

NORTH WEST GREENWAY NETWORK ROUTE 3 - STRABANE TO LIFFORD



STAGE 1+2 CONSTRAINTS STUDY, SCHEME ASSESSMENT AND DESIGN OPTIONS REPORT



The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)



Quality Control Sheet

Issue	Date	Prepared	Date	Checked	Date	Approved	Date
1	16.10.18	RM	Oct 18	KOS	16.10.18		
2	22.10.18	RM	Oct 18	KOS	22.10.18		

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0 EXECUTIVE SUMMARY

The Scheme Assessment and Design Options Report describes the combined Stage 1 and Stage 2 of the Design Option Appraisal Process for the proposed Strabane to Lifford Route of North West Greenway Network (NWGN) Scheme.

It sets out the project background and the European, national and local policy guidelines which frame the scheme and the development of Greenway Schemes. It also sets out the overall aims and objectives of the NWGN scheme and route specific aims and objectives of Route 1.

The report identifies a Study Area and describes the Constraints, Opportunities and Areas of Interest within the Study Area that will inform the consideration of design options.

One viable Design Option from, and around Strabane to the border at Lifford has been identified. One preferred Design Option has been identified from the border at Lifford to Murlog Church, with a provision being made to both sides of the N14 for a portion of its length.

The report describes these Routes and explains the design options considered.

As no viable alternative routes have been identified, this report combines the Stage 2 Preferred Route Selection.

1 INTRODUCTION

1.1 Project Background

In December 2016 Derry City and Strabane District Council in partnership with Donegal County Council, the Department for Infrastructure (NI) and Sustrans (the UK-based cycling and walking charity), secured funding for this project from the EU's INTERREG VA 2014-2020 programme, monitored by the Special European Union Programmes Body (SEUPB).

McAdam Design has been appointed by Derry City & Strabane District Council to lead the Integrated Consultant Team (ICT) which will provide co-ordinated NI and ROI Project Management and Design services to the Project Partners and deliver the North West Greenway Network (NWGN) Scheme from Preliminary Design, through to Technical Design, Procurement of the Principal Contractor and managing the delivery of the Construction Stages to completion of construction.

The core target project outputs of the NWGN project are as follows:

1. To develop 46.5km of cross-border greenway by December 2021
2. To achieve a targeted 5.5% rise in cross-border modal shift from the baseline (to be established) by December 2022

Core project specific aims are as follows

1. A reduction in CO2 emissions of 319 metric tons per annum by 2023.
2. Widespread behavioral and attitudinal change in all targeted beneficiaries through our strategic alliance with Sustrans.
3. Investment in the wider economic and social infrastructure in the Cross Border region.
4. The project will meet the strategic aims of Derry City and Strabane District Council North West Greenways Plan (2015) to develop a comprehensive interconnected regional Cross Border Greenway Network.

2 POLICY DOCUMENTS AND GUIDELINES

The following sections describe a non-exhaustive list of European, National (both NI and ROI), Regional and Local Policy Documents and Guidelines which contain clear policy objectives to promote and develop sustainable transport and cycling initiatives which directly support the development of Greenway projects such as the route covered by this report.

2.1 European Policy and Guidelines

‘**Europe 2020 – A Strategy for Smart, Sustainable and Inclusive Growth**’ puts forward three mutually reinforcing priorities for smart, sustainable and inclusive growth. Sustainable transport strategy is set out under the “sustainable growth” priority, through flagship Initiative: “Resource efficient Europe”, which supports a shift towards a resource efficient and low carbon economy.

The TEN-T - Connecting Europe Policy (2014) focuses on connecting Europe through major infrastructure such as rail and roads. It highlights the potential for long distance walking and cycling routes.

European Cyclists’ Federation’s EU Cycling Strategy: Recommendations for Delivering Green Growth and an Effective Mobility in 2030” is the result of a systematic review of all EU policies related to cycling. The central objectives of the plan are as follows:

- Cycling should be an equal partner in the mobility system
- Grow cycle use in the EU by 50% at an average in 2019/2020-2030
- Cut rates of cyclists killed and seriously injured by half (in km cycled) in 2019/2020-2030
- Raise EU investment in cycling to €3bn in 2021-27; and €6bn from 2028-34.

2.2 Northern Ireland Policy and Guidelines

2.2.1 National and Regional Policy Documents

North West Greenway Plan 2015

The North West Greenways Action Plan (<https://www.derrystrabane.com/North-West-Greenway-Plan>) forms the basis of a strategic and co-ordinated plan for the development of a network of greenways (GW) throughout the North West.

The vision of the Plan is: *“To develop a cross border network of Greenways that link people with places locally, regionally and nationally- bringing social, economic & environmental wellbeing to all.”*

Draft Programme for Government Framework 2016-2021

Sustainable travel initiatives support the following draft outcomes:

- Outcome 1- We prosper through a strong, competitive, regionally balanced economy
- Outcome 2- We live and work sustainably, protecting the environment
- Outcome 4- We enjoy long, healthy, active lives.
- Outcome 11- We connect people and opportunities through our infrastructure

NI Strategic Plan for Greenways- sets out a high-level vision for NI to develop new Greenway routes and contribute to overall modal shift targets.

A Bicycle Strategy for NI 2014 - The key aims of the Strategy are to provide people the freedom and confidence to travel by bike and to develop off-road Greenways.

The North West Strategic Partnership- to collaboratively work with central government to, *“Collectively resource the region’s key priorities for growth and development with a commitment to building a more resilient economy in the North West City Region”* (www.derrystرابane.com)

NI Regional Development Strategy 2035: Building a Better Future 2010- Regional Guidance Policy 9: “Reduce our carbon footprint and facilitate mitigation and adaptation to climate change whilst improving air quality- ‘This will include reducing the need to use the car,’ and: Regional Guidance Policy 11 through enhancing the amenity value of natural and cultural heritage assets by providing linkages to green infrastructure.

DRD Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation 2012 - The strategy has three overarching aims;

- Supporting the growth of the economy
- Enhancing the quality of life for all citizens and;
- Reducing the environmental impact of transport

Building an Active Travel Future for NI 2012 - aims to increase the overall % of trips taken by bicycle and the need for a cross-sectoral approach and the development of partnerships in order to achieve this.

2.2.2 Local Policy Documents:

Derry City & Strabane District Council’s Inclusive Strategic Growth Plan 2017-2032 (Our Community Plan)

Community Planning is a statutory duty placed on Councils as part of local government reform. Sustainable travel initiatives support the following outcomes of community planning;

Social Wellbeing Outcomes

- We enjoy long, healthy, active lives
- We give our children and young people the best start in life
- We have safer more cohesive communities with access to quality services and facilities
- We have improved physical and mental health and emotional wellbeing
- We are more physically active
- We are supported to age well, live longer and be more independent

Environmental Wellbeing Outcomes

- We connect people and opportunities through our infrastructure.
- We live and work sustainably, protecting the environment
- We benefit from well designed and managed green spaces and public realm
- We support environmental stewardship
- We value and enhance our environment

Derry Local Development Plan (2030)

Enhancing connectivity in our City & District supports the aims of the emerging Local Development Plan through provision of sustainable infrastructure which will enhance our District for future generations.

Derry Area Plan 2011 Section 14.1 in relation to transportation the key aim is to ‘Develop an efficient, safe, accessible and sustainable transport system which offers better choice and mobility for all its users.

2.3 Republic Of Ireland Policy and Guidelines

2.3.1 National and Regional Policy Documents

Project Ireland 2040 National Planning Framework and National Development Plan 2018-2027

Project Ireland 2040 is the Irish Government's overarching policy initiative for the long-term planning of the State. It is informed by the Programme for a Partnership Government 2016, which recognises that economic and social progress go hand in hand, and is made up of the "National Planning Framework to 2040" and the "National Development Plan 2018-2027".

National Planning Framework to 2040

This is the Government's high-level strategic plan for shaping the future growth and development of the country out to the year 2040. It seeks to achieve ten strategic outcomes including the following which are relevant to Route 3 of the North West Greenway Project:

- *National Strategic Outcome 3: Strengthened Rural Economies and Communities* including an objective to "Invest in Greenways, blueways and peatways as part of a nationally coordinated strategy"
- *National Strategic Outcome 4: Sustainable Mobility* including an objective to "Develop a comprehensive network of safe cycling routes in metropolitan areas to address travel needs and to provide similar facilities in towns and villages where appropriate."
- *National Strategic Outcome 8: Transition to a Low-Carbon and Climate-Resilient Society* including developing metropolitan cycling and walking networks and Greenways.

A key policy priority for the Northern and Western Region includes "building on the progress made in developing an integrated network of Greenways, blueways and peatways that will support the diversification of rural and regional economies and promote more sustainable forms of travel and activity-based recreation"

National Policy Objective #46 includes the enhancement of "transport connectivity between Ireland and Northern Ireland, to include cross-border road and rail, cycling and walking routes, as well as blueways, Greenways and peatways."

National Development Plan 2018 – 2027

The National Development Plan 2018–2027 is the most recent in the series of Government Capital plans adopted since 1988 and identifies the strategic priorities for public capital investment for all sectors to meet the strategic outcomes of the National Planning Framework.

It includes as a "Priority Investment Action" the facilitation of Cross Border Sustainable Transport with the North West Greenway Network listed as a specific action.

Investment in activity-based tourism, including Greenways, is identified as be a priority over the period of the National Development Plan and the publication of a Government Greenways Strategy is identified as a priority and targeted for Q1/Q2 of 2018.

Investment in sustainable travel measures, including comprehensive Cycling and Walking Networks for metropolitan areas, and expanded Greenways is also identified as a priority in delivering a transition to a Low-Carbon society.

Dept. for Transport, Tourism and Sport: “Strategy for the Future Development of National and Regional Greenways”

Developed following an extensive national consultation process this Strategy outlines the Irish Government’s objective to assist in the strategic development of Greenways to an appropriate standard in order to deliver a quality experience for Greenway users.

The Strategy lists a number of National and Regional Greenway projects which are identified as the initial priorities for development. This list includes the North West Greenway Network including Route 3 – Strabane to Lifford. It should be noted however that Route 3 as proposed comprises only urban shared cycling and walking facilities alongside the existing road corridors, and while there will be potential for this route to connect onwards to Regional and National Greenways which are the focus of this strategy, many of the wider requirements/recommendations of this Strategy are not considered to be relevant to the route being developed at this time.

Smarter Travel - A Sustainable Transport Future

A New Transport Policy for Ireland 2009-2020- The NWGN project supports:

- Action 15 of the plan by striving to create a strong cycling culture in the NW;
- Action 17 through exploring opportunities to make a former railway line available for walking and cycling trails.

National Cycle Policy Framework 2009

Ireland’s first National Cycle Policy Framework was launched in April 2009. It outlines 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. The NWGN supports the overall aims and objectives of the plan and in particular (but not limited to):

- Objective 3: Provide designated rural cycle networks especially for visitors and recreational cycling.

Regional Planning Guidelines (2010-2022)

The Guidelines acknowledge that current cycling infrastructure in border regions is currently limited but outlines an aim to encourage greater shift to cycling/ walking by the promotions of

the strategies outlined in the Smarter Travel Policy and the National Cycling Policy Framework as referenced above.

The NWGN will support specific cycling and walking Policy INFP13 of the Guidelines which seeks to ‘Promote and support cycling and walking within the Region, particularly within urban centres.’ while the Guidelines recommend that Local Authorities should also consider the use of “off road” routes for both walking and cycling such as disused railway lines, canals and bridle paths to improve access to rural tourist attractions.

Tourism focused publications.

There are a number of tourism focused publications related to greenways, but it is considered that Route 3 of the North West Greenway Network will focus primarily on the provision of local amenity and Modal shift rather than an overall tourism offering.

Some of the tourism related publications are:

- People, Place and Policy – Growing Tourism to 2025 (March 2015)
- Fáilte Ireland Strategy for Development of Irish Cycle Tourism 2007
- Fáilte Ireland Cycling and Activities Research, 2013
- Realising our Rural Potential – Action Plan for Rural Development (2017)

2.3.2 Local Policy Documents

Donegal County Council Development Plan 2018 – 2024:

Chapter 5 – Infrastructure, Section 5.1, Transportation:

- Transportation Objective T-O-13: To support the development of new walkways, walking routes, trains, greenways and cycleways that maximise the potential for local, regional and all-island walking and cycling networks.
- Transportation Policy T-P-3: It is a policy of the Council to work in partnership with the Northern Ireland authorities to strengthen and improve existing cross border transportation links (including walking and cycling routes) to enable the targeted spatial and economic development of the North West City Region.
- Transportation Policy T-P-11: It is a policy of the Council to facilitate the appropriate development of affordable, multi-modal transport solutions that offer communities and future generations real transport choices such as park and ride; pedestrian and cycling; bus and taxi services; and ancillary infrastructure.
- Transportation Policy T-P-24: It is a policy of the Council to protect established/historic railway corridors throughout the County primarily for strategic infrastructure provision (such as rail/road projects) and secondly for recreational development. Along these corridors other uses shall not be considered. Where these corridors have already been

compromised by development, adjacent lands which could provide opportunities to bypass such an impediment and reconnect these routes for amenity purposes (walking/cycling) shall be protected for this purpose. However, in all instances, the over-riding objective shall be the provision of strategic infrastructure.

- Transportation Policy T-P-31: It is a policy of the Council to ensure that development proposals protect the route of potential linkages (such as linear parks, roads, footpaths, trains, greenways and cycleways) through the subject site where the planning authority considers that a strategic opportunity exists to provide a linkage to or between adjoining areas.
- Transportation Policy T-P-33: It is a policy of the Council to ensure that large scale development proposals provide walking and cycling infrastructure.
- Transportation Policy T-P-35: It is a policy of the Council to encourage and facilitate joined up long distance walking and cycling routes and greenways for recreation and as alternatives to the car, particularly in rural areas, between settlements. Adequate car parking facilities shall be provided, where required, in association with any such developments.
- Transportation Policy T-P-36: It is a policy of the Council to support and facilitate the maintenance, enhancement and expansion of the National Cycle Network.

Chapter 9 – Tourism:

Section 9.1 – Other Tourism Products and Attractions (pg 138):

“The Council will ... continue to protect the routes of such potential Greenways through the policies of this plan and will actively work will all stakeholders to facilitate the development of Greenways and walking and cycling routes throughout the County.” and “... the Council recognise that Donegal effectively sits within a wider cross border tourism region and will work with local authorities and tourism agencies in Northern Ireland to exploit the these natural cross border synergies in order to unlock the regions full tourism potential.”

It also notes that “Protecting the routes and visual settings of potential Greenways and other recreational walkways and cycling routes.” is a Key Planning Challenge.

Section 9.1.2, Objectives:

- TOU-O-9: To support the development of new, and protect the functionality of existing, Greenways, walking and cycling routes as keys components of an overall green tourism infrastructure and as standalone tourism products in their own right.

Action Plan for Jobs: North East/North West 2015 – 2017 notes the following action:

- Identify and develop Greenway / blueway networks in the Region (Ref Page 95, Pt 108)

The Donegal Local Economic & Community Plan 2016 – 2022:

Volume 1, identifies 'To develop Donegal as a Connect Place' as a priority goal.

Volume 2, sets out the Action Areas of the Plan and notes the following actions:

- Section 1.9.1: To develop an integrated North West Greenway
- Section 1.9.3: To identify a programme of walkways, cycleways and Greenways within towns and their hinterland, to enhance town centre connectivity, support regeneration of town centres and improve health and recreation opportunities.
- Section 2.4.5: To develop an integrated North West Greenway (Walking, Trails, Cycling) as a key tourism project on a cross-border basis.
- Section 4.4.16: To maximise health and wellbeing outcomes for communities in the proposed development of the North West Greenway and other initiatives involving outdoor spaces.

3 NORTH WEST GREENWAY NETWORK PROJECT DESCRIPTION

3.1 Physical Character of a Greenway Facility

A Greenway is a traffic-free route designed exclusively for the use of pedestrians and cyclists. The character of the route is generally low-key in terms of its impact on the overall landscape of an area and its environmental effects. The route may be “online” within an existing road corridor located within the verge or footway, or “offline” located entirely off road and traffic free.

The North West Greenway Network will generally be constructed as a 3m wide shared use path, with a bituminous surface to provide a high-quality finish for cyclists.

In urban areas the Greenway will generally be **online** with a 1m buffer strip provided where lands are available, giving a desirable Greenway ‘corridor’ of 4m, while options for offline / fully segregated sections will be explored where possible. The path width, or the buffer strip, or both, may be reduced through sections where constraints such as buildings, boundaries and carriageway kerblines cannot reasonably be adjusted. Where possible, appropriate screening in the form of shrubs, plants and/or trees will be planted as part of the Greenway corridor to create wildlife habitats and to improve the visual quality of the infrastructure.

In rural sections the Greenway route may be either online or offline, or a combination of both. Where proposed offline routes are being identified the planning of the route will seek to follow, in so far as possible, field boundaries and land-holding boundaries, or existing laneways, rivers or other corridors to avoid disturbance to farming activity. The geometry of the facility is flexible, and the route will be designed to minimise farm severance or agricultural impacts, apart from the loss of the small area of land forming the scheme footprint.

Depending on the nature and alignment of the route, the Greenway may or may not be fenced along each side. If required, a consistent standard of fencing will be agreed with adjacent or affected landowner’s dependent on the location or adjacent land uses. Greenway lighting will be provided in urban areas, and will be considered if necessary across rural sections subject to environmental and other restrictions, with any proposed specification being cognisant of, and sympathetic to, the rural landscape setting.

Gradients along the Greenway will preferably not exceed 3%, but may be relaxed to 5% if the topography requires. Short sections of 10% gradients may be considered in exceptional circumstances. Similarly, the horizontal alignment will be designed for gentle radii and gradual changes in direction, with a minimum radius of 4m.

In the case of Route 3 which is considered in this report the facility provided will be entirely within urban areas and the opportunities for “offline” Greenway sections is limited, and the character of the facility will generally be a shared walking/cycling facility within the existing road corridors.

3.2 North West Greenway Network – Scheme Overview

The proposed North West Greenway Network Scheme consists of three distinct Greenway Routes, totalling 46.5km shared pedestrian / cycle paths, with each route crossing the Northern Ireland (NI) / Republic of Ireland (ROI) border. The Routes are summarised as follows:

Route 1 – Derry to Buncrana – approx. 32.5km

Route 2 – Derry to Muff – approx. 10.5km

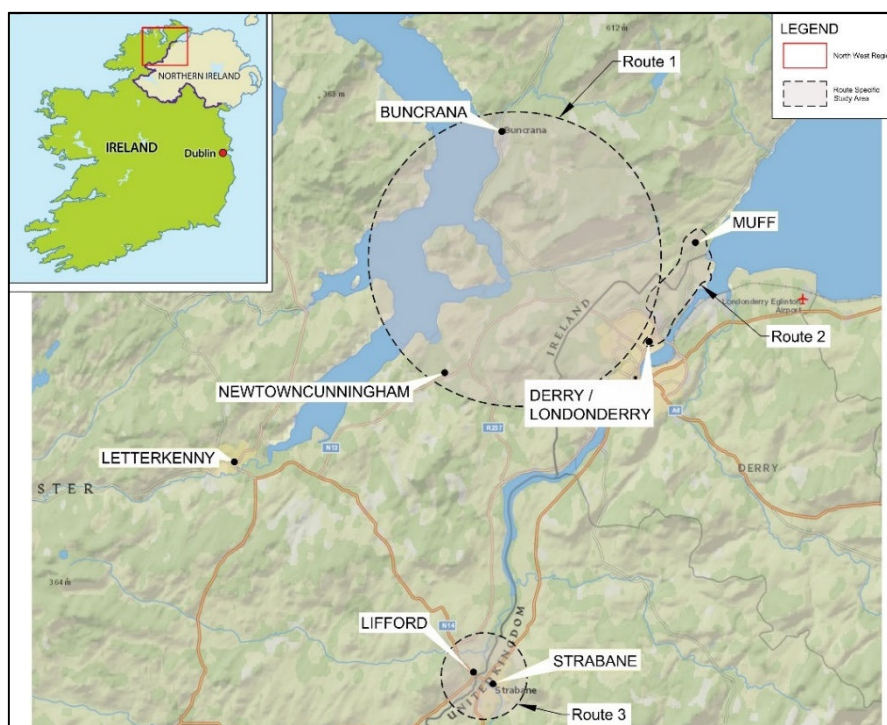
Route 3 – Strabane to Lifford – approx. 3.5km

Each route will be designed in accordance with relevant design standards, including (but not limited to) the National Cycle Manual, Handbook for Cycle-Friendly Design, Design Manual for Roads and Bridges (DMRB), Cycle Traffic and the Strategic Road Network (IAN 195/16) and Rural Cycleway Design (DN-GEO-03047) and will include associated feature lighting, hard and soft landscaping, furnishings, accommodation works and appropriate safety features.

A (non-exhaustive) list of design guidelines and cycling standards that will inform the Greenway Design are included in Appendix A of this report.

This report focuses on Route 3 – Strabane to Lifford, and describes the Study Area, Constraints and Design Options for that Route only.

Figure 3.2 – North West Greenway Network – Route Overview



3.3 Route Specific Aims and Objectives

The Project Partners have identified the following strategic Aims aligned to European, National and Local Policies (as outlined in Section 2.0), which set out the Core benefits which the development of the Greenway Route seeks to achieve.

SMART objectives have been developed to ensure overarching Project Aims are achieved.

All Aims and Objectives are targeted for substantial delivery by December 2021 based on current project programme.

Route 3 Strabane To Lifford Scheme - Aims

Social:

- Physically connecting People and Places within the region to link and enhance the social fabric of the communities.
- Achieve an increase in Modal Shift to more sustainable methods of travel (on foot or by bike) between the communities and destinations linked by the project.
- Promote health and wellbeing in the communities connected by the project.
- Enhance road safety for existing vulnerable and non-motorised road users.

Economic:

- Increase Modal Shift to more cost effective and sustainable forms of transport.
- Connecting local economic centres and creating ease of access to residents
- Enhance the cycling tourism offering within the region.

Environmental:

- Contribute to reducing carbon emissions in the area through achieving a rise in modal shift.

Route 3 Strabane To Lifford Scheme - Objectives

- Connect the town of Strabane (Co. Tyrone) and the town of Lifford (Co. Donegal).
- Create a safe and pleasant amenity along which the local population can commute, socialise, and use as a recreational and leisure facility, and which promotes active lifestyles, physical exercise and participation in outdoor activities.
- Provide connection to existing and planned educational, recreational and leisure facilities such as schools, parks and open spaces, playgrounds, walks and trails, cycling routes, sports clubs and facilities.
- Provide a shared use Greenway route that is safe, comfortable and attractive to all user groups (both cycling and walking) and provides a reliable and safe level of service.
- Provide a route that can facilitate comfortable combined use by cyclists and pedestrians in an environment that feels safe to both user groups, particularly in areas with high levels of mixed activity.

-
- Offer an attractive and cost effective sustainable alternative to private motor vehicle transport by providing connections between residential areas and areas of employment, commercial centres and recreational facilities.
 - Develop the most cost-effective route that, where possible, mitigates the impact on private lands and maximises use of available public lands, provided always that the route meets the needs of all user groups and meets the Route aims and objectives outlined above.

4 ROUTE SPECIFIC STUDY AREA AND POTENTIAL DESIGN OPTIONS

4.1 Study Area

In defining the Study Area, the Project Team considered the urban nature of the route and the connecting road networks and physical boundaries.

The eastern boundary of the Study Area was defined as the Urban area of Strabane in general, and in particular the geographic area bounded by the existing Derry Road to the Mourne River.

The southern boundary of the Study Area was defined by the presence and route of the Mourne River, both in Northern Ireland and in the Republic of Ireland.

The northern boundary of the Study Area was defined by the relatively flat terrain running from the Mourne river to the area north of lands known as “the Bog” in Donegal.

The eastern boundary of the Study Area was defined by the rising terrain to the north and north west of Lifford town.

The Study Area within both Northern Ireland and the Republic of Ireland is primarily Urban, with some boundaries into retail development and areas of greenfield / agricultural lands.

There are three main roads within the Republic of Ireland section of the Study area; N14 & N15 national primary routes and the R264; The N13 links the border at Lifford (i.e. the end of the A38) to the junction with the R264 and runs the entire length of the Study Area within Donegal. The N15 impacts only briefly on the Study Area at its Junction with the N14 at Lifford Bridge, but is worthy of note as it provides onward links to other urban centres, The R264 links from the N14 to Murlog Church, the extent of the Study Area. There are a number of smaller local access roads of the N14, as well as both agricultural and undeveloped back lands, and the Study area also includes these.

There are three main roads within the Northern Ireland section of the Study Area: A5, A38 and the Derry Road. The A5 links the A38 and the Derry Roads along the full northern extent of the Study Area in Northern Ireland. A38 links the A5 and the N14 via the Lifford Bridge over the River Foyle. The Derry Road links the A5 from its intersection at the Northern end of the Study Area to the Urban centre of Strabane.

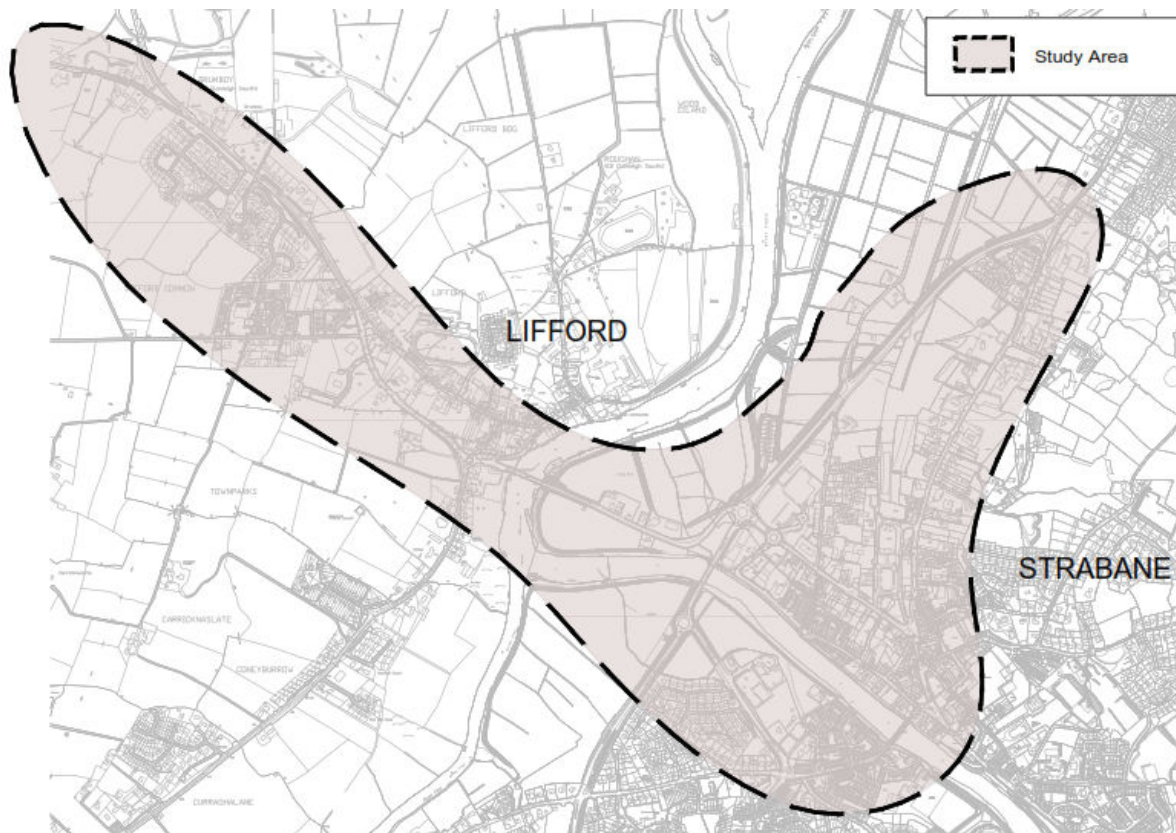
Within Sections 5 & 6 of this report, design options are considered under 6 individual sub-areas or sections. These are:

- Section 1: Strabane Bypass
- Section 2: Strabane Town Centre
- Section 3: Strabane to Lifford Link
- Section 4: Lifford Town Centre
- Section 5: Lifford to Murlog Church

Figure 4.1 below describes the Proposed Study Area.

Note – All figures included in this report are included in Appendix B.

Figure 4.1 - Proposed Study Area



5 CONSTRAINTS, OPPORTUNITIES AND AREAS OF INTEREST

The route of the completed Greenway will be influenced by:

- physical and environmental constraints within the Study Area including impact on human beings and existing land use
- location of trip generators which offer significant potential to ensure significant usage and increase modal shift
- features within the Study Area that will offer opportunities to connect settlements and communities to each other and will provide greatest opportunity for active travel and modal shift;
- Geometric design standards
- Comparative Cost

This section describes the Study Area in terms of a range of headings which will help inform the design of the proposed Greenway.

Note - Description of each heading (where appropriate) is split between Northern Ireland and Republic of Ireland to facilitate subsequent reporting required in each jurisdiction.

5.1 Topography

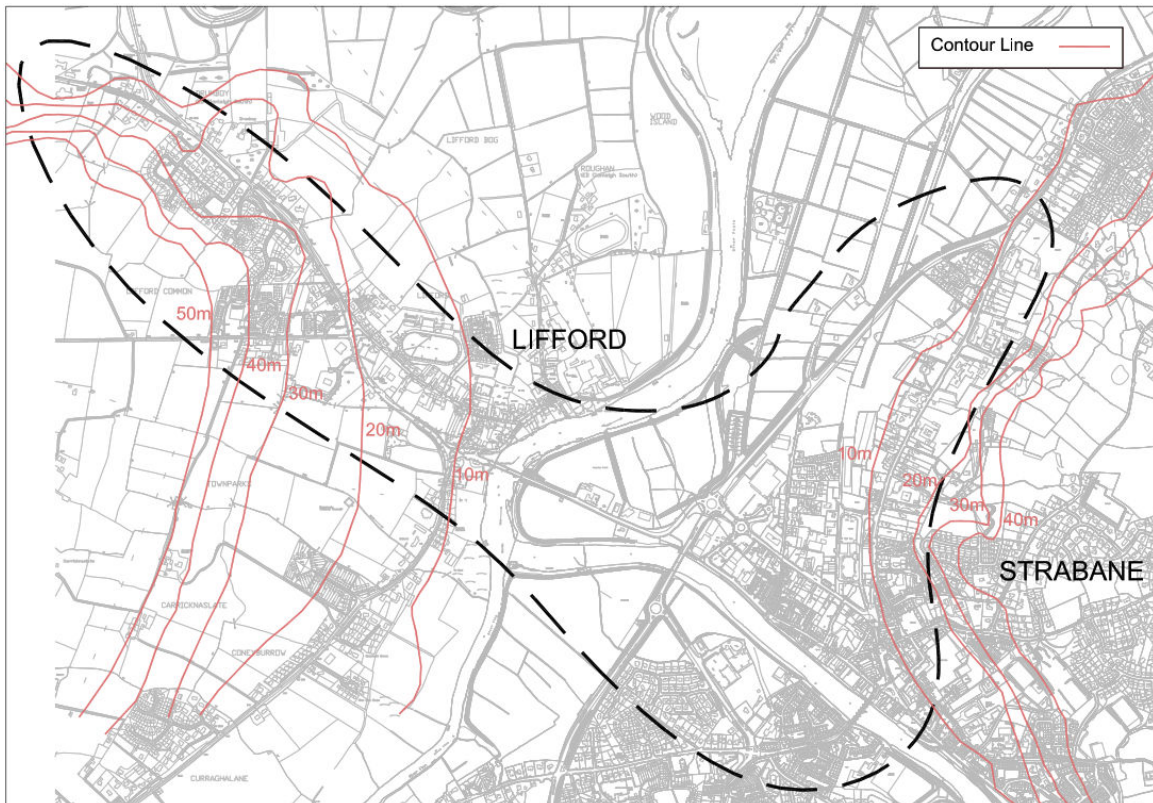
5.1.1 Topography - Northern Ireland

The topography across the Study Area is relatively flat, with no significant hills or mountains. Levels rise from sea level at the River Foyle to levels varying between 8m OD (Northern end) and 11m along the Derry Road. The highest point within the Study Area is approximately 11.6m OD along the Derry Road close to the existing DCSDC council offices.

5.1.2 Topography - Republic of Ireland

The topography across the study area is generally sloping along the entire study area. Levels rise from sea level at the River Foyle to levels varying between 10m and 25m along the N14. The highest point within the Study Area is approximately 25.8m OD along the N14 South of Hazelwood Drive.

Figure 5.1 – Topography



5.2 Rivers, Streams and Watercourses

Rivers and streams offer significant features across certain parts of the Study Area and may influence route design options.

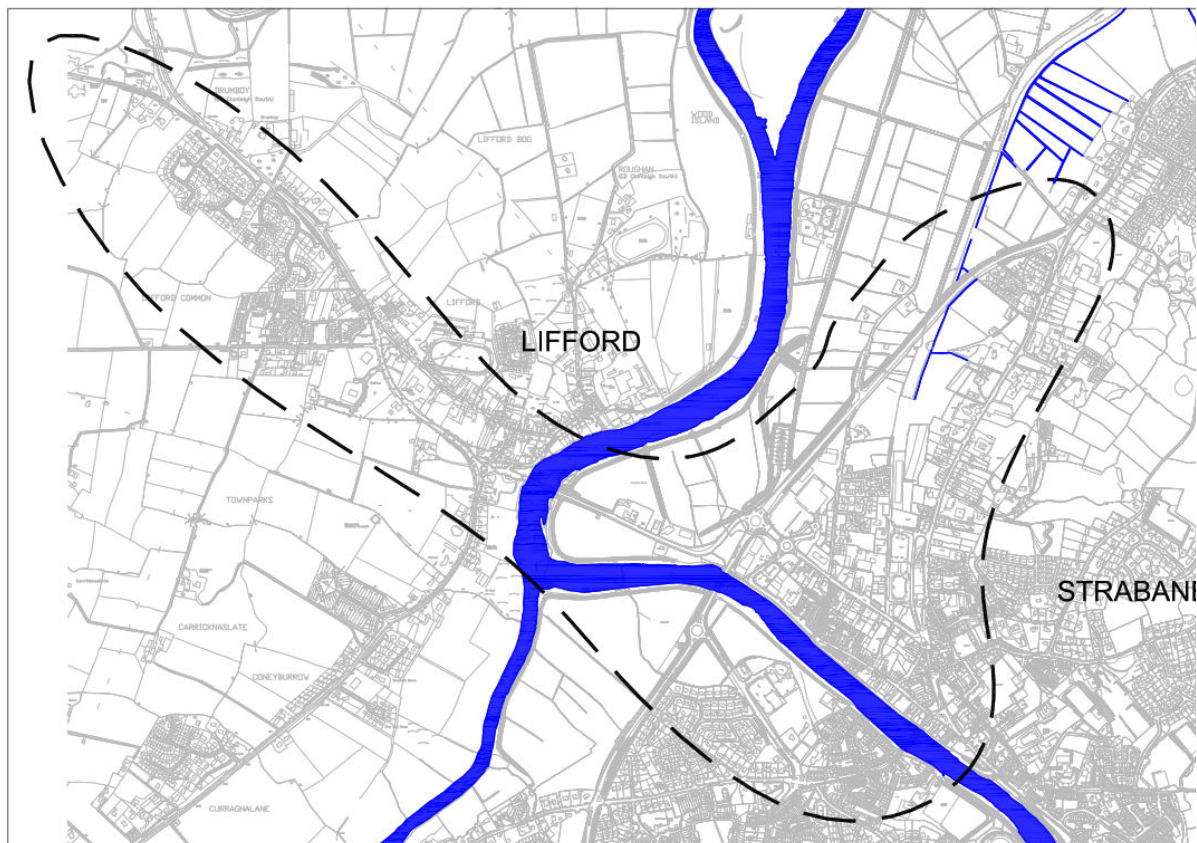
5.2.1 Rivers, Streams and Watercourses - Northern Ireland

The Mourne River runs roughly East-West through the town of Strabane and joins the River Foyle and defines a number of roads and restrictions within Strabane Town. The River Foyle runs roughly North-South between Strabane and Lifford and forms the boundary between the two jurisdictions. An existing minor drainage channel runs parallel with part of the Strabane Bypass.

5.2.2 Rivers, Streams and Watercourses - Republic of Ireland

Beyond the afore-mentioned River Foyle, there are no rivers or watercourses of note within the Study Area in the Republic of Ireland

Figure 5.2 – Rivers, Stream and Watercourses



5.3 Environment and Ecology

5.3.1 Designated & Protected Areas

The Study area is bisected by the River Foyle Special Area of Conservation (SAC). The site was registered on 30th March 2007 and qualifies for its designation because it contains habitat types and/or species which are rare or threatened within a European context. The identified species are *Lutra lutra*, *Salmo salar*, and vegetation of *Ranunculus fluitantis* and *Callitriche-Batrachion*.

While the Strabane-Lifford link crosses over the River Foyle, it does so by an existing heavily trafficked bridge and no physical works are proposed in this area.

5.3.2 Ecology, Flora and Fauna

Aside from the River Foyle SAC, there are few notable areas of ecological interest within the Study Area, with carriageways generally free from trees and foliage beyond grasses, light brush or in certain areas, trees. The potential exists for the presence of invasive species, e.g. Japanese Knotweed and Salmonberry. If required, detailed surveys to establish the extent of invasive species will be progressed at detailed design stage.

Carriageways and roads are bounded by hedgerows or planting consisting of native species such as hawthorn, ash, sycamore and beech.

Note - Preliminary surveys and assessments of ecology, birds and mammals are currently being progressed across the Study Area. Detailed surveys will be progressed as required and in accordance with Environmental legislation and regulations. Where impact on habitats and species is unavoidable appropriate mitigation procedures will be explored and implemented to ensure minimal disturbance.

5.4 Existing Land Use and Zoning

5.4.1 Existing Land Use

Lands in the areas through which the route passes are, for the purposes of this report considered either urban residential, urban commercial or urban peripheral residential. In both jurisdictions, retail activity is concentrated in one main area of the study area, namely the Strabane and Lifford town centres and their immediate environs. While there are some agricultural lands bounding the study area, for the purposes of this report and the potential design options for the route, these are not considered an applicable constraint as steps will be taken to minimise or remove impingement where possible.

Figure 5.4.1 – Existing Land Use - Northern Ireland

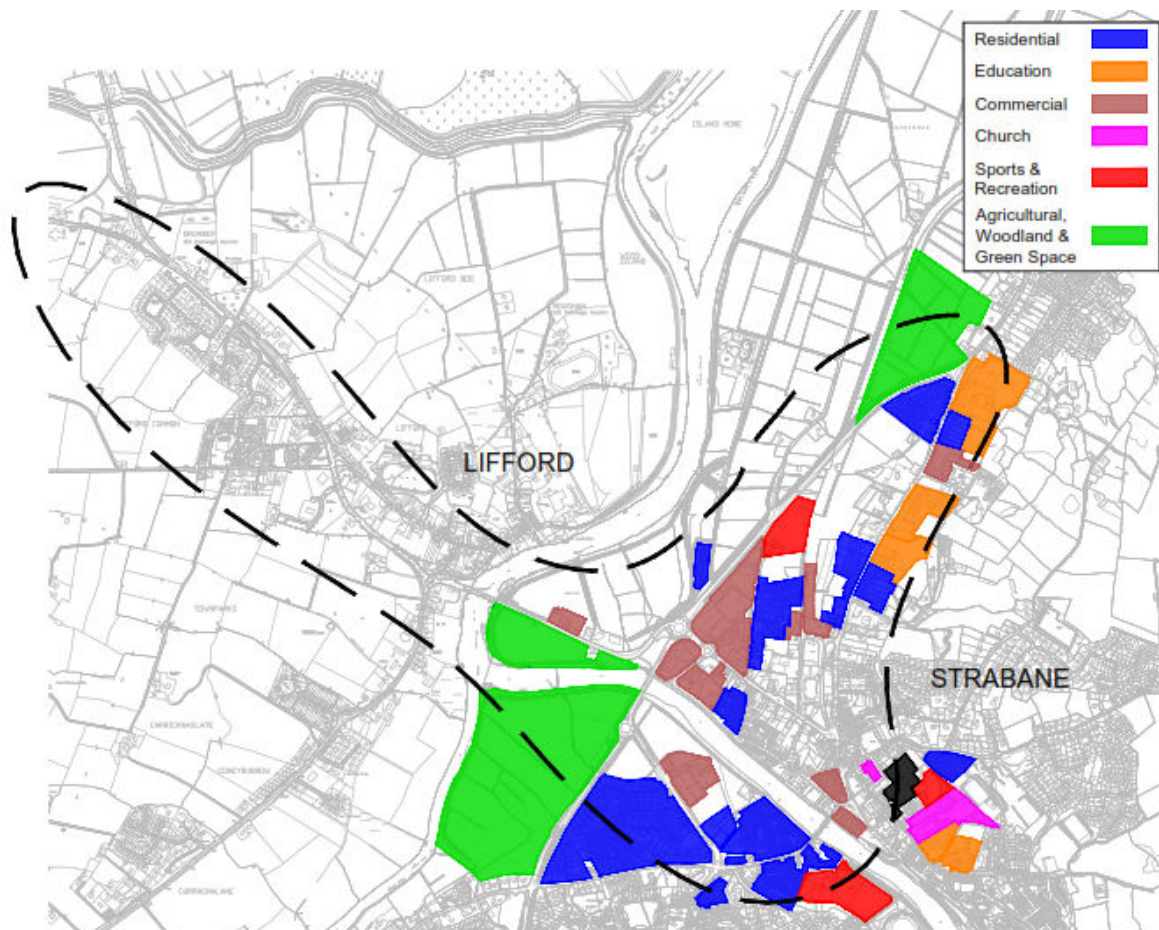
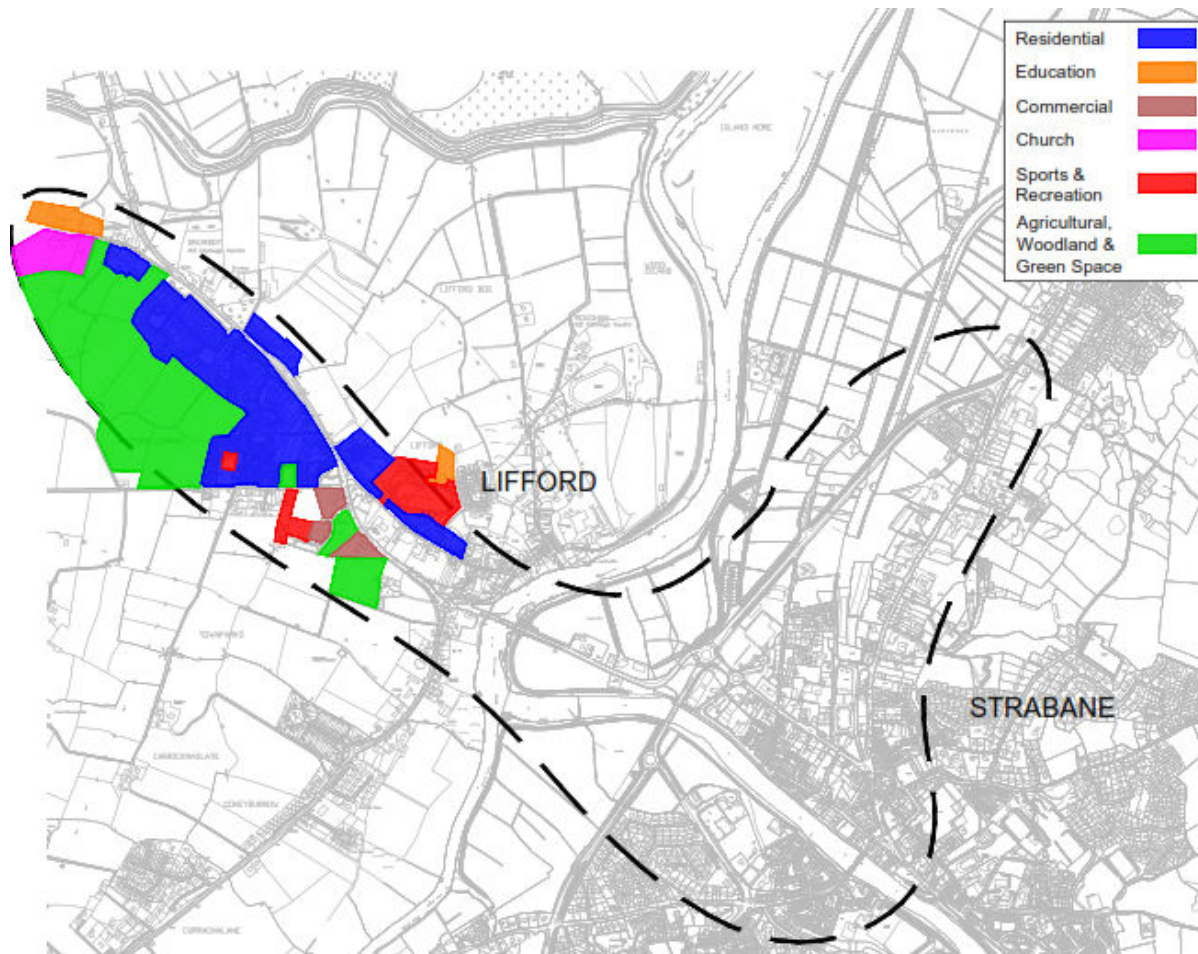


Figure 5.4.2 – Existing Land Use – Republic of Ireland



5.5 Proposed and Future Developments

Due to the urban or semi-urban nature of the route design options, and the relatively compact nature of the routes, it is not considered that proposed or future development of lands along or close to the route are an applicable constraint as any route design currently under consideration will be complement any further residential, retail or light industrial development.

5.6 Local Amenities and Attractions

Amenities and attractions within the Study Area will provide opportunities for connections with the proposed Greenway. Design Options connecting with local amenities and attractions may benefit from the existing trips generated by these facilities by providing potential for modal shift of some of these trips from motorised vehicles to walking/cycling. The additional trips and journeys generated on completion of the Greenway should also help to increase existing visitor numbers.

5.6.1 Local Amenities and Attractions

The compact nature of the study area, and the existing urban nature of the area means that most amenities and trip generators are already located along, or close to, the key route layout. Both Strabane and Lifford commercial areas are compact and located close to, or sit astride the route, with only isolated retail premises along the remaining length of the route.

Table 5.6.1 - Amenities and Attractions

Reference	Description	Amenity / Attraction	
1	Sports	Lifford Greyhound Stadium	
2		Melvin Sports Complex	
3		Strabane Cricket Club	
4	Community Buildings and Churches	Derry City and Strabane District Council offices	
5		Donegal County Council offices	
6		Strabane Housing Executive	
7		Strabane Courthouse	
8		Alley Theatre and Conference Centre	
9		Lifford Primary Care Centre	
10		Lifford Community Centre	
11		Sacred Heart Church (RC)	
12		Strabane Presbyterian Church (PCI)	
14		Strabane Methodist Church (MET)	
15		St. Patrick's Church (RC)	
16		St. Lugadius Church (COI)	
17		Commercial Hubs	Strabane Town Centre
18			Lifford Town Centre

Figure 5.6.1.1 – Amenities and Attractions – Northern Ireland

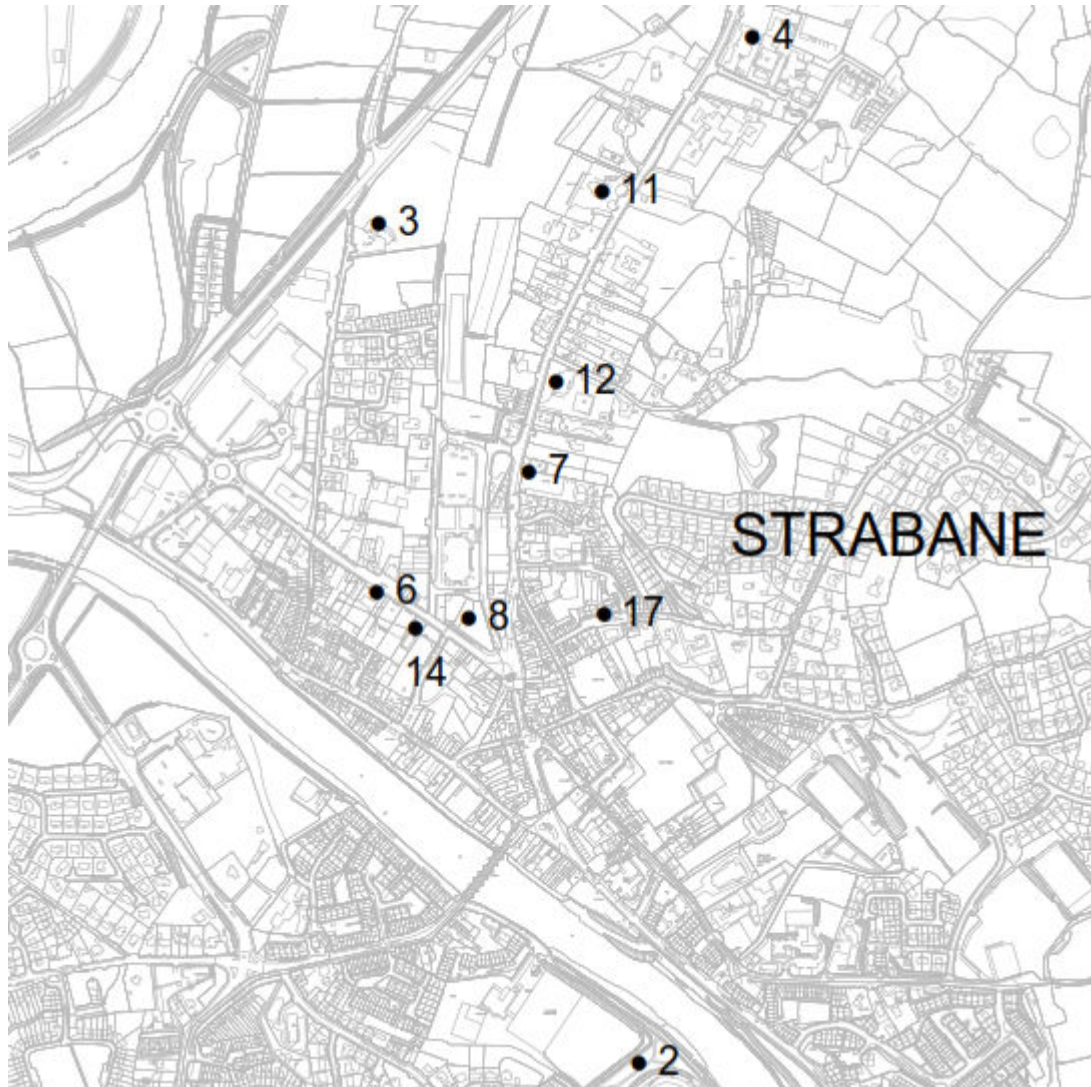
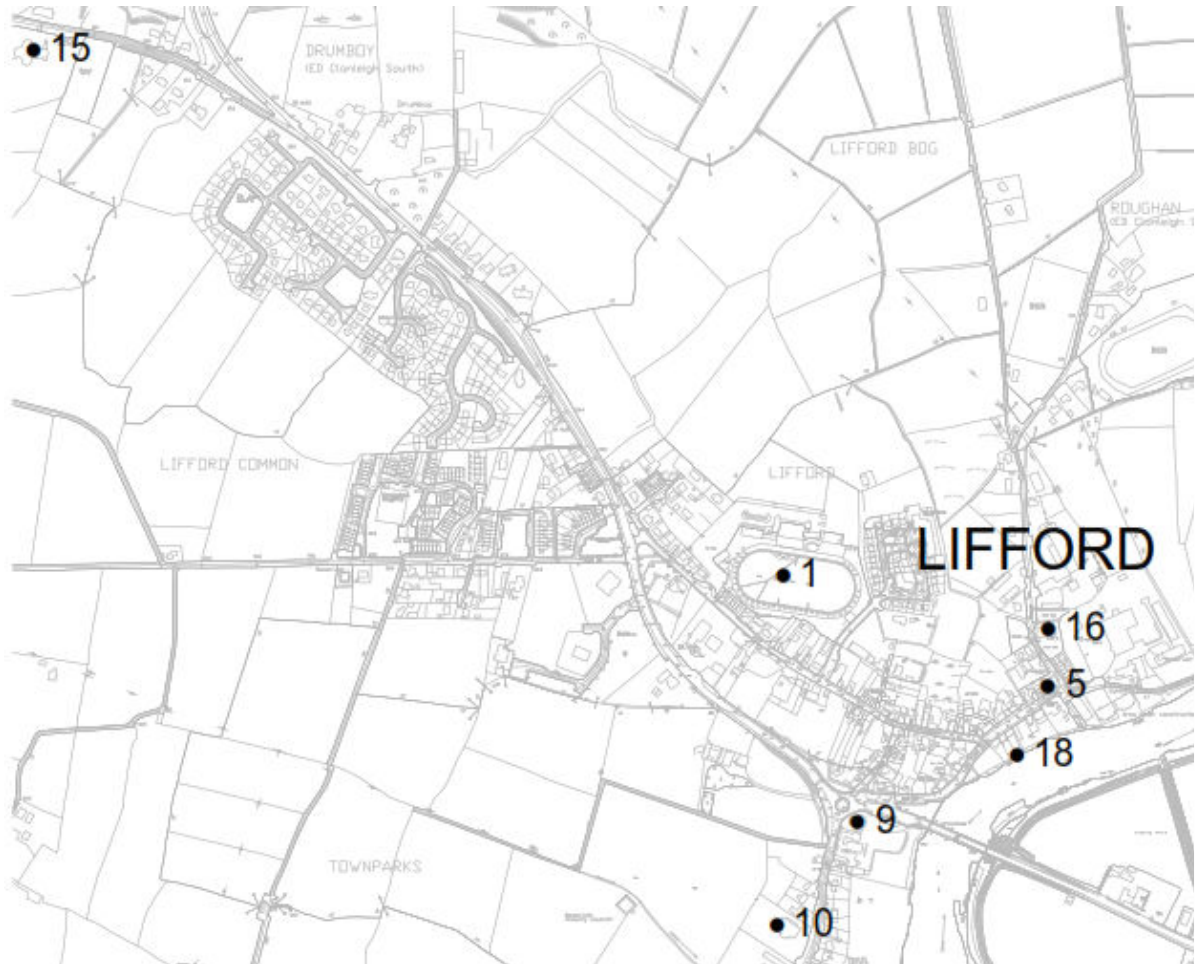


Figure 5.6.1.2 – Amenities and Attractions – Republic of Ireland



5.7 Existing Patterns of Travel and Social Interaction

5.7.1 Existing Patterns of Travel and Social Interaction

Travel patterns within the Study Area are expected to be dominated by short, local commuting journeys for work, business and school between the greater Strabane and Lifford areas and vice versa.

The latest census data (2016 for RoI, 2011 for NI) records the following population counts:

- Strabane: 13,100
- Lifford: 1,626

5.7.2 Schools and Education Centres

Schools and Education Centres are an important consideration for achieving the NWGN scheme aim of modal shift. Providing a Greenway allowing students, parents and staff to safely travel to school will help shift travel patterns towards more sustainable and healthy models. The selection of design options will consider proximity to schools, especially secondary schools or third level institutions where students are more likely to travel unaccompanied by parents or guardians.

Figure 5.8.2.1 & 5.8.2.2 show the locations of schools across the Study Area and a list of these is included in Table 5.8.2.1 (Primary Schools) and Table 5.8.2.2 (Secondary / Third level Schools).

Table 5.8.2.1 – Primary Schools

Reference	Name and Location	Description	Student Numbers
1	Strabane Controlled Primary School	A primary school, catering for Boys and Girls	269
2	St. Patrick’s National School	A Primary school, catering for Boys and Girls	198
3	Scoil Mhuire Gan Smal	A Primary school, catering for Boys and Girls	96
4	St. Catherine’s Primary School	A Primary school, catering for Boys and Girls	475

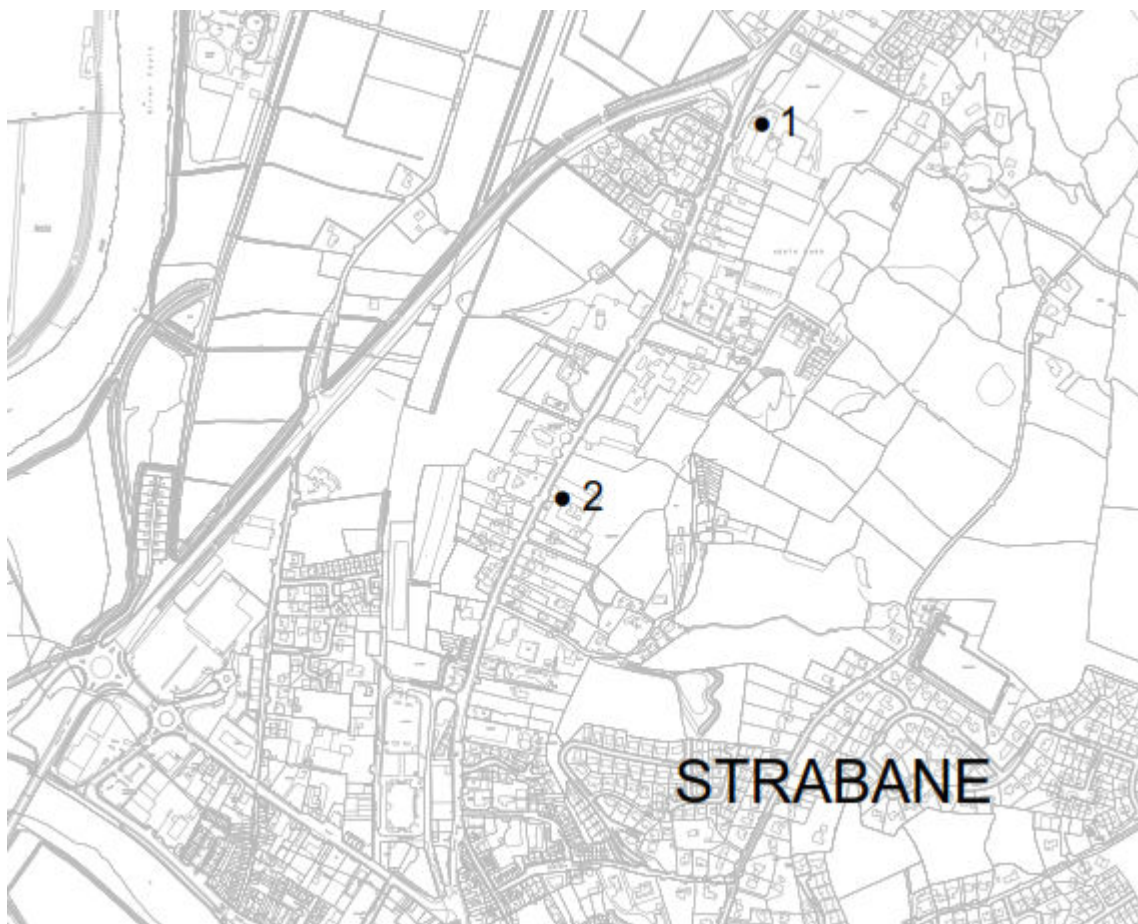
Figure 5.8.2.1 – Primary Schools



Table 5.8.2.2 – Secondary / Third Level Schools or Colleges

Reference	Name and Location	Description	Student Numbers
1	Strabane Academy	A post-primary academy, catering for Boys and Girls. Junior Campus at present	544
2	North West Regional College	Strabane campus of a wider third-level college	Varies
3	Scoil Mhuire Gan Smal	A Primary school, catering for Boys and Girls	96
4	St. Catherine's Primary School	A Primary school, catering for Boys and Girls	475

Figure 5.8.2.1 – Secondary Schools



6 DESIGN OPTION REVIEW

In the assessment of potential design options for the project, an initial early-stage review was undertaken within the study area of to identify potential feasible design options. Any Design Options to be further developed had to be capable of delivering the Project Aims and Objectives detailed in Section 2.3 and 2.4 of this report, and would be informed by the Constraints, Opportunities and Areas of Interest identified in Section 5.

Two primary methods of delivering the Project aims and Objectives were identified, namely: the establishment of a fully off-line corridor which allowed users to be routed through traffic free areas and residential areas

The upgrading of existing pathways, transit routes and crossings to provide a more suitable environment for cyclists

The existing usage profile and topography of the study area meant that providing an off-line option throughout the study area, or even in a significant portion of the study area, would have had a widespread adverse effect on material assets and human usage, and would have had the potential to discourage modal shift within a significant portion of the route by requiring extended links to existing population points.

The option of upgrading existing roads, pathways and transit routes was therefor considered the option most likely to meet the overall Project Aims and Objectives and to deliver key modal shift.

Those options considered capable of delivering these Aims and Objectives are listed in sections 6.1 to 6.5 below.

A summary of further options that were considered during the early stage study, but not progressed further are identified in section 6.6.

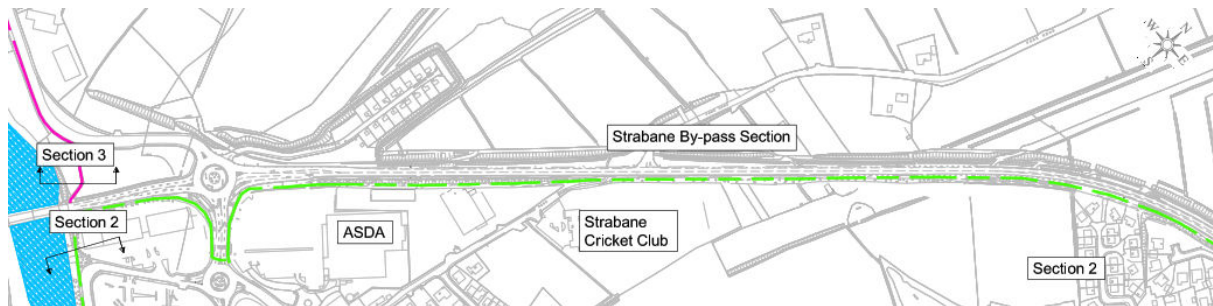
Figure 6.1 to 6.5 in the following sections show the Route and proposed indicative design. In reviewing the design options along each section of the corridor, consideration has been given to:

- Objective delivery
- Safety
- Geometric design
- Cost.

It is considered that the route taken through the sections provides the most advantageous method of fulfilling the project requirements and addressing key design constraints.

6.1 Section 1 – Strabane Bypass

Figure 6.1 – Section 1 Route and Configuration



In this section, it is proposed to run the route parallel with the eastern / north-eastern edge of the existing Strabane Bypass from the existing “Asda” roundabout to the junction with the Derry Road.

Objective delivery:

This design provides a route close to, but separated from, the existing traffic artery around Strabane. It links key transit points, border access and education centres.

Safety:

The design proposed allows for segregation of cyclist and pedestrians from a busy road. A land buffer can be provided which introduces both practical and perceptive separation.

Geometric design:

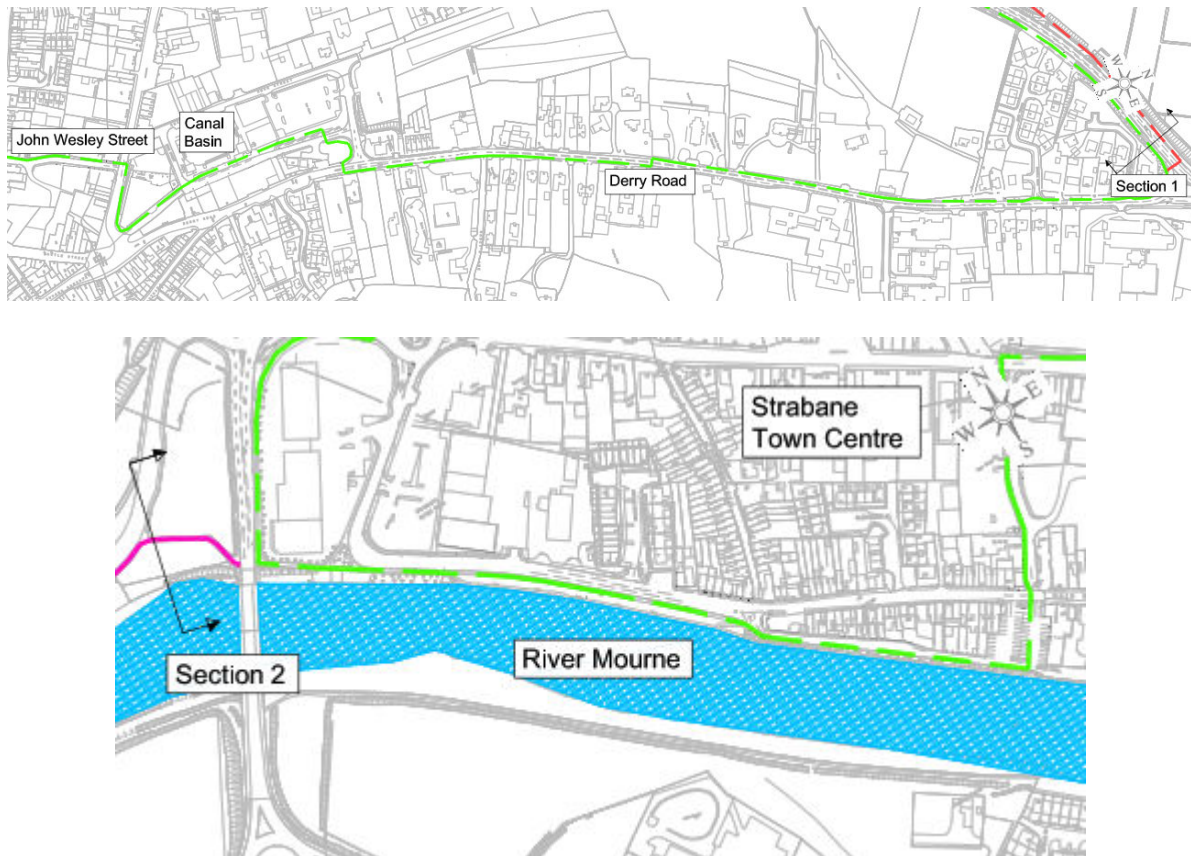
A sufficient route width can be provided along the section illustrated by the reprofiling of existing lands. Where the route closely follows a private boundary that would previously enjoyed privacy from day to day traffic, suitable mitigation measures will be required.

Cost:

The route as designed maximises the use of land which is currently in public ownership, or which is available at no capital cost.

6.2 Section 2 – Strabane Town Centre:

Figure 6.2 – Section 2 Route and Configuration



In this section, it is proposed to run the route parallel with the existing Derry road from its junction with the A5 to a point where this road intersects Canal St. From here, a suitable gradient will be provided to the Canal basin area. The route continues to the existing edge of the existing Urban Core area at the existing Alley Theatre and Conference centre. It is proposed that an opportunity is taken in this area to allow cyclists to dismount and use the existing pedestrian area and road crossing at Railway street. The mounted route will continue along John Wesley street to Main Street, where a shared use road will be required along Main street. Beyond it's junction with Eden Terrace, a segregated area will be provided for the cycle corridor, running to the existing crossing across the A5 towards the A38. A link will be provided along the A5 also to the "Asda" roundabout to complete a loop within Strabane.

Objective delivery:

The urban configuration of the route in this area allows links to be made with a number of educational establishments and places of worship, as well as providing links to the commercial heart of Strabane. This provides increased capacity for Modal shift over local journeys.

Safety:

Analysis and surveys of the existing carriageway provision has allowed a design to be developed where a suitable segregated cyclist and pedestrian path can be provided, along with a regulation buffer strip along the Derry Road. A small section of shared road is required along Main Street due to the physical restrictions in this area, and suitable signage will be required.

Geometric design:

To ensure suitable cross sections are available, it will be necessary to cross the Derry Road in several places. The existing profile and boundary provision along the Derry Road means that it is not practically possible to maintain the necessary geometric design along one full side of the road without considerable alterations to existing ownership and usage at pinch points.

Provision of the full necessary route width will entail narrowing the existing Derry Road to a 6m carriageway, but this is within usage parameters for this road type, volume and speed.

Where side roads are crossed, it is considered that a suitable crossing can be provided that allows priority to greenway route users.

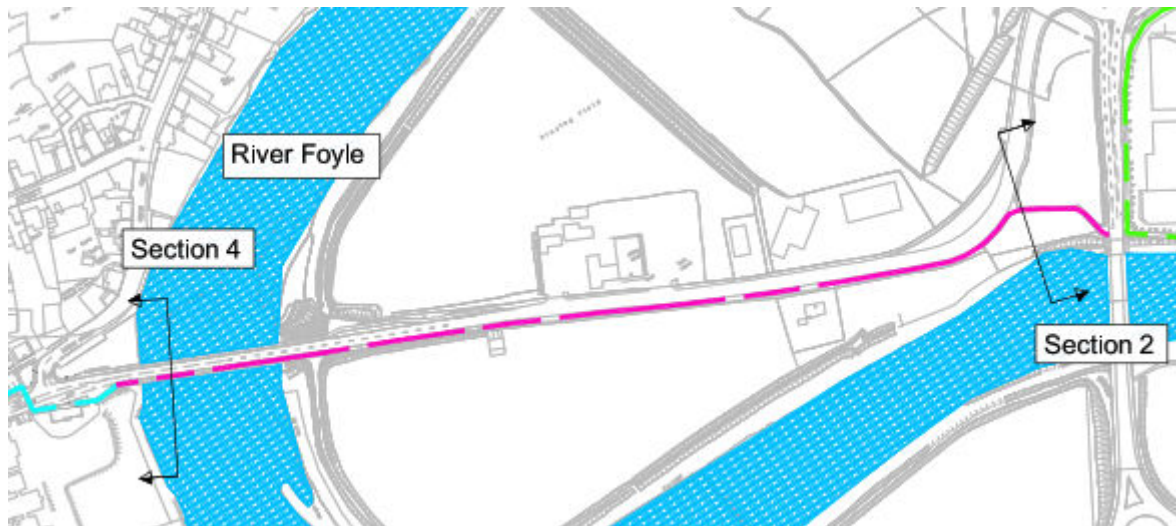
The incorporation of the necessary cycleway profile to John Wesley street will require the realignment of some existing carpark walls

Cost:

The route as designed maximises the use of land which is currently in public ownership, or which is available at no capital cost. While the design noted does involve alterations to the existing road, this is considered to be significantly less than those which would be involved in acquiring a considerable number of small land parcels to widen existing paths or in providing a fully isolated cycleway along its entire length.

6.3 Section 3 – Strabane to Lifford link

Figure 6.3 – Section 3 Route and Configuration



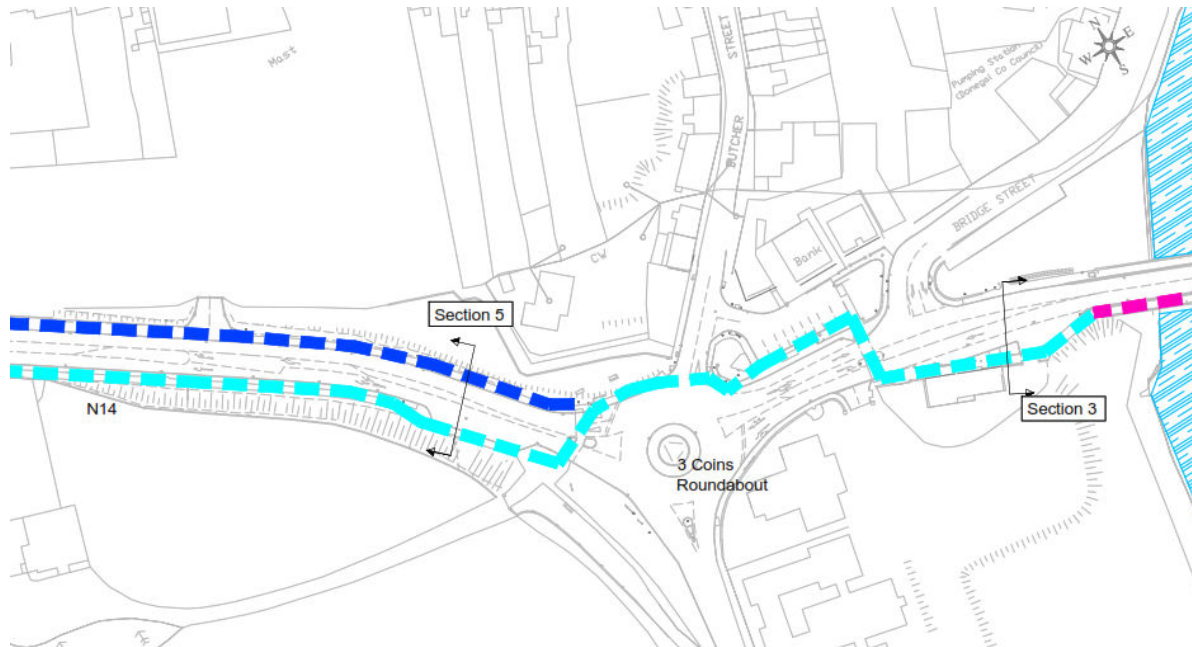
In this section, it is proposed to use the existing road bridge crossing over the River Foyle. A portion of this route already has signage as part of a cycle route, with a road crossing part of the way between Strabane and Lifford.

There is no practical alternative to moving between the two urban areas and across the border and river.

Construction of a dedicated bridge or similar structure for the Greenway route would have considerable cost implications beyond the project funding structure and would have the risk of impacting negatively on the River Foyle SAC.

6.4 Section 4 – Lifford Town Centre

Figure 6.4 – Section 4 Route and Configuration



In this section, from the end of the bridge over the River Foyle to the beginning of the rising terrain beyond the “three Coins” roundabout”, the existing pathways and landscaping will be reconfigured to provide altered crossing arrangements, segregated cycleway and pedestrian walkway and upgraded landscaping. This section covers a small geographic area, but contains a number of key factors such as 3 road crossings, 2 bus stops and a local parking area

Objective delivery:

The location of this section allows it to act as a focus and access to the otherwise bypassed heart of Lifford town by ensuring quality links from both extended greenway routes, suitable bike parking and access to retail areas.

Safety:

The existing configuration of the junctions in this area will require reworking to ensure cyclists can more safely and with confidence throughout while maintaining proper separation from traffic and pedestrians. However, due to restrictions with surrounding usage, there is no practical alternative to the route and works shown.

Geometric design:

Road crossings in particular will need to be reconfigured to ensure they are of sufficient size and orientation to suit increased usage by cyclists. The restrictions of the area, and the heavy usage of roads, may dictate the provision of minimum separation boundaries, but it is

considered that regulations and best practice provisions are being met by the scheme provided.

Cost:

There are no practical alternatives to the route indicated, nor any identified alternatives which could measurably reduce any potential cost. It is noted that the lands that require alteration are in public ownership.

6.5 Section 5 – Lifford town centre to Murlog Church

Figure 6.5 – Section 5 Route and Configuration



In this section, in the absence of any fully off-road routes, the route will run parallel with the existing N14 on both sides of the carriageway to a point at the existing “Applegreen” service station, and then continuing only on the west side of the N14 to the point where this road intersects with the R264. At this point the route then follows the R264 to St. Patricks National School at Murlog at its terminus. A crossing will be provided at the end of the dual sided provision along the N14 in the vicinity of the “Applegreen” service station.

Objective delivery:

The route in this section links a key local place of worship and a key local primary school with the urban centre of Lifford and onwards to Strabane. This route allows direct links to a number of residential areas and retail outlets which front the N14, providing increased connections for Modal shift

Safety:

Analysis and surveys of the existing carriageway provision has allowed a design to be developed where a suitable segregated cyclist and pedestrian path can be provided. Where geometric profiles allow, landscaped areas will also be provided as a buffer with road traffic. In addition, there exists potential to provide some limited sections that are fully isolated from the N14, in particular at the “St. Judes” area, where a large area of open space is being utilised to provide an “off road” section.

It is proposed to reprofile the existing junction between the N14 and the R264 to better manage vehicle movements and interactions in this area. This will have benefits for both road and Greenway users, and allows the provision of a suitable road crossing to the Murlog National School Carpark across the R264

Geometric design:

In general, the geometric requirements can be met using the existing footpath and grass strip. Some minor realignment of kerbs and an isolated alteration to an existing boundary wall to a council owned estate will be necessary but are not considered key design items.

Alterations to the existing configuration of access to a number of private properties along the N14 opposite the “Applegreen” service station will be required to ensure suitable segregation of property owners, cyclists and motorists.

Where side roads are crossed, it is considered that a suitable crossing can be provided that allows priority to greenway route users.

Cost:

The route as designed maximises the use of land which is currently in public ownership where possible, and keeps usage or requirements for private land to as low a level as considered practical. While the design noted does involve limited alterations to the existing road, and some land acquisition, this is considered to be significantly less than those which would be involved in acquiring private lands necessary to construct an independent offline route.

6.6 Potential route sections reviewed at desktop study stage but not developed

As noted at the beginning of Section 6, an initial early-stage review was undertaken within the study area of to identify potential feasible Design Options. Any Design Options to be further developed had to be capable of delivering the Project Aims and Objectives detailed in Section 2.3 and 2.4 of this report, and would be informed by the Constraints, Opportunities and Areas of Interest identified in Section 5.

Those routes considered capable of delivering the Project Aims and Objectives are listed in sections 6.1 to 6.5. Some further route alternatives identified in this study, but not progressed further are listed below, along with a summary of the reasons they were not considered further.

Usage of pedestrianised areas along Castle Street, Strabane

- The use of these areas as an extended “dismounted” area was considered but ultimately not pursued further due to factors associated with:
 - Extended loss of continuity of cycle experience
 - Potential conflict between pedestrians and cyclists, in particular if “dismount” instructions are not observed
 - Unfavourable transitions at Railway Street / Abercorn Square / Derry Road junctions

Use of the top of the flood defence wall on the North bank of the Mourne River, Strabane

The existing flood defence wall along the north bank of the Mourne River currently provides a path for pedestrians. The feasibility of providing a cycleway along this same route was examined. While such a provision would have allowed the remove of cycleway users entirely from the Main Street area from any point between the crossings of the Mourne River at Bridge Street and the A5, this was ultimately not perused further. Key factors were:

- The existing flood wall pathway does not provide sufficient width to permit two-way cycle way traffic
- Placing cyclists on the floodwall would entail removing pedestrian use
- Works to provide an extended width to the flood defence wall path would involve either construction of a walkway overhanging the Mourne River, or extending into the existing landscaped areas and removing a high proportion of the existing mature trees, neither of which offered cost effective alternatives or were environmentally sound.

Use of the west side of the A5 bypass, Strabane

The use of the existing pathway and embankment along the west side of the A5 / Barnhill road was considered as an alternative to the East side as proposed. This was ultimately not pursued further due to factors associated with:

- Risks associated with the introduction of 2 crossings across the A5 (“Asda” roundabout and Derry Road Junction). The A5 is of higher speed than other roads

in the locality and introducing crossings would have the potential for disruption of existing road traffic and the introduction of increased risk and dismount movements for cyclists

- The existing embankments have been provided as a flood management measure. To provide the necessary geometric design, the available pathway would have to be increased to a minimum of 3 metres, which would require substantial lowering the existing upper level of the embankment, thus compromising its primary role in flood defence.
- Due to the nature of the embankment and the surrounding area, unless the embankment was lowered to the same general level as the surrounding areas, the entire length might have required fencing to regulation height to prevent cyclists travelling off path and down steep embankment edges.

Use of Butcher Street and Main Street, Lifford

The provision of a cycle way along Butcher Street and Main Street in Lifford was considered as an alternative to the use of environs of the busy N14 corridor. This was ultimately not pursued further due to factors associated with:

- Very restricted space along Butcher Street, and existing road use behaviour, would make the provision of a cycleway of the required dimensions exceptionally difficult, even if using a shared road area.
- Existing road widths along Main Street would make the provision of a cycleway of the necessary dimensions difficult to achieve without the use of shared road areas, thus reducing the cycle experience and safety

Use of riverfront areas to provide a segregated corridor

The provision of a route close to existing riverbanks as a means of including a fully off-line corridor was reviewed, but not pursued further due to factors associated with:

- Special Protected Areas status of the Mourne, Foyle and Finn rivers.
- Considerable variance between existing road levels and river bank and water levels.

APPENDIX A – LIST OF DESIGN GUIDELINES AND STANDARDS

Northern Ireland

Title	Details
Handbook for Cycle-Friendly Design	Sustrans, April 2014
Cycle Traffic and the Strategic Road Network, Interim Advice Note 195/16	Department for Infrastructure, Oct 2016
Provision for Non-Motorised Users, DMRB Vol5, Section 2, Part 5, TA 91/05	Design Manual for Roads and Bridges
Geometric Design Of Major/Minor Priority Junctions DMRB Vol6, Section 2, Part 6, TD 42/95	Design Manual for Roads and Bridges
Geometric design of Pedestrian, Cycle and Equestrian Routes DMRB Vol6, Section 3, Part 5, TA 90/05	Design Manual for Roads and Bridges
Traffic Signs Manual	Department for Infrastructure, latest editions of relevant chapters

Republic of Ireland

Title	Published By
National Cycle Manual	National Transport Authority, June 2011
Rural Road Link Design TII, DN-GEO-03031	Transport Infrastructure Ireland, June 2017
Cross Sections and Headroom TII, DN-GEO-03036	Transport Infrastructure Ireland, June 2017
Subways for Pedestrians and Pedal Cyclists TII, DN-GEO-03040	Transport Infrastructure Ireland, June 2017
Rural Cycleway Design (Offline) TII, DN-GEO-03047	Transport Infrastructure Ireland, April 2017
Geometric Design of Junctions TII, DN-GEO-03060	Transport Infrastructure Ireland, June 2017
ROI Traffic Signs Manual	Department for Transport, Tourism and Sport, latest editions of relevant chapters
Strategy for the Future Development of National and Regional Greenways	Department of Tourism, Transport and Sport

Other Documents

Title	Published By
Cycling By Design, Revision 1	Transport Scotland, June 2011
London Cycling Design Standards (LCDS)	Transport for London, June 2014

APPENDIX B – DRAWINGS AND FIGURES

Figure 3.2 – North West Greenway Network – Route Overview

Figure 4.1 - Proposed Study Area

Figure 5.1 – Topography

Figure 5.2 – Rivers, Stream and Watercourses

Figure 5.4.1 – Existing Land Use - Northern Ireland

Figure 5.4.2 – Existing Land Use – Republic of Ireland

Figure 5.6.1.1 – Amenities and Attractions – Northern Ireland

Figure 5.6.1.2 – Amenities and Attractions – Republic of Ireland

Figure 5.8.2.1 – Primary Schools

Figure 5.8.2.2 – Secondary / Third Level Schools or Colleges