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Ulster Canal Greenway Development Strategy

Strategic Environmental Assessment – Environmental Report

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The Ulster Canal Greenway

Development Strategy

Strategic Environmental Assessment

Environmental Report

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ABBREVIATIONS

AA	Appropriate Assessment
ASSI	Area of Special Scientific Interest
CDP	County Development Plan
CFRAM	Catchment Flood Risk Assessment and Management
CSO	Central Statistics Office
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and the Marine
DAHRRG	Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
DCENR	Department of Communications, Energy and Natural Resources
DECLG	Department of Environment, Community and Local Government
EEA	European Environment Agency
EPA	Environmental Protection Agency
FPM	Freshwater Pearl Mussel
FRA	Flood Risk Assessment
GHG	Greenhouse Gas
GSI	Geological Survey of Ireland
GSNI	Geological Survey of Northern Ireland
IFI	Inland Fisheries Ireland
LA	Local Authority
LAP	Local Area Plan
NBIRBD	Neagh Bann International River Basin District
NHA	Natural Heritage Area
NIEA	Northern Ireland Environment Agency
NIS	Natura Impact Statement
NISRA	Northern Ireland Statistics and Research Agency
NPWS	National Parks and Wildlife Service
NWIRBD	North Western International River Basin District
OPW	Office of Public Works
OSi	Ordnance Survey Ireland
pNHA	Proposed Natural Heritage Area
P/P	Plan / Programme
RBD	River Basin District
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SMR	Sites and Monuments Record (NI)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WFD	Water Framework Directive

EXECUTIVE SUMMARY

INTRODUCTION

Waterways Ireland, and their project partners Monaghan County Council, Cavan County Council, Fermanagh and Omagh District Council, Armagh City, Banbridge and Craigavon Borough Council, and Mid Ulster District Council, propose to develop a long-distance Greenway in Northern Ireland and the Republic of Ireland, linking Castle Saunderson in County Cavan to Charlemont in County Armagh mainly along the route of the disused Ulster Canal and using sections of disused railway infrastructure. The proposals for development of these greenway sections are provided within the Ulster Canal Greenway Development Strategy (the Strategy).

The Strategic Environmental Assessment (SEA) Directive has been implemented in order to integrate environmental considerations into the preparation of plans and programmes and is a means of ensuring a high level of protection for the environment, while also promoting sustainable development. The SEA Directive will ensure that consideration is given to the environment in implementing the Ulster Canal Greenway Development Strategy.

METHODOLOGY AND CONSULTATION

This SEA Environmental Report has been produced to assess the environmental impacts of the various route options (alternatives) of the Strategy and to provide the environmental guidance to help create a more sustainable Strategy. In parallel to this, an Appropriate Assessment (AA) Screening has been prepared to inform the decision making process, in terms of the potential for the route options to impact the integrity of any European sites in view of that sites conservation objectives.

Each alternative route available in the Strategy has been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects against the SEA objectives. Other impacts that have been assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of “The Evolution of the Environment without the Plan” has also been assessed in the same format. This will be considered the Do-Nothing Scenario.

A SEA Scoping Report for the Strategy was circulated on the 22nd July 2016 to the following statutory consultees:

- Northern Ireland Environment Agency (NIEA) (formerly Environment and Heritage Service).
- Environmental Protection Agency (EPA);
- Department of Environment, Community and Local Government (DECLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Energy and Natural Resources (DCENR); and

- Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRG).

Non-statutory stakeholders were also provided this Scoping Report and all information was made publically available on the Waterways Ireland website.

Consultations on the draft Strategy, SEA Environmental Report and AA Screening will commence in May 2017 and run for 12 weeks. The consultation activities will take the form of Public Consultation Days, documents being made available for viewing at Waterways Ireland premises and the documents being made available digitally via the Waterways Ireland and project partner Local Authority websites.

DESCRIPTION OF THE STRATEGY

The Strategy lays out the proposed sections of greenway that Waterways Ireland and their project partners propose to develop as funding becomes available. There are 12 new sections of greenway that could be developed that make up the Strategy, which can be developed independently of one another. These sections are summarised as follows:

1. Enniskillen to Clones – 34km – Using mainly disused railway line.
2. Castle Saunderson to Clones – 11km – Along the Ulster Canal.
3. Belturbet to Cloverhill – 7km – Using mainly disused railway line.
4. Cavan to Clones – 24km – Using mainly disused railway line.
5. Clones to Smithsborough – 10km – Along the Ulster Canal.
6. Smithsborough to Monaghan town – 11km – Along the Ulster Canal.
7. Monaghan town to Middletown – 9km – Along the Ulster Canal.
8. Monaghan to Glaslough – 10km – Using mainly disused railway line.
9. Glaslough to Armagh – 17km – Using mainly disused railway line.
10. Armagh to Portadown – 16km – Using mainly disused railway line.
11. Middletown to Benburb – 20km – Along the Ulster Canal.
12. Benburb to Lough Neagh – 23km – Along the Ulster Canal and river side path.

The Monaghan Town section of the greenway has already been completed by Monaghan County Council. This is a total of over 190km of greenway that could be developed for sustainable transport and recreational purposes. The Strategy covers the period from 2016 to 2022, and will be reviewed every 7 years.

ENVIRONMENTAL BASELINE

An environmental baseline was produced by SEA environmental topic. The purpose of the following section is to demonstrate the level of baseline environmental information to be used in the assessment of potential impacts of the route options.

Biodiversity, Flora and Fauna

There are a wide variety of natural habitats within the overall study area, protected by a range of designations. There are four Special Areas of Conservation (SAC) within 1km of the proposed

greenway routes, being the Upper Lough Erne SAC, the Lough Oughter and Associated Loughs SAC, the Magheraveely Marl Loughs SAC and the Peatlands Park SAC, which are all designated in accordance with the Habitats Directive. There are three Special Protection Areas (SPAs) within 1km of the proposed greenway routes, designated under the Birds Directive, being the Upper Lough Erne SPA, the Lough Oughter SPA and the Lough Neagh and Lough Beg SPA. Together these European sites form part of the Natura 2000 Network. There are four Ramsar sites within 1km of the proposed greenway routes, being at Lough Oughter, Lough Neagh and Lough Beg, Upper Lough Erne and Magheraveely Marl. There are 13 ASSIs within 1km of the proposed greenway routes, including those at Lough Neagh, Upper Lough Erne, Benburb and Caledon and Tynan. There are seven proposed Natural Heritage Areas (pNHA) in the study area, including Lough Oughter and Associated Loughs and a section of the old Ulster Canal at Aghalisk. There are also a number of country parks, National Trust lands, salmonid rivers, and several Sites of Local Nature Conservation Interest (SLNCI) within close proximity of the proposed greenway routes. Any linear construction project, such as development of the greenway routes, has the potential for direct and indirect impacts on international, national and local designated sites, habitats and species.

Population and Human Health

From the 2011 census within Northern Ireland and the Republic of Ireland there was found to be over 187,000 people living within 5km of the proposed Ulster Canal Greenway routes, with varying levels of health. Construction activities associated with the development of the greenway sections may lead to short term disturbances to the local communities, however the introduction of the greenway provides the opportunity for these dispersed populations to travel from settlement to settlement in a more sustainable manner that is more in touch with the environment.

Geology, Soils and Landuse

The solid geology within the vicinity of the proposed Ulster Canal Greenway route is mainly comprised of interbedded argillaceous limestone and mudstone, with sandstone and conglomerate deposits also. These are overlain for the most part by peat and glacial till deposits, with also some sands and silts. The most common soils in the study area are peats, gleys, grey brown podzolics and acid brown earths with hydraulic conductivity ranging from low to moderate. The predominant land uses in the vicinity of the proposed routes are agricultural, with pasture land for grazing livestock and cultivated land for crops. Development and operation of a greenway is unlikely to have any impacts on geology, however there is likely to be the direct loss of the soil resource along the route, changes of land cover and land use, and the potential for the dividing of agricultural lands.

Water

The 12 proposed sections of the Ulster Canal Greenway travel across 50 groundwater bodies and also pass within the vicinity of 88 river waterbodies and 12 lake waterbodies. The development and operation of the greenway sections is unlikely to directly impact on surface waters, lakes, artificial waters or groundwater's, in terms of quality and status, however there is the potential for indirect impacts during construction from sedimentation and release of contaminants in runoff. In addition to these waterbodies, the proposed greenway routes cross a total of 53 river segments. As a result,

many of the proposed routes have the potential to be within areas of medium probability river (fluvial) flooding (1% AEP) and surface water (pluvial) flooding (0.5% or 1% AEP). The lengths of potential greenway sections inundated by these flooding events vary greatly.

Air

Air quality in the vicinity of the proposed greenway routes is generally considered to be good, due to the low development density and the limited concentrations of industrial operations in the area. There are a number of national and regional roads which run adjacent to, or in close proximity to, the proposed greenway route. These are potentially notable sources of local anthropogenic pollution. The greenway has the potential to reduce air emissions by providing the means for a local and regional social-cultural shift towards the reduction of fuel intensive transport.

Climate

The predicted impacts of climate change are likely to include increases in the frequency and intensity of rainfall, the increases in peak flows in rivers, a rise in sea levels and increased storminess. These effects of climate change are likely to increase pluvial, fluvial and coastal flooding and will require future development to be adaptable or resilient to future climatic changes and its associated impacts. The greenway sections should be developed with climate change in mind to ensure future drainage and flood risk requirements are taken into account.

Material Assets

The study area of the Strategy is mainly corridors along rural areas of low density development, which are linking settlements, towns and a city across Counties Fermanagh, Cavan, Monaghan, Armagh and Tyrone in Northern Ireland and the Republic of Ireland. Of the development that occurs within this study area there is the potential for the greenway development and operation to impact or be impacted upon by these material assets, such as transport or energy infrastructure. Development of the greenway sections has the potential to disrupt existing infrastructure and conflict with proposed infrastructure. The public using the operational greenway could also be put at risk by these material assets, such as roads and industrial activity. The greenway sections will need to be planned appropriately in the detailed design to work with the existing and proposed material assets. It should also be noted that the development of the greenway sections is the provision of new, low cost, zero emission, low carbon footprint material assets to the area.

Cultural, Architectural and Archaeological Heritage

The study area is rich with cultural, architectural and archaeological heritage, with numerous recorded and preserved structures, sites, monuments, places and zones. Any construction activity has the potential for direct negative impacts on heritage features, especially in areas rich in heritage such as along watercourses and historic transport corridors. There is however the potential for the greenway development to uncover new heritage features and to enhance existing heritage through incorporation into the detailed design. The greenway developments along the old Ulster Canal could be a step towards the overall preservation and even restoration of this architectural heritage.

Landscape and Visual

The area of the proposed Ulster Canal Greenway Development Strategy comprises a variety of different landscapes, including river valleys, drumlins, lakelands, raised bogs and rolling farm lands, with several designated and protected landscapes and views. Any construction activity has the potential for temporary, negative impacts on landscape and visual amenity; however operation of the greenway sections is unlikely to have wider impacts on the landscape and could be designed and developed to enhance the visual amenity of the area.

Evolution of the Environment in the Absence of the Strategy

The evolution of the environment in the absence of the Strategy was assessed in the SEA Environmental Report. In the absence of the Strategy, i.e. the Do Nothing Scenario, the routes of the Ulster Canal Greenway would either remain as undeveloped canal tow paths or railway lines that have existed since closure, without any maintenance or purpose, or would remain as existing roads, utilised mainly by automotive transport. The likely future impacts of this are provided by environmental topic.

REVIEW OF RELEVANT PLANS, PROGRAMMES AND POLICIES

A review of the Plans, Policies and Programmes relevant to the Strategy was carried out at International, European, National, Regional and Sub-Regional scales. This exercise was carried out with a view to establishing the hierarchical position of the Strategy, the influence these Plans and Programmes will have on the Strategy and how the Strategy will interact with the objectives of these other Plans.

ENVIRONMENTAL OBJECTIVES, TARGETS AND INDICATORS

The proposed strategic greenway routes for consideration have been assessed against the SEA Objectives to examine the likely significant environmental impacts of the Strategy. These are referred to as the Strategic Environmental Objectives (SEOs). This assessment is relatively strategic, with the aim of reporting likely impacts at the regional level to reflect the scale at which the routes are being planned. Indicators, targets and scoring guidelines were developed to help provide a consistent assessment of the potential routes.

ALTERNATIVES

There are 12 new sections of greenway that could be developed that make up the Strategy. These proposed sections of greenway will be developed as funding becomes available and can be developed independently of one another. For the purposes of comparative assessment the Do Nothing Option is scored as being no development of any section of greenway.

HABITATS REGULATION ASSESSMENT

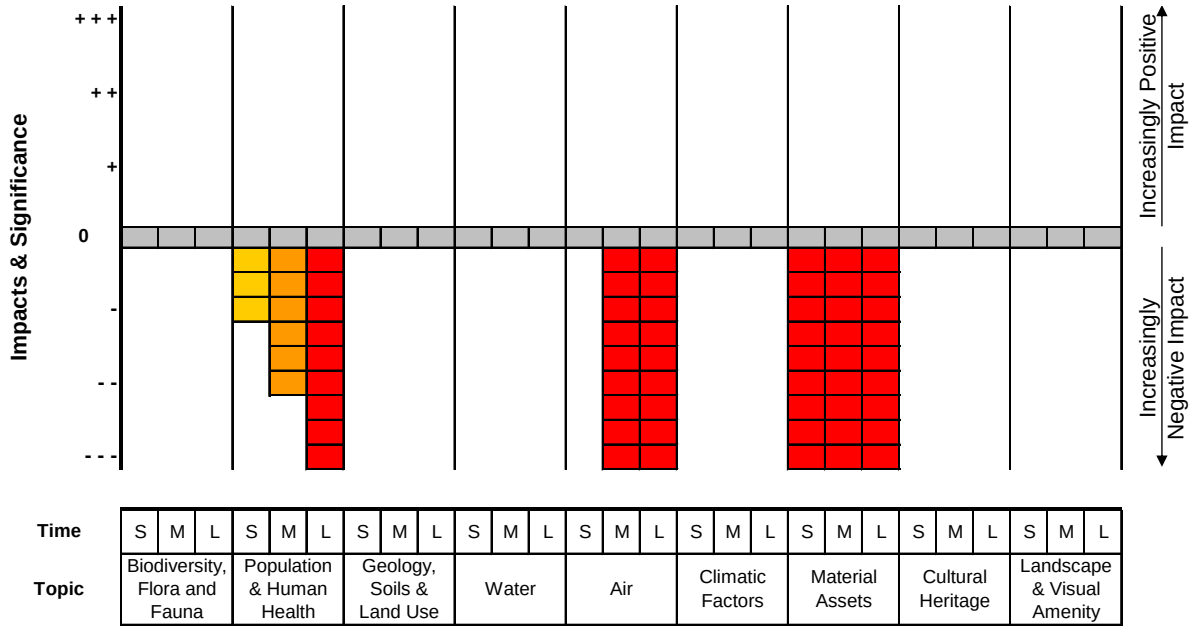
Habitats Regulation Assessment (HRA) for the Strategy has been carried out in parallel with the SEA process. The findings of the HRA have been used to guide the development of the alternatives to be considered as part of the SEA. The first stage of the HRA process is Screening, which is to determine whether implementation of the Strategy has the potential to have a significant effect on designated European sites. The findings of the HRA Screening have been integrated into this SEA Environmental Report and subsequently into the Strategy.

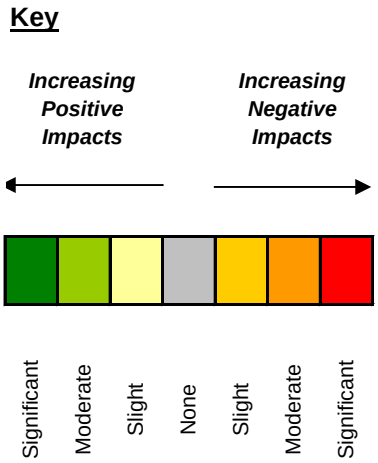
ASSESSMENT

Each alternative available to the Strategy has been assessed against the Strategic Environmental Objectives (SEOs). Where appropriate, a regional perspective of the potential main issues and impacts of each option has been detailed by environmental topic area. All potential positive and negative impacts are presented individually, with a text description, and then a summary graphic. In addition, a summary of the overall balanced potential effect has been presented for each environmental issue area. The scores assigned to impacts are from +3 to -3. If a route section is thought to have the potential for unacceptable impacts a score of -999 has been assigned. The purpose of adding numerical scores is to assist in the ranking of options and for potential incorporation of the environmental and social criteria into future decision making by the Strategy team, as this can easily be tied into a multi-criteria analysis of alternatives if desired.
Each alternative available in the Strategy has been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects. Other impacts that have been assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of “The Evolution of the Environment without the Plan” has also been assessed in the same format. This will be considered the Do-Nothing Scenario.

A summary of the findings by route are as follows:

0 - Do Nothing - Not implementing the Strategy and not developing any of the greenway sections has the potential to lead to further degradation and neglect of the Ulster Canal and its associated heritage. The Strategy is an opportunity to be a step towards revitalising these corridors; however is an opportunity missed if nothing is done. Additional secondary benefits and secondary development that would be associated with a greenway and the increased visitor numbers would be lost by doing nothing. It is also an opportunity missed to reduce local air emissions and provide new, sustainable transport infrastructure to the region that would have wider health, social and economic benefits to the cross border region and its population.



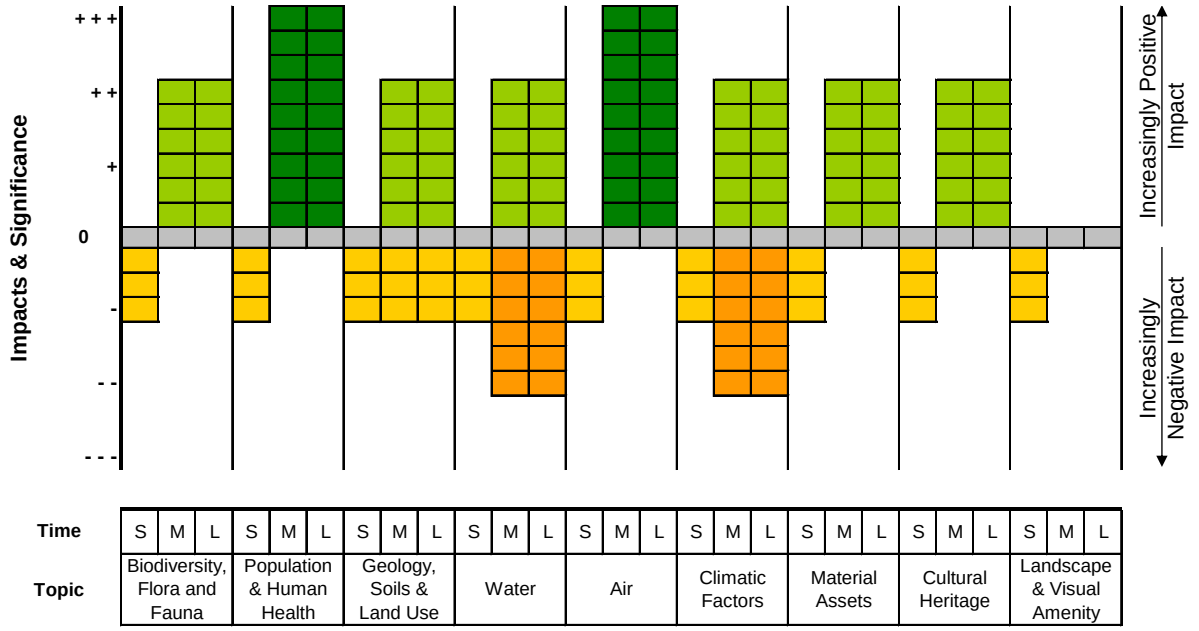


1 - Enniskillen to Clones - The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation and potentially contribute towards local flood risk management.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics, as well as significant positive impacts to the local and regional population, and their health, from the provision of sustainable transport, recreational and amenity infrastructure.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site and likely

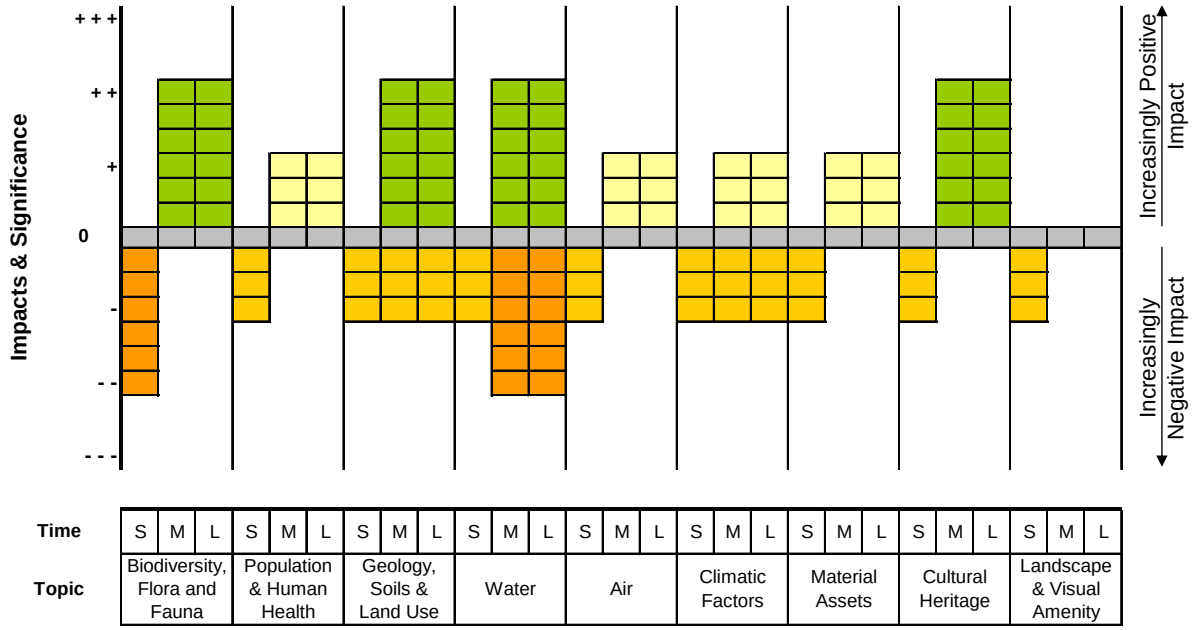
significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



2 - Castle Saunderson to Clones – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation and potentially contribute towards local flood risk management.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure.

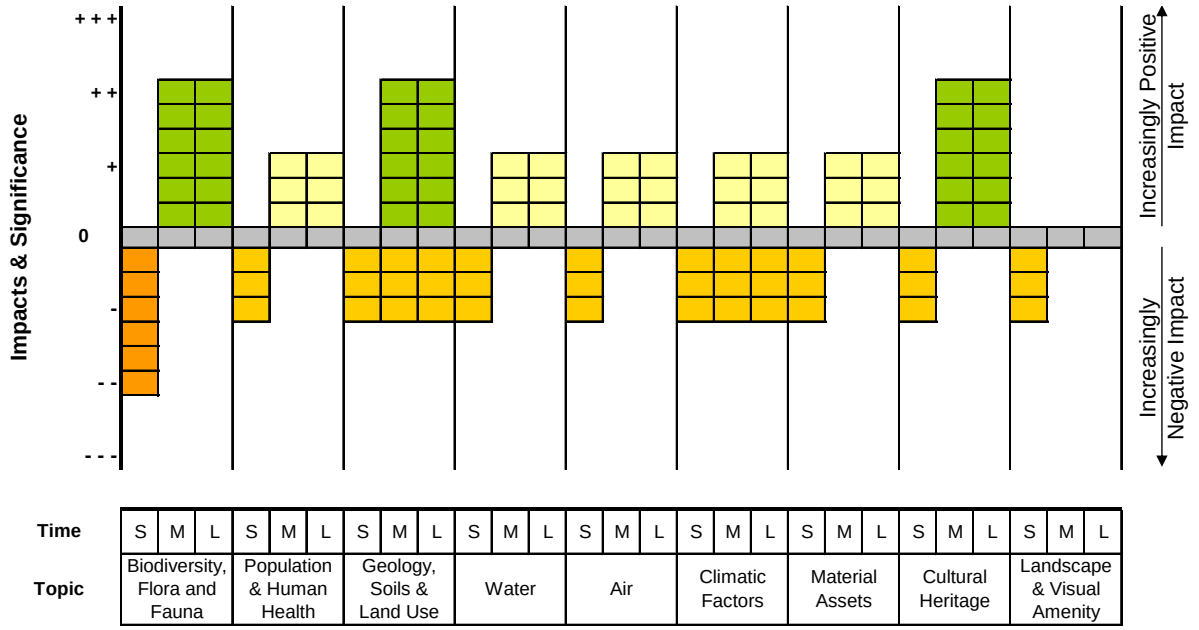
The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site, and the Lough Oughter and Associated Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



3 - Belturbet to Cloverhill – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Oughter and Associated Loughs SAC could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted from the construction and operation of the greenway route.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

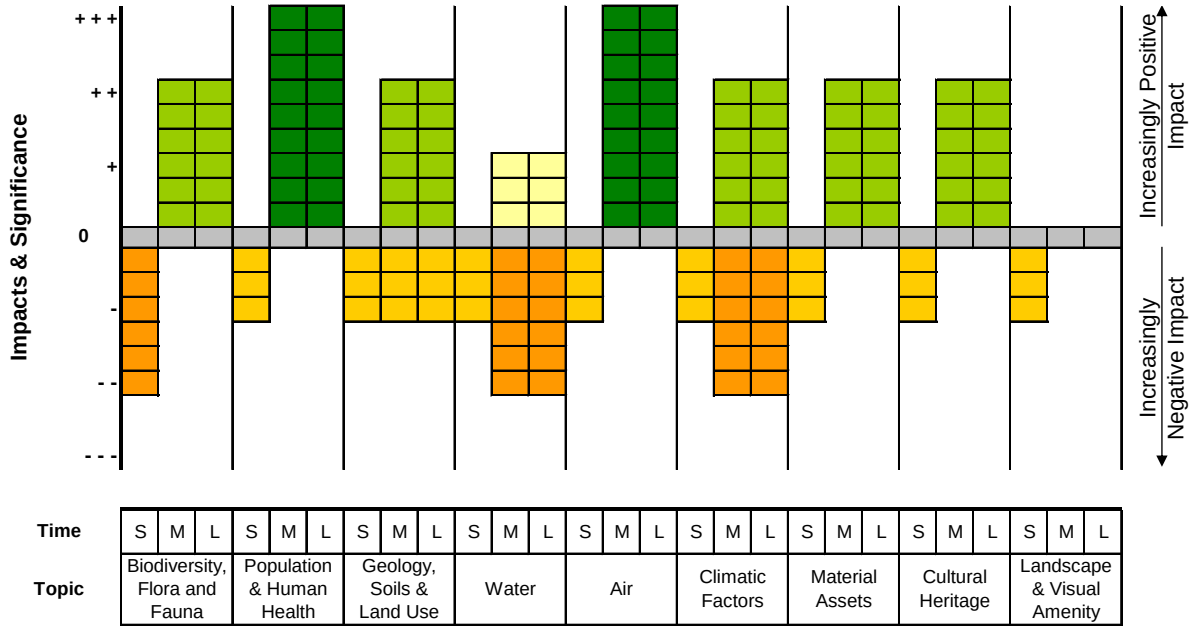
The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



4 - Cavan to Clones – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA, and the Lough Oughter Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

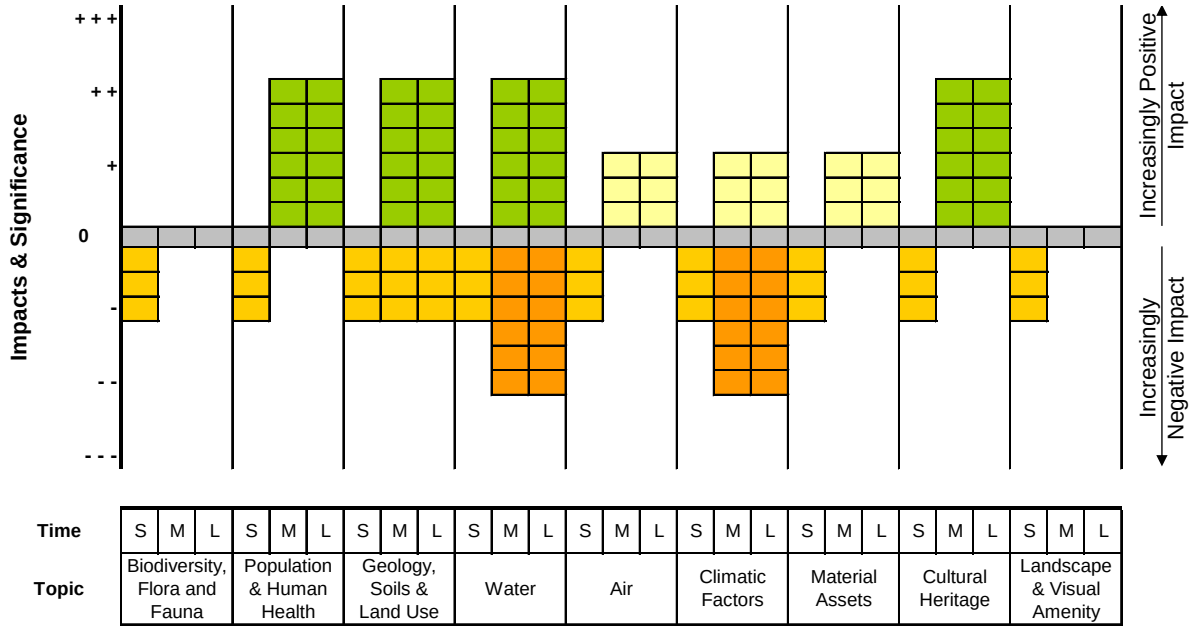
The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA, the Lough Oughter Ramsar Site, and the Upper Lough Erne SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



5 - Clones to Smithsborough – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

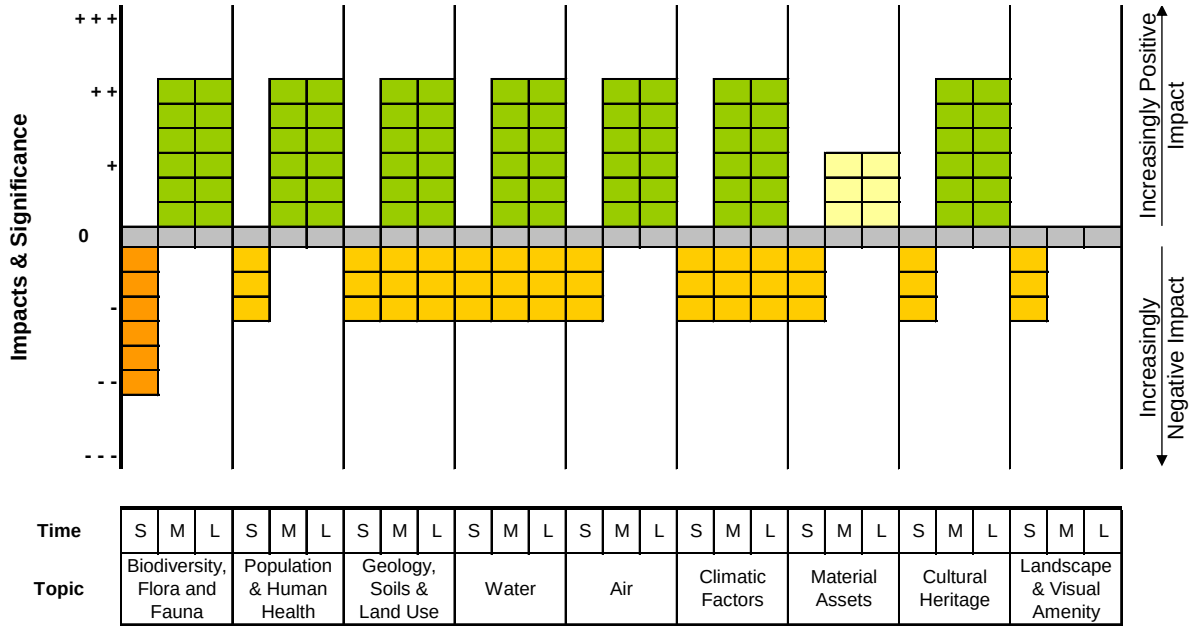
The HRA Screening has determined that development of this route does not have the potential for a pathway of effect on the habitats and species of any SAC, SPA or Ramsar Site. This route is unlikely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



6 – Smithsborough to Monaghan – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Ulster Canal (Aghalisk) pNHA could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

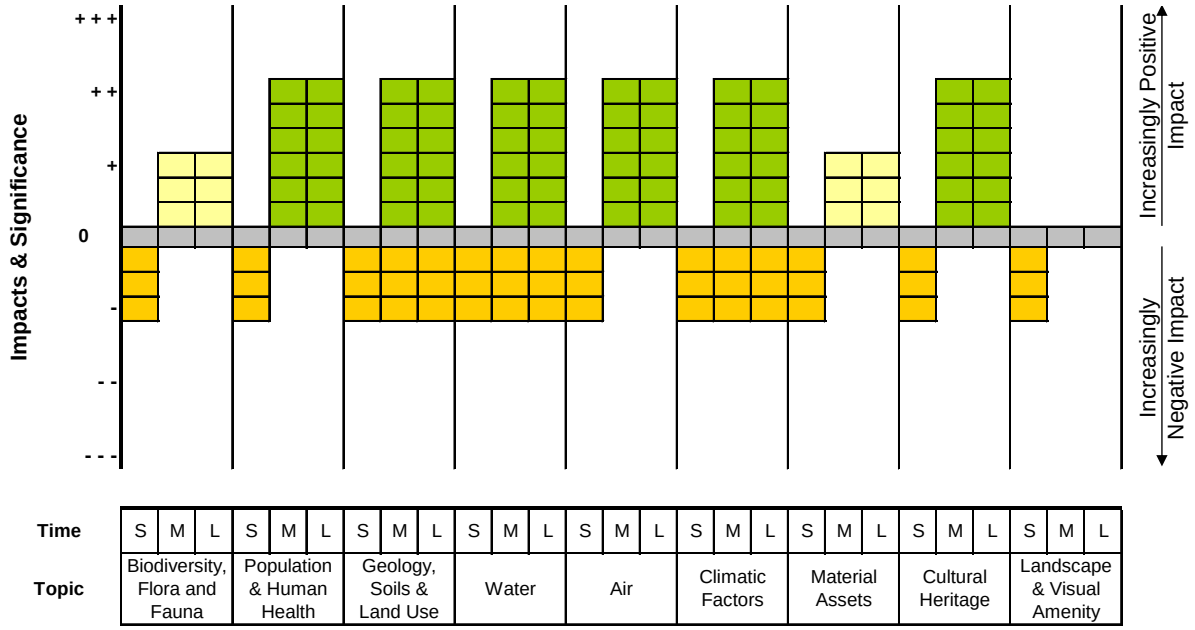
The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



7 – Ulster Canal Greenway in Monaghan town to Middletown – The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

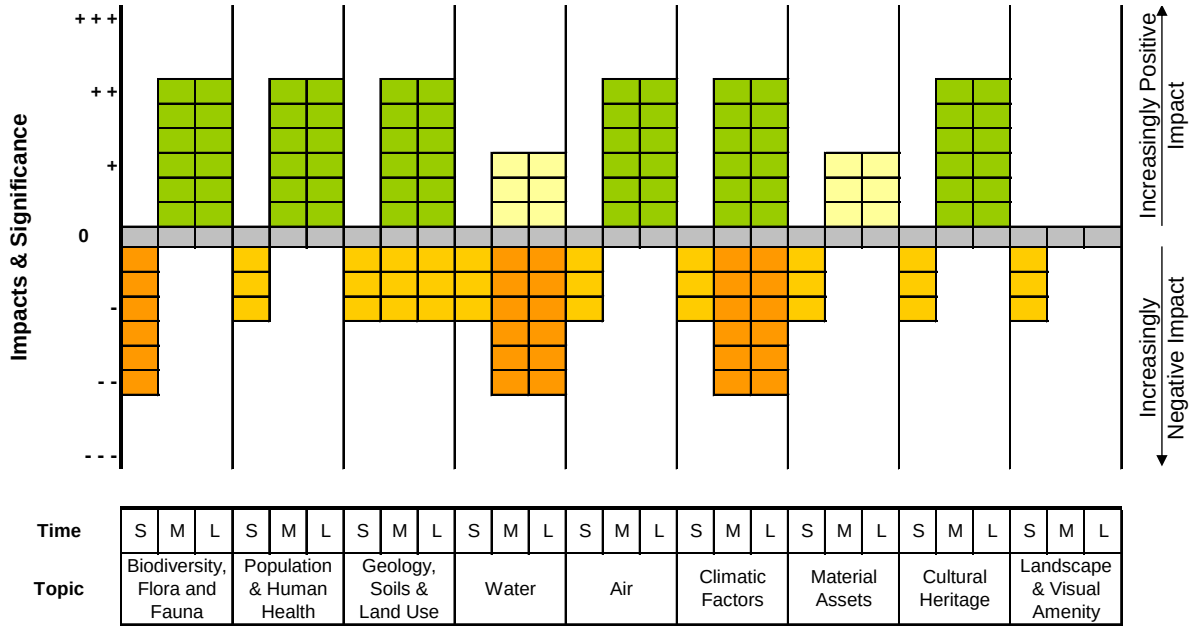
The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



8 – Monaghan to Glaslough – The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Caledon and Tynan ASSI could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

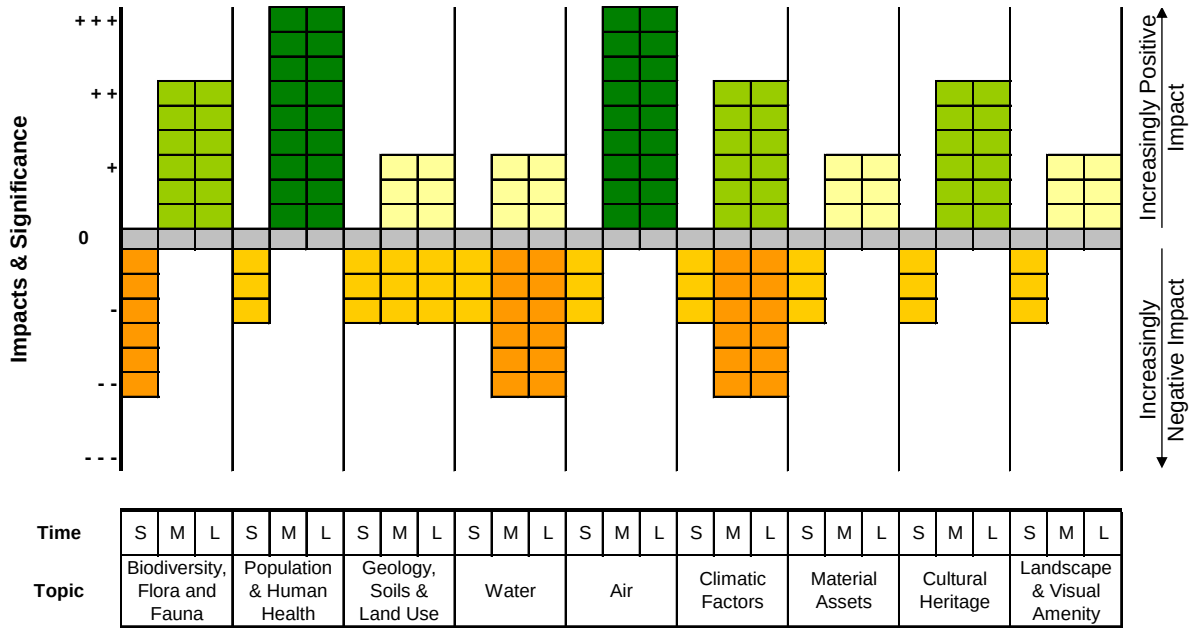
The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



9 – Glaslough to Armagh – The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Caledon and Tynan ASSI and the Tynan Abbey Lake SLNCI could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

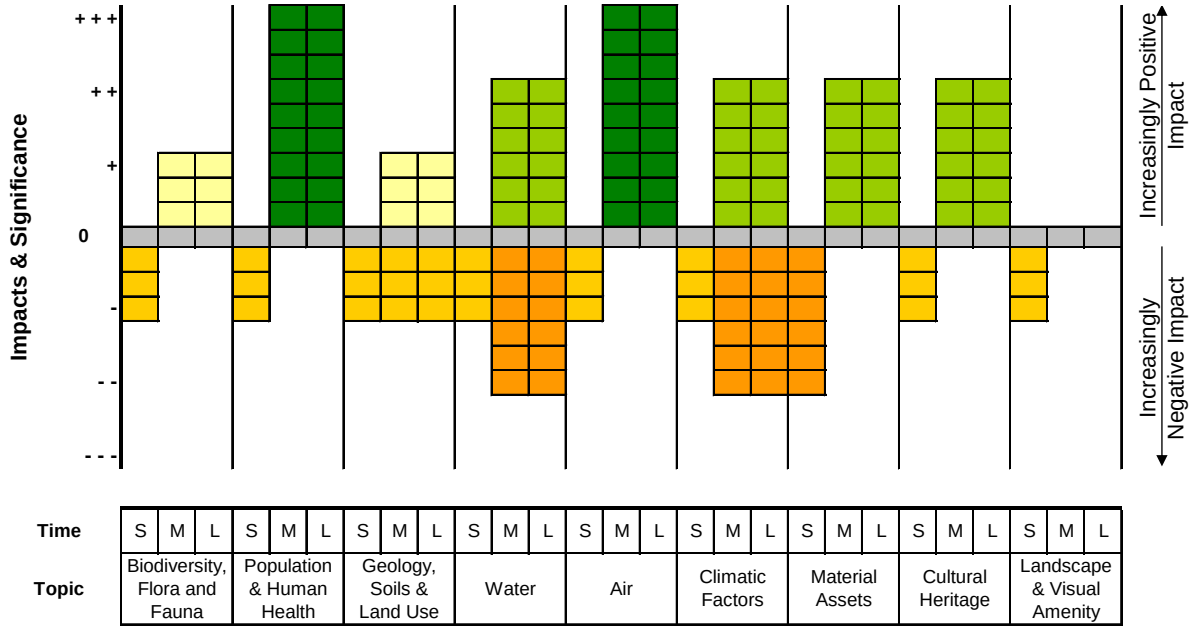
The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



10 – Armagh to Portadown – The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate to significant positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

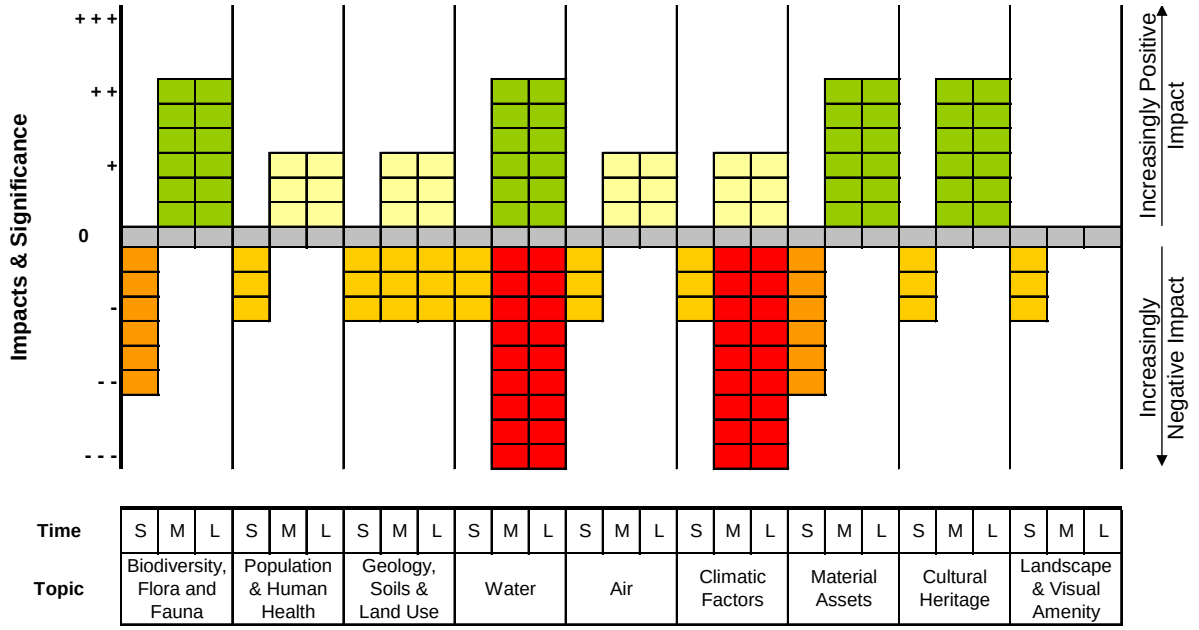
The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



11 – Middletown to Benburb – The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Neagh and Lough Beg SPA and Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. There is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for significant negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation. Construction phase disturbance impacts to the transport and energy infrastructure along the route could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of disturbance effects on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.



12 – Benburb to Lough Neagh – The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Neagh and Lough Beg SPA and Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. There is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for significant negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation. Construction phase disturbance impacts to the transport and energy infrastructure along the route could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning.

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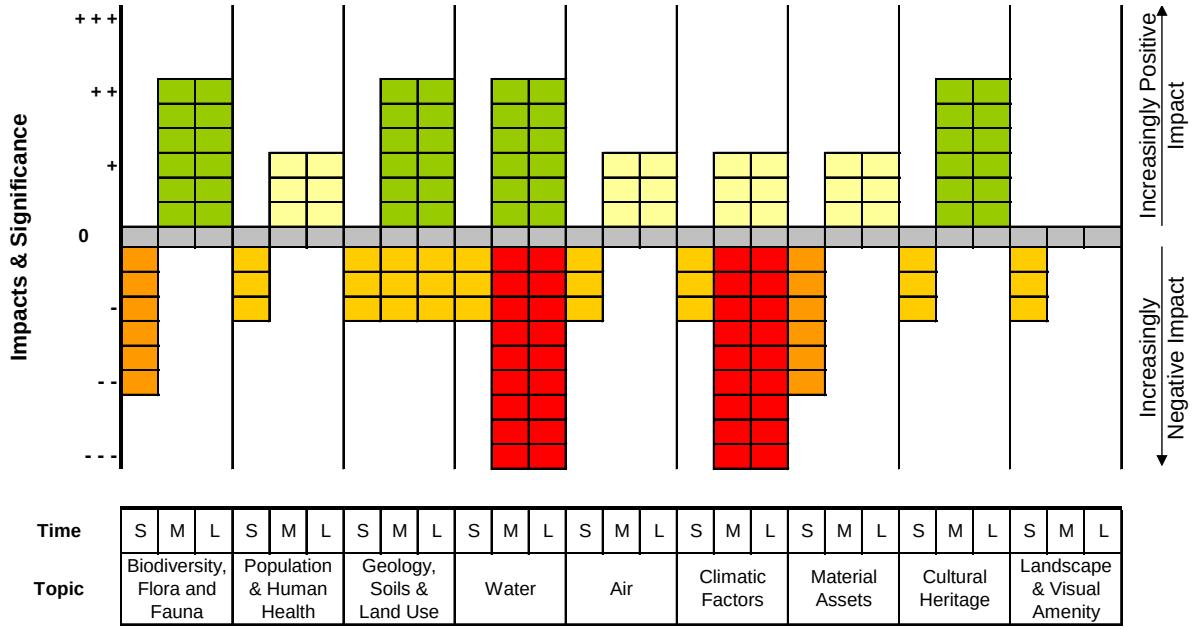

MITIGATION AND MONITORING

A number of mitigation measures for potential impacts of implementing the Strategy with the proposed alternative routes have been established for both the SEA and HRA. Examples of these are timings of construction activities to prevent disturbance and good planning and design to minimise any long term impacts. Mitigation has also been proposed that can further enhance the proposed routes. This mitigation has been taken across into the Strategy.

Article 10 of the SEA Directive requires that monitoring be carried out to identify at an early stage any unforeseen adverse effects due to implementation of the Strategy. Monitoring will focus on aspects of the environment that are likely to be impacted by the Strategy. Where possible, indicators have been chosen based on the availability of the necessary information and the degree to which the data will allow the target to be linked directly with the implementation of the Strategy. The proposed monitoring programme is based on the Targets and Indicators established in the SEA Objectives. This proposed monitoring has been adopted into the draft Strategy and will be undertaken during development of the 2nd cycle of the Strategy.

NEXT STEPS

Consultations on the draft Strategy, SEA Environmental Report and HRA Screening are anticipated to commence in May 2017 and run for 12 weeks. The consultation activities will take the form of Public Consultation Days, documents being made available for viewing at Waterways Ireland premises and the documents being made available digitally via the Waterways Ireland and project partner Local Authority websites.

Following completion of the consultation period, all comments will be collated and the Strategy, SEA Environmental Report and HRA Screening will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the Strategy, the final version of the Strategy

can be drafted and adopted. This is anticipated to be in late 2017. Following release of the adopted Ulster Canal Greenway Development Strategy a SEA Statement will be drafted to summarise the process undertaken and identify how environmental considerations and consultations have been integrated into the final Strategy.

Please send all comments on the Ulster Canal Greenway Development Strategy or this SEA Environmental Report of the Strategy to:

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1 INTRODUCTION

1.1 BACKGROUND

This Strategic Environmental Assessment (SEA) Environmental Report has been prepared in accordance with the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 [S.I. 435/2004] and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 [S.I. 436/2004], and their recent amendments of European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 [S.I. 200/2011] and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 [S.I. 201/2011], and in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (S.R. 280/2004).

The purpose of this Environmental Report is to provide a formal and transparent assessment of the likely significant impacts on the environment arising from the Ulster Canal Greenway Development Strategy, including consideration of reasonable alternatives.

1.2 STRATEGIC ENVIRONMENTAL ASSESSMENT

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is broadly comprised of the steps shown in **Figure 1.1**. These are given a summary description in **Table 1.1**.

Table 1.1 Summary Descriptions of Main Stages in SEA Process

Stage	Description	Status
Screening	Determines whether SEA is required for a Plan / Programme, in consultation with the designated statutory consultees.	Completed in March 2016
Scoping	Determines the scope and level of detail of the assessment for the SEA, in consultation with the designated statutory consultees.	Completed in August 2016
Environmental Assessment	Formal and transparent assessment of the likely significant impacts on the environment arising from the Plan / Programme, including all reasonable alternatives. The output from this is an Environmental Report which must go on public display along with the draft Plan.	Current Stage
SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final Plan / Programme.	Proposed for Q2 2017

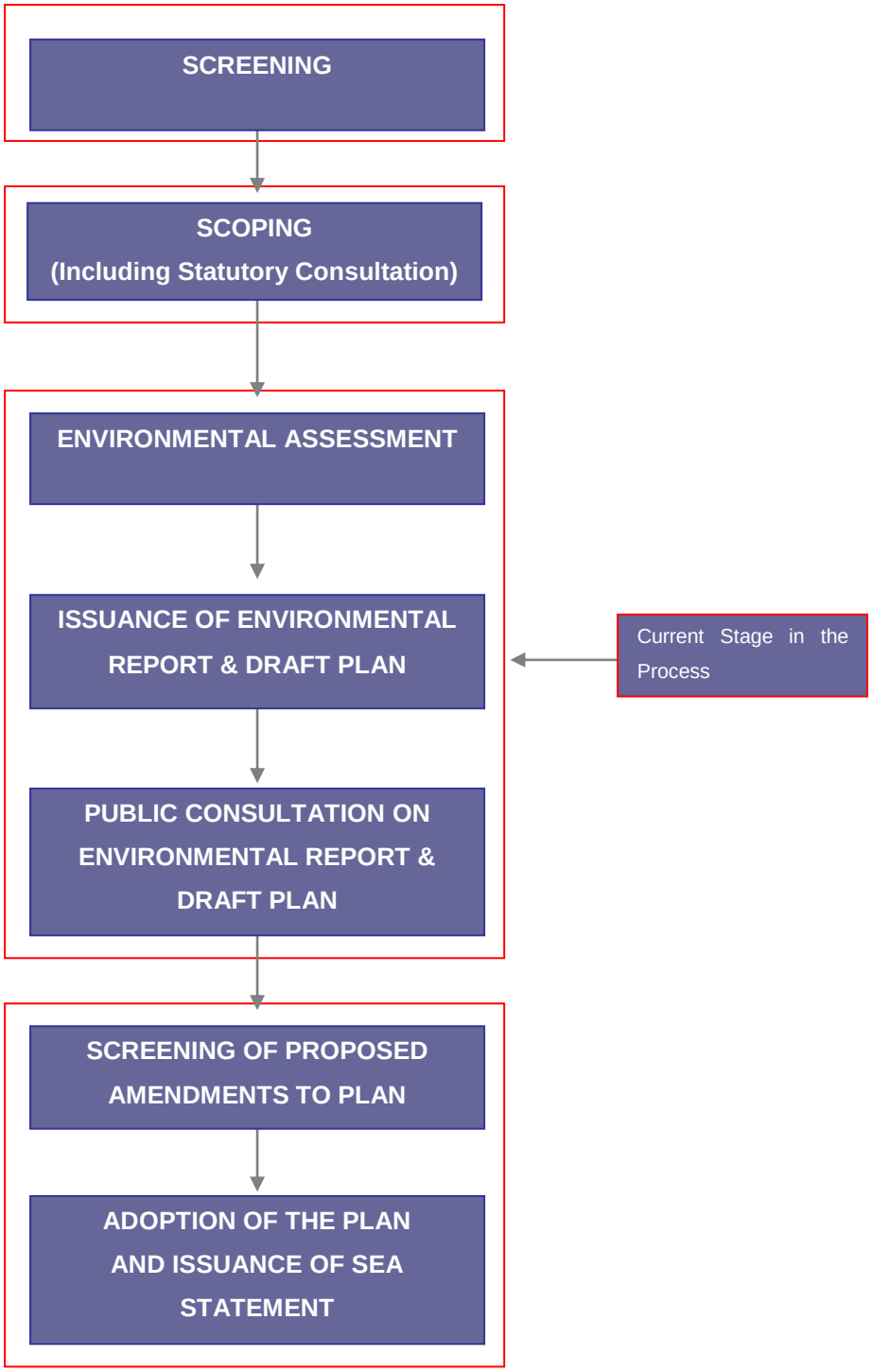


Figure 1.1 Overview of SEA Process

1.3 RESPONSIBLE AUTHORITY

Waterways Ireland has assumed the role of the Responsible Authority for the Ulster Canal Greenway Development Strategy, hereafter referred to as the Strategy. The Strategy is being developed by Waterways Ireland, and their project partners Monaghan County Council, Cavan County Council, Fermanagh and Omagh District Council, Mid Ulster District Council, and Armagh City, Banbridge and Craigavon Borough Council.

1.4 STUDY TEAM

The study team that developed and created the Strategy, the SEA of the Strategy and the Appropriate Assessment (AA) of the Strategy was made up of qualified and experienced engineers, scientists and planners. The SEA and AA professionals were involved throughout the Strategy development process.

1.5 SCREENING FOR SEA

On behalf of Waterways Ireland and their project partners, RPS carried out a Strategic Environmental Assessment Screening in March 2016 for the Strategy in Ireland and Northern Ireland to demonstrate how:

- Waterways Ireland and their project partners wish to plan the development of the Ulster Canal Greenway transport corridor in a sustainable and transparent manner.
- Waterways Ireland wish to ensure that the strategic planning process includes full and proper consideration of the potential effects of this Greenway network development upon the environment and upon communities across Northern Ireland and the Republic of Ireland.
- Waterways Ireland believes that it is best environmental practice for them to undertake an SEA of the Ulster Canal Greenway Development Strategy.
- Waterways Ireland and their project partners propose to use the SEA of the Ulster Canal Greenway Development Strategy as a demonstration of the environmental credentials and environmental risk associated with development of the Greenway sections.

Responses to the SEA Screening from the Northern Ireland Environment Agency (NIEA) and Environmental Protection Agency (EPA) can be found in **Appendix A** of this report.

1.6 SCOPING FOR SEA

This SEA Scoping for the Strategy took place in May 2016 to September 2016. A SEA Scoping Report was produced as part of the scoping phase of the SEA for the Strategy. The purpose of the Scoping Report was to provide sufficient information on the Strategy to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the Environmental Report. More information on the Scoping Consultations can be found in **Section 3.4** of this report.

1.7 SEA GUIDANCE

Key guidance documents that have been used in the SEA for the Strategy are listed in **Appendix B** of this SEA Environmental Report.

1.8 STATUTORY CONSULTEES FOR SEA

Under Article 6 of the SEA Directive, the competent authority (in this case Waterways Ireland on behalf of their project partners) preparing the plan or programme is required to consult with specific "environmental authorities" (statutory consultees) on the scope and level of detail of the information to be included in the Environmental Report. Given the transboundary nature of the Strategy between Northern Ireland and the Republic of Ireland, there is the potential for transboundary impacts from implementation of the Strategy. For this reason, there is a requirement to undertake transboundary consultations as part of this SEA process.

The statutory consultees established within the legislation for Northern Ireland are:

- Northern Ireland Environment Agency (NIEA) (formerly Environment and Heritage Service).

Under S.I. 200 of 2011 the statutory consultees are established within the Irish national legislation as being:

- Environmental Protection Agency (EPA);
- Department of Environment, Community and Local Government (DECLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Energy and Natural Resources (DCENR); and
- Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRG).

1.9 APPROPRIATE ASSESSMENT

The Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats and of wild fauna and flora obliges member states to designate, protect and conserve habitats and species of importance in a European Union context. Article 6(3) of the Habitats Directive requires that "*Any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives*." This Directive was initially transposed into Irish Law through several pieces of legislation; however these have now been consolidated into the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). The Directive was transposed into Northern Ireland legislation through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. Any proposed plan or project that has potential to result in a significant effect on a designated European site will require an Appropriate Assessment (AA). Case law has determined that the likelihood need not be great, merely possible, and that the precautionary principle must apply as set out in European Commission Guidance and as required by CJEU case law (i.e. C 127/02 '*Waddenzee*').

Habitats Regulation Assessment (HRA) for the Strategy has been carried out in parallel with the SEA process. The findings of the HRA have been used to guide the development of the alternatives to be considered as part of the SEA. The first stage of the HRA process is Screening, which is to determine whether implementation of the Strategy has the potential to have a significant effect on designated European sites. The findings of the HRA Screening have been integrated into this SEA Environmental Report and subsequently into the Strategy.

2 ULSTER CANAL GREENWAY DEVELOPMENT STRATEGY

2.1 BACKGROUND

Waterways Ireland, and their project partners Monaghan County Council, Cavan County Council, Fermanagh and Omagh District Council, Armagh City, Banbridge and Craigavon Borough Council, and Mid Ulster District Council, propose to develop a long-distance Greenway in Northern Ireland and the Republic of Ireland, linking Castle Saunderson in County Cavan to Charlemont in County Armagh mainly along the route of the disused Ulster Canal and using sections of disused railway infrastructure. An overview map demonstrating where the Ulster Canal Greenway is located within Northern Ireland and the Republic of Ireland is given in **Figure 2.1**.

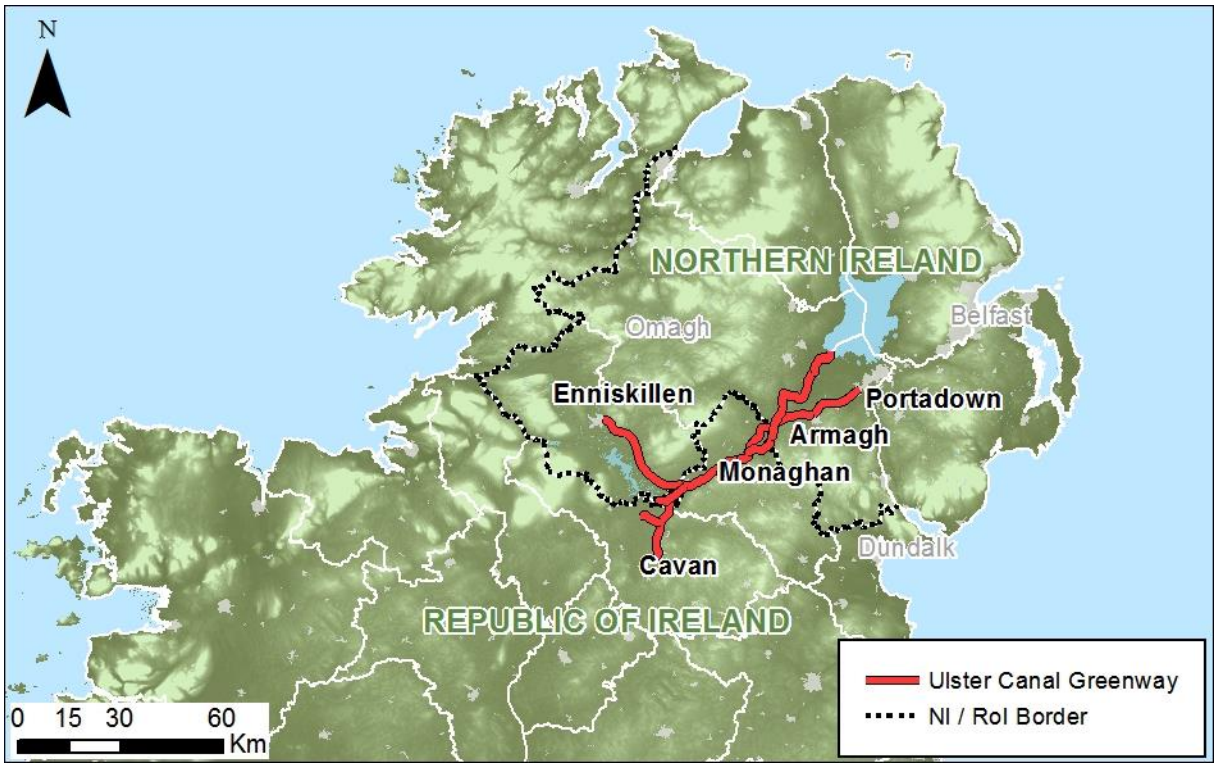


Figure 2.1 Ulster Canal Greenway Development Strategy Location

The Strategy is being developed voluntarily to plan the development of a greenway that will encourage sustainable travel and visitor trips to the region, will help preserve the heritage elements (built, natural and cultural) of the Ulster Canal, will provide recreational facilities, will help meet national and transboundary objectives of developing sustainable transport in this area and will provide greater cross-border connectivity. The development of this proposed sustainable transport corridor is in line with several European, National (Northern Ireland and Republic of Ireland), regional and local policies, such as the National Cycle Policy Framework, the DRD(NI) Bicycle Strategy and the Framework for Co-Operation – Spatial Strategies of NI and RoI.

The various links that make up the Strategy are shown in **Figure 2.2**.

2.2 GREENWAY SECTIONS

There are 12 new sections of greenway that could be developed that make up the Strategy. These proposed sections of greenway will be developed as funding becomes available and can be developed independently of one another. These sections are summarised as follows:

2.2.1 Enniskillen to Clones

The Enniskillen to Clones section of greenway is proposed to run along the disused railway line and on public roads. This is shown as Section 1 in **Figure 2.2**.

2.2.2 Castle Saunderson to Clones

The Castle Saunderson to Clones section of the greenway will follow the line of the Ulster Canal where feasible. This is shown as Section 2 in **Figure 2.2**.

2.2.3 Belturbet to Cloverhill

The Belturbet to Cloverhill section of greenway is proposed to run along the disused railway line. This is shown as Section 3 in **Figure 2.2**.

2.2.4 Cavan to Clones

The Cavan to Clones section of greenway is proposed to run along the disused railway line. This is shown as Section 4 in **Figure 2.2**.

2.2.5 Clones to Smithsborough

The Clones to Smithsborough section of the greenway will follow the line of the Ulster Canal where feasible. This is shown as Section 5 in **Figure 2.2**.

2.2.6 Smithsborough to Monaghan town

The Smithsborough to Ulster Canal Greenway in Monaghan town section will follow the line of the Ulster Canal where feasible. This is shown as Section 6 in **Figure 2.2**. The Ulster Canal Greenway section through Monaghan town has already been completed by Monaghan Co Co and is currently operational.

2.2.7 Monaghan town to Middletown

The Ulster Canal Greenway in Monaghan town to Middletown section will follow the line of the Ulster Canal where feasible, passing Tyholland and crossing the Border at Ardgonnell aqueduct over River Cor. This is shown as Section 7 in **Figure 2.2**.

2.2.8 Monaghan to Glaslough

The Monaghan to Glaslough section of greenway is proposed to run along the disused railway line. This is shown as Section 8 in **Figure 2.2**.

2.2.9 Glaslough to Armagh

The Glaslough to Armagh section of greenway is proposed to run along the disused railway line. This is shown as Section 9 in **Figure 2.2**.

2.2.10 Armagh to Portadown

The Armagh to Portadown section of greenway is proposed to run along the disused railway line. This is shown as Section 10 in **Figure 2.2**.

2.2.11 Middletown to Benburb

The Middletown to Benburn section of greenway is proposed to follow the original route of the canal up through the spectacular Benburb gorge and past the National Trust property at The Argory. This is shown as Section 11 in **Figure 2.2**.

2.2.12 Benburb to Lough Neagh

The Benburb to Lough Neagh section of greenway is proposed to follow the Blackwater River on from The Argory to Maghery at Lough Neagh. This will likely require a new riverbank type trail to be developed along the Blackwater. This is shown as Section 12 in **Figure 2.2**.

2.2.13 Monaghan Town

Section 13 shown in **Figure 2.2** is a 4.2km section of greenway through Monaghan town using the Ulster Canal tow path which has already been completed by Monaghan County Council. This greenway section is not a proposal under the Strategy and does not form part of this assessment, however it should be noted that this would form part of the overall Ulster Canal Greenway, joining sections 6, 7 and 8, if the greenway were to be developed in its entirety.

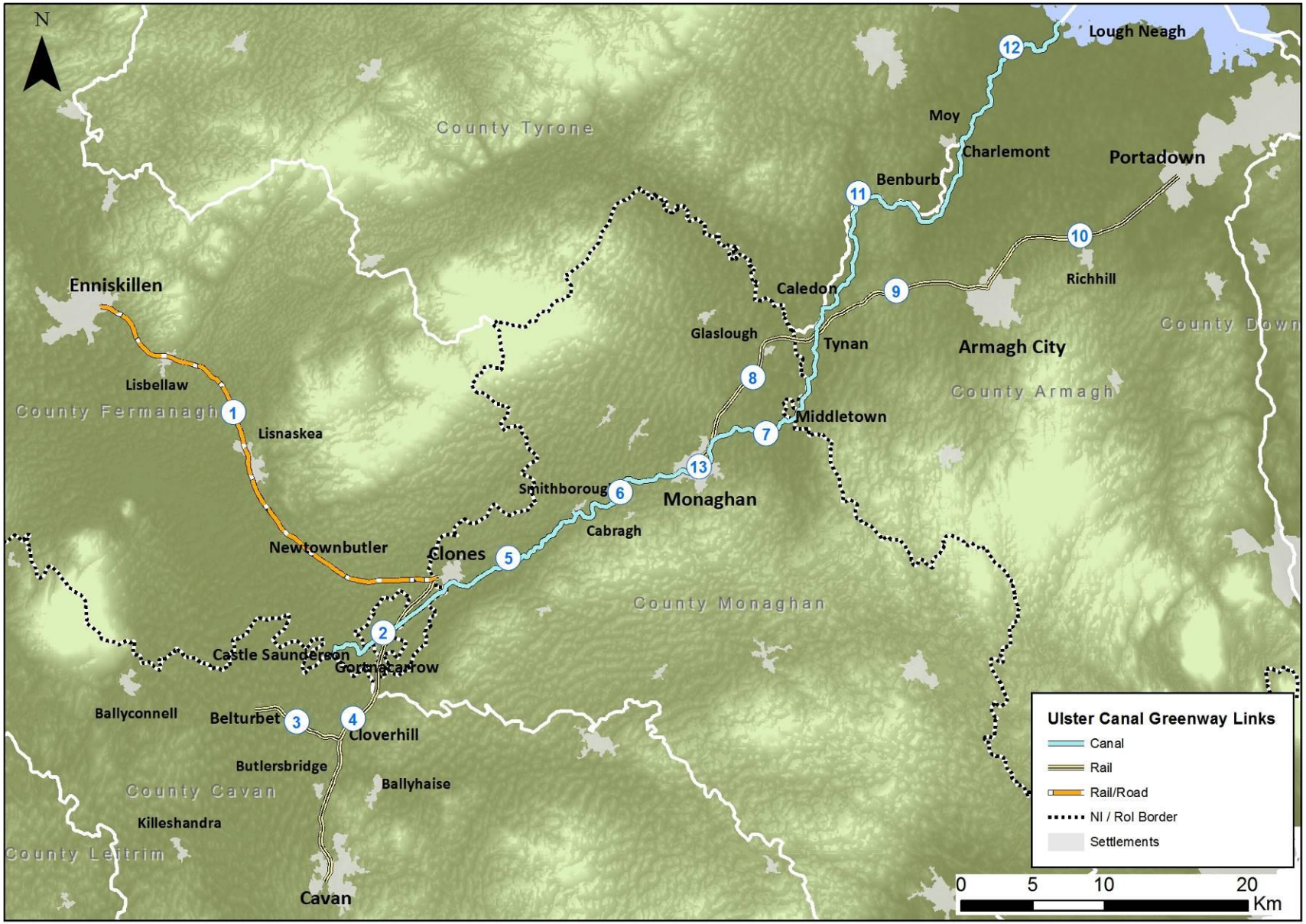


Figure 2.2 Ulster Canal Greenway Development Strategy Sections

2.3 STRATEGY OBJECTIVES

The objectives of the Strategy are as follows:

- Contribute to the development, management and maintenance of high quality sustainable transport alternatives along the Ulster Canal for use as recreational, amenity and commuting corridors.
- Reduce our impact on climate change though provision of infrastructure which promotes a modal shift from motorised vehicles to more sustainable forms of transport.
- Develop the economic and social contribution of the Ulster Canal Greenway to sustainable tourism in the Region.
- Maximise the intangible assets of the Ulster Canal Greenway Strategy to promote peace building in the Region through promotion of the Ulster Canal as a shared heritage within the Island of Ireland.
- Protect and develop the natural, built and cultural heritage of the Ulster Canal Greenway corridor as a living environment with regard to access for all.

3 METHODOLOGY AND CONSULTATIONS

The Strategy has been developed to contribute to the development, management and maintenance of high quality sustainable transport alternatives along the Ulster Canal and other obsolete transport infrastructure in the Ulster border region. This SEA Environmental Report has been produced to assess the environmental impacts of the various route options (alternatives) of the Strategy and to provide the environmental guidance to help create a more sustainable Strategy. In parallel to this, an AA Screening has been prepared to inform the decision making process, in terms of the potential for the route options to impact the integrity of any European sites in view of that sites conservation objectives. Both environmental assessments have been central to the development of the draft Strategy.

3.1 SEA OBJECTIVES

The alternative routes available to the Strategy have been assessed in terms of their potential positive and negative impacts and the significance of these impacts on the environment against the SEA objectives. The purpose of this is to predict and evaluate, as far as possible, the environmental effects of the Strategy, highlighting any significant environmental problems and / or benefits that are likely to arise from implementation of the Strategy. Where possible, this assessment has been quantitative, with a graphical output to aid public appreciation and understanding of the implications of each proposed greenway section in the Strategy.

The Strategy has been assessed via a Baseline Led Assessment. This method involves the assessment of each option available in the enactment of the Strategy against each of the following headings/subjects:

- Biodiversity, Flora & Fauna (BFF)
- Population & Human Health (PHH)
- Geology, Soils and Landuse (S)
- Water (W)
- Air (A)
- Climatic Factors (C)
- Material Assets & Infrastructure (MA)
- Cultural, Architectural & Archaeological Heritage (H)
- Landscape & Visual Amenity (L)

Each alternative available in the Strategy has been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects. Other

impacts that have been assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of "The Evolution of the Environment without the Plan" has also been assessed in the same format. This will be considered the Do-Nothing Scenario.

Each alternative available to the Strategy has been assessed against the Strategic Environmental Objectives (SEOs) from **Table 3.1**. Where appropriate, a regional perspective of the potential main issues and impacts of each option has been detailed by environmental topic area.

All potential positive and negative impacts are presented individually, with a text description, and then a summary graphic. In addition, a summary of the overall balanced potential effect has been presented for each environmental issue area.

The scores assigned to impacts are from +3 to -3 as demonstrated in **Table 3.1**. If a route section is thought to have the potential for unacceptable impacts a score of -999 has been assigned. The purpose of adding numerical scores is to assist in the ranking of options and for potential incorporation of the environmental and social criteria into future decision making by the Strategy team, as this can easily be tied into a multi-criteria analysis of alternatives if desired.

Table 3.1 Description of SEA Environmental Impact Scores

Score	Description
+ 3	Significant positive environmental impacts
+ 2	Moderate positive environmental impacts
+ 1	Slight positive environmental impacts
0	No environmental impacts
- 1	Slight negative environmental impacts
- 2	Moderate negative environmental impacts
- 3	Significant negative environmental impacts
- 999	Unacceptable impacts

3.2 SEA OBJECTIVES

The proposed strategic Greenway routes for consideration have been assessed against the SEA Objectives to examine the likely significant environmental impacts of the Strategy. These are referred to as the Strategic Environmental Objectives (SEOs). This assessment is relatively strategic, with the aim of reporting likely impacts at the regional level to reflect the scale at which the routes are being planned. The SEOs, Sub-Objectives, Indicators and Targets used are given in **Table 3.2**.

Table 3.2 Strategic Environmental Objectives

Criteria	Objective		Sub-Objective		Indicators	Minimum Requirement	Aspirational Target
Biodiversity, Flora & Fauna	**1**	Avoid damage to, and where possible enhance, the biodiversity, flora and fauna in the vicinity of the greenway sections.	**A**	Avoid detrimental effects to, and where possible enhance, Natura 2000 network, protected species and their key habitats, in line with conservation objectives.	Areas of SAC and SPA designation.	No impacts on European sites and protected habitats / species.	Potential for creation or enhancement of and increased access to European sites, in line with conservation objectives.
			B	Avoid damage to or loss of, and where possible enhance, national and local nature conservation sites and protected species, or other know species of conservation concern.	Areas of NHA, ASSI, pNHA, SLNCI, nature reserves and local conservation designations. Potential for spread of invasive species.	No impacts on sites and species of national or local importance.	Potential for creation or enhancement of and increased access to sites of national or local importance in line with conservation criteria.
Population & Human Health	**2**	Provide a safe and peaceful sustainable transport and recreational greenways for public use with access for all and with no risk to human health.	**A**	Provide a safe and peaceful sustainable transport and recreational greenways for public use with access for all and with no risk to human health.	Lengths of greenway created. Population in vicinity of greenway. Predicted number of greenway users.	Development of the section of greenway which is accessible to the least amount of people. Likelihood of increased health benefits to the smallest number of people.	Development of a relatively long section of greenway, which is within close proximity to a relatively large number of people to use. High likelihood of increased health benefits to a large number of people.
Geology, Soils and Landuse	**3**	Minimise the loss of soil resource and minimise impacts on geological heritage from creation and operation of greenway sections.	**A**	Minimise the loss of soil resource and minimise impacts on geological heritage from creation and operation of greenway sections.	Areas of agricultural land lost and land parcels bisected by sections of greenway. Geological heritage potentially impacted by greenway	No development and operation of greenway sections on agricultural lands and no potential for impacts on geological heritage.	Development of greenway section with no impacts to agricultural land and no potential for impacts on geological heritage.
Water	**4**	Minimise impacts on water quality and flood risk.	**A**	No negative impacts on surface and groundwater, and to provide no impediment to the achievement of water	WFD water status of surface and groundwater's in the area.	No potential for deterioration of waterbody status upstream or	Potential for contribution to medium to long term improvement in water

				body objectives under the WFD.	Waterbody morphology.	downstream of greenway sections, due to development or operation of greenway section.	status by buffering more than one watercourse from agricultural lands.
			B	No negative impacts on flood risk management activity, and to provide no impediment to the implementation of the Floods Directive.	Interaction with flood extents.	No potential interaction of greenway with 1% AEP fluvial flooding.	No potential interaction of greenway with 1% AEP flooding from any source.
Air	**5**	Improvement in air quality from reduced vehicle emissions.	**A**	Improvement in air quality from reduced vehicle emissions.	Predicted vehicle emissions.	No short term construction plant emissions as no construction of greenway.	Reductions in air emissions from reduced traffic due to operation of relatively long section of greenway, which is within close proximity to a relatively large number of people to use.
Climatic Factors	**6**	Adaption of the greenway sections to climatic change and no contribution to GHG emissions	**A**	Adaption of the greenway sections to climatic change and no contribution to GHG emissions	Interaction with climate change flood extents. GHG emissions during construction and operation of greenway sections.	No development of greenway sections.	No loss of GHG sequestering natural cover and potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP climate change floodplain in several locations. Multi-benefit development.
Material Assets & Infrastructure	**7**	Creation of greenway sections with no impediment to existing and proposed infrastructure.	**A**	Creation of greenway sections with no impediment to existing infrastructure.	Transport and energy infrastructure along the proposed route of the greenway section.	Potential for requirement for a few crossings of minor energy and transport infrastructure. Infrastructure in the vicinity.	No requirement for crossings of any existing or proposed energy and transport infrastructure. Limited infrastructure in the vicinity of greenway.

Cultural, Architectural & Archaeological Heritage	**8**	Avoid loss of or damage to heritage features and where possible incorporate heritage features into the greenway.	**A**	Avoid loss of or damage to heritage features and where possible incorporate heritage features into the greenway.	National and local designated heritage sites and monuments.	No heritage features in the vicinity or no development of greenway sections.	Potential for preservation / restoration of international or nationally designated heritage feature as part of the greenway section development.
Landscape & Visual Amenity	**9**	Protect, and where possible enhance, landscape character and visual amenity in the vicinity of greenway sections.	**A**	Protect, and where possible enhance, landscape character and visual amenity in the vicinity of greenway sections.	Landscape character assessments. Designated landscapes and views.	No negative impact on landscape quality and designations.	Significant enhancement of the local landscape and views. In line with landscape character and designations.

Table 3.3 demonstrates the compatibility of the Strategy Objectives with the SEOs.

Table 3.3 Compatibility of Objectives

Strategy Objective	Compatible SEOs
Contribute to the development, management and maintenance of high quality sustainable transport alternatives along the Ulster Canal for use as recreational, amenity and commuting corridors.	• Population & Human Health • Material Assets & Infrastructure
Reduce our impact on climate change through provision of infrastructure which promotes a modal shift from motorised vehicles to more sustainable forms of transport.	• Air • Climatic Factors
Develop the economic and social contribution of the Ulster Canal Greenway to sustainable tourism in the Region.	• Population & Human Health
Maximise the intangible assets of the Ulster Canal Greenway Strategy to promote peace building in the Region through promotion of the Ulster Canal as a shared heritage within the Island of Ireland.	• Cultural, Architectural & Archaeological Heritage • Population & Human Health
Protect and develop the natural, built and cultural heritage of the Ulster Canal Greenway corridor as a living environment with regard to access for all.	• Biodiversity, Flora & Fauna • Population & Human Health • Geology, Soils and Landuse • Water • Cultural, Architectural & Archaeological Heritage • Landscape & Visual Amenity

3.3 DIFFICULTIES AND DATA GAPS

Difficulties were encountered in the development of the Strategy and the SEA of the Strategy due to the transboundary and multi-jurisdictional nature of the proposals. There are many stakeholders involved in the study; all with varying priorities and varying amounts and levels of information to feed into the Strategy and the SEA of the Strategy. This leads to difficulties in creating an even assessment across all of the potential alternatives in the Strategy. To delve into significant project level detail for one section, as the information happens to be available, would not lead to a balanced assessment of alternatives. A strategic level of assessment that is replicable across all alternatives was essential. Detailed planning for the routes would however be expected to go into this project level information in the future, with new data collection and surveys as required.

3.4 CONSULTATIONS

A SEA Scoping Report for the Strategy was circulated on the 22nd July 2016 to the following statutory consultees:

- Northern Ireland Environment Agency (NIEA) (formerly Environment and Heritage Service).

- Environmental Protection Agency (EPA);
- Department of Environment, Community and Local Government (DECLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Energy and Natural Resources (DCENR); and
- Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRG).

Non-statutory stakeholders were also provided this Scoping Report and all information was made publically available on the Waterways Ireland website. The list of non-statutory stakeholders that were provided the SEA Scoping Report for comment was as follows:

- Birdwatch Ireland
- Coillte
- Cycling Ireland
- Department for Infrastructure
- Department for Infrastructure - Rivers Agency
- Department of Agriculture, Environment and Rural Affairs – Council for Nature Conservation and the Countryside (CNCC)
- Department of Agriculture, Environment and Rural Affairs – Inland Fisheries
- EirGrid
- ESB
- Failte Ireland
- Geological Survey of Ireland
- Geological Survey of Northern Ireland
- Iarnród Eireann
- Inland Fisheries Ireland
- Inland Waterways Association Ireland
- Irish Central Border Area Network Ltd (ICBAN)
- Irish Farmers Association
- Irish Wildlife Trust
- Local Authority Waters and Communities Office (LAWCO)
- Neagh Bann International River Basin District - NIEA and LAWCO
- NI Environment Link
- NI Forest Service
- NIEA
- North Western International River Basin District - NIEA and LAWCO
- Northern and Western Regional Assembly
- Office of Public Works
- Outdoor Recreation NI (Includes OutdoorNI and CycleNI)
- RSPB
- SONI
- Sustrans
- The Heritage Council
- Tourism Ireland
- Tourism Northern Ireland
- Translink
- Transport Infrastructure Ireland
- Transport NI & Transport NI Southern Division
- Ulster Farmers Union
- Ulster Wildlife
- Woodland Trust

The detailed responses received in the scoping consultations can be found in **Appendix C** of this SEA Environmental Report. All responses received from this consultation have been incorporated into the environmental assessments where feasible.

3.4.1 Transboundary Consultations

Given the transboundary nature of the Strategy the statutory and non-statutory consultees are from both Northern Ireland and the Republic of Ireland.

3.4.2 Proposed Consultation on Draft Strategy and SEA Environmental Report

Consultations on the draft Strategy, SEA Environmental Report and AA Screening will commence in May 2017 and run for 12 weeks. The consultation activities will take the form of Public Consultation Days, documents being made available for viewing at Waterways Ireland premises and the documents being made available digitally via the Waterways Ireland and project partner Local Authority websites.

4 DESCRIPTION OF THE STRATEGY

4.1 INTRODUCTION

Table 4.1 below sets out the proposed elements of the Strategy and identifies those to be assessed as part of the SEA and why. This information is provided to generate discussion during the consultation process and is subject to change based on the comments received.

Table 4.1 Proposed Elements of the Strategy to be Assessed

	Draft Strategy Section	Will this be assessed in the SEA?
1	**Introduction** to Strategy, the key partners in the Strategy and the Ulster Canal waterway.	**No** – This provides factual information about the background to the Strategy.
2	**Vision** of the Ulster Canal Greenway and how it is proposed to achieve the Vision.	**Yes** – Strategy Objectives will be assessed within the environmental report, to test the compatibility and completeness with the SEA Objectives.
3	**Strategic Environmental Assessment**, why it was undertaken and what was done in the SEA process.	**No** – This is a statement about the environmental assessments undertaken for the Strategy. This should however include guarantees that the Strategy will comply with recommendations from the environmental assessments.
4	**Issues Affecting the Strategy.** Such as the environment, heritage and social issues.	**No** – This provides factual information about the general environment in the Strategy area. Some of this information will however be included as environmental baseline information in the Environmental Report.
5	**Route Details.** Provides information on the proposed Greenway sections.	**Yes** – These will be the route options assessed as the alternatives available to the Strategy.
6	**Route Assessment**. Details the assessments undertaken of the route options for the Greenway Strategy.	**Yes** – These will be the route options assessed as the alternatives available to the Strategy.
7	**Where do we go from here?** Details how the Strategy will be implemented, maintained and monitored.	**No** – This is a statement about future implementation, monitoring and reporting for the Strategy. This should include recommendations from the environmental assessment.

4.2 GEOGRAPHIC SCOPE

As shown in **Figure 2.1**, the Strategy is linking settlements across Counties Cavan, Fermanagh, Monaghan, Tyrone and Armagh in both Northern Ireland and the Republic of Ireland. These greenway links are summarised in **Section 7** of this report and are of the following approximate lengths:

- Enniskillen to Clones – 34km
- Castle Saunderson to Clones – 11km

- Belturbet to Cloverhill – 7km
- Cavan to Clones – 24km
- Clones to Smithsborough – 11km
- Smithsborough to Ulster Canal Greenway in Monaghan town – 11km
- Ulster Canal Greenway in Monaghan town to Middletown – 9km
- Monaghan to Glaslough – 14km
- Glaslough to Armagh – 13km
- Armagh to Portadown – 16km
- Middletown to Benburb – 32km
- Benburb to Lough Neagh – 11km

This is a total of over 190km of greenway that could be developed for sustainable transport and recreational purposes.

In general the SEA study area for this Strategy encompasses an area of one kilometre around the proposed greenway sections; however a 5km buffer has been applied when assessing the population within distance of the greenway sections, as this is taken as being within a reasonable distance to travel to access the greenway. Another wider buffer has been applied of over 15km around the proposed sections to assess for potential impacts on European sites under the Habitats Directive. This has been assessed within the Habitats Regulation Assessment Screening for the Strategy and then incorporated into this SEA Environmental Report.

4.3 TEMPORAL SCOPE

The Strategy covers the period from 2016 to 2022, and will be reviewed every 7 years. In line with the SEA Directive; short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive or negative effects) will be considered during the assessments of the Strategy. Within the environmental assessment the short, medium and long term will have a slightly different definition than the Strategy timescales. The short term defines the construction / installation of a greenway section, the medium term will be the immediate operational years (e.g. 0 – 5 years) following the construction / installation of a greenway section, while the long term will be the long term operation of a greenway section (e.g. 5 years onwards). The SEA takes this different temporal scope to demonstrate the potential impact of a greenway section from its construction, through operation and beyond the temporal scope of the Strategy.

5 BASELINE AND RELEVANT ENVIRONMENTAL ISSUES

5.1 INTRODUCTION

Included in the following section is a discussion of the environmental baseline for the Strategy area. The baseline has been divided by topic into the issues requiring assessment under the SEA legislation. The purpose of the following section is to demonstrate the level of baseline environmental information to be used in the assessment of potential impacts of the route options. This baseline information will form the indicators which the route options will have the potential to impact upon. Future variation in these indicators due to the Strategy will be monitored as part of the Strategy and SEA review. Unless otherwise stated, the environmental issues discussed in the following section are generally transected by or within 1km of the potential greenway routes.

5.2 BIODIVERSITY, FLORA & FAUNA

There are a wide variety of natural habitats within the overall study area, protected by a range of designations. There are four Special Areas of Conservation (SAC) within 1km of the proposed greenway routes, being the Upper Lough Erne SAC, the Lough Oughter and Associated Loughs SAC, the Magheraveely Marl Loughs SAC and the Peatlands Park SAC, which are all designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species. Special Protection Areas (SPAs) are designated under The EU Directive on the Conservation of Wild Birds (EC/79/409), “The Birds Directive”, as areas that are important for rare and vulnerable bird species as they use them for breeding, feeding, wintering or migration. There are three SPAs within 1km of the proposed greenway routes, being the Upper Lough Erne SPA, the Lough Oughter SPA and the Lough Neagh and Lough Beg SPA. Together these European sites form part of the Natura 2000 Network. Any development with the potential to impact upon a Natura 2000 designated site (SACs or SPAs) is likely to require a Habitats Regulation Assessment (HRA) under the Habitats Directive 92/43/EEC. These sites are protected by the European Communities (Birds and Natural Habitats) Regulations 2011 in Ireland and the Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and amendments in Northern Ireland. Within 15km of the proposed greenway routes there are 12 SACs and 5 SPAs in total.

The Convention on Wetlands in Ramsar, Iran (1971), called the "Ramsar Convention", is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance. These designations are known as Ramsar sites. There are four Ramsar sites within 1km of the proposed greenway routes, being at Lough Oughter, Lough Neagh and Lough Beg, Upper Lough Erne and Magheraveely Marl. The International and European designated sites within the vicinity of the Ulster Canal Greenway are shown in **Figure 5.1**.

Areas of Special Scientific Interest (ASSI) are protected under the Environment (Northern Ireland) Order 2002, and the NIEA must, as required by the law laid down in the Order, declare land as an

ASSI if it is of special scientific interest because of the flora or fauna that is found on it, or because of geological features. There are 13 ASSIs within 1km of the proposed greenway routes, including those at Lough Neagh, Upper Lough Erne, Benburb and Caledon and Tynan.

Natural Heritage Areas (NHAs) are designated under the Wildlife Act (1976 - 2000) as they are considered important habitats which support animals or vegetation of importance. There are no NHAs in the study area; however there are seven proposed Natural Heritage Areas (pNHA), including Lough Oughter and Associated Loughs and a section of the old Ulster Canal at Aghalisk. These were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. The pNHAs are subject to limited statutory protection, but are recognised for their ecological value by planning and licensing authorities.

There are no national parks or national nature reserves within 1km of the proposed greenway routes, however there is the Peatlands Country Park and the National Trust lands at The Argory and Castle Coole. The proposed greenway sections cross a number of designated Salmonid Rivers, such as the Hollybrook River and Ballymartrim River.

In addition to these designated areas there are also sensitive and valued habitats and species which are reported by each council area in their Local Biodiversity Action Plans (LBAPs). These Plans establish the natural heritage value for the area and guide where development should be allowed to happen and what enhancement works could be undertaken to improve biodiversity. Within 1km of the proposed routes there are a number of Sites of Local Nature Conservation Interest (SLNCI), including Caledon Estate Lough, Drumarg, Loughnashade and Navan Fort. There are also a number of ancient woodlands through which, or within the vicinity of which, the proposed routes pass. The National and Local designated sites within the vicinity of the Ulster Canal Greenway are shown in **Figure 5.2**.

Further to these designated habitats, several of the proposed routes of this study pass through the Blackwater floodplain in Caledon. This is a key floodplain grazing marsh location, which is of significant value to waders which have exhibited a sharp population decline due to the loss of habitat to drainage and related agricultural improvements.

Non-native, invasive species could be a threat to the native flora and fauna in the area, such as in river valleys. As these non-native species could be spread along the greenway corridors they may require appropriate mitigation and control strategies.

Any linear construction project, such as development of the greenway routes, has the potential for direct and indirect impacts on international, national and local designated sites, habitats and species. The introduction of more people to rural and natural areas has the potential for increased disturbance to local habitats and species, as well as introducing new vectors for the spread of alien and invasive species. The greenways may also however provide the opportunity for habitat creation and enhancement, along with increasing the public awareness of local biodiversity, flora and fauna issues, which could give greater protection and appreciation in the long term.

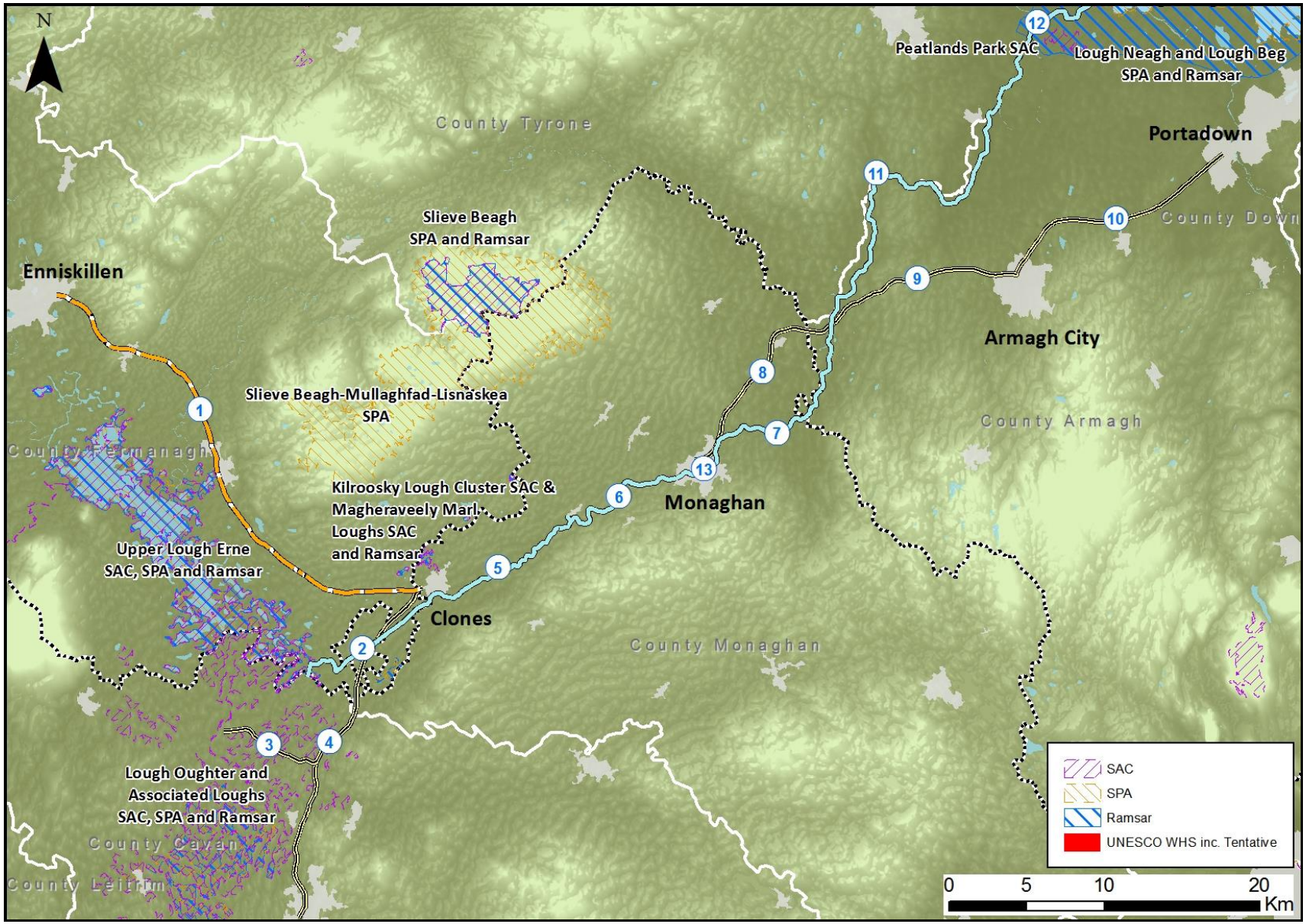


Figure 5.1 International and European Environmental Designations

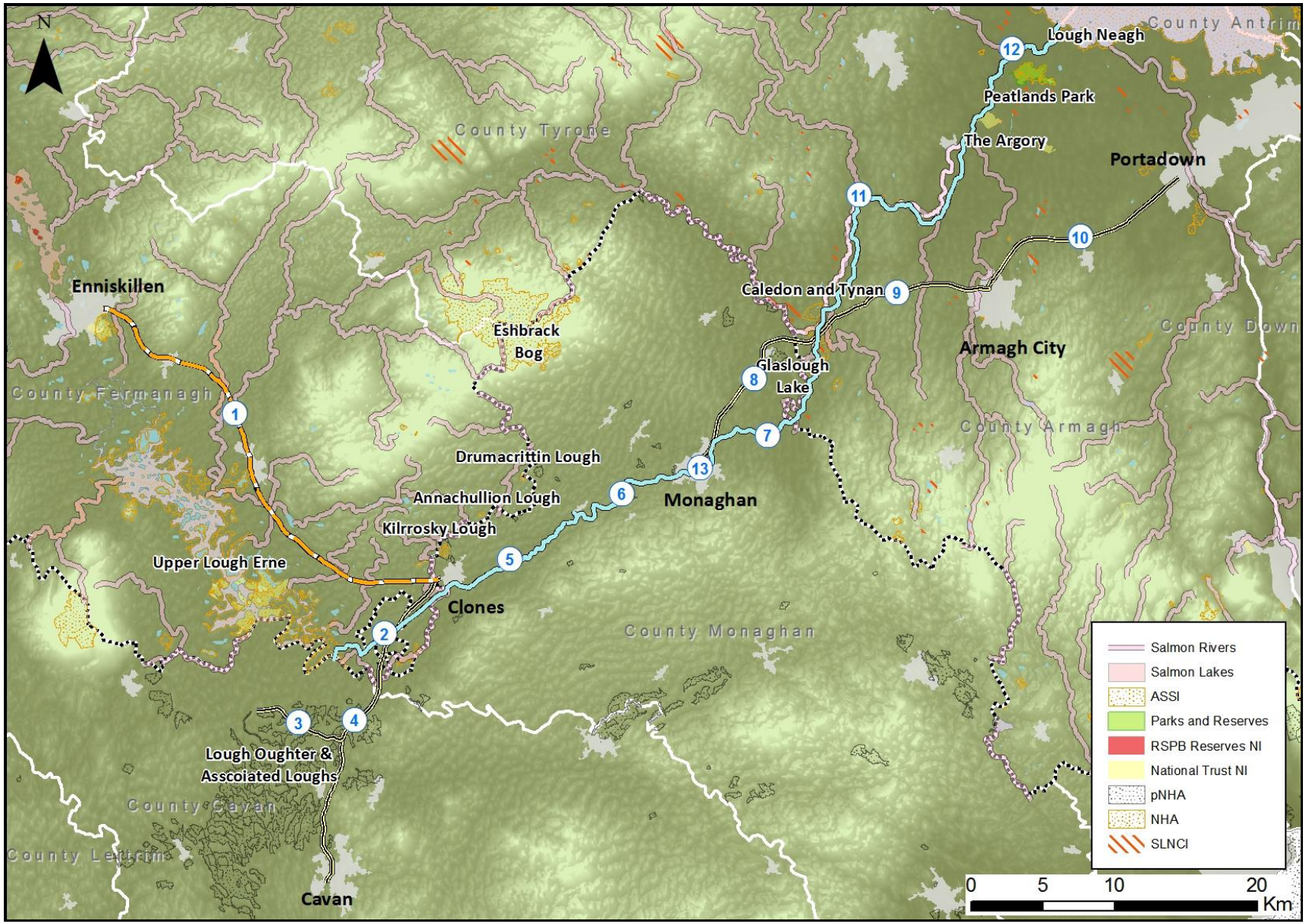


Figure 5.2 National Environmental Designations

5.3 POPULATION & HUMAN HEALTH

From the 2011 census within Northern Ireland and the Republic of Ireland there was found to be over 187,000 people living within 5km of the proposed Ulster Canal Greenway routes. In the Northern Ireland portion of this study area approximately 47% of the people thought they were in very good health, 32% in good health, 15% in fair health and 4% in bad health. In the Republic of Ireland portion of this study area approximately 59% of the people thought they were in very good health, 30% in good health, 9% in fair health and 1% in bad health. **Figure 5.3** demonstrates the population density per km^2 within 5km of the proposed greenway, based on 2011 census data. The higher density population areas along the routes reflect that these transportation corridors historically were developed to link these areas of habitation.

As of 2015, there were an estimated 115,311 people living within the Fermanagh and Omagh Local Government District. This is a 6.2% increase from 2005; slightly below the national trend of 7.2%. Of this number, approximately 22% were below the age of 15 years old; with a further 16% being over the age of 65. Approximately 62% of people living within the Fermanagh and Omagh area were between the age of 16 and 65. In 2005, throughout the west of Northern Ireland, 86% of people believed their health to be 'good' or 'fairly good'. At the same time, 14% of people in the west considered their health to be 'not good'. In the same year, there were an estimated 207,797 people living within the Armagh City, Banbridge and Craigavon area. Of these, approximately 22% were below the age of 15 years old; with a further 15% being over the age of 65. Approximately 63% of people living within the Armagh City, Banbridge and Craigavon area were between the age of 16 and 65. In 2005, throughout the east of Northern Ireland and more generally throughout the country, 85% of people believed their health to be 'good' or 'fairly good'. At the same time, 15% of people, both in the east and nationally, considered their health to be 'not good'.

The 2011 census results for County Monaghan reveal a population of 60,483. Of these, 27% were below the age of 18; with the remaining 73% being aged 18 or over. Within County Monaghan, and nationally, 88.3% of total persons believed themselves to be in 'good' or 'very good' health; within only around 1.3% of the population believing that they were in 'bad' health. This compares favourably to the 1.5% national statistic for the same year. The same census taken in County Cavan reveals that as of 2011 the population was 73,183. Of these, 29% were below the age of 18; with the remaining 71% being aged 18 or over. Within the area, 88.5% of total persons believed themselves to be in 'good' or 'very good' health. This compares favourably to the national statistic of 88.3%. The number of people believing themselves to be in 'bad' health represents 1.3% of the local population; again, this compares favourably to the 1.5% national statistic.

Construction activities associated with the development of the greenway sections may lead to short term disturbances to the local communities, however the introduction of the greenway provides the opportunity for these dispersed populations to travel from settlement to settlement in a more sustainable manner that is more in touch with the environment. This type of outdoor recreation or commuting is thought to provide many health benefits to the public, through improved physical and

mental wellbeing. Increased visits to the area and increased tourism due to the greenway development could lead to localised increased secondary development and population increases.

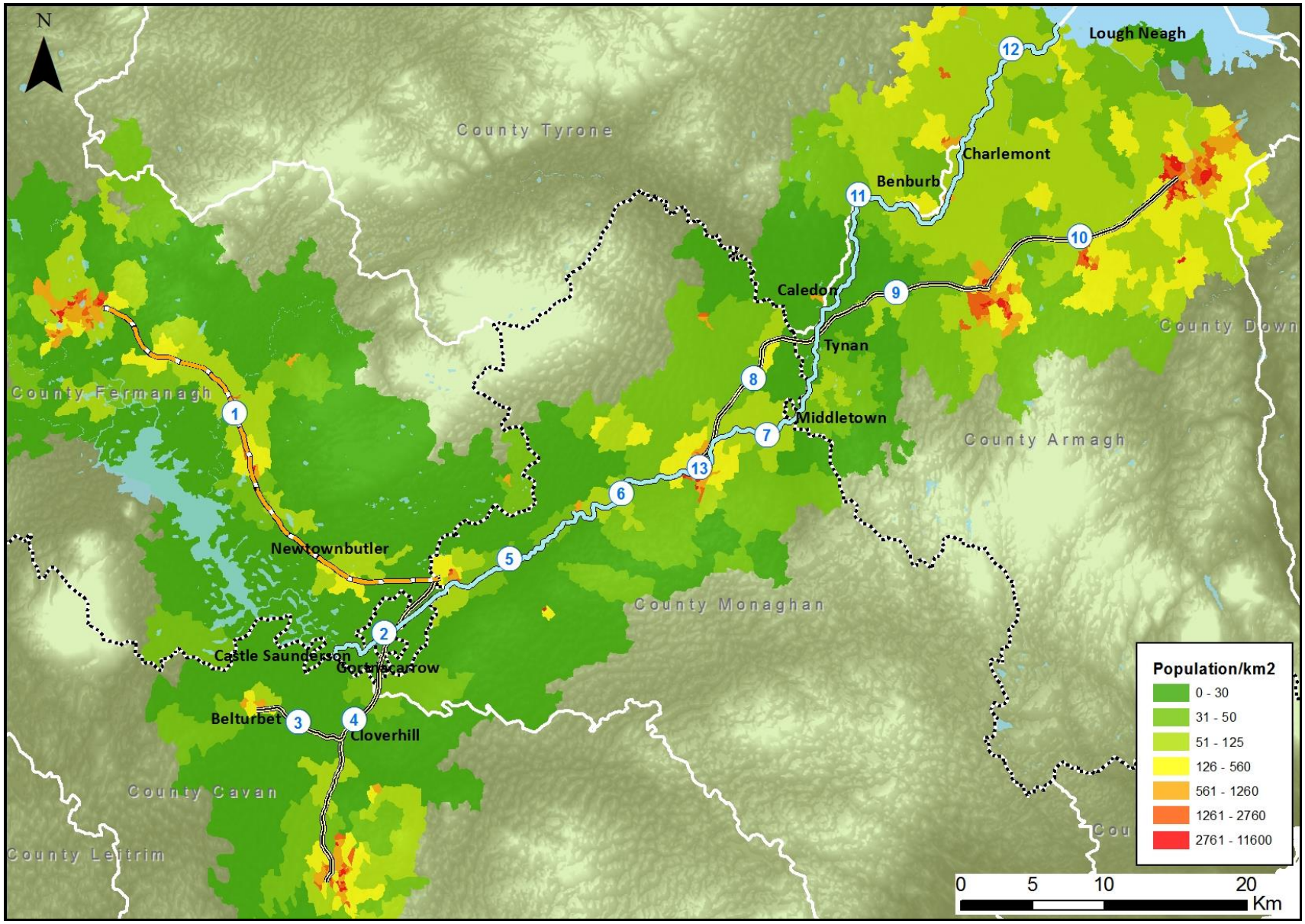


Figure 5.3 Population per km2 by Census Small Areas

5.4 GEOLOGY, SOILS & LANDUSE

The solid geology within the vicinity of the proposed Ulster Canal Greenway route is mainly comprised of interbedded argillaceous limestone and mudstone, with sandstone and conglomerate deposits also. These are overlain for the most part by peat and glacial till deposits, with also some sands and silts. The most common soils in the study area are peats, gleys, grey brown podzolics and acid brown earths with hydraulic conductivity ranging from low to moderate.

Table 5.1 demonstrates the main land uses within the study area and their relative proportions. The predominant land uses in the vicinity of the proposed routes are agricultural, with pasture land for grazing livestock and cultivated land for crops. There are also a number of marshes and peat bogs in the study area. The proposed routes pass through and join up several urban areas such as Cavan Town, Clones, Monaghan Town and Armagh City. The routes also pass in the vicinity of various designated features, such as Ancient Woodlands like at Caledon House, earth science ASSIs such as the Drumarg Cave and the Geological Heritage Site at Scotshouse Redhills for cross-cutting Ribbed Moraines. There are also several active mines and quarries within the study area.

Table 5.1 Main Land Uses in the Study Area

	Land Use	Total Area (km^2)	Relative Percentage
1	Pastures	279	76
2	Complex Cultivation Patterns	27	7
3	Inland Marshes	15	4
4	Discontinuous Urban Fabric	14	4
5	Peat Bogs	6	2
6	Broad Leaved Forests	6	2
7	Annual Crops Associated With Permanent Crops	6	2
8	Water Bodies	5	1
9	Continuous Urban Fabric	3	1
10	Non-Irrigated Land	2	1

Development and operation of a greenway is unlikely to have any impacts on geology, however there is likely to be the direct loss of the soil resource along the route, changes of land cover and land use, and the potential for the dividing of agricultural lands. The local geology, soils and land use can

however also have impacts on the development of the greenway, whereas local conditions may dictate the detailed routes to be taken and may present hazards, such as areas of erosion or land slide risk.

5.5 WATER

The 12 proposed sections of the Ulster Canal Greenway travel across 50 groundwater bodies. Under the Water Framework Directive (WFD) these groundwater bodies are mainly of 'good' water status; with the exception of 11 groundwater bodies which are classified as being of 'poor' status. The majority of these 'poor' status waterbodies are situated to the east of the study area, in the vicinity of the Middletown to Armagh, Armagh to Portadown and Middletown to Benburb proposed greenway routes.

The proposed routes also pass within the vicinity of 88 river waterbodies. The ecological status awarded to these river waterbodies ranges from 'poor' to 'good'. For the 10 heavily modified or artificial river waterbodies, over which some of the proposed greenway routes pass, the status applied to these varies from 'bad ecological potential' to 'poor ecological potential'.

The proposed greenway routes also travel within the vicinity of 12 lake waterbodies, with six of these waterbodies being along the proposed route from Belturbet to Cloverhill.

In addition to these waterbodies, the proposed greenway routes cross a total of 53 river segments. As a result, many of the proposed routes have the potential to be within areas of medium probability river (fluvial) flooding (1% AEP) and surface water (pluvial) flooding (0.5% or 1% AEP). The lengths of potential greenway sections inundated by these flooding events vary greatly.

The development and operation of the greenway sections is unlikely to directly impact on surface waters, lakes, artificial waters or groundwater's, in terms of quality and status, however there is the potential for indirect impacts during construction from sedimentation and release of contaminants in runoff. Works that run parallel to, or cross, open waterbodies would prove the greatest risk to water quality and status. Also, the greenway sections are unlikely to cause or exacerbate flood risk; however they have the potential to be flooded from pluvial and fluvial sources, causing sections to be inaccessible and potentially damaged. Where greenway sections are on the periphery of pluvial and fluvial flood extents there is the potential for the detailed design to include for flood risk management, raising the section out of the flood plain and potentially providing protection to local receptors.

5.6 AIR

In the study area situated in Northern Ireland there are no automatic air quality monitoring stations. The nearest stations are situated in Armagh City and Lough Navar which are to the east and west of the proposed greenway respectively. Combined emissions estimates from the UK's National Atmospheric Emissions Inventory (NAEI)[1] show that in 2014, projected annual mean particulate matter

[1] Air Quality Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 1990 – 2014.

(PM_{10}) concentration levels for those sections of the greenway which will pass through County Fermanagh were, for the most part, below 8µg/m^3. For the same area, annual mean nitrogen dioxide (NO_2) concentration levels were recorded as being below 5µg/m^3. Both of these estimates are well within the guidelines of the 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Combined emissions estimates from the NAEI show that projected annual mean PM_{10} concentration levels, for those sections of the greenway which will pass through County Armagh, are slightly higher than those in County Fermanagh. Estimates for PM_{10} range from 8 to 12µg/m^3, whilst estimates for NO_2 range from less than 5 µg/m^3 to 20 µg/m^3 in the same area. These estimates remain below the EU limit values attributed to each pollutant.

In the study area located in the Republic of Ireland there are no automatic air quality monitoring stations. The nearest station is situated in Kilkitt, County Monaghan. In the 2014 Air Quality in Ireland[2] report the annual mean NO_2 concentration level was reported as having been 3µg/m^3 whilst the annual mean SO_2 concentration was reported as having been 2µg/m^3. There is no record in the report of the levels of PM_{10} or CO in the area around Kilkitt; however as part of 'Zone D', under the EPA's air quality classification system, it is projected that the annual mean CO, PM_{10}, Lead and Benzene concentrations were below the lower assessment threshold and that ozone concentrations were below the EU limit. **Figure 5.4** demonstrates the nearest automatic monitoring station to the proposed greenway routes.

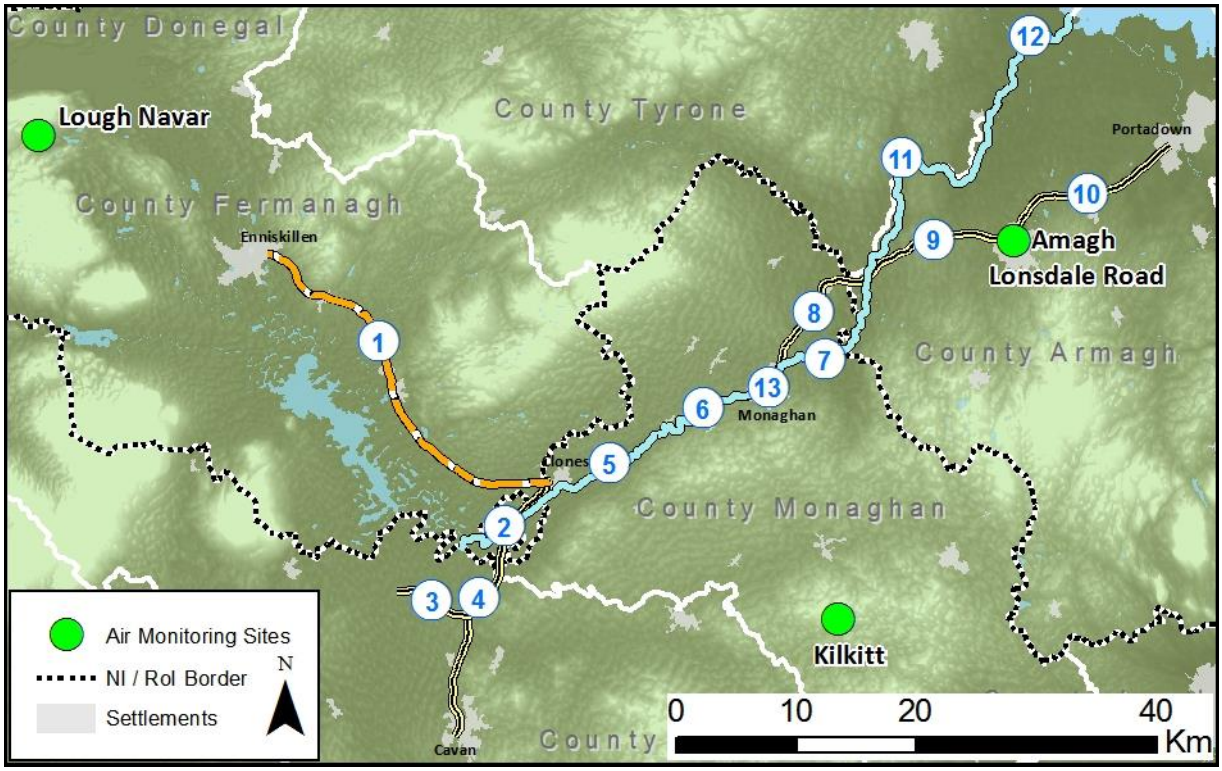


Figure 5.4 Air Quality Monitoring Stations

[2] Air Quality in Ireland 2014 (2014, Environmental Protection Agency)

Throughout the year, non-automatic air quality monitoring is undertaken in various town and city locations within the vicinity of the proposed greenway routes. In a number of these urban locations, such as Armagh City and Portadown, the annual mean concentration of NO_2 exceeds the national air quality limit of 40µg/m^3. The 2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council[3] attributed these high levels of air pollution to local road traffic. This report states that road traffic accounts for over 85% of the pollution within the area and hence, greatly requires improvement.

Air quality in the vicinity of the proposed greenway routes is generally considered to be good, due to the low development density and the limited concentrations of industrial operations in the area. There are a number of national and regional roads which run adjacent to, or in close proximity to, the proposed greenway route. These are potentially notable sources of local anthropogenic pollution. The greenway has the potential to reduce air emissions by providing the means for a local and regional social-cultural shift towards the reduction of fuel intensive transport.

5.7 CLIMATE

Within the study area, annual average air temperatures (measured at Clones, County Monaghan) from 1978-2007[4] were 9.4°C, with an average of 3.3 hours of sunshine per day. Mean annual rainfall over this period was 960.4mm, with an average of 64 days per year when rainfall amounts exceed 5mm. Rainfall patterns are typical of what might be expected in terms of wind patterns and topography in the area.

According to the United Nations Intergovernmental Panel on Climate Change (2007) there is “unequivocal” evidence of climate change and furthermore:

"*most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations*." (Climate Change 2007, IPCC, Fourth Assessment Report AR4)

Climate change could have considerable impacts on riparian and coastal developments on the island of Ireland from increases in flood risk, with sea level rise already being observed and wetter winters being anticipated across the island. These potential impacts could have serious consequences where all of the main cities are on the coast and many of the main towns are on large rivers. This could also have significant consequences for greenway sections that are proposed to cross and/or run parallel to natural and artificial waterbodies.

[3] 2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council (2005, Armagh City, Banbridge and Craigavon Borough Council)

[4] Met Eireann (2017) 30 Year Averages http://www.met.ie/climate-ireland/30year-averages.asp (accessed 10.01.2017)

The predicted impacts of climate change are likely to include increases in the frequency and intensity of rainfall, the increases in peak flows in rivers, a rise in sea levels and increased storminess. These effects of climate change are likely to increase pluvial, fluvial and coastal flooding and will require future development to be adaptable or resilient to future climatic changes and its associated impacts. The greenway sections should be developed with climate change in mind to ensure future drainage and flood risk requirements are taken into account.

5.8 MATERIAL ASSETS

The study area of the Strategy is mainly corridors along rural areas of low density development, which are linking settlements, towns and a city across Counties Fermanagh, Cavan, Monaghan, Armagh and Tyrone in Northern Ireland and the Republic of Ireland. Of the development that occurs within this study area there is the potential for the greenway development and operation to impact or be impacted upon by these material assets.

Within the study area of the combined routes there are 14 Industrial Emissions Directive (IED) sites. These include intensive farming facilities, quarries and waste water treatment plants. There are also 31 smaller waste water treatment plants.

There are 56 significant roads which the proposed greenway routes intersect, including the N2, N12, N54, A29 and A34. There are ten railway lines which come within 1km of the study area. Many of these railway lines have a greenway route associated with them since, for the most part, they are inactive lines. The exceptions to this are the two active railway lines which can be found to the north of the study area near Portadown. Located on this line, which passes within the vicinity of the Armagh to Portadown proposed greenway route, is the Portadown railway station. This is the only railway station within the study area, although the Armagh bus station is situated in close proximity to the Tynan to Armagh and Armagh to Portadown proposed greenway routes.

In the Northern Ireland section of the study area the proposed routes transect 33kV powerline routes at approximately 14 locations, 110kV powerline routes at two locations and 275KV powerline routes at two locations. The proposed 400Kv North–South interconnector route is transected by two proposed greenway routes in the vicinity of Benburb and Killylea. In the Republic of Ireland section of the study area the proposed routes transect 38kV powerline routes at approximately 6 locations, with no routes transecting 110kV, 220kV or 400kV powerline routes. There are no gas transmission lines that intersect the study area.

Development of the greenway sections has the potential to disrupt existing infrastructure and conflict with proposed infrastructure. The public using the operational greenway could also be put at risk by these material assets, such as roads and industrial activity. The greenway sections will need to be planned appropriately in the detailed design to work with the existing and proposed material assets. It should also be noted that the development of the greenway sections is the provision of new, low cost, zero emission, low carbon footprint material assets to the area.

5.9 CULTURAL, ARCHAEOLOGICAL & ARCHITECTURAL HERITAGE

In the Northern Ireland portion of the study area there are 31 Scheduled Zones and 342 Sites and Monuments; many of which are raths and enclosures. There are also 12 designated heritage gardens, the majority of which are situated within County Armagh, including the likes of Tynan Abbey, Castle Dillon and Dean's Hill. In addition to these heritage features, there are 349 Industrial Heritage features along the proposed route, many of which are bridges and lock houses associated with the old Ulster Canal. Finally, within the Northern Ireland Section of the study area there are 586 Listed Buildings. These are, for the most part, houses; however there are also a number of churches, bridges and canal structures.

In the Republic of Ireland portion of the study area there are 216 designated sites and monuments identified under the Sites and Monuments Record (SMR). There are 160 of these sites and monuments that have designated zones around them, as zones of notification, which are to be included in the Record of Monuments and Places (RMP). There are 570 designated cultural heritage features identified as National Inventory or Architectural Heritage (NIAH) structures, six of which feature on the Cavan and Monaghan Record of Protected Structures (RPS). These include such structures as the Ballyhaise Railway Junction Station near Cloverhill and Carson's Bridge near Brandrum.

Any construction activity has the potential for direct negative impacts on heritage features, especially in areas rich in heritage such as along watercourses and historic transport corridors. There is however the potential for the greenway development to uncover new heritage features and to enhance existing heritage through incorporation into the detailed design. The greenway developments along the old Ulster Canal could be a step towards the overall preservation and even restoration of this architectural heritage.

5.10 LANDSCAPE & VISUAL AMENITY

The area of the proposed Ulster Canal Greenway Development Strategy comprises a variety of different landscapes, including river valleys, drumlins, lakelands, raised bogs and rolling farm lands, to name a few. Many of these landscapes, including the Upper Lough Erne and Newtownbutler and Rosslea Lowlands, are recognised as being distinctive, owing to their intrinsic character and natural or man-made beauty. In addition to such distinctive landscape areas, there are also a number of designated landscapes through which the proposed greenway routes pass. These include Tourism Conservation Zones, Local Landscape Policy Areas and Areas of Village Character. These landscape classifications are designated for their landscape and wildlife value; seeking to limit, if not prevent, development that is intrusive and/or diminishes the quality of the local landscape. Other designated landscape zones include High Landscape Areas, such as Lough Oughter and the Erne-Shannon Canal Corridor, and Scenic Viewing Points like Derrygid and Drumgarry. These designations also recognise the significant value of the local landscape; and in doing so they seek to minimise the visually intrusive nature of development upon local landscapes of scenic beauty.

Additional landscape features include Areas of Secondary Amenity and Areas of Scenic Quality. Examples of the latter include the Blackwater Valley, the Lough Neagh Shores and the Armagh Drumlins. These features are highly sensitive to new development and extensive development should be avoided so as not to intrude upon the scenic quality of the area. With that being said, recreational routes such as the proposed greenway, are unlikely to constitute 'large-scale' development and are considered to be appropriate under the Northern Ireland Landscape Character Assessment. For this reason, these designated landscape features are unlikely to preclude the development of the proposed Ulster Canal Greenway.

The importance of conserving the local landscape character should not be understated. This is emphasised in both Landscape Character Assessments and Local Area Plans which concern those areas within the vicinity of the proposed greenway routes. It is often stressed within these documents and by their associated local authorities, that the integration of new developments should not disrupt the existing landscape character and should provide for the protection of the local wildlife and their habitats. This may be able to be achieved through the development of the proposed greenway, as sustainable transport corridor development should be looking to preserve and protect the local environment.

Any construction activity has the potential for temporary, negative impacts on landscape and visual amenity; however operation of the greenway sections is unlikely to have wider impacts on the landscape and could be designed and developed to enhance the visual amenity of the area.

5.11 EVOLUTION OF THE ENVIRONMENT IN THE ABSENCE OF THE STRATEGY

In the absence of the Strategy, i.e. the Do Nothing Scenario, the routes of the Ulster Canal Greenway would either remain as undeveloped canal tow paths or railway lines that have existed since closure, without any maintenance or purpose, or would remain as existing roads, utilised mainly by automotive transport.

The local biodiversity, flora and fauna in the study area is likely to remain as the status quo in areas of agricultural development, as the species present are kept in check by the farming practices of the land. The semi-natural and natural land areas of the study area are likely to either be taken over by agriculture or human development at some point or another, or to go through the natural succession procedure whereas the flora and fauna assemblages will alter over time until dominant stable conditions are achieved. In net terms there is likely to be a loss of local biodiversity, flora and fauna, with agriculture or urban/rural development being the most probable outcomes for much of the area. Any designated or protected areas within the study area are likely to remain the same in the absence of the Strategy.

Population levels within the area are likely to remain stable in the future, with the potential of net emigration due to the lack of employment opportunities and the general shift of younger generations

towards larger towns and cities. Without financial investment along the greenway corridors there is unlikely to be the creation of additional employment outside the existing realms of agriculture and agri-related manufacturing. Tourism outside of the main towns in the study area is likely to remain at low levels and the tourism industry along these transport corridors is likely to remain underdeveloped without the implementation of the Strategy, unless there are other developments that take place along the Ulster Canal. Human health, in the terms of life expectancy and general well-being is likely to remain as status quo in the near future, with potentially increased life expectancy in the long term as advances in medicine occurs and the population becomes better educated on healthy living, however this bears no relation to not implementing the Strategy.

There is unlikely to be significant changes to the geology, soil and land use in the study area in the future. There may be pockets of improvement of soil and land for agricultural purposes and therefore loss of more natural land, and also the loss of natural and agricultural lands to urban creep; however these would not be due to the absence of the Strategy.

Water quality in the region is likely to improve in the future with the introduction of important European water legislation such as The Water Framework Directive (WFD) and other existing water protection. As the remnants of the actual canal are not official waterbodies in WFD terms there would be no effort put into improving water status and thus there is not likely to be any improvement in their water quality in chemical and ecological terms. The water status objectives for the waterbodies in the study area are to be restored to Good by 2021. However with the cross border location of many of these waterbodies, thus additional jurisdictional issues, and the relative remoteness of the area, it is unlikely that these waterbodies will receive high prioritisation in the attempts to restore their status.

Even with the introduction of new flood protection legislation, such as the EU Floods Directive, and subsequent flood risk management plans, future flooding in the area may remain prevalent. The aim of the EU Flood Directive is to reduce and manage the risks that floods pose to human health, the environment, infrastructure and property. As the study area is cross border, of relatively low population density and low development density it would be unlikely that many flood protection measures for human health, infrastructure and property would be implemented as a priority.

Water supply quantities for household and business purposes in the area would rely on the available existing supply capability and infrastructure. It is unlikely that there will be much additional development pressure and thus additional demand pressure on the local water supply system in the future within the study area. The absence of the Strategy is unlikely to have any impacts on water quality, quantity and resource in the future.

At present, the air quality within the study area is, for the most part, considered to be good. With the exception of several areas within Armagh City, there are low levels of air pollutants, such as particulate matter and nitrogen dioxide. Whilst these reflect positively upon the air quality of the area, increasing levels of road traffic (particularly along busy roads such as the N2, N12 and N54), as well as the absence of local sustainable transport resources, are likely to contribute towards enhanced

levels of traffic related pollutants into the atmosphere. In the absence of this Strategy there would be less opportunity for local sustainable transport to replace air pollutant emitting automotive transport along these corridors.

As a result of human-made greenhouse gas (GHG) emissions, climate change is predicted to occur in the future regardless of action, potentially resulting in sea level rise, changes in rainfall patterns and temperatures, changes in the frequency of droughts and extreme weather events. In the absence of this Strategy there would be less opportunity for local sustainable transport to reduce GHG emissions from automotive transport along these corridors.

The absence of the Strategy is unlikely to cause significant changes to material asset and infrastructural improvements in the future. Planned energy and transport developments and upgrades in the area are completely independent of the Strategy. Without the greenway sections however, which would be assets in themselves, there is unlikely to be wider secondary development in the area, which would be created to service the increased visitor numbers to the area.

In the absence of the Strategy the heritage features associated with the Ulster Canal would continue to degrade and may be lost to nature or lost to development. The canal itself may continue to be filled in for agricultural purposes or for development land. Without the development of the greenway sections heritage features in the area may remain inaccessible, unpreserved, unrestored or even undiscovered.

In the absence of the Strategy the landscape value of the study areas is unlikely to change significantly. It is probable that some development, particularly around the urban settlements of Enniskillen, Clone, Monaghan and Armagh, will take place; however owing to the predominantly rural nature of the study area, as well as the various landscape designations attached to it, significant development is unlikely to take place.

6 REVIEW OF RELEVANT, PLANS, PROGRAMMES AND POLICIES

6.1 INTERACTION WITH OTHER RELEVANT PLANS AND PROGRAMMES

As part of the SEA process the context of the Strategy must be established with regard to other Plans and Programmes that have been adopted at International, European and National levels. In particular the interaction of the environmental protection objectives and standards included within these Plans and Programmes with the Strategy requires consideration.

Table 6.1 identifies the main significant environmental plans, programmes and legislation, adopted at International, European Community or Member State level, which would be expected to influence, or be influenced by, the Strategy. While it is recognised that there are many Plans, Programmes and legislation that could relate to the Strategy it is considered appropriate to only deal with those significant texts, to keep the assessment at a strategic level. More information on these Plans, Programmes and legislation, along with their potential interaction with the Strategy is given in **Appendix D**.

Table 6.1 Summary of Key Plans and Programmes Relevant to the Strategy

EU Level	• A 2030 Framework for Climate and Energy Policies [COM(2013) 169] • Air Quality Directive {2008/50/EC] • Birds Directive [2009/147/EC] • Bonn Convention [L210, 19/07/1982 (1983)] • EIA Directive [85/337/EEC] [2014/52/EU] • EU 2020 Growth Strategy [COM(2010) 2020] • EU Biodiversity Strategy to 2020 [COM(2011)244] • EU Floods Directive [2007/60/EC] • EU Strategy on Adaption to Climate Change [EC, 2013] • European Landscape Convention [ETS No. 176] • European Spatial Development Perspective (ESDP) (EU Commission, 1999) • Environmental Liability Directive [2004/35/EC] • Environmental Quality Standards Directive [2008/105/EC] • Habitats Directive [92/43/EEC] • Invasive Species Regulation [EU/1143/2014] • SEA Directive [2001/42/EC] • Soils Thematic Strategy [COM(2006) 231] • The RAMSAR Strategic Plan (Ramsar Convention Secretariat, 2016) • Water Framework Directive [2000/60/EC] • World Heritage Convention [WHC-2005/WS/02]
National Level	• A Bicycle Strategy for Northern Ireland (Dept. of Infrastructure, 2015)

	• A Biodiversity Strategy for Northern Ireland to 2020 (Dept. of the Environment, 2015) • Active Travel Towns Programme (Dept. of Transport, Tourism and Sport). • A National Landscape Strategy for Northern Ireland (DAGH, 2011) • Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation (Dept. for Regional Development, 2011) • Food Harvest 2020 (DAFF, 2010) • Ireland's National Biodiversity Plan 2011-2016 (Dept. of Arts, Heritage and the Gaeltacht, 2011) • Irish Geological Heritage (IGH) Programme (GSI 1998) • National Biodiversity Plan (2nd Revision 2011-2016) (DAHG, 2011) • National Climate Change Strategy 2007-2012 (DEHLG, 2007) • National Cycle Policy Framework (Dept. of Transport, Tourism and Sport). • National Landscape Strategy for Ireland (Draft) 2014 – 2024 (DAHG, 2014) • National Spatial Strategy 2002-2020 (DELG, 2002) • NI Climate Change Adaptation Programme (DoE, 2014) • NI Planning Policy Statements (PPS) (Planning Service NI) • Northern Ireland Greenhouse Gas Emissions Reduction Plan (Cross-Departmental Working Group on Greenhouse Gas Emissions, 2011) • Preparing for a Changing Climate in Northern Ireland (SNIFFER, 2007) • Prioritised Action Framework for Natura 2000 (Dept. of the Environment, 2012) • Programme for Government Framework (Northern Ireland Executive, 2016) • Strategic Planning Policy Statement (Dept. of the Environment, 2015) • Sustainable Development – A Strategy for Ireland (Dept. of Environment, Heritage and Local Government, 1997) • Sustainable Development Strategy (Northern Ireland Executive, 2010) • The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (DEFRA, 2007) • The Climate Change Act (2008) • Travelwise NI: Building an Active Travel Future for Northern Ireland' (DRD, 2012) • UK Government Sustainable Development Strategy (The Stationery Office, 2005) • Valuing Nature - Northern Ireland Biodiversity Strategy 2015 (DoE, 2015)
Regional Level	• Border Regional Authority Planning Guidelines 2010-2022 (The Border Regional Authority, 2010) • Catchment-based Flood Risk Assessment and Management Plan for UoM 06 (OPW, 2016) • Catchment-based Flood Risk Assessment and Management Plan for UoM 36

	(OPW, 2016) • East Border Region Regional Biodiversity Framework (Monaghan County Council, 2013) • Neagh Bann River Basin Flood Risk Management Plan (DARD, 2015) • North Western River Basin Flood Risk Management Plan (DARD, 2015) • Northern Ireland Landscape Character Assessment (Dept. of the Environment, 2000) • Regional Development Strategy (Dept. for Regional Development, 2010) • Ulster Canal Restoration Plan – Upper Lough Erne to Clones (Waterways Ireland, 2010)
Sub-Regional	• Armagh Area Plan 2004 (Armagh City and District Council, 1995). • Armagh, Banbridge and Craigavon Local Biodiversity Action Plan (Action for Biodiversity, 2014) • Cavan County Local Biodiversity Action Plan (Cavan County Council, 2007) • Cavan Draft Heritage Plan 2016-2021 (Cavan County Council, 2015) • Cavan Economic Plan 2009-2012 (Cavan County Council, 2009) • Cavan Town and Environs Development Plan 2014-2020 (Cavan Town Council and Cavan County Council, 2014) • Economic Strategy and Implementation Plan for County Monaghan 2010-2014 (Monaghan County Council, 2010) • Fermanagh Area Plan 2007 (Fermanagh District Council, 1997) • Fermanagh and Omagh Landscape Character Assessment (Fermanagh & Omagh District Council, 2015) • Fermanagh and Omagh Local Biodiversity Action Plan (Fermanagh and Omagh District Council, 2016) • Landscape Character Assessment Monaghan (Monaghan County Council, 2008) • Monaghan County Development Plan 2013-2019 (Monaghan County Council, 2013) • Monaghan Heritage Plan 2012-2017 (Monaghan county Council, 2012) • Omagh Area Plan 2002 (Omagh District Council Area, 1992)

7 PROPOSED ROUTE DETAILS

7.1 DEVELOPMENT AND OPERATION OF THE GREENWAY

Section 5 of the Strategy provides high level information on how the greenway is likely to look, how it will be constructed, the likely timescales of this development, the maintenance requirements, typical features along the greenway and information on safety features and crossings.

7.1.1 Construction

It is anticipated to take about 8-12 months to construct 20km of greenway. The construction will be mainly with mini excavators that will dig a 3.5m wide x 0.1m deep trench along the line of the route. All materials are proposed to be reused on site as best possible. This trench is the formation tray that will be filled with geotextile and stone to form the unbound surface of the greenway sections. The unbound surfaces are proposed as will fit better in the rural landscape. The greenway surface will be a maximum 3m wide when complete, however this may be narrower in certain areas due to environmental, heritage or engineering constraints. Bound surfaces are only proposed to be used in the 10 metres either side of road crossings and in urban areas. **Figure 7.1** demonstrates a typical cross section of the greenway for an unbound surface, while **Figure 7.2** demonstrates a typical cross section of the greenway for a bound surface.

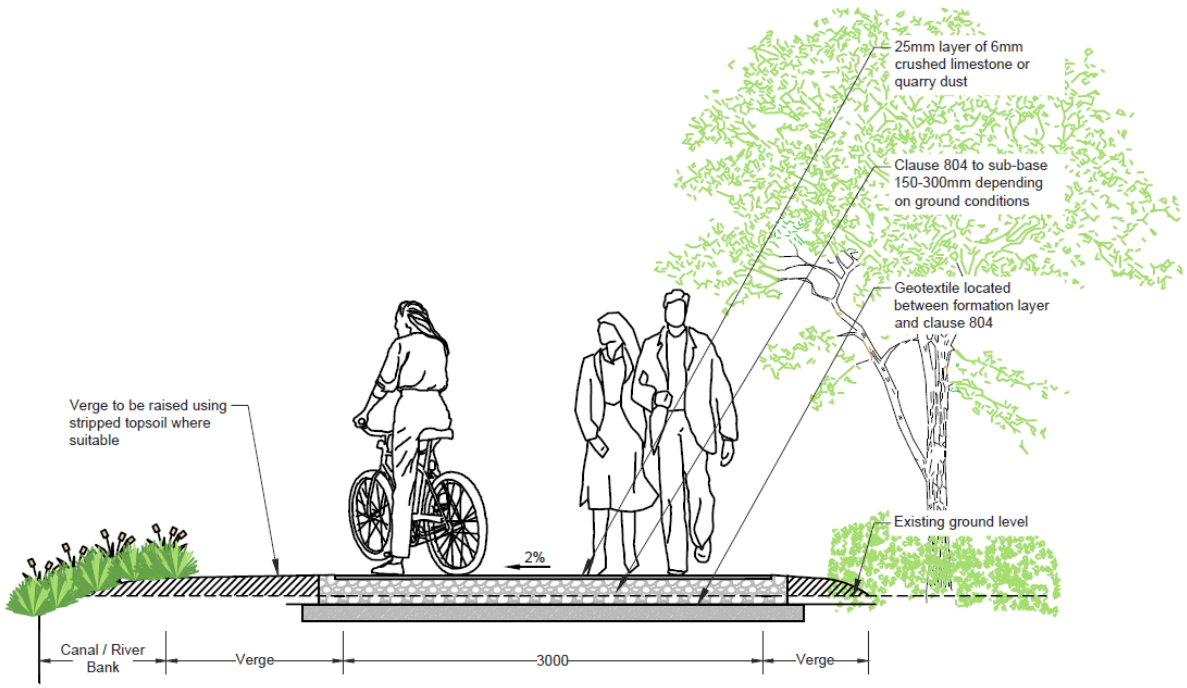


Figure 7.1 Typical Unbound Greenway Surface Cross Section

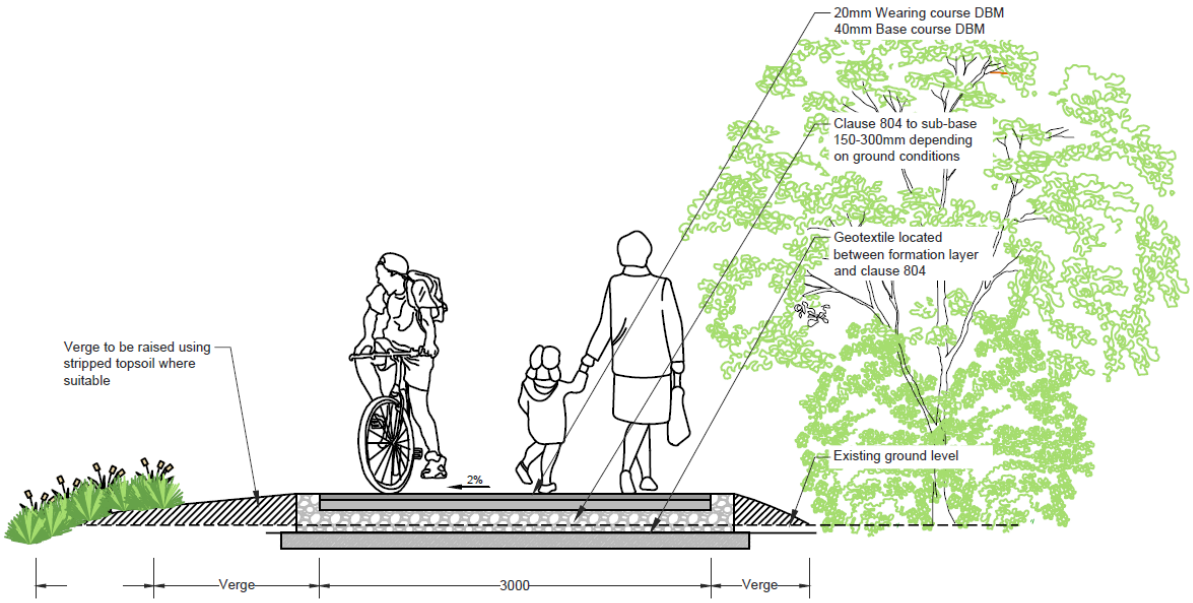


Figure 7.2 Typical Bound Greenway Surface Cross Section

Section 5.2 of the Strategy highlights how rest areas and information will be provided where appropriate along the routes to maximise their potential, while Section 5.3 of the Strategy highlights how safety features such as barriers and signage will be placed as required to mitigate for potential risks to health and safety, such as at road crossings.

7.1.2 Operation and Maintenance

There are little operational requirements for a greenway; however maintenance will need to be regularly undertaken to ensure continued usability and safety. There will need to be routine inspections of the paths, furniture and signage, with maintenance and repair as necessary. The vegetation along the paths will need maintained for access and sightlines of walkers, cyclists and potential equestrians. This is likely to require vegetation being trimmed back to a 5m high and 1m wide buffer on the routes, with native vegetation encouraged beyond this. It is proposed that control of invasive species will form part of the maintenance regime through development of strict biosecurity protocols. Adaptive management is proposed to ensure appropriate vegetation control and promotion of local biodiversity takes place.

7.2 ROUTE OPTIONS / ALTERNATIVES

The following sections **7.2.1** to **7.2.13** provide a summary of the route options / alternatives available to the strategy.

7.2.1 Do Nothing Alternative

The Do Nothing Alternative is whereas Waterways Ireland and their project partner Local Authorities decide not to develop any section of the proposed Ulster Canal Greenway. Although this is contrary to the objectives of the Strategy this could be a viable option if a proposed route was found to be too environmentally detrimental, socially unacceptable, technically unfeasible or economically unviable. For the purposes of comparative assessment the Do Nothing Option is scored as being no development of any section of greenway.

7.2.2 Enniskillen to Clones

The Enniskillen to Clones section of greenway is proposed to run along the disused railway line and on public roads. This link from the Ulster Canal Greenway at Clones to Newtownbutler, Lisnaskea, and Enniskillen would follow a railway line which in some places has been replaced with roads. There is a proposal to develop a cross-border Greenway from Enniskillen to Manorhamilton (jointly between Leitrim Co Co, Cavan Co Co and Fermanagh and Omagh District Council) and potentially on to Sligo on roads and disused railway lines, however this is outside the scope of this current Strategy. This is shown in **Figure 7.3**.

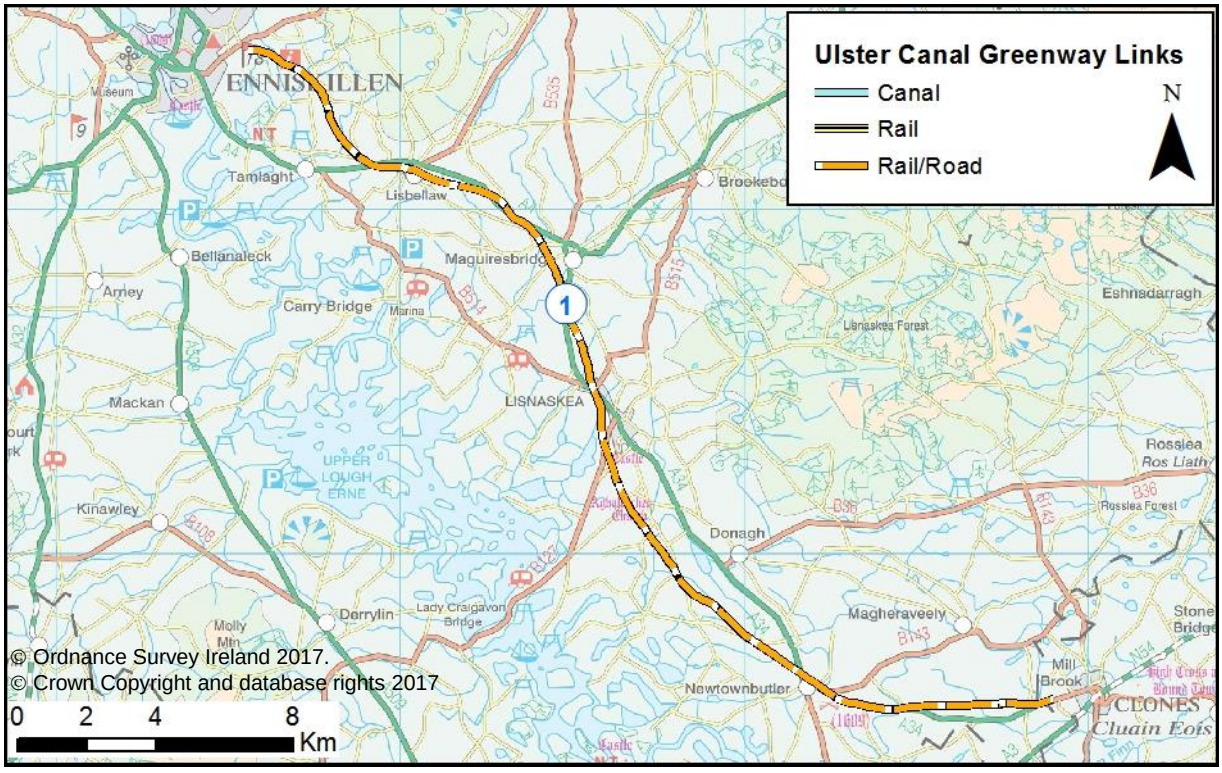


Figure 7.3 Enniskillen to Clones

7.2.3 Castle Saunderson to Clones

The Castle Saunderson to Ulster Canal at Gortnacarrow section would be in the vicinity of the old Ulster Canal. The Castle Saunderson site is on the left bank of the River Finn whereas the Ulster Canal joins the River Finn further downstream on the right bank below Derrykerrib Bridge. There will be a requirement for route selection from the Castle Saunderson to the line of the Ulster Canal. The

Gortnacarrow to Clones section of the greenway will follow the line of the Ulster Canal where feasible. There are approximately five border crossings on this section, with the greenway passing through counties Fermanagh and Monaghan. Waterways Ireland has obtained planning permission for the construction of a canal from the River Finn at Gortnacarrow to Clones along the line of the Ulster Canal. This is shown in **Figure 7.4**.

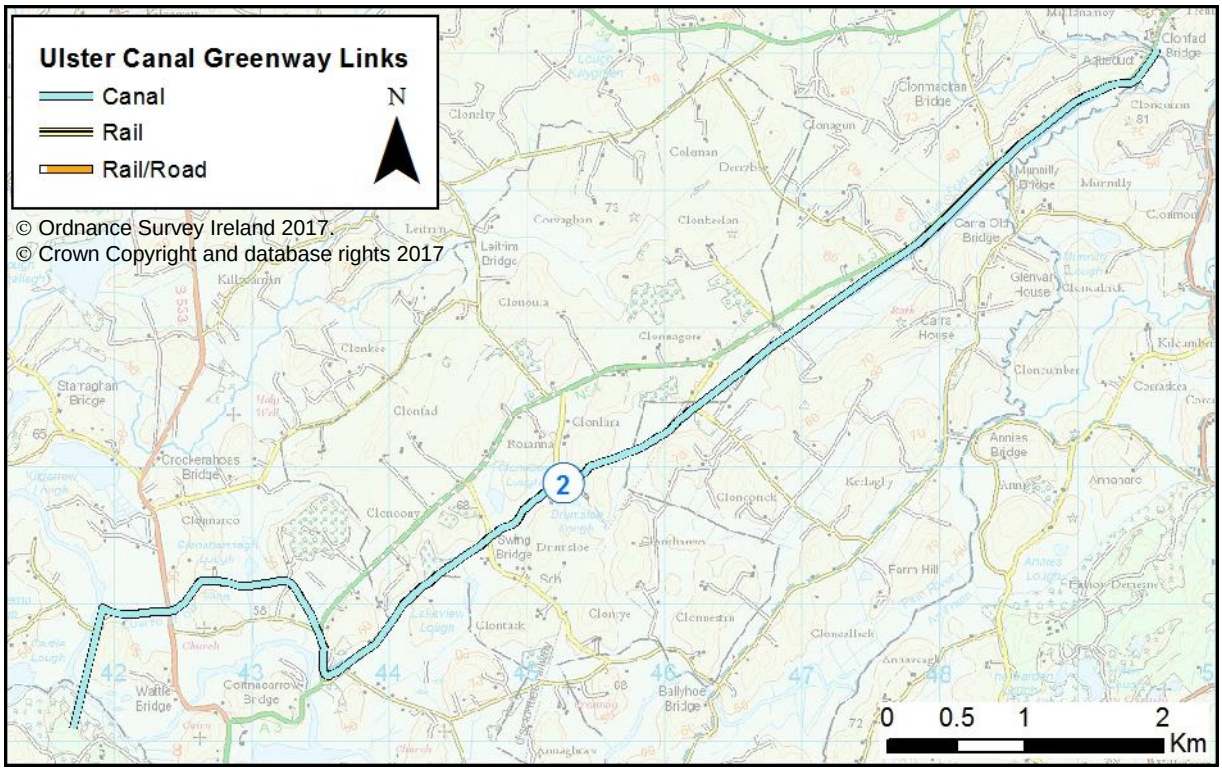


Figure 7.4 Castle Saunderson to Clones

7.2.4 Belturbet to Cloverhill

The Belturbet to Cloverhill section of greenway is proposed to run along the disused railway line. This line would be a branch line to the Cavan to Clones line. Linking Belturbet is deemed important to the Strategy as its sits on the River Erne. In addition, Cavan Co Co and Leitrim Co Co are working jointly on a greenway proposal from Dromod – Mohill – Ballinamore – Ballyconnell – Belturbet, following the line of a disused railway, thus creating a strong west-east axis through this border zone. This is shown in **Figure 7.5**.

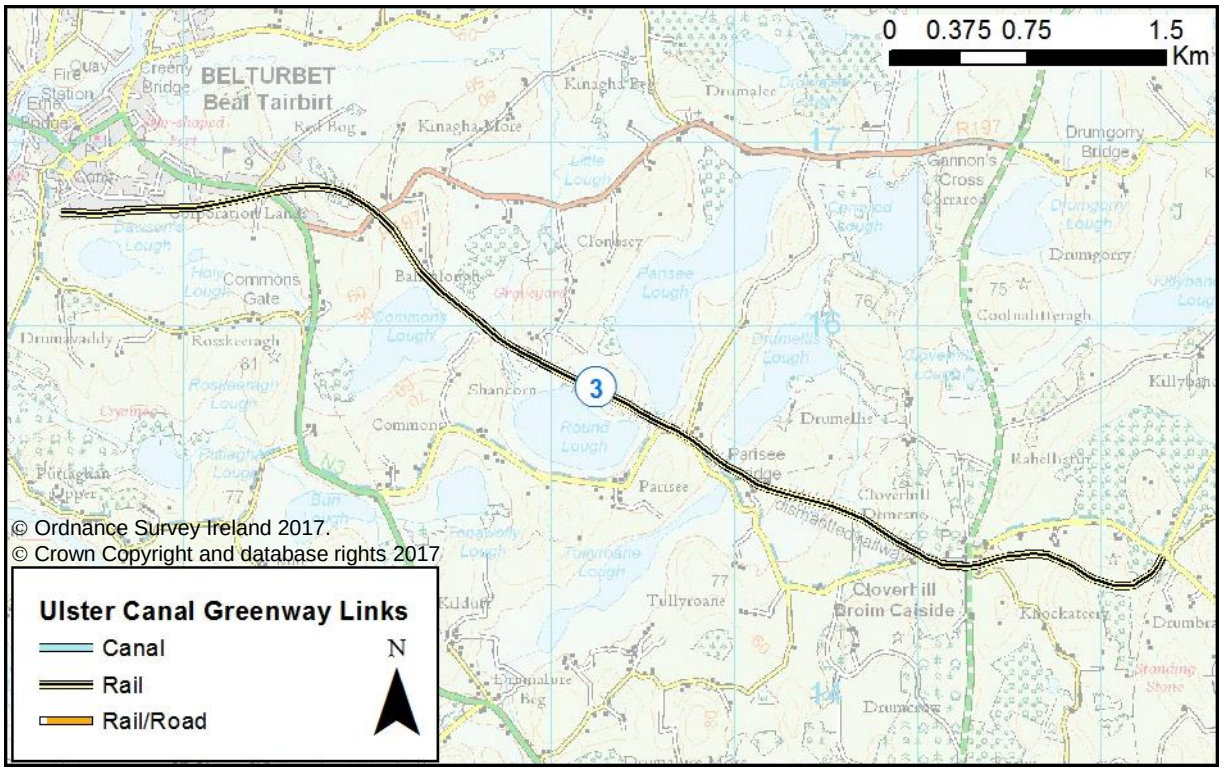


Figure 7.5 Belturbet to Cloverhill

7.2.5 Cavan to Clones

The Cavan to Clones section of greenway is proposed to run along the disused railway line. Cavan Co Co has begun to examine what would be required to establish a greenway on this line which would link the Ulster Canal Greenway to Cavan, an Active Travel town. This is shown in **Figure 7.6**.

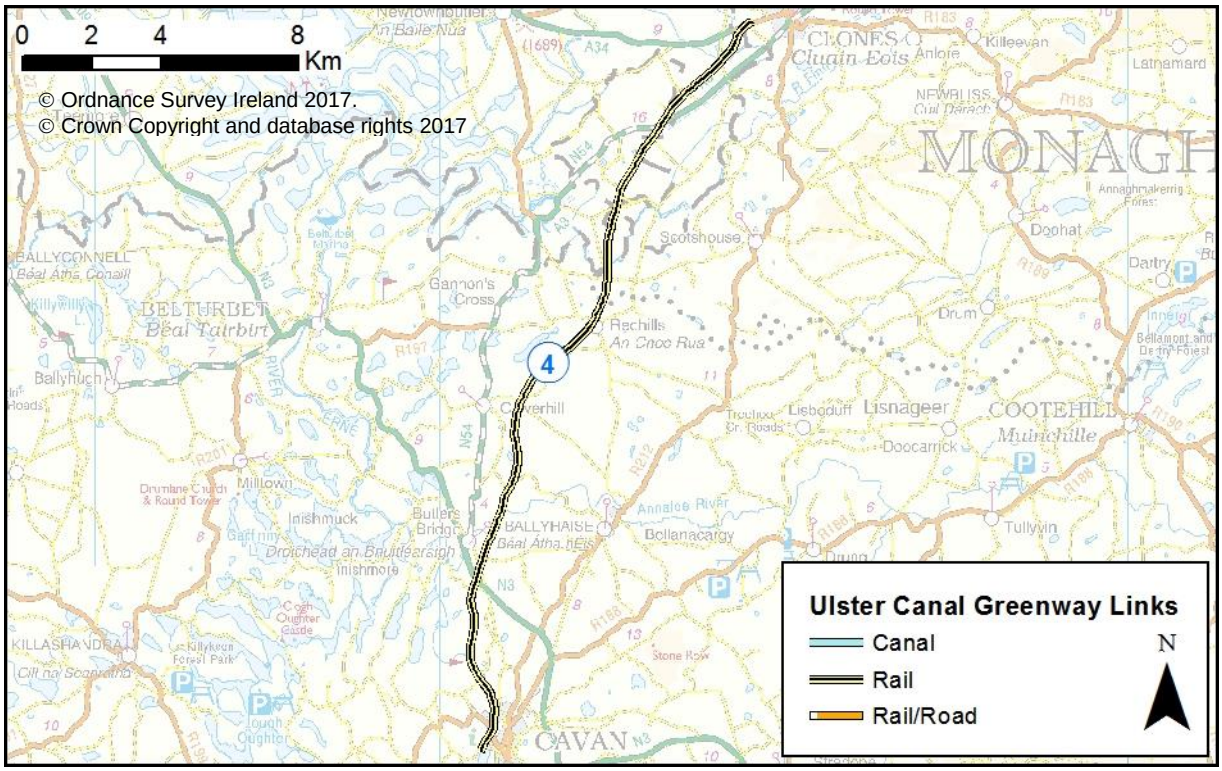


Figure 7.6 Cavan to Clones

7.2.6 Clones to Smithsborough

The Clones to Smithsborough section of the greenway will follow the line of the Ulster Canal where feasible. This is shown in **Figure 7.7**.

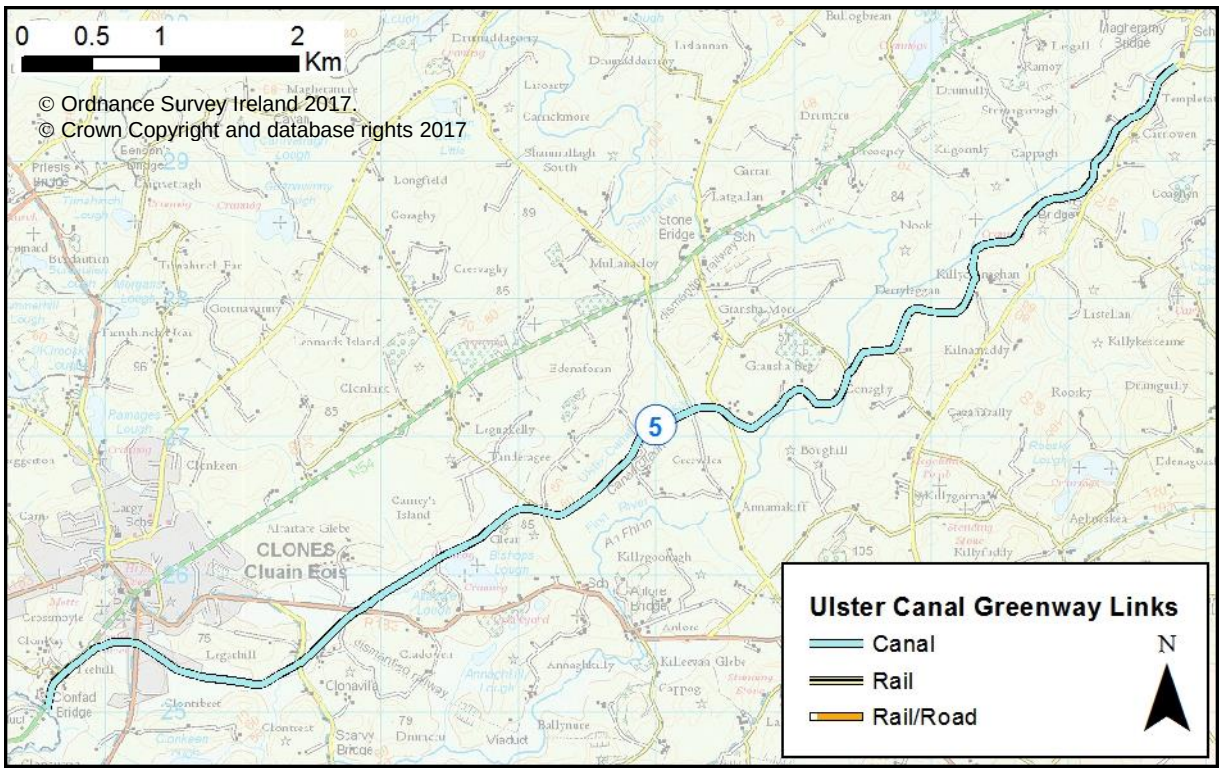


Figure 7.7 Clones to Smithsborough

7.2.7 Smithsborough to Ulster Canal Greenway in Monaghan town

The Smithsborough to Ulster Canal Greenway in Monaghan town section will follow the line of the Ulster Canal where feasible. This is shown in **Figure 7.8**. The Ulster Canal Greenway section through Monaghan town has already been completed by Monaghan Co Co and is currently operational.

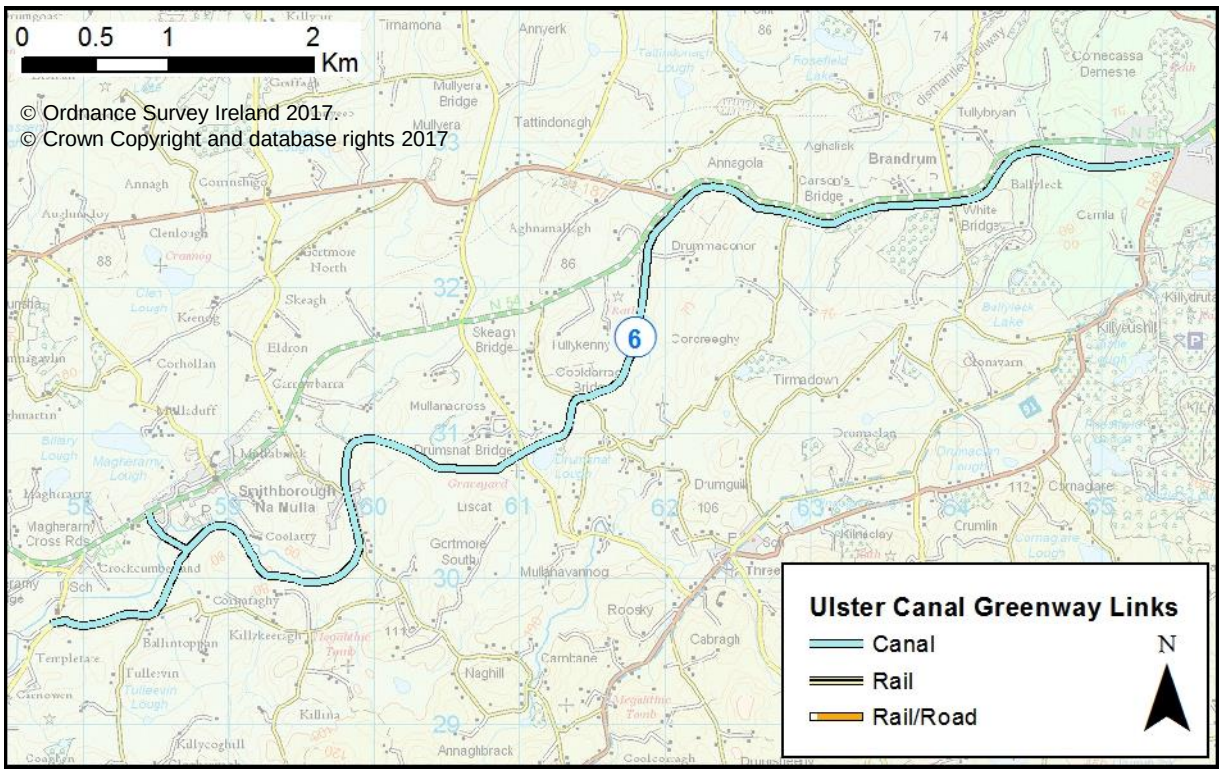


Figure 7.8 Smithsborough to Monaghan Town

7.2.8 Ulster Canal Greenway in Monaghan town to Middletown

The Ulster Canal Greenway in Monaghan town to Middletown section will follow the line of the Ulster Canal where feasible, passing Tyholland and crossing the International Border at Ardgonnell aqueduct over River Cor. This is shown in **Figure 7.9**.

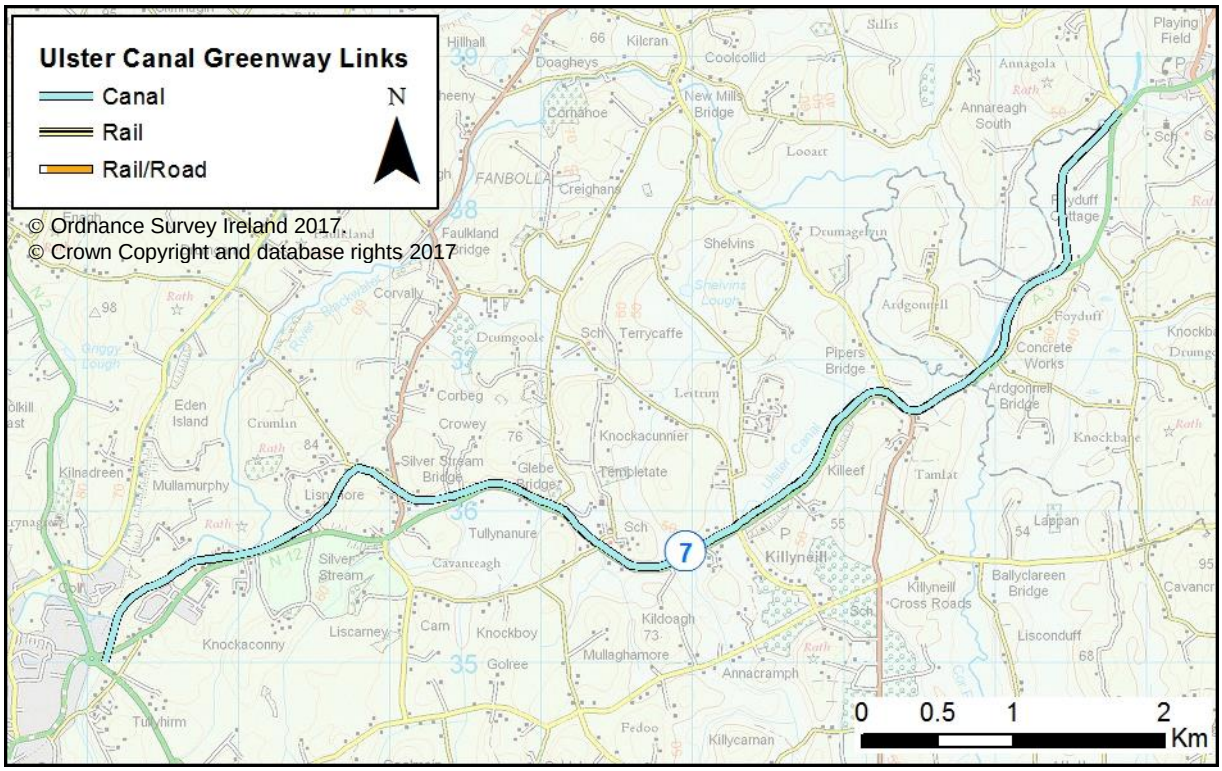


Figure 7.9 Monaghan Town to Middletown

7.2.9 Monaghan to Glaslough

The Monaghan to Glaslough section of greenway is proposed to run along the disused railway line. This link would connect the attractive village of Glaslough to Monaghan town thereby creating a local loop trail in this community. This is shown in **Figure 7.10**.

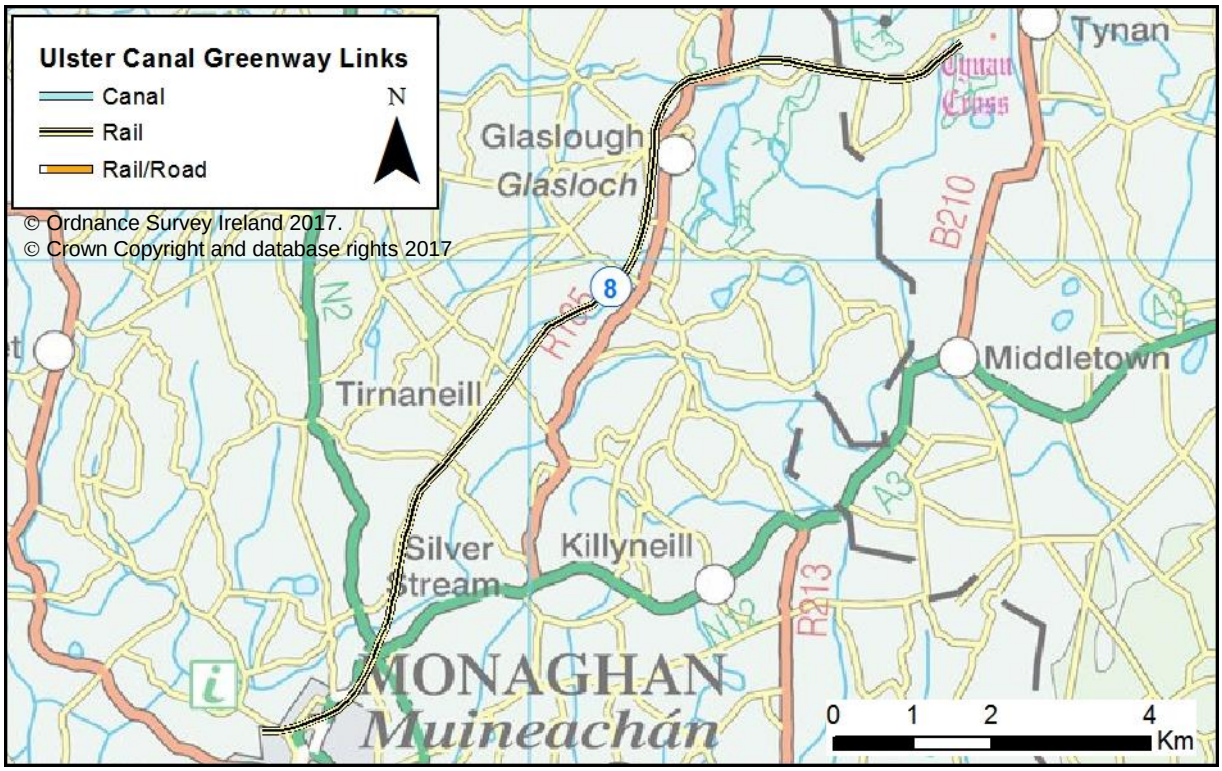


Figure 7.10 Monaghan to Glaslough

7.2.10 Glaslough to Armagh

The Glaslough to Armagh section of greenway is proposed to run along the disused railway line. This link would connect Glaslough to Armagh and thereby Armagh to Monaghan. This section can join with Section 8 and to Section 11. This is shown in **Figure 7.11**.

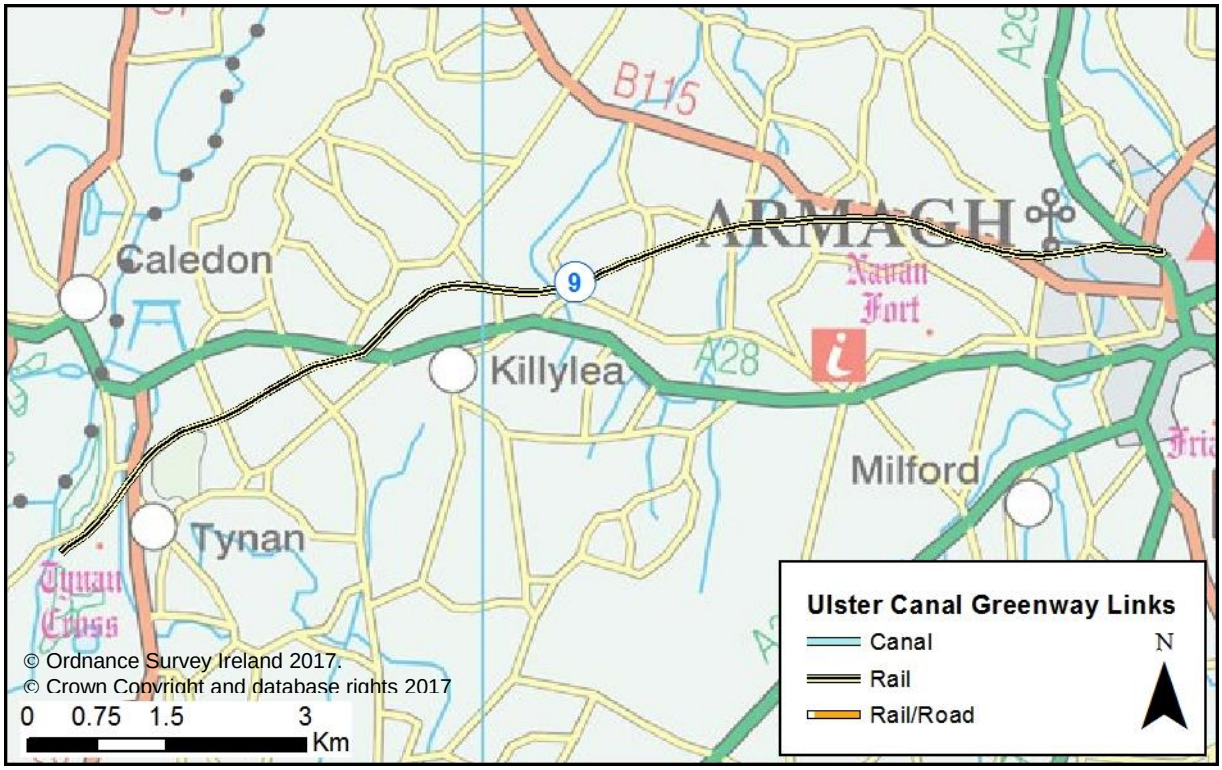


Figure 7.11 Glaslough to Armagh

7.2.11 Armagh to Portadown

The Armagh to Portadown section of greenway is proposed to run along the disused railway line. This link would offer a strategic transport link in a developed part of County Armagh and offer tourists a new route into this zone. This section also lies on the line from Larne – Belfast – Portadown – Monaghan – the west and thus has great strategic and regional significance, however this is outside the scope of this current Strategy. This is shown in **Figure 7.12**.

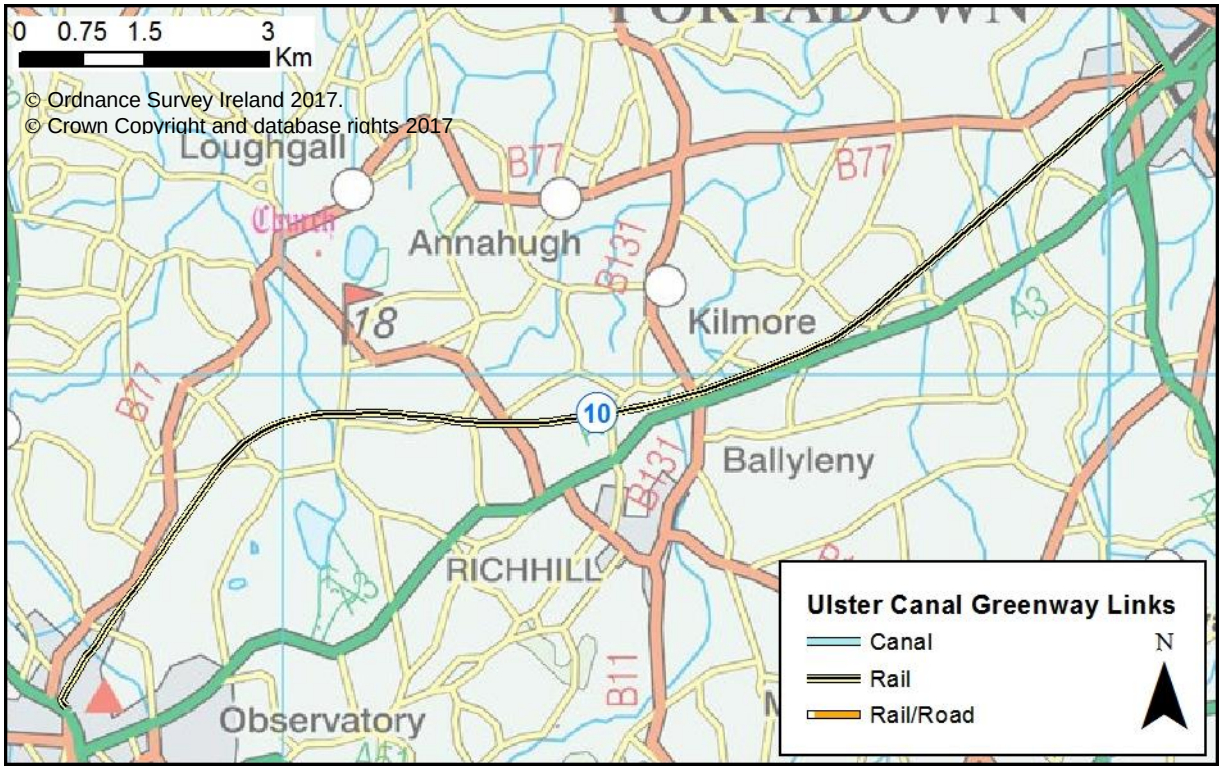


Figure 7.12 Armagh to Portadown

7.2.12 Middletown to Benburb

This section will follow the original route of the canal from Middletown, up through the Benburb gorge and past the National Trust property at The Argory. This is shown in **Figure 7.13**.

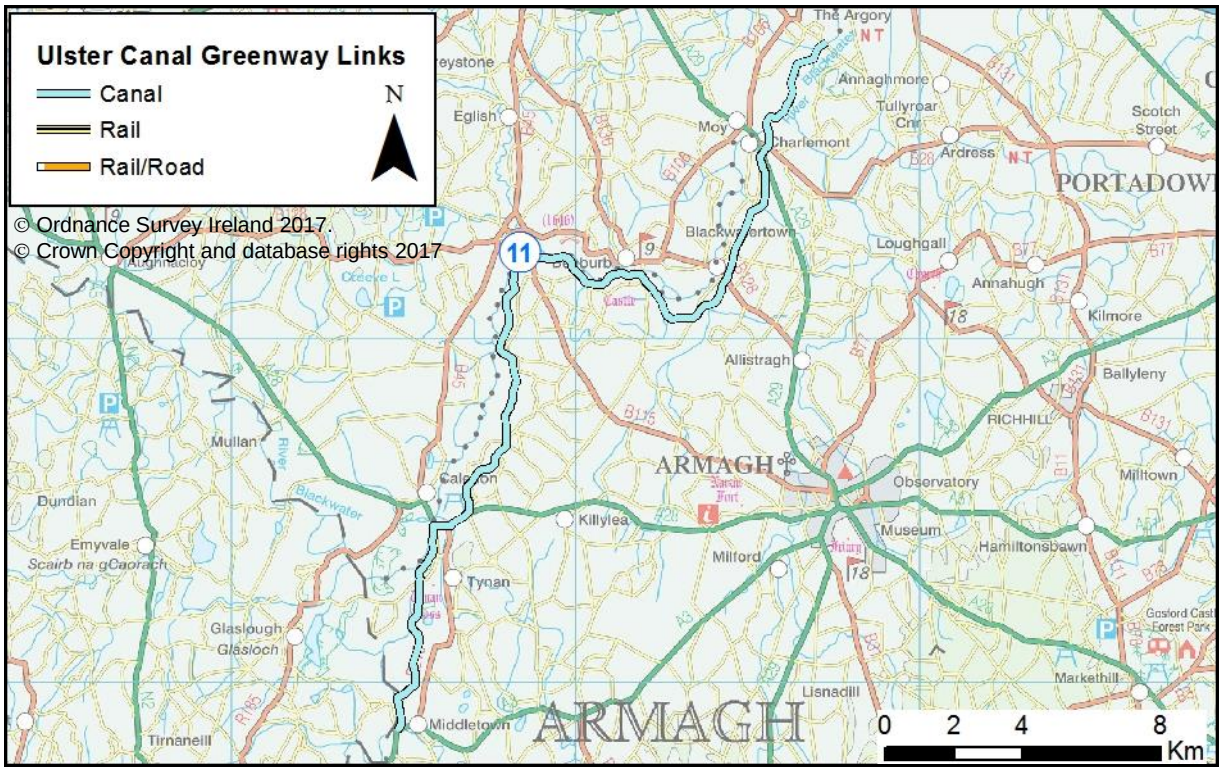


Figure 7.13 Middletown to Benburb

7.2.13 Benburb to Lough Neagh

The Benburb to Lough Neagh section of greenway is proposed to be a river side path along the River Blackwater from The Argory to Lough Neagh. This is shown in **Figure 7.14**.

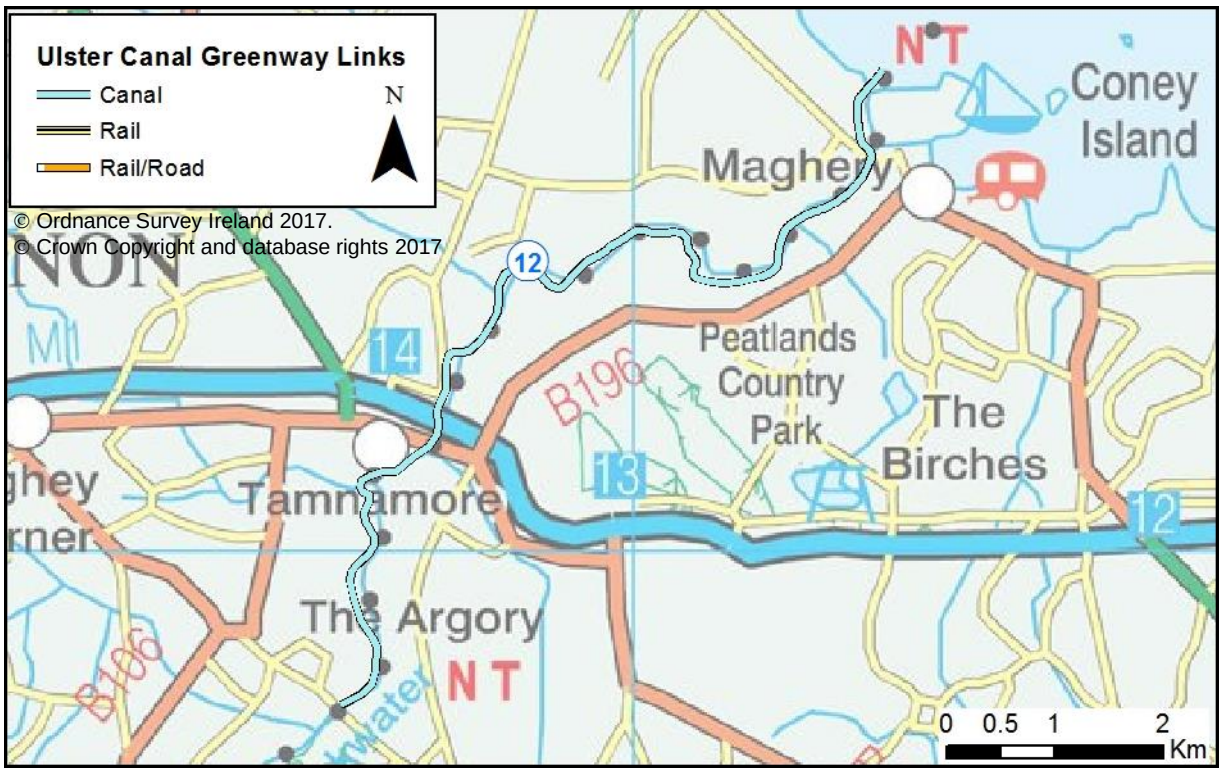


Figure 7.14 Benburb to Lough Neagh

8 ASSESSMENT

The following section provides a quantitative and qualitative assessment of the proposed route options / alternatives available to the Strategy. The route options are scored against the Strategic Environmental Objectives (SEO) given in **Table 3.2**. The scoring guidelines used for this assessment can be found in **Appendix E** of this report. Following scoring of the route option against these SEOs there is a wider commentary on potential impacts by environmental topic area.

8.1 SECTION 0 – DO NOTHING

Route	No development of any section of proposed greenway.
Length	0km
Local Authorities	None

Route Information

There is no development of any part of the Ulster Canal or disused railway in the area for greenway sections in the short, medium and long term.

Key Environmental Issues

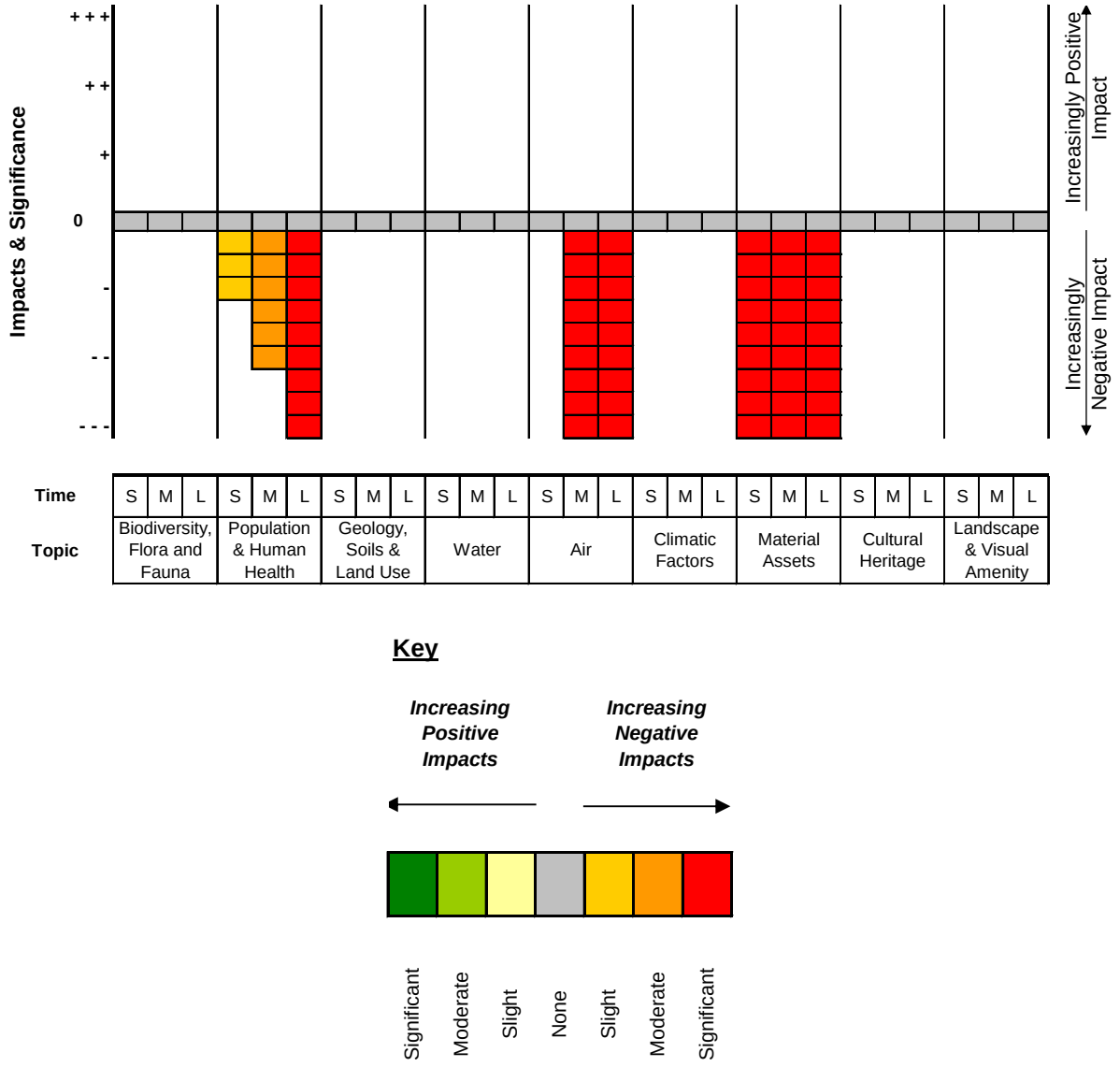
- The existing key environmental issues for the area of the Ulster Canal Greenway Development Strategy can be found in **Section 5 – Baseline and Relevant Environmental Issues.**

Environmental Assessment

Environmental Topic	Short Term Impacts	Medium Term Impacts	Long Term Impacts
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	0	0	0
2 - Population & Human Health (PHH)	-1	-2	-3
3 - Geology, Soils and Landuse (S)	0	0	0
4A - Water (W)	0	0	0
4B - Water (W)	0	0	0
5 - Air (A)	0	-3	-3
6 - Climatic Factors (C)	0	0	0
7 - Material Assets & Infrastructure (MA)	-3	-3	-3
8 - Cultural, Architectural & Archaeological Heritage	0	0	0

(H)			
9 - Landscape & Visual Amenity (L)	0	0	0

Summary Chart of Impacts



Key

Discussion of Impacts

Biodiversity, Flora & Fauna – Not developing the greenway sections is unlikely to have any positive or negative impacts on biodiversity, flora and fauna in the short medium and long term.

Population & Human Health - Not developing the greenway sections could mean slight to significant negative impacts on the local and regional population, as they will not have access to amenity and sustainable transport corridors, to use for recreational and commuting purposes. They will also not have the health benefits of accessibility to these green spaces.

Geology, Soils & Landuse - Not developing the greenway sections is unlikely to have any positive or negative impacts on geology, soils and landuse in the short, medium and long term.
Water - Not developing the greenway sections is unlikely to have any positive or negative impacts on water quality, quantity or resource in the short, medium and long term.
Air - Not developing the greenway sections is unlikely to have any positive or negative impacts on air in the short term. In the medium and long term however there is the lost opportunity to decrease local air emissions from automotive transport, as increased use of the greenway would reduce vehicle trips along the corridors. This could be considered a locally significant negative impact.
Climatic Factors - Not developing the greenway sections is unlikely to have any positive or negative impacts on climate in the short, medium and long term. There is however the lost opportunity to reduce GHG emissions from local automotive transport.
Material Assets & Infrastructure - Not developing the greenway sections is unlikely to have any positive or negative impacts on most existing infrastructure and material assets in the area; however this could leave the Ulster Canal falling further into disrepair and being neglected. Not having the greenway sections could be considered as significant negative impacts in the short, medium and long term.
Cultural, Architectural & Archaeological Heritage - Not developing the greenway sections is unlikely to have any positive or negative impacts on cultural, architectural & archaeological heritage in the short, medium and long term. There is the potential however for the heritage of the Ulster Canal to fall further into disrepair and being neglected. Undiscovered heritage features along these corridors would remain in-situ, while known heritage features may remain inaccessible to the public and unlikely to be restored or preserved.
Landscape & Visual Amenity - Not developing the greenway sections is unlikely to have any positive or negative impacts on landscape and visual amenity in the short, medium and long term. The landscape and local views along these corridors would not change from not implementing the Strategy.
Additional Impacts - It would be anticipated that additional secondary benefits and secondary development that would be associated with a greenway and the increased visitor numbers would be lost by doing nothing, which would have further cumulative, negative, social and economic impacts on the cross border region and its population.
Key Conclusions:
Not implementing the Strategy and not developing any of the greenway sections has the potential to lead to further degradation and neglect of the Ulster Canal and its associated heritage. The Strategy is an opportunity to be a step towards revitalising these corridors; however is an opportunity missed if nothing is done. Additional secondary benefits and secondary development that would be associated with a greenway and the increased visitor numbers would be lost by doing nothing. It is also an opportunity missed to reduce local air emissions and provide new, sustainable transport infrastructure to the region that would have wider health, social and economic benefits to the cross border region and its population.

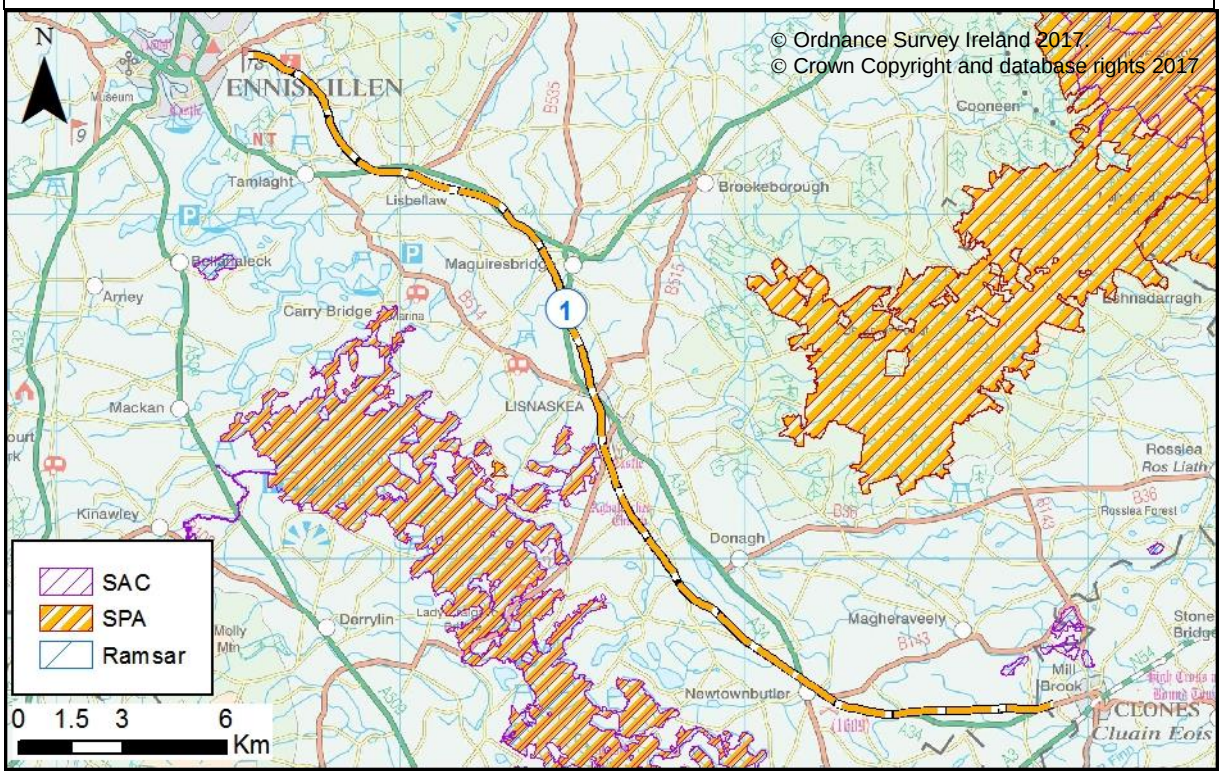
8.2 SECTION 1 – ENNISKILLEN TO CLONES

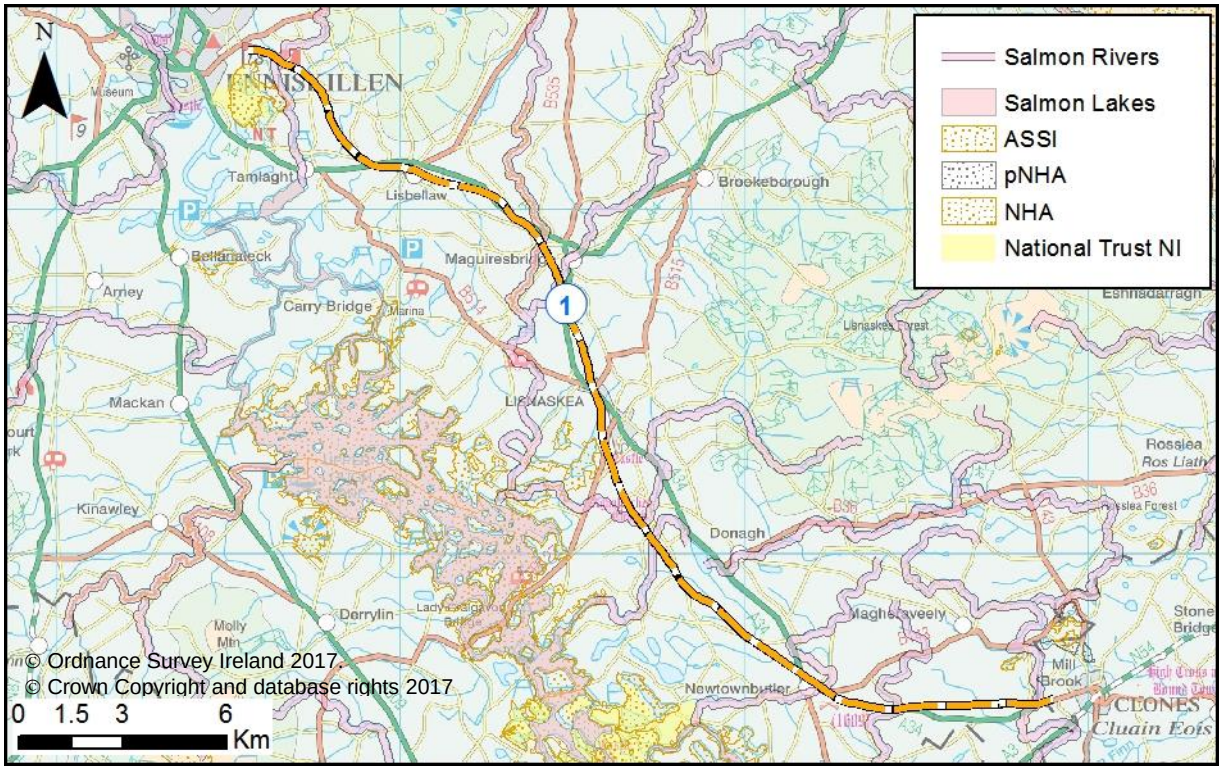
Route	Enniskillen to Clones
Length	34km
Local Authorities	Fermanagh & Omagh District Council Monaghan County Council

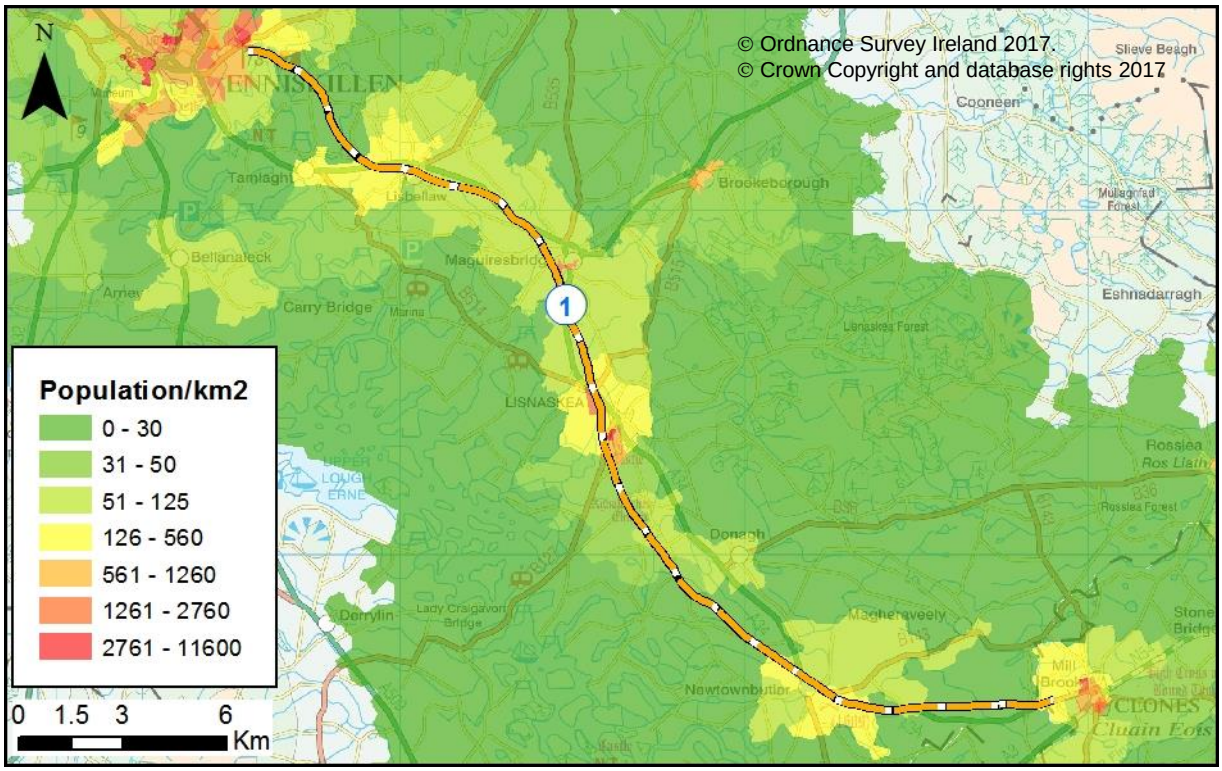
Route Information

The Enniskillen to Clones section of greenway is proposed to run along the disused railway line and on public roads.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.







Key Environmental Issues
Biodiversity, Flora and Fauna – The proposed route runs 200m from Upper Lough Erne SAC, SPA and Ramsar site in the Lisnaskea area and 940m from the Magheraveely Marl Loughs SAC and Ramsar site just north-west of Clones. The proposed link will cross a number of salmonid rivers, namely the Colebrooke River Lower, Hollybrook River, Lacky River, Lough-a-hache River, Newtownbutler River, Starraghen Trib, Tamlaght Trib and Tempo River Lower. The route crosses the Tempo River ASSI. Care is needed to avoid damaging the flora and fauna of this site by avoiding the disturbance of the land and river bed, permanent or temporary structures, natural or man-made features and the

wildlife and habitat of the area. The route runs 200m to the east of Upper Lough Erne – Trannish ASSI in the Lisnaskea area, 360m north-east of Castle Coole ASSI at Enniskillen and 950m from Knockballymore Lough ASSI, just north-west of Clones. The proposed route is located in close proximity (less than 1 km) to 38 ancient woodlands, although it does not pass through any. The route runs 440m north of Castle Coole National Trust site.

Population & Human Health - There are approximately 40,000 people living within 5km of the proposed route. Also within this area there are over 21,300 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 875people/km^2, with the areas of highest population density being at Enniskillen, Lisnaskea, Newtownbutler, Maguiresbridge and Brookeborough.

Geology, Soils and Landuse - The geology of the area is mainly argillaceous rocks, limestone and shale, overlain by till and lacustrine alluvium, with some peat deposits in the south east. The soils in this area are mainly slowly permeable or impermeable gleys. Landcover in the vicinity of the greenway section is predominantly grassland, which is used as pasture land for grazing livestock. There are several settlements along this route including Newtownbutler, Lisnaskea and Lisbellaw.

Water – This proposed stretch of greenway, from Enniskillen to Clones, crosses seven groundwater bodies, all of which have been identified as having 'good' groundwater status. The proposed greenway also passes across 12 river waterbodies, six of which are classified as having 'moderate' ecological status, four are considered to be of 'good' ecological status, one is of 'poor' status and the remaining river waterbody is considered to have 'poor ecological potential' owing its status as a heavily modified or artificial waterbody. There are approximately 10 river crossings along this route. These include rivers such as the Tamlaght tributary, the Tempo River, the Colebrooke River and the Lacky River.

The Enniskillen to Clones section of proposed greenway intersects a number of areas of medium probability fluvial (1% AEP) and pluvial (1% or 0.5% AEP) flood risk. One such area of fluvial risk is situated close to Maguiresbridge where the greenway intersects the floodplain over an approximate distance of 1km. Other, less extensive, areas of floodplain intersection include the Aghamore area, Clonedergole Bridge and intermittent areas between Kilready and Clonmaulin.

For the most part, this greenway route passes through medium probability pluvial flood risk areas for distances of approximately 50m. However, in Killanshanball, Maguiresbridge and between Clonmauling and Kilturk, the greenway route intersects pluvial flood plains over distances of approximately 200m.

Air – In the vicinity of this section there are no automatic air quality monitoring stations; the nearest being Lough Navar, which is approximately 20km north-west of the northern periphery of the proposed greenway section. The 2014 pollution emission estimates for the region show that particulate matter (PM_{10}) was recorded at below 8µg/m^3, whilst nitrogen dioxide (NO_2) was recorded as being below 5µg/m^3. Both of these levels are well within the guidelines of the 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland. With regards to the small section of greenway which will run through County Monaghan, to Clones, there are also no automatic air quality monitoring stations. The nearest air quality monitoring to this section is located in Kilkitt which is considered to be part of 'Zone D'. The 2014 Air Quality in Ireland report identified that for the key indicators of SO_2, NO_2, PM_{10}, Lead, Benzene and Carbon Monoxide (CO), Zone D was below the lower assessment threshold. The air quality in the environs of this greenway section is considered to be good. It is likely that this is owing to the absence of many large towns and the scarcity of congested road traffic.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Along this section of the proposed route there are eight significant roads which intersect the greenway. There are two IED sites along this route. One of these is an intensive farming site and the other is one of the seven waste water treatment plants within the vicinity of this section. There are also 694 high-voltage powerlines running within the vicinity of the proposed greenway. Some of these, to the north of the route, are associated with nine high-voltage towers. The route itself runs alongside one of the three inactive railway lines within this area.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are eight Scheduled Zones. These Zones include sites

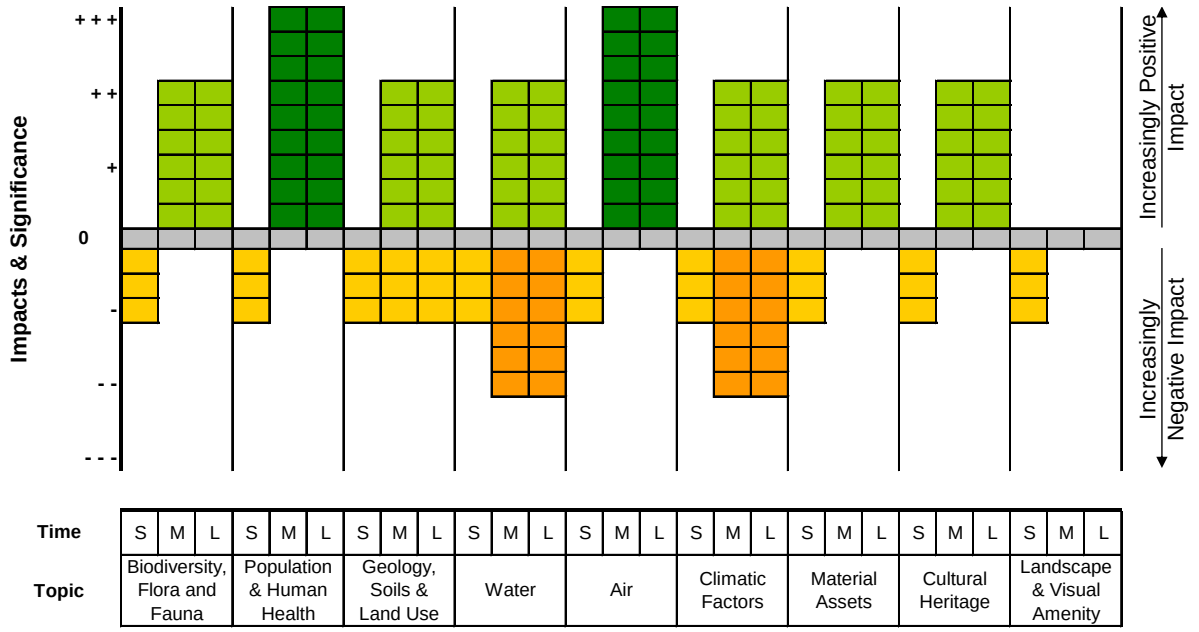
such as raths and enclosures as well as a cairn kerb. There are also 151 national sites and monuments, 63 sites of Industrial Heritage and 75 listed buildings within this area. There is one designated heritage garden located within the vicinity of the proposed route, which is at Castle Coole, close to Enniskillen.

Within the vicinity of the route which will run through the Republic of Ireland there are 21 NIAH structures. Near Clones, the Clonboy enclosure is listed as a national monument under the SMR, and as a zone of notification in the RMP. This is one of two zones within the vicinity of this route; the other is a motte and bailey situated at the southern periphery of the study area.

Landscape & Visual Amenity – This section of Greenway runs from Enniskillen in County Fermanagh to Clones in County Monaghan. On route, it passes through several distinctive landscape areas as identified by the Fermanagh Landscape Character Assessment. These include; Enniskillen, Brougher Mountain, Clogher Valley Lowlands, Upper Lough Erne and Newtownbutler and Rosslea Lowlands. Further to this, the Greenway passes through a number of designated landscape zones as identified in the Fermanagh Area Plan 2007. These include several Tourism Conservation Zones, Local Landscape Policy Areas and Areas of Village Character. Taking these designated zones and landscape characteristics into account, there appear no features which are likely to preclude the development of this Ulster Canal Greenway route.

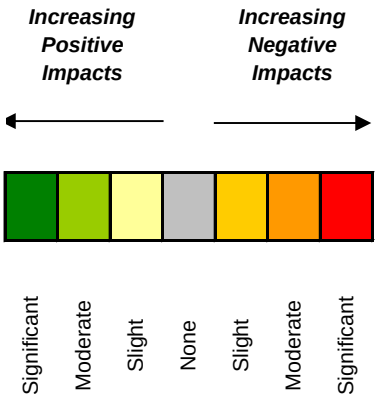
Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	-1	2	2
1B - Biodiversity, Flora & Fauna (BFF)	-1	2	2
2 - Population & Human Health (PHH)	-1	3	3
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	1	1
4B - Water (W)	0	-2 / 2	-2 / 2
5 - Air (A)	-1	3	3
6 - Climatic Factors (C)	-1	-2 / 2	-2 / 2
7 - Material Assets & Infrastructure (MA)	-1	2	2
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Note – Chart demonstrates the combined best and worst scores for Biodiversity, Flora & Fauna and Water objectives.

Key



Discussion of Impacts

Biodiversity, Flora & Fauna - There is the potential for short term, slight negative disturbance impacts to the Upper Lough Erne SAC, SPA, Ramsar site and ASSI, from construction of the greenway in the Castle Balfour area of Lisnaskea, where the route comes to within 200m of the designated areas. The Magheraveely Marl Loughs SAC and Ramsar site, and the Knockballymore Lough ASSI, are over 900m from, and upstream of, the proposed route. These sites are unlikely to be impacted by construction and operation of the section of greenway. The Castle Coole ASSI is unlikely to be impacted by construction of this section of greenway.

In the medium and long term however the operation of the greenway could provide for moderate positive impacts, as there is the potential for increased awareness of and access to the European sites, ASSIs and National Trust lands, provided this is done in line with any conservation objectives. These European and national sites are near to the greenway section and site / species

information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to Upper Lough Erne.

The Appropriate Assessment Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with moderate positive impacts from a relatively long section of greenway, linking many towns and settlements, within close proximity to a relatively large number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route mainly travels along the path of the old railway line, small lane ways and small rural roads, across a landscape of pasture land. Where agricultural activity has encroached on the old railway line there may be the bisecting of some pasture lands. There is the potential for moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. There is the potential for some peat soils to be present between Clones and Newtownbutler, which may affect land stability issues and construction methodologies. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 10ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid rivers. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however the operation of the greenway could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management at Lisbellaw, Lisnaskea, Newtownbutler. Construction in these areas could

be designed for multi-benefits for the local community. Although there are small sections of the proposed greenway at risk from 0.5% AEP pluvial flooding, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.
Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively long section of greenway, which is within close proximity to a relatively large number of people to use.
Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and moderate positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Lisbellaw, Lisnaskea, Newtownbutler. Construction in these areas could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity. Climate change scenario pluvial and fluvial flood extents along this section are however not significantly increased over the present day scenario.
Material Assets & Infrastructure - There is the potential for positive impacts from the creation of this new material asset in the medium to long term, which is a relatively long section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. There are several crossings of the A34 and A4 that may need to be negotiated, along with the potential traversing of 33kV lines at Lisnaskea and Enniskillen. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.
Cultural, Architectural & Archaeological Heritage - Development along the route of a disused railway embankment gives the potential for preservation and restoration of many industrial heritage features. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term, including linking into Castle Coole. Information can be made available on the greenway section to educate users on the heritage of the area. The greenway is unlikely to impact on the setting of any cultural, architectural or archaeological heritage features along this route. There is the however always the potential for disturbance or damage to heritage features during the construction phase. Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features.
Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term.

Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.
Additional Impacts - Given the tourism interests in the Fermanagh Lakeland area, development of this section of greenway would have synergistic benefits with other tourism and recreational activities, such as linking in with the Erne waterways. This could lead to cumulative positive impacts on population, human health and material assets. As Fermanagh & Omagh District Council and Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans. There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.
Key Conclusions:
The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation and potentially contribute towards local flood risk management. Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics, as well as significant positive impacts to the local and regional population, and their health, from the provision of sustainable transport, recreational and amenity infrastructure. The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

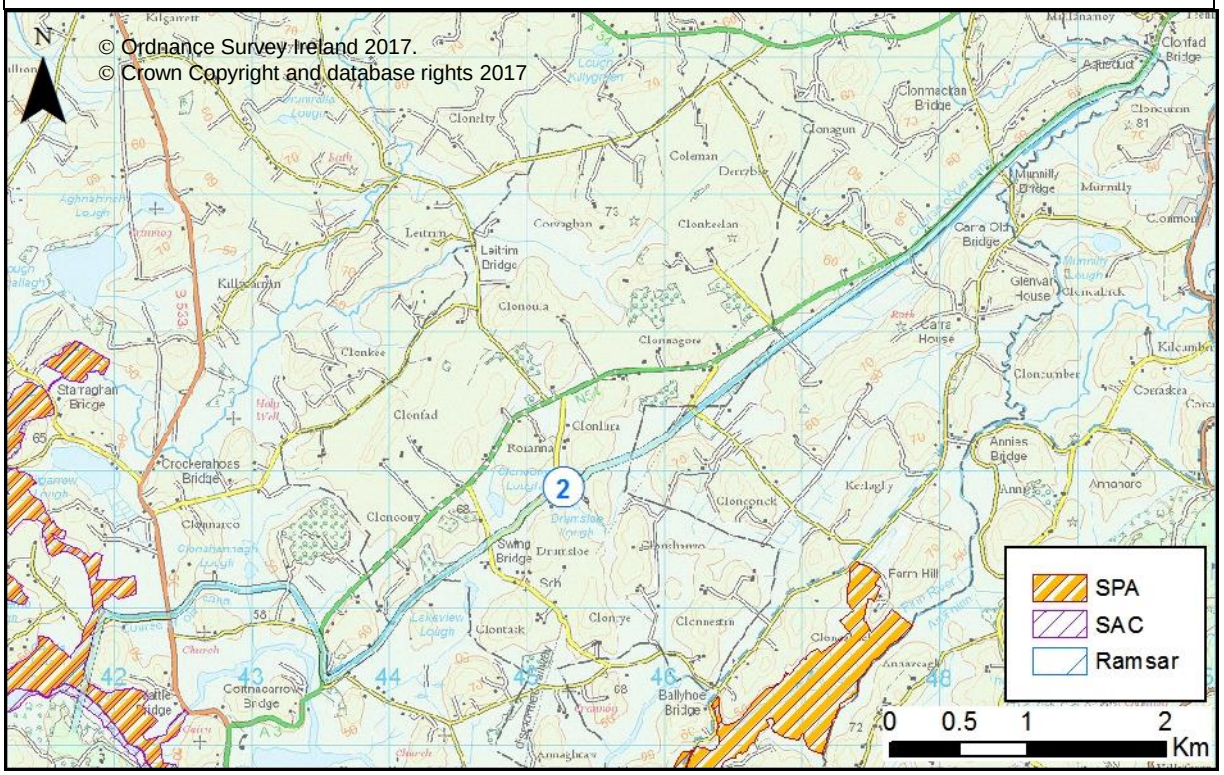
8.3 SECTION 2 – CASTLE SAUNDERSON TO CLONES

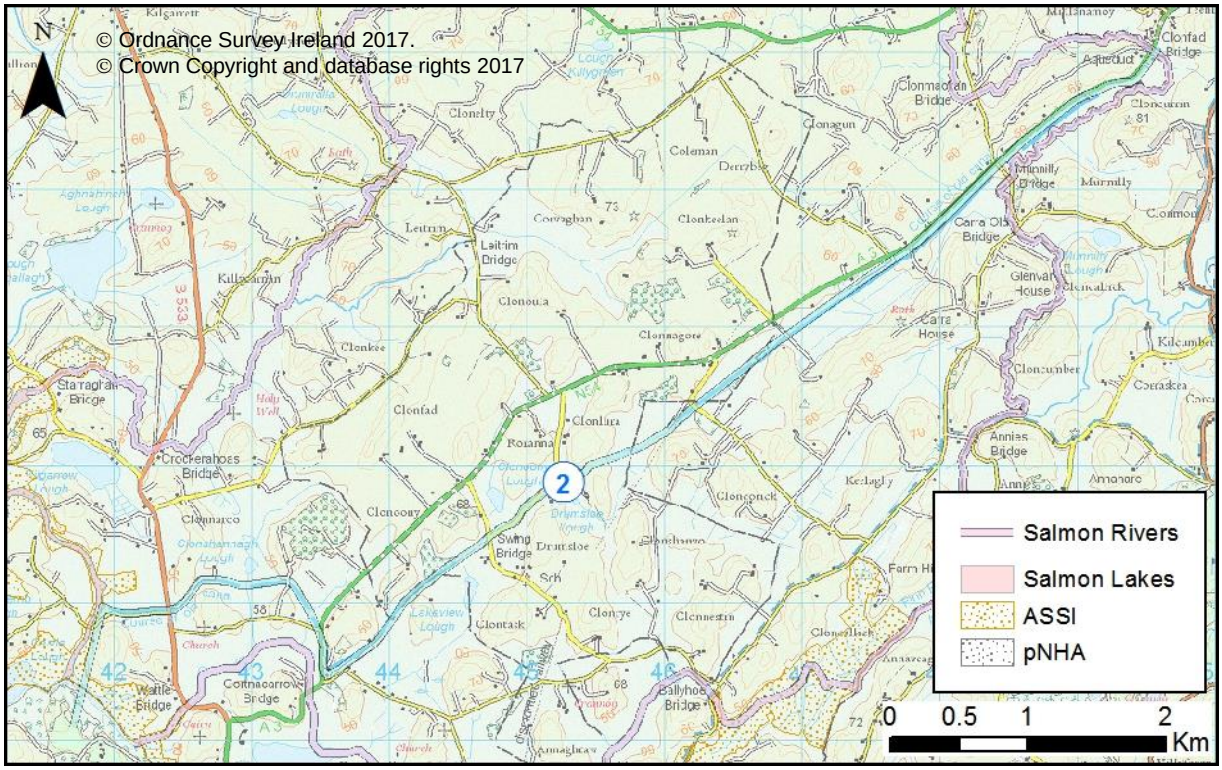
Route	Castle Saunderson to Clones
Length	11km
Local Authorities	Cavan County Council Fermanagh & Omagh District Council Monaghan County Council

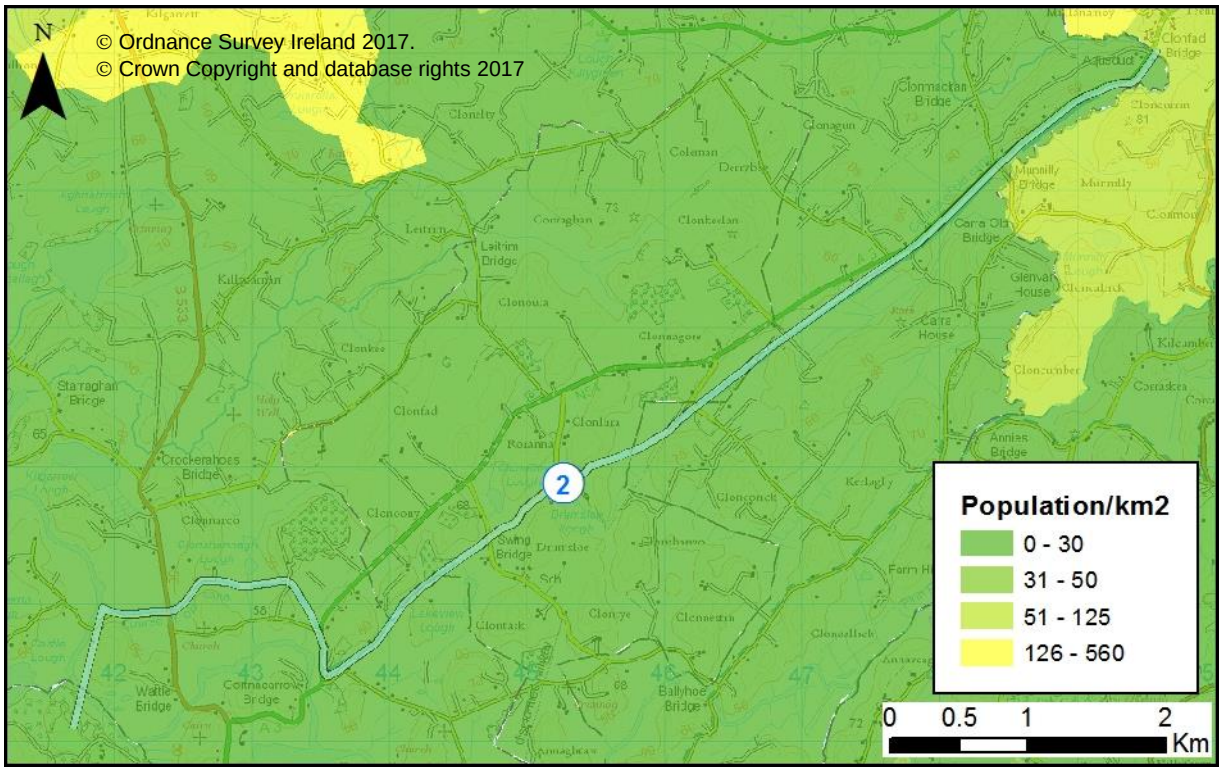
Route Information

The Castle Saunderson to Clones section of the greenway will follow the line of the Ulster Canal where feasible.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.







Key Environmental Issues

Biodiversity, Flora and Fauna – The proposed route passes through or across the Upper Lough Erne SAC, SPA and Ramsar site, and the Lough Oughter and Associated Loughs SAC, at Castle Saunderson. The route also passes through or across the Upper Lough Erne – Galloon ASSI, the Upper Lough Erne salmonid lake and the Lacky salmonid River. The route will commence at Castle Saunderson which is a Special Heritage Site in Cavan.

Population & Human Health - There are over 9,700 people living within 5km of the proposed

route. Also within this area there are over 4,600 properties used for residential and commercial purposes. This section has a relatively low, mean population density along the corridor of 392 people/km^2, with the main area of population being at Clones.

Geology, Soils and Landuse – The geology of the area is principally composed of mudstone and limestone, overlain by till and peat deposits which are interbedded with clay, silt and sand. The soil in the proposed greenway area is largely composed of interdrumlin peat, peaty gley and grey brown podzolic deposits of low to moderate hydraulic conductivity. Local landcover is largely pastoral, being predominantly used for grazing livestock.

Water – This proposed section of the greenway, from Castle Saunderson to Clones, crosses four groundwater bodies, all of which have been identified as having 'good' ground water status. It also passes within the vicinity of Upper Lough Erne, which is a lake waterbody of 'moderate' status. Additionally, this proposed section of greenway also passes through, or within the vicinity of, five river waterbodies. All of these are considered to be of 'moderate' ecological status. There are approximately three river crossings along this route.

The Castle Saunderson to Clones section of proposed greenway intersects two areas of medium probability fluvial flooding (1% AEP). The first of these areas is near the Gortnacarrow Bridge. Here, the greenway intersects a 1% AEP fluvial floodplain several times. It does so at lengths which vary from approximately 200 to 500 meters. In the second area, near the Carra Old Bridge, the greenway intersects a 1% AEP fluvial floodplain area for an approximate distance of 2km. The proposed route intersects several areas of medium probability pluvial flooding, although this occurs sporadically and only to a marginal extent.

Air – There are no automatic air quality monitoring stations within the vicinity of this section of greenway. The nearest station to this section is located in Kilkitt, which is approximately 33km to the south east of the proposed greenway section. In the 2014 Air Quality in Ireland report the 2014 annual mean NO_2 concentration level was reported as having been 3µg/m^3, whilst the annual mean SO_2 concentration was reported as having been 2µg/m^3. There is no record in the report of the levels of PM_{10} or CO in the area; however as part of 'Zone D', it is projected that the annual mean CO, PM_{10}, Lead and Benzene concentrations were below the lower assessment threshold and that ozone concentrations were below the EU limit. The air quality in the environs of this section of greenway is generally considered to be good. This is likely to be the result of an absence of large towns. For the most part however, the N54 runs adjacent to the proposed greenway route and has the potential to be a source of air pollution.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure - Along this section of the proposed route there are two significant roads which intersect the greenway. There are also three railway lines to the north of the route; one of which runs from north east to south west across the greenway between Clonlura and Cloncorick. There are 89 high-voltage powerlines within 1km of the proposed route along with one IED site which is situated near Clones.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are two Scheduled Zones, 14 designated sites and monuments and 11 Industrial Heritage structures. There are also 24 listed buildings, many of which are bridges and warehouses associated with the Ulster Canal.

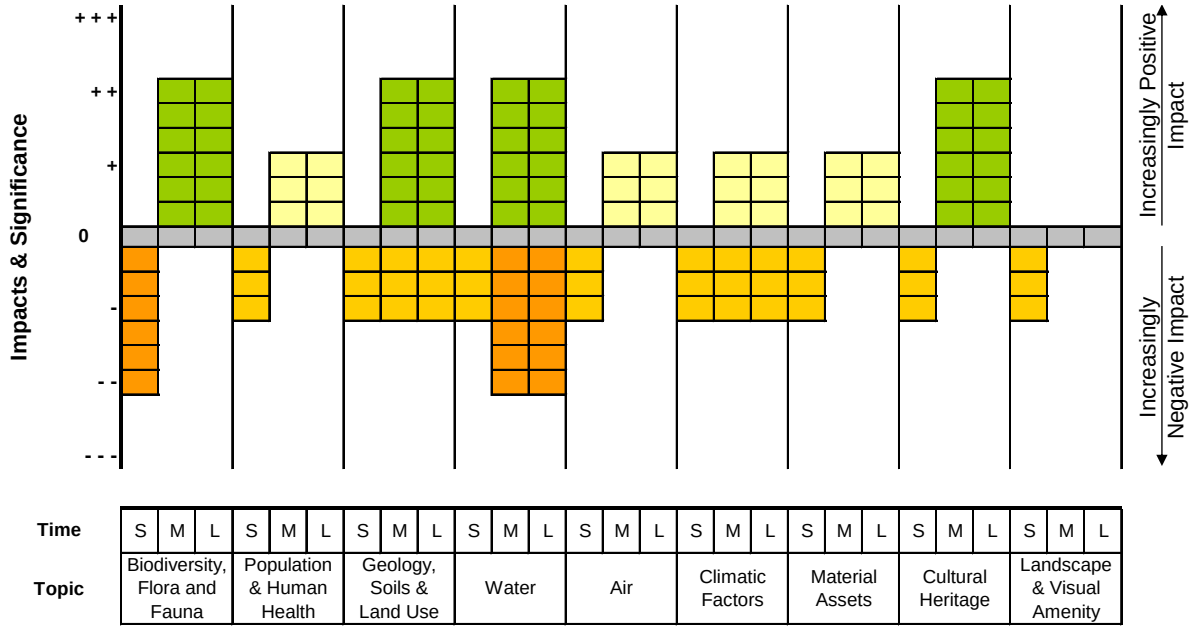
Within the vicinity of the route which will run through the Republic of Ireland there are 39 NIAH structures as well as 15 National Monuments. Of the latter, there are several enclosures as well as the Crossmoyle church, round tower and graveyard. Some of these National Monuments make up the six local zones of notification in the RMP.

Landscape & Visual Amenity – This section of the Greenway passes through two distinctive landscape areas as identified by the Fermanagh Landscape Character Assessment. These are Upper Lough Erne and Newtownbutler and Rosslea Lowlands. In addition to this, the route of the greenway will correspond, in part, to that of the Erne-Shannon Canal Corridor. This is identified in the Cavan County Development Plan 2014-2020 as a High Landscape Area; the maintenance of

which is deemed to be of importance for its scenic and recreational value. The route of the Greenway further passes within the vicinity of several proposed Natural Heritage Areas. These have been identified in the Monaghan Landscape Character Assessment as: Wright's Wood, Drumreaske Lough, Rosefield Lake and Woodland, the Ulster Canal and Corcreeghy Land and Woodland. Whilst of importance, none of these landscape features are likely to preclude the development of this Ulster Canal Greenway route.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	-2	2	2
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	1	1
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	2	2
4B - Water (W)	0	-2 / 1	-2 / 1
5 - Air (A)	-1	1	1
6 - Climatic Factors (C)	-1	-1 / 1	-1 / 1
7 - Material Assets & Infrastructure (MA)	-1	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna - There is the potential for short term, slight negative disturbance impacts to the Upper Lough Erne SAC, SPA and Ramsar site, from construction of the greenway in the Castle Balfour area of Lisnaskea, where the route comes to within 200m of the designated areas. The Magheraveely Marl Loughs SAC and Ramsar site is 940m from, and upstream of, the proposed route. These sites are unlikely to be impacted by construction and operation of the section of greenway.

In the medium and long term however the operation of the greenway could provide for moderate positive impacts, as there is the potential for increased awareness of and access to the European sites, provided this is done in line with conservation objectives. These European sites are near to the greenway section and site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to Upper Lough Erne.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site, and the Lough Oughter and Associated Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and

long term this route would provide the local and regional population with slight positive impacts from a relatively short section of greenway, with the main area of population being Clones. The link is within close proximity to a relatively small number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route mainly travels along the disused Ulster Canal, River Finn and small rural roads, across a landscape of mostly pasture land. Where the disused canal has been altered to agricultural land there may be some bisecting of pasture land, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. However there is also the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. The route seems to avoid any areas of peat bog. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 3ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid lakes and rivers such as the Lacky salmonid river. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however the operation of the greenway could provide for moderate positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering one watercourse (the River Finn) from agricultural lands.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk from 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management within surrounding agricultural land. Construction in these areas could be designed for multi-benefits for the local farmers and landowners.

Although there are small sections of the proposed greenway at risk from 0.5% AEP pluvial flooding, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for slight positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term slight negative impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change.

Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. There are several crossings of the A34 and N54 that may need to be negotiated. There are however no crossings required of active railways or major energy infrastructure. There is the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of the Ulster Canal gives the potential for preservation and restoration of many canal-related listed features such as bridges and warehouses. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. There is always the potential for disturbance or damage to heritage features during the construction phase, in particular canal-related cultural sites in close proximity to the proposed route

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term, including within the High Landscape Areas. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts – This route has the potential for direct in-combination and cumulative impacts with the Ulster Canal Restoration Plan – Upper Lough Erne to Clones. These impacts are however likely to be symbiotic as the greenway route is potentially a stepping stone towards the aim of the canal restoration. If the Ulster Canal - Upper Lough Erne to Clones, were to be developed, this greenway route would be developed as part of the scheme.

As Cavan County Council, Fermanagh & Omagh District Council and Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

Given the proximity to the A3 and N54 it should be noted that this greenway section needs to be designed and operated to be fully compatible with the function and character of these critical road links and potential future development of these links, to minimise the potential for any negative in-combination impacts.

There are no additional anticipated significant negative, cumulative or in-combination impacts from

construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation and potentially contribute towards local flood risk management.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Upper Lough Erne SAC, SPA, and Ramsar Site, and the Lough Oughter and Associate Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

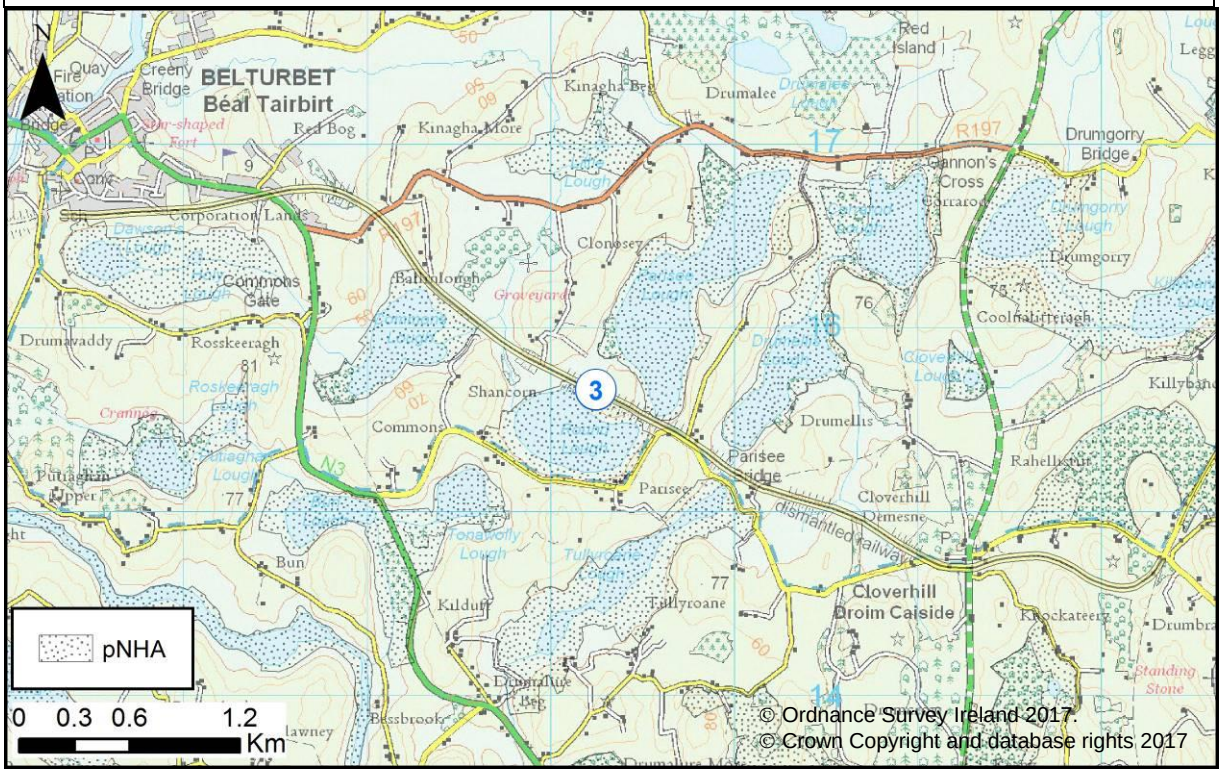
8.4 SECTION 3 – BELTURBET TO CLOVERHILL

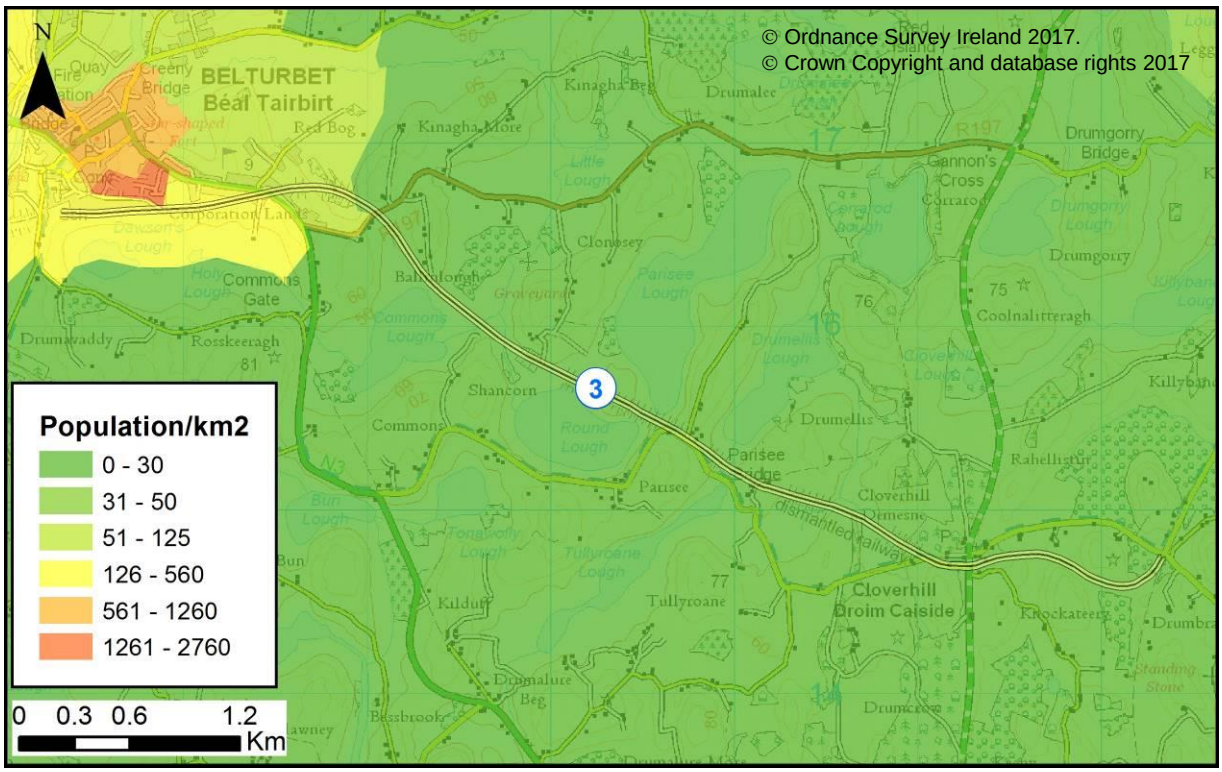
Route	Belturbet to Cloverhill
Length	7km
Local Authorities	Cavan County Council

Route Information

The Belturbet to Cloverhill section of greenway is proposed to run along the disused railway line.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – The proposed Belturbet to Cloverhill route travels through the fragmented area of the Lough Oughter and Associated Loughs SAC and the Lough Oughter and Associated Loughs pNHA. The route skirts past these designated areas at Commons Lough, Round Lough, Parisee Loug, Tullyroane Lough and Drumellis Lough.

Population & Human Health - There are over 8,400 people living within 5km of the proposed route. Also within this area there are over 3,000 properties used for residential and commercial purposes. This section has a relatively low, mean population density along the corridor of 250people/km^2, with the main area of population being at Belturbet.

Geology, Soils and Landuse – The area from Belturbet to Cloverhill is predominantly comprised of mudstone and limestone in the northwest and sandstone and conglomerate rock in the southeast. These are overlain by gley, interdrumlin peat and peaty gleys to the north and acid brown earth, interdrumlin peat and peaty gley to the south.

Landcover in the vicinity of the proposed greenway section is predominantly grassland, which is used as pasture land for grazing livestock. However in the very north of the proposed route, the agricultural land is interspersed with areas of natural vegetation. A Geological Heritage Site, the Scotshouse-Redhills Cross-cutting Ribbed Moraines, is situated to the north of the route near Belturbet; and is an active dimension stone mine.

Water – This proposed stretch of the greenway, from Belturbet to Cloverhill, crosses two groundwater bodies, both of which have been identified as having 'good' ground water status. This section also passes within the vicinity of six lake waterbodies and across four river waterbodies. One of the river waterbodies is considered to be of 'poor' ecological status; this is located within the region of Belturbet. The remaining three river waterbodies are considered to be of 'moderate' status.

In addition to this, the Belturbet to Cloverhill section of proposed greenway intersects one small stretch (approx. 50m) of medium probability (1% AEP) fluvially flooded area. It does not intersect any areas of medium probability (1% or 0.5% AEP) surface water flooding.

Air – The entirety of this section of the greenway runs through County Cavan which is situated in

'Zone D'. The 2014 Air Quality in Ireland report identified that for the key indicators of SO_2, NO_2, PM_{10}, Lead, Benzene and Carbon Monoxide (CO), Zone D was below the lower assessment threshold. The air quality of the environs of the Belturbet to Cloverhill section of greenway is generally considered to be good. It is likely that this is due to the absence of many large towns within the area, as well as the scarcity of congested road traffic.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

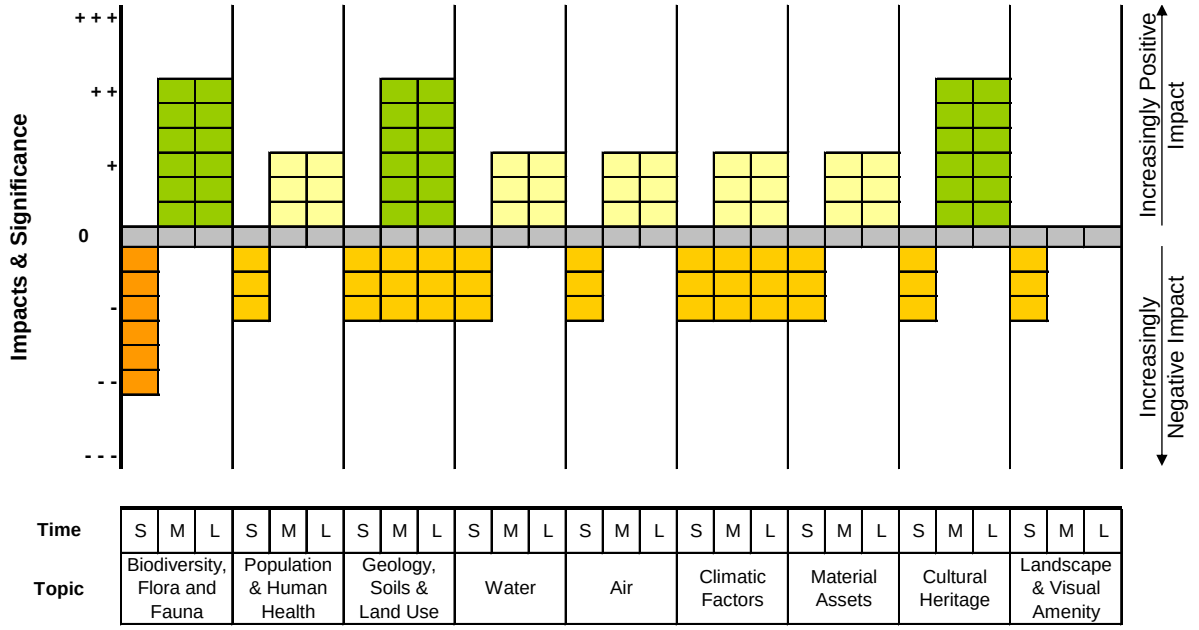
Material Assets & Infrastructure – Along this section of the proposed route there are three significant roads which intersect the greenway. There are no high-voltage powerlines along this route; though there are 647 medium-voltage powerlines of which the majority are concentrated to the north of the proposed route near Belturbet. There is one inactive railway line situated near Cloverhill.

Cultural, Architectural & Archaeological Heritage - Within the vicinity of the proposed route there are 42 NIAH structures. There are also 24 sites and monuments; of which many form all, or part of, the 16 zones of notification.

Landscape & Visual Amenity – This section of the Greenway runs through County Cavan from Belturbet to Cloverhill. This part of the proposed route passes through Lough Oughter and associated loughs. These are proposed Natural Heritage Areas. There appear no features which are likely to preclude the development of this Ulster Canal Greenway route.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	-2	2	2
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	1	1
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	1	1
4B - Water (W)	0	0	0
5 - Air (A)	-1	1	1
6 - Climatic Factors (C)	-1	-1 / 1	-1 / 1
7 - Material Assets & Infrastructure (MA)	-1	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna - There is the potential for short term, direct and indirect, moderate negative, construction phase disturbance impacts to the Lough Oughter and Associated Loughs SAC and pNHA, as the entire length of the greenway link runs directly adjacent to these designated sites, crossing them slightly at one point.

There is the potential for medium and long term, moderate positive impacts, as there is the potential for increased awareness of and access to the Lough Oughter and Associated Loughs SAC and pNHA sites, provided this is done in line with conservation objectives. These European and nationally-important sites are directly adjacent to the greenway section and site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link directly affects the natural eutrophic lake habitat, bog woodland habitat or the otter species, for which this area was designated, it is recommended that the link is diverted around, rather than directly adjacent to the sites. In addition, surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to the designated sites.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and

long term this route would provide the local and regional population with slight positive impacts from the shortest of the proposed greenway links, with the main area of population being at Belturbet. The link is within close proximity to a relatively small number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route mainly travels along the disused railway line, small rural roads and laneways, and development (around Belturbet), across a landscape of mostly pasture land but also of urban fabric, forest and peat bogs. Where the disused canal has been altered to agricultural land or passes through the periphery of a forest, there may be some bisecting of pasture land and altering of the forest, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. However there is also the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. There is the potential for some peat soils to be present around Cloverhill, which may affect land stability issues and construction methodologies. Detailed design of the route should aim to minimise any disturbance to agricultural lands and forests, by routing the greenway around the periphery of lands, farmsteads and forests and not directly through them. Development of this route will potentially change the use of approximately 2ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated lakes and species within the Lough Oughter and Associated Loughs SAC. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route generally runs parallel to a number of lakes rather than traversing them. In the medium and long term the operation of the greenway is unlikely to have any significant negative impacts on water quality, however could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is only at risk from 1% AEP fluvial flooding for one short stretch, hence there is very little potential impact in the short, medium and long term. The proposed greenway route is not at risk from 1% AEP pluvial flooding and hence there is unlikely to be any short, medium or long term impacts on the greenway route from pluvial flooding.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors. This greenway section is located within a zone of generally good air quality. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for slight positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term slight negative impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change. Design of the greenway should ensure that the section is resilient to climate change and its

anticipated impacts, such as increased fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. There are several crossings of three significant roads that may need to be negotiated. There are no crossings required of active railways or major energy infrastructure. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of a disused railway embankment gives the potential for preservation and restoration of many industrial heritage features. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. The greenway is unlikely to impact on the setting of any cultural, architectural or archaeological heritage features along this route. There is however always the potential for disturbance or damage to heritage features during the construction phase.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term as a result of this proposed route which passes through Lough Oughter and associated loughs. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts – As Cavan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Oughter and Associated Loughs SAC could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted from the construction and operation of the greenway route.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require

further screening and Stage 2 Appropriate Assessment at the detailed design stage.

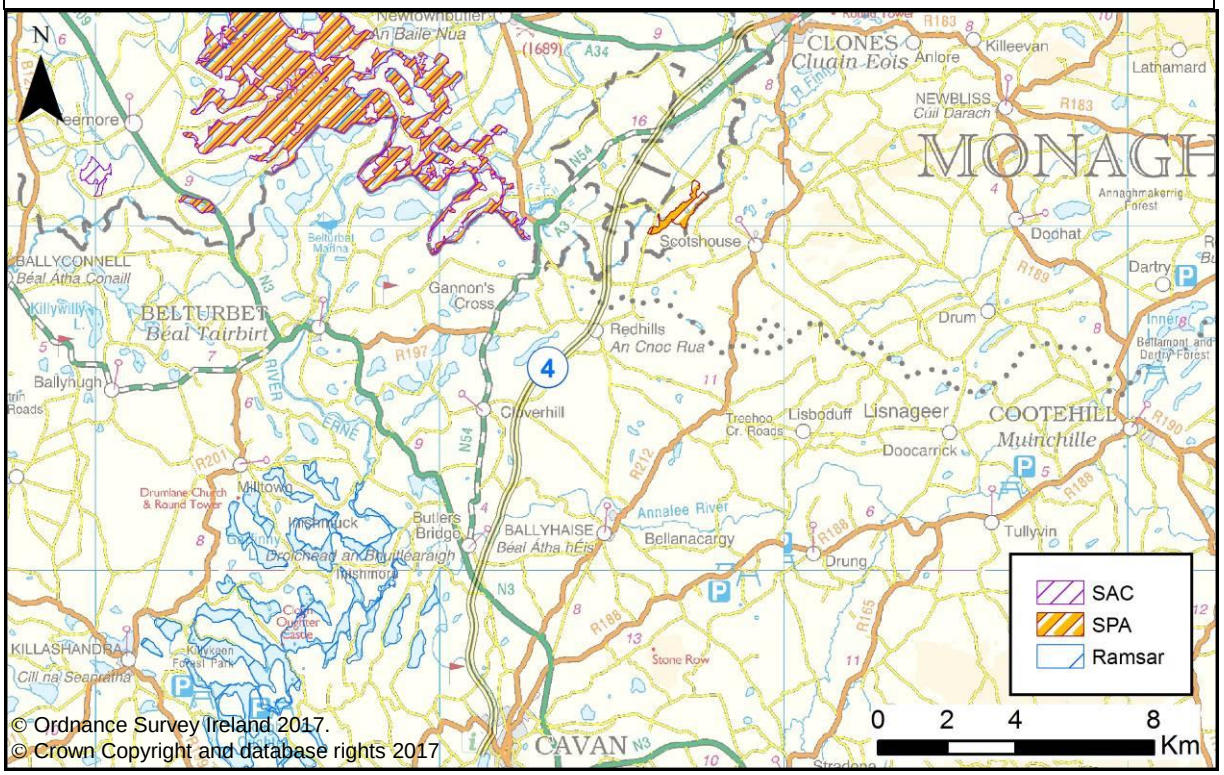
8.5 SECTION 4 – CAVAN TO CLONES

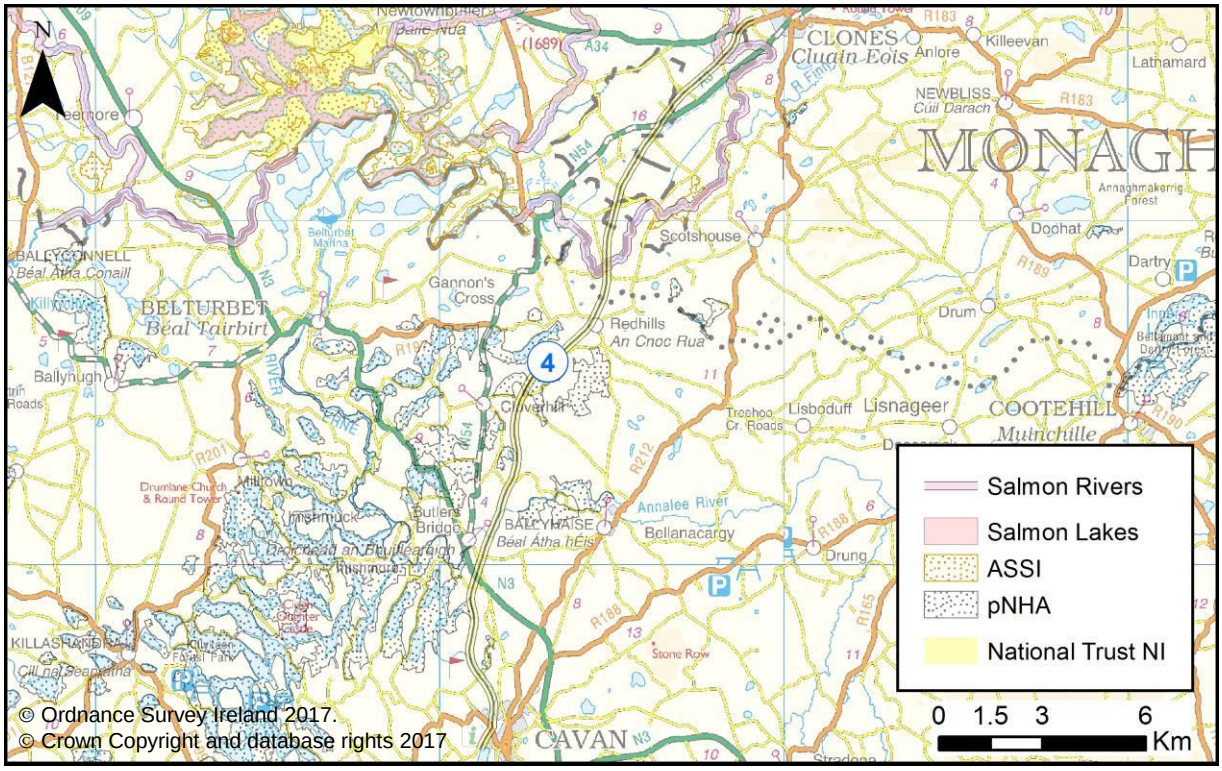
Route	Cavan to Clones
Length	24km
Local Authorities	Cavan County Council Fermanagh & Omagh District Council Monaghan County Council

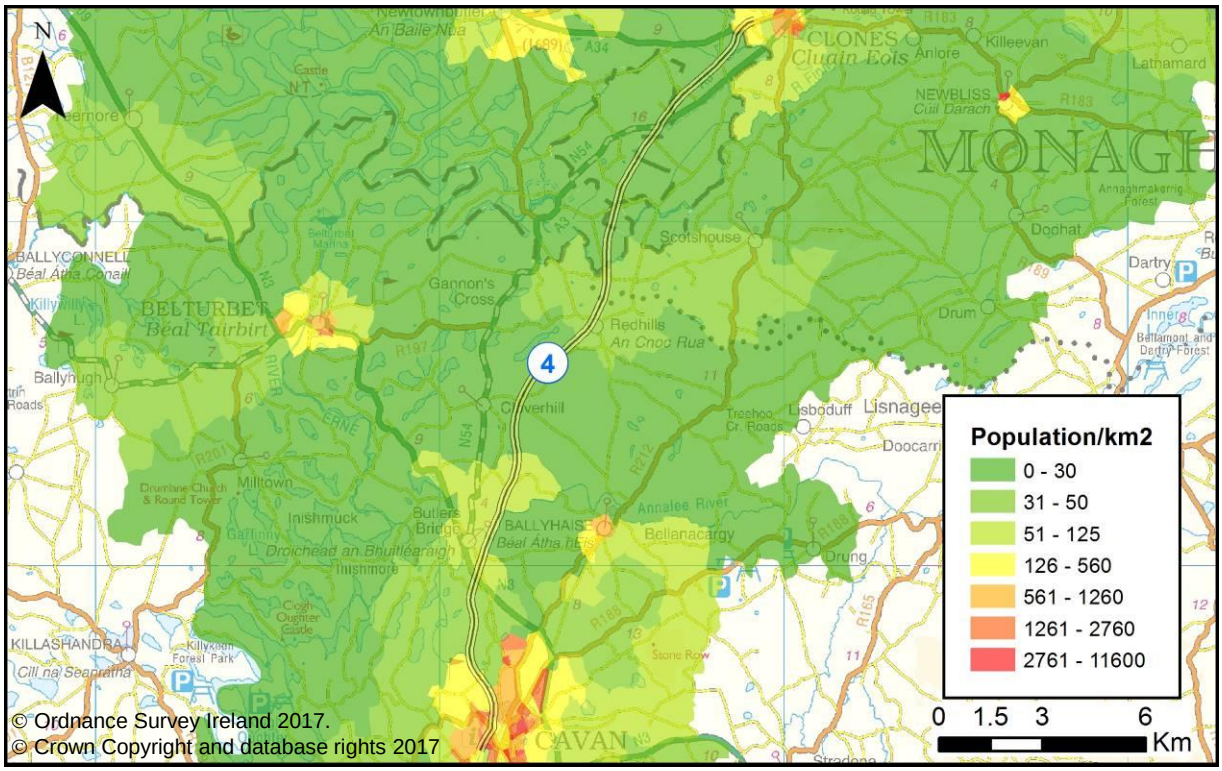
Route Information

The Cavan to Clones section of greenway is proposed to run along the disused railway line.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.







Key Environmental Issues
Biodiversity, Flora and Fauna – The proposed link skirts past and passes through the fragmented sections of Lough Oughter And Associated Loughs SAC and runs 830m east of Lough Oughter SPA. In addition, the route crosses the River Finn Lower salmonid river, which flows south of Annaghraw, and runs 600m west of the River Finn Middle salmonid river, which flows east of Annaghraw. The greenway link runs 930m east of Lough Oughter Ramsar site, north-west of Cavan, through the fragmented sections of the Lough Oughter and Associated Loughs pNHA and 300m west of the Drumkeen House Woodland pNHA and Special Heritage Site. The proposed link

is located in close proximity (less than 1 km) to four ancient woodlands, although it does not pass directly through any.

Population & Human Health - There are over 27,000 people living within 5km of the proposed route. Also within this area there are over 10,000 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 940people/km^2, with the areas of highest population density being at Cavan Town, Brookeborough and Clones.

Geology, Soils and Landuse – The geology of the area is largely made up of interbedded dark muddy limestone, turbidite and silty mudstone, which are overlain by peat and till deposits. Soils in the area are gleys and grey brown podzolics of moderate hydraulic conductivity. Landcover in the vicinity of the greenway section is predominantly grassland, which is used as pasture land for grazing livestock. However various sections of the route pass within the vicinity of urban settlements such as Cavan, Butlers Bridge and Clones; and intersect an area of peat bog at the north of the route.

Water – This proposed stretch of greenway, from Cavan to Clones, crosses five groundwater bodies; all of which have been identified as having 'good' ground water status. This proposed section also passes within the vicinity of two lake waterbodies and across ten river waterbodies. Seven of these river waterbodies are considered to be of 'moderate' ecological status; whilst the remaining three are considered to be of 'poor' status. Those that are 'poor' are situated within the vicinity of the Cavan Town area. There are approximately six river crossings along this route.

The Cavan to Clones section of proposed greenway also intersects several stretches of medium probability (1% AEP) fluvial flooding. It does so, in areas such as Drumkeen, Butlers Bridge and Clonfad, where intersecting sections are no more than a kilometre in length. The proposed greenway route also intersects medium probability (0.5% or 1% AEP) pluvial flooding sporadically and only to a marginal extent.

Air – There are no automatic air quality monitoring stations in the vicinity of this section of greenway. The nearest stations are in Lough Navar and Armagh to the North East and North West respectively; and in Kilkitt, to the South East of the greenway route. Air quality estimates produced by the latter suggest that in 2014 the annual mean concentration of NO_2 was 3µg/m^3 and the annual mean concentration of SO_2 was 2µg/m^3. There were no records produced in relation to local levels of PM_{10} or CO; however EPA projections suggest that the annual mean CO, PM_{10}, Lead and Benzene concentrations were below the lower assessment threshold. The air quality of this section of greenway is considered to be good. It is likely that this is owing to the absence of many large towns. However, the greenway passes in the vicinity of the N54, the A34 and the R183, which have the potential to be sources of air pollution from busy road traffic.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Within the vicinity of this section of proposed route there is one high-voltage ESB substation situated near Cavan. Also in this area, there are 122 high-voltage power lines as well as one waste water treatment plant and one IED site. There are four significant roads which intersect this section of greenway. The proposed route runs adjacent to one of the two inactive railway lines within 1km of this stretch of greenway; the other two railway lines are situated to the very north of the route near Clones.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there is one Scheduled Zone, 11 designated sites and monuments and nine features of Industrial Heritage. There are also ten listed buildings, many of which are aqueducts, bridges and towpaths associated with the Ulster Canal.

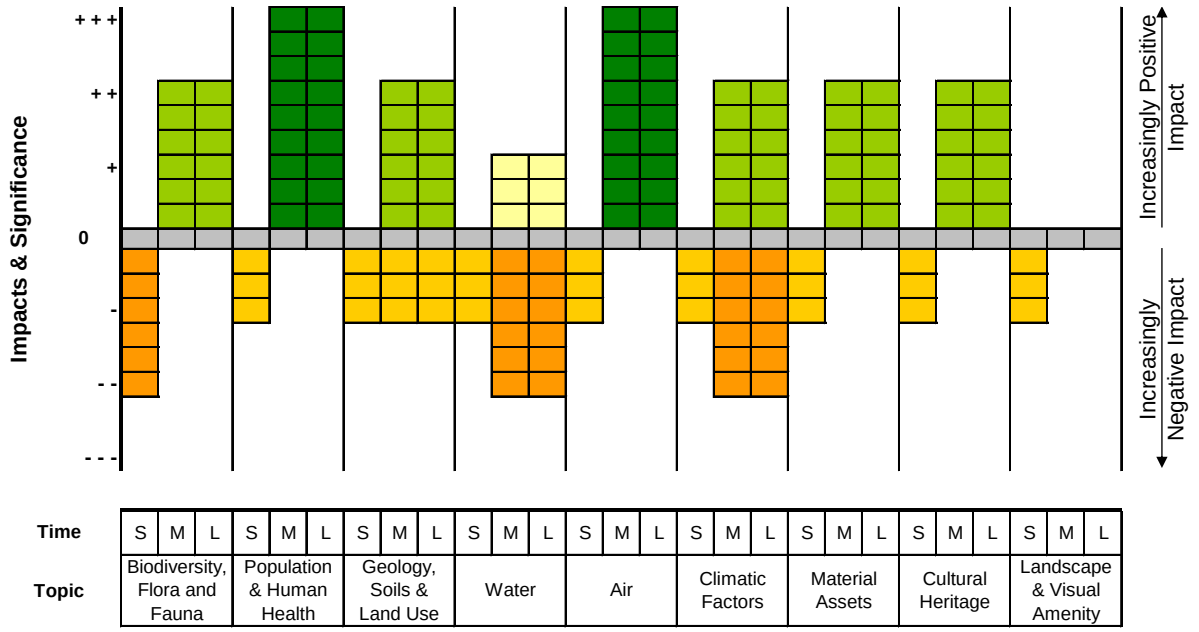
Within the vicinity of the route which will run through the Republic of Ireland there are 69 national sites and monuments; many of which make up the 54 local zones of notification in the RMP. Additionally, there are 134 NIAH structures; some of which are bridges associated with the Great Northern Railway. Furthermore, the Ballyhaise Railway Junction Station near Cloverhill is a listed

feature of the Cavan Record of Protected Structures.

Landscape & Visual Amenity – This section of the Greenway runs from Cavan Town in County Cavan, through County Fermanagh, to Clones in County Monaghan. The path which this section takes passes through two distinctive landscape areas as identified by the Fermanagh Landscape Character Assessment. These are Upper Lough Erne and Newtownbutler and Rosslea Lowlands. Tourist development in Upper Lough Erne requires care so as not to become visually prominent; development within this area should reflect historic precedents. Further to these areas, this section also passes through a designated landscape zone. This is identified as a Tourism Conservation Zone by the Fermanagh Area Plan 2007. Additionally, the proposed route passes through, and within the vicinity of, a number of proposed Natural Heritage Areas – specifically; Lough Oughter and associated loughs. Though important, these features are unlikely to preclude the development of this Ulster Canal Greenway route.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	-2	2	2
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	3	3
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	1	1
4B - Water (W)	0	-2 / 1	-2 / 1
5 - Air (A)	-1	3	3
6 - Climatic Factors (C)	-1	-2 / 2	-2 / 2
7 - Material Assets & Infrastructure (MA)	-1	2	2
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna - There is the potential for short term, direct and indirect, moderate negative construction phase impacts to habitats and species of the Lough Oughter and Associated Loughs SAC and pNHA, for which the link passes through and skirts around, and short term, indirect, construction phase impacts to the Drumkeen House Woodland pNHA and Special Heritage Site for which the link is located 300 m west of. There is unlikely to be any significant construction phase or disturbance impacts of the greenway link to the Lough Oughter SPA and Ramsar site, as these are both located over 800m away from the link, north-west of Cavan.

There is the potential for medium and long term, moderate positive impacts, with the potential for an increased awareness and access to these European and nationally important sites, in line with conservation objectives. In relation to the sites that are in close vicinity to the greenway link, there is the potential for site / species information to be made available to the public without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link directly affects the natural euptrohic lake habitat, bog woodland habitat or the otter species, for which the Lough Oughter and Associated Loughs SAC and pNHA were designated, it is recommended that the link is diverted around, rather than through and directly adjacent to the sites. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to the Lough Oughter and Associated Loughs SAC and pNHA, and the Drumkeen House Woodland pNHA and Special Heritage Site.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA, the Lough Oughter Ramsar, and the Upper Lough Erne SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design

stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with significant positive impacts from a relatively long section of greenway, linking many towns and settlements, within close proximity to a relatively large number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed route mainly travels along the disused railway line, small rural roads and development (around Cavan) across a landscape of mostly pastures but also urban fabric and peat bogs. As a result of stretches of the disused canal being altered to agricultural land, there is the potential for short, medium and long term slight negative impacts from the construction and operation of the greenway link that bisects significant areas of unimproved agricultural lands. However there is also the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. There is the potential for some peat soils to be present around Cloverhill, which may affect land stability issues and construction methodologies. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 7ha of land.
Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid rivers and designated lakes within the Lough Oughter and Associated Loughs SAC. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however the operation of the greenway could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route. Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff. This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations. The greenway section is at risk from 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management within Red Hills. Construction in this area could be designed for multi-benefits for the local community. Although there are small sections of the proposed greenway at risk from 1% AEP pluvial flooding, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.
Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively long section of greenway, which is within close proximity to a relatively large number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and slight positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management Redhills. Construction in these areas could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for moderate positive impacts from the creation of this new material asset in the medium to long term, which is a relatively long section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. As well as potentially crossing many local roads, there are four significant roads which the greenway section will cross that will need to be negotiated. In addition, the greenway will pass in close proximity to one IED site and will have to transect an existing 38kV powerline. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of both the disused railway embankment and Ulster Canal gives the potential for preservation and restoration of many industrial heritage features, aqueducts, bridges and towpaths. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area, including the Ballyhaise Railway Junction. There is always the potential for disturbance or damage to heritage features during the construction phase, in particular on sites and features in very close proximity to the proposed route such as a number of bridges and ringforts.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term as a result of this proposed route which passes through areas of importance for tourism and history, and Lough Oughter and associated loughs. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - Given the tourism interests in the Fermanagh Lakeland area and the Lough Oughter area, development of this section of greenway would have synergistic benefits with other tourism and recreational activities, such as linking in with the Erne waterways and Lough Oughter. This could lead to cumulative positive impacts on population, human health and material assets.

As Cavan County Council, Fermanagh & Omagh District Council and Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA, the Lough Oughter Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA, the Lough Oughter Ramsar, and the Upper Lough Erne SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

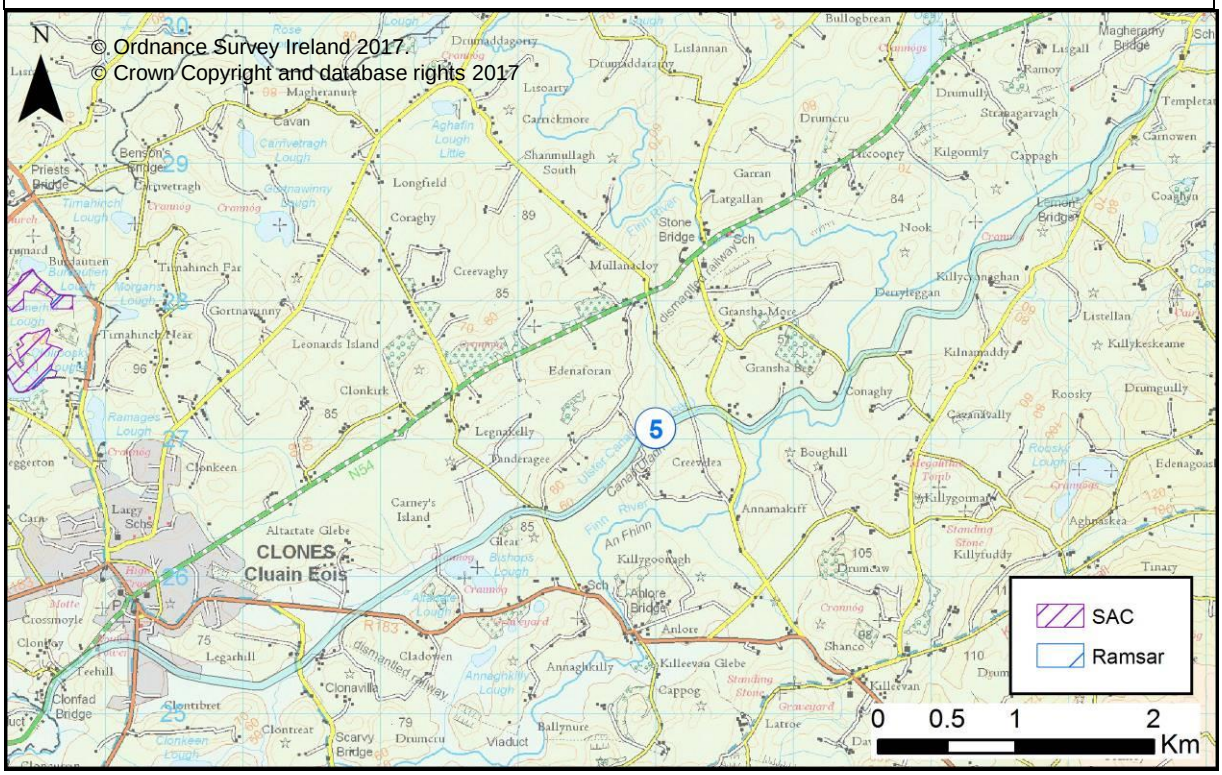
8.6 SECTION 5 – CLONES TO SMITHSBOROUGH

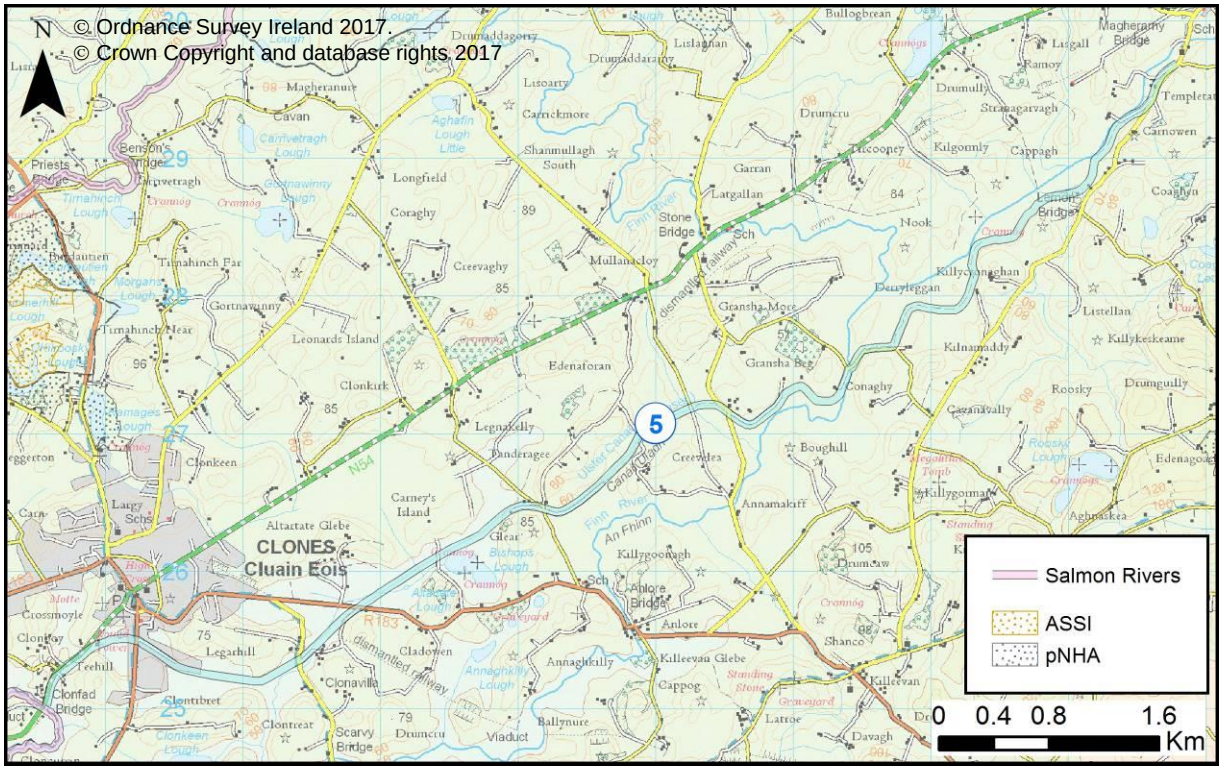
Route	Clones to Smithsborough
Length	11km
Local Authorities	Monaghan County Council

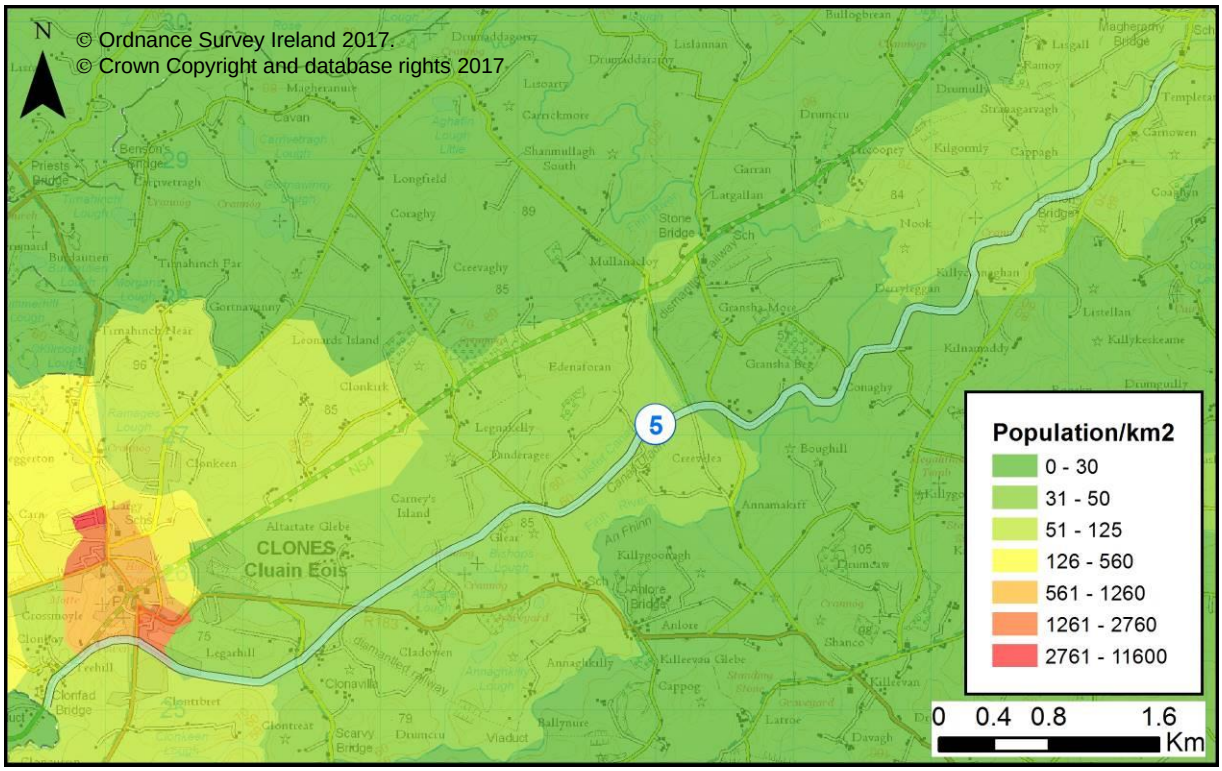
Route Information

The Clones to Smithsborough section of the greenway will follow the line of the Ulster Canal where feasible.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.







Key Environmental Issues
Biodiversity, Flora and Fauna – There are no international, national or locally designated environmental sites along the proposed route between Clones and Smithborough. **Population & Human Health -** There are over 10,500 people living within 5km of the proposed route. Also within this area there are over 4,400 properties used for residential and commercial purposes. This section has a relatively average, mean population density along the corridor of

468people/km^2, with the areas of highest population density being at Clones and Smithborough.

Geology, Soils and Landuse – The geology of the area is largely made up of interbedded limestone and mudstone with some sandstone and conglomerate deposits. These are generally overlain by glacial till. Soils of the area are mainly gleys, interdrumlin peats and peaty gleys. The land along the proposed route is largely used as pasture land for grazing livestock; however the southernmost part of the route runs through the town of Clones.

Water – This proposed section of the greenway, from Clones to Smithborough, crosses three groundwater bodies; all of which have been identified as having 'good' status. It further passes across seven river waterbodies. Three of these river waterbodies are considered to be of 'moderate' ecological status. The remaining four are considered to be of 'poor' ecological status and are all located at the southern end of this stretch of greenway, in the areas closest to the town of Ballyhaise. There are approximately five river crossings along this route.

The Clones to Smithborough section of proposed greenway intersects several areas of medium probability (1% AEP) fluvial flooding. These are concentrated in areas which intersect the greenway for distances of up to 80 meters near Creevelea, Conaghy and Lemon Bridge. A further area of fluvial flooding intersects the greenway to the south of the proposed route near Cladowen. It does so to an extent of approximately 350 meters. The proposed route intersects sections of medium probability (0.5% or 1% AEP) pluvial flooding on three occasions. At two of these locations, both near Teehill, the proposed route travels for up to 50 meters through the pluvial flooding extent. At the third location, near Legarhill, pluvial flooding is more extensive and the greenway intersects the inundated area for up to 300 meters.

Air – The closest real-time air quality monitoring station to this section of greenway is located in Kilkitt, in Zone D. The 2014 Air Quality in Ireland report identified that for the key indicators of SO_2, NO_2, PM_{10}, Lead, Benzene and Carbon Monoxide (CO), Zone D was below the lower assessment threshold. The air quality in the Clones to Smithborough area is considered to be good. It is likely that this is due to the absence of large towns, with Clones being the only major town within that region. The N54 runs adjacent to this section of the greenway and has the potential to be a source of air pollution.

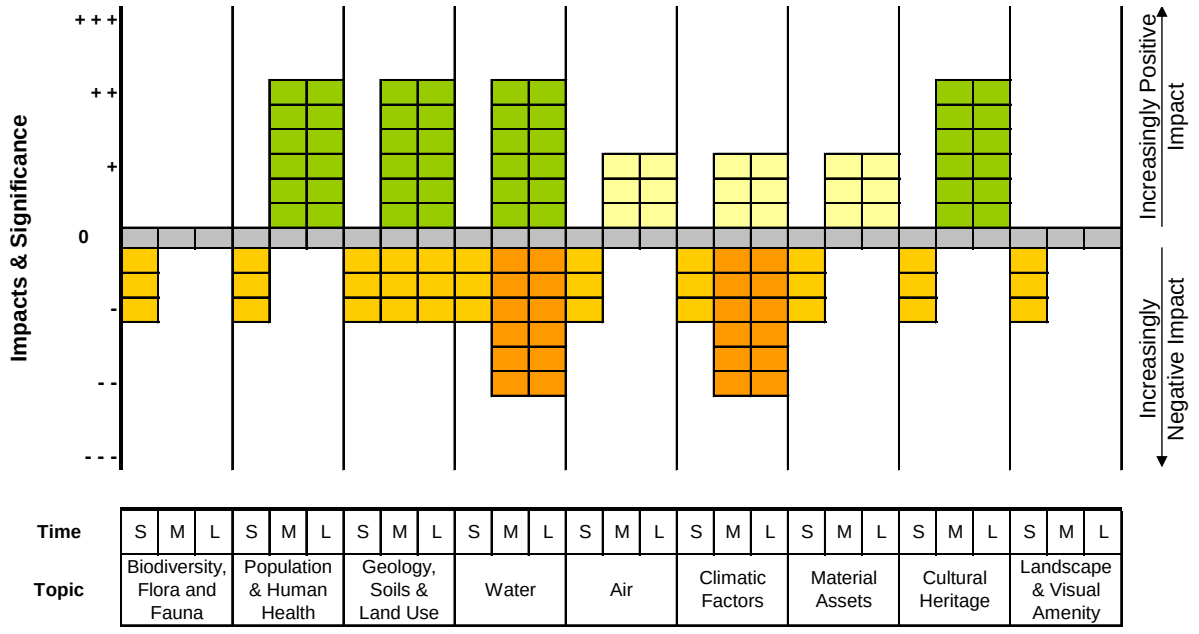
Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Within the vicinity of this section of proposed route there is one high-voltage ESB substation situated near Clones and 45 high-voltage powerlines. There are two waste water treatment plants close to the proposed route also; one of these is situated near Clones whilst the other is located to the northeast of the proposed route near Smithborough. There are two significant roads which intersect the greenway route. Five inactive railway lines are located close to the proposed route. One of these runs adjacent to much of the proposed route whilst the others are all situated near Clones. There is one IED site within this area.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are two listed buildings and two Industrial Heritage structures; one of which is a bridge and the other of which is an aqueduct. Within the vicinity of the route which will run through the Republic of Ireland there are 56 national sites and monuments. There are also 103 NIAH structures and 42 zones of notification under the RMP.

Landscape & Visual Amenity – This section of the Greenway runs from Clones to Smithsborough in County Monaghan. The landscape in the area is characterised as the Clones river valley & farmed uplands and the Smithsborough Hills. The area the route would pass through is river valley and undulating farmland. There are no designated landscape features within the vicinity of this route. There are no features in the area that are likely to preclude the development of this Ulster Canal Greenway route.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-1	0	0
2 - Population & Human Health (PHH)	-1	2	2
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	2	2
4B - Water (W)	0	-2 / 1	-2 / 1
5 - Air (A)	-1	1	1
6 - Climatic Factors (C)	-1	-2 / 1	-2 / 1
7 - Material Assets & Infrastructure (MA)	-1	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0
Summary Chart of Impacts			



Discussion of Impacts
Biodiversity, Flora & Fauna - Although there is the potential for temporary disturbance impacts to local flora and fauna during construction, there is unlikely to be any short, medium or long term significant positive or negative impacts of the greenway link on sites of biodiversity importance. This is a result of there being no international, national or locally designated environmental sites within the vicinity of the greenway link. Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction. The HRA Screening has determined that development of this route does not have the potential for a pathway of effect on the habitats and species of any SAC, SPA or Ramsar Site. This route is unlikely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with moderate positive impacts from a relatively average section of greenway, with the areas of highest population density being at Clones and Smithborough, within close proximity to a relatively average number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed route mainly travels along the Ulster Canal where feasible and rural roads, across a landscape of mostly pastures. Where agricultural activity has encroached on the Ulster Canal there may be the bisecting of some pasture lands, resulting in the potential for short, medium and long term minimal negative impacts of the greenway. There is the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 3ha of land.
Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on the River Finn. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route both traverses and runs parallel to river sections. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for moderate positive impacts from public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering one watercourse (the River Finn) from agricultural lands. Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff. This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations. The greenway section is at risk from 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management within surrounding agricultural lands. Construction in these areas could be designed for multi-benefits for the local farmers and landowners. Although there are small sections of the proposed greenway at risk from 1% AEP pluvial flooding,

located in and around Clones, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.
Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors. This greenway section is located within a zone of good air quality. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use.
Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and slight positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management. Construction in these areas could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.
Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. As well as potentially crossing many local roads, there is the crossing of two significant roads and two 38kV powerlines that may need to be negotiated. In addition, the greenway will pass in close proximity to one IED site. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.
Cultural, Architectural & Archaeological Heritage - Development along the route of the Ulster Canal gives the potential for preservation and restoration of many canal-related listed features such as bridges. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. There is the potential for slight, short term construction phase impacts on the setting of locally designated heritage features as there is always the potential for disturbance or damage to heritage features during the construction phase. Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.
Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - This route has the potential for direct in-combination and cumulative impacts with any future plans for the Ulster Canal in this area. These impacts are however likely to be symbiotic as the greenway route is potentially a stepping stone towards the aim of the canal restoration.

As Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

The HRA Screening has determined that development of this route does not have the potential for a pathway of effect on the habitats and species of any SAC, SPA or Ramsar Site. This route is unlikely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

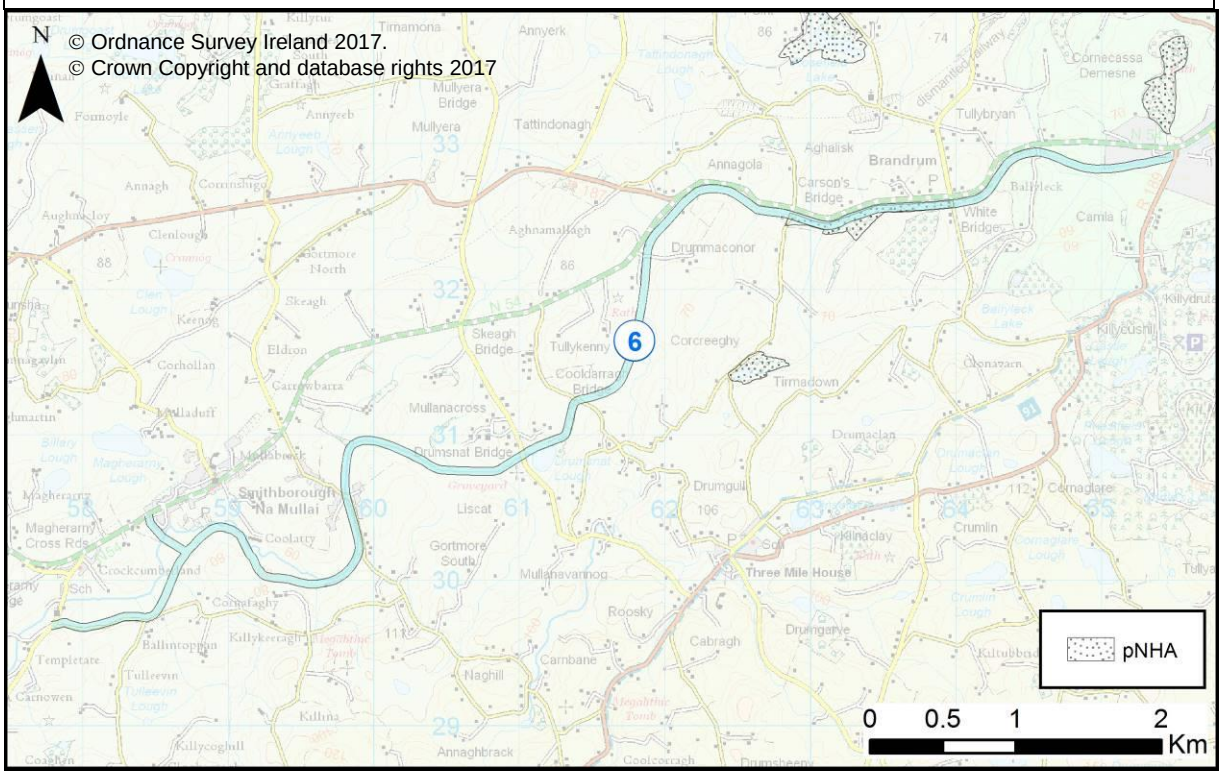
8.7 SECTION 6 – SMITHSBOROUGH TO MONAGHAN

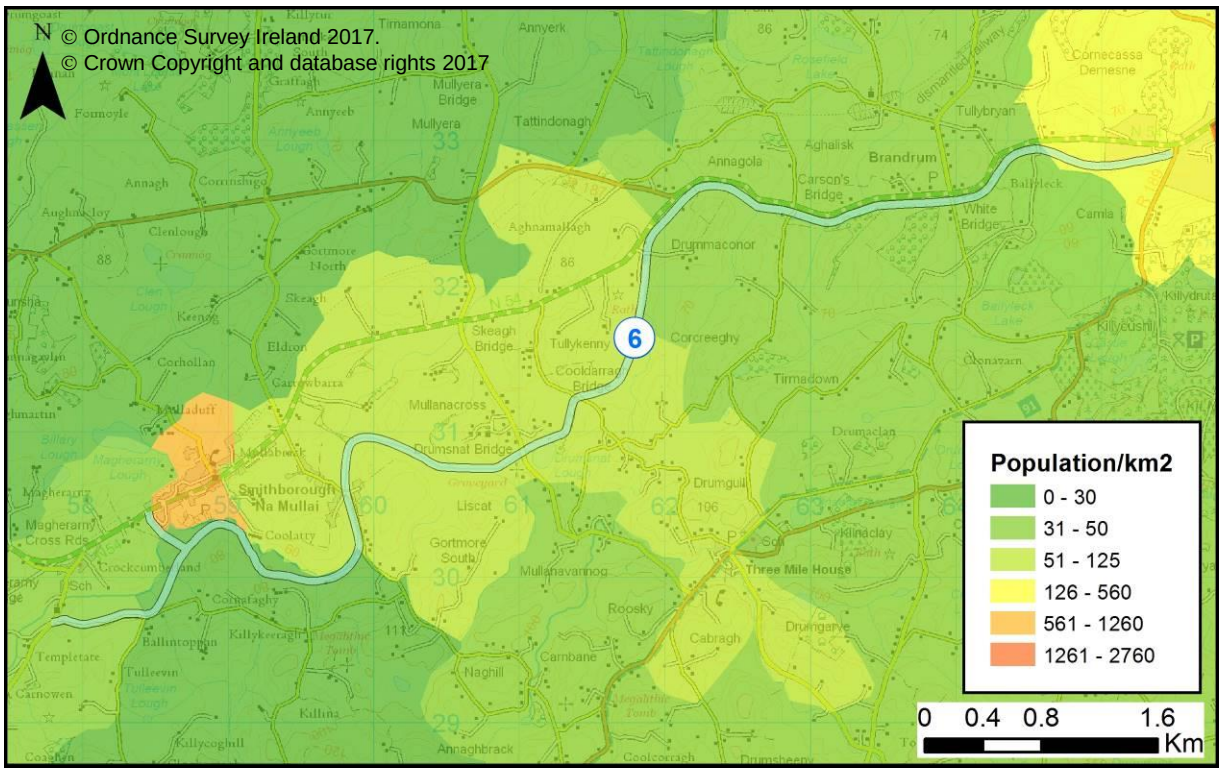
Route	Smithsborough to Monaghan
Length	11km
Local Authorities	Monaghan County Council

Route Information

The Smithsborough to Ulster Canal Greenway in Monaghan town section will follow the line of the Ulster Canal where feasible.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – There are no international or locally designated environmental sites along the proposed route between Smithborough and Monaghan Town. The route does however travel past / through the Ulster Canal (Aghalisk) pNHA. Development of the greenway in this area would need to be considerate of the notable plant species in the disused canal.

Population & Human Health - There are over 18,100 people living within 5km of the proposed route. Also within this area there are over 7,400 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 819people/km^2, with the areas of highest population density being at Smithborough and Monaghan Town.

Geology, Soils and Landuse – The geology of the area is, for the most part, made up of interbedded argillaceous limestone and mudstone with small sandstone deposits. These are generally overlain by glacial till. Soils of the area are mainly gleys, interdrumlin peats and peaty gleys.

The land along the proposed route is predominantly used as pasture land for grazing livestock; however there are two main settlements along this route; Smithborough and Monaghan Town. The Skervan limestone mine near Smithborough is situated approximately 50m to the East of the proposed greenway route.

Water – This proposed section of the greenway, from Smithborough to Monaghan, crosses five groundwater bodies, all of which have been identified as having 'good' ground waterbody status. It further passes across seven river waterbodies. All of these river waterbodies are considered to be of 'poor' ecological status. There are approximately four river crossings along this route.

The Smithborough to Monaghan section of proposed greenway runs parallel to the Conawary Lower, a tributary of the Blackwater; and the Magheramey Upper, a tributary of the Swanlinbar Finn. For this reason, this section of greenway crosses several stretches of river, from Coolatty to Drumsnat Bridge and from Tullykenny to Camla, which have the potential to be inundated by medium probability 1% AEP fluvial flooding. The proposed route does not intersect any areas of

medium probability 1% or 0.5% AEP surface water inundation.

Air – The closest real-time air quality monitoring station to this section of greenway is located in Kilkitt and is part of Zone D. The 2014 Air Quality in Ireland report identified that for the key indicators of SO_2, NO_2, PM_{10}, Lead, Benzene and Carbon Monoxide (CO), Zone D was below the lower assessment threshold. The air quality in the environs of this section of greenway is considered to be good. This is likely to be mainly due to the absence of large towns in the area, with the main settlements on this route being Smithborough and Monaghan. This section of the greenway runs adjacent and in close proximity to the N54, the R187 and the R189. These national and regional roads have the potential to be sources of local air pollution.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Within the vicinity of this section of proposed greenway there is one waste water treatment plant which is situated near Smithborough. There greenway would not intersect any significant roads, however the N54 runs in close proximity to the north-eastern aspect of the route. There is one inactive railway line which runs adjacent to the route to the north as well as 18 high-voltage powerlines; all of which are situated near Monaghan. There is one IED site within this area which is located near Smithborough.

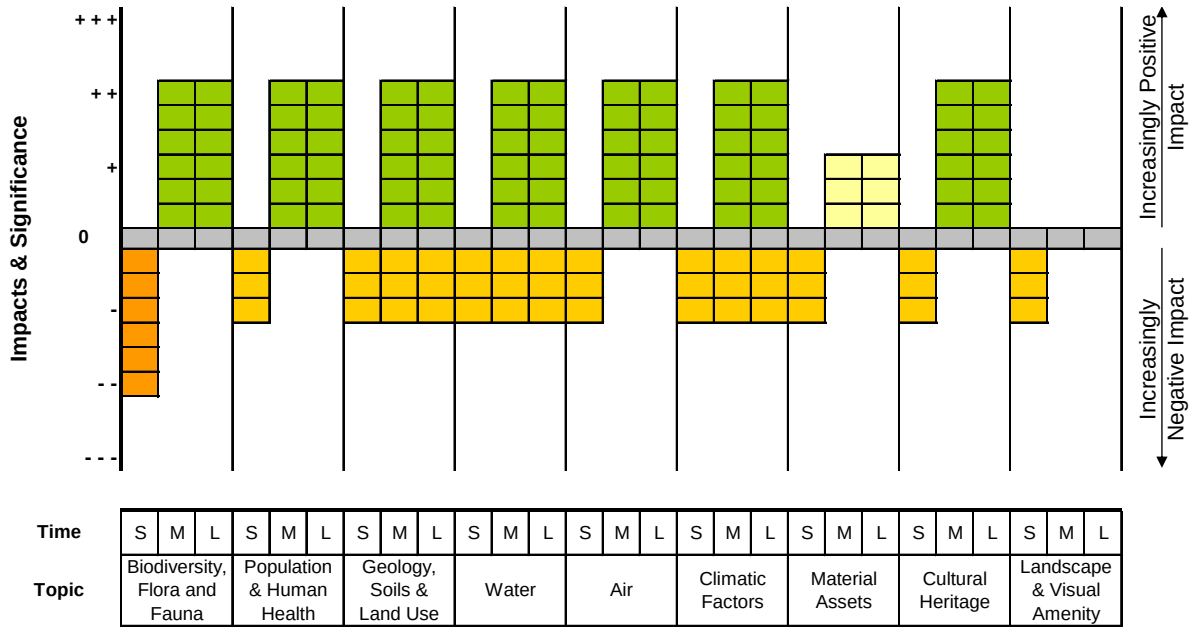
Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route there are 42 NIAH structures. There are 32 national monuments within the vicinity of the proposed greenway; many of which are raths and enclosures, with some of these making up the 26 local zones of notification designated under the Record of Monuments and Places. In addition to these, Carson's Bridge near Brandrum is a feature of the Monaghan Record of Protected Structures.

Landscape & Visual Amenity – This section of the Greenway runs along the existing Smithborough to Monaghan canal route in County Monaghan. Along this route there is one proposed Natural Heritage Area; which is the Ulster Canal itself. This is mainly within the drumlin farmland of the Smithsborough Hills landscape area. There are no features in the area that are likely to preclude the development of this Ulster Canal Greenway route.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	2	2
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	2	2
4B - Water (W)	0	-1 / 1	-1 / 1
5 - Air (A)	-1	2	2
6 - Climatic Factors (C)	-1	-1 / 2	-1 / 2
7 - Material Assets & Infrastructure (MA)	-1	1	1

8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna

There is the potential for short term, moderate negative, construction phase impacts to the habitats and species of the Ulster Canal (Aghalisk) pNHA, as the greenway line will be along the tow path of the old canal, which is a proposed designated area.

In the medium and long term, there is the potential for moderate positive impacts, as there is the potential for increased public awareness of and increased access to the Ulster Canal (Aghalisk) pNHA. In addition there is the potential for site / species information to be made available on the greenway section. Greater public awareness of this designation, habitats and species can lead to greater protection in the future.

There is unlikely to be any short, medium or long term impacts of the greenway link on sites of international biodiversity importance, as there are no international designated environmental sites within the vicinity of the greenway link.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link directly affects the notable plant species found within the Ulster Canal (Aghalisk) pNHA, it is recommended that the link is diverted around sensitive areas, rather than passing through them. Surface water runoff from the working strip should be managed to

ensure no sedimentation impacts on or contamination to the Ulster Canal (Aghalisk) pNHA.

The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with moderate positive impacts from a relatively short section of greenway, with the areas of highest population density being at Smithborough and Monaghan Town, within close proximity to a relatively high number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route mainly travels along the Ulster Canal where feasible, and small rural roads, across a landscape of pastures. Where agricultural activity has encroached on the Ulster Canal there may be the bisecting of some pasture lands, resulting in the potential for short, medium and long term minimal negative impacts of the greenway. There is the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 3ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on the River Finn. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route both traverses and runs parallel to river sections. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for moderate positive impacts from increased public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering one watercourse (the River Finn) from agricultural lands.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management in Smithborough. Construction in this area could be designed for multi-benefits for the local community. The proposed greenway route is not at significant risk from 1% AEP pluvial flooding and hence there is unlikely to be any significant short, medium or long term impacts on the greenway route from pluvial flooding.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors. This greenway section is located within a zone of good air quality. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of this average length section of greenway, which is within close proximity to a relatively average number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term slight negative and slight positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Smithborough. Construction in this area could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term as the greenway will run very close to and in parallel to the N54 road. There are however no crossings required of active railways or major energy infrastructure. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of the Ulster Canal gives the potential for preservation and restoration of many canal-related listed features such as bridges. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. There is always the potential for disturbance or damage to heritage features during the construction phase, in particular on canal-related sites and features in very close proximity to the proposed route.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term as a result of this route which passes along the Ulster Canal pNHA. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - This route has the potential for direct in-combination and cumulative impacts with any future plans for the Ulster Canal in this area. These impacts are however likely to be symbiotic as the greenway route is potentially a stepping stone towards the aim of the canal restoration.

As Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

Given the proximity to the N54 it should be noted that this greenway section needs to be designed and operated to be fully compatible with the function and character of this critical road link and potential future development of the link, to minimise the potential for any negative in-combination impacts.

There are no additional anticipated significant negative, cumulative or in-combination impacts from

construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Ulster Canal (Aghalisk) pNHA could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

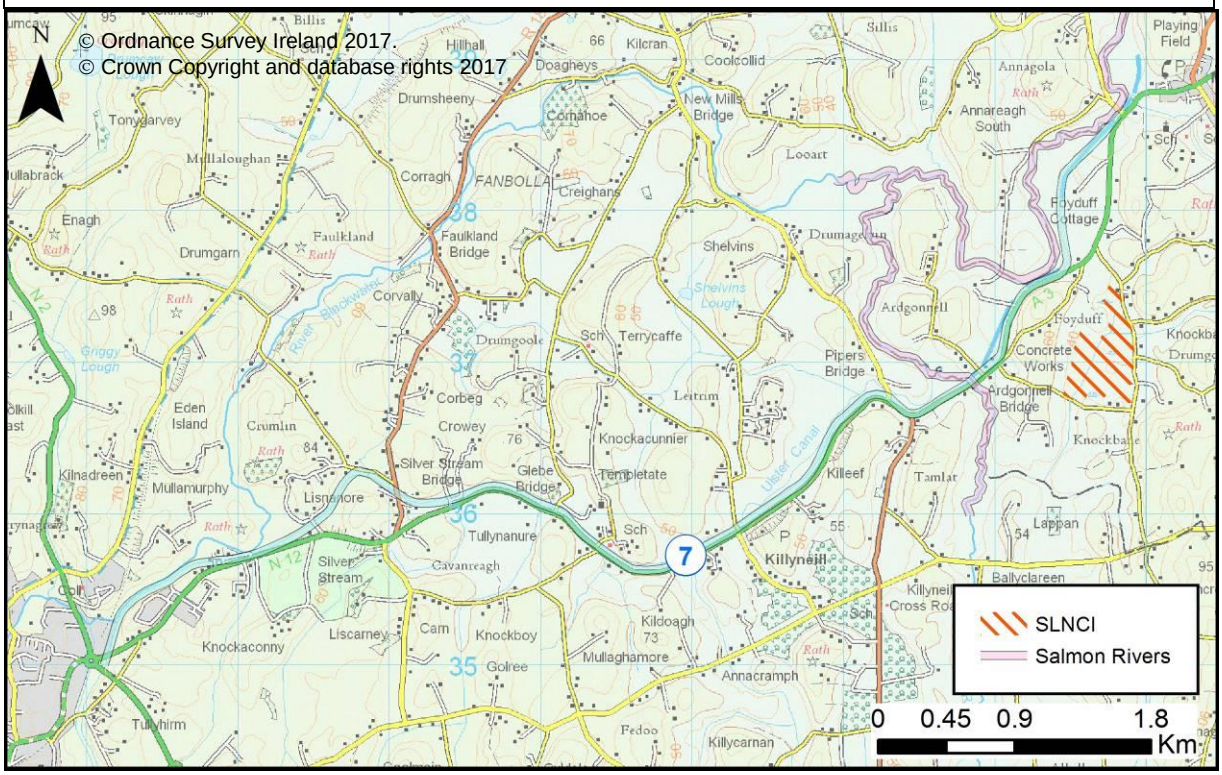
8.8 SECTION 7 – MONAGHAN TO MIDDLETOWN

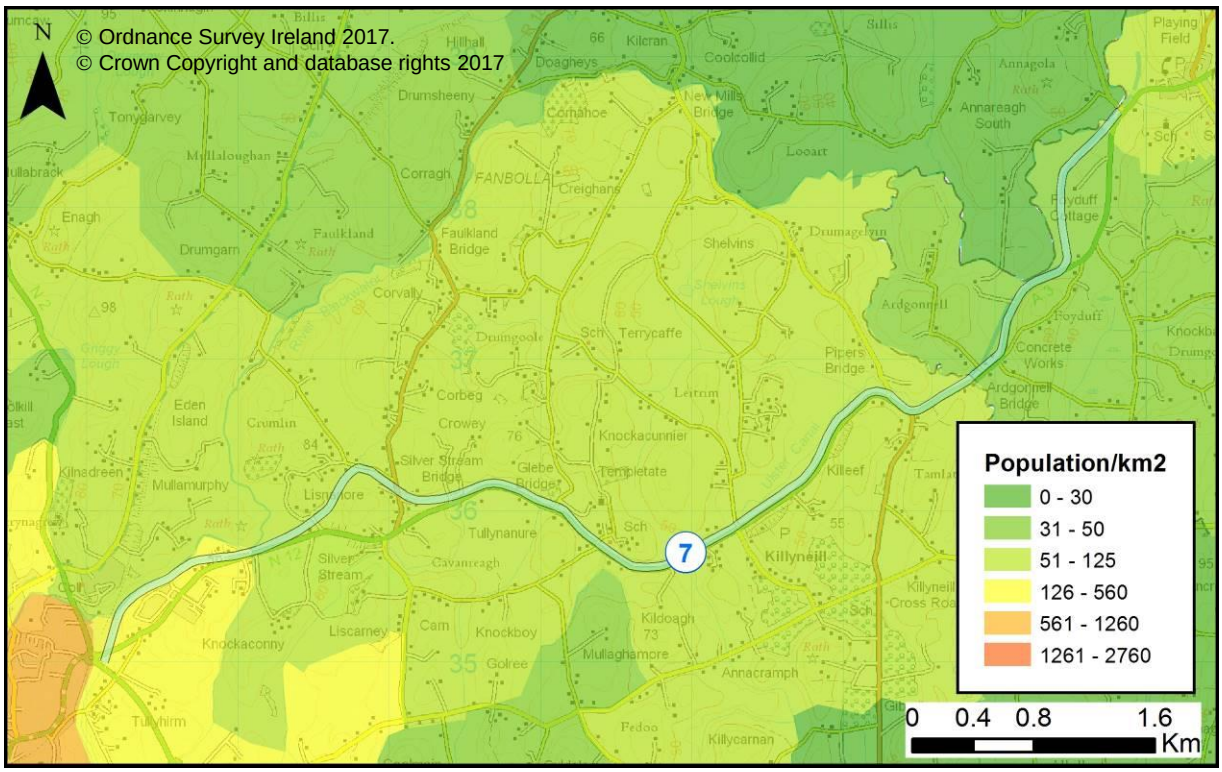
Route	Ulster Canal Greenway in Monaghan town to Middletown
Length	9km
Local Authorities	Monaghan County Council

Route Information

The Ulster Canal Greenway in Monaghan town to Middletown section will follow the line of the Ulster Canal where feasible, passing Tyholland and crossing the Border at Ardgonnell aqueduct over River Cor.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – The Monaghan to Middletown greenway link crosses the Cor Salmonid River and runs in very close proximity to this river in a number of places. The river flows west of Middletown. The route is also located 330m west of the Knockbane Bog SLNCI, to the south of Middletown. There are no other international or national designated environmental sites along this proposed route.

Population & Human Health - There are over 18,200 people living within 5km of the proposed route. Also within this area there are over 6,200 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 828people/km^2, with the areas of highest population density being at Monaghan Town and Middletown.

Geology, Soils and Landuse – The geology of the area is predominantly composed of interbedded limestone and mudstone, with sandstone deposits to the northeast of the proposed route. These are generally overlain by glacial till. Soils of the area are mainly gleys, interdrumlin peats and peaty gleys of moderate hydraulic conductivity. The land in this area is predominantly used for the grazing of livestock and, to the far west of the proposed route, the urban area of Monaghan Town. There is a small area of transitional woodland on the southern periphery of this route.

Water – This proposed stretch of greenway, from Monaghan to Middletown, crosses five groundwater bodies. Of these, four have been identified as having 'good' status. The remaining waterbody is identified as having 'poor' status and is located within the region of Knockbane Bog, close to Middletown. The proposed stretch also passes within the vicinity of six river waterbodies. Five of these river waterbodies are considered to be of 'poor' ecological status; whilst the remaining one, located in the Middletown area, is considered to be of 'moderate' status. There are approximately six river crossings along this route.

The Monaghan to Middletown section of greenway runs parallel to a number of small rivers including the Silver Stream and the Monaghan Blackwater tributary. This proposed section of greenway crosses several stretches of river, near Lisnanore, Tullynanure and Middletown, with the potential for the greenway section to be flooded for up to 900 meters in length during a medium probability (1% AEP) fluvial flood event. This section of greenway intersects one principal area of

medium probability 1% or 0.5% AEP surface water inundation, which affects approximately 50 to 60 metres of the proposed route near Ardgonnell Bridge.

Air – There are no real-time air quality monitoring stations within the vicinity of this section of greenway. The closest stations are located in Kilkitt, Co. Monaghan and on Lonsdale Road in Armagh City, which are 20km southeast of the proposed greenway section. In 2014 the Kilkitt station recorded an annual mean NO_2 concentration level of 3µg/m^3 and an annual mean SO_2 concentration of 2µg/m^3. There was no record made in relation to the levels of PM_{10} or CO in the area; however as part of 'Zone D', it is projected that the annual mean CO, PM_{10}, Lead and Benzene concentrations were below the lower assessment threshold.

In 2014 the automatic air quality monitoring station on Lonsdale Road recorded an annual mean NO_2 concentration level of 28 µg/m^3, and an annual mean PM_{10} concentration of 21µg/m^3. Both of these estimates are below the air quality objective limits. Non-automatic monitoring takes place in Middletown at intervals throughout the course of each year. The annual mean NO_2 concentration recorded for 2014 was 18µg/m^3, which is below limit values. No records were maintained in relation to PM_{10} at this station. The 2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council reported that all of these measurements were below their respective national air quality limits. The same report notes that whilst other pollutant such as sulphur dioxide or ozone are not monitored by Armagh City, Banbridge and Craigavon Borough Council, sources of transport pollution are relatively low in County Armagh since there are no airports, shipping ports or large bus stations within the county. With that being said, the N12 runs in close proximity to the entirety of this section of greenway and has the potential to be a source of local air pollution.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

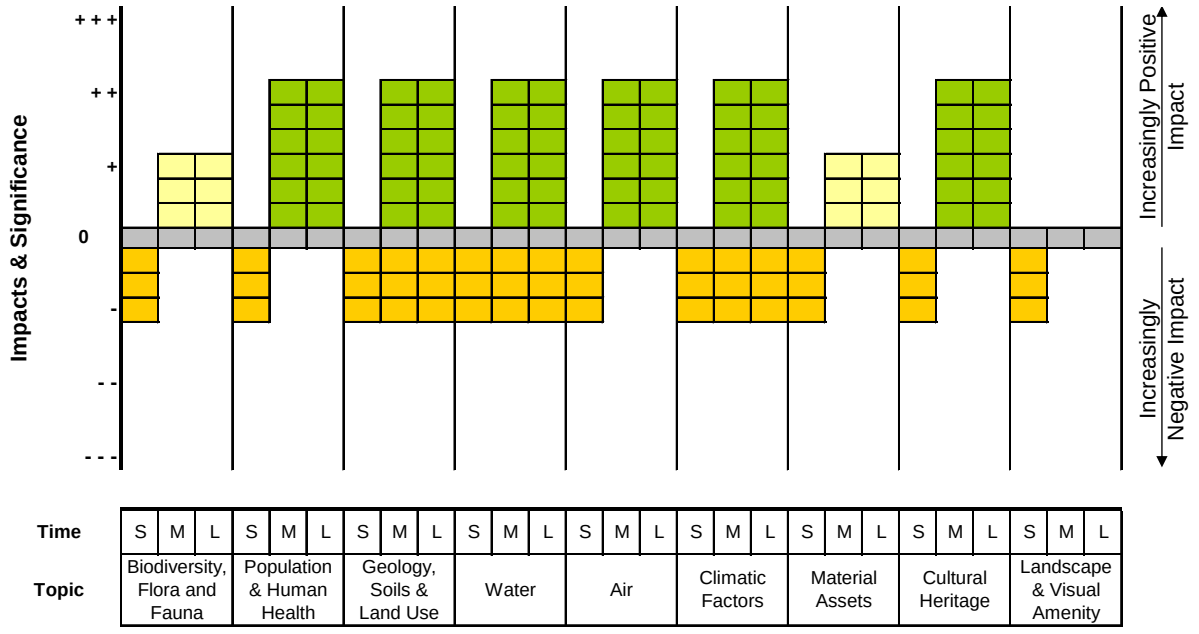
Material Assets & Infrastructure – There are three waste water treatment plants situated within 1km of the proposed greenway route. One of these is located near Middletown whilst the other two are located in Knockaconny to the south of the route near Monaghan. There are two significant roads which intersect this section of the greenway. There is also one inactive railway line which runs in close proximity to the south of the proposed route, as well as 53 high-voltage powerlines which are also within the vicinity of this route.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are four structures on the Sites and Monuments Register. There are also 14 Industrial Heritage structures, many of which are associated with the Ulster Canal, and 13 listed buildings; the majority of which are lock houses and religious buildings. There is one Scheduled Zone within the vicinity of the proposed route; this is for a barrow situated to the northeast of the proposed route near Tullybrick Lough.

Within the vicinity of the route which will run through the Republic of Ireland there are 20 national sites and monuments; many of which are raths and enclosures, which make up a number of the 17 local zones of notification listed on the RMP. Further to these, there are 70 NIAH structures; many of which are houses, churches, hospitals and bridges and two of which are features of the Monaghan Record of Protected Structures – Ardgonnell Bridge and the James Rice Memorial.

Landscape & Visual Amenity – This section of the Greenway takes the canal route from Monaghan in County Monaghan to Middletown in County Armagh. The route travels through the Blackwater valley and Drumlin farmland landscape area. The Ulster Canal and Environs is considered an Area of Secondary Amenity Value. There are no landscape features along this route which would preclude the development of the Ulster Canal Greenway.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-1	1	1
2 - Population & Human Health (PHH)	-1	2	2
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	2	2
4B - Water (W)	0	-1 / 1	-1 / 1
5 - Air (A)	-1	2	2
6 - Climatic Factors (C)	-1	-1 / 2	-1 / 2
7 - Material Assets & Infrastructure (MA)	-1	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0
Summary Chart of Impacts			



Discussion of Impacts
Biodiversity, Flora & Fauna - There is the potential for short term, construction phase, indirect, slight negative impacts to habitats and species at Knockbane Bog SLNCI. However as the greenway link is located over 300m from and downstream of this locally important site, there is unlikely to be any significant impacts from the construction of the greenway link. In the medium and long term however the operation of the greenway could provide for slight positive impacts, as there is the potential for increased public awareness of Knockbane Bog SLNCI, provided this is done in line with conservation objectives. This SLNCI is in close proximity to the greenway section and site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future. Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction. Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to Knockbane Bog SLNCI, or into the River Blackwater with impacts downstream to Lough Neagh. The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with moderate positive impacts from a relatively short section of greenway, with the areas of highest population density being at Monaghan Town and Middletown, within close proximity to a relatively high number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed route mainly travels along the Ulster Canal, where feasible, and small rural roads, across a landscape of mostly pastures and a small area of urban fabric. Where agricultural activity has encroached on the Ulster Canal there may be the bisecting of some pasture lands, resulting in the potential for short, medium and long term minimal negative impacts of the greenway. There is the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 3ha of land.
Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on surrounding rivers and streams. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route both traverses and runs parallel to river sections. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for moderate positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering watercourses including the Blackwater Tributary and the River Blackwater from development and agricultural lands.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management in a small area of Monaghan. Construction in this area could be designed for multi-benefits for the local community. The proposed greenway route is not at significant risk from medium probability pluvial flooding and hence there is unlikely to be any significant short, medium or long term impacts on the greenway route from pluvial flooding.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively short section of greenway, which is within close proximity to a relatively average number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term slight negative and slight positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Monaghan Town. Construction in this area could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. There are several crossings of two significant roads, along with one 38kV powerline, that may need to be negotiated. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of the Ulster Canal gives the potential for preservation and restoration of many canal-related listed features such as bridges, aqueducts and lock houses. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. There is always the potential for disturbance or damage to heritage features during the construction phase, in particular on canal-related sites and features in very close proximity to the proposed route.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term as a result of this route which passes along the Ulster Canal and Environs. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - This route has the potential for direct in-combination and cumulative impacts with any future plans for the Ulster Canal in this area. These impacts are however likely to be symbiotic as the greenway route is potentially a stepping stone towards the aim of the canal restoration.

As Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of the greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. These potential risks can accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

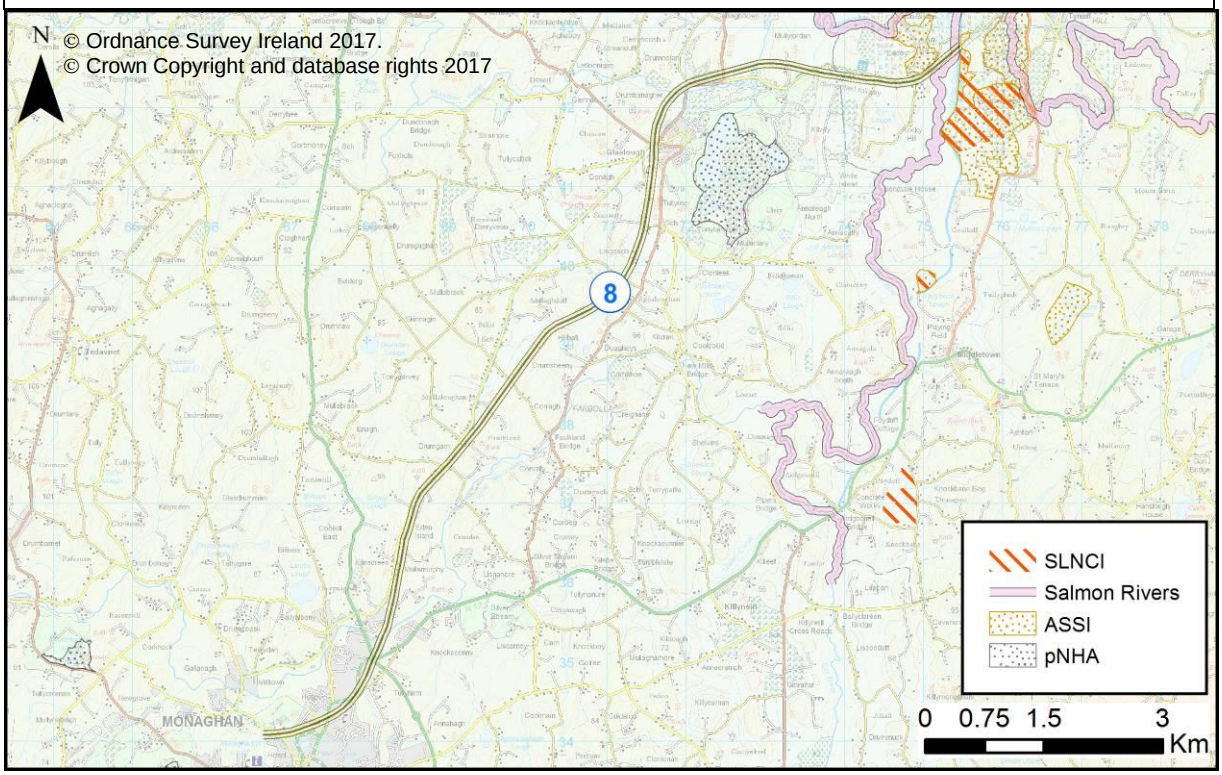
8.9 SECTION 8 – MONAGHAN TO GLASLOUGH

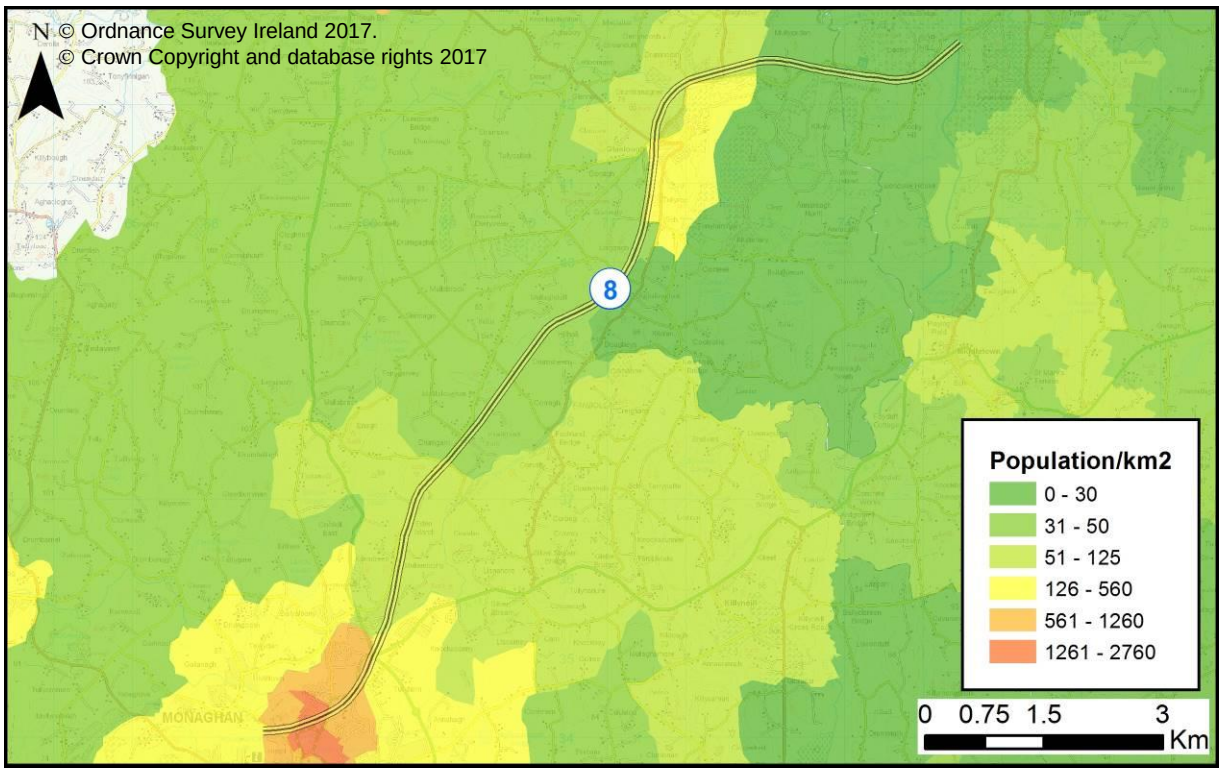
Route	Monaghan to Glaslough
Length	14km
Local Authorities	Armagh, Banbridge & Craigavon Borough Council Monaghan County Council

Route Information

The Monaghan to Glaslough section of greenway is proposed to run along the disused railway line.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – The Monaghan to Glaslough greenway link crosses the Cor Salmonid River after Glalough. The route passes through the Caledon and Tynan ASSI, to the south of Caledon and travels 520m to the west of Glaslough Lake pNHA. The route passes in close proximity (20m) to the Tynan Abbey Lake SLNCI and 940 m south of the Annaghroe – Annacramp SLNCI.

Population & Human Health - There are over 21,600 people living within 5km of the proposed route. Also within this area there are over 7,800 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 760 people/km^2, with the areas of highest population density being at Monaghan Town and Glaslough.

Geology, Soils and Landuse – The geology of the area is largely made up of argillaceous limestone with interbedded mudstone to the south of the route. These are generally overlain by glacial till. Soils of the area are mainly gleys, interdrumlin peats and peaty gleys. Landcover in the vicinity of the proposed greenway section is predominantly grassland, which is used as pasture land for grazing livestock. The route also passes within the vicinity of various woodland areas, including ancient woodland, near Caledon House. There is an iron and limestone mine situated near Glaslough Lake. This is approximately 400m to the south east of the proposed route. The Donagh limestone quarry near Mullaghbane is also located to the south east of the proposed route at a distance of approximately 250m.

Water – This proposed section of greenway, from Monaghan to Glaslough, crosses four groundwater bodies; three of which have been identified as having 'good' status. The remaining waterbody, towards the north end of the proposed stretch, close to Tynan, is identified as having 'poor' status. The proposed greenway section passes within the vicinity of two lake waterbodies and across eight river waterbodies. Four of the river waterbodies are considered to be of 'poor' ecological status, two are considered to be of 'moderate ecological status' and two are of 'good' ecological status. There are approximately five river crossings along this route.

The Monaghan to Glaslough proposed route intersects several areas of medium probability fluvial flooding. One such area is located near Coll; where the proposed greenway is likely to intersect two areas of medium probability fluvial flooding for an approximate cumulative distance of 300 meters.

Another such area is located near Aghaloughan; where the proposed route is likely to intersect two areas of medium probability fluvial flooding for a cumulative distance of approximately 30 meters. Finally, to the north of this stretch of proposed greenway, there are three areas of medium probability fluvial inundation through which the proposed route runs. Cumulatively, these affect approximately 420 meters of proposed greenway route between Drumbanagher and Tynan Abbey.

The proposed route intersects two areas of medium probability pluvial flooding near Drumgarn. Each of these areas of intersection stretches approximately 50 meters along the proposed route.

Air – There are no real-time air quality monitoring stations within the vicinity of this section of greenway, with the closest stations being situated in Kilkitt, Co. Monaghan and Lonsdale Road, Co. Armagh, which are approximately 20km to the southeast of the proposed greenway section. In 2014, the Kilkitt Station recorded an annual mean NO_2 concentration level of 3µg/m^3 and an annual mean SO_2 concentration of 2µg/m^3. There was no record made in relation to the levels of PM_{10} or CO in the area; however as part of 'Zone D' it is projected that the annual mean CO, PM_{10}, Lead and Benzene concentrations were below the lower assessment threshold. Also in 2014, the Lonsdale Road station recorded an annual mean NO_2 concentration level of 28µg/m^3, and an annual mean PM_{10} concentration of 21µg/m^3. Non-automatic monitoring takes place in Middletown at intervals throughout the course of each year. The annual mean NO_2 concentration recorded for 2014 was 18µg/m^3, which is below limit values. The 2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council reported that all of these measurements were below their respective national air quality limits. The same report notes that whilst other pollutant such as sulphur dioxide or ozone are not monitored by Armagh City, Banbridge and Craigavon Borough Council, sources of transport pollution are relatively low within that area since there are no airports, shipping ports or large bus stations within the county. With that being said, there are a number of prominent roads within the vicinity of this section of greenway; most notably the N2 and N12 to the south, and the R185 to the east and north of this greenway section. These have the potential to be sources of local air pollution.

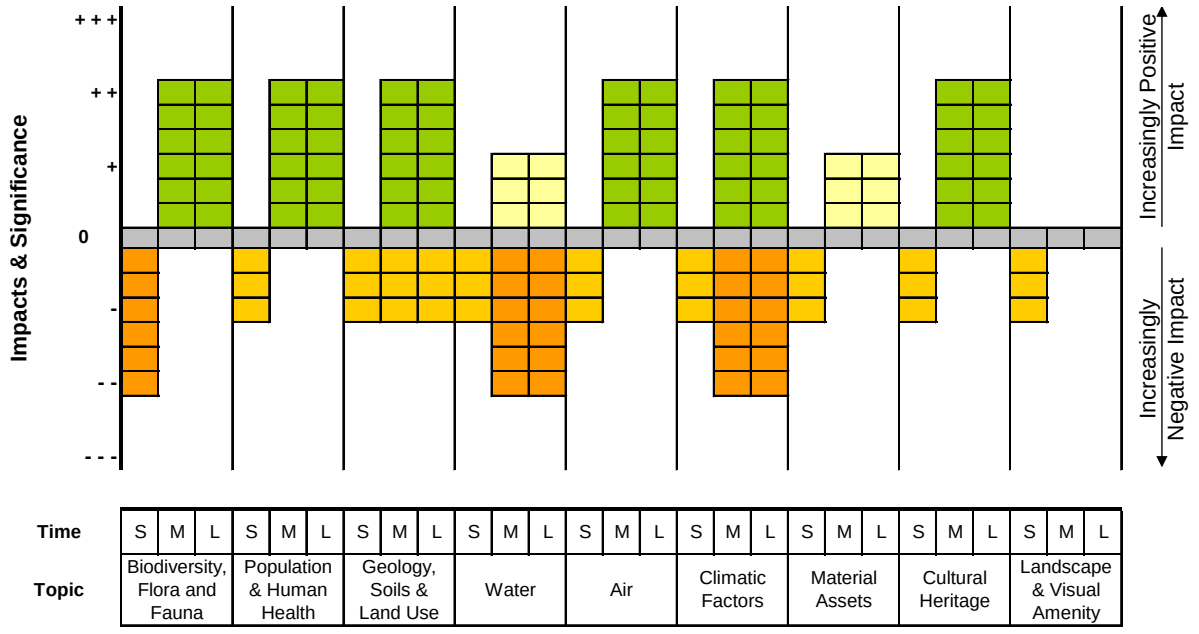
Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – There is one high-voltage ESB substation and 62 high-voltage powerlines situated within 1km of the proposed greenway route. There are also four waste water treatment plants; two of which are situated at Glaslough and Monaghan and two of which are located in Knockaconny. There are five significant roads which intersect this section of greenway. There are two inactive railway lines along which the proposed greenway runs. There is one IED site within the area also.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are three Scheduled Zones, nine Industrial Heritage features and 17 listed buildings. There are also nine national sites and monuments, many of which are raths and crannogs, and two designated heritage gardens; both of which are situated to the north and east of the proposed route. Within the vicinity of the route which will run through the Republic of Ireland there are 32 national sites and monuments, a number of which constitute the 24 local zones of notification listed on the RMP. Further to these, there are 262 NIAH structures, including bridges, water pumps and houses; two of which are listed on the Monaghan Record of Protected Structures.

Landscape & Visual Amenity – This section of the Greenway runs from Monaghan Town along the disused railway line to Glaslough in County Monaghan. The route travels through the Blackwater valley and Drumlin farmland landscape area. On route, it passes within the vicinity of the Glaslough Lake; a proposed Natural Heritage Area. There are no landscape features along this route which would preclude the development of the Ulster Canal Greenway.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	2	2
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	1	1
4B - Water (W)	0	-2 / 1	-2 / 1
5 - Air (A)	-1	2	2
6 - Climatic Factors (C)	-1	-2 / 2	-2 / 2
7 - Material Assets & Infrastructure (MA)	-1	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0
Summary Chart of Impacts			



Discussion of Impacts
Biodiversity, Flora & Fauna - There is the potential for short term, moderate negative disturbance impacts to the habitats and species of the Caledon and Tynan ASSI for which the greenway link passes through. In addition, there is the potential for short term, slight negative impacts from the construction phase of the greenway link to the habitats and species of the Tynan Abbey Lake SLNCI which is located 20m from the greenway link. There is unlikely to be any impacts from the construction and operation of the greenway link to the Glaslough Lake pNHA and Annaghroe-Annacramp SLNCI, which are located 520m, and 940m from the link respectively. There is the potential for medium and long term moderate positive impacts with the operation of the greenway link, as there is the potential for increased awareness of and access to the designated sites, provided this is done in line with conservation objectives. A number of these sites are near to the greenway section and site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future. Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction. Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link passing through the Caledon and Tynan ASSI directly affects the parkland and fen habitats and the associated wildlife for which the area has been designated, it is recommended that the link is diverted around, rather than through the site. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to the Caledon and Tynan ASSI and the Tynan Abbey Lake SLNCI. The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with moderate positive impacts from a relatively average section of greenway, with the areas of highest population density being at Monaghan Town and Glaslough, within close proximity to a relatively average number of people that would be provided with potential health benefits from improved this access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed route mainly travels along the path of the old railway line, small lane ways and rural roads, across a landscape of mostly pasture land with small areas of urban fabric (in Monaghan). Where agricultural activity and development has encroached on the old railway line there may be the bisecting of some pasture lands and altering of developed land resulting in the potential for short, medium and long term slight negative impacts of the greenway link. There is the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated, improved and developed lands. Detailed design of the route should aim to minimise any disturbance to agricultural and developed lands, by routing the greenway around the periphery of lands, farmsteads and development and not directly through them. Development of this route will potentially change the use of approximately 4ha of land.
Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid rivers. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This

route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management in Monaghan. Construction in this area could be designed for multi-benefits for the local community.

Although there are small sections of the proposed greenway at risk from 1% AEP pluvial flooding, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively average section of greenway, which is within close proximity to a relatively average number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and slight positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Monaghan Town. Construction in this area could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively average length section of greenway. However the greenway has the potential for temporary, slight negative disturbance impacts to existing infrastructure in the short term. There are several crossings of five significant roads and one 38kV powerline that may need to be negotiated. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. The proposed route runs in close proximity to an agricultural IPC site near Caledon House. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of a disused railway embankment gives the potential for preservation and restoration of many industrial heritage features. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the

greenway section to educate users on the heritage of the area. The greenway is unlikely to impact on the setting of any cultural, architectural or archaeological heritage features along this route. There is however always the potential for disturbance or damage to heritage features during the construction phase.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - As Armagh, Banbridge & Craigavon Borough Council and Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Caledon and Tynan ASSI could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

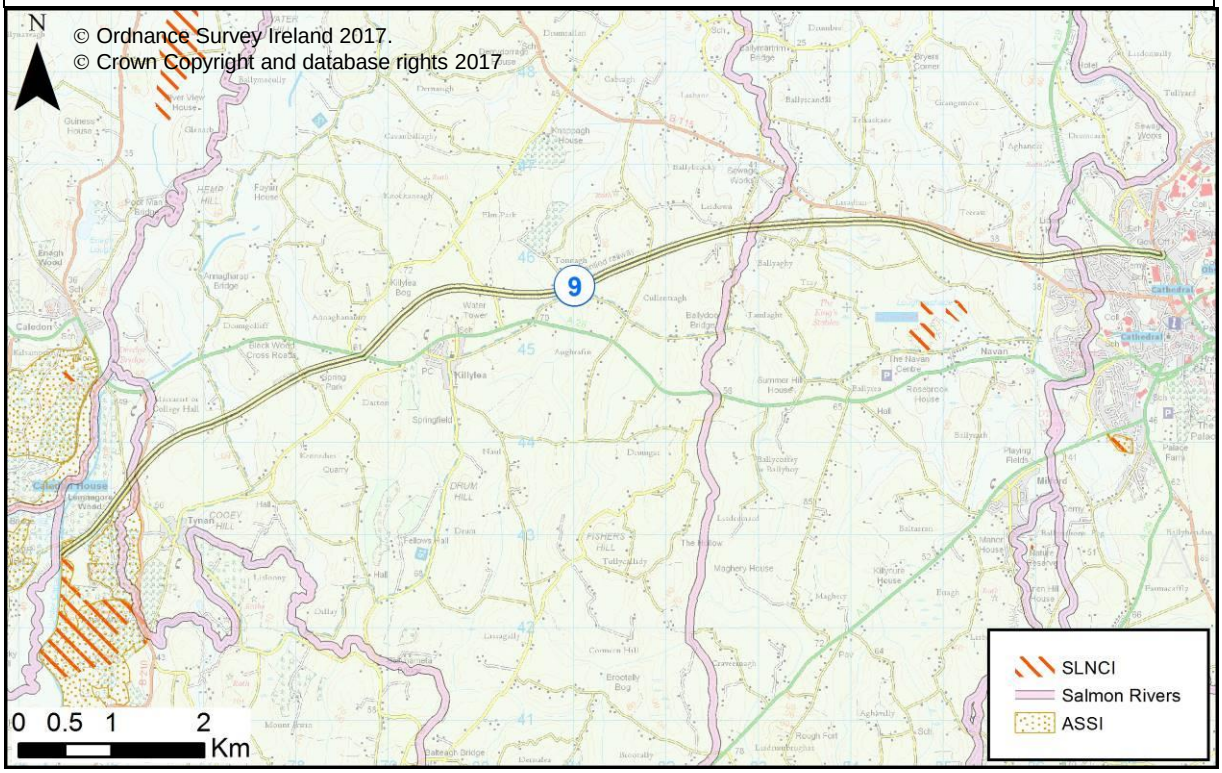
8.10 SECTION 9 – GLASLOUGH TO ARMAGH

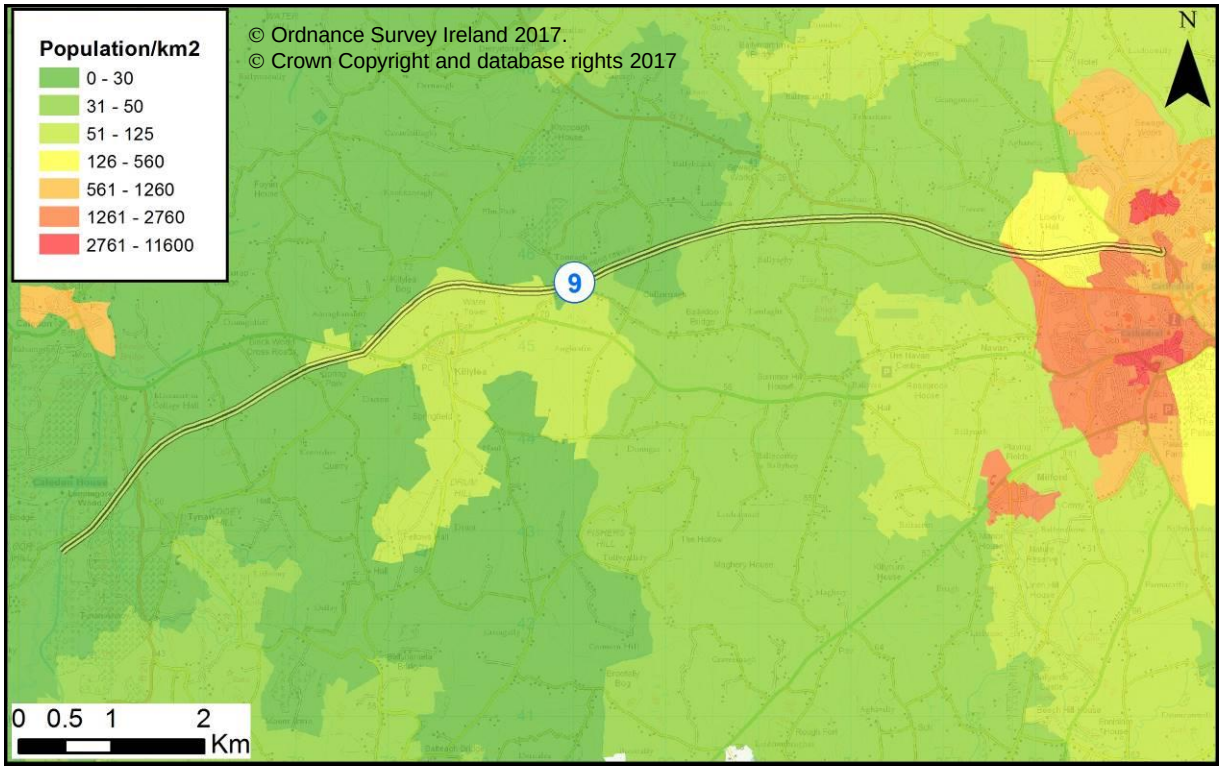
Route	Glaslough to Armagh
Length	13km
Local Authorities	Armagh, Banbridge & Craigavon Borough Council

Route Information

The Glaslough to Armagh section of greenway is proposed to run along the disused railway line.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna - The proposed greenway link crosses three salmonid rivers, namely the Ballymartrim River, Callan River Lower and Tynan River/Balteagh Stream. In addition, the end of the link is located over 190m east of the Cor Salmonid River and 550m south-east of the River Blackwater Middle Salmonid River. The most western region of the proposed link is located adjacent to the Caledon and Tynan ASSI site (located in close proximity to Tynan). Care is needed to avoid damaging the flora and fauna of this ASSI site by avoiding the disturbance of the surface and subsurface of the land, permanent or temporary structures, natural or man-made features, and the wildlife and habitat of the area. The eastern section of proposed greenway link is located 630m north of Loughnashade SLNCI and Navan Fort SLNCI, and the western section of the link is located 60m from the Tynan Abbey Lake SLNCI. The proposed link is located in close proximity (less than 1 km) to 42 ancient woodlands, although it does not pass through any.

The Armagh, Banbridge and Craigavon Local Biodiversity Action Plan notes that the link passes through the Blackwater Flood Plain, in Caledon. This is a key floodplain grazing marsh location. It is a low lying pasture adjacent to the River Blackwater. The habitat is especially important for breeding waders which have exhibited a sharp population decline due to the loss of the habitat to drainage and related agricultural improvement.

Population & Human Health - There are over 29,000 people living within 5km of the proposed route. Also within this area there are over 14,300 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 970people/km^2, with the areas of highest population density being at Killylea and Armagh.

Geology, Soils and Landuse - The geology of the area is largely made up of argillaceous limestone and subordinate sandstone. These are overlain by till, sand and silt. The soils along the proposed greenway section are largely composed of grey brown podzolics of moderate hydraulic conductivity. Local landcover is predominantly made up of heterogeneous agricultural land, including pasture land. The west of the route section is covered by broad-leaved forests, including ancient woodland; and to the east of the route lies the City of Armagh.

Water – This proposed section of greenway, from Middletown to Armagh, crosses three groundwater bodies. All three of these have been identified as having ‘poor’ status. The greenway

further passes across seven river waterbodies. Two of these are considered to be of 'poor' ecological status; the first of which is located at the southern end of the proposed stretch, close to Tynan, and the second being situated to the centre of the greenway section between Tonnagh and Teeraw. A further three of these river waterbodies are considered to be of 'moderate status' and one is of 'good' status. The remaining river waterbody, located in Armagh, is a heavily modified or artificial waterbody and is of 'bad ecological potential'. There are approximately three river crossings along this route.

The Monaghan to Armagh proposed route intersects three areas of medium probability fluvial flooding. All three areas, near Lemnagore Wood, Lisadian and Armagh, intersect the greenway for no more than 45 meters at a time.

For the most part, the same section of greenway intersects areas of medium probability pluvial inundation sporadically and to a marginal (approx. 20 meters) extent. However, in the area just north of Cullentragh, the greenway passes over a thin section of pluvial flooding which congregates along the dismantled railway route there. This pluvial floodplain intersects the greenway over the course of approximately 400 meters.

Air – Within the vicinity of this section of greenway there is situated one automatic monitoring station, which is located on Lonsdale Road in Armagh City. In 2014, this station recorded an annual mean NO_2 concentration of 28µg/m^3 and an annual mean PM_{10} concentration of 21µg/m^3. Both of these estimates are below the air quality objective limits. Throughout the year, non-automatic air quality monitoring is undertaken at various locations throughout the county. One such location is on Main Street in Middletown. In 2014, the annual mean NO_2 concentration on Main Street was 18µg/m^3, which is below limit values. On Barrack Street the annual mean NO_2 concentration was 34µg/m^3 and on Mallview Terrace the annual mean was 41µg/m^3. The latter of these measurements exceeds the national air quality objective and has been designated as one of four Air Quality Management Areas in County Armagh. The air quality in Armagh City requires improvement, as there are high levels of air pollution due to local road traffic.

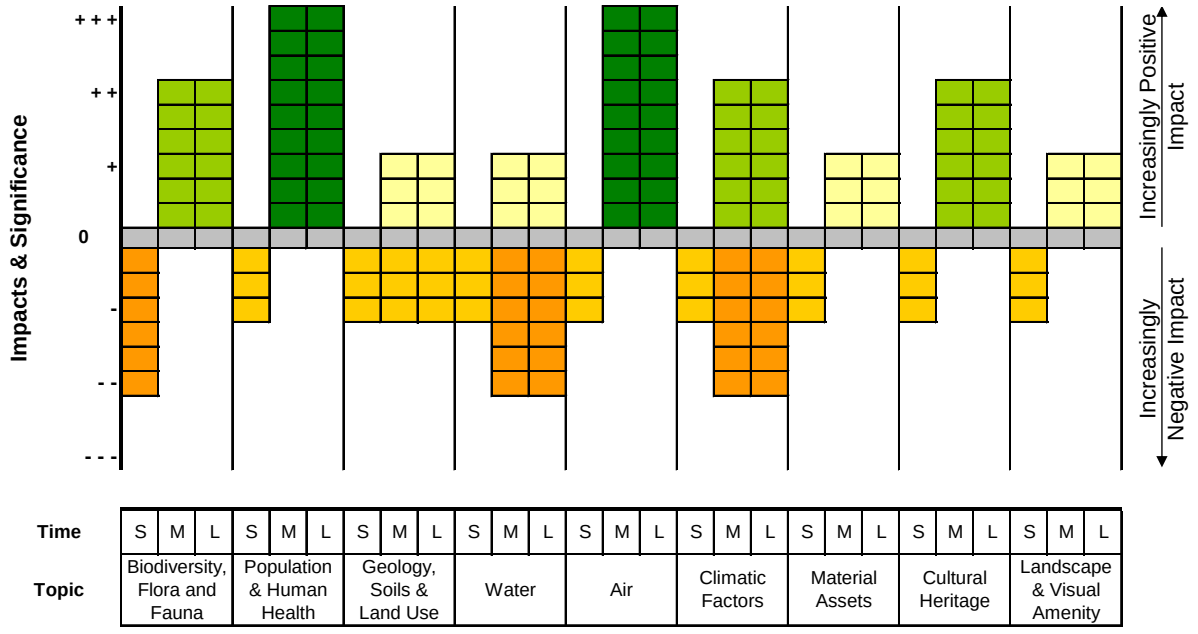
Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Along this section of proposed route there are six significant roads which intersect the greenway. There are also 318 high-voltage powerlines within this distance and four Industrial Emissions Directive Sites; included in the latter are the Navan Quarries and several intensive farming sites. In addition to these, there are six waste water treatment plants located at various points along the proposed route which runs along one of the three inactive railway lines in this area.

Cultural, Architectural & Archaeological Heritage - Within the vicinity of the proposed route there are 12 Scheduled Zones including Tynan Cross, Tynan Terrace Cross and Caledon Cross. There are also six designated heritage gardens, including the Observatory, Tynan Abbey and Caledon, at the eastern and western extremities of this section. In addition to these, there are 67 national sites and monuments and 95 Industrial Heritage structures; many of which are bridges. Lastly, there are 186 listed buildings within the vicinity of this stretch of greenway; many of which are houses however there are also schools, churches, hospitals and shops.

Landscape & Visual Amenity – This section of the Greenway runs from Glaslough to Armagh in County Armagh. This route passes through two designated landscape areas identified as part of the Armagh, Banbridge and Craigavon Local Development Plan. These are the Blackwater Valley and the Armagh Drumlins. Also in this Plan, the Blackwater Valley is identified as an Area of Scenic Quality. The Northern Ireland Landscape Character Assessment states that the small portion of the Armagh Drumlins LCA within the ASQ is described as having 'river valleys that are important components of the landscape which should be conserved and [which are] appropriate to promote the development of recreational routeways along river valleys and linking into the towns'. For this reason, these features are unlikely to preclude the development of the Ulster Canal Greenway.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	3	3
3 - Geology, Soils and Landuse (S)	-1	-1 / 1	-1 / 1
4A - Water (W)	-1	1	1
4B - Water (W)	0	-2 / 1	-2 / 1
5 - Air (A)	-1	3	3
6 - Climatic Factors (C)	-1	-2 / 2	-2 / 2
7 - Material Assets & Infrastructure (MA)	-2	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	1	1
Summary Chart of Impacts			



Discussion of Impacts
Biodiversity, Flora & Fauna - There is the potential for short term, moderate negative, direct and indirect construction phase impacts to the Caledon and Tynan ASSI, for which the greenway link passes through and is adjacent to, and the Tynan Abbey Lake SLNCI which is located 60m south of the greenway link. The Loughnashade SLNCI is located 630 m from the greenway link. Hence, there is unlikely to be any construction and operation phase impacts of the greenway link to this site. In the medium and long term however the operation of the greenway could provide for moderate positive impacts, as there is the potential for increased awareness of and access to the designated sites, provided this is done in line with conservation objectives. Caledon and Tynan ASSI and Tynan Abbey Lake SLNCI are located in close proximity to the greenway section and site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future. Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction. Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to Caledon and Tynan ASSI and Tynan Abbey Lake SLNCI. The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with significant positive impacts from a relatively average section of greenway, with the areas of highest population density being at Killylea and Armagh, within close proximity to a relatively large number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed route mainly travels along the path of the old railway line and rural roads, across a landscape of mostly pasture land with small areas of complex cultivation patterns, forestry and urban fabric (in Armagh). Where the old railway link has been altered to agricultural land, developed land and forestry there may be some bisecting of predominantly pasture land but also a small amount of arable land, forestry, and developed land, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. There is the potential for medium and long term minimal positive impacts from the creation of this greenway section, with minimal impacts to unimproved agricultural lands. Detailed design of the route should aim to minimise any disturbance to agricultural, forestry and developed lands, by routing the greenway around the periphery of lands, farmsteads, forestry and development and not directly through them. Development of this route will potentially change the use of approximately 4ha of land.
Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid rivers. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This

route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however the operation of the greenway could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management in Armagh. Construction in this area could be designed for multi-benefits for the local community.

Although there are small sections of the proposed greenway at risk from 0.5% AEP pluvial flooding, these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors. This greenway section is located within the vicinity of the Armagh AQMAs. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively average section of greenway, which is within close proximity to a relatively large number of people to use. There may be medium and long term benefits to the air quality in the Armagh AQMAs from operation of this section of greenway.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and moderate positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Armagh. Construction in this area could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively average length section of greenway. However the greenway has the potential for temporary, slight to moderate negative disturbance impacts to existing and proposed infrastructure in the short term. There are several crossings of six significant roads that may need to be negotiated. The route transects the proposed line of the North-South interconnector and crosses several existing 33kV powerlines. There is also the potential for short term disturbance to agricultural activity; however this can be minimised in the detailed design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. The proposed route runs in close proximity to an agricultural IPC site at Tonnagh. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of a disused railway embankment gives the potential for preservation and restoration of many industrial heritage features including bridges and quarries. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. The greenway is unlikely to impact on the setting of any cultural, architectural or archaeological heritage features along this route. There is however always the potential for disturbance or damage to heritage features during the construction phase.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There is the potential for medium and long term slight positive impacts, with the opportunity for this greenway section to link into the Northern Ireland Landscape Character Assessment by promoting the development of recreational routeways along river valleys and linking towns within the Armagh Drumlins LCA. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - As Armagh, Banbridge & Craigavon Borough Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There is the potential for additional cumulative or in-combination impacts with the future development of the N-S Interconnector. The greenway section needs to be designed and operated to be fully compatible with the function and character of this powerline.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to Caledon and Tynan ASSI and the Tynan Abbey Lake SLNCI could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

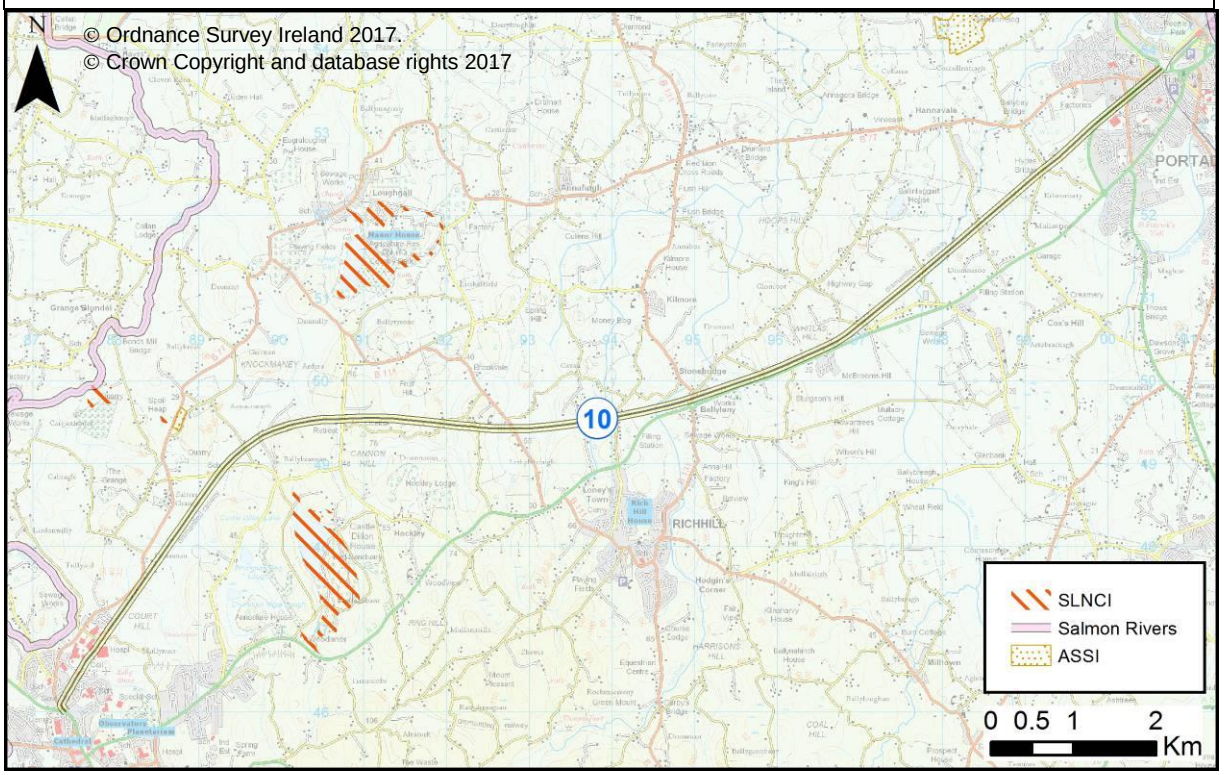
8.11 SECTION 10 – ARMAGH TO PORTADOWN

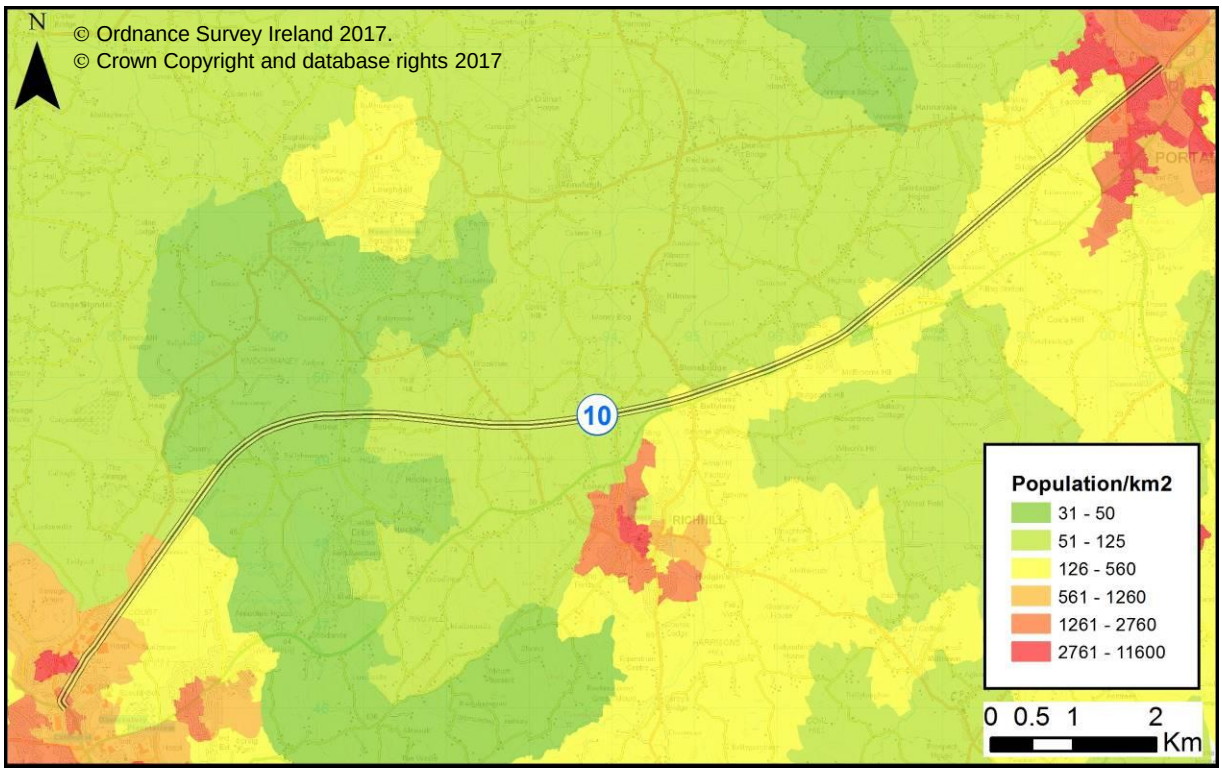
Route	Armagh to Portadown
Length	16km
Local Authorities	Armagh, Banbridge & Craigavon Borough Council

Route Information

The Armagh to Portadown section of greenway is proposed to run along the disused railway line.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – The proposed greenway link is located 720m from the Annacramph Meadows ASSI, just north of Armagh. The Armagh to Portadown greenway link travels 400m east of the Callan River Lower Salmonid River (which flows through Armagh) and 800 m west of Upper Bann Salmonid River (which flow through Portadown). Castle Dillon Lake and Annacramph SLNCIs are located at least 700 m from the proposed greenway link. The proposed link is located in close proximity (less than 1 km) to 20 ancient woodlands, although it does not pass through any.

Population & Human Health - There are over 72,000 people living within 5km of the proposed route. Also within this area there are over 38,100 properties used for residential and commercial purposes. This section has a relatively high, mean population density along the corridor of 1,891people/km^2, with the areas of highest population density being at Portadown, Richhill, Craigavon and Armagh.

Geology, Soils and Landuse – The geology of the area is mainly comprised of argillaceous limestone and subordinate sandstone, with basalt deposits to the east. These are largely overlain by till, but also by sands and silt. The soils in this area are mostly made up of gleys and grey brown podzolics of moderate hydraulic conductivity. The land along the proposed route is predominantly used for agricultural practices, including crop cultivation and pasture land. To the far west of the proposed route lies the City of Armagh and to the east lies the town of Portadown. There are a number of small areas of ancient woodland to the west of the route.

Water – This proposed stretch of greenway, from Armagh to Portadown, crosses four groundwater bodies. Three of these are identified as having 'poor' status. The remaining waterbody, located at Portadown, is identified as having 'good' status. The greenway further passes across eight river waterbodies. Of these, five are heavily modified / artificial waterbodies; and have been given the status of 'bad ecological potential'. Of the remaining three river waterbodies, two are considered to be of 'moderate' ecological status and the last of them, located west of Kilmore and Loney's town, is considered to be of 'poor' ecological status. There are six river crossings along the route from Armagh to Portadown.

This proposed greenway section intersects a number of areas of medium probability (1% AEP)

fluvial flooding. The largest of these areas is situated at Ballyleny, where the greenway route intersects the potential fluvial floodplain over the course of 500 meters. The proposed route also intersects areas of medium probability pluvial inundation. The largest extent of pluvial inundation takes place in the Ballyleny area, which intersects the proposed greenway route for a distance of approximately 90 meters.

Air – Within the vicinity of this section of greenway there is one automatic monitoring station, which is located on Lonsdale Road in Armagh City. In 2014 the Lonsdale Road station recorded an annual mean NO_2 concentration of 28µg/m^3 and an annual mean PM_{10} concentration of 21µg/m^3. Both of these estimates are below the air quality objective limits. In the areas close to this station, non-automatic air quality measurements are also taken. On Barrack Street in Armagh City the 2014 annual mean concentration for NO_2 was recorded at 34µg/m^3 and on Railway Street it was recorded at 47µg/m^3. Measurements taken in Portadown for the same year were fairly similar. On Bridge Street, the annual mean NO_2 concentration was recorded at 35µg/m^3. Some of these measurements exceed the national air quality objective set in place for nitrogen dioxide. For this reason, the air quality in the area of this greenway section requires improvement. Armagh City, Banbridge and Craigavon Borough Council attribute this issue to high levels of air pollution resulting from road traffic.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Within 1km of this section of proposed greenway there are 3 IED sites. There are also five waste water treatment plants as well as ten public roads which intersect the proposed greenway route. In total, there are five railway lines within the vicinity of this route. Two of these are active railway lines and are situated to the north of the route in Portadown. The proposed greenway runs alongside one of the inactive routes between Armagh and Portadown whilst the remaining two inactive lines are situated to the south of the greenway in Armagh, close to the Armagh bus station. There are 547 high-voltage powerlines within this section of the study area; some of these are associated with 15 high-voltage towers.

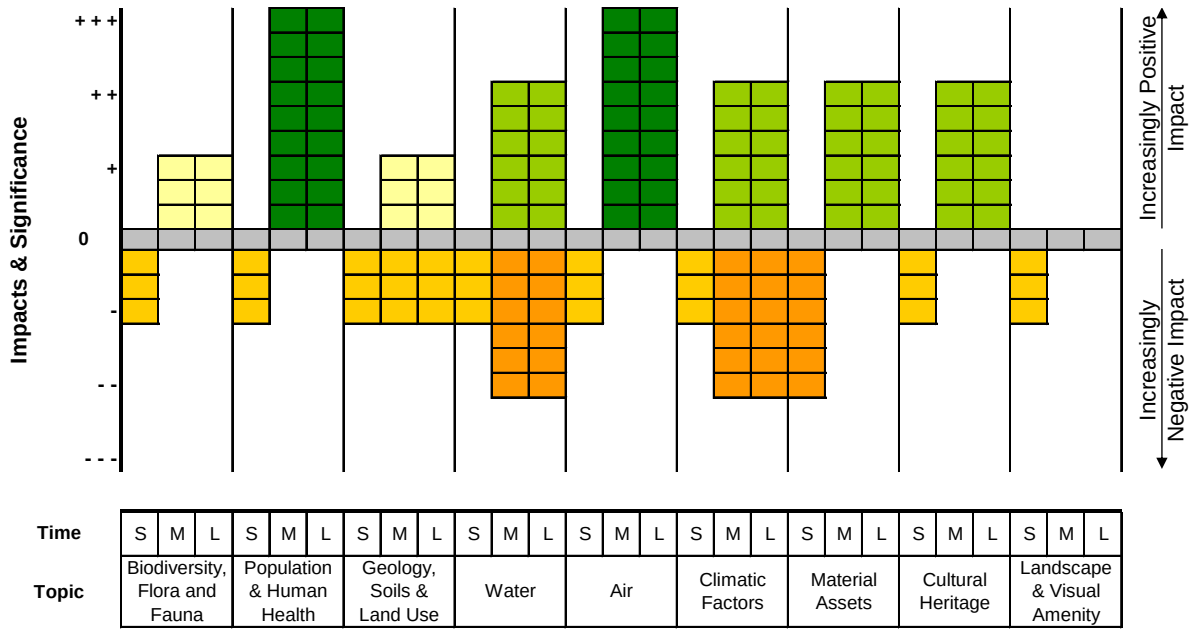
Cultural, Architectural & Archaeological Heritage - Within the vicinity of the proposed route there are three Scheduled Zones. There are also seven heritage gardens situated towards the south of the proposed route; these include Abbey House, Castle Dillon, Deans Hill and Hockley Lodge. There are also 57 national sites and monuments along this route including settlement and ecclesiastical sites. Of the 123 Industrial Heritage features there are a large number of bridges, factories, stations and crossings. There are also a number of banks, houses, churches, schools and shops which make up the 233 listed buildings within the vicinity of the proposed route.

Landscape & Visual Amenity – This section of the Greenway runs from Armagh to Portadown in County Armagh along the existing disused railway line. It passes through two designated landscape areas: the Armagh Drumlins and the Loughgall Orchard Belt. These two Landscape Character Areas are acknowledged within the Armagh, Banbridge and Craigavon Local Development plan. The former requires new developments to be associated with planting so as to integrate the development with the existing geometric farmland pattern. This is unlikely to preclude the development of the Ulster Canal Greenway.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-1	1	1

2 - Population & Human Health (PHH)	-1	3	3
3 - Geology, Soils and Landuse (S)	-1	-1 / 1	-1 / 1
4A - Water (W)	-1	1	1
4B - Water (W)	0	-2 / 2	-2 / 2
5 - Air (A)	-1	3	3
6 - Climatic Factors (C)	-1	-2 / 2	-2 / 2
7 - Material Assets & Infrastructure (MA)	-2	2	2
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna - There is unlikely to be any short term, construction phase impacts of the greenway link on internationally, nationally or locally important biodiversity sites, as the closest designated sites (Annacramph Meadows ASSI, Castle Dillon Lake SLNCI and Annacramph SLNCI) are all located at least 700m from the greenway link.

In the medium and long term there is the potential for slight positive impacts on the ASSI and SLNCI sites located less than 1km from the greenway link, with the potential for increased public awareness of these sites and the associated species of national and local importance. Site / species information can be made available on the greenway section, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or

increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to the designated sites.

The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with significant positive impacts from a relatively average section of greenway, linking many towns and settlements, within close proximity to the largest mean population density of all the potential greenway links, that would be provided with potential health benefits from improved this access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route mainly travels along the path of the old railway line and rural roads and laneways, across a landscape of mostly pasture land with smaller areas of complex cultivation patterns, urban fabric (in Armagh and Portadown) and non-irrigated land. Where the old railway link has been altered to agricultural and developed land there may be some bisecting of predominantly pastureland but also a small amount of arable and developed land, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. There is the potential for medium and long term minimal positive impacts from the creation of this greenway section, with minimal impacts to unimproved agricultural lands. Detailed design of the route should aim to minimise any disturbance to agricultural, forestry and developed lands, by routing the greenway around the periphery of lands, farmsteads, forestry and development and not directly through them. Development of this route will potentially change the use of approximately 5ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on designated salmonid rivers. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route generally traverses river sections, rather than running in parallel to them. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for slight positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at several locations in the medium and long term, however there may be the potential for the greenway to be designed to contribute to fluvial flood risk management in Armagh and Stonebridge. Construction in these areas could be designed for multi-benefits for the local community.

Although there are small sections of the proposed greenway at risk from 0.5% AEP pluvial flooding,

these are not significant areas of pondage and most likely demonstrate localised topographical depressions. The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.
Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors. This greenway section is located within the vicinity of the Armagh AQMAs. In the medium and long term there is the potential for reduced air emissions from reduced traffic, due to operation of this relatively average section of greenway, which is within close proximity to a relatively large number of people to use. There may be medium and long term benefits to the air quality in the Armagh AQMAs from operation of this section of greenway.
Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for moderate positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate negative and moderate positive impacts, from the interaction with the climate change exacerbated flood extents. Flooding along this route may worsen due to climate change; however there may be the potential for the greenway to be designed to contribute to climate change fluvial flood risk management at Armagh and Stonebridge. Construction in these areas could be designed for multi-benefits for the local community. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.
Material Assets & Infrastructure - There is the potential for moderate positive impacts from the creation of this new material asset in the medium to long term, which is a relatively long section of greenway. However the greenway has the potential for temporary, slight to moderate negative disturbance impacts to existing infrastructure in the short term. There are several crossings of 10 public roads that may need to be negotiated. In addition, there are 33kV, 110kV and 275kV powerlines transecting the proposed route. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.
Cultural, Architectural & Archaeological Heritage - Development along the route of a disused railway embankment gives the potential for preservation and restoration of many industrial heritage features including bridges, stations and level crossings. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. The greenway is unlikely to impact on the setting of any cultural, architectural or archaeological heritage features along this route. There is however always the potential for disturbance or damage to heritage features during the construction phase. Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - As Armagh, Banbridge & Craigavon Borough Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. No significant negative impacts are predicted; however there is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for moderate negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation.

Development of this section of greenway has the potential for several medium and long term, moderate to significant positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a tenuous pathway of effect on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

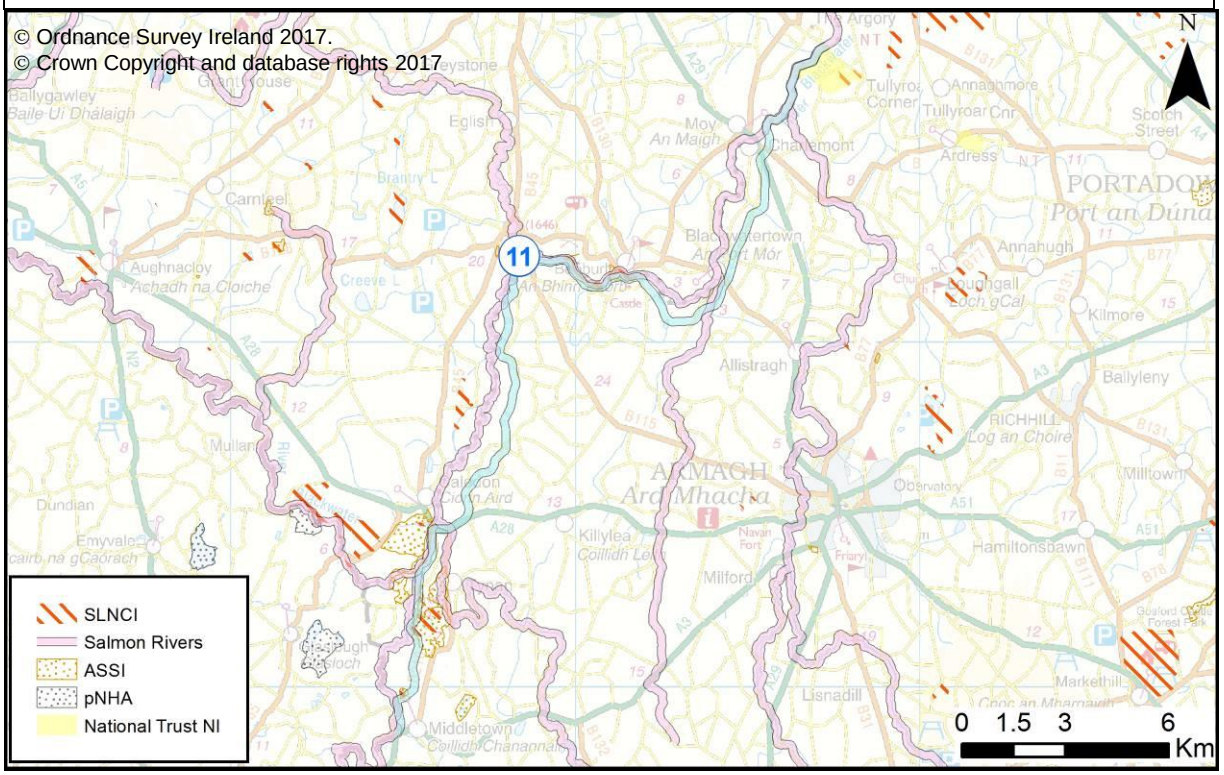
8.12 SECTION 11 – MIDDLETOWN TO BENBURB

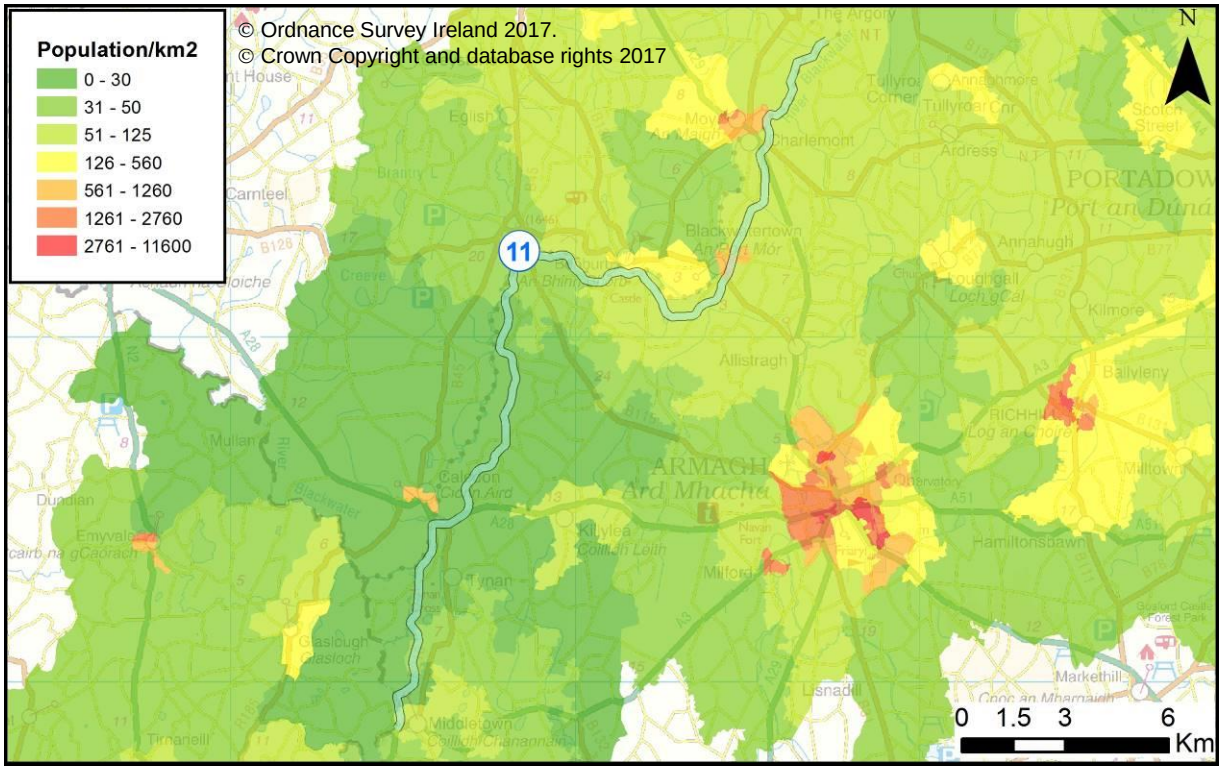
Route	Middletown to Benburb
Length	32km
Local Authorities	Armagh, Banbridge & Craigavon Borough Council Monaghan County Council

Route Information

The Middletown to Benburn section of greenway is proposed to follow the original route of the canal up through the spectacular Benburb gorge and past the National Trust property at The Argory.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.





Key Environmental Issues

Biodiversity, Flora and Fauna – The proposed greenway link is located in close proximity to a number of salmonid rivers, crossing the Ballymartrim River, Callan River Lower, Cor River and Tynan River/Balteagh Stream, in addition to being directly adjacent to Oona Water Lower, River Blackwater Lower, River Blackwater Lower Middle and River Blackwater Middle. The route is located in close proximity to a number of ASSIs, passing through the Caledon and Tynan ASSI and the Benburb – Milltown ASSI. Care is needed to avoid damaging the flora and fauna of these sites by avoiding the disturbance of the surface and subsurface of the land, permanent or temporary structures, natural or man-made features and the wildlife and habitat of the area. In addition, with respect to the Benburb – Milltown ASSI, any extraction of minerals should be avoided. The greenway link is located adjacent to the Benburb ASSI and the Tullybrick Lough ASSI, and is 700m east of the Knocknacloy ASSI. The proposed route passes through the Tynan Abbey Lake and Benburb/ Milltown SLNCIs, is directly adjacent to Tullybrick Lough SLNCI, and is over 150m from the Caledon Estate Lough SLNCI, Kedew SLNCI and Tullygiven Hill SLNCI. The route passes through established ancient woodland at Caledon House and is located less than 1 km from 39 ancient woodlands. The Armagh, Banbridge and Craigavon Local Biodiversity Action Plan notes that the proposed greenway link passes through the Blackwater Flood Plain in Caledon. This is a key floodplain grazing marsh location. It is a low lying pasture adjacent to the River Blackwater. The habitat is especially important for breeding waders which have exhibited a sharp population decline due to the loss of the habitat to drainage and related agricultural improvement.

Population & Human Health - There are over 28,900 people living within 5km of the proposed route. Also within this area there are over 13,600 properties used for residential and commercial purposes. This section has a relatively low, mean population density along the corridor of 191people/km^2, with the areas of highest population density being at Benburnb, Blackwatertown and Charlemont.

Geology, Soils and Landuse – The geology of the area along this section of proposed greenway is largely composed of argillaceous limestone to the south and sandstone to the north. These are overlain, for the most part, by till, sands and silts, with some small peat deposits to the north of the route. The soil in this area is predominantly made up of grey brown podzolics and acid brown earths of moderate to good hydraulic conductivity respectively. The proposed route runs through, and within the vicinity of, a small number of ancient woodlands, predominantly to the south of the

proposed route near Caledon. The route also runs through an ASSI near Milltown, designated due to the local geology of the Pleistoncene epoch.

Water – This proposed stretch of greenway, from Middletown to Benburb, crosses six groundwater bodies. Of these, three have been identified as having 'poor' status and three have been identified as having 'good' status. The greenway further passes within the vicinity of 11 river waterbodies. Five of these are considered to be of 'moderate' ecological status, two are considered to be of 'good' ecological status and a further three are considered to be of 'poor' ecological status. One of the river waterbodies through which the greenway passes is a heavily modified / artificial river waterbody, which has been given the status of having 'bad ecological potential'. There are approximately four river crossings along this route.

As the greenway runs parallel to a large number of rivers, the greenway runs close to the medium probability fluvial floodplain, with large stretches of the proposed route being exposed to fluvial risk for distances in excess of 10 kilometres. Sections crossing medium probability (0.5% or 1% AEP) pluvial flooding along this proposed greenway tend to be concentrated in small areas which span no more than 100 metres in places such as Wilsonstown Lower, Ballymacully and at Foyarr House near Hemp Hill.

Air – There are no real-time air quality monitoring stations within the vicinity of this section of greenway. The closest air quality monitoring station is situated on Lonsdale Road in Armagh City. In 2014 this station recorded an annual mean NO_2 concentration level of 28µg/m^3, and an annual mean PM_{10} concentration of 21µg/m^3. Non-automatic monitoring takes place in Middletown at intervals throughout the course of each year. The annual mean NO_2 concentration recorded for 2014 was 18µg/m^3, which is below limit values. The 2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council reported that all of these measurements were below their respective national air quality limits. The air quality in the environs of this section is generally considered to be good. This is likely to be due, in part, to the absence of large towns in the area; with the main settlements being Moy, Benburb and Middletown. Further to this, there are very few regional or national roads within the vicinity of this section of greenway; the only exception being that of the A29, which runs alongside the greenway for a short distance near Moy.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Within the vicinity of the section of the proposed route which runs through Northern Ireland there are 3 IED sites. There are also 8 waste water treatment plants and ten major roads which intersect the greenway. There are 407 high-voltage powerlines within the vicinity of this study area; some of which are situated towards the north of the proposed route and are associated with 15 high-voltage towers. There is one inactive railway line which crosses this route near Tynan.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route which will run through Northern Ireland there are 11 Scheduled Zones. There are also four designated heritage gardens including Tynan Abbey, Caledon, Benburb and the Argory. Further to these, there are 70 national sites and monuments; many of which are raths, enclosures, battle sites and settlements. There are 113 Industrial Heritage features along this route; many of which are weirs and locks associated with the old Ulster Canal. There are 233 Northern Ireland listed buildings along the proposed route, which are predominantly houses, mills and churches.

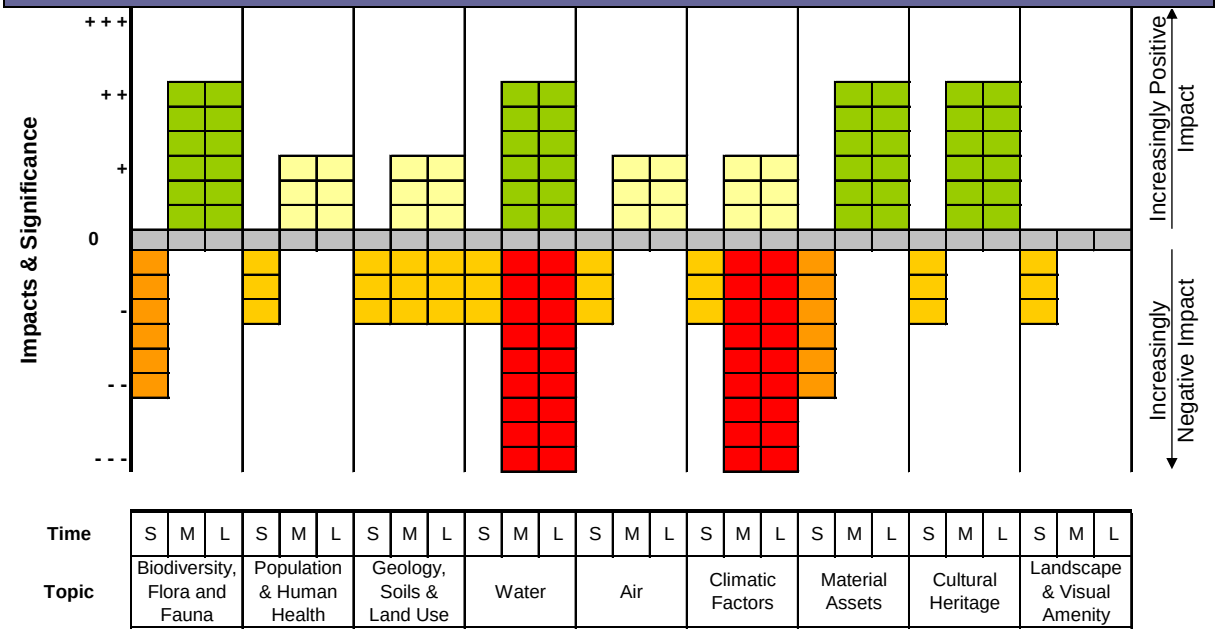
Annagola House stands within the vicinity of the section of the route which will run through the Republic of Ireland. This country house is listed on the National Inventory of Architectural Heritage. The rath associated with Annagola House is a designated national site and one of the two local zones of notification identified under the RMP.

Landscape & Visual Amenity – This section of the Greenway runs along the existing canal route from Middletown in County Armagh, through County Monaghan, to Benburb in County Armagh. The entirety of the proposed greenway route runs through the Blackwater Valley Landscape Character Area. The Blackwater Valley is unable to accommodate large scale development and any such development which takes place should be associated with extensive tree planting so as to ensure

that it does not disrupt the wooded and unspoilt character of the river valley. It is unlikely that this would preclude the development of the Ulster Canal Greenway since the proposed development makes use of existing infrastructure and should integrate well with the surrounding landscape.

Environmental Assessment			
Environmental Topic	**Short Term Impacts**	**Medium Term Impacts**	**Long Term Impacts**
1A - Biodiversity, Flora & Fauna (BFF)	0	0	0
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	1	1
3 - Geology, Soils and Landuse (S)	-1	-1 / 1	-1 / 1
4A - Water (W)	-1	2	2
4B - Water (W)	0	-3	-3
5 - Air (A)	-1	1	1
6 - Climatic Factors (C)	-1	-3 / 1	-3 / 1
7 - Material Assets & Infrastructure (MA)	-2	2	2
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts
Biodiversity, Flora & Fauna - There is the potential for short term, direct and indirect, moderate negative disturbance impacts during the construction phase of the greenway section to the Caledon and Tynan ASSI, the Benburb-Milltown ASSI and SLNCI, the Tynan Abbey Lake SLNCI, and the established ancient woodland at Caledon House for which the link passes through, the Benburb ASSI, and the Tullybrick Lough ASSI and SLNCI, for which the greenway link runs adjacent to, and the Caledon Estate Lough SLNCI, Kedew SLNCI and Tullygiven Hill SLNCI, which come to at least 150m of the greenway link. The Knocknacloy ASSI is located 700m from the proposed route, and hence is unlikely to be impacted by construction and operation of the section of greenway. In the medium and long term however the operation of the greenway could provide for moderate positive impacts, as there is the potential for increased public awareness of and access to the sites of national and local importance, provided this is done in line with conservation objectives. For the sites that are in the vicinity of the greenway section, site / species information can be made available to the public, without direct disturbance to the area. Greater public awareness of the designations, habitats and species can lead to greater protection in the future. Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction. Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link directly affects the unique habitats and wildlife found within the designated sites located within and adjacent to the greenway link, it is recommended that the link is diverted around, rather than directly through and adjacent to the sites. Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to the designated sites. The HRA Screening has determined that development of this route has the potential for a pathway of disturbance effects on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.
Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and long term this route would provide the local and regional population with slight positive impacts from the longest of all the proposed greenway links, with the main areas of population being at Benburnb, Blackwatertown and Charlemont. The link is within close proximity to a small number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
Geology, Soils & Landuse - The proposed greenway link mainly travels along the original route of the canal, and rural roads and laneways, across a landscape of mostly pasture land with small areas of complex cultivation patterns and forestry also. Where agricultural activity has encroached on the disused canal there may be the bisecting of some pasture, complex cultivation and forested lands, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. There is the potential for medium and long term slight positive impacts from the creation of this greenway section, with minimal impacts to unimproved agricultural lands. Detailed design of the route should aim to minimise any disturbance to agricultural and forested lands, by routing the greenway around the periphery of forested areas, lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 10ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on surrounding salmonid rivers. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route both traverses and runs parallel to river sections. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for moderate positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering a number of watercourses including the River Blackwater from development and agricultural lands.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is at risk of 1% AEP fluvial flooding at many locations in the medium and long term, mainly from the River Blackwater and the Cor River, with little potential for the greenway to be designed to contribute to fluvial flood risk management. Relatively long sections of the proposed greenway are also at risk from 0.5% AEP pluvial flooding. Greenway sections in the floodplain and lower lying areas could be designed to be raised above flood waters, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of a relatively long section of greenway, which is within close proximity to a relatively small number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for slight positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate to significant negative impacts, from the interaction with the climate change exacerbated flood extent. Flooding along this route may worsen due to climate change through more frequent inundation. Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for moderate positive impacts from the creation of this new material asset in the medium to long term, which is a relatively long section of greenway. However the greenway has the potential for temporary, slight to moderate negative disturbance impacts to existing infrastructure in the short term. There are several crossings of 10 major roads that may need to be negotiated. In addition, there are 33kV and 275kV powerlines transecting the proposed route, as well as the proposed line of the North-South interconnector. There is also the potential for short term disturbance to agricultural activity; however this can be minimised in the detailed design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of the Ulster Canal gives the potential for preservation and restoration of many canal-related listed features such as bridges, locks and lock houses. There is the potential for increased access to heritage features

as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area, including Annagola House which is located in the vicinity of this proposed section. There is always the potential for disturbance or damage to heritage features during the construction phase, in particular on canal-related sites and features in very close proximity to the proposed route.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term, with necessary steps taken to ensure that the wooded and unspoilt character of the Blackwater Valley is not disrupted. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - As Armagh, Banbridge & Craigavon Borough Council and Monaghan County Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There is the potential for additional cumulative or in-combination impacts with the future development of the N-S Interconnector. The greenway section needs to be designed and operated to be fully compatible with the function and character of this powerline.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Neagh and Lough Beg SPA and Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. There is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for significant negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation. Construction phase disturbance impacts to the transport and energy infrastructure along the route could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of disturbance effects on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

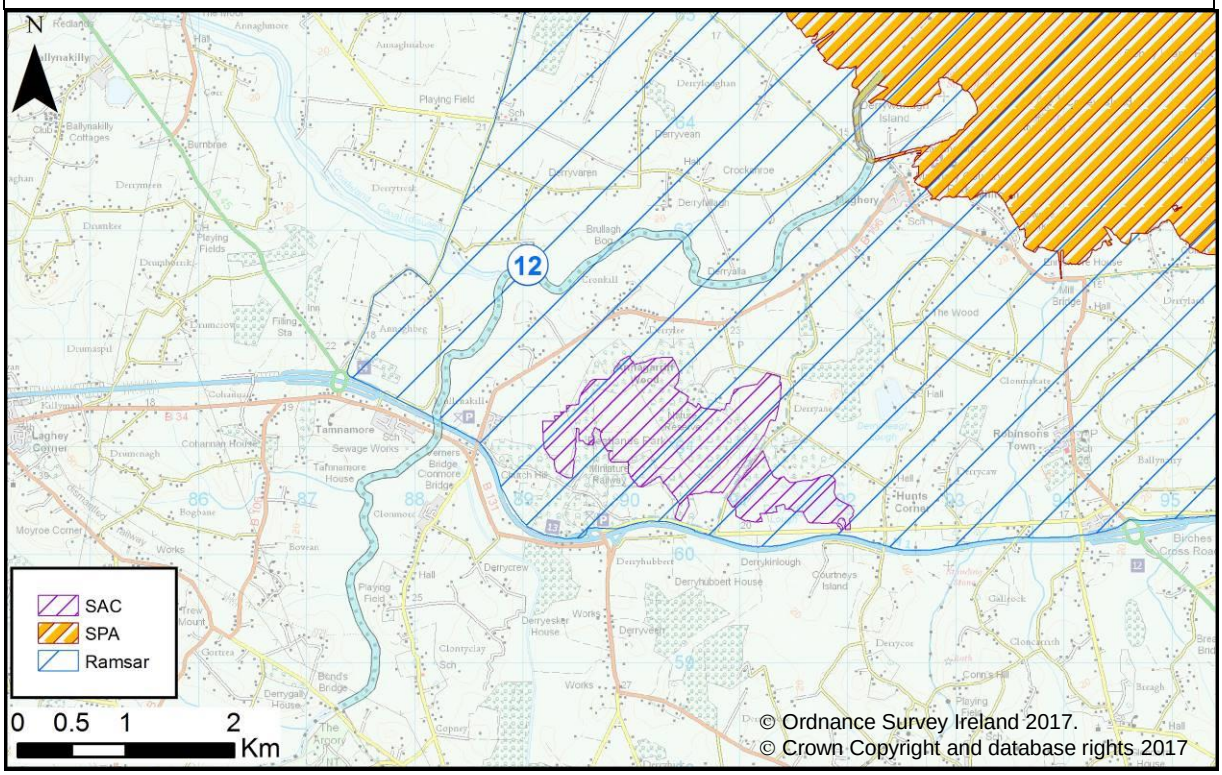
8.13 SECTION 12 – BENBURB TO LOUGH NEAGH

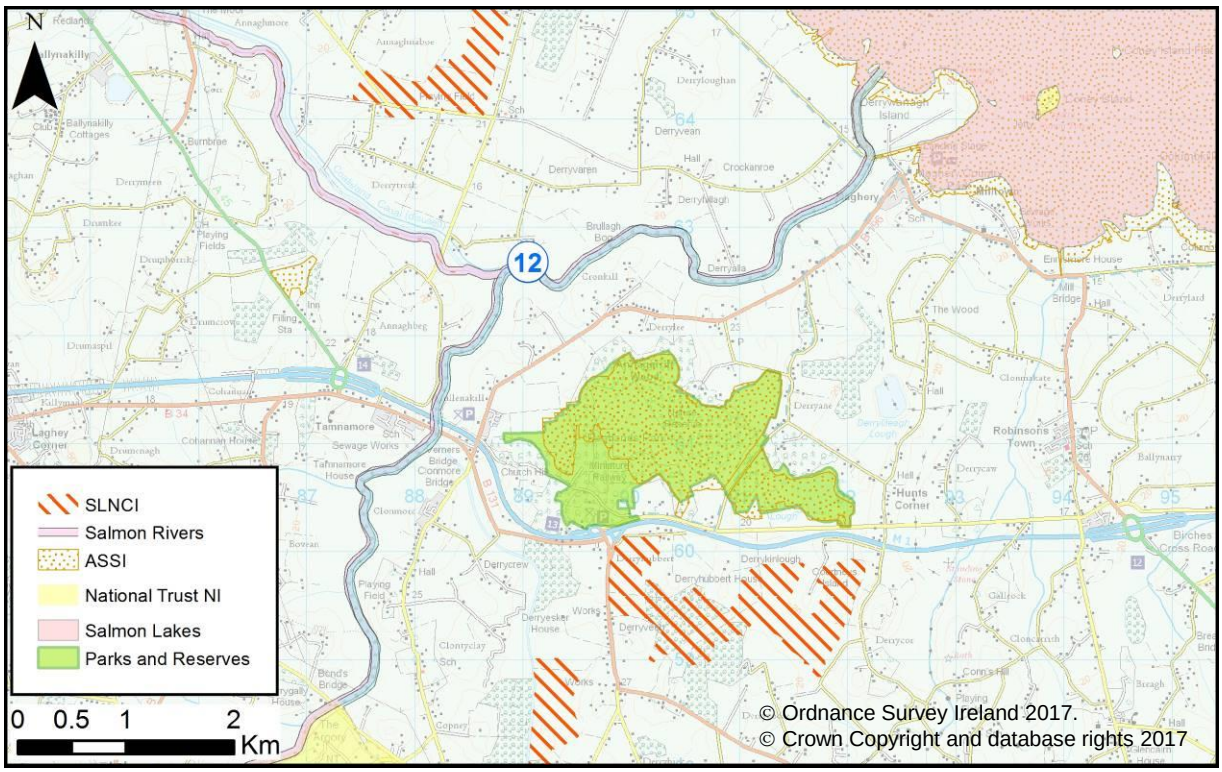
Route	Benburb to Lough Neagh
Length	11km
Local Authorities	Armagh, Banbridge & Craigavon Borough Council

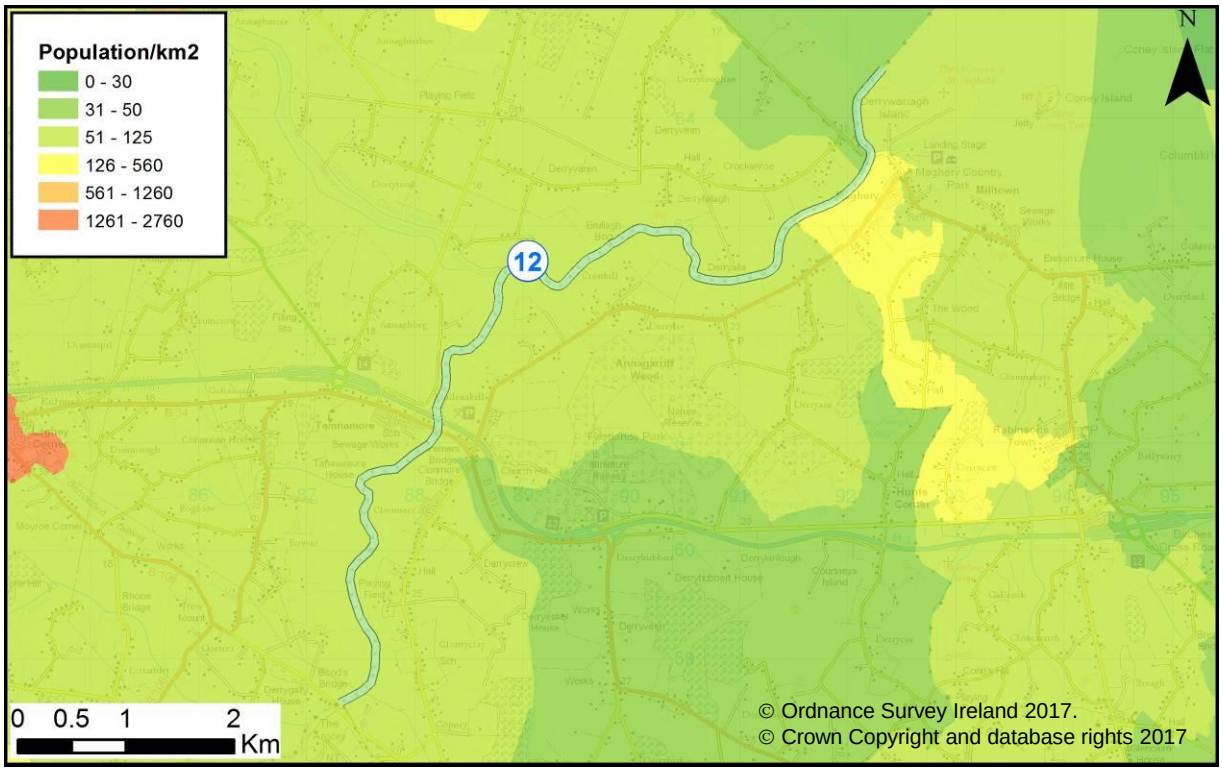
Route Information

The Benburb to Lough Neagh section of greenway is proposed to follow the Blackwater River on from The Argory to Maghery at Lough Neagh.

The below figures demonstrate the international, European and national environmental designations along the route, as well as the population density / km^2, by census small area within 5km of the route.







Key Environmental Issues

Biodiversity, Flora and Fauna - The proposed greenway link is located in close proximity to two salmonid rivers. The entire link travels immediately adjacent to the River Blackwater Lower, and the middle portion of the link is located immediately adjacent to the most easterly point of the Torrnet River Lower, where it flows into the River Blackwater Lower. In addition, the most northerly point of the proposed greenway link is located at the Lough Neagh salmonid lake, Lough Neagh and Lough Beg SPA, and Lough Neagh ASSI. Care is needed to avoid damaging the flora and fauna of this ASSI site by avoiding the disturbance of the surface and subsurface of the land, permanent or

temporary structures, natural or man-made features, drainage, and the wildlife and habitat of the area. The middle section of the Benburb to Lough Neagh greenway link is over 920m north-west of the Peatlands Park SAC and Peatlands Park ASSI (which are located east of Dungannon). The northern half of the link is located within the Lough Neagh and Lough Beg Ramsar Site. The most southerly section of the proposed greenway link is located 760m north-west of Argory Mosses SLNCI and the middle section of the link is located 500m west of Torrent River SLNCI. The proposed link is located in close proximity (less than 1 km) to 21 ancient woodlands, although it does not pass through any. In addition, the middle section of the proposed link is located 850m north-west of Mullenakill and Annagarriff Nature Reserve and the northern region of the link is located immediately south of the Islands in Lough Neagh Nature Reserve.

The Armagh, Banbridge and Craigavon Local Biodiversity Action Plan notes that the link passes through the wet grassland around Lough neagh and Portmore Lough which support important populations of Northern Ireland priority breeding wader species such as lapwing, golden plover, curlew, redshank and snipe.

Population & Human Health - There are over 21,900 people living within 5km of the proposed route. Also within this area there are over 13,600 properties used for residential and commercial purposes. This section has a relatively low, mean population density along the corridor of 267people/km^2, with the area of highest population density being at Maghery.

Geology, Soils and Landuse – The geology in the area is largely composed of mudstone and subordinate lignite. This is overlain by peat, till, sand and silt. To the north of the route, on the Lough Neagh shores, clay deposits can also be found. The soil in this area is mostly made up of acid brown earths with good hydraulic conductivity. Landcover in the vicinity of the proposed greenway section is predominantly grassland, which is used as pasture land for grazing livestock.

Water – The proposed stretch of greenway, from Benburb to Lough Neagh, passes through one groundwater body. This waterbody has been identified as having 'good' status. The greenway further passes within the vicinity of one lake waterbody and across three river waterbodies. Of the river waterbodies, one of these is considered to be of 'poor' ecological status. The remaining two are heavily modified / artificial watercourses and are considered to have 'bad ecological potential'. There is one river crossing along this route.

The River Blackwater runs alongside the proposed greenway route and medium probability (1% AEP) fluvial floodplain is present along the entirety of this 10km stretch of greenway. With that being said, medium probability (0.5% or 1% AEP) pluvial flooding along this section tends only to be concentrated in small areas. The two areas where the proposed greenway intersects areas of pluvial flooding most significantly are at Derrywarragh Island and the area north of Bond's Bridge. Here the route of the proposed greenway spans pluvial flooding extents for approximately 200 and 400 metres respectively.

Air – There are no real-time air quality monitoring stations within the vicinity of this section of greenway. The closest air quality monitoring station is situated on Lonsdale Road in Armagh City to the east of the proposed route. In 2014 this station recorded an annual mean NO_2 concentration level of 28µg/m^3 and an annual mean PM_{10} concentration of 21µg/m^3. Both of these estimates are below the air quality objective limits. Air quality in the environs of this section of greenway is generally considered to be good. This is likely to be due, in part, to the absence of large towns within its vicinity. That being said, the M1 runs perpendicular to part of this route and has the potential to be a considerable source of local air pollution.

Climatic Factors – There are no climatic conditions specific to this section of proposed greenway.

Material Assets & Infrastructure – Along this section of proposed route there are three significant roads which intersect the greenway. There are ten high-voltage powerline towers within the area also. These are situated to the south of the proposed route.

Cultural, Architectural & Archaeological Heritage - Within the study area of the proposed route there are ten sites and monuments. These include two enclosures as well as two archaeological find spots; one of which is to the north of the route and the other of which is to the south. In addition

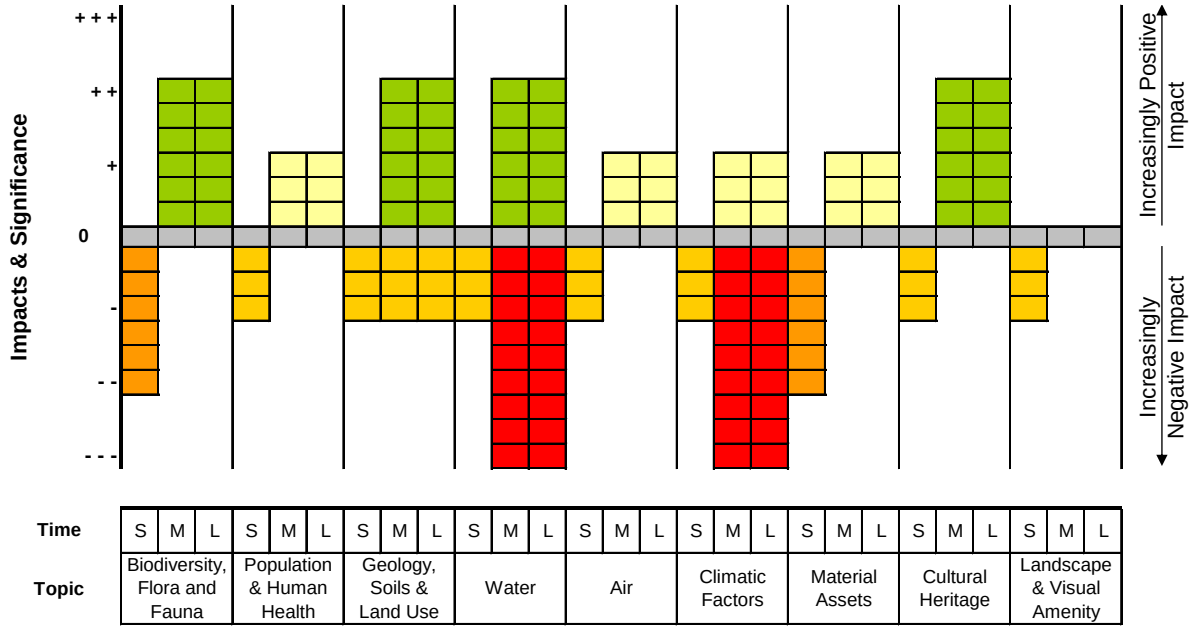
to these, there is one designated heritage garden which can be found on the southern periphery of the study area.

Landscape & Visual Amenity - This section of proposed greenway route runs adjacent to the existing canal / river line which runs through County Armagh to Lough Neagh. Following this line, the proposed route passes through two Landscape Character Areas, the Loughgall Orchard Belt and the Lough Neagh Peatlands, into the Lough Neagh Basin LCA. The Lough Neagh Shores which surround the basin are considered to be an Area of Scenic Quality. This designated area includes parts of the Lough Neagh Peatlands. These are a flat and open 'wetland and shoreline landscape on the edge of Lough Neagh. Subsequently, the Lough Neagh Peatlands are considered to be extremely sensitivity to the visual impact of vertical elements and are highly valued for their scenic quality and wildlife interest. The Loughgall Orchard Belt is an area of low rolling drumlins with wooded designed estate landscapes, parklands and attractive loughs. It is considered to have a low/medium degree of sensitivity to change. Owing to the low lying nature of the greenway and the interests of the greenway being to preserve and protect the local landscape quality, it is unlikely that these landscape features will preclude the development of the Ulster Canal Greenway.

Environmental Assessment

Environmental Topic	Short Term Impacts	Medium Term Impacts	Long Term Impacts
1A - Biodiversity, Flora & Fauna (BFF)	-2	2	2
1B - Biodiversity, Flora & Fauna (BFF)	-2	2	2
2 - Population & Human Health (PHH)	-1	1	1
3 - Geology, Soils and Landuse (S)	-1	-1 / 2	-1 / 2
4A - Water (W)	-1	2	2
4B - Water (W)	0	-3	-3
5 - Air (A)	-1	1	1
6 - Climatic Factors (C)	-1	-3 / 1	-3 / 1
7 - Material Assets & Infrastructure (MA)	-2	1	1
8 - Cultural, Architectural & Archaeological Heritage (H)	-1	2	2
9 - Landscape & Visual Amenity (L)	-1	0	0

Summary Chart of Impacts



Discussion of Impacts

Biodiversity, Flora & Fauna - There is the potential for short term, direct and indirect, moderate negative disturbance impacts during the construction phase of the greenway section to the Lough Neagh and Lough Beg SPA and Ramsar site, and the Lough Neagh ASSI and salmonid lake, for which the northern section of the greenway link passes through. The Peatland Park SAC and ASSI, Argory Mosses SLNCI, Torent River SLNCI and Mullenakill and Annagariff Nature Reserve are located at least 500m from the proposed greenway route. Hence, these sites are unlikely to be impacted by construction and operation of the section of greenway.

In the medium and long term however the operation of the greenway link could result in moderate positive impacts, with the potential for increased awareness of and access to European sites, in line with conservation objectives. The sites are near to the greenway section allowing for site / species information to be made available on this link. Greater public awareness of the designations, habitats and species can lead to greater protection in the future.

Development of this section of greenway is unlikely to provide a new vector for invasive species or increase the rate of their spread, provided strict management protocols, including cleaning of equipment and machinery, are adhered to in construction.

Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important. In the event that the construction of the greenway link passing through the designated sites directly affecting Lough Neagh and its associated wintering and breeding birds, wetland vegetation, rare invertebrate and fish species for which the area has been designated, it is recommended that the link is diverted around, rather than through the sites, where possible. In addition, surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to Lough Neagh.

The HRA Screening has determined that development of this route has the potential for a pathway of disturbance effects on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

Population & Human Health - Development of the greenway section could create short term, direct and indirect, slight negative, disturbance impacts to the local population. In the medium and

long term this route would provide the local and regional population with slight positive impacts from a relatively short greenway link, with the main area of population being at Maghery. The link is within close proximity to a relatively small number of people that would be provided with potential health benefits from improved access to green space. The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.

Geology, Soils & Landuse - The proposed route travels along the River Blackwater, across a landscape of pasture land. Where agricultural activity has encroached along the banks of the river, there may be the bisecting of some pasture lands, resulting in the potential for short, medium and long term slight negative impacts of the greenway link. There is the potential for medium and long term moderate positive impacts from the creation of this greenway section, with minimal impacts to arable, cultivated and improved lands. Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them. Development of this route will potentially change the use of approximately 3ha of land.

Water - There is the potential for the construction of the greenway to have short-term, temporary, localised, direct and in-direct impacts to water quality through surface water runoff and spillages, which could have impacts on surrounding salmonid rivers and lakes. The construction of the greenway is unlikely to require any new bridges and existing infrastructure will be used for water crossings. This route both traverses and runs parallel to river sections, however mainly will run in parallel to the River Blackwater. In the medium and long term the operation of the greenway is unlikely to have any significant impacts on water quality, however could provide for moderate positive impacts, as there is the potential for increased public awareness of water quality / ecology issues, through signage and information provided along the route, as well as the potential for a contribution to improvement to water status by buffering the River Blackwater from development and agricultural lands.

Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.

This greenway section is unlikely to have any impacts on groundwater status provided spillages of hazardous materials are avoided during construction excavations.

The greenway section is potentially at risk of 1% AEP fluvial flooding at many locations in the medium and long term from the River Blackwater and Lough Neagh, with little potential for the greenway to be designed to contribute to fluvial flood risk management. Relatively long sections of the proposed greenway are also at risk from 0.5% AEP pluvial flooding. Greenway sections in the floodplain and lower lying areas could be designed to be raised above flood waters, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.

Air - There is the potential for short-term, temporary, direct, slight negative impacts on local air quality from construction plant emissions on local receptors, however there are no air quality sensitive areas in the vicinity of the route. In the medium and long term there is the potential for reductions in air emissions from reduced traffic due to operation of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use.

Climatic Factors - There is the potential for slight negative impacts from the short term, direct, temporary loss of GHG sequestering vegetation during the construction of the greenway, however much of this will be re-planted and will re-establish in the medium and long term, apart from along the route surface itself. In the medium and long term there is the potential for slight positive impacts from the reduction in GHG emissions from reduced vehicle movements in the area. There is also the potential for medium and long term moderate to significant negative impacts, from the interaction with the climate change exacerbated flood extent. Flooding along this route may worsen due to climate change through more frequent inundation. Design of the greenway should ensure

that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.

Material Assets & Infrastructure - There is the potential for slight positive impacts from the creation of this new material asset in the medium to long term, which is a relatively short section of greenway. However the greenway has the potential for temporary, slight to moderate negative disturbance impacts to existing infrastructure in the short term. There are several crossings of three significant roads that may need to be negotiated, including the M1. In addition, there are 33kV and 275kV powerlines transecting the proposed route. There is also the potential for short term disturbance to agricultural activity, however this can be minimised in the detail design of the greenway, by routing around existing boundaries and farmsteads, limiting the bisecting of lands and activity. It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.

Cultural, Architectural & Archaeological Heritage - Development along the route of the Blackwater River gives the potential for preservation and restoration of many river-related listed features such as bridges, jetties and viaducts. There is the potential for increased access to heritage features as part of the greenway section development in the medium and long term. Information can be made available on the greenway section to educate users on the heritage of the area. There is always the potential for disturbance or damage to heritage features during the construction phase.

Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features. In some circumstances this may require the greenway section to be routed around the features and sites.

Landscape & Visual Amenity - There is the potential for slight negative, temporary impacts on the local landscape during the construction phase of this section of greenway. There are unlikely to be any significant positive or negative impacts on landscape and visual amenity in the medium to long term, with necessary steps taken to ensure that the Lough Neagh Peatlands are not visually disrupted. Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

Additional Impacts - As Armagh, Banbridge & Craigavon Borough Council are project partners in this Strategy there should be no negative interactions with their current and future Area Plans.

There are no additional anticipated significant negative, cumulative or in-combination impacts from construction and operation of this section.

Key Conclusions:

The development of this section of greenway has the potential for several short-term, temporary, slight negative impacts on various environmental topics, due to potential construction phase disturbance impacts. These construction phase disturbance impacts to the Lough Neagh and Lough Beg SPA and Ramsar Site could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning. There is the potential risk of inundation from pluvial and fluvial flooding and climate change exacerbated flooding. The potential for significant negative impacts from flooding is with regards to impacts on the route, rather than to exacerbating the risk. These potential risks can be accepted as the greenway is low vulnerability infrastructure or the route can be designed to minimise inundation. Construction phase disturbance impacts to the transport and energy infrastructure along the route could be moderate if not adequately planned for and mitigated for in the detailed design and construction planning.

Development of this section of greenway has the potential for several medium and long term, moderate positive impacts on various environmental topics from the provision of sustainable transport, recreational and amenity infrastructure, and the potential for increased public awareness and education of environmental issues, including biodiversity, flora, fauna, water quality and

heritage.

The HRA Screening has determined that development of this route has the potential for a pathway of disturbance effects on the habitats and species of the Lough Neagh and Lough Beg SPA and Ramsar Site, and likely significant effects cannot be discounted without mitigation measures. This route is likely to require further screening and Stage 2 Appropriate Assessment at the detailed design stage.

8.14 CUMULATIVE / IN-COMBINATION DEVELOPMENT IMPACTS

The current Strategy is proposing the 12 alternative routes as being individual links that could be developed independently as funding becomes available. The development of all 12 routes would provide for the most significant cumulative and in-combination, positive, medium and long term impacts for the population of the region. Operation of all 12 routes as one overall Ulster Canal Greenway is unlikely to provide any additional negative impacts over those assessed for the individual links. However the simultaneous construction of the 12 greenway links would give the most significant, cumulative and in-combination, negative, short term impacts to the wider environment, unless a well phased and well planned approach is developed that can minimise or eliminate the potential for these construction impacts.

9 MITIGATION AND MONITORING

9.1 MITIGATION

Mitigation measures have been recommended where potential negative impacts from developing the alternative greenway routes on environmental topic areas have been identified. These mitigation measures aim to prevent, reduce and as fully as possible offset any significant adverse effects on the environment due to implementation of the Strategy.

9.1.1 General Mitigation

General mitigation measures that have been mentioned throughout Section 8 and the AA Screening can be summarised as follows:

- Construction in the vicinity of sensitive environmental areas should be well planned and timed to have the least disturbance impacts, with seasonality of works very important.
- Surface water runoff from the working strip should be managed to ensure no sedimentation or contamination to waterbodies.
- The detailed design of the route should aim to minimise any disturbance to the local population by routing the greenway around property boundaries. The construction management plan for the route should streamline the construction programme to provide the least disturbance and inconvenience to the local population.
- Detailed design of the route should aim to minimise any disturbance to agricultural lands, by routing the greenway around the periphery of lands and farmsteads and not directly through them.
- Greenway design and construction should allow for surface water infiltration to replicate greenfield conditions. Fringe vegetation on the greenway should be planned to screen, filter and as best possible, soak up surface water runoff.
- The greenway sections in these lower lying areas may need to be designed to be raised above the floodplain, while not displacing water and creating additional flood risk to nearby receptors through sufficient culverting, or the risk can be accepted as this is essentially low vulnerability infrastructure and the greenway designed not to be damaged by periodic inundation.
- Design of the greenway should ensure that the section is resilient to climate change and its anticipated impacts, such as increased pluvial and fluvial flooding from increased rainfall intensity.
- It is essential that safety considerations are taken into account in the detailed design and construction management plan where construction personnel and greenway users will be in close proximity to any significant infrastructure along the route.
- Detailed planning of the section can make best use of the heritage features along the route. Construction of the greenway may need to be sensitive in areas where there is known or the potential for heritage features.

- Detailed design of the greenway section should be in fitting with the local landscape and make the most of local views. The greenway should work with the local topography and be generally inconspicuous within the landscape.

- Abandoned railway lines have often escaped agricultural improvements - high organic and inorganic fertilizer inputs, silage cutting etc., more so where they occur on raised ground. As such, they often harbour plant species that are uncommon or rare in the wider country side and may support protected species. Similarly, for disused canal sections, where there are areas of standing water, there could be extant populations of breeding smooth newt. These areas will need surveyed and studied further during the detailed planning and potentially monitored during the construction phase.

- If several greenway sections are to be constructed simultaneously the construction management plan will need to eliminate or mitigate for potential cumulative negative impacts on the wider environment, such as cumulative disturbance to local flora and fauna, or cumulative increased site runoff and sedimentation to waterways.

9.1.2 Mitigation by SEA Topic

Table 9.1 demonstrates SEA topic specific mitigation measures that should be adopted within the Strategy to minimise the potential for any negative impacts on the wider environment from developing the greenway routes. These mitigation measures should be implemented and further developed at the next detailed design stage and project level study stage.

Table 9.1 Proposed SEA Mitigation Measures

SEA Topic	Impact	Proposed Mitigation
BFF	Temporary disturbance and destruction of existing habitats and flora, and the displacement of fauna, along the greenway route.	Replanting and landscaping following construction should be done in line with appropriate guidelines that aim to improve local biodiversity and wildlife, therefore will give medium and long term benefits to the biodiversity, flora and fauna of the working areas. Good planning and timing of works to minimise footprint impacts. Where applicable, prior to any vegetation clearance an ecologist should be contracted to undertake a 'pre-vegetation clearance' survey for signs of nesting birds and important species. Should important species be found during surveys the sequential approach of avoid, reduce or mitigate should be adopted to prevent significant impacts. Vegetation clearance should only occur outside bird nesting season (1st March to 31st of August).
BFF	Temporary displacement of otters, birds, fish and other fauna during the construction period	Good planning and timing, prior to sensitive construction methods is essential. Potentially using NRA construction guidelines, e.g. On Crossing of Watercourses, On Treatment of Otters etc, Eastern Regional Fisheries Board Requirements for 'Protection of Fisheries Habitat during Construction and Development Works at River Sites' and IFI 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters'.
BFF	Impact on European sites, habitats and species from	Good planning and timing of works and good construction and management practices to keep impacts to a minimum.

	construction works.	
BFF	Spread of invasive species during construction.	Cleaning of equipment and machinery along with strict management protocols to combat the spread of invasive species.
P / HH	Construction disturbance to the local population.	Disturbances can be kept to a minimum with good working practices, planning and timing. Adoption of Construction Best Practice.
P / HH	Health and Safety risk to the local population during construction works.	Good construction management practices and planning of works. Adoption of Construction Best Practice.
S	Removal of soil and rock material via dredging and excavation works during construction.	Re-use material where possible on site for either embankments or landscaping. Materials to be stored away from any river banks to ensure that runoff does not affect water quality in the river in the form of increased suspended solids.
W / BFF	Temporary disturbances of water quality during the construction phase	Good management and planning to keep water quality disturbance to a minimum. Any potential water quality issues from construction should be contained and treated to ensure no damage to natural waterbodies. Construction will have to be planned appropriately, using Best Available Techniques / Technology (BAT) at all times, to ensure water quality issues are kept to a minimum, with no significant adverse effects. Guidelines such as CIRIA Document C532 - Control or Water Pollution from Construction Sites and CIRIA documents C521 - SUDS - Design manual for Scotland and NI, and C523 - SUDS - Best Practice Manual to be adhered to. Development and consenting of environmental management plan prior to commencement of works.
W / BFF	Potential for pollution incidents during the construction phase.	Minimise or eliminate requirement for in-stream works through good planning. Strict management and regulation of construction activities. Provision of good facilities in construction areas to help prevent pollution incidents. Preparation of emergency response plans. Good work practices including; channelling of discharges to settlement ponds, construction of silt traps, construction of cut-off ditches to prevent run-off from entering watercourse, hydrocarbon interceptors installed at sensitive outfalls, appropriate storage of fuel, oils and chemicals, refuelling of plant and vehicles on impermeable surfaces away from drains / watercourses, provision of spill kits, installation of wheelwash and plant washing facilities, implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste and regular monitoring of surface water quality.
MA	Disturbances to local infrastructure during the construction phase, e.g. traffic, water and electricity.	Good site management practices, traffic and construction management plans and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale. Adoption of Construction Best Practice.
H	In the short term construction period there is the potential for damage to heritage features.	Construction supervision by qualified archaeologists, combined with sensitive construction methods and restoration would mean this damage could be kept to a minimum. Heritage features discovered could be restored / preserved. Review of draft detailed designs in areas of potential impacts by qualified archaeological / architectural heritage expert.
H	Medium and long term impacts on the setting of heritage features	Impacts could be kept to a minimum through sensitive design and planning. Planning and design advice from qualified archaeologists. Statutory consents may be

		required prior to works.
H	Potential for undiscovered heritage to be impacted upon by construction operations.	Supervision of construction operations by qualified archaeologists will minimise any impacts or the possibility of destruction of undiscovered heritage features in areas of heritage potential.
L	Extent and severity of short term negative impacts on landscape from construction.	Impacts could be kept to a minimum through good site practice and planning (eg. screened laydown areas and traffic management). Adoption of Construction Best Practice.

BFF – Biodiversity, Flora, Fauna. P/HH – Population, Human Health. S – Soils, Geology, Landuse. W – Water. MA – Material Assets. H – Heritage. L – Landscape.

9.1.3 HRA Screening Mitigation

Table 9.2 demonstrates HRA Screening mitigation measures that should be adopted within the Strategy to minimise the potential for any negative impacts on the European sites of developing the alternative routes in the Strategy. These mitigation measures should be implemented and further developed at the next detailed design stage and project level study stage.

Table 9.2 Proposed HRA Screening Mitigation Measures

Route	Subject / Issue	Mitigation
1	**Whooper Swan Survey**	Contact Irish whooper swan study group and British Trust for Ornithology (BTO) for data identifying their whereabouts. 'Windscreen survey' or on foot - once a month all winter to identify presence / absence in fields affected by the project.
	Pollution Prevention	Strict measures to prevent pollutants entering watercourses that enter Upper Lough Erne SAC. The contractor should adhere to a prescribed CEMP and measure therein to prevent soil or contaminants entering a watercourse during construction.
2	**Otter Survey**	Otter survey along the Finn River/pre-defined zone of influence (typically 30m). Of primary concern here is damage to an otter holt or couch. This survey area can be defined once detailed greenway route is established. Surveys for otter can be conducted all year round.
	Whooper Swan Survey	Contact Irish whooper swan study group and British Trust for Ornithology (BTO) for data identifying their whereabouts. 'Windscreen survey' or on foot - once a month all winter to identify presence / absence in fields affected by the project.
	Pollution Prevention	Strict measures to prevent pollutants entering watercourses that enter Upper Lough Erne SAC in N. Ireland and Lough Oughter and Associated Loughs SAC in the Irish Republic. The contractor should adhere to a prescribed CEMP and measure therein to prevent soil or contaminants entering a watercourse during construction.
3	**Otter Survey**	Otter survey along Dawson's and Holy Loughs, Commons Lough, Round Lough, Parisee Lough and Drumellis and Tullyroane Loughs. A zone of influence can be defined once detailed greenway route is established. Surveys for otter can be conducted all year round.
	Pollution Prevention	Strict measures to prevent pollutants entering watercourses that enter Lough Oughter and Associated Loughs SAC. The contractor should adhere to a prescribed CEMP and measure therein to prevent soil or contaminants entering a watercourse during construction.
4	**Annex I Bog Woodland**	The woodland at Rahellistin (through which Section 4 travels) and the woodlands at Keeny Lough (Drumharid) and Peartree Lough

		(Coolboyoge) alongside which Section 4 travels require survey to ascertain their Annex I status should works encroach on these habitats. Rahellistin has the potential to be Annex I bog woodland, a qualifying feature of Lough Oughter and associated Loughs SAC. The woodlands at Keeny Lough and Peartree Lough are unlikely to be examples of Annex I bog woodland. However, they should be ruled out as a precaution should works encroach upon these habitats.
	Pollution Prevention	Strict measures to prevent pollutants entering watercourses that could enter Lough Oughter & Associated Loughs SAC and / or Lough Oughter Complex SPA. The contractor should adhere to a prescribed CEMP and measure therein to prevent soil or contaminants entering a watercourse during construction.
12	**Bird surveys**	Contact the BTO for data indicating breeding wader sites along the greenway that travels within the Ramsar Site. Contact the Irish whooper swan study group for data indicating whooper swan along the greenway that travels within the Ramsar Site. Breeding wader survey, four visits (April to July) along the greenway that travels within the Ramsar Site so to identify breeding activity. Whooper swan survey (on foot) along proposed greenway within the Ramsar Site - surveying once a month all winter to identify presence / absence.
	Pollution prevention	Strict measures to prevent pollutants entering watercourses that enter Lough Neagh SPA and Ramsar Site. The contractor should adhere to a prescribed CEMP and measure therein to prevent soil or contaminants entering a watercourse during construction.
6, 7, 8, 9, 10 &11	**Pollution prevention**	Strict measures to prevent pollutants entering watercourses that enter Lough Neagh SPA and Ramsar Site. The contractor should adhere to a prescribed CEMP and measures therein to prevent soil or contaminants entering a watercourse during construction.

9.2 MONITORING

The SEA Directive requires that the significant environmental effects of the implementation of a Plan are monitored in order to identify at an early stage unforeseen adverse effects and in order to undertake appropriate remedial action. The proposed monitoring programme in **Table 9.2** is based on the Targets and Indicators established in the SEOs (given in **Section 3.2**). This proposed monitoring has been adopted into Section 7 of the draft Strategy and will be undertaken during development of the 2nd cycle of the Strategy.

Table 9.3 Environmental Monitoring of Strategy

Criteria	Objective		Sub-Objective		Indicator	Possible Data and Responsible Authority
Biodiversity, Flora & Fauna	**1**	Avoid damage to, and where possible enhance, the biodiversity, flora and fauna in the vicinity of the greenway sections.	**A**	Avoid detrimental effects to, and where possible enhance, Natura 2000 network, protected species and their key habitats, in line with conservation objectives.	Area, condition and trend of European sites in the UoM (European sites to review are those identified by AA Screening.)	NPWS / NIEA – Conservation Action Plans NPWS / NIEA reporting on Habitats and Species – Article 17 Reports, and Birds – Article 12 Reports.
			B	Avoid damage to or loss of, and where possible enhance, national and local nature conservation sites and protected species, or other know species of conservation concern.	Area, condition and trend of national, regional or local conservation sites in the vicinity of greenway links. (National sites to review are those identified in SEA Environmental Report.)	Local Authority – Local Area Plans and County Development Plans. NPWS / NIEA - Status of Protected Sites and Species in Ireland Reporting
Population & Human Health	**2**	Provide a safe and peaceful sustainable transport and recreational greenways for public use with access for all and with no risk to human health.	**A**	Provide a safe and peaceful sustainable transport and recreational greenways for public use with access for all and with no risk to human health.	Lengths of greenway created. Population in vicinity of greenway. Predicted number of greenway users.	Waterways Ireland and Local Authority Reporting NISRA / CSO – Census data
Geology, Soils and Landuse	**3**	Minimise the loss of soil resource and minimise impacts on geological heritage from creation and operation of greenway sections.	**A**	Minimise the loss of soil resource and minimise impacts on geological heritage from creation and operation of greenway sections.	Areas of agricultural land lost and land parcels bisected by sections of greenway. Geological heritage potentially impacted by greenway	EPA / EEA - CORINE landcover mapping. Local Area Plans and County Development Plans – Planning NI and myplan.ie GSI / GSNI Reporting
Water	**4**	Minimise impacts on water quality and flood risk.	**A**	No negative impacts on surface and groundwater, and to provide no impediment to the achievement of water	WFD water status of surface and groundwater's in the area. Waterbody morphology.	EPA / NIEA – WFD status reporting and RBMPs.

				body objectives under the WFD.		
			B	No negative impacts on flood risk management activity, and to provide no impediment to the implementation of the Floods Directive.	Interaction with flood extents.	OPW / DfI Rivers - Flood Risk Management Plans
Air	**5**	Improvement in air quality from reduced vehicle emissions.	**A**	Improvement in air quality from reduced vehicle emissions.	Predicted vehicle emissions.	EPA / Local Authorities / NIEA – Annual air quality monitoring summaries and Continuous air quality monitoring.
Climatic Factors	**6**	Adaption of the greenway sections to climatic change and no contribution to GHG emissions	**A**	Adaption of the greenway sections to climatic change and no contribution to GHG emissions	Interaction with climate change flood extents. GHG emissions during construction and operation of greenway sections.	EPA / Local Authorities / NIEA – Annual air quality monitoring summaries and Continuous air quality monitoring. OPW / DfI Rivers - Flood Risk Management Plans
Material Assets & Infrastructure	**7**	Creation of greenway sections with no impediment to existing and proposed infrastructure.	**A**	Creation of greenway sections with no impediment to existing infrastructure.	Transport and energy infrastructure along the proposed route of the greenway section.	ESB / EIRGRID / SONI / NIE / TNI / TII - Annual Reporting and Plans
Cultural, Architectural & Archaeological Heritage	**8**	Avoid loss of or damage to heritage features and where possible incorporate heritage features into the greenway.	**A**	Avoid loss of or damage to heritage features and where possible incorporate heritage features into the greenway.	National and local designated heritage sites and monuments.	NIEA / Local Authority / DAHRRG / OPW reporting.
Landscape & Visual Amenity	**9**	Protect, and where possible enhance, landscape character and visual amenity in the vicinity of greenway sections.	**A**	Protect, and where possible enhance, landscape character and visual amenity in the vicinity of greenway sections.	Landscape character assessments. Designated landscapes and views.	Local Authority / NIEA – Landscape Character Assessments, County Development Plans and Local Area Plans. EPA / EEA - CORINE Landcover.

10 SUMMARY AND CONCLUSIONS

This SEA Environmental Report has been prepared to provide a formal and transparent assessment of the likely significant impacts on the environment arising from the Strategy, including consideration of reasonable alternatives. As the Strategy has the potential to impact upon European sites there is a requirement under the EU Habitats Directive to carry out an AA Screening.

This SEA Environmental Report has identified the potential positive and negative impacts on the wider environment of constructing and operating these individual greenway routes, along with highlighting the impacts of developing all routes. These reports are designed to help support the decision making in the Strategy, to ensure Waterways Ireland and their project partners are fully aware of the environmental constraints and opportunities on these routes, and to help the future sustainable development of projects that come from the Strategy.

No significant negative impacts are being anticipated from development and operation of the greenway routes, however it has been identified that there is the potential for fluvial and pluvial flood risk and climate change exacerbated flood risk to have significant negative impacts on some of the routes, given their low lying or floodplain location, unless they are designed as being resilient to inundation. There have been several slight to moderate, short term, negative impacts identified from the construction of the routes, however many of these can be avoided or mitigated for in the next detailed design and construction / environmental management planning stages.

In the medium to long term the development of these greenway routes would be deemed as having overall moderate to significant positive impacts through the provision of outdoor amenity, sustainable transport corridors, that can help improve public health, reduce vehicle trips and emissions, and put the public in touch with and increase awareness of, our environment and heritage.

The AA Screening of the Strategy has highlighted the European sites and species that could be impacted by disturbance impacts and habitat deterioration from development of several of the greenway sections, if sufficient mitigation measures are not implemented. Once again it is envisaged that potential negative impacts can be avoided or mitigated for in the next detailed design and construction / environmental management planning stages.

11 NEXT STEPS

Consultations on the draft Strategy, SEA Environmental Report and HRA Screening are anticipated to commence in May 2017 and run for 12 weeks. The consultation activities will take the form of Public Consultation Days, documents being made available for viewing at Waterways Ireland premises and the documents being made available digitally via the Waterways Ireland and project partner Local Authority websites.

Following completion of the consultation period, all comments will be collated and the Strategy, SEA Environmental Report and HRA Screening will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the Strategy, the final version of the Strategy can be drafted and adopted. This is anticipated to be in late 2017. Following release of the adopted Ulster Canal Greenway Development Strategy a SEA Statement will be drafted to summarise the process undertaken and identify how environmental considerations and consultations have been integrated into the final Strategy. **Table 11.1** demonstrates the proposed upcoming time stages for the Strategy, SEA and AA.

Table 11.1: Draft Anticipated Milestones

Ulster Canal Greenway Development Strategy	Dates	Strategic Environmental Assessment / Habitats Regulation Assessment
Development of Ulster Canal Greenway Development Strategy	July 2016 – March 2017	Strategic Environmental Assessment and Appropriate Assessment. Writing of SEA Environmental Report and HRA Screening.
Public and statutory consultation on draft Ulster Canal Greenway Development Strategy	May – July 2017	Statutory, Non Statutory and Public Consultation on SEA Environmental Report and HRA Screening.
Release of Final Ulster Canal Greenway Development Strategy	Late 2017	SEA Environmental Statement

Following adoption of the final Strategy the next stage of development for any of these potential greenway routes is detailed design and further detailed study, incorporating the advice and mitigation measures proposed in these environmental reports.

The proposed timescale to complete the SEA process is given in **Table 11.2**.

Table 11.2: Proposed Timescale for SEA of the Ulster Canal Greenway Development Strategy

Actions	Timescales
Scoping	April – July 2016
Consultation	July – August 2016
Environmental Assessment	August 2016 – April 2017
Public Consultation	May – July 2017
Environmental Statement	Late 2017

The contact for any information regarding the Strategic Environmental Assessment of the proposed Ulster Canal Greenway Strategy is as follows:

By post	Cormac McCarthy Waterways Ireland Dock Road Drewsborough Scarriff County Clare Ireland Fax: +353-(0)61-922147
By email	cormac.mccarthy@waterwaysireland.org

12 REFERENCES

Air Quality in Ireland. *Environmental Protection Agency, 2014*

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APPENDIX A

SEA Screening Responses

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT 12 6RZ
Northern Ireland

31st May 2016 Our Ref: 160402.1

Re. Ulster Canal Development Strategy - SEA

Dear Mr Bingham,

The Environmental Protection Agency (EPA) acknowledges your notice, dated 24th March 2016, regarding the SEA Screening Assessment for the Ulster Canal Development Strategy (the Strategy) and notes its contents.

SEA Determination
The Agency notes your position with regard to the need for Strategic Environmental Assessment (SEA) of the Strategy, which recommends the application of full SEA to the development of the Strategy.

To assist in the preparation of the Strategy and the associated SEA, Attachment I to this correspondence includes an updated SEA Integration Guidance document, the relevant aspects of which should be considered during the SEA process.

Available Guidance
Guidance including an SEA / Plan Integration guidance, SEA Process Checklist, SEA and Climate Change, and SEA Alternatives-related guidance and a list of SEA Spatial Data Sources are available on the EPA website at the link below. These should be considered, as appropriate, in the preparation of the SEA. These resources can be consulted at the following address: http://www.epa.ie/pubs/advice/ea/

In addition, the relevant aspects of the EPA's *Local Authority Climate Adaptation Strategy Development guidelines, (EPA, 2016)*, would also be useful to consider in preparing the Strategy and associated SEA.

Infrastructure Planning
Adequate and appropriate infrastructure should be in place, or required to be put in place, to service any development proposed and authorised during the lifetime of the Strategy.

Appropriate Assessment
The requirements of Article 6 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, the Habitats Directive should be taken into account. Appropriate Assessment, in accordance with the Directive is required for:

"*Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the sites conservation Objectives…*"

The National Parks and Wildlife Service (NPWS) should be consulted with regard to screening of the Strategy for Appropriate Assessment. Where Appropriate Assessment is required, any findings or recommendations should be incorporated into the SEA and Strategy, as appropriate.

Environmental Authorities
Under the SEA Regulations *(S.I. No. 435 of 2004)*, as amended by *S.I. No. 200 of 2011*, notice should be given to the following:

- The Minister for the Environment, Community & Local Government;
- Minister for Agriculture, Marine and Food, and the Minister for Communications Energy and Natural Resources, where it appears to the planning authority that the Strategy might have significant effects on fisheries or the marine environment; and,
- where it appears to the competent authority that the Strategy, might have significant effects in relation to the architectural heritage or to nature conservation, the Minister for Arts, Heritage and Gaeltacht Affairs.

Note- the remit of these may change following the recent reconfiguration of some Government Departments.

A copy of your decision regarding the determination should be made available for public inspection at your offices, website and should also be notified to any environmental authorities consulted at this stage in the process.

Should you have any queries or require further information in relation to the above please contact the undersigned. I would be grateful if an acknowledgement of receipt of this submission could be sent electronically to the following address: sea@epa.ie.

Yours sincerely,

Tadhg O'Mahony
Senior Scientific Officer
SEA Section
Office of Environmental Assessment
Environmental Protection Agency
Regional Inspectorate
Inniscarra, County Cork

INTEGRATION OF ENVIRONMENTAL CONSIDERATIONS

Summary of Latest Updates in 2016

Changes	Comments
29/10/15	Link to Air Quality in Ireland Report for 2014 (EPA, 2015)
19/02/16	Link to Urban Wastewater Treatment Report for 2014 (EPA, 2015)
11/03/16	Updated link to GIS SEA Manual now available
11/03/16	Updated Noise section
24/04/16	Updated link to Bathing Water Quality Report for 2015
19/05/16	Added link to CORINE 2012 Data in Appendix II
19/05/16	Added link to EPA/WRA Draft SEA Resource Manual in Appendix I
30/05/16	Added link to LA Adaptation Strategy Development Guidelines (EPA, 2016)
30/05/16	Added link to Catchments.ie in Appendix I

The Environmental Protection Agency (EPA) is a statutory Environmental Authority under the SEA Regulations. Our role in SEA in relation to Land Use Plans focuses on promoting full integration of the findings of the Environmental Assessment into the Strategy. It is not the function of the EPA to either approve or enforce Land Use Plans. The EPA is focusing our efforts/resources in influencing the preparation of key national and regional plans within the planning hierarchy.

In light of the above, we intend to provide a 'self-service approach' to responding to submissions on plans lower in the planning hierarchy through use of this template. In this respect, where specific comments are not provided on this particular Strategy (and at this stage of the SEA process), we recommend that you take this guidance document into account, and also incorporate the more detailed available guidance and other available resources on our website at http://www.epa.ie/pubs/advice/ea/. These resources include:

- SEA process guidance,
- Integration of environmental considerations in land use planning guidance,
- List of available environmental spatial data sets.
- SEA GIS Search and Reporting Tool for local authority plan-makers which may be useful in the preparation of the SEA and Draft Strategy.
- Recent EPA SEA related guidance on *Integrating Climate Change into SEA*, *Developing and Assessing Alternatives in SEA*, *Local Authority Adaptation Strategy Development Guidelines*, and GIS SEA Manual.

The Strategy should be consistent with key relevant higher level plans / programmes in the planning hierarchy (at a regional and national level) and be set in the context of national SEA Regulations, Planning & Development Regulations and associated DECLG Guidelines including *Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Regional Authorities and Planning Authorities* (DECLG, 2004) and the *Development Plans - Guidelines for Planning Authorities* (DECLG, 2007).

Ireland's environment is a key national strategic and valuable asset which needs to be protected and proactively managed to ensure it forms the basis of Ireland's economic wellbeing and a healthy society. The Strategy should ensure that the natural resources and environmental conditions that are fundamental to the economic and social wellbeing of future generations are protected and are not degraded or exhausted. Four key environmental challenges for Ireland have been identified in *Ireland's Environment 2012* (EPA, 2012) which should be taken into account in the Strategy. There are as follows: *Valuing and Protecting our Natural Environment, Building a Resource-Efficient Low-Carbon Economy, Implementing Environmental Legislation* and *Putting the Environment at the Centre of our decision making*),

Section II of *Ireland's Environment 2012* describes the six key thematic areas which should be considered and assessed in the Strategy. These are *Greenhouse Gases and Climate Change, Air Quality (and Transboundary*

Air Emissions), *Water*, *Sustainable Resource Use, Consumption and Waste*, *Nature and Biodiversity* and *Land & Soil*. The Strategy should consider how to address the challenges above, taking into account the thematic areas described, in order to ensure proper planning and sustainable development is promoted in the lifetime of the Strategy. The EPA also has available as reference the Irelands Environment section on its website. This provides an overview of key issues in thematic areas and links to environmental indicator data.

In addition to the high level goals and challenges described above, the EPA has summarised the key environmental aspects which should be incorporated, as appropriate, in the preparation of the SEA and Draft Strategy.

KEY SIGNIFICANT ENVIRONMENTAL ASPECTS TO CONSIDER

Water

Support the Provision of a Safe and Secure Drinking Water Supply

In considering additional zoning/development and growth of settlements within the Strategy area, it is critical that development be closely linked to the ability to provide a safe and secure supply of drinking water and related critical service infrastructure. In this context, the Strategy should include a commitment to collaborate with Irish Water and other relevant stakeholders, in the provision of and adequate and appropriate drinking water supply.

The EPA series of drinking water quality reports, including the *Drinking Water Report – 2014 (EPA, 2015),* should be consulted in the context of ensuring the relevant recommendations are implemented in relation to improving drinking water quality. Key issues identified with particular supplies, including significant issues identified through (Irish Water) Drinking Water Safety Plans, should be highlighted for individual plans. The Strategy should include, where relevant, specific objectives to support the improvement of any water supplies in the Strategy area, in collaboration with Irish Water.

A Remedial Action List (RAL) of problematic drinking water supplies is released by the EPA on a quarterly basis. It is a dynamic list which records identified and reported issues. Once appropriate mitigation measures are established and implemented, supplies are removed from the RAL. The Strategy should commit to supporting Irish Water, in addressing issues where water supplies servicing the Strategy area are included on the RAL. Further information can be found at: http://www.epa.ie/downloads/pubs/water/drinking/.

Support the Provision of Adequate and Appropriate Waste Water Treatment

As referred to in the *Water Quality in Ireland 2010 – 2012* (EPA, 2015), one of the key causes of water pollution is from point sources including discharges from waste water treatment plants. The need to provide and maintain adequate and appropriate wastewater treatment infrastructure to service zoned lands and developments over the lifetime of the Strategy should be included as a specific Policy/Objective in the Strategy.

Where agglomerations with treatment or poorly performing (or at capacity) treatment plants within the Strategy area are highlighted in the *Focus on Urban Waste Water Discharges in Ireland Report for 2014* (EPA, 2015), the Strategy should include a commitment to support the provision of appropriate measures to address these issues as a priority, in collaboration with Irish Water. The Strategy should also include as appropriate, measures to ensure that combined storm water overflows, sewers and trade effluent in the area covered by the Strategy is also managed properly.

With regard to any proposed rural residential development which may arise, or development proposals in un-sewered rural area, or areas where connection to the public sewer is not feasible, the Strategy should include a commitment to implement, as appropriate, the EPA's *Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e < 10),* (EPA, 2009).

Water Framework Directive

Protection of Surface and Ground Water Resources

Protecting our valuable surface and ground water resources is of vital importance to protect both human health and provide for a healthy environment. In this context, the Strategy should provide clear commitments to protect surface water, groundwater and coastal/estuarine resources and their associated habitats and species, including fisheries within and adjacent to the Strategy area. Where specific recommendations/concerns for water bodies within the Strategy area are identified in EPA water quality reports, including the *Water Quality in Ireland 2010 – 2012*' (EPA, 2015) and relevant regional water quality reports, these should also be addressed/considered at an appropriate level in the Strategy.

The Strategy should also ensure that any specific relevant objectives and measures for individual water bodies, within the Strategy area as set out in the existing relevant Water Framework Directive River Basin Management Plan, are provided for in order to ensure water quality is protected/improved/maintained. The Strategy should also consider that subsequent water management plans (including catchment management plans) may arise out of current review of the second cycle of WFD River Basin Management Planning should be integrated as appropriate upon their adoption.

The *European Union (Water Policy) Regulations 2014 (S.I. No. 350 of 2014)* sets out the roles and responsibilities of the various stakeholders and the associated requirements in relation to river basin management planning and should be integrated as appropriate. These responsibilities should be reflected in the Strategy and the associated environmental monitoring.

Protection of Groundwater Resources

Groundwater aquifers form important sources of drinking water both locally and regionally. Much of the summer seasonal flow in many rivers is also derived from groundwater sources. To maintain high quality water resources within the Strategy area, it is important that development is controlled and managed appropriately, in particular in areas of high groundwater vulnerability to avoid transmission of pollutants into important aquifers.

The Strategy should include a clear Policy / Objective for the protection of groundwater resources and associated habitats and species. The Strategy should also include a commitment to integrate any existing Groundwater Protection Schemes and Groundwater Source Protection Zones, as relevant and appropriate within the Strategy area. The Strategy should also include a commitment to comply with the *European Communities Environmental Objectives (Groundwater) Regulations 2010* (S.I. No. 9 of 2010).

Issues to consider relating to protection of groundwater include; *enforcement of planning conditions related to installation, operation and maintenance of on-site wastewater treatment / septic tank systems, connection of all remaining houses within settlement boundaries to wastewater treatment plant*, the *development of a wastewater leak detection programme* and the implementation and enforcement of the *European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009* and associated *European Communities (Good Agricultural Practice For Protection Of Waters) Regulations 2010* (S.I. No 610 of 2010).

Protection and Management of Bathing Waters

The obligation to protect bathing waters within (and adjacent to) the Strategy area should also be reflected in the Strategy. Bathing Waters are afforded protection under Directive 2006/7/EC, known as the '*Directive on bathing water*', which is transposed into National legislation by the *Bathing Water Quality Regulations 2008 (S.I. No. 79) of 2008*. In addition, under the Water Framework Directive, recreational waters/bathing water areas are included on the Register of Protected Areas. The Strategy should provide for the protection of any waters which are used for bathing within or adjacent to the Strategy area.

The EPA's most recent report on bathing water quality '*The Quality of Bathing Water in Ireland – A Report for the Year 2015, (EPA, 2016)*' sets out the status of Irish Seawater and Freshwater Bathing areas and should be integrated as appropriate. The EPA's available bathing water advice/guidance includes an online GIS resource called "Splash" which should be considered.

Water Framework Directive & Biodiversity

Any sites of significant biodiversity value within or adjacent to the Strategy area listed on the Water Framework Directive Register of Protected Areas, (such as Fresh Water Pearl Mussel Catchments, designated Salmonid waters, fisheries / shellfisheries), should be protected in preparing the Strategy.

Need for Conservation of Water Resources

The Strategy should include an Objective/Policy promoting the need for the conservation of water resources and also the need for detection/mitigation of infrastructural leakages. It may also be useful to consider developing a Water Conservation Strategy, in association with Irish Water and adjoining local authorities, where appropriate.

Flood Prevention and Management

The Strategy should fully comply with *The Planning System and Flood Risk Management - Guidelines for Planning Authorities* (OPW/DEHLG, 2009). These Guidelines place requirements on planning authorities to carry out strategic flood risk assessments and also to ensure that development/zoning of vulnerable land uses, in areas at significant risk of flooding (flood zones A and B) is avoided. In effect, only flood/water compatible uses should be built in flood plains. Where this is not possible, any proposal for development/zoning is required to include a '*Justification Test*' in accordance with the Guidelines. Examples of vulnerable land uses include hospitals, residential developments and essential infrastructure such as transport and utilities (electricity generating power stations, water and sewage treatment) and potential significant sources of pollution (SEVESO sites, IPPC sites).

The Strategy should include a commitment to carry out strategic flood risk assessments, in line with the Flood Risk Management Guidelines, to inform the development and implementation of the County Development Plan and lower level local area plans respectively.

A specific Policy should be included to provide for/promote appropriate flood risk assessments to be undertaken, where development / zoning is being proposed in the Strategy area where there is significant risk of flooding, in accordance with the Guidelines referred to above.

The Strategy should also promote the development, where appropriate, of adaptation measures to account for the likely increased risk of flooding due to climate change within the Strategy area, including implementation of adequate and appropriate Sustainable Urban Drainage Systems. Additionally, the Strategy should provide for protection, management, and as appropriate, enhancement of existing wetland habitats where flood protection/management measures are necessary.

Integrated Coastal Zone Management should also be considered as relevant and appropriate, to inform the preparation of coastal plans and programmes.

Biodiversity

Biodiversity within the Strategy area may include designated and undesignated sites, habitats, species and networks of importance at an international, national, regional or local level. The protection of ecological resources is a key consideration which needs to be addressed. In this regard, the Strategy should include clear Policies/Objectives to conserve and protect all designated sites within and adjacent to the Strategy area (including the habitats and/or species for which they have been selected, or which they support), and should also promote the protection of undesignated sites and local biodiversity features.

The Strategy should also promote the need to protect wider aspects of biodiversity including ecological corridors / linkages / green infrastructure, areas of important local biodiversity, the provision of buffer zones between developments and areas of significant biodiversity and ensuring appropriate control and management measures for invasive species.

Plans should be supported / informed by available habitat mapping (including wetland mapping) and other ecological surveys as relevant. The Strategy should refer to and reflect the relevant commitments in *Ireland's National Biodiversity Plan – Actions for Biodiversity 2011-16* (DAHG, 2011). Local Heritage/Biodiversity plans should be highlighted and should promote the implementation of key actions set out in these plans. Where not established, commitments should be included to prepare these plans.

Appropriate Assessment

The Strategy should promote the application of the guidance set out in the DECLG Publication '*Appropriate Assessment of Plans and Projects in Ireland- Guidance for Planning Authorities'* (2009; revision 2010), in relation to the requirements of Article 6 of the Habitats Directive.

The Strategy should include a commitment to ensure compliance with the requirements of Article 6 of the Habitats Directive. The Strategy should also be subject to Appropriate Assessment (AA). The Strategy should include a clear Policy/Objective that sets out a requirement for AA Screening for new, reviewed or amended Plans and proposed projects, which may have the potential to impact on European sites. Potential for cumulative/in-combination effects associated with other relevant Plans/Programmes/Projects should also be determined.

Air, Noise And Climatic Factors

Noise

The objectives of EU and Irish noise legislation is "*to avoid, prevent or reduce harmful effects on human health and the environment as a whole*", and this includes noise nuisance. To this effect the Strategy should ensure this requirement is complied with. The assessment and management of noise from the main infrastructural transport sources (roads, rail, and airports) are governed by the Environmental Noise Directive and associated 2006 Environmental Noise Regulations (S.I. 140 of 2006). In this context, as appropriate, the Strategy should promote the implementation of Environmental Noise Directive and associated national regulations. http://www.environ.ie/environment/noise/si-140-2006-environmental-noise-regulations-2006

Available Noise Action Plans should be taken into account also and reviewed as required, to reflect the Strategy period and associated development proposals. Consideration should be given to any relevant noise maps, and action plans. Strategic noise maps are designed to assess noise exposure resulting from major roads, railways and airports. Noise action plans are designed to act as a means of managing environmental noise through land use planning, traffic management and control of noise sources. The third round of noise mapping is currently underway in Ireland and will be completed in 2018. http://noise.eionet.europa.eu/help.html.

Consideration should be given to protect, where relevant, any designated quiet areas in open country. In 2003, the EPA commissioned a research project to establish baseline data for the identification of quiet areas in rural locations. Quiet Areas are defined as "*an area in open country, substantially unaffected by anthropogenic noise*." A range of minimum distance criteria from man-made noise sources such as urban areas, industry and major road sources were defined, and the report includes a number of key recommendations for the identification and control of Quiet Areas.

Air & Climatic Factors

The need to protect and improve, (as appropriate), air quality within the Strategy area, particularly in areas zoned for increased urban and transport related development should be highlighted in the Strategy.

The integration of climate change adaptation and mitigation measures should be reflected in the Strategy, at the appropriate level either through relevant land use plans and/or specific sectoral plans e.g. Flood Risk Management Plans, Integrated Coastal Zone Management Plans etc. In this context, *Ireland's National Climate Strategy 2007 – 2012*, (DECLG, 2007) should be referred to. Recently, *Local Authority Adaptation Strategy Development Guidelines, (EPA, 2016)* has been published, to support local authorities develop local climate adaptation strategies.

Air quality legislation in Ireland highlights the need "*to avoid, prevent or reduce harmful effects on human health and the environment as a whole*". In addition, it requires that Local Authorities where appropriate "*shall promote the preservation of best ambient air quality compatible with sustainable development.*". These requirements should be incorporated by means of a specific plan objective / policy.

Recent EPA reports on air quality include the *Air Quality in Ireland 2014 Report,* (EPA, 2015) which sets out the most recent status in each of the four air quality zones in Ireland.

The EPA manages the national ambient air quality monitoring network and measures the levels of a number of atmospheric pollutants. The pollutants of most concern are those whose main source is traffic such as Particulate Matter and Nitrogen Dioxide should to be taken into account. Information in relation to these aspects is available at: http://www.epa.ie/air/quality/monitor/#

Waste Management

The Strategy should promote the integration of land use zoning and development to existing and planned availability of waste infrastructure and capacity. The Strategy should also refer to and incorporate the relevant aspects of the relevant Regional Waste Management Plan.

In addition, the Strategy should promote and incorporate the relevant recommendations in the following series of EPA reports including:

- *The Nature and Extent of Unauthorised Waste Activity in Ireland (EPA, 2005)*
- *National Waste Report 2012 (EPA, 2014)*
- *National Hazardous Waste Management Plan 2014-2020* (EPA, 2015)

Radon

Where significant concentrations of radon occur within the Strategy area, these should be taken into account in the Strategy or associated development control measures, as appropriate. Radon Maps are available at http://www.epa.ie/radiation/radonmap/ which should be useful in identifying potential for significant radon accumulations within the Strategy area.

Energy Conservation/Renewable Energy

In seeking to provide for and support the provision of a low carbon economy, the Strategy should, where appropriate, promote the use of renewable energy sources (e.g. solar, wind, geothermal etc.) within the Strategy area, at appropriate locations. The Strategy should also promote the need for energy conservation measures in buildings in association with key stakeholders such as the Sustainable Energy Authority of Ireland. Relevant guidance, including their *Methodology for Local Authority Renewable Energy Strategy* guidance is available on the website: www.sei.ie.

The Strategy should also consider the inclusion of, as appropriate, a Policy/Objective to prepare and implement an 'Energy Conservation Strategy' and associated awareness campaign.

Landscape

The Strategy should provide for the protection of designated scenic landscapes, scenic views, scenic routes and landscape features of national, regional, county and local value. The Strategy should also take into account the landscape character adjoining the Strategy area. Visual linkages between established landmarks and landscape features and views should be taken into account when land is being zoned and when individual development proposals are being assessed / considered. The *National Landscape Strategy* (DECLG, 2015) should be taken into account and integrated as appropriate into the Strategy.

Geology / Geomorphology

The Strategy should protect any designated Geological and Geomorphological NHAs/pNHAs, which may be present/designated within or adjacent to the Strategy area in consultation with the Geological Survey of Ireland.

Transportation

In seeking to support achieving a low carbon economy, it is important to consider and manage transport related emissions within the Strategy area. In this regard the Strategy should promote, and as appropriate provide for sustainable modes of transport. The Department of Transport, Tourism and Sport Report '*Smarter Transport – A Sustainable Transport Future*' (DTTS, 2009) should be reviewed in the context of possible initiatives which could be included as objectives within the Strategy.

Promoting the development of traffic management measures to reduce the potential for traffic congestion and associated vehicular emissions should be considered. In particular, it would be useful to prepare (and review existing) Integrated Traffic Management Plans, where relevant and appropriate, for the existing urban areas and proposed new urban developments to consider and address the short, medium and long-term traffic management requirements within the Strategy area.

Infrastructure Planning

Where zoning/rezoning of lands and the introduction of new development is being proposed within the Strategy area, the Strategy should promote the need for an integrated planning approach to service any development proposed and authorised during the lifetime of the Strategy in collaboration with key stakeholders.

The Strategy should, (when considering additional development proposals), support and promote the provision of adequate and appropriate critical service infrastructure, surface and storm water drainage, public transport, waste management, community services and amenities etc. on a planned and phased basis. This is in the context of taking into account and addressing existing infrastructural inadequacies to meet the expected needs of predicted increases in population associated with the Strategy implementation.

The potential impact on human health, habitats and species of ecological importance, flood risk and water quality should be taken into account in considering proposed additional infrastructure or in proposed upgrading of existing infrastructure.

Environmental Impact Assessment (EIA)

The Strategy should highlight that, under the EIA and Planning & Development Regulations, certain projects arising during the implementation of the Strategy may require an EIA. It should be noted that projects may also require Appropriate Assessment screening, as required by Article 6 of the Habitats Directive. It should be noted that the EPA's role in relation to EIA relates only to facilities/sites which are licensable by the EPA, namely IPPC, waste water and waste sites.

APPENDIX I: Some Useful Environmental Resources

Environmental Criteria	Selected Resources
State of Environment	http://www.epa.ie/irelandsenvironment
Surface Water	http://www.wfdireland.ie/index.html http://www.epa.ie/pubs/reports/water/waterqua/ http://www.catchments.ie (launching June 2016)
Ground Water	http://j.mp/gsigroundwater http://www.epa.ie/downloads/pubs/water/ground/
Drinking Water	http://www.epa.ie/pubs/reports/water/drinking/
Waste Water	http://www.epa.ie/pubs/reports/water/wastewater/
Bathing Water	http://www.epa.ie/pubs/reports/water/bathing http://splash.epa.ie/#
Marine	http://www.marine.ie/Home/site-area/home/home
Biodiversity	http://www.npws.ie/guidance-appropriate-assessment-planning-authorities http://www.npws.ie/publications http://maps.biodiversityireland.ie/#/Home
Flood Prevention and Management	www.floodmaps.ie www.cfram.ie
Air	http://www.epa.ie/pubs/reports/air/quality/
Climate	http://www.environ.ie/en/Environment/Atmosphere/ClimateChange/ http://www.epa.ie/pubs/reports/research/climate/
Waste Management	http://www.epa.ie/pubs/reports/waste/
Radon	http://www.epa.ie/radiation/radonmap
Energy Conservation	www.sei.ie
Landscape Character Assessment	http://www.heritagecouncil.ie/
Geology / Geomorphology	http://www.gsi.ie/Mapping.htm
Transportation	https://www.nationaltransport.ie/planning-policy/ http://www.nra.ie/environment/
SEA	www.edenireland.ie (SEAGIS Reporting Tool) http://www.epa.ie/pubs/advice/ea/ http://www.epa.ie/pubs/consultation/manual/
EIA	http://www.environ.ie/en/DevelopmentHousing/PlanningDevelopment/EnvironmentalAssessment/EIASEAGuidance

Appendix II: Some Useful Planning Related Resources

Environmental Criteria	Selected Resources
Spatial Planning GIS	www.myplan.ie http://www.epa.ie/soilandbiodiversity/soils/land/corine/
DECLG Guidelines / Legislation	http://www.environ.ie/en/DevelopmentHousing/PlanningDevelopment/Planning/
Flood Risk	www.cfram.ie www.floodmaps.ie

Appendix III:
Suggested High Level Plans/Programmes/Strategies (PPS) to Consider*

Environmental Criteria	Suggested High Level Plans/Programmes/Strategies (PPS)
National	- National Spatial Strategy (DECLG) - National Development Plan (DECLG) - Rural Development Programme (DECLG) - National CFRAMS Programme (DECLG) - National Renewable Electricity Policy Framework (in preparation DCENR) - Grid 25 Implementation Strategy (Eirgrid) - National Hazardous Waste Management Plan (EPA) - Food Harvest 2020 / FoodWise 2025 (DAFM) - National Forestry Programme / Forestry Policy Review (DAFM) - Seafood Operation Programme / Strategic Aquaculture Programme (DAFM) - Harnessing Our Ocean Wealth (DAFM) - National Broadband Plan (DCENR) - National Landscape Strategy (DECLG) - National Peatland Strategy, SAC Raised Bog Management Plan (DAHG) - National Biodiversity Plan (DAHG) - Water Services Strategic Plan (Irish Water) - Capital Investment Programme (Irish Water) - Sectoral Climate Change Adaptation Strategies and Low Carbon Roadmaps - Smarter Transport / Strategic Framework for Integrated Land Transport (DTTAS) - Offshore Renewable Energy Development Plan (DCENR) - Offshore Oil and Gas Exploration (DCENR) - State of the Environment Report 2012 (EPA)
Regional	- Regional Spatial and Economic Strategies - Regional Planning Guidelines - River Basin Management Plans (and Programme of Measures) - Relevant CFRAMS - Pollution Reduction Programmes for Shellfish Waters - Freshwater Pearl Mussel Sub-basin Management Plans - Forestry and Freshwater Pearl Mussel Plan (DAFM, in preparation) - Regional Waste Management Plan - National Transport Strategy for Greater Dublin Area - Wild Atlantic Way - Shannon Integrated Framework Plan (SIFP) - County Renewable Energy / Wind Energy Strategies - County Tourism Strategies

Note: *Plan-makers should consider and identify key relevant PPS in the SEA. List of Plans is indicative only and some may not always be relevant to a particular plan.

Northern Ireland Environment Agency
www.ni-environment.gov.uk

Department of the Environment Northern Ireland
Klondyke Building
Cromac Avenue
Gasworks Business Park
Belfast BT7 2JA

Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ
Northern Ireland

18 April 2016

Ulster Canal Greenway Development Strategy – SEA

Dear Mr Bingham

Thank-you for your letter dated 24th March 2016 regarding the Ulster Canal Greenway Development Strategy. The Department of the Environment Northern Ireland (DOE NI) have considered the SEA Screening Checklist and our opinions are set out below.

The letter requests us to make a determination in relation to the Screening Checklist submitted. DOE NI does not have any statutory role in interpreting or determining whether a specific plan or programme submitted to them: constitutes a plan or programme; is subject to preparation or adoption by a national, regional or local authority, or prepared for adoption through a legislative procedure; sets a framework for development consent; determines the use of a small area or at a local level; or is a minor modification to a plan or programme in relation to the SEA Regulations (Environmental Assessment of Plans and Programmes Regulations (NI) 2004). Waterways Ireland would be the 'Responsible Authority' in these regards.

The Department are consulted in relation to determinations of whether a particular plan, programme or modification is likely to have significant environmental effects (See Regulation 9 of the SEA Regulations). In such instances a determination report must be provided which contains information described in Schedule 1 of the SEA Regulations. Although the screening checklist considers Natura 2000 sites a determination report would consider a wider range of environmental issues. For example the Historic Environment Division would likely request that assessment of the route should include consideration of built heritage assets along it and the potential impacts on these (GIS datasets for the historic environment can be found at https://www.doeni.gov.uk/publications/historic-environment-digital-datasets and guidance specifically in relation to historic canals is available at https://www.doeni.gov.uk/publications/guidance-re-use-canals-and-navigations-northern-ireland). They would expect that the route be designed in line with core conservation principles in relation to the historic environment.

Nevertheless we can confirm that SEA procedure is a useful tool to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation of plans and programmes with a view to promote sustainable development. We agree that the proposed Ulster Canal Greenway

Development Strategy would benefit from the adoption of the SEA process. The SEA process provides best environmental practice and would demonstrate that environmental risk and mitigation associated with the development of the Greenway sections has been considered during the development of the project. We also consider that such an approach could enhance environmental credentials and may assist with future applications for European funding.

Yours sincerely

M. Hammond

Dr Mark Hammond
SEA Co-ordinator:
SEATeam@doeni.gov.uk
mark.hammond@doeni.gov.uk

APPENDIX B

SEA Guidance

Ireland

Article 8 (Decision Making) of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA) as amended. DoECLG Circular (PL 9/2013).

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2003. Environmental Protection Agency. http://www.epa.ie/downloads/advice/ea/name,13547,en.html

Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA). DoECLG Circular (PSSP 6/2011).

Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government.
http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1616,en.pdf

Strategic Environmental Assessment (SEA) Checklist - Consultation Draft. January 2008. Environmental Protection Agency.
http://www.epa.ie/downloads/consultation/strategic_environmental_assessment_jan086.pdf

Guidelines on SEA. Department of Communications, Energy and Natural Resources. Available at: http://www.dcmnr.gov.ie/Marine/Environmental+Assessment/Environmental+Assessment.htm

Northern Ireland

A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister. http://www.ehsni.gov.uk/bm_sea_practicalguide.pdf

Strategic Environmental Assessment. Services and Standards for Responsible Authorities. Environment and Heritage Service. http://www.ehsni.gov.uk/sea-servicesandstandards.pdf

Other

Strategic Environmental Assessment DRAFT Practical Guidance for Practitioners on How to Take Account of Air. June 2008. Scotland & Northern Ireland Forum for Environmental Research.

Strategic Environmental Assessment DRAFT Practical Guidance for Practitioners on How to Take Account of Soil. June 2008. Scotland & Northern Ireland Forum for Environmental Research.

Strategic Environmental Assessment DRAFT Practical Guidance for Practitioners on How to Take Account of Water. June 2008. Scotland & Northern Ireland Forum for Environmental Research.

Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners. June 2004. Countryside Council for Wales, English Nature, the Environment Agency and the RSPB. http://www.english-nature.org.uk/pubs/publication/PDF/SEAbiodiversityGuide.pdf

Strategic Environmental Assessment Toolkit (Version 1). September 2006. Scottish Executive. http://www.scotland.gov.uk/Publications/2006/09/13104943/0

Strategic Environmental Assessment Website. Guidance on Air, Soil and Water. September 2009. SNIFFER. http://www.seaguidance.org.uk/1/Homepage.aspx

APPENDIX C

SEA Scoping Responses

Northern Ireland Environment Agency
www.daera-ni.gov.uk

Natural Environment Division
Klondyke Building
Cromac Avenue
Gasworks Business Park
Malone Lower
BELFAST
BT7 2JA

Telephone: 00 44 28 905 69579

Cormac McCarthy
Waterways Ireland
Dock Road
Drewsborough,
Scarriff
Co. Clare
Ireland

26 August 2016

Re: SEA scoping for Ulster Canal Greenway Development Strategy

Dear Cormac

Thank-you for your email dated 03 August 2016 regarding the SEA Screening Report for Ulster Canal Greenway Development Strategy. The Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) Northern Ireland Environment Agency has considered the document and our opinions are set out below.

Scoping questions
1. Is there any information missing from the key plans and programmes listed, relevant to the Ulster Canal Greenway Development Strategy, that you think should be included and why?

The table indentifies Planning Policy Statements (PPSs) as relevant. It should be noted that the Strategic Planning Policy Statement is also relevant and takes precedence over the PPSs where there is a difference in wording.

P10-11 - Plans and Programmes. We recommend inclusion of the following:
Air quality:
EU level - Cleaner Air for Europe (CAFE) Directive 2008/50/EC and 4th Daughter Directive 2004/107/EC
National level - UK Air Quality Strategy (Nothing at regional level)
Sub-regional level - Local Authority Air Quality Review and Assessment Reports

Climate Change:
EU level - EU Climate and Energy Framework and EU Adaptation Strategy.

National level - Climate Change Act 2008, the NI GHG Emissions Reduction Plan and the NI Climate Change Risk Assessment.
(note the the table is repeated as the last appendix in more detail and at page 49 under climatic factors the above should be included).

2. Do you agree with the geographical and temporal scope of the assessment?

The geographical scope may need to be increased where there is a hydrological link to a Natura 2000 site as effects could occur at a distance greater than 15km.

3. Do you agree with the scoping of the environmental assessment topics?
Yes we are content with the topics to be scoped in.

4. Have we identified the key environmental issues relevant to the Ulster Canal Greenway Development Strategy?

In Table 3.4 there could be an interaction between cultural heritage and biodiversity, flora and fauna such as bats hibernating within cracks of old canal locks.

In Table 3.4 soils and land use should be a 'Yes' in this table. Land use covers agriculture, horticulture, forestry and peatlands all of which can have a significant impact on GHG emissions. This would also carry on from what is listed in the preceding table 3.3.

5. Are we proposing the most appropriate data to be used the SEA and why it would be beneficial?

We consider that priority habitats and species should also be included in the assessment as some sections will be off line from the old canal and railway line. This would allow for an assessment of overall biodiversity loss that could occur and may need mitigation to achieve no net loss.

Site specific environmental data (e.g. species records) can be obtained from the Centre for Environmental Data and Recording (CEDaR). These can be accessed by contacting CEDaR, National Museums NI, 153 Bangor Road, Cultra, Holywood, BT18 0EU. Website: http://www.nmni.com/cedar

There are wintering bird sites along the route which should be included within the assessment for likely cumulative disturbance effects. RSPB and BTO should be contacted for data.

The effect from air pollution is also a current threat to biodiversity and changes to transport can affect this. Data and spatial maps are available on http://www.apis.ac.uk/ .

For air quality we also recommend inclusion of the following data source:
Air Quality - local authority Air Quality Management Areas / Air Quality Action Plans - [source] - local authorities / Air Quality Review and Assessment reports - baseline levels of air quality - [source] - air quality archive at www.airqualityni.co.uk

6. Do you agree with the approach to the assessment?

We note that scoring is to be used within the assessment which will be added up for each option. It will still be important to identify any significant impacts and mitigation within each option for the assessment rather than relying on the final scoring.

7. Do you agree with the draft SEA objectives?

We would consider there should be an objective of avoiding areas of priority habitat and impacts to priority species to have a target of no net loss of biodiversity from the proposal.

8. Do you agree with the proposed project timescales and proposed consultees in the SEA process?

Please note that Historic Environment Division is now within the Department for Communities (formerly within NIEA).

Please contact the SEA Team at seateam@doeni.gov.uk should you have any queries or require clarification.

Yours sincerely

M. Hammond

Dr Mark Hammond
mark.hammond@daera-ni.gov.uk

Tele: 028 90569579

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Mr. Richard Bingham
RPS Consulting Engineers
Elmwood House
74 Boucher Road
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BT12 6RZ
Northern Ireland

Dáta | Date	Ár dTag | Our Ref.	Bhur dTag | Your Ref.
15 August 2016	**TII16-95253**	

RE: Strategic Environmental Assessment (SEA) for the Ulster Canal Greenway

Dear Mr. Bingham,

I refer to your email of 25 July 2016, on behalf of Waterways Ireland, regarding the above.

Transport Infrastructure Ireland's (TII) objectives in responding to this scoping request are set out in the Department of the Environment, Community & Local Government "Spatial Planning and National Roads Guidelines for Planning Authorities" which were published in January 2012. Essentially, TII's approach seeks to uphold official policy and guidelines, in order to, *inter alia*, ensure high standards of safety for road users and protect the investment being made by Government in the development of the network of national road

TII wishes to clearly state that it has no objection in principle and supports the SEA for the Ulster Canal Greenway Development Strategy. We are aware that the Ulster Canal Greenway is to provide a safe and accessible environment for users as family groups of all ages, and individuals of all abilities, as a facility for recreation and travel.

Due to the nature of potential users and the expected character of the proposal, we wish to advise that there is a critical need to address any potential road access/crossing points/parking/amenity areas interfaces between the Greenway Project and the N54. From evaluation of mapping provided, we advise that there are numerous locations where a potential scheme could/may interface with the N54 in this extensive area and could have implications for the network with regard to construction, safety, operation and maintenance of both infrastructures. We consider the Ulster Canal Greenway needs to be designed and operated to be fully compatible with the function and character of the critical N54 link.

Therefore it is essential that that the Project Team interact and liaise with TII's, Land Use Planning Unit.

Yours sincerely,

Tara Spain
Senior Policy Advisor (Planning)

Ulster Canal Greenway Development Strategy

Strategic Environmental Assessment (SEA) Scoping Report, August 2016

A response from the RSPB, 26 August 2016

Introduction

The RSPB is UK's lead organisation in the BirdLife International network of conservation bodies. The RSPB is Europe's largest voluntary nature conservation organisation with a membership over 1 million, around 13,000 of which live in Northern Ireland. Staff in Northern Ireland work on a wide range of issues, from education and public awareness to agriculture and land use planning. We believe that sustainability should be at the heart of decision-making. The RSPB's policy and advocacy work covers a wide range of issues including planning and regional policy, climate change, energy, marine issues, water, trade and agriculture.

The RSPB welcomes the opportunity to comment on the SEA for the Ulster Canal Greenway Development Strategy

RSPB NI's response to various scoping questions are as follows:

1. **Is there any information missing from the Key plans and programmes listed, relevant to the Ulster Canal Greenway Development Strategy, that you think should be included, and why?**

   RSPB NI considers that the following plans/programmes should be included within 2.1 in order to provide a comprehensive and robust assessment. As part of this exercise, gaps and conflicts with existing international, European and national plans/programmes should be undertaken as a key part of the SEA process. Furthermore, this section should identify and consider whether any plan/programme is likely to have in-combination effects (this includes both positive and negative effects).

   Additional plans/programmes for inclusion are:

EU Level

- Ramsar
- EU (2013) Adaptation Strategy
- EU (2010) Europe 2020 Economic Strategy
- EU (2009) Sustainable Development Strategy

National Level

- DOE (2015) Strategic Planning Policy Statement (SPPS)
- DOE (2013) Prioritised Action Framework for Natura 2000
- DRD (2010) Regional Development Strategy 2035
- DRD (2012) Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation
- NI Strategy for Sport and Physical Recreation 2009-2019
- DETI (2010) Tourism Strategy for NI
- NI Executive Programme for Government
- NI Executive (2010) Sustainable Development Strategy
- Sniffer (2007) Preparing for a Changing Climate in Northern Ireland
- DAGH (2011) A National Landscape Strategy for Northern Ireland
- NPWS (2001) Actions for Biodiversity
- 2011-2016 – Irelands National Biodiversity Action Plans
- Northern Ireland Species Action Plans
- Northern Ireland Priority Species and Habitats
- State of Nature (2013)
- Towards a Land Strategy for Northern Ireland (2015)
- 2005 UK Sustainable Development strategy

Sub Regional

- Sites of Local Nature Conservation Importance (SLNCI)

2. Do you agree with the geographical and temporal scope of the assessment?

Reference to trans-boundary impacts should be included within this section, as this is particularly relevant with some of the environmental topics which transcend national boundaries e.g ecology, water and landscape.

3. **Do you agree with the scoping of the environmental assessment topics?**
4. **Have we identified the key environmental issues relevant to the Strategy?**

With reference to Table 3.3 Scoping of SEA Issues, the following additions are recommended:

Biodiversity, Flora and Fauna

- Effects on NI Priority species and habitats
- Effects on biodiversity outside designations
- Potential for removal of alien and invasive species

Population and Human Health

- Effects of construction works e.g noise, air, water

Geology, Soils and Landuse

- Contamination
- Soil and agricultural land quality
- Designated sites (geology)

Water

- Flood risk

Greater consideration should be given to the interaction between the various topics e.g ecology and health with the inclusion of an additional topic which considers green/blue infrastructure and ecosystem services (i.e the provisioning, regulating, cultural, supporting services that the green/blue infrastructure provides in relation to the topic areas already identified).

The importance of seeing the relationship between topic areas is vitally important, and in this regard, Table 3.4 falls some way short. For example, the intra-relationship between cultural heritage and biodiversity, flora and fauna has been dismissed. However there can be important recreational, educational and ethical intra-relationships for example, between these two topic areas. This should include criteria which relate to access to nature as natural capital assets and the benefits that they can offer – for example research has shown that increased interaction/connection with nature can improve mental health and wellbeing.

In this regard, the provision of new routes to green spaces and the countryside – for example, integrating tourism and recreation with landscape-scale conservation of wetlands in the Lough Neagh and Lough Beg / Fermanagh areas should be considered.

In this context, we would also reference the following useful reports:

(i) ***Wellbeing through wildlife, RSPB***[1]

(ii) ***Planning for a healthy environment – good practice guidance for green infrastructure and biodiversity Town & Country Planning Association, The Wildlife Trusts, July 2012***

It is therefore recommended that this area be re-examined within the SEA.

5. Are we proposing the most appropriate data and scale of data to be used?

6. Can you propose any other data to be used in the SEA and why it would be beneficial?

The environmental baseline should also acknowledge any data gaps experienced in compiling the report. Furthermore, RSPB NI would caution the sole use of high/strategic baseline data as this could potentially mask important area or site specific issues which would be extremely relevant to the process, particularly with regards to certain species and habitats, which can be located outwith designated sites. In such circumstances, the use of finer scale data would be recommended in order to provide a robust assessment.

With regards to Biodiversity, Flora and Fauna data sources, RSPB NI would recommend inclusion of the following, as it is not only our designated sites which host important species and habitats:

- UK National Ecosystems Assessment
- State of Nature Report (2013)
- RSPB data unit [2]
- British Trust for Ornithology (BTO)[3]
- National Biodiversity Network Gateway (NBN)[4]
- Irish Whooper Swan Study Group (IWSSG)[5]
- Northern Ireland Raptor Study Group (NIRSG)

[1] **http://www.rspb.org.uk/Images/wellbeing_tcm9-132872.pdf**
[2] Data
[3] BTO
[4] NBN
[5] IWSSG - grahammcelwaine@btinternet.com

- CEDaR[6]
- Species Action Plans
- State of Nature Report[7].

7. **Do you agree with the approach to this assessment?**
8. **Do you agree with the Draft SEA objectives?**

With regards to alternatives, we would advocate a close working relationship between Waterways Ireland (and their project partners), the SEA team and stakeholders in order to develop alternatives that are genuinely alternative and not just slight variations of a 'business as usual' scenario.

In terms of Table 5.2 Draft SEA Objectives:

Biodiversity, Flora and Fauna, again, this should not solely relate to protected/designated sites, and should therefore seek to achieve a 'no net biodiversity loss' as an absolute minimum.

Furthermore, it should include an objective for the maintenance and enhancement of the amount, variety and quality of eco-system services.

Population and Human Health should include human health indicators as those currently suggested will be of little value in assessing the overarching criteria. The population in vicinity of a greenway tells us little about the health of the population. There should be drilling down into indicators for example, the number / cost of prescriptions issued per head for anti-depressants by GPs. This information is available from the NISRA website and would be a more effective indicator than quoting number people in vicinity of greenway.

This section should also acknowledge the links between the environment, health and quality of life.

[6] CEDaR http://nmni.com/cedar
[7] Full Document http://www.rspb.org.uk/Images/stateofnature_tcm9-345839.pdf

Summary Document http://www.rspb.org.uk/Images/summary_tcm9-345844.pdf

With regards to Monitoring, RSPB NI would recommend that an ability to revise the monitoring programme periodically to take account of new methods and an increasing understanding of the baseline environment should be included in the process.

Furthermore, there is a need to ensure that any 'existing monitoring arrangements' which are availed of in this process are carried out with sufficient regularity in order to ensure that they can contribute in a meaningful way to the monitoring programme. In addition, where significant effects are identified, there should be a requirement for a monitoring programme in the form of a Monitoring Framework Document.

9. Do you agree with the proposed project timescales and propose consultees in the SEA process?

RSPB NI would recommend that a 12 week period is allowed for the public consultation element of the process, consistent with other SEA consultation periods. This is particularly important should there be any slippage in the SEA timetable, resulting in the consultation period falling over a public holiday.

The SEA needs to be an iterative process in order to maximise its benefits. In this regard, we would expect the environmental report to show the iterations that have already taken place i.e. the impact that the SEA has made on the drafting.

Transparency in this process is crucial.

The RSPB looks forward to engaging in future consultation rounds.

For further information contact:

Michelle Hill MRTPI
Conservation Team Leader (Planning)
RSPB Northern Ireland

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Inland Waterways Association of Ireland

Cumann Uiscebhealaigh Intire na h-Eireann

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22nd August 2016

Richard Bingham BSc MSc Csci MCIWEM C.WEM
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BT12 6RZ

Cormac McCarthy
Waterways Ireland
Dock Road
Drewsborough
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Dear Sirs

Ulster Canal Greenway Development Strategy
Strategic Environmental Assessment-Scoping Report
July 2016/IBE1171

Thank you for offerring the Inland Waterways Association of Ireland the opportunity to comment on the Strategic Assessment Review of the Ulster Canal Greenway Strategy.

The Inland Waterways Association of Ireland (IWAI) was founded in 1954 and is a voluntary cross border organisation that advocates the use, maintenance, protection, restoration and improvement of the inland waterways of all of the island of Ireland. Our current membership stands at just over 3000 members organised in 23 branches, one of our branches is located on the Ulster Canal. The re-opening of the Ulster Canal has been and remains the Association's priority project.

I really feel the document omits to state the point that the eventual aim of Waterways Ireland, and their project partners Monaghan County Council, Cavan County Council, Fermanagh and Omagh District Council, Armagh, Banbridge and Craigavon Borough Council, East Border Region Ltd and the Blackwater Regional Partnership, is to re-open the Ulster Canal as a working waterway for recreational use. Nowhere in the document is this stated, indeed throughout the script I would have considered it prudent to make continual reference to the fact that any work undertaken to create the greenway must not impede with the overall aims and plans to re-open the waterway.

I am also disappointed that no reference has been made to the work of our Association who have pioneered and led the project to re-open the Ulster Canal for nearly 30 years, speaking to political representatives and officials of both governments, North and South, organising conferences to raise public awareness, facilitating local meetings to communities along the waterway, publishing specific leaflets, booklets and a book, yet there is no reference even in the bibliography to the IWAI and the work that the organisation has achieved.

The Association welcomes the statement by both Ministers to set up a forum to take forward the case for re-opening the navigation, the fact that our organisation again has not been offered a place on that body is a weakness, it is unfortunate that the forum will be denied the vast amount of knowledge and practical know how which our membership has to offer.

I must state again, that throughout the document, continual reference needs to be emphasised that any work undertaken to the towpath must not impede on the eventual aim to re-open the canal for leisure navigation. The success of the greenway/towpath will be dramatically enhanced by craft on the waterway, this brings life to the water, an added attraction which people enjoy, the boat should be seen as the catalyst for a successful outcome for the project.

Our Association fully supports the use of the towpath for a greenway and would certainly welcome this initiative. We see this as a very positive proposed development. Along the navigation there are many fine examples of our industrial heritage which must not be overlooked in any shape or form, indeed these require protection for future generations. The environmental proposals are paramount to this development; indeed we would commend Waterways Ireland for their exemplary work undertaken on re-opening and the maintenance of the Shannon Erne waterway and the Royal Canal as models of excellence.

Relevant interpretive signage along the towpath will without doubt raise public awareness of the canal and hopefully continue to put pressure on both governments to re-open the Ulster Canal as a navigable waterway.

Brian Cassells OBE
Past President; Inland Waterways Association of Ireland.

Department for the Economy
www.economy-ni.gov.uk

Geological Survey of Northern Ireland

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GSNI Ref : EI/16/385

RPS Consulting Engineers
Elmwood House
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BT12 6RZ

24 August 2016

Dear Mr Bingham

RE: Ulster Canal Greenway Development Strategy SEA – Scoping Report

When you undertake an Environmental Assessment, you are responsible for identifying, assessing and proposing mitigation measures for any environmental impacts that may arise.

In response to the above mentioned scoping report we have answered the following questions:

1. Are we proposing the most appropriate data and scale of the data to be used?
    a. The environmental baseline data under 'Geology, Soils and Land Use' is somewhat sparse and should be expanded.

2. Can you propose any other data to be used in the SEA and why it would be beneficial?
    a. Other data to be used should include:
        i. Bedrock and superficial geology data
        ii. Earth science ASSIs (currently limited to biodiversity ASSIs)
        iii. UNESCO Global Geopark designated area (the southern end of the Marble Arch Caves UNESCO Global Geopark extends into Castlesaunderson).

GSNI is an appropriate starting point for your geological research. Our archive contains a range of geological maps and databases with information relating to

bedrock and superficial geology throughout Northern Ireland and on UNESCO Global Geopark designations. If you wish to discuss the range of data available in the GSNI archive or to obtain further detailed information then please contact William Smyth at this address.

Yours sincerely

Dr Kirstin Lemon

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT 12 6RZ
Northern Ireland

30th May 2016 Our Ref: 160305.1

Re. Ulster Canal Development Strategy - SEA

Dear Mr Bingham,

The Environmental Protection Agency (EPA) acknowledges your notice, dated 24th March 2016, regarding the SEA Screening Assessment for the Ulster Canal Development Strategy (the Strategy) and notes its contents.

SEA Determination
The Agency notes your position with regard to the need for Strategic Environmental Assessment (SEA) of the Strategy, which recommends the application of full SEA to the development of the Strategy.

To assist in the preparation of the Strategy and the associated SEA, Appendix I of this correspondence consists of an updated SEA Integration Guidance document which should be considered.

Available Guidance
Guidance including an SEA / Plan Integration guidance, SEA Process Checklist, SEA and Climate Change, and SEA Alternatives-related guidance and a list of SEA Spatial Data Sources are available on the EPA website at the link below. These should be considered, as appropriate, in the preparation of the SEA. These resources can be consulted at the following address: http://www.epa.ie/pubs/advice/ea/

In addition, the EPA has recently launched *Local Authority Climate Adaptation Strategy Development guidelines, (EPA, 2016)*. The relevant aspects of this guidance may be useful to consider in preparing the Strategy and associated SEA.

Future Amendments to the Draft Strategy
Waterways Ireland should determine whether or not any future proposed Variations/Amendments would be likely to have significant effects on the environment taking into account requirements of the SEA Directive.

Infrastructure Planning
In proposing the Strategy and any related amendments, variations etc. of the Strategy and in implementing the Strategy, adequate and appropriate infrastructure should be in place, or

required to be put in place, to service any development proposed and authorised during the lifetime of the particular Strategy.

Appropriate Assessment
The requirements of Article 6 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, the Habitats Directive should be taken into account. Appropriate Assessment, in accordance with the Directive is required for:

"*Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the sites conservation Objectives…*"

The National Parks and Wildlife Service (NPWS) should be consulted with regard to screening of the Strategy for Appropriate Assessment. Where Appropriate Assessment is required, any findings or recommendations should be incorporated into the SEA and Strategy, as appropriate.

Updated SEA Regulations / Circular
Amending SEA Regulations were signed into Irish law on 3rd May 2011, amending the original SEA Regulations, and should be referenced and integrated into the Plan and SEA process as appropriate:

- European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), and

Environmental Authorities
Under the SEA Regulations *(S.I. No. 435 of 2004)*, as amended by *S.I. No. 200 of 2011*, notice should be given to the following:

- The Minister for the Environment, Community & Local Government

- Minister for Agriculture, Marine and Food, and the Minister for Communications Energy and Natural Resources, where it appears to the planning authority that the plan or programme, or modification of the plan or programme, might have significant effects on fisheries or the marine environment

- where it appears to the competent authority that the plan or programme, or amendment to a plan or programme, might have significant effects in relation to the architectural heritage or to nature conservation, the Minister for Arts, Heritage and Gaeltacht Affairs, and

A copy of your decision regarding the determination should be made available for public inspection at your offices, local authority website and should also be notified to any Environmental Authorities already consulted.

Should you have any queries or require further information in relation to the above please contact the undersigned. I would be grateful if an acknowledgement of receipt of this submission could be sent electronically to the following address: sea@epa.ie.

Yours sincerely,

Tadhg O'Mahony
Senior Scientific Officer
SEA Section
Office of Environmental Assessment
Environmental Protection Agency
Regional Inspectorate
Inniscarra, County Cork

Mr Cormac McCarthy
Waterways Ireland
Dock Road
Drewsborough
Scarriff
County Clare

19th August 2016 Our Ref: SCP160703.1

Re: SEA of the Ulster Canal Greenway Development Strategy

Dear Mr. McCarthy,

I refer to and acknowledge your correspondence, dated 3rd August, in relation to the Strategic Environmental Assessment Scoping for the Proposed Ulster Canal Greenway Development Strategy (the Strategy).

We welcome that our screening submission, which included SEA Scoping guidance, has been taken into account. We recommend that the guidance provided in our previous submission be taken into account at this stage also, and is included for reference purposes.

Specific Comments to be considered
In relation to the questions posed in the SEA Scoping Report, our responses are provided below:

Q1: Is there any information missing from the key plans/programmes listed, relevant to the Ulster Canal Greenway Development Strategy, that you think that should be included and why?
The SEA should consider including a reference to a number of key influential plans, currently to commence or are currently being prepared within the lifetime of the Strategy:

- the National Planning Framework
- Regional Spatial and Economic Strategies,
- 2nd Cycle of WFD River Basin Management Plans

Q2: Do you agree with the geographical and temporal scope of the assessment
The geographical and temporal scope of the assessment appear to be appropriate to the level at which the Strategy is being prepared for.

Q3: Do you agree with the scoping of the environmental assessment topics
We note and acknowledge the scoping of environmental assessment topics as presented.

Q4: Have we identified the key environmental issues relevant to the Strategy
The scoping report appears to capture the key significant environmental issues relevant to the Strategy. The scoping report could further specify that water quality impacts will take account of both surface water and groundwater aspects.

Q5: Are we proposing the most appropriate data and scale of data to be used
The scale of data and data proposed to be used, appear to be appropriate to the SEA carried out. In addition, the EPA SEA Guidance document includes a list of SEA Spatial Data Sets which may be useful and relevant in the preparation of the Strategy.

Q6: Can you propose any other data to be used in the SEA and why it would be beneficial
The National Biodiversity Data Centre should be considered a valuable source of biodiversity information to take into account as appropriate and relevant.

In terms of land use aspects, it would be worthwhile also incorporating, where available, any local authority green infrastructure strategies, or biodiversity actions plans within the Strategy area.

Q7: Do you agree with the approach of the assessment?
The approach of the assessment reflects the approach taken for the Ulster Canal Restoration Plan, and seems appropriate for this Strategy also.

Q8: Do you agree with the draft SEA objectives?
It may be useful to consider including a couple of additional sub-objectives in relation to "Supporting the achievement of the Objectives of the Water Framework Directive" and "Supporting the achievement of the objectives of the Birds and Habitats Directives"

Q9: Do you agree with the proposed project timescales and proposed consultees in the SEA Process.
It appears that the Strategy will have a two month consultation process on the Plan (September through October). If so, this is welcomed, in terms of providing a useful time period for submissions to be made by the public and statutory consultation bodies alike.

Further comment on the Strategy will be provided upon receipt of the Draft Environmental Report and Plan and associated documents during the next statutory consultation phase of the SEA Process.

Scoping Process Guidance
Guidance on the SEA Scoping Process, including an SEA Pack, Integration Guidance, SEA Checklist, SEA Spatial Information Sources and guidance on Integrating Climate Change into SEA, is available on the EPA website and should be considered in the preparation of the SEA. This can be consulted at the following address: http://www.epa.ie/pubs/advice/ea/

Guidance on *Developing and Assessing Alternatives in SEA* (EPA, 2015) is also available at: http://www.epa.ie/pubs/advice/ea/developingandassessingalternativesinsea.html

SEA WebGIS Search and Reporting Tool
The EPA has launched a new application for the purposes of Strategic Environmental Assessment (SEA) for public authorities. It is a GIS based web application that allows users to explore, interrogate and produce an indicative report on key aspects of the environment in specific geographic areas. These reports are indicative and will provide an overview of key aspects of the environment within a specific plan area. This may be used to inform the SEA

screening and scoping stages for Plans and Programmes with particular reference in the first instance to the land use sector, though it is also applicable to other sector plans. It may be accessed via www.edenireland.ie

Should you have any queries or require further information in relation to the above please contact the undersigned. I would be grateful if an acknowledgement of receipt of this submission could be sent electronically to the following address: sea@epa.ie.

Yours Sincerely,

Cian O'Mahony
Scientific Officer
SEA Section
Office of Evidence and Assessment
Environmental Protection Agency
Regional Inspectorate
Inniscarra, County Cork

COUNCIL FOR NATURE CONSERVATION AND THE COUNTRYSIDE

An Advisory Council to the Department of Agriculture, Environment and Rural Affairs

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22nd August 2016

Cormac McCarthy
Waterways Ireland
Dock Road
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Ireland

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Ulster Canal Greenway Development Strategy SEA- Scoping Report.

Dear Mr. McCarthy,
Please find attached some comments on behalf of the Council for Nature Conservation and the Countryside. We have also included a publication on Green Infrastructure produced by CEE Web for Biodiversity which you may find useful in the course of the project as it provides some information on GI and GI projects in other Member States.

Yours faithfully,

Dr. A.H. Kirkpatrick
Chairman CNCC

Ulster Canal Greenway Development Strategy –SEA Scoping Report: comments from the Council for Nature Conservation and the Countryside (CNCC).

CNCC welcomes the use of the SEA process in the proposed Ulster Canal Greenway development strategy. We note that the purpose of the SEA scoping report is to provide sufficient information to enable consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment.

CNCC would like to suggest that Waterways Ireland takes account of European Commission 2013 Green Infrastructure (GI) – Enhancing Europe's Natural Capital COM/2013/0249. We would suggest that the concept of green and blue infrastructure as developed by COM2013 would provide a useful context for the project. Reference should also be made to the NI Strategic Planning Policy Statement (SPPS).

To assist with community support for the project we would suggest that under the heading of 'Population and human health' that consideration is given as to how community safety might be enhanced and ensuring that no crime opportunities are inadvertently created. The risks to vulnerable groups such as children and the very old should be taken account of in the design and development of the overall project.

Minimising risk from invasive species should be incorporated into the development strategy for the project. Regulation EU1143/2014 could be added to the list already identified in the SEA report.

In Table 3.4 it is not clear to CNCC why it is assumed that there is no potential inter-relationship between cultural heritage and biodiversity. You should also note that flora and fauna are included in the term biodiversity ie there was no need to write 'biodiversity, flora and fauna'. We suggest that you should not rule out this relationship as much of our landscape can be described as cultural landscape and is the result of interactions between people and nature over centuries.

There is a strong focus on European designated sites and these are clearly the 'jewels in the crown' and are thus afforded strict legal protection, however it is important to consider that nature exists outside of designated sites and that habitats in the wider countryside also have value. Such habitats may enhance the tourist experience and provide a range of services to human populations. From a scientific perspective it would be impossible to have a healthy, functioning environment if biodiversity was confined only to the designated sites. Since CORINE data will be looked at anyway under the 'landuse' context we would suggest that it could be more efficient to begin by looking at broad land cover mapping and then using that to identify semi-natural habitats (including

peatlands, fens, woodland etc) as well as the agricultural land classes. It is then possible to pull in underneath this the identification of sensitive habitats, wetlands etc and to demonstrate where creation and enhancement could be achieved through the project. Remote sensing data is becoming ever easier to access and process within the GIS environment and if data on designated sites is overlain on the habitat maps it becomes easy to identify opportunities for enhancement outside of those sites which would also strengthen the resilience of the designated site. Such an approach of remote sensing and data layering also enables targeted direction of personnel to carry out on ground site surveys and thus efficiency savings.

Local sites are referred to in table 5.2 but there is no explicit mention of Local Nature Reserves. LNRs should also be included in the list of designated sites and synergies should be sought between any LNRs or proposed LNRs and the greenway project as LNRs have an important role in providing locally accessible nature. In NI it would be useful to consult the Local Biodiversity Officers as they will be aware of any sites that are 'in the pipeline' as well as those already designated. At a local level attention should be given to any protected trees or trees of significance to the community.

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An Roinn Ealaíon, Oidhreachta,
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage,
Regional, Rural and Gaeltacht Affairs

Our Ref: **G Pre00248/2016**
(Please quote in all related correspondence)

29 August 2016

Richard Bingham
RPS Consulting Engineers
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

Via email

Re: SEA of the Ulster Canal Greenway Development Strategy - Scoping - Transboundary

A chara

On behalf of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, I refer to correspondence received in connection with the above.

Outlined below are heritage-related observations/recommendations of the Department under the stated heading(s).

Nature Conservation

Integrated assessment

It is particularly important that the SEA process should take place in consultation with the teams working on the draft Plan and appropriate assessment, as each process can help inform the other to ensure that the objectives and policies in the draft Plan will have no significant effects on the natural heritage. The SEA should examine the effects of policies, objectives and any indicative maps or zonings, as well as cumulative impacts with other plans and projects both within and outside of the Plan area.

Legislation

The SEA should take account of the Biodiversity Convention, the Ramsar Convention, the Birds and Habitats Directives, the Wildlife Acts of 1976 to 2012, and the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.
Baseline data (section 4 of the SEA Scoping Report – Table 4.1)

With regard to the scope of baseline data, details of designated sites can be found at http://www.npws.ie/ . For flora and fauna in the SEA, the data of the National Parks and Wildlife Service (NPWS) should be consulted at http://www.npws.ie/ . Where further detail is required on

any information on the website http://www.npws.ie/ , a data request form should be submitted. This can be found at https://www.npws.ie/sites/default/files/general/Data%20request%20form.doc.

The current focus for Baseline Data is on Designated Sites with some reference to invasive alien species. This should be expanded to include protected species and notable habitats present along the proposed route of the Greenway. In addition to NPWS, sources of information relating to habitats and species include that of the National Biodiversity Data Centre (www.biodiversityireland.ie), Inland Fisheries Ireland (www.fisheriesireland.ie), BirdWatch Ireland (www.birdwatchireland.ie) and Bat Conservation Ireland (www.batconservationireland.org). Data may also exist at a County level within the Planning Authority.

SEA Objectives (section 5 of the SEA Scoping Report)

With regard to the Environmental Impact Scores the Indicators and targets and should be specific measurable and achievable.

At present under Figure 5.2 the proposed scale of mapping is too small to clearly show the proximity and potential impact of the proposed Greenway Route to adjacent designated sites.

Draft SEA Objectives for Biodiversity Flora and Fauna (section 5.2 of the SEA Scoping Report)

It is recommended that the Biodiversity SEA Objectives (and therefore Sub-objectives, Indicators, Minimum Requirements and Targets) are expanded to include habitats and species present both within and outside of designated sites as below where applicable;

- Natura 2000 sites, i.e. Special Areas of Conservation (SAC) designated under the EC Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas designated under the EC Birds Directive (Directive 2009/147 EC),

- Other designated sites, or sites proposed for designation, such as Natural Heritage Areas and proposed Natural Heritage Areas, Nature Reserves and Refuges for Fauna or Flora, designated under the Wildlife Acts 1976 to 2012,

- Species protected under the Wildlife Acts including protected flora,

- '*Protected species and natural habitats*', as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, including Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur) and Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur),

- Important bird areas such as those as identified by Birdlife International,

- Features of the landscape which are of major importance for wild flora and fauna, such as those with a "stepping stone" (e.g. marshes and woodlands) and ecological corridors function (e.g rivers, streams, canals, ponds, drainage channels, woodlands, hedgerows and road and railway margins), as referenced in Article 10 of the Habitats Directive,

- Other habitats of ecological value in a national to local context (such as those identified as locally important biodiversity areas within Local Biodiversity Action Plans and County Development Plans),

- Red data book species,

- and biodiversity in general.

It is also recommended that the Biodiversity SEA Objectives (and therefore Sub-objectives, Indicators, Minimum Requirements and Targets) are expanded to address potential damage to biodiversity through the accidental spread of invasive alien species.

With specific regard for the Aspirational Target in Table 5.2 which states: Potential for creation or enhancement of and increased access to European Sites – this should be appropriate and in line with the existing Conservation Objectives for these sites.

Draft SEA Objectives for Water (section 5.2 of the SEA Scoping Report)

With regard to the SEA Objectives for Water it is important that the needs of protected species such as freshwater pearl mussels, crayfish, salmon and lamprey species, all protected under the Wildlife Acts of 1976 to 2010 and/or listed on the annexes of the EC Habitats Directive, are considered in relation to water quality. The SEOs and targets should be also compatible with the relevant River Basin Management Plans.

Impacts on surface water or groundwater should be assessed on a catchment or aquifer basis. Where development of the Greenway is proposed alongside a river or other waterway the cumulative impact on species and habitats should be assessed on a catchment basis.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority/ies, in her/his role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at **manager.dau@ahg.gov.ie** (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Joanne Lyons
Higher Executive Officer
Development Applications Unit
Tel: 053-9117447

Department for
Communities
www.communities-ni.gov.uk

Historic Environment Division

6th Floor, Causeway Exchange
1-7 Bedford Street
Town Parks
Belfast BT2 7EG

Telephone: (028) 9082 3118

Email: Liam.mcquillan@communities-ni.gov.uk

Date: 19th August 2016

Richard Bingham BSc MSc CSci
Associate - RPS
Consulting Engineers, Elmwood
House, 74 Boucher Road,
Belfast, BT12 6RZ.
Northern Ireland

Dear Richard

Re: Ulster Canal Greenway Development Strategy, SEA Scoping Report

Thank you for your consultation on the above SEA scoping report. Historic Environment Division (HED) (formerly a part of NIEA) have considered the questions posed in your report and would respond as follows in relation to Cultural, Architectural and Archaeological Heritage.

1. Is there any information missing from the key plans and programmes listed, relevant to the Ulster Canal Development Strategy, that you think should be included?

   Yes: In relation to Cultural, Architectural and Archaeological Heritage The European Convention on the Protection of Archaeological Heritage (Valletta 1992) is relevant. This treaty has been ratified by both jurisdictions. Further on Page 41, in the Relevant Legislation section reference should be made to the Historic Monuments and Archaeological Objects (NI) Order 1995 under which Scheduled Historic Monuments are designated and under which archaeological excavation licenses are granted.

2. Do you agree with the geographical and temporal scope of the assessment?

   Yes

3. Do you agree with the scoping of the environmental assessment topics?

Department for Communities
www.communities-ni.gov.uk

Yes.

4. Have we identified the key environmental issues relevant to the Ulster Canal Greenway Development Strategy?

   Generally **yes.** In relation to cultural heritage we would refer you to our Historic Environment Datasets which depict the comprehensive recorded spatial historic environment data we hold for Northern Ireland at present.
   https://www.communities-ni.gov.uk/publications/historic-environment-digital-datasets
   Particular attention should be paid to scheduled historic monument designations as works within these protected areas require a consent which is legislatively separate to, and must be achieved in advance of, planning permission. We would highlight that there is often a correlation between historic monument assets and biodiversity issues, for example many monuments become key habitats for protected species.

5. Are we proposing the most appropriate data and scale of data to be used?

   It will be important to analyze our individual historic environment datasets in full in relation to the assessment. The Industrial Heritage Record is likely to be of particular relevance with regard to this assessment.

6. Can you propose any other data to be used in the SEA and why it would be beneficial?

   Yes. We advise that historic ordnance survey map editions should be utilised in relation to assessing historic environment issues such as townland, routeways and other historic boundaries.

7. Do you agree with the approach to the assessment?
   Yes

8. Do you agree with the draft SEA objectives?
   Yes

9. DfC Historic Environment Division, formerly part of NIEA, will be consulted through the SEA process by our colleagues in NIEA.

Should you wish to contact me directly to discuss this response I can be contacted at the address above.

Yours sincerely,

Liam McQuillan

Liam McQuillan
Senior Archaeologist

Department for
Communities
www.communities-ni.gov.uk

Heritage Records and Designations Branch

Cc Rhonda Robinson, Assistant Director

Cormac McCarthy,
Waterways Ireland,
Dock Road,
Drewsborough,
Scarriff,
Co. Clare

www.soni.ltd.uk
Castlereagh House
12 Manse Road, Belfast BT6 9RT
Telephone +44 28 907 94336
Email info@soni.ltd.uk

BY EMAIL TO: Cormac.mccarthy@waterwaysireland.org

26th August 2016

Re: Ulster Canal Greenway Development Strategy, Strategic Environmental Assessment (SEA) Scoping Report

Dear Cormac,

Thank you for your email of 18th May 2016 regarding the scoping of the Strategic Environmental Assessment (SEA) for the Ulster Canal Greenway Development Strategy (Strategy).

SONI is the electricity Transmission System Operator (TSO) for Northern Ireland and is responsible for the reliable transmission of electricity on the high-voltage grid. This includes consistently matching supply and demand for power across Northern Ireland. Since 2009, SONI has been part of the EirGrid Group and operates the all-island wholesale electricity market, with EirGrid (TSO), through the Single Electricity Market Operator (SEMO).

It is in this context that SONI welcomes the identification of '*Material Assets and Infrastructure'* (pg.15), as a topic for consideration in the forthcoming SEA and wishes to advise that the route for the proposed North South interconnector project traverses the section of railway and canal that are included in the new strategy, at the locations indicated on the attached plans. In particular the proposed overhead circuit traverses the canal between proposed tower 33 and 34 and the railway between proposed towers 48 and 49. A decision on this planning application is pending.

SONI Limited
Castlereagh House
12 Manse Road
Belfast
Northern Ireland
BT6 9RT
Company Registration No. NI038715

It is also in this context that SONI welcomes proposed SEA objective no. 7 "*creation of greenway sections with no impediment to existing infrastructure*" and requests this is amended to "*creation of greenway sections with no impediment to existing and proposed infrastructure*".

In addition SONI suggests an amendment to the baseline data identified in table 4.1 to include SONI and EirGrid existing and proposed energy infrastructure. This will ensure the satisfactory realisation of objective no. 7.

Once again we wish to thank you for the notifications received to date and are interested in receiving further updates as the strategy is developed.

Yours faithfully,

Gary Wilkins, NI Projects,
SONI,
Castlereagh House,
12 Manse Road,
Belfast
BT6 9RT

APPENDIX D

Plans and Programmes

PRELIMINARY REVIEW OF PLANS AND PROGRAMMES

EUROPEAN

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
Biodiversity, Flora and Fauna				
Regulation (EU) No. 1143/2014 on the Prevention and Management of the Introduction and Spread of Invasive Alien Species	Seeks to prevent the adverse impact of invasive alien species on biodiversity and related ecosystem services.	• Provides a set of rules to prevent, minimise and mitigate the adverse effects of invasive alien species on biodiversity and related ecosystem services, and on human health and safety as well as to reduce their social and economic impact. Seeks to achieve this through three types of intervention: • Prevention, • Early detection, and • Rapid eradication.	• The Wildlife (Northern Ireland) Order 1985 • The Wildlife (Amendment) Act 2000 (RoI)	The Strategy will have regard to this Regulation and will seek to, where possible, prevent the adverse impact of invasive species on biodiversity, related ecosystem services and on human health and safety.
The EU Birds Directive 2009/147/EC	Protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors.	• Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex I. • Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas); ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of	European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) The Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and	The Strategy should ensure that European Sites are suitably protected from loss or damage. The Strategy is expected to require a screening for Appropriate Assessment, following which there may be requirement for a Natura Impact Statement to ensure that any strategies proposed do not adversely affect SPAs and

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
		biotopes • Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes. The protection of wetlands and particularly wetlands of international importance.	amendments.	SACs.
The EU Habitats Directive (92/43/EEC)	Builds on the Birds Directive (see above) by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000: Special Protection Areas (SPAs, classified under the Birds Directive) and Special Areas of Conservation (SACs, classified under the Habitats Directive).	• Propose and protect sites of importance to habitats, plant and animal species. • Establish a network of Natura 2000 sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. • Carry out comprehensive assessment of habitat types and species present. • Establish a system of strict protection for the animal species and plant species listed in Annex IV.	European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) The Wildlife Act 1976 (S.I. No. 39/1976) and The Wildlife (Amendment) Act 2000 (S.I. No. 38/2000) The Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and amendments.	

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
The EU Biodiversity Strategy to 2020 [COM(2011)244] "Our life insurance, our natural capital"	Aimed at reversing biodiversity loss and speeding up the EUs transition towards a resource efficient and green economy. Primary objectives of the strategy include: • conserving and restoring nature; • maintaining and enhancing ecosystems and their services; • ensuring the sustainability of agriculture, forestry and fisheries; • Ensuring the sustainable use of fisheries resources • combating invasive alien species; and • addressing the global biodiversity crisis.	• To mainstream biodiversity in the decision making process across all sectors. • To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity. • To increase awareness and appreciation of biodiversity and ecosystems services. • To conserve and restore biodiversity and ecosystem services in the wider countryside. • To conserve and restore biodiversity and ecosystem. • services in the marine environment • To expand and improve on the management of protected areas and legally protected species. • To substantially strengthen the effectiveness of International governance for biodiversity and ecosystem services.	Actions for Biodiversity 2011-2016', Ireland's 2nd National Biodiversity Plan (DAHG, 2011)	Throughout the process of conception, implementation and completion of this sustainable transport corridor, this strategy should have regard for the EU's Biodiversity Strategy and look for opportunities to conserve, and, where possible, restore or enhance biodiversity, ecosystems and their services.
The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or "The Bonn Convention" [L210, 19/07/1982 (1983)]	The Bonn Convention focuses on preserving the habitats used by migratory species and aims to enhance the conservation of terrestrial, marine and avian species on a global scale throughout their range.	• Establishes a legal foundation for internationally coordinated conservation measures throughout a migratory range. • Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the	European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) The Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and	Throughout the process of implementation and completion of this sustainable transport corridor, this strategy will have regard for the Bonn Convention and will seek to preserve any such habitats used by migratory species. It should further seek to mitigate obstacles to migration and, where possible, control

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
		places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. • In Europe, legislation to ensure that the provisions of the Bonn convention are applied includes the Birds Directive and the Habitats Directive.	amendments.	factors which might endanger them.
The RAMSAR Strategic Plan (Ramsar Convention Secretariat, 2016)	Seeks to ensure the conservation and wise use of all wetlands through local and national actions and international, cooperation, as a contribution towards achieving sustainable development throughout the world.	• Address the drivers of wetland loss and degradation; • Effectively conserve and manage the Ramsar Site Network; • Wisely use all wetlands; and • Enhance implementation	The Amenity Lands Act (Northern Ireland) 1965; The Nature Conservation and Amenity Lands (Northern Ireland) Order 1985; The Wildlife (Northern Ireland) Order 1985; The Planning (Assessment of Environmental Effects) Regulations (Northern Ireland) 1989; The Planning (Northern Ireland) Order 1991; The Conservation (Natural Habitats Etc.) Regulations (Northern Ireland) 1995.	Consideration for the conservation and wise use of all local wetlands will be taken throughout each stage of the development of the Ulster Canal Greenway. The Strategy will take into consideration the drivers of wetland loss and degradation and will seek to mitigate these drivers to the greatest extent possible. It will seek to effectively conserve any such Ramsar sites through which development takes place.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
Cultural, Architectural and Archaeological Heritage				
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992) "The Valletta Treaty" [ETS No. 143]	Seeks to protect the European archaeological heritage 'as a source of European collective memory and as an instrument for historical and scientific study'.	• To integrate the conservation and archaeological investigation of archaeological heritage in urban and regional planning policies; • To establish co-operation and consultation processes between archaeologists and project developers; • To set standards for funding and archaeological and conservational methods used in studying the 'knowledge of the history of mankind'; • To promote educational actions and public awareness of the necessity of the protection and investigation of archaeological heritage in Europe; and • To foster international co-operation and joint action among all European countries in the field of archaeological resource management by means of developing and exchanging relevant scientific information, technologies and expertise.		As a relic of the early 19th century the Ulster Canal is a feature of historic significance and for this reason necessitates its consideration under this legislation. The Strategy will seek to enhance awareness of this aspect of common heritage for the benefit of local and visiting populations.
United Nations Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris 1972) "The World	Objectives seek to ensure the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage and ensure that effective and	• Establishment of measures for the protection of monuments of national importance by virtue of the historical, architectural, traditional, artistic or archaeological interest attaching to them. Includes the site of the	National Heritage Plan 2002 - 2007 (DAHG, 2002)	As a relic of the early 19th century the Ulster Canal is a feature of historic significance and for this reason necessitates its consideration under this legislation. The Strategy seeks

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
Heritage Convention" [WHC-2005/WS/02]	active measures are taken for these. The Convention recognises the way in which people interact with nature and encourages signatories to • integrate the protection of cultural and natural heritage into regional planning programmes, • set up staff and services at their sites, • undertake scientific and technical conservation research and • adopt measures which give this heritage a function in the day-to-day life of the community.	monument, the means of access to it and any land required to preserve the monument from injury or to preserve its amenities. • World Heritage Sites in Ireland are specific locations that have been included in the UNESCO World Heritage Programme list of sites of outstanding cultural or natural importance to the common heritage of humankind. Two such sites in Ireland have been designated		to preserve and protect its cultural (and surrounding) natural heritage for present and future generations. Thus the strategy integrates the necessity of modern sustainable transport with the cultural and natural heritage of the region.
Geology, Soils and Landuse				
EU Thematic Strategy for Soil Protection [COM(2006) 231] (including proposals for a Soil Framework Directive)	Highlights a need for action to prevent the ongoing deterioration of Europe's soils. The Soil Thematic Strategy would seek to: • Establish common principles for the protection and sustainable use of soils; • Prevent threats to soils, and mitigate the effects of those threats; • Preserve soil functions within the context of sustainable use; and	• Objective of integrating soil protection into other EU policies, including agriculture and rural. • Promotion of rehabilitation of industrial sites and contaminated land.		In the development of this sustainable transport corridor, the Strategy will seek to preserve the soil function of the site of the greenway. It will seek to prevent any additional degradation and contamination of the soil, and minimise the loss of soil as a resource.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
	• Restore degraded and contaminated soils to approved levels of functionality.			
Landscape and Visual Amenity				
European Landscape Convention (ETS No. 176), Florence, 20 October 2000	• Promotion of the protection, management and planning of European landscapes and organising European co-operation on landscape issues. • Applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. • Inclusion of landscapes that might be considered outstanding as well as every day or degraded landscapes. • Aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape. • Complements the Council of Europe's and UNESCO's heritage conventions.	• Respond to the public's wish to enjoy high-quality landscapes and to play an active part in the development of landscapes. • Each administrative level (national, regional and local) should draw up specific and/or sectoral landscape strategies within the limits of its competences. These are based on the resources and institutions which, when co-ordinated in terms of space and time, allow policy implementation to be programmed. The various strategies should be linked by landscape quality objectives.	The Planning and Development Acts 2000 - 2010 (S.I. No. 30/2000, S.I. No. 30/2010) National Spatial Strategy 2002-2020 "People, Places and Potential" (DELG, 2002) The Nature Conservation and Amenity Lands (Northern Ireland) Order (NCALO) 1985 as amended	The Strategy could potentially have implications on landscapes and visual amenity. Therefore, it will seek to minimise any negative implications whilst also raising awareness of the value of the landscape and visual amenity.
Water				
The 'Floods' Directive, 2007 (2007/60/EC)	This Directive provides a framework for the assessment and management of flood risks, aiming to reduce the adverse consequences associated with flooding for human health, the environment, cultural heritage and	Member States must: • assess the risk of flooding of all water courses and coast lines, • map the flood extent and assets and	European Communities (Assessment and Management of Flood Risks) Regulations 2010	The Strategy will need to be aware of areas identified as being at risk of flooding, both now and in the future. It should seek to avoid these areas wherever possible ensuring that

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
	economic activity.	humans at risk in these areas at River Basin level and in areas covered by Article 5(1) and 13(1); and • implement flood risk management plans and take adequate and coordinated measures to reduce this flood risk. Member States are required to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by the end of 2015. The public must be informed and allowed to participate in the planning process.	European Union (Environmental Impact Assessment) (Flood Risk) Regulations 2012 (S.I. No. 470/2012) The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009	it does not contribute towards present and future flood risk.
The EU Water Framework Directive (2000/60/EC), (as amended by Decision 2455/2001/EC and Directives 2008/32/EC, 2008/105/EC and 2009/31/EC.	Aims to improve water quality and quantity within rivers, estuaries, coasts and aquifers. Aims to prevent the deterioration of aquatic ecosystems and associated wetland by setting out a timetable until 2027 to achieve good ecological status or potential. Member States are required to manage the effects on the ecological quality of water which result from changes to the physical characteristics of water bodies.	• Identification and establishment of individual river basin districts. • Preparation of individual river basin management plans for each of the catchments. These contain the main issues for the water environment and the actions needed to deal with them. • Establishment of a programme of monitoring water quality in each RBD. • Establishment of a Register of Protected Areas (includes areas previously designated under the	European Communities (Water Policy) Regulations, 2003 (S.I. No. 722/ 2003) European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272/2009) Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003	The Strategy will need to consider the requirements of the WFD and ensure that it does not compromise its objectives. It should, where possible, seek to minimise, and mitigate for, any negative impacts which it may have upon the quality and quantity of local rivers, estuaries, coastal waters and aquifers.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
	Action is required in those cases where these "hydro-morphological" pressures are having an ecological impact which will interfere with the ability to achieve WFD objectives. The following Directives have been subsumed into the Water Framework Directive : • The Drinking Water Abstraction Directive • Sampling Drinking Water Directive • Exchange of Information on Quality of Surface Freshwater Directive • Shellfish Directive • Freshwater Fish Directive • Groundwater (Dangerous Substances) Directive • Dangerous Substances Directive	Freshwater Fish and Shellfish Directives which have become sites designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register). • Promotion of sustainable management of the water environment by carefully considering current land use and future climate scenarios, minimising the effects of flooding and drought events and facilitating long term improvements in water quality, including the protection of groundwater near landfill sites, as well as minimising agricultural runoff.	SR 544	
Environmental Quality Standards Directive (Directive 2008/105/EC) (also known as the Priority Substances Directive), as amended by Directive 2013/39/EU.	• Establishes environmental quality standards (EQS) for priority substances and certain other pollutants as provided for in Article 16 of the Water Framework Directive and aims to achieve good surface water chemical status in accordance with the provisions and objectives of Article 4 of the Water Framework Directive.	• Apply the EQS laid down in Part A of Annex I to this Directive for bodies of surface water. • Determine the frequency of monitoring in biota and/or sediment of substances. • Monitoring shall take place at least once every year, unless technical knowledge and expert judgment justify another interval. • Notify the European Commission if	European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272/2009) European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003)	The Strategy shall seek to adhere to the environmental quality standards identified within this legislation.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
		the substances for which EQS have been established if a deviation of the monitoring is planned along with the rationale and approach. • Establish an inventory, including maps, if available, of emissions, discharges and losses of all priority substances and pollutants listed in Part A of Annex I to this Directive for each river basin district.		
Environment and Sustainable Development				
2030 Framework for Climate and Energy Policies [COM(2013)169]	• A regulatory framework to drive the creation of an open, integrated and competitive single market for energy which promotes the security of energy supplies.	• An EU based target for GHG emission reductions of 20% relative to emissions in 1990; • A 20% share for renewable energy sources in the energy consumer in the EU with specific target for the Member States; • 20% savings in energy consumption compared to projections.	• UK Low Carbon Transition Plan • The Energy Act 2013	Through the establishment of a sustainable transport corridor, this Strategy will contribute towards both a reduction of greenhouse gas emissions and a reduction of energy consumption in line with the objectives of this policy.
EU Strategy on Adaption to Climate Change [EC, 2013]	• A framework for the enhancement of the EU's adaption measures to deal with the economic, environmental and social impacts of climate changes	• Promoting action by Member States • Promoting better informed decision-making • Promoting adaptation in key vulnerable sectors.	• An EU Strategy on Adaptation to Climate Change [COM(2013)2016 • Green Paper on the prevention and insurance of disasters [COM(2013)213	Through the construction of a sustainable transport corridor, this Strategy is a means by which the impacts of climate change can be accommodated to ensure the continued prosperity of the local economy, society and the environment in the face of climatic change.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
EU 2020 Growth Strategy [COM(2010) 2020]	• A strategy to 'turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion.	• Smart growth: developing an economy based on knowledge and innovation • Sustainable growth: promoting a more resource efficient, greener and more competitive economy. • Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.		The implementation of a sustainable transport corridor will not only contribute towards a more resource efficient, greener and more competitive economy but it will also foster high levels of social and territorial cohesion as well as an enhanced degree of knowledge and appreciation for the local landscape / environment.
Air Quality Directive (2008/50/EC)	• Consolidates a number of earlier directives and sets objectives for several pollutants which are harmful to human health.	• Monitor and assess air quality to ensure that it meets given objectives • Report to the Commission and the public on the results of this monitoring and assessment • Prepare and implement air quality plans containing measures to achieve the objectives.	• Environment Act 1995 • Environment (Northern Ireland) Order 2002 • Air Quality Standards Regulations (Northern Ireland) 2010 • Air Quality Standards Regulations (NI) 2013	Through the implementation of a sustainable transport corridor, this strategy seeks to reduce the quantity of emissions being released into the atmosphere. It therefore seeks to reduce several of the pollutants which are harmful to human health whilst encouraging outdoor physical activity thereby contributing towards the attainment of this directive.
EIA Directive (2011/92/EU as amended by 2014/52/EU)	• Requires the assessment of the environmental effects of public and private projects which are likely to have significant effects on the environment. • Aims to assess and implement avoidance or mitigation measures to eliminate environmental effects, before consent is given of projects likely to have significant effects on the environment by virtue, inter alia,	• All projects listed in Annex I are considered as having significant effects on the environment and compulsorily require an EIA. • For projects listed in Annex II, a "screening procedure" is required to determine the effects of projects on the basis of thresholds/criteria or a case by case examination. The competent authority may give a decision on whether a project	European Communities (Environmental Impact Assessment) Regulations 1989 (S.I. No. 349/1989) (as amended) European Union (Environmental Impact Assessment) (Flood Risk) Regulations 2012	The Strategy may need to have regard to the EIA regulations in the development of the various stretches of greenway. This SEA represents a precursor to the EIA which will be carried out prior to the implementation of the greenway upon approval.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
	of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.	requires EIA. • Requirement for identification, description and assessment in an appropriate manner, in the light of each individual case, on the direct and indirect effects of a project on the following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, material assets and the cultural heritage, the interaction between each factor. • Requirement for consultation with relevant authorities, stakeholders and public allowing sufficient time to make a submission before a decision is made. • Establishment of a recognised structure and content for the Environmental Impact Statement, which is the document submitted as a written account of the EIA. • Inclusion of proposed flood risk management schemes in EIA screening process	(S.I. No 470/2012) The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2015	
Environmental Liability Directive (2004/35/EC)	• Establishes a framework for environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. • Relates to environmental damage caused by occupational activities (listed in Annex III), and to any imminent threat of such damage occurring by reason of any of those activities; damage to protected	• Describes procedures for circumstances where environmental damage has occurred. Requires the polluter to take all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors in order to limit or to prevent further environmental damage and adverse effects on human health or further impairment	European Communities (Environmental Liability) Regulations 2008 [S.I. No. 547/2008] Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009 (as	The Strategy will seek to reduce, and mitigate for, any negative impacts upon the environment thereby seeking to prevent environmental damage and adverse effects upon human health.

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevant Legislation	Relevance to the Strategy
	species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent.	of services and the necessary remedial measures. • Establishes measures for cases where environmental damage has not yet occurred, but there is an imminent threat of such damage occurring. • The regulations make the polluter financially liable and allow the competent authority to initiate cost recovery proceedings where appropriate.	amended)	
The European Spatial Development Perspective	• Identifies the role which spatial planning plays in reducing interregional disparities. • Aims to deliver social and economic cohesion, whilst balancing competitiveness, across and within the EU.	• Seeks to enhance social and economic cohesion across the Community. • Seeks to provide for the conservation of natural resources and cultural heritage of Member States. • Aspires to balance competitiveness across the EU.		The cross boarder nature of the proposed Strategy is consistent with the objectives of this policy framework insofar as it seeks to reconnect cross-border communities in such a way as to bring significant social, economic and environmental benefits to the region.

NATIONAL

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Related Legislation or Plans	Relevance to the Strategy
Biodiversity, Flora and Fauna				
'Actions for Biodiversity 2011-2016', Ireland's 2nd National Biodiversity Plan (DAHG, 2011)	• National strategy for the maintenance and enhancement of biological diversity, which should be integrated across other policy sectors.	• Identification and protection of key biological resources and the monitoring of potentially damaging processes and activities. • Preparation of Local Biodiversity Action Plans by Local Authorities to protect, enhance and promote local biodiversity	UN Convention on Biological Diversity (1992) Strategic Plan 2011 to 2020 "Living in Harmony with Nature".	The Strategy should take an ecosystem approach to the planning and construction of this sustainable transport corridor. It will look for all opportunities to conserve, and where possible restore, biodiversity. As a means of further exposing the local population to the landscape and environment within their local area, it is hoped that this sustainable transport corridor will further act as a source of local environmental knowledge, enhancing local awareness of local biodiversity / ecosystem services and their need for protection.
Ireland's National Biodiversity Plan 2011-2016 (Dept. of Arts, Heritage and the Gaeltacht, 2011)	• A framework for the preservation of Ireland's biodiversity.	• To maintain biodiversity in the decision making process across all sectors • To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity • To increase awareness and appreciation of biodiversity and		The Strategy should take an ecosystem approach to the planning and construction of this sustainable transport corridor. It will look for all opportunities to conserve, and where possible restore, biodiversity. As a means of further exposing the local population to the

Directive/ Plan/Programme	High Level Description	Key Objectives, Actions etc.	Related Legislation or Plans	Relevance to the Strategy
		ecosystems services • To conserve and restore biodiversity and ecosystem services in the wider countryside • To conserve and restore biodiversity and ecosystem services in the marine environment • To expand and improve on the management of protected areas and legally protected species • To substantially strengthen the effectiveness of international governance for biodiversity and ecosystem services		landscape and environment within their local area, it is hoped that this sustainable transport corridor will further act as a source of local environmental knowledge, enhancing local awareness of local biodiversity / ecosystem services and their need for protection.
A Biodiversity Strategy for Northern Ireland to 2020 (Dept. of the Environment, 2015)	• This Strategy sets out how Northern Ireland plans to meet its international obligation and local targets to protect biodiversity and ensure that the environment can continue to support the people and economy of Northern Ireland	• To make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society ion general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland	EU biodiversity strategy to 2020	The Strategy should take an ecosystem approach to the planning and construction of this sustainable transport corridor. It will look for all opportunities to conserve, and where possible restore, biodiversity. As a means of further exposing the local population to the landscape and environment within their local area, it is hoped that this sustainable transport corridor will further act as a source of local environmental knowledge, enhancing local awareness of local biodiversity / ecosystem services and their

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				need for protection.
Prioritised Action Framework for Natura 2000 (Dept. of the Environment, 2012)	• The Prioritised Action Frameworks sets the priorities for nature conservation within the Natura 2000 network for each member state of the European Union. In particular, the PAF sets management priorities and funding requirements for the protected areas of the Natura 2000 network, at the national and regional level, in an attempt to facilitate their integration into the current operational programs for the various EU financial instruments.	• To ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under both the Bird directive and the Habitats Directive.	Birds Directive Law (2009/147/EC) Habitats directive (92/43/EEC)	The Strategy will seek to protect any such core breeding and resting sites considered under the Natura 2000 framework, through which the greenway may be developed.
Valuing Nature - Northern Ireland Biodiversity Strategy 2015 (DoE, 2015)	• The Strategy sets out how Northern Ireland plans to meet its international obligations and local targets to protect biodiversity and ensure that the environment can continue to support our people and economy.	• To make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society in general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland. • 20 Aichi Targets set as basis of Strategy.	EU Biodiversity Strategy 2011 and NI Programme for Government 2011-2015.	The Strategy should take an ecosystem approach to the planning and construction of this sustainable transport corridor. It will look for all opportunities to conserve, and where possible restore, biodiversity. As a means of further exposing the local population to the landscape and environment within their local area, it is hoped that this sustainable transport corridor will further act as a source of local environmental knowledge, enhancing local awareness of local biodiversity / ecosystem services and their need for protection.

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Air / Climatic Factors				
UK Government Sustainable Development Strategy (The Stationery Office, 2005)	• Sets out the government's foreign and domestic strategy for sustainable development	• Seeks to provide for: • Environmental sustainability; • A cohesive and just society; • A sustainable economy; • Effective and participative systems of governance; and • The use of strong scientific evidence in relation to the development and implementation of government policy.		The Strategy contributes towards the achievement of many of the objectives of the government's Sustainable Development Strategy. Principally, it adheres to the principal of environmental sustainability insofar as it provides a sustainable alternative to energy intensive modes of transport such as cars/buses/trains. Further to this, the cross-border nature of the greenway provides a means by which further cohesion between towns, regions and counties can be enhanced.
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (DEFRA, 2007)	• Sets out air quality objectives and policy options to further improve air quality in the UK.	• 50µg.m^{-3} not to be exceeded more than 35 times a year • 25µg.m^{-3} exposure reduction • 200 µg.m^{-3} nitrogen dioxide not to be exceeded more than 18 times a year • 10 µg.m^{-3} carbon dioxide max daily running 8 hour mean • 0.5 µg.m^{-3} lead annual mean		The Strategy will have due consideration for the objectives of the Air Quality Strategy. It shall seek, where possible, to limit all potential sources of air emissions throughout the process of development. Following implementation, this sustainable transport corridor will contribute towards a reduction in the quantity of greenhouse gases emitted into the atmosphere thereby improving local air quality and reducing human exposure to

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				pollution.
Sustainable Development Strategy (Northern Ireland Executive, 2010)	• Seeks to identify and develop actions that will improve the quality of life for present and future generations.	• Economic prosperity: promote a prosperous, innovative, knowledge-rich, competitive and eco-efficiency, responsible economy which provides high-living standards and full and high-quality employment; • Social cohesion: Promote an equal, democratic, socially inclusive, cohesive, healthy, safe and just society with respect for fundamental rights and cultural diversity • Environmental protection: Safeguard the capacity of our natural environment to support life in all its diversity, respect the limits of our natural resources and ensure a high level of protection and improvement of the quality of the environment. • Meeting national and international responsibilities: Build a peaceful, fair and prosperous society that makes a full contribution to national and international sustainable development programmes.		This Strategy will have due consideration for the Sustainable Development Strategy NI. Through the implementation of a cross-border sustainable transport corridor, the Strategy will promote community wide and cross-border social cohesion as well as environmental protection by way of reducing the emission of harmful pollutants into the atmosphere and enhancing local knowledge and understanding of the environment and its need for protection and prosperity. It will further provide further economic prosperity within the regions through which it is implemented by way of promoting cycle tourism and related industries within the area.
The Climate Change Act (2008)	• A legal framework to reduce emissions by at least 80% below 1990 levels by 2050 and by at least 34% in the period 201-2022; • Compliance with a system of five year carbon budgets, set up to 15 years in advance, to deliver the	• Net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline. • The carbon budget for the budgetary period including 2020 must be at least 26% lower than the 1990		The Strategy will have due consideration for the objectives of the Climate Change Act. It shall seek, where possible, to limit all potential sources of greenhouse gas emissions throughout the process of development. It will further

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	emission reductions required to achieve the 2018-2022 and 2050 targets; and • The setting up of a Committee on Climate Change (CCC) to advise government on the level of the carbon budgets and how they might be met and report annually on progress.	baseline.		contribute towards the reduction of greenhouse gases by way of providing for the use of eco-friendly travel as opposed to energy intensive transport alternative such as cars/buses etc.
Northern Ireland Greenhouse Gas Emissions Reduction Plan (Cross-Departmental Working Group on Greenhouse Gas Emissions, 2011)	• Highlights the steps currently being taken to reduce the emission of greenhouse gases throughout Northern Ireland, whilst also recommending areas in which further action must be taken.	• 25% Reduction in greenhouse gas emissions below 1990 levels by 2025 (18,746ktCO2e)	EU Growth Strategy [COM(2010)2020] The Climate Change Act 2008	The Strategy will have due consideration for the objectives of the Plan. It shall seek, where possible, to limit all potential sources of greenhouse gas emissions throughout the process of development. Furthermore, as a sustainable transport corridor, it will provide for the use of environmentally friendly travel through Northern Ireland and across the border.
National Climate Change Strategy 2007-2012 (DEHLG, 2007)	• Establishes a framework for action to reduce Ireland's greenhouse gas emissions	Sets out principles and actions for the reduction of CO_2 emissions in Ireland in the following areas: • energy supply • transport • waste management • industry, commercial and services sector • agriculture		The Strategy will have due consideration for the objectives of the National Climate Change Strategy. It shall seek, where possible, to limit all potential sources of greenhouse gas emissions throughout the process of development. It will further contribute towards the reduction of greenhouse gases by way of providing for the use of eco-friendly travel as opposed to energy intensive transport

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		• residential • public sector		alternative such as cars/buses etc.
NI Climate Change Adaptation Programme (DoE, 2014)	• The Adaptation Programme contains the Government's response to the risks and opportunities identified in the Climate Change Risk Assessment (CCRA) for Northern Ireland, which was produced in January 2012, as part of the overall UK CCRA.	• Ensuring Northern Ireland's preparedness for the impacts of climate change. Objectives are to: • Fulfil the Statutory Duties, Work in Partnership, Raise Awareness, Promote and support the Enhancement of scientific evidence and Engage with other Administrations.	UK Climate Change Act 2008	The Strategy will have regard to this climate change adaptation programme. It will contribute towards Northern Ireland's preparedness for the impacts of climate change by way of providing a safe, environmentally friendly means of transport as an alternative to the energy intensive modes presently dominant within the country.
Geology, Soils and Landuse				
A National Landscape Strategy for Ireland (DAHG, 2011)	• A framework for the protection of the many cultural, social, economic and environmental values embedded in the landscape of Northern Ireland	• To inform and assist in the resolution of challenges arising from competing priorities in the landscape – for example: infrastructural provision versus landscape protection, or local versus national objectives.	The European Landscape Convention (2004)	The Strategy will be considerate of the many cultural, social, economic and environmental values embedded in the landscape of Ireland. This sustainable transport corridor provides for the synthesis of sustainable transport infrastructure, the protection of visual amenity and local landscape protection. As such, it will contribute towards the protection of not only local cultural, social and environmental values but also economic values by way of

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				introducing cycle tourism to the area.
Food Harvest 2020 "A vision for Irish agri-food and fisheries" (DAFF, 2010)	• A strategy to chart the direction of agri-food, forestry and fisheries for the ten year period to 2020. • Aims to innovate and expand the Irish food industry in response to increased global demand for quality foods	• Sets out a vision for the potential growth in agricultural output after the removal of milk quotas in 2015 • Aims to increase the value of primary output of the agriculture, fisheries and forestry sector by 33% over compared to the 2007-2009 average.		The Strategy should consider land use factors, such as agriculture, in its strategies. It should seek to minimise the disruption of land which is of significance to the Irish food industry.
Irish Geological Heritage (IGH) Programme (GSI 1998-)	Programme to raise awareness about geological heritage and to recognise and protect geological heritage (or geoheritage).	Establishment of county geological sites and integration of these into the planning system. Preparation of guidelines to aid the extractive industry in addressing geological heritage, particularly in the end usage of quarries. Targeted mapping to provide more detail in priority areas and areas of low data coverage Designation of three UNESCO-supported Global Geoparks – Copper Coast (Waterford), Marble Arch Caves (Fermanagh-Cavan) and Burren & Cliffs of Moher (Clare),	National Heritage Plan 2002 - 2007 (DAHG, 2002) The Wildlife (Amendment) Act 2000 (S.I. No. 38/2000)	The Strategy may contribute towards raising awareness of local geological heritage by way of providing visual access to several geological heritage sites including the Scotshouse-Redhills Cross-cutting Reibbed Maraines. This is the only mapped area of cross-cutting ribbed moraines yet found in the world, and is therefore one of the most important geological terrains in Ireland. As such, this Strategy should seek to both protect, and promote an understanding of, this geological heritage.
NI Planning Policy Statements (PPS)	Planning Policy Statements (PPSs) set out the policies of the Department of the Environment on particular aspects	When plan-making and decision-taking, planning authorities must balance and integrate a variety of complex social,	PPS 1 - 23	The Strategy will seek to integrate the principles of the Planning Policy Statements into

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(Planning Service NI)	of land-use planning and apply to the whole of Northern Ireland. Their contents must be taken into account in preparing development plans and are also material to individual planning applications and appeals.	economic, environmental and other matters that are in the long term public interest. The principles of this approach are: • Improving Health and Well-being; • Creating and Enhancing Shared Pace; • Supporting Sustainable Economic Growth; • Supporting Good Design and Positive Place Making; and • Preserving and Improving the Built and Natural Environment.		the process of developing the Ulster Canal Greenway. In particular, it will seek to integrate social, economic and environmental issues, where possible, by way of creating a safe and environmentally sustainable transport corridor which provides for people to enjoy the local cultural heritage and the visual amenity of the local landscape. This will further enhance the economic prospects of the local area thereby contributing towards long term environmental and economic sustainability.
Strategic Planning Policy Statement (Dept. of the Environment, 2015)	• A statement of the Department of the Environment's policy on important planning matters, reflecting the Environment Ministers expectations for delivery of the planning system.	• Delivering sustainable planning policies and plans. • Integrating and balancing social, economic and environmental factors when plan-making and decision-taking. • Helping to mitigate and adapt to climate change and the reduction of greenhouse gases.		The Strategy will seek to integrate the principles of the Planning Policy Statement into the process of developing the Ulster Canal Greenway. In particular, it will seek to integrate social, economic and environmental issues, where possible, by way of creating a safe and environmentally sustainable transport corridor which provides for people to enjoy the local cultural heritage and the visual amenity of the local landscape. This will further enhance the economic prospects of the local area thereby contributing towards

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				long term local environmental and economic sustainability thereby further contributing towards the mitigation for and adaptation to climate change.
Landscape and Visual Amenity				
National Landscape Strategy for Ireland (Draft) 2014 – 2024 (DAHG, 2014)	• Strategy for the provision of a framework for the protection of the many cultural, social, economic and environmental values embedded in the landscape.	• To be implemented by the State, working in co - operation with public authorities, stakeholders, communities and individuals. • Objectives include to establish and to implement, through a series of actions, policies aimed at understanding, managing, protecting and planning the landscape. • Sets out specific measures to integrate and embed landscape considerations in all sectors which influence the landscape and improve and enhance the quality of decision - making by those who have an impact on it.		The Strategy will seek to contribute towards the protection of the many cultural, social, economic and environmental values embedded within the local landscape. It will achieve this, where possible, by mitigating any impacts which the development has the potential to have upon the landscape. It will also achieve this by providing visual access to the local landscape thereby enhancing local knowledge and appreciation for the various values embedded therein.
Material Assets and Infrastructure				
A Bicycle Strategy for Northern Ireland	• Seeks to deliver bespoke cycling infrastructure whilst also promoting comprehensive programmes made up of a variety of initiatives to promote the use of bicycles as a	• Seeks to promote the use of bicycles (doubling the number of bicycle trips within the next five years and quadrupling the number within the next 15 years).		The Strategy seeks to deliver cycling infrastructure whilst also promoting comprehensive programmes made up of a variety of initiatives to promote

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	mode of everyday transport.			the use of bicycles as a mode of everyday transport.
Programme for Government Framework (Northern Ireland Executive, 2016)	• Sets out an approach which focuses on the major societal outcomes that the Executive wants to achieve and provides a basis for all sectors to contribute to the development of plans and actions.	• A strong, competitive regional balance economy; • Environmental protection; • Social equality; • Good health; • An innovative and creative society; • Sustainable and well paid career development opportunities; • Community safety; • A society respectful of diversity; • A confident, welcoming, outward-looking society; • High quality public services; infrastructure investment; and • Security and opportunity for society's youth.		The Strategy seeks to promote several of the objectives of the Programme (including good health, social equality and environmental protection) and will aspire to contribute towards the successful delivery of these objectives throughout the process of conception, implementation and completion of the greenway.
Tourism Strategy for Northern Ireland to 2020 (Dept. of Enterprise and Investment, 2010)	• A strategy for the enhancing the tourism industry throughout Northern Ireland	• Increasing visitors from 3.2million to 4.5 million by 2020 • Increasing earnings from tourism from £536 million to £1 billion by 2020 • Progressively accelerating spend by visitors • Targeting specific markets and		The Strategy will have regard to the Tourism Strategy and will seek to contribute towards the achievement of its objectives by way of enhancing the appeal of this area as destination for cycling tourism and active leisure.

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		market segments • Supporting indigenous high quality businesses to growth		
The Northern Ireland Strategy for Sport and Physical Recreation 2009 – 2019 (Dept. of Culture, Arts and Leisure, 2009)	• Proposes a strategy for the development of sport and physical recreation in Northern Ireland up to 2018	• Promote the value, importance and priority of sport and physical recreation, • Secure the commitment of, and partnership working across, relevant Government Departments, particularly those responsible for health, education and regeneration, in realising the vision for sport and physical recreation in NI • Clarify the roles and secure a commitment to implementation from district councils and other public bodies with responsibility for sport and physical recreation • Promote increased participation in sport and physical recreation among under-represented groups • Support governing bodies of sport, sport clubs and local communities • Promote community cohesion through sport and physical recreation • Establish world class sports services that enable world class performances by NI athletes • Establish NI as a world class venue for sporting events		The Strategy seeks to deliver cycling infrastructure as a means of encouraging public engagement in physical recreation.

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		• Develop and protect world class facilities and places for playing and watching sport that are accessible to all.		
Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation (Dept. for Regional Development, 2011)	• Sets out the Department for Regional Development's new approach to regional transportation and particularly future decisions on investment.	• Support the growth of the economy • Enhance the quality of life for all • Reduce the environmental impact of transport		The Strategy seeks to deliver cycling infrastructure to promote the use of bicycles as a mode of everyday transport. This will contribute towards the reduction of the environmental impact of transport whilst also enhancing the quality of life for all by way of encouraging outdoor physical activity and access to local visual amenity. It will further contribute towards the local economy by way of encouraging cycle tourism throughout the area.
Regional Development Strategy (Dept. for Regional Development, 2010)	• An overarching strategic planning framework to facilitate and guide the public and private sectors, taking into account key driving forces such as population growth and movement, demographic change, the increasing number of households, transportation needs, economic changes, climate change and the spatial implications of divisions that still exist within society.	• Support strong, sustainable growth for the benefit of all parts of Northern Ireland; • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West; • Support our towns, villages and rural communities to maximise their potential; • Promote development which improves the health and well-being of communities;		The Strategy will contribute towards the maximisation of the economic prospects for towns, villages and rural communities within the vicinity of the Ulster Canal Greenway. It will do this by encouraging cycle tourism within the area. Further to this, the Strategy will further improve local connectivity by way of enhancing the movement of people, goods and information between places, both domestically and across the border. It will do this in an

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		• Improve connectivity to enhance the movement of people, goods, energy and information between places; • Protect and enhance the environment for its own sake; • Take action to reduce our carbon footprint and facilitate adaptation to climate change; • Strengthen links between north and south, east and west, with Europe and the rest of the world.		environmentally sustainable way thereby protecting and enhancing the environment, and reducing the carbon footprint of local activity.
The Spatial Strategies on the Island of Ireland – Framework for Collaboration	• The Framework lays out the ways in which the governments of the Republic of Ireland and Northern Ireland may collaborate to coordinate the objectives laid out in their respective spatial strategies.	• To encourage the development of an integrated, sustainable transport network.		The transboundary Strategy will contribute towards the principles of sustainable and balanced regional development as well as towards the strengthening and broadening of local rural economies.
National Spatial Strategy for Ireland 2002-2020 People, Places and Potential (DELG, 2002)	• Planning framework for Ireland • Aims to achieve a better balance of social, economic and physical development across Ireland, supported by effective planning	• Proposes that areas of sufficient scale and critical mass will be built up through a network of gateways, hubs and key town		The Strategy, through the development of a sustainable transport corridor, will contribute towards the harmonisation of social, economic and environmental issues relating to its implementation, thereby further contributing towards the balanced and sustainable development of Ireland's northern towns, villages and rural communities.

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Sustainable Development – A Strategy for Ireland	• Aims to facilitate participation and implementation of sustainable development in Ireland.	• Sets out an agenda to 'green' Irish transport. This focuses upon: • Making transport more efficient; • Reducing the environmental impact and intensity of transport; and • Supporting instruments at an international level towards examination and implementation of the internalisation of external costs in transport.		By offering the means of using sustainable green transport as an alternative to energy intensive transport, this Strategy will reduce the environmental impact and intensity of transport within Ireland and across the border.
National Cycle Policy Framework	• As part of the Smarter Travel Programme, the National Cycle Policy Framework sets out a range of targets which seek to create a strong cycling culture in Ireland.	• Sets a national target of 10% of all trips being made by bicycle by 2020. • Seeks to support the planning, development and design of towns and cities in a cycling and pedestrian friendly way. • Aspires to provide designated rural cycle networks especially for visitors and recreational cycling. • Seeks to provide appropriate levels of financial resources towards implementing the NCPF.		The development of greenways is an integral part of both the Smarter Travel Programme and the National Cycle Policy Framework. The Ulster Canal Greenway compliments the objectives of the National Cycle Policy Framework. Monaghan is an active participant of the National Cycle Policy Framework.
Active Travel Towns Programme	• As part of the Smarter Travel Programme, the Active Travel Towns Programme seeks to achieve a modal shift from car to either walking and/or cycling.	• Aspires to combine infrastructure improvements with behavioural change measures to encourage people to use walking and/or cycling infrastructure instead of their cars.		The development of greenways is an integral part both the Smarter Travel Programme and the Active Travel Towns Programme. The Ulster Canal Greenway Development Strategy compliments the objectives of the Active Travel

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				Towns Programme. Monaghan is an active participant of the Active Travel Towns Programme.
Travelwise NI	• Seeks to encourage the use of sustainable transport options such as walking, cycling, public transport or car sharing.	• Aspires to increase annual walking distance • Seeks to increase annual cycling distance • Aims to increase the percentage of cycling journeys.		The Ulster Canal Greenway Development Strategy compliments and will contribute towards the achievement of the Travelwise NI objectives. It provides the means by which these objectives are more likely to be achieved.

REGIONAL/SUB-REGIONAL

Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the Strategy
Catchment-based Flood Risk Assessment and Management Plan for UoM 06 (The Office of Public Works, 2016)	• Flood Risk Management Plans which set out a range of proposed measures and actions to manage and reduce flood risk within the area identified as Unit of Management 06.	• Seek to reduce the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The Strategy will have regard to these plans. It will ensure that the Ulster Canal Greenway does not contribute towards present and future flood risk.
Catchment-based Flood Risk Assessment and Management Plan for UoM 36 (Office of Public Works 2016)	• Flood Risk Management Plans which set out a range of proposed measures and actions to manage and reduce flood risk within the area identified as Unit of Management 36.	• Seek to reduce the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The Strategy will have regard to these plans. It will ensure that the Ulster Canal Greenway does not contribute towards present and future flood risk.

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North Western River Basin Flood Risk Management Plan (Dept. of Agriculture and Rural Development, 2015)	• Flood Risk Management Plans which set out a range of proposed measures and actions to manage and reduce flood risk within the North Western River Basin.	• Seek to reduce the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The Strategy will have regard to these plans. It will ensure that the Ulster Canal Greenway does not contribute towards present and future flood risk.
Neagh Bann River Basin Flood Risk Management Plan (Dept. of Agriculture and Rural Development, 2015)	• Flood Risk Management Plans which set out a range of proposed measures and actions to manage and reduce flood risk within the Neagh Bann River Basin.	• Seek to reduce the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The Strategy will have regard to these plans. It will ensure that the Ulster Canal Greenway does not contribute towards present and future flood risk.
Border Regional Authority Planning Guidelines 2010-2022 (The Border Regional Authority, 2010)	• A long term strategic planning document for the border region.	• Aims to direct the future growth of the Border Region, and seeks to implement the planning framework set out in the National Spatial Strategy (NSS) published in 2002.	The Strategy will have regard to the Guidelines and will contribute towards the economic growth of the border region insofar as it will promote cycle tourism and related commercial activities within the area.
Regional Development Strategy (Dept. for Regional Development, 2010)	• Provides an overarching strategic planning framework to facilitate and guide the public and private sectors.	• Support strong, sustainable growth for the benefit of all parts of Northern Ireland; • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West; • Support towns, villages and rural communities to maximise their potential; • Promote development which improves the health and wellbeing of communities; • Improve connectivity to enhance the movement of people, goods, energy and information between places; • Protect and enhance the environment for its own sake; • Take action to reduce carbon footprint and	The Strategy will have regard for the Objectives of the Regional Development Strategy. It will maximise the social and economic potential of towns, villages and rural communities within the vicinity of the Greenway through the heightened connectivity between localities and the promotion of cycle tourism throughout the area.

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		facilitate adaptation to climate change; • Strengthen links between north and south, east and west, with Europe and the rest of the world.	
Cavan Town and Environs Development Plan 2014-2020 (Cavan Town Council and Cavan County Council, 2014)	• Sets out the Local Authorities Strategic land use objectives and policies for the overall development of the County up to 2020. Sets out a Vision and Strategy for the proper planning and physical, social and economic sustainability of the entire county.	• To facilitate the sustainable economic and social development of the town, through the promotion of a positive climate for development initiative within the planning area; • To consider provision of a transport and land use structure that will provide the orderly planning and development of the town and accommodate sustainable urban growth; • To upgrade and expand the towns physical infrastructure in order to accommodate existing and projected needs; • To integrate housing and retail strategies, residential densities and childcare facilities as required; • To conserve the natural and built environment of the town where it is recognised as having special value; • To strengthen the urban structure in the county through the planned orderly development of the County Town; • To have reference to appropriate Departmental Directives in respect of location of retail development and its impact outside of the central area; and • To have regard to the Regional Planning Guidelines for the Border Area-Regional Planning Guidelines 2010-2022.	As a sustainable transport corridor the Greenway will contribute towards local social, environmental and economic sustainability. It will do this, in part, by contributing towards the reduction of greenhouse gases, by the provision of resources for sustainable travel, by better connecting local populations and localities and by contributing towards the promotion of local commercial activities. This Strategy will have regard for the Plan and seek, wherever possible, to contribute towards the achievement of its objectives.

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Monaghan County Development Plan 2013-2019 (Monaghan County Council, 2013)	• A strategic framework for the proper planning and sustainable development of the Monaghan area over the duration of the plan, consistent with longer term planning and sustainable development aims, including those set out in the National Spatial Strategy and any Regional Planning Guidelines in force.	• Improve the quality and consistency of development plans, and thereby improve the quality and consistency of decisions on planning applications; • Strengthen the strategic content of development plans, in the context of the hierarchy of plans envisaged under the 2000 Act; and • Encourage consensus building in the preparation, implementation and review of development plans.	This Strategy will seek to ensure that the resultant development is socially, economically and environmentally sustainable so that it is consistent with the longer term planning and sustainable development aims of the Plan.
Fermanagh Area Plan 2007 (Fermanagh District Council, 1997)	• Statutory document which provides detailed planning policies to ensure proper planning and sustainable development of area. • Sets out objectives for future planning and development.	• Identifies issues of relevance to the area and outlines principles for future development of area. • Is consistent with relevant County/Town Development Plans, National Spatial Strategy and Regional Planning Guidelines	The Strategy will have regard to this Plan; contributing, where possible, towards its objectives. The implementation of a sustainable transport corridor will do so, in part, by way of reducing local levels of pollution emitted due to presently unsustainable modes of transport, by enhancing the local connectivity of the region, by providing for the improvement of local health through physical activity, and by providing for the growth of local commercial activity by way of encouraging cycling tourism throughout the region.
Omagh Area Plan 2002 (Omagh District Council Area, 1992)	• Statutory document which provides detailed planning policies to ensure proper planning and sustainable development of area. • Sets out objectives for future planning and development.	• Identifies issues of relevance to the area and outlines principles for future development of area. • Is consistent with relevant County/Town Development Plans, National Spatial Strategy and Regional Planning Guidelines	The Strategy will have regard to this Plan; contributing, where possible, towards its objectives. The implementation of a sustainable transport corridor will do so, in part, by way of reducing local levels of pollution emitted due to presently unsustainable modes of transport, by enhancing the local connectivity of the region, by

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			providing for the improvement of local health through physical activity, and by providing for the growth of local commercial activity by way of encouraging cycling tourism throughout the region.
Armagh Area Plan 2004 (Armagh City and District Council, 1995)	• Statutory document which provides detailed planning policies to ensure proper planning and sustainable development of area. • Sets out objectives for future planning and development.	• Identifies issues of relevance to the area and outlines principles for future development of area. • Is consistent with relevant County/Town Development Plans, National Spatial Strategy and Regional Planning Guidelines	The Strategy will have regard to this Plan; contributing, where possible, towards its objectives. The implementation of a sustainable transport corridor will do so, in part, by way of reducing local levels of pollution emitted due to presently unsustainable modes of transport, by enhancing the local connectivity of the region, by providing for the improvement of local health through physical activity, and by providing for the growth of local commercial activity by way of encouraging cycling tourism throughout the region.
Fermanagh and Omagh Local Biodiversity Action Plan (Fermanagh and Omagh District Council, 2016)	• Aims to protect, conserve, enhance and restore biodiversity and ecosystem services across all spectrums throughout the Fermanagh district.	• Outlines the status of biodiversity and identifies species of importance. • Outlines objectives and targets to be met to maintain and improve biodiversity. • Aims increase awareness.	The Strategy will have regard to this Action Plan and will aim to have no negative impacts on local biodiversity throughout the development and operation of the greenway sections. Where possible the greenway should increase local awareness of biodiversity issues.
Armagh, Banbridge and Craigavon Local Biodiversity Action Plan (Action for	• Aims to protect, conserve, enhance and restore biodiversity and ecosystem services across all spectrums throughout Armagh, Banbridge and Craigavon.	• Outlines the status of biodiversity and identifies species of importance. • Outlines objectives and targets to be met to	The Strategy will have regard to this Action Plan and will aim to have no negative impacts on local biodiversity throughout the development and

Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the Strategy
Biodiversity, 2014)		maintain and improve biodiversity. • Aims increase awareness.	operation of the greenway sections. Where possible the greenway should increase local awareness of biodiversity issues.
Cavan County Local Biodiversity Action Plan	• Aims to protect, conserve, enhance and restore biodiversity and ecosystem services across all spectrums throughout County Cavan.	• To conserve, protect and manage biodiversity throughout County Cavan in line with the Cavan County Heritage Plan • To sustain the rich and diverse natural heritage of County Cavan for present and future generations • To enable the people of the County to cherish and celebrate their natural heritage • To ensure that natural heritage related matters are communicated effectively to all sectors.	The Strategy will have regard to this Action Plan and will aim to have no negative impacts on local biodiversity throughout the development and operation of the greenway sections. Where possible the greenway should increase local awareness of biodiversity issues.
East Border Region Regional Biodiversity Framework (Monaghan County Council, 2013)	• Aims to protect, conserve, enhance and restore biodiversity and ecosystem services across all spectrums throughout County Cavan.	• To a coordinated approach to biodiversity conservation and promotion on a cross border regional basis through the development of a regional framework.	The Strategy will have regard to this Action Plan and will aim to have no negative impacts on local biodiversity throughout the development and operation of the greenway sections. Where possible the greenway should increase local awareness of biodiversity issues.
Cavan Draft Heritage Plan 2016-2021 (Cavan County Council, 2015)	• Aims to highlight the importance of heritage at a strategic level.	• Manage and promote heritage as well as increase awareness. • Aim to conserve and protect heritage.	The Strategy will seek to conserve and protect local heritage. It will contribute towards an increased awareness of local heritage insofar as it will be implemented within the vicinity of a variety of heritage sites within Cavan.
Monaghan Heritage Plan 2012-	• Aims to highlight the importance of heritage at	• Manage and promote heritage as well as	The Strategy will seek to conserve and

Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the Strategy
2017 (Monaghan county Council, 2012)	a strategic level.	increase awareness. • Aim to conserve and protect heritage.	protect local heritage. It will contribute towards an increased awareness of local heritage insofar as it will be implemented within the vicinity of a variety of heritage sites within Monaghan.
Northern Ireland Landscape Character Assessment (Dept. of the Environment, 2000)	• A landscape character survey and analysis for the whole of Northern Ireland.	• To improve the quality of life for the people of the region of Northern Ireland through the promotion of sustainable development principles. To integrate the development needs of the region with the protection of the environment, and to conserve and enhance both the natural and built environments for the benefit of present and future generations. • To ensure that landscape issues would, in future, receive due attention in the land-use planning, land management, and environmental conservation and enhancement at both a regional and local level.	The Strategy will have regard to the Assessment. It will seek to contribute towards the achievement of its objectives. It will do so, in part, through its adherence to the principle of sustainable development and through its consideration of the social, environmental and economic value of the local landscape.
Fermanagh and Omagh Landscape Character Assessment (Fermanagh & Omagh District Council, 2015)	• The Northern Ireland Landscape Character Assessment for Fermanagh and Omagh District and its key findings. An assessment of the scenic quality, sensitivity to change and the overall capacity of each Landscape Character Area to absorb development	• To provide a broad strategic picture of those parts of the district that are considered to be particularly vulnerable to change and to assess their capacity to absorb new development.	The Strategy will have regard to the Assessment. It will seek to contribute towards the achievement of its objectives. It will do so, in part, through its adherence to the principle of sustainable development and through its consideration of the social, environmental and economic value of the local landscape.

Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the Strategy
Landscape Character Assessment Monaghan (Monaghan County Council, 2008)	• Characterises the geographical dimension of the landscape.	• Identifies the quality, value, sensitivity and capacity of the landscape area. • Guides strategies and guidelines for the future development of the landscape.	The Strategy will have regard for the Assessment. It will seek to contribute towards the achievement of its objectives. It will do so, in part, through its adherence to the principle of sustainable development and through its consideration of the social, environmental and economic value of the local landscape.
Ulster Canal Restoration Plan – Upper Lough Erne to Clones (Waterways Ireland, 2010)	• Plan proposed to restore the Ulster Canal from Upper Lough Erne to Clones. • Moved on to detailed planning of the canal restoration.	• Restore the Ulster Canal from Upper Lough Erne to Clones.	Directly relevant to the Strategy, as involves the same stretches of canal tow path to be developed.
Cavan Economic Plan 2009-2012 (Cavan County Council, 2009)	• Plans to enable areas to achieve sustained and sustainable economic growth and development.	• Identifies opportunities for development of the economy in an areas • Identifies challenges that may be preventing economic development • Identifies what is required to ensure that the opportunities are realised and jobs created	This Strategy represents an opportunity for local sustainable economic development by way of enhancing the prospect of cycle tourism throughout the area.

Plan/Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the Strategy
Economic Strategy and Implementation Plan for County Monaghan 2010-2014 (Monaghan County Council, 2010)	Plans to enable areas to achieve sustained and sustainable economic growth and development.	• Identifies opportunities for development of the economy in an areas • Identifies challenges that may be preventing economic development • Identifies what is required to ensure that the opportunities are realised and jobs created	This Strategy represents an opportunity for local sustainable economic development by way of enhancing the prospect of cycle tourism throughout the area.

APPENDIX E

SEA Scoring Guidelines

No.	Topic	Objective	Score	Score Description	Examples of Impacts
1A	Biodiversity, Flora & Fauna	Avoid detrimental effects to, and where possible enhance, Natura 2000 network, protected species and their key habitats.	3	Significant positive impacts	Potential for creation or enhancement of and increased access to European sites, in line with conservation objectives.
			2	Moderate positive impacts	Potential for increased awareness of and access to European sites, in line with conservation objectives. Sites are near to greenway section. Site / species information can be made available on greenway section.
			1	Slight positive impacts	Potential for increased public awareness of European sites and protected habitats / species. Site / species information can be made available on greenway section.
			0	Neutral / No impacts	No impacts on European sites and protected habitats / species.
			-1	Slight negative impacts	Potential for short term, indirect construction phase impacts in the vicinity of European sites and protected habitats / species.
			-2	Moderate negative impacts	Direct, temporary construction impacts, or medium to long term indirect impacts to European sites and protected habitats / species.
			-3	Significant negative impacts	Potential for medium to long term, direct impacts to European sites and protected habitats / species.
1B	Biodiversity, Flora & Fauna	Avoid damage to or loss of, and where possible enhance, national and local nature conservation sites and protected species, or other know species of conservation concern.	3	Significant positive impacts	Potential for creation or enhancement of and increased access to sites of national or local importance in line with conservation criteria.
			2	Moderate positive impacts	Potential for increased public awareness of and increased access to sites of national or local importance. Sites are near to greenway section. Site / species information can be made available on greenway section.
			1	Slight positive impacts	Potential for increased public awareness of sites and species of national or local importance. Site / species information can be made available on greenway section.
			0	Neutral / No impacts	No impacts on sites and species of national or local importance.
			-1	Slight negative impacts	Potential for short term, indirect construction phase impacts in the vicinity of sites and species of national or local importance. Slight potential for increased spread of invasive species.
			-2	Moderate negative impacts	Direct, temporary construction impacts, or medium to long term indirect impacts on sites and species of national or local importance. Moderate potential for increased spread of invasive species.
			-3	Significant negative impacts	Potential for medium to long term, direct impacts to sites and species of national or local importance. High potential for increased spread of invasive species.
2A	Population and Human Health	Provide a safe and peaceful sustainable transport and recreational greenways for public use with access for all and with no risk to human health.	3	Significant positive impacts	Development of a relatively long section of greenway, which is within close proximity to a relatively large number of people to use. High likelihood of increased health benefits to a large number of people.
			2	Moderate positive impacts	Development of a relatively average length section of greenway, which is within close proximity to a relatively average number of people to use. Likelihood of increased health benefits to a relatively average number of people.
			1	Slight positive impacts	Development of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use. Likelihood of increased health benefits to a relatively small number of people.
			0	Neutral / No impacts	Development of the section of greenway which is accessible to the least amount of people. Likelihood of increased health benefits to the smallest number of people.
			-1	Slight negative impacts	No development of any section of greenway in the short term. Temporary construction disturbance impacts.
			-2	Moderate negative impacts	No development of any section of greenway in the medium term.
			-3	Significant negative impacts	No development of any section of greenway in the long term.

3A	Geology, Soils and Landuse	Minimise the loss of soil resource from creation and operation of greenway sections.	3	Significant positive impacts	Development of greenway section with no impacts to agricultural land and no potential for impacts on geological heritage.
			2	Moderate positive impacts	Development of greenway section with minimal impacts to arable, cultivated and improved lands and no potential for impacts on geological heritage.
			1	Slight positive impacts	Development of greenway section with minimal impacts to unimproved agricultural lands and no potential for impacts on geological heritage.
			0	Neutral / No impacts	No development and operation of greenway sections on agricultural lands and no potential for impacts on geological heritage.
			-1	Slight negative impacts	Development and operation of greenway section that bisects significant areas of unimproved agricultural lands.
			-2	Moderate negative impacts	Development and operation of greenway section that bisects significant areas of arable, cultivated and improved lands.
			-3	Significant negative impacts	Development and operation of greenway section that bisects areas of agricultural land and potential negative impacts on geological heritage areas.
4A	Water	No negative impacts on surface and groundwater, and to provide no impediment to the achievement of water body objectives under the WFD.	3	Significant positive impacts	Potential for contribution to medium to long term improvement in water status by buffering more than one watercourse from agricultural and / or developed lands.
			2	Moderate positive impacts	Potential for contribution to improvement to water status by buffering one watercourse from agricultural and / or developed lands.
			1	Slight positive impacts	Potential for increased public awareness of water quality / ecology issues. Information can be made available on greenway section.
			0	Neutral / No impacts	No potential for deterioration of waterbody status upstream or downstream of greenway sections, due to development or operation of greenway section.
			-1	Slight negative impacts	Potential for short term, negative construction phase impacts on water status on waterbodiues from development of greenway section.
			-2	Moderate negative impacts	Potential for medium term, negative impacts on water status from development of greenway section on waterbodies from development and operation of greenway section.
			-3	Significant negative impacts	Potential for long term, negative impacts on water status from development of greenway section on waterbodies from development and operation of greenway section.
4B	Water	No negative impacts on flood risk management activity, and to provide no impediment to the implementation of the Floods Directive.	3	Significant positive impacts	Limited potential interaction of greenway with 1% AEP flooding from any source. Potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP floodplain. Multi-benefit development.
			2	Moderate positive impacts	Potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP fluvial floodplain in several locations. Multi-benefit development.
			1	Slight positive impacts	Potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP fluvial floodplain. Multi-benefit development.
			0	Neutral / No impacts	No potential interaction of greenway with 1% AEP fluvial flooding. No greenway developed.
			-1	Slight negative impacts	Greenway section potentially at risk from 1% AEP fluvial flooding.
			-2	Moderate negative impacts	Greenway section potentially at risk from 1% AEP fluvial and pluvial flooding.
			-3	Significant negative impacts	Greenway section at risk from 1% AEP fluvial and pluvial flooding at several locations.
5	Air	Improvement in air quality from reduced vehicle emissions.	3	Significant positive impacts	Reductions in air emissions from reduced traffic due to operation of relatively long section of greenway, which is within close proximity to a relatively large number of people to use.
			2	Moderate positive impacts	Reductions in air emissions from reduced traffic due to operation of average length section of greenway, which is within close proximity to a relatively average number of people to use.
			1	Slight positive impacts	Reductions in air emissions from reduced traffic due to operation of a relatively short section of greenway, which is within close proximity to a relatively small number of people to use.
			0	Neutral / No impacts	No short term construction plant emissions as no construction of greenway.
			-1	Slight negative impacts	Short term plant emissions from construction of greenway sections in rural areas, not in proximity to sensitive sites.
			-2	Moderate negative impacts	Short term plant emissions from construction of greenway sections in urban and rural areas, and potentially in proximity to sensitive sites.
			-3	Significant negative impacts	Increased air emissions in the medium and long term as no development of greenway sections.

6	Climate	Adaption of the greenway sections to climatic change and no contribution to GHG emissions	3	Significant positive impacts	Minimal loss of natural GHG sequestering natural cover and potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP climate change floodplain in several locations. Multi-benefit development. Decreased vehicle GHG emissions from decreased vehicle trips.
			2	Moderate positive impacts	Minimal loss of natural GHG sequestering natural cover and potential for greenway sections to contribute to flood risk management, where greenway is on the periphery of 1% AEP climate change floodplain. Multi-benefit development. Decreased vehicle GHG emissions from decreased vehicle trips.
			1	Slight positive impacts	Minimal loss of GHG sequestering natural cover in the medium and long term and no potential interaction of greenway with 1% AEP climate change floodplain.
			0	Neutral / No impacts	No development of greenway sections.
			-1	Slight negative impacts	Slight loss of GHG sequestering natural cover during short term construction and potential for interactions with 1% AEP floodplain under climate change scenario.
			-2	Moderate negative impacts	Moderate loss of GHG sequestering natural cover during short term construction and potential for interactions with 1% AEP floodplain under climate change scenario.
			-3	Significant negative impacts	Significant loss of GHG sequestering natural cover in the medium and long term, and potential for several interactions with 1% AEP floodplain under climate change scenario.
7	Material Assets	Creation of greenway sections with no impediment to existing and proposed infrastructure.	3	Significant positive impacts	Creation of new greenway with no requirement for crossings of any existing or proposed significant energy and transport infrastructure. Limited infrastructure in the vicinity of greenway. Relatively long section of greenway created.
			2	Moderate positive impacts	Creation of new greenway with minimal requirement for crossings of existing or proposed significant energy and transport infrastructure. Limited infrastructure in the vicinity of greenway. Relatively long section of greenway created.
			1	Slight positive impacts	Creation of new greenway with moderate requirement for crossings of existing or proposed significant energy and transport infrastructure. Infrastructure in the vicinity. Relatively average length section of greenway,
			0	Neutral / No impacts	Creation of new greenway with significant requirement for crossings of existing or proposed significant energy and transport infrastructure. Infrastructure in the vicinity. Relatively short section of greenway created.
			-1	Slight negative impacts	Short term construction disturbance to existing or proposed infrastructure.
			-2	Moderate negative impacts	Potential requirement for many crossings of significant energy and transport infrastructure. Medium and long term impacts to existing or proposed infrastructure.
			-3	Significant negative impacts	No development of greenway sections.
8	Cultural, Architectural & Archaeological Heritage	Avoid loss of or damage to heritage features and where possible incorporate heritage features into the greenway.	3	Significant positive impacts	Potential for preservation / restoration of international or nationally designated heritage feature as part of the greenway section development.
			2	Moderate positive impacts	Potential for preservation / restoration of locally designated heritage feature as part of the greenway section development.
			1	Slight positive impacts	Potential for increased access to heritage features as part of the greenway section development. Information can be made available on greenway section.
			0	Neutral / No impacts	No heritage features in the vicinity or no development of greenway sections.
			-1	Slight negative impacts	Potential for disturbance / damage to or negative impacts on the setting of locally designated heritage feature.
			-2	Moderate negative impacts	Potential for loss of locally designated heritage feature. Negative impacts on the setting of international or nationally designated heritage feature.
			-3	Significant negative impacts	Potential for loss of or damage to international or nationally designated heritage feature.
9	Landscape & Visual Amenity	Protect, and where possible enhance, landscape character and visual amenity in the vicinity of greenway sections.	3	Significant positive impacts	Significant enhancement of the local landscape and views. In line with landscape character and designations. Medium and long term impacts.
			2	Moderate positive impacts	Moderate enhancement of the local landscape and views. In line with landscape character and designations. Medium and long term impacts.
			1	Slight positive impacts	Slight enhancement of the local landscape and views. In line with landscape character and designations. Medium and long term impacts.
			0	Neutral / No impacts	No impacts on landscape quality and designations.
			-1	Slight negative impacts	Slight reduction in quality of local landscape and views. Not in line with landscape character and designations. Short term construction phase impacts on loal landscape.
			-2	Moderate negative impacts	Moderate reduction in quality of local landscape and views. Not in line with landscape character and designations. Medium and long term impacts.
			-3	Significant negative impacts	Significant reduction in quality of local landscape and views. Not in line with landscape character and designations. Medium and long term impacts.