Area Plan 2013-2019
- Newbridge Local Area Plan 2013-2019

#### 4.1 Forthcoming strategic elements

At the time of writing several national strategic documents are anticipated which should further enhance the strategic need for widespread cycling.

A Climate Action Plan is expected following enactment of the Climate Action and Low Carbon Development (Amendment) Act 2021. Another positive strategic enabler will be expected from a Department of Transport land transport investment framework – this is also anticipated to put active travel at the fore.

# 05

## Cycle network conditions







#### 5 Analysis of current conditions

The first step of the analysis focused on identifying the changing cycle demand and safety performance. This section presents a comparison of cycling conditions between the 2013 GDA Cycle Network Plan and the current situation. The impact of Covid-19 is covered in brief.

#### 5.1 Demand analysis

Changing cycling demands have been evident between the development of the previous GDA Cycle Network Plan and this 2021 update. Data for cycling demand was available from NTA's Household Travel Survey reports and Dublin's Canal Cordon Counts.

#### 5.1.1 National Household Travel Survey

The National Household Travel Survey is a nationally representative study capturing the travel behaviour of the Irish public throughout the country on a typical weekday and at weekends. Amongst the information reported is the number of trips made by mode of transport. The 2012 and the 2017 reports were compared to assess the change in cycle trips during the fiveyear period for the GDA area.

The 2012 NTA Household Travel Survey report showed that overall, 11,277 representative trips were made within the GDA. Of these 338 trips (3%) used a bicycle as a mode of transport. In the 2017 report, 20,020 trips were recorded in the GDA, with 1,000 of those trips (5%) made by bicycle. GDA total trips increased by 78%, while the increase of cycle trips more than tripled during the five-year period, showing a modal shift to cycling. Acknowledging the relatively small sample size, а positive, representative mode transfer to cycling is observed.

Changing modal splits between the two surveys are presented in Figure 5.1.



Figure 5.1 - 2012 to 2017 change in travel mode (NTA Household Travel Survey)



#### 5.1.2 Canal Cordon counts

Each year DCC undertakes traffic counts at 33 locations on specific entry points to the city centre – a cordon formed by the Royal and Grand Canals.

During the six-year period from 2013 to 2019, the number of observed cyclists increased by 33%. For the same period, cycling's percentage of modal

share almost doubled from 7% to 12%, showing many users' intent to choose a more sustainable way of commuting to the city centre. Figure 5.2 presents the long term trend of changing mode share (by number of people) of the canal cordon during the AM peak period. Cycling sees a stable, increasing uptake over the last 13 years.





Figure 5.2 – No. of people crossing Cordon Canal by mode (07.00-10.00)



#### 5.1.3 Covid-19

Due to the Covid-19 restrictions throughout 2020, private vehicle trips and the number of passenger journeys on public transport dropped dramatically. During the period and with social distancing in-place, many turned to cycling for leisure and for short distance trips, thus cycle demand increased compared to other modes. The number of cyclists was relatively similar during off-peak periods or even exceeded 2019 volumes, as presented in Figure 5.3, showing that cycling was an important mode of transport during the restrictions. While restrictions were difficult for people, the change in travel behaviour does show that cycling is a viable mode for many trips.



Figure 5.3 – Monthly volume of bicycles at selected Dublin sites for 2019-2020 (source: cso.ie)

#### 5.2 Weather for cycling

Despite a common perception, Dublin has comparatively low levels of rain and snow among European cities.

Dublin has lower long-term average precipitation than the likes of Amsterdam, Brussels, Munich and Rome, as shown in Figure 5.4. Lower rainfall undoubtedly delivers an easier cycling environment for many<sup>3</sup>.



Figure 5.4 - European cities' precipitation

<sup>&</sup>lt;sup>3</sup> https://www.currentresults.com/Weather/

Europe/Cities/precipitation-annual-average.php



#### 5.3 Safety analysis

Analysis was conducted to evaluate the change in cyclist collision rates between the 2013 and the 2021 GDA Cycle Networks Plans.

Road Safety Authority (RSA) data has been collated for the most recent available periods over the same number of years, both time frames represent an eight-year period of analysis. The total number of collisions in the GDA area for the two time periods are presented in Table 5.1. Comparing the number of collisions over the two periods, an increase is noted for serious and minor collisions (up 273% and 102% respectively), whereas fatal collisions have decreased by 32%.

Spatially, the collisions for each analysed period are presented in Figure 5.5 and Figure 5.6 for the GDA and four Dublin Local Authority areas respectively.

#### Table 5.1 - RSA Collision data per collision type within the GDA<sup>4</sup>

#### Cyclist collisions in the GDA

The number of collisions involving cyclists has increased since the previous GDA Cycle Network Plan, noting that the number of cyclists has also increased significantly in the eight year periods assessed.

	2013 GDA Cycle Plan	2021 GDA Cycle Plan
	(2002-2010)	(2008-2016)
Fatal	38	26
Serious	90	335
Minor	1,560	3,150
Total	1,688	3,511

Positive gains have been achieved in the reduction of fatal collisions. However, ongoing improvements in cycling safety are needed, particularly for serious collisions.

<sup>&</sup>lt;sup>4</sup> The 2013 GDA Cycle Network Plan's collision data referenced collisions involving cyclists in the years 2002 and 2010 inclusive. As part of this GDA Cycle Network Plan Update for 2021, the most recent dataset available and applied is 2008 to 2016 inclusive.





Figure 5.5 - RSA Cycle Collisions, Dublin counties, 2002-2010 (left), 2008-2016





Figure 5.6 - RSA Cycle Collisions, GDA, 2002-2010 (left), 2008-2016 (right)







Observations were made regarding cyclist collisions at the Local Authority level for each period. Although collision numbers have increased in many instances, so too have the number of cyclist journeys taking place. Table 5.2 presents an annualised assessment<sup>5</sup> of collision rate changes for each Local Authority.

For the GDA, the number of collisions had increased from the period 2002-2010 to 2008-2016. However, when accounting for the growth of cycling the

relative rate of collisions to cycling trips are often unchanged or declining.

A positive trend for cycling safety is the reducing number and rate of fatal collisions. While positive, there remains significant challenges to reverse the trends of increasing serious and minor collisions, as well as understanding and alleviating issues of continued under-reporting.

<sup>&</sup>lt;sup>5</sup> Annualised rates are applied due to the different periods over which growth and collision rates are assessed. Cycling growth is based on NTA's Household Travel Surveys (2012 and 2017), collisions use RSA datasets.



#### Table 5.2 – Collision assessment per Local Authority

Local Authority	Description
Dublin City Council	DCC recorded the majority of collisions (2,102) for the period 2008-2016. Fatal collisions reduced by 50% (from 22 to 11) between periods, whereas serious and minor collisions increased almost four-fold and two-fold respectively. Though the reduction of fatal collisions is positive, the challenge remains to reverse the trend of increasing serious and minor collisions.
Dún Laoghaire- Rathdown County Council	Many collisions in the latter period occurred towards Dublin City - collisions were focused in the north western areas of DLRCC. A single fatal collision was recorded in both periods, with a significant increase recorded in both serious and minor collisions.
South Dublin County Council	The majority of collisions occurred in the north eastern region of the Local Authority area, in close proximity to Dublin City Centre (observing this area would also anticipate a higher number of cyclists). A single fatal collision is recorded in both assessment periods, whereas an approximate doubling and trebling of serious and minor collisions occurred respectively.
Fingal County Council	This Local Authority area recorded 255 collisions taking place in the most recent dataset, with four fatalities and similar, significant increases in serious and minor collisions as other areas. The urbanised areas of Blanchardstown, Swords and Malahide indicate some concentrations of collisions
Meath County Council	A total of 102 collisions took place in county Meath in the latest period and followed a similar trend of unchanged fatal collisions and increasing serious and minor. Navan, Laytown, coastal areas and the fringe of Dublin City indicated notable clusters.
Kildare County Council	A reduction of fatal collisions has taken place in Kildare (from five to three between periods). Serious and minor collisions have increased, as noted in other Local Authority areas. Some clusters of collisions are observed in Newbridge, Naas and Leixlip.
Wicklow County Council	A proportionally high increase in serious and minor collisions has been observed in the area, with fatal collisions remaining stable (four in each assessment period). Bray, Greystones and Wicklow Town observe some of coastal clusters of urban areas, some scattered, inland collisions have also taken place.

# 06 Network update methodology





#### 6 Network update methodology

Several steps were undertaken to update the GDA Cycle Network.



Assess current conditions

A significant step of the methodology was to evaluate the current conditions, as described in Section 5.

**Assess existing Access to Services** 

The analysis evaluated the level of connection for cyclists to key services and destinations. An overview of the process is provided in Section 6.1, outcomes are in Section 7.1.



### Consultation

Consultation with each Local Authority was conducted aiming to analyse the current cycle conditions and gain feedback for the future network, Section 6.2 summarises activities undertaken.



### **Spatial Assessment**

In the context of obtaining feedback on the existing GDA Cycle Network an online interactive map was developed. The NTA and Local Authorities provided data and feedback regarding the cycle network. Further details are provided in Section 6.3.



## Network update and initiatives

Numerous updates and initiatives were proposed for the GDA Cycle Network which progress each of the four goals



#### 6.1 Access to Services analysis

An 'Access to Services' analysis aims to evaluate the level of access and connection to various key destinations and public facilities.

Using the road network and each of the 2013 and 2021 GDA Cycle Networks, it is possible to assess which areas are well connected to services and which are not. Journey times act as a proxy for the level of connection, and were assessed for a host of destinations, as in Table 6.1.

The output of the initial, road network assessment is shown in Figure 6.1, it highlights good access in Dublin City and some county towns, but also the poor access for many rural areas.

Table 6.1 - Access to Services key destinations

#### Key destinations assessed as part of the Access to Services analysis

Norkplace areas
Primary schools
Secondary schools
Higher Education Institutions (HEIs)
Hospital facilities
Vajor transport stops
/illage centres
Fown centres



Figure 6.1 - Access to Services across the Greater Dublin Area

The analysis has two main purposes:

- To assess where there are pockets of poor access or connectivity in urban areas, such as areas near linear infrastructure, i.e. those acting as barriers to cycling (roads, railways, canals etc.)
- To identify apparent connections between rural towns and to strengthen these with improved cycling links.

Separate analyses were conducted for the 2013 and 2021 GDA Cycle Networks which would then quantify the level of improvement. Further detail and outcomes of the assessment are provided in Section 7.1.



#### 6.2 Consultation with Local Authorities

Inclusive engagement was undertaken by the NTA as part of the development of the updated GDA Cycle Network Plan.

- A series of presentations and workshops were undertaken with each Local Authority indicating the process to update the plan for 2021.
- Ongoing consultation was undertaken with each Local Authority to understand local aspirations, analyse current cycling conditions, and lastly gain feedback on the direction of the future cycling network.
- Processes were put in place to receive existing, locally developed geospatial cycling datasets, or to allow feedback, commentary and markups through an online platform (see Section 6.3).

A key outcome of consultation was to focus on prioritising cycle networks

inside town and village centres and connection with key destinations, such as schools and rail stations. Secondly, to continue to improve inter-urban cycling between towns. The provision of ancillary cycle facilities such as secure cycle parking, workplace and showers lockers to support cyclists' trips was a further notable point raised from consultation.

#### 6.3 Geospatial feedback

In the context of obtaining more specific details on the GDA Cycle Network from the local authorities and the NTA, an online interactive map was developed. The interactive map displayed the existing GDA Cycle Network and allowed users to navigate to, and comment on specific cycling routes, issues or areas of prospective improvements.

The provided feedback was then used in the development of the updated 2021 GDA Cycle Network.



Figure 6.2 - GDA Cycle Network online collaboration tool



#### 6.4 Major Projects integration

At the time of updating the 2021 GDA Cycle Network, several major projects are being progressed in the GDA. Potential impacts of each project on the plan have been considered during its development. Three major projects under development are:

- BusConnects Dublin
- DART Expansion
- MetroLink

Summarised details of each are provided in Table 6.2, including some brief notes on possible interactions with cycling in the GDA.

Table 6.2 - Major projects in the GDA

Transport project	Description and interaction with the GDA Cycle Network
BusConnects Dublin	BusConnects Dublin is a 10-year programme to improve the quality, speed and reliability of bus service in the Dublin area. As part of its delivery 16 Core Bus Corridors (CBCs) are proposed, each with segregated cycle lanes and/or tracks. A limited number of quiet routes for cycling are proposed in parallel to some sections of the CBCs.
DART+	DART+ is a series of projects that will improve and modernise existing rail service in the GDA. Where cycling proposal smay be integrated, there is an opportunity to substantially increase the catchment of stations along this expanded DART network. This upgrade will provide new pedestrian, cycle and vehicle crossings as required, including grade separation in some instances.
MetroLink	MetroLink is a proposed Metro line from Swords to Charlemont in Dublin City. Integrated cycling facilities will have the potential to increase the catchment of MetroLink stations. This line will be segregated from general traffic, thus not affecting cyclists' safety directly. Cycle severance concerns may be resolved with suitable measures such as footbridges (with cycling facilities) and grade-separated crossings.

# **07** Improving cycling in the GDA





#### 7 Improving cycling in the GDA

#### 7.1 Assessing Access to Services

In the context of this plan the Access to Services analysis (outlined in Section 6.1), considers the relative proximity of GDA residents to a host of key destinations. These include frequently accessed and/or significant community destinations, and transport interchanges. Table 6.1 lists the services considered.

Figure 7.1 presents the outcome of the analysis, where green areas attain high levels of access to services and red areas only have limited access.

From the analysis, many locations with currently poor access appear across the GDA which allow for targeted areas of improvement.

Dublin City and the urban fringe notably attains a high level of connection and access. Numerous cycle links exist here, providing a strong connection amongst multiple locations, often within a reasonable, 15-minute cycling duration.

In contrast, rural areas of the surrounding Counties (Meath, Kildare and Wicklow), do not attain the same degree of access to services.

Appreciating there are be fewer services in more rural areas (for example, fewer healthcare or third level institutes), there remains a disconnect between many towns, villages and rural community services and the population. Rural areas have lower levels of cycling infrastructure adequate and less connections between nearby towns. Within towns and villages the cycle network fails to accommodate cycle movements and therefore reduces the potential for increasing participation.

Analysis of the levels of Access to Services for each Local Authority are presented in Table 7.1.

Table 7.1 – Access to Services rest	ults per Local Authority
-------------------------------------	--------------------------

Dublin City Council	Dublin City provides the highest level of Access to Services in the GDA – not only because many key facilities are located here, but because a dense transport network is present. The analysis does however point to pockets of the city which are relatively disconnected from services - western areas of the inner city and new developments in northern suburbs, for example.
Dún Laoghaire-	Built-up areas in the north exhibit better quality and consistency
Rathdown County	of cycling infrastructure than southern areas. The M50 is
Council	observed as a barrier to service access from the southwest.

#### Local Authority Description



South Dublin There is good access to services in the eastern extent, close to Dublin City, due to enhanced amenities and better cycling infrastructure. Tallaght, Clondalkin and southern areas of Lucan also provide good amenities and cycling access, however linear infrastructure (M50 and the Grand Canal) disrupts access to services.

Fingal County Fingal's eastern areas, home to several significant settlements, Council are well connected. Swords and Balbriggan have amenities and networks which deliver good access to services, however, like other areas there is a disconnect caused by large-scale infrastructure (railway, M50 and Dublin Airport), and the local geography of Broadmeadow and Rogerstown estuaries.

Meath County The only area of good access in MCC is the centre of Navan. Council There is a lack of cycling infrastructure between towns and villages in Meath. The main form of transport used in larger, more rural counties is private car, and large distances will not favour cycling in the area.

Kildare CountyHigher levels of accessibility are identified in some central townsCouncilof KCC, Naas, Newbridge and Kildare, for example. Smallertowns provide some amenity giving low-level increases in<br/>access. Rural areas between towns have poor access.

Wicklow County Due to the topography and mountainous terrain, access for western areas of WCC is low, though some pockets of moderate access exist for towns and villages. Bray and Greystones have the highest level of access to services in Wicklow.

## 7.2 Improving Access to Services across the GDA

With the analysis undertaken attention turned to improving users' access on a revised 2021 Cycle Network.

Pockets of low access will have a denser cycling network proposed allowing more direct access.

Combined with wayfinding signing and wider school, community and workplace initiatives the level of cycling on a coherent network will increase.

Improvements in network access and ancillary, supporting facilities will contribute to the achievement of several goals.





Figure 7.1 – Access to Services across the Greater Dublin Area



## 7.3 Permeability improvements for GDA towns

There is a need to improve local permeability among some GDA towns, in particular to achieve the goal of improving connectivity.

A permeability assessment was conducted for a series of 'isochrone towns' across the GDA (which match a group of notable towns of the associated GDA Transport Strategy). The assessment of each town was undertaken for an area bounded by a 2km buffer – these towns and their buffer zones are shown in Figure 7.2. With towns identified and their existing 2013 cycling links determined, next steps focused on a detailed review of each town individually – this identified areas of weak permeability and where network densification (add new cycle network links) or other interventions were needed.

Several permeability concerns are presented alongside outline interventions in Table 7.2.

In addition, the Permeability Best Practice Guide, published in 2015 by the NTA, details specific improvements to be made to the built environment in order to make it easier for residents to use active modes of travel and public transport.

#### Table 7.2 - Identified permeability concerns and interventions

Permeability concerns	Permeability interventions
Gated communities	Assess and add cycle links for the 2021 network which improve access around impermeable 'blocks' and/or gated communities
Canals & Topographical features	
Including rivers, embankments and coastlines	Develop and propose new crossing
Linear infrastructure	facilities
Including roads (motorways), light and heavy rail sections.	





Figure 7.2 – Permeability assessment of GDA towns showing 2021 GDA cycle network links

#### 7.4 Junctions First programme

During the development of the plan, a review of the entire GDA cycle network was undertaken to identify gaps in junctions, roundabouts, and other nodes.

Junctions often create complex situations for cycling and can lead to increased risks of collisions with vehicles or other road users. Poorly designed or implemented facilities may create confusion about priorities or decrease visibility between road users. Without suitable lane markings signs or general layouts, drivers may not check blind spots when making manoeuvres, especially on left turns.

Generally, close to junctions there should be suitable facilities to enable safe, efficient and comfortable movements for the cyclists.

Roundabouts and other connections on the network also act as key areas for improvement and collision reduction.

This 2021 GDA Cycle Network Plan recognises the need for continued improvement and development of



cycling facilities at junctions, roundabout and other nodes. These improvements should be focused on the Primary and Secondary cycle networks which are subject to more frequent use, but also particular sites or crossing points of concern, for example, near schools or other education institutes.

There is a need to undertake junction improvements first in many instances, while link interventions may follow.

#### Cyclist Injuries – A review of 2012 casualties (RSA)

**49%** of cyclist injuries occurred at a junction

**52%** of the junction related injuries occurred on T-junctions

**21%** and **15%** of cyclist's injuries were caused by a motorist turning right and left respectively

#### 7.5 Secure cycle parking

Cycle parking is considered an integral part of the cycle network, especially at key destinations and public transport stops. If the necessary facilities are not provided, or the provided quality of assets is not adequate, then wider investment in the cycle network may not be fully realised.

Luas promotes the integration of cycling with the light rail service by developing and providing cycling facilities at many stops. A specific example is the Luas Cycle+Ride initiative which has provided around 700 bike parking spaces at Luas stops. Weather shelters, bike lockers and 24h access are key aspects of the facilities. Looking ahead. Cycle+Ride the scheme is anticipated to expand to even more Luas stops and locations.

The BusConnects and MetroLink projects also consider cycling improvements along their alignments, accompanied by cycle facilities and parking at key locations.

Consideration may also be given to the delivery of more further cycle parking facilities at railway stations for use as part of a multi-modal commute. An adequate number of parking spaces should be provided at each facility to keep up with demand and a simple access system will encourage their use.

Some existing secure cycle storage facilities are present in several stations, shopping centres and schools. Some examples are presented in Figure 7.3.





Figure 7.3 - Existing gated cycle parking facilities

Town and village centres may also consider the development of secure cycle parking in key locations for supporting people's movements with bikes. A similar approach would benefit sport facilities, shopping centres and employment hubs.

Cycle parking is a significant factor for encouraging cycling, and its ongoing provision should be considered across the GDA at suitable facilities and locations.

## 7.6 Safety improvements - segregation

As discussed in Section 5.1.3, if cycling did not grow on the network between 2013 and 2021 then the number of collisions would represent a very negative increase in safety. However, the relative increase in demand points to lower collision rates overall.

The consideration of segregated cycling facilities at appropriate locations across the GDA should be ongoing in an effort to improve safety

on the network. The National Cycle Manual (currently under revision), presents the principles of sustainable safety that should be applied to new or existing cycle facilities. Current principles of cycling safety refer to:

- Functionality
- Homogeneity
- Legibility
- Forgiveness
- Self-awareness.

The principles aim to enable a cycling network which is safe, consistent, navigable and simple to use.

#### 7.7 Road network improvements

Safety improvements for cycling are strongly connected to improvements of the road network. Network-level safety concerns are presented in Table 7.3 alongside indicative improvement measures – other documents, such as the National Cycle Manual, will detail specific interventions.



Cycle network concern	Indicative network improvements
Cyclist collisions with parked cars	Buffer areas between cycle facilities and parking, and warning signs to alert cyclist
Lack of cycle infrastructure along bridges	Reconfiguration of existing bridges Bridges dedicated to cyclists (or active modes)
Slope and length of the bridge	Bridge slope less than 1:20 <sup>6</sup> A segregated or buffer cycle lane for road with high speeds
Lack of direct routes	Create shorter routes between areas with high cycle demand and low accessibility

#### Table 7.3 – Cycle network issues and improvements

<sup>&</sup>lt;sup>6</sup> National Cycle Manual



#### 7.8 Cycle network gradients

Gradients present difficulties for many non-enthusiast and non-sports cyclists. Excessive or prolonged gradients have the effect of making cycling more difficult and will discourage users from taking trips by bike.

The vast majority of the GDA Cycle Network is flat or has a gradient under 4% and is manageable for many cyclists.

Areas of increased tourism or sports cycling, including broad areas of Wicklow, have unavoidably high gradients due to local terrain.

Gradient data was retrieved and analysed for the GDA cycle network, an overview is shown in Figure 7.4. Gradients up to 4% will be suitable for most cyclists and are present across much of the network. Sections approaching or exceeding 8% may have the effect of rapidly discouraging trips by bike.

To encourage the uptake of cycling (a goal of this plan), the network has been adjusted to reduce gradients where feasible. While not possible to remove all steep or prolonged uphill sections of the network, the assessment has supported small-scale adjustments, even in southern urban areas of Dublin City. At the macro level, there are extensive gradients present in County Wicklow, which may present a welcome challenge for enthusiast and sports cycling. Significant gradients are also notable in some coastal areas and in the vicinity of Liffey Valley.

The recent arrival of e-bikes unlocks some of the steeper but scenic cycling routes for a wider range of cyclists, as well as increasing many cyclists' acceptable trip distances.

Sections with gradients over 12% were evaluated and maintained for their importance in delivering a connected and coherent network, particularly along coastal areas or valleys.





Figure 7.4 – 2021 GDA Cycle Network Update gradients

# 08 Enhancing cycling accessibility





## 8 Enhancing cycling accessibility

A host of cycling accessibility improvements are expected as longterm outcomes of this GDA Cycle Network Plan. The densification in urban areas and new rural connections will deliver a better cycling experience to more cyclists.

#### 8.1 GDA town connections

The idea of better connecting GDA towns is based on the '15-minute cities' concept that aims to create selfsufficient neighbourhoods within each district area. It details communities that are designed and connected in such a way that everything one might readily need is within a 15-minute cycle from surrounding homes and residential areas. Key destinations, like a supermarket, pharmacy, clinic, school and offices should all be within a 15minute cycle.

Table 8.1 (also shown in Figure 7.2) details a series of towns identified in the GDA for a population catchment analysis. The results show that the updated 2021 GDA Cycle Network provides better connections and access to the main town centres within the GDA. A significant increase in the population catchments was realised in many towns, providing the opportunity for more users to reach the town by bike in a maximum of 15 minutes.

Table 8.1 – Population changes by GDA town

Dopulation within 15 minute evale time

	Fopulatio		ycie time
GDA town	2013	2021	Change
Rathmines	164,376	166,305	1.2%
Blanchardstown	64,099	64,886	1.2%
Lucan	37,194	37,711	1.4%
Clondalkin	62,056	63,722	2.7%
Tallaght	69,700	65,732	-5.7%
Rathfarnham	79,643	77,231	-3.0%
Swords	45,967	46,184	0.5%
Balbriggan	22,597	22,585	-0.1%
Navan	17,172	25,306	47.4%
Maynooth	14,294	14,793	3.5%
Naas	20,346	22,370	9.9%
Newbridge	21,660	22,517	4.0%



Arklow	13,163	13,210	0.4%
Wicklow	12,899	12,957	0.5%
Bray	34,347	32,838	-4.4%
Athy	9,381	9,676	3.1%
Blessington	5,446	5,512	1.2%
Dun Laoghaire	49,692	49,406	-0.6%
Dundrum	93,177	93,596	0.4%
Blackrock	57,663	67,505	17.1%
Stillorgan	83,049	82,559	-0.6%
Nutgrove	88,534	88,487	-0.1%
Northside	69,449	74,841	7.8%
Ballymun	45,224	50,287	11.2%
Dublin City Centre	219,685	220,668	0.4%
Clongriffin	53,356	61,807	15.8%
Docklands	176,137	176,531	0.2%
Cherrywood	34,867	34,315	-1.6%

Some decreases in population catchments are noted due to localised changes of the cycle network – such small impacts would unlikely be perceived by existing cyclists.

#### 8.2 Ancillary support facilities

Investments in supporting the cycle network and increasing participation is closely related to support infrastructure 'on the ground'.

Tyre pumps, repair kiosks, stands and supports are part of a wider package to support cycling. Kiosks in parks and at transport interchanges will encourage multimodal connections and allow cyclists to mend and/or optimise their bike along their journey.

Bike pumps integrated into cycle stands, bus shelters and other facilities are becoming increasingly common and allow for on-the-go maintenance, often reducing the need to carry equipment and/or reduce up-front costs.



## 8.3 Accessibility in recreation areas and tourism

#### 8.3.1 Bike hire

Multiple bike-hire and other micro mobility companies operate or plan to operate in the GDA. In 2019, there were around 4 million trips taken on docked and dockless bikes with around 120 docking stations located around Dublin City. Such facilities undoubtedly support fixed infrastructure.

At the time of writing there is an acknowledged expanse of bike hire and bike share services. Some of these services will have particular benefits for workplace employees, tourists and attraction access.

Micro mobility companies don't yet operate in smaller towns or villages of the GDA. However, the introduction of suitably scaled bike-hire into these towns may have a positive outcome.

- The encouragement of localised green tourism, arriving by and triplinking with regional public transport services.
- The enhancement of local commuting or recreational activities as the local population turn to rental bikes for short trips within town centres.

#### 8.3.2 Greenways

The development of Greenways Ireland across has encouraged sustainable tourism and has created destinations out of journeys. Greenways are traffic free paths used by pedestrians, cyclists and other nonmotorised users with surfaces suited to most cvclists' needs. Greenways available or planned in the GDA are described in Table 8.2.

Greenway	Local Authority	Description
Dublin City Centre	DCC	Short Greenway connections are available to the canals while Phoenix Park is also a substantial Greenway in the area. Some Greenways continue towards the city centre (Royal Canal and Grand Canal Greenways).
Grand Canal Greenway	Multiple	Starts at Lucan Bridge near Adamstown and connects Dublin westwards through the midlands for 124km with the River Shannon.
Royal Canal	Multiple	Starts at Spencer Dock in Dublin and ends in Longford, total of 130km of level towpath. A section of the Greenway is presented in Figure 8.1.

Table 8.2 – Existing or planned Greenways of the GDA



Slang River Greenway	DLRCC	Part of the Foxrock to Marlay Park cycle route and starts from the Ardglas Estate on Sandyford Road.
Baldoyle To Portmarnock Greenway	FCC	Part of the overall Sutton to Malahide Greenway scheme.
Fingal Coastal Way*	FCC	Will link Newbridge Demesne in Donabate to the Fingal County boundary, north of Balbriggan.
Broadmeadow Greenway*	FCC	Connecting Malahide and Donabate.
Dodder Greenway*	SDCC	Will link Sir John Rogerson's Quay in the City Centre to the entrance to the Bohernabreena reservoirs at Glenasmole, South Dublin.
Canal Loop Greenway*	SDCC and FCC	Will connect the Royal and Grand Canal Greenways though the Lucan area.
Blessington Greenway	WCC	Links the town of Blessington with the Palladian mansion.
Arklow To Shillelagh Greenway*	WCC	Once constructed it will link Arklow to Shillelagh via Woodenbridge, Aughrim and Tinahely.
Kildare Towns Greenways*	KCC	Aims to develop numerous short Greenways inside the main towns and villages for providing safe connections between key destinations.
Boyne Greenway*	MCC	Will provide a pedestrian and cycleway link between Drogheda Town in County Louth to Mornington Village in County Meath.

\* Indicates it is not fully open/functional yet

Funding and development of spur trails from Greenways and local connections onto Greenways by local governments can increase permeability and therefore usage of these Greenways. Such links may encourage users to visit towns and attractions near Greenways. The quality of service along the existing Greenways is of particular importance – suitable maintenance of paths is necessary to maintain a quality surface for cycling, adequate signage should be provided, emergency equipment and rest areas may also be considered at relevant points along a Greenway's length.





Figure 8.1 - Royal Canal Greenway



#### 9 Proposed 2021 GDA Cycle Network

This chapter presents a summary of the 2021 GDA Cycle Network update and expected achievement of goals.

## 9.1 Access to Services 2013 & 2021 GDA Cycle Networks

The Access to Services analysis was conducted on the 2021 and the 2013 cycle networks. Numerous scenarios were developed for the analysis which included access to key destinations in the GDA, as described in section 6.1.

The 2021 GDA Cycle Network update improves access across the GDA, reducing cycling journey times from homes to many destinations.

Some rerouting of the network is proposed, in many cases overcoming issues of low accessibility.

In addition, the proposal of new links in key areas provides an enhanced

connection with the destinations, shortening cycling times for many.

Table 9.1 shows an increase of around 50,000 residents that will be able to reach key destinations within five minutes on the 2021 network. Slighter improvements are also forecast for those within 10, 15 or 30 minutes.

Across the GDA 15,000 people (0.8%) will be able to access facilities within 30 minutes compared to 2013 network.

The locations with greatest access improvement are presented graphically in Figure 9.1. Areas with the greatest improvement occur where new cycle routes are added and therefore connect to new areas of the GDA.

Although slight improvements are expected in Dublin City, town centres and village centres, many of these areas already have good access to the GDA Cycle Network therefore making it difficult to deliver improvement.

Travel time 2013 Population 2021 Population % change									
Within 5min	1,396,169	1,446,941	3.6%	-					
Within 10min	1,668,630	1,687,978	1.2%						
Within 15min	1,746,177	1,758,136	0.7%						
Within 30min	1,800,514	1,815,078	0.8%						
	, -, -	, , ,							

<sup>&</sup>lt;sup>7</sup> To ensure a that only network improvements affected population catchments, 2016 census populations were maintained in all areas of the GDA for the analysis.





Figure 9.1 – Areas of improved cycling Access to Services



The Access to Services results for each facility type, before calculating the combined results, are presented in Table 9.3. All nine facility types have an increase in population within a 30 minute travel timeframe. Most also have improvement across their 5, 10 and 15 minute travel timeframes.

Third level education institutes and shopping centres are primarily located

in the centre of major towns and cities with an already dense cycle network exists, and therefore access benefits are more difficult to achieve.

Finally, a detailed comparison was conducted aiming to identify the areas within each Local Authority exhibiting improved accessibility. Further details for each Local Authority are presented in Table 9.2.

Table 0.2 - Access to Servi	cos results como	arison per Local Authority
TADIE 9.2 - ALLESS ID SEIVIO	ses resuits compa	anson per Local Authonity

Local Area	Description
Dublin City Council	Dublin City Council is considered to provide the highest cycle accessibility in the GDA, with much of the area having good or excellent access to services. The 2021 GDA Cycle Network further densifies the network in areas such as Clontarf, Grangegorman and Donaghmede.
Dún Laoghaire- Rathdown County Council	Improvements to the cycle network in 2021 focus on the built-up areas (north and north-east), by providing new links and increasing permeability, for example, in Ballinteer and Dundrum. New links proposing crossings of the M50 improved access but the motorway still poses a barrier for access to some areas in the west and south-west.
South Dublin County Council	Compared to 2013, Tallaght remains the area with the highest Access to Services. New links were added in the 2021 GDA Cycle Network north of the Grand Canal and cycling connections into Kildare were improved. A new link was added at Newlands Cross to provide access across the N7 and connected Tallaght northwards.
Fingal County Council	There is improved Access to Services in Donabate and significant expansion of the cycle network in Blanchardstown and Mulhuddart, and improved connections between these locations. A new link across the N2 and links around Dublin Airport increase access in their localities. The M1 remains a barrier to access for the north-west of the Local Authority area.
Meath County	Dunboyne sees improvement in Access to Services under the



Council 2021 GDA Cycle Network. A new link is added along the N2 providing a more direct route between Ashbourne and Dublin. In Navan, which has the densest network in Meath, new radial links are proposed in the town which creates a more comprehensive and coherent network.

Kildare County In Kildare, there are substantial improvements of access in Naas, Council Newbridge and Kildare with significant additions to the local cycle networks. There are new links in the south of the county which provide a level of access that was not present in the 2013 network. There is also densification of the network between the towns of Maynooth, Leixlip and Celbridge increasing Access to Services and connection towards western Dublin City.

Wicklow County Accessibility was significantly improved along the Wicklow and Council Kildare border. There are also new links in the south of the county which provide access above that of the 2013 GDA Cycle Network. In the east of the county, Bray and Greystones have seen many permeability links added to their networks, further improving cycling access locally.

Cycle Network Plan \ Time frame		Hospital	Primary	nary Secondary Shopping Third L ools Schools Centres Educa	Third Level	rd Level	Transport Villages	Workplace		
		nospitai	Schools		Centres	Education	TOWIIS	stops	Villages	zones
	within 5min	77,893	83,422	34,111	113,440	11,782	227,442	344,545	170,650	570,101
2013	within 10min	385,733	171,238	113,272	724,567	28,854	949,474	917,940	524,963	730,095
2013	within 15min	741,722	187,882	132,938	1,166,493	39,088	1,460,673	1,292,186	916,093	767,743
	within 30min	1,219,291	199,057	145,797	1,423,553	58,512	1,665,389	1,589,304	1,574,666	795,020
	within 5min	84,654	92,872	37,602	113,507	11,818	242,749	376,055	196,962	592,143
2021	within 10min	430,970	176,643	115,561	764,295	29,392	999,329	981,452	593,546	738,951
	within 15min	809,725	191,247	134,712	1,182,988	38,689	1,480,213	1,322,320	1,017,580	772,400
	within 30min	1,229,540	202,114	147,372	1,424,434	58,753	1,668,545	1,599,613	1,603,587	801,760
	within 5min	8.7%	11.3%	10.2%	0.1%	0.3%	6.7%	9.1%	15.4%	3.9%
%	within 10min	11.7%	3.2%	2.0%	5.5%	1.9%	5.3%	6.9%	13.1%	1.2%
change	within 15min	9.2%	1.8%	1.3%	1.4%	-1.0%	1.3%	2.3%	11.1%	0.6%
	within 30min	0.8%	1.5%	1.1%	0.1%	0.4%	0.2%	0.6%	1.8%	0.8%

#### Table 9.3 – Access to Services population per facility



#### 9.2 Goal achievements

This 2021 Cycle Network Plan set four goals at the outset (Section 2.2).

Several improvements and initiatives are put forward in this 2021 GDA Cycle Network update which have been shown analytically to improve access or which would be expected to otherwise deliver on the needs of increasing GDA cyclist numbers. The improvements and intervention of the updated cycle network have been attributed to achieving one or more goal(s), as presented in Table 9.4.

A series of network maps of the 2021 GDA Cycle Network accompany this plan.

#### Table 9.4 - Summary of goal achievement

2021 GDA Cycle Network change / assessment	Increase participation	Improve safety and accessibility	Improve connectivity	Create a navigable and coherent network
Cycle network expansion and reclassification	٠	•	•	•
Permeability improvements	٠	٠	٠	٠
Junctions First programme	•	•	•	
Cycle parking facilities				
Safety improvements				
Cycle network gradient		٠		٠
Ancillary support facilities	•	•		٠
Accessibility in education & work	•			
Accessibility in recreation areas & tourism	•			



#### 9.3 Conclusions

The 2021 GDA Cycle Network Plan was developed as a substantial update and expanse of the 2013 GDA Cycle Network Plan. The 2013 Plan was evaluated and further developed for meeting the goals of the 2021 GDA Cycle Network Plan. Technical assessment and stakeholder input were important supportive tools for the project.

The Plan focuses on delivering an inclusive cycling environment that is safe for all cycling abilities and ages with strong functional and recreational connectivity between homes and key destinations. The main project goals are as follows:

- Increase participation
- Improve safety and accessibility
- Improve connectivity
- Create a coherent and navigable
  network

Comprehensive analyses were conducted for achieving some or all of the project goals, as presented in various sections. Analysis points to improving junctions early (including roundabouts and other nodes), for providing safe crossing points for cyclists and reducing the connectivity gaps – though a revised National Cycling Manual will primarily support design elements. Physical barriers and low accessibility areas were identified and analysed, and new links proposed where possible. These proposals would be expected to make the network more permeable to cyclists, but also other non-motorised road users.

Ancillary cycle facilities, like parking and secure storage, supporting the network were also presented, along with the introduction or continuation of cycle initiatives which would support cycling for workplaces and/or education.

Based on an evaluation of overseas practices the 2021 Cycle Network Plan proposed an evolved set of network classifications.

The primary technical assessment, the 'Access to Services' analysis, focused on assessing the efficiency of the 2021 cycle network compared to 2013 for residents. The two networks were assessed for the population served in given timeframes (within 5, 10, 15 and 30 minutes) to key destinations. The GDA Cycle Network was then updated based on the analysis, such that more people may reasonably cycle to their destination in a shorter time.

Other assessments, the such as gradient analysis brief and consideration of Dublin's weather (annual precipitation), point to а positive, widespread cycle network supporting existing and future cyclists of all ages within our community.

