

# NON-TECHNICAL SUMMARY

## Introduction

This Environmental Impact Statement (EIS) has been prepared by McCarthy Keville O’ Sullivan Ltd. on behalf of Waterways Ireland. Waterways Ireland applied to Kildare County Council, Laois County Council and Carlow County Council for planning permission for the development of a multi-use shared leisure route (Blueway) along the Barrow River and Barrow Line of the Grand Canal in January 2017. Between the 21st and 23rd March 2017, each of the Local Authorities issued a Request for Further Information (FI Request) in relation to the applications. For ease of reference, the EIS submitted with the applications has been revised to take account of a number of changes to the proposed scheme and address each of the queries raised in the FI Request.

The intention is to develop the existing navigation towpath along the banks of the Grand Canal and existing trackway along the River Barrow between Lowtown, Co. Kildare and St Mullins. Co. Carlow. The proposal follows the route of the existing Barrow National Waymarked Trail on the banks of the Grand Canal and River Barrow.

The proposed Blueway path has a typical width in most areas of 2.5 metres, using the existing marked trail along the majority of the route. Short sections of local road will also be upgraded and incorporated into the development. The route is approximately 115 kilometres (km) in length and will include tailored surface finishes, information, directional and safety signage, and all other associated ancillary works.

## Site Description

The route passes through County Kildare, County Laois and finishes in County Carlow. Approximately 52km of the route is in County Carlow, 16km in County Laois and 47km in County Kildare. The proposed Blueway runs from Lowtown along the route of the Grand Canal Barrow Line through Rathangan, Monasterevin, Vicarstown and Athy where it joins the River Barrow and follows the trackway alongside this river through the towns of Carlow, Leighlinbridge, Bagenalstown and Graiguenamanagh before terminating in St. Mullins.

The site of the proposed development is mostly located on the existing trackway of both the River Barrow and the towpath of the Grand Canal (Barrow Line). The current surface of the towpath and trackway varies from grassed areas, unbound surface and bound surfaces.

## Need For the Proposed Development

The Barrow River and Barrow Line of the Grand Canal are waterway corridors of National and International importance and spectacular recreation and leisure amenities. Given the importance of these waterways, the existing National Waymarked Trail is not fit for purpose. It does not facilitate uninterrupted access for cyclists nor does it provide a suitable consistent surface for walkers of varying abilities. It is varied in both finish and dimensions and does not conform to any established or recognised standard of design and construction. In some locations easy or safe passage is restricted due to poor surface quality and restricted visibility and proper safety signage at road interface areas and crossing points.

The proposed Blueway includes tailored surface finishes which will permit access for a wider range of users, along all sections of the trail, providing enhanced safety and accessibility in all weather conditions.

It is hoped that this development would benefit local communities by providing a secure and safe environment for walkers and cyclists, leading to an increased opportunity for physical exercise. It would also provide a unique and novel experience for visitors to the area.

As part of Fáilte Ireland's Tourism Product Development Strategy, a review of the Irish tourism product has shown that Ireland's tourism industry needs to catch up with other European countries concerning its core tourism products such as:

- Heritage and culture
- Walking
- Cycling
- Marine Sports

Furthermore, the Regional Planning Guidelines for the South-East-Region 2010-2022, identifies the Barrow as an important regional amenity corridor for navigation and walking routes.

#### **Economic Benefits**

*"Blueways are a network of approved and branded multi-activity recreational trails and sites, based on or closely with the water, together with providers and events facilitating access to activities and experiences."*

The proposed Barrow Blueway would support a myriad of recreational activities and help grow and develop business along its length. The Blueway brand which Waterways Ireland has developed in conjunction with the National Trails Office, Fáilte Ireland and Canoeing Ireland, would be used to promote, both regionally and internationally, the special journeys which take place either on foot, bicycle or boat on shared use trails along Ireland's Inland Waterways.

#### **Purpose and Structure of the EIS**

This EIS will accompany the planning application for the proposed development to be submitted to Kildare County Council, Laois County Council and Carlow County Council (Councils). The Councils, as the competent authorities, will conduct the Environmental Impact Assessment (EIA) of the proposed development. The purpose of the EIS is to document the current state of the environment in the vicinity of the proposed development site and to quantify the likely significant effects of the proposed development on the environment. The compilation of this document serves to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative effects arising from the proposed development.

The information to be contained in the EIS is prescribed by law and has been completed in accordance with various guidance documents as detailed in the EIS.

The EIS project team comprises a multidisciplinary team of experts with extensive experience in the assessment of a wide range of projects. Each chapter of this EIS has been prepared by a competent expert in the relevant subject matter. The chapters of this EIS are as follows:

1. Introduction
2. Background to the Proposed Development
3. Description of the Proposed Development
4. Human Beings, Population and Human Health
5. Biodiversity, Flora and Fauna
6. Geology and Soils
7. Hydrology and Hydrogeology
8. Air and Climate and Noise
9. Landscape
10. Cultural Heritage
11. Material Assets
12. Interactions of the Foregoing

The EIS comprises three volumes as follows:

- Volume 1: Non-Technical Summary, EIS Chapters 1 to 12, and References
- Volume 2: Appendices 1.1 - 3.3
- Volume 3: Appendices 3.4 – 10.3

A Natura Impact Statement has also been prepared in line with the requirements of the Habitats Directive and will be submitted to the Councils as part of the planning application documentation.

## **Background to the Proposed Development**

The Background to the Proposed Development chapter presents information on the strategic planning context for the proposed development, the site selection and design process, a description of the proposed development site and its planning history, the assessment of alternatives, scoping and consultation, and the cumulative impact assessment process.

### **Scoping and Consultation**

A comprehensive scoping and consultation exercise was undertaken for the Project and during preparation of this EIS. This included:

- Circulation of a Scoping Document to statutory and non-statutory consultees;
- Pre-planning meetings with each of the Councils;
- Public consultation including a series of public information sessions, presentations to tourism and recreational bodies, presentations to elected members and senior management teams of Kildare, Carlow, Laois, and Kilkenny County Councils.

### **Cumulative Effects**

This EIS also considers the potential for cumulative effects from the proposed development with other key existing, permitted or proposed projects. Cumulative effects are addressed in each chapter of the EIS, under the relevant environmental heading.

## Description of the Proposed Development

The proposed development comprises: the development of a multi-use shared leisure route (Blueway), approximately 115 kilometres (km) in length, on the existing navigation towpath, which is a National Waymarked Trail. This will include tailored surface finishes, information, directional, and safety signage, and all other associated ancillary works. The route commences in Lowtown, County Kildare, passes through County Laois and finishes in St. Mullins, County Carlow. The proposed ancillary works includes the following:

- Upgrade and re-surfacing of existing Barrow Way towpath and track to a multi-use leisure trail along Grand Canal (Barrow Line) and River Barrow (Barrow Navigation).
- Localised road widening (approximately 1.5km)
- Provision of 26 no. road crossings and interfaces for pedestrian and cyclists
- Provision of signage and information boards
- Provision of passing bays at certain locations along the route
- Construction of new pedestrian footbridges at Athy and at Rathangan
- Construction of cantilevered path at Bagenalstown
- Replacement of railings and gates at selected locations
- Construction of fencing
- Construction of railings at selected locations
- Replacement of timber mooring posts
- Bank repairs and edge protection works at 3 no. locations at Milford
- Resurfacing of car parks at 11 no. locations and 2 new proposed car parks at Rathangan, Co. Kildare and on L39321-0 near the M7 road bridge Co. Kildare
- Other associated ancillary works

The most significant works included in the proposed development are the path resurfacing itself, upgrade of existing path/trackway, construction of a pedestrian and cycle bridge in Athy, bank repairs and the construction of a cantilevered section of the track in Bagenalstown. All other works are minor in nature e.g. signage, fencing.

Approximately 6 kilometres of the path is along existing local and regional roads, and approximately 109 kilometres along the existing towpath or river bank trackway.

### Upgrade of existing towpath and trackway

In certain sections the path will be narrowed locally, where necessary, due to topography, surrounding habitats or existing structures (e.g. at locks or bridge underpasses) and will include a typical buffer of a 1 metre verge (where possible) on both sides (between the riverbank and hedge or backdrain on the inland side), which will be vegetated in most cases. This will reduce to 0.25 metres in certain sections.

### Path Resurfacing

The proposed works will include the surfacing of the existing trackway on both the River Barrow and the towpath on the Grand Canal (Barrow Line) to further facilitate walking and cycling activity in the area. Tailored surface finishes shall be employed to ensure a durable and fit for purpose trail in accordance with National Trails Office Guidance. These surfaces will not only improve accessibility, but provide a more robust surface that will be able to withstand increased footfall and traffic.

### New Pedestrian Footbridge

The existing crossing point at Augustus Bridge was deemed to be unsafe due to the inadequate width of the bridge and the level of complexity required for a pedestrian

crossing, given the number of minor access roads onto the bridge at this location. Therefore, it was determined that a footbridge downstream of Augustus Road Bridge would be required. The footbridge shall have an approximate span (length) of 16m and the access ramps shall be approximately 35m in length to meet accessibility for all requirements in conjunction with providing adequate air draft for boats using the canal. A second footbridge is also proposed in Rathangan, in response to the Further Information Request.

### **Bank Repairs**

Sections of the river bank are frequently undermined following the erosive effects of the river during the winter period. The sections will be repaired at 3 No locations at Milford, using 'soft engineering' techniques, where it is deemed necessary in order to undertake the construction of the trail.

### **Cantilevered Section**

A short section (approximately 38 metres) of cantilevered walkway is proposed at Bagenalstown. The existing stone quay wall is to be retained and the proposed cantilevered structure will be structurally independent from the quay wall. The existing crash barrier is to be removed and a proposed new crash barrier installed to NRA standards.

### **Construction Phase**

It is estimated that the construction will be completed in phases over 24 months. The tendering process will influence the size of the construction crew and the rate of work completed, but it is estimated that a crew of 4-5 people will work on a specified section. Several crews may operate at the same time. It is estimated that a crew of this size will complete approximately 50 metres of the proposed Blueway per day.

### **Construction Methodology**

Materials for construction of the works will be imported and delivered to the site by the supplier and stockpiled in small quantities within the site boundaries at temporary compound locations. Construction materials will be transported from stockpiled areas along the canal and river banks in dumpers. Excavation and levelling of materials will be carried out using traditional plant such as excavators and mini excavators in restricted areas. Excavation of the existing surface will be kept to a minimum and avoided completely where there is a risk of damage to existing tree roots.

Excavated material will be used for the reinstatement of the edges of the new trail to reduce material importation costs as well as minimise the risk of the introduction of invasive species.

It is not envisaged that there will be a need to remove any large quantities of excavated material from within the site boundary and any materials removed will be sent to authorised waste recovery facilities. A CEMP is included in Appendix 302 of the EIS.

### **Access Routes**

Access to construct the path shall be gained via all existing national, regional and local road access points along the length of the route between Lowtown and St. Mullins.

### **Operational Phase**

There will be ongoing maintenance of the Blueway after the initial development. Ongoing activities will include; periodic surface maintenance to ensure the design specification is upheld along with management of the grassy verge. After storm conditions there will be a need to make storm repairs to both the surface and the

clearing of any debris left on the track from broken tree branches or fallen trees. Track wash outs, surface damage, etc. will require repair or redressing to provide a suitable surface again.

Fences, gates, cattle stops and signage will also require maintenance effort with age, weather, stock, vehicle and vandalism damage. As part of the 'Leave no trace' initiative it is intended that there will be no litter bins provided along the Blueway. Amenity facilities are to be at several car parking locations

## **Human Beings, Population and Human Health**

One of the principle concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect effects arising from the construction and operation of a development. Ultimately, all the effects of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this section of the EIS include population, employment and economic activity, land-use, residential amenity, community facilities and services, tourism, and health and safety.

Information regarding human beings and general socio-economic data were sourced from the Central Statistics Office (CSO), the Kildare (2017-2023), Laois (2017-2023) and Carlow (2015-2021) County Development Plans, Fáilte Ireland and any other literature pertinent to the area including the Barrow Navigation Tourism, Recreation and Commercial Product Identification Study prepared for Waterways Ireland and Fáilte Ireland in conjunction with Carlow County Development Partnership, Kilkenny LEADER Partnership and Carlow, Kildare, Kilkenny, Laois, Wexford County Councils. A visitor survey was also conducted on behalf of Waterways Ireland by Amárach Research.

The EIS study included an examination of the population and employment characteristics of the area. This information was sourced from the most recent census, the Census of Ireland 2016, and from the CSO website, [www.cso.ie](http://www.cso.ie). Census information is divided into State, Provincial, County, Major Town and District Electoral Division (DED) level.

The site of the proposed development is located in the Counties Kildare, Laois, and Carlow and is approximately 115 kilometres in length. For a small portion of its length the proposed route straddles the Carlow-Kilkenny border, therefore where the study area is referred to in this section of the EIS this is defined as the total area of counties Kildare, Laois, Carlow and Kilkenny.

Ireland is divided into eight tourism regions. The Mid-East region, in which the northern section of the proposed development is located, comprises Counties Kildare, Meath, and Wicklow. This Region benefited from approximately 4.7% of the total number of overseas tourists to the country and approximately 5.4% of the total tourism income generated in Ireland in 2016.

The Midland region, in which the northern section of the proposed development is located, comprises Counties Laois, Longford, Offaly and Westmeath. This Region benefited from approximately 1.7% of the total number of overseas tourists to the country and approximately 1.6% of the total tourism income generated in Ireland in 2016.

The South-East region contains the southern section of the proposed development and comprises of Counties Carlow, Tipperary (South), Wexford, Kilkenny and Waterford.

Approximately 5.9% of the countries total tourism revenue arose in this region. The region also accounted for 7.1% of the total number of overseas tourists.

The proposed development is to occur on the existing towpath of the Grand Canal Barrow Line and River Barrow. These waterways themselves already constitute a tourist attraction in the region. They are currently used for a range of tourist activities including fishing, boating and walking.

Impacts on human beings during the construction and operational phases of the proposed development are described in Chapter 4 in terms of Human Health and Safety, population, employment and investment, land-use, noise, dust, tourism and amenity. Where a negative impact was identified, the appropriate mitigation measure is also described in this section of the EIS and will be put in place to ensure that there will be no adverse impacts on human beings, population and human health within the Study Area.

Following consideration of the residual effects (post-mitigation), the proposed development will not result in any significant negative effects on Human Beings, Population and Human Health. Provided that the proposed Blueway is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant negative effects on human beings, population and human health are not anticipated.

There will be various positive impacts associated with the development of the Blueway including the economic benefit during construction and the economic benefits during operation in terms of an enhanced tourism offer that will be available. Other positive benefits include the opening up of the existing amenity to more types of people through better surfacing and access. More people local to the Blueway as well as those from around Ireland and international visitors will get to share this amenity.

## **Biodiversity. Flora and Fauna**

This chapter assesses the ecology of the receiving environment for the proposed Barrow Blueway development. The ecology of the area surrounding the proposed development is first assessed in terms of habitats and species. The area over which the proposed development has the potential to result in effects (zone of influence) is then determined. Following this, the chapter identifies the Key Ecological Receptors (KERs) within the zone of influence and accurately assesses the potential for effects thereon.

This chapter quantifies any potential effects relating to flora/fauna and KERs and identifies the measures required to avoid, reduce and mitigate likely significant effects. Identification of effects and prescribed mitigation has been derived following a collaborative approach working with a multi-disciplinary team including project engineers, ecologists, hydrologists and hydrogeologists. The results of ecological surveys have been utilised to inform the design of the proposed development, thereby minimising potential effects on sensitive habitats and species of conservation interest.

The proposed Blueway follows the route of the existing Barrow Waymarked Trail which consists mainly of grassy towpaths, tracks and quiet roads. The majority of the proposed development footprint is dominated by habitats of low ecological significance. These included Dry meadows and grassy verges / Scrub, Towpath mosaic, Buildings and artificial surfaces, and Amenity grassland (improved). The latter habitats

are common in a local, national and international context and none offer particularly good floral or faunal habitat.

The development involves the removal of a small stand of 9 *Leylandii* trees. There will be no additional effects on linear landscape features such as Hedgerow, Treelines or drainage ditches proposed as part of the development. In areas where the proposed development passes in proximity to ecologically sensitive areas (i.e. Annex I habitats & supporting habitat for Annex II species) the development footprint is restricted to the existing trackway thus significant effects on sensitive ecological receptors are not anticipated. There is no requirement to remove trees or woody vegetation as part of the proposed development.

No instream works are proposed in the river section of the navigation. All instream works are small scale in nature and occur along canalised sections of waterway utilised for navigation purposes. Banks repair works are proposed at three short sections (total 55m) at Millford and a short cantilever walkway (38m) is proposed at Bagenalstown.

The assessment identifies a number of KERs including Annex I habitats, Annex listed species and their supporting habitats. Ecological evaluation of the KERs follows a methodology that is set out in Chapter three of the 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (NRA, 2009).

With regard to designated sites, there are no Special Protection Areas within the zone of influence of the proposed development. The proposed development along the Barrow Line is located within the Grand Canal pNHA and the route along the River Barrow is located within the River Barrow and River Nore SAC. Effects on designated sites have been fully assessed with no significant adverse effects anticipated. Impacts on the integrity of River Barrow and River Nore SAC have been fully assessed in the Natura Impact Statement which accompanies this application.

Following consideration of the residual effects (post mitigation) it can be concluded that the proposed development will not result in any significant effects on any of the identified KERs or on the existing environment.

Overall no significant effects or significant in-combination effects on the Flora and Fauna of the existing environment have been identified by the assessment.

## **Soils and Geology**

The geology of the proposed development site comprises mostly limestone bedrock formations overlain by limestone till and alluvium subsoils. Soils on the site of the proposed development are extremely variable due to its length with mineral alluvium predominant in the Barrow Valley.

Due to the non-intrusive nature of the proposed development only minor excavations are required in order to "scrape" the existing surface before laying the proposed new surfaces. As a result of the shallow nature of the excavations no effects to bedrock are anticipated. Any excavated soil or subsoil will be stored to the side of the track temporarily before being reinstated as the verges of the new track. This, in combination with the minimal nature of excavations, will mean that any effects on soils/subsoils will be minor.

Potential effects associated with the construction phase of the proposed development such as hydrocarbon (oil) spillage have been addressed with appropriate mitigation measures outlined in Section 6.4.2 of the EIS.

A number of other works not directly related to the resurfacing are proposed. These include the construction of a pedestrian and cycle bridge in Athy and numerous areas where bank repairs are required. These works will have an effect on soils and geology which has been deemed unavoidable but also acceptable.

## Hydrology and Hydrogeology

The entire site is located in the Barrow Regional Catchment. Within the Barrow Catchment the site is located in numerous smaller sub-catchments which are detailed in Section 7.3.2 of the EIS.

The northern section of the proposed route is located adjacent to the Grand Canal (Barrow Line). The proposed route then meets the River Barrow in Athy. For the remainder of its length the proposed route is located within the Barrow River Valley. Due to the close proximity of the site to the River Barrow and Grand Canal, surface water run-off discharges into these waterbodies is possible, either directly or via subsurface flow where the ground is permeable. The route crosses the Grand Canal and River Barrow at several locations along its length.

OPW's indicative river and coastal flood map ([www.floodmaps.ie](http://www.floodmaps.ie)) was consulted to locate recurring and one-off flood events along the proposed Blueway route. CFRAM Preliminary Flood Risk Assessment (PFRA) maps ([www.cfram.ie](http://www.cfram.ie)), Department of Environment, Community and Local Government on-line mapping ([www.myplan.ie](http://www.myplan.ie)) and historical mapping (*i.e.* 6" & 25" base maps) were also consulted to identify those areas as being at risk of flooding. CFRAMS modelling has been carried out for a number of towns along the route (Carlow, Graiguenamanagh, Leighlinbridge, Athy, Monasterevin and Rathangan). The proposed development does not require any new hard surfacing in urban areas and so there is no potential for significant effects on flooding downstream associated with the proposed works.

Potential impacts to hydrology and hydrogeology may arise during the construction phase of the proposed development. The construction of the Blueway and all of its infrastructural components may give rise to suspended solids/nutrients and hydrocarbons could potentially enter the adjacent Canal/River and other drainage features. It is considered that the potential for significant effects on hydrology, hydrogeology and subsequent effects on designated sites is low due to the nature of the project. Mitigation measures are also provided in Section 7.4 of the EIS to minimise the risk of this occurring.

A range of mitigation measures have been outlined in Section 7.4 of the EIS which will reduce any potential effects during construction of the Blueway. Operational Phase Impacts may arise as a result of the replacement of normal surfaces with impermeable surfaces. This area however, will not be significant in relation to the size of the Barrow Catchment and any effects will not be significant.

Regarding the potential increased human activity as a result of the proposed development, the existing track is already extensively used and significant effects on hydrology and hydrogeology do not occur related to visitor numbers. No significant impacts on surface water quality or hydrological regime are anticipated.

## **Air, Climate and Noise**

### **Air and Climate**

The only potential for effects to air quality exists during the construction phase of the proposed development. Construction of the proposed development will generate a small amount of greenhouse gas emissions from construction plant and vehicles. A number of mitigation measures have been outlined in Section 8.1.5.2 in order to reduce these potentially small effects. These mitigation measures also include measures to ensure that dust from the construction phase will not cause a nuisance.

### **Noise**

There are a number of sensitive receptors located adjacent to the site of the proposed development, which includes; dwellings, commercial properties and hospitality based businesses among others. Within rural areas of the site it is assumed that ambient (background) noise levels are low with slightly higher noise levels in urban areas.

The proposed Blueway will not give rise to any significant noise emissions following commissioning and in the operational phase. Some level of localised noise (dumpers and excavators working) is inevitable during the construction phase. There is likely to be a small temporary effect at a limited number of sensitive receptors at any one time due to the small scale of each construction team along the route, their dispersed nature and the temporary nature of the works phase. Best practice measures (outlined in section 8.3.3 of the EIS) for noise control will be adhered to onsite during the construction phase of the proposed development. These measures will mitigate any potential impacts.

## **Landscape and Visual**

Chapter 9 of the EIS assesses the likely significant landscape and visual effects of the proposal. The proposed Blueway follows the route of the existing Barrow Waymarked Trail which consists mainly of grass towpaths and track, and some existing hard surfaces. The route passes through a variety of landscapes and a number of settlements. The study areas consists of the canal and river corridor and the immediate vicinity.

The landscape of the area is described in terms of its relevant policy, existing character, landscape values and the landscape's sensitivity to change. The visual impact assessment of the proposed development includes a description of the views to and from the site, and the sensitivity of visual receptors, and includes 20 photomontages from a variety of viewpoint types along the route and its environs.

Landscape effects range from Long term, Imperceptible to Slight landscape effects. The study area will experience a loss of landscape features only where the grass surface is to be lost and replaced with an unbound surface. No other features, (with the exception of 9 trees at Clogheen Bridge and a number of mooring posts,), such as mature trees, bridges or other elements of land cover which contribute to the character, will be lost. The change that results from the path resurfacing can be described as changes of a limited extent and in terms of the aesthetics to the overall landscape is low. The overall effect on the landscape character ranges from Imperceptible to Slight in terms of landscape effects, and from negative to neutral in terms of the quality of that effect. Imperceptible neutral effects occur primarily areas in urban areas where the works do not have an effect on the urban landscape or townscape character of the area. These are changes to the landscape character which

are extremely localised in nature, and while they are changes to the landscape of an Imperceptible to Slight nature, these are not regarded as significant landscape effects.

Visual effects range from Long Term, Imperceptible to Slight visual effects. The quality of the effect range from negative effects, where grass surface is replaced by an unbound surface, to neutral and positive effects, for example, the replacement of the gates or the proposed new bridge. The visual effects are also localised in nature, and will mainly be experienced by those along the trail. The protected views listed in Kildare and Carlow, many of which are from bridges along the route, will not be negatively affected, as seen from the 20 no photomontages. Overall, while there are localised visual effects, some of these negative, and some neutral or positive, it is not considered that there are significant visual effects arising from any element of the proposed development.

## **Cultural Heritage**

Chapter 10 of the EIS presents the archaeological and architectural heritage assets along the proposed Blueway. It identifies both the cultural heritage of the Grand Canal Barrow Line and the Barrow Navigation itself and the archaeology, industrial archaeology and architectural heritage of the landscape it traverses. The assessment concentrates on the sites, monuments, buildings and features on or immediately adjacent to the proposed Blueway.

Two hundred and twenty eight cultural heritage sites were identified along the route. These sites include thirty nine archaeological sites that are Recorded Monuments, four archaeological sites that are both Recorded Monuments and Protected Structures and thirty nine sites of architectural heritage merit that are Protected Structures. The remaining eighty six sites do not have statutory protection but have architectural merit. It also includes one Architectural Conservation Area, at Athy, Co. Kildare and another at Maryborough Street, Co. Carlow.

Two Recorded Monuments, (Ballymanus Castle and a moated site at Vicarstown, both in Co. Laois), are known to have existed along the line of the towpath and are no longer extant. The trail constitutes a moderate direct effect on both sites and archaeological mitigation in the form of pre-development testing has been recommended. Archaeological monitoring has been recommended, particularly on groundworks associated with the trail within or adjacent to the Zones of Archaeological Potential of the remaining forty one Recorded Monuments. Due to the scale of the development, it is the published policy of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs that all groundworks be subject to archaeological monitoring.

There will be a moderate direct effect on the Architectural Conservation Area at the Grand Canal Area in Athy, Co. Kildare arising from the construction of a pedestrian bridge. There will also be a moderate direct effect on one Protected Structure, Horse Bridge, Athy, which is also located in the Grand Canal Area ACA. Horse Bridge will be resurfaced in bound surfacing during the works, covering an existing cobbled surface. There will be imperceptible effects on the remaining one hundred and two Protected Structures.

There will be minor direct effects on seven of the sites of architectural merit that do not have statutory protection. Six of these sites are bridges that carry the towpath/trackway over watercourses flowing into the canal/river and mitigation in the form of care during construction has been recommended. The seventh site is a cobbled surface in Grangeclare West, Co. Kildare, and preservation in situ and appropriate care

during surfacing has been recommended in mitigation. There are imperceptible indirect effects on the remaining seventy nine sites identified in this category.

## **Material Assets**

Material Assets includes the assessment of traffic and transportation for the project. Other material assets include physical resources in the environment which may be of either human or natural origin. In the context of the proposed development and its location the main material assets include adjacent residential dwellings and any services which may be present along the route, the existing way marked trail, the Barrow Valley and the Grand Canal as well as the cultural heritage assets in the vicinity of the route.

## **Traffic and Transportation**

An assessment of the likely significant effects on traffic of the proposed development was undertaken for the construction and operational stages of the development. The assessment considered the effects that traffic generated by the proposed development, would have on the surrounding highway network.

The proposed route which follows the route of the existing Barrow Waymarked Trail on the existing towpath and tracks along the banks of the Grand Canal Barrow Line and River Barrow and so interactions with the existing public roads network are limited

Aspects of the project which have the potential for particular effects on traffic include,

- Upgrade and re-surfacing of Barrow Way existing towpath and track to a multi-use leisure trail along Grand Canal (Barrow Line) and River Barrow (Barrow Navigation).
- Localised road widening (approximately 1.5km).
- Provision of 26 no. road crossings as well as interfaces for pedestrian and cyclists.
- Provision of passing bays at certain locations.
- Resurfacing of car parks at 11 no locations and two new proposed car parks.

The majority of construction activities will be off road and will not intersect in a significant way with the existing road networks as they will occur along the existing waterway navigation towpath and bridges. Construction materials will be transported from designated stockpile areas along the canal and/or river banks in dumpers for construction of the trail. It is not envisaged that there will be a need to remove any large quantities of excavated material from within the site boundary as excavated material will be used to create verges along the route.

There are likely to be temporary delays to local traffic due to all works associated with the project along the route.

Where the proposed Blueway path will cross a roadway it is proposed that combined cyclist and pedestrian crossings be installed as indicated below. These combined crossings will be uncontrolled and road traffic will have priority. A variety of uncontrolled crossings will allow cyclists and pedestrians to stop and cross the main traffic safely.

The main mitigating factors related to potential traffic effects include;

- Completion of the Blueway will be spread over a 24-month period.

- There are existing and well established access locations to the existing way marked trail for members of the public which will continue to be used.
- There are existing well established access locations for Waterways Ireland maintenance equipment which will continue to be used, particularly for the transport of construction materials.
- Local traffic at the intersections between the Blueway and the public roads will only be impacted on a temporary basis during the construction phase, due to the transient nature of the construction project as it moves along the Blueway.
- The proposed crossings have been designed to ensure that existing traffic has priority and in compliance with safety requirements.
- A limited amount of road widening is required and will only cause potential negative impacts during the construction phase on a temporary basis.
- Vehicular traffic on all public roadways will continue to have the right of way.

Traffic management arrangements are described in the EIS and will be developed at detailed design stage into the 'Temporary Traffic Management Plan – Design' which will be provided to the appointed Contractor for information purposes. The Contractor will be responsible for developing and implementing the 'Temporary Traffic Management Plan – Construction'.

The temporary traffic management arrangements will be developed on the basis of maintaining to the greatest degree possible the existing traffic lanes on all roads. However particular construction operations may require the temporary reduction in width and the implementation of temporary traffic management measures (Stop-Go Systems).

Consultation will take place with Kildare, Laois and Carlow County Councils regarding all works related to the public road network. All traffic management measures including diversions will be agreed with the relevant County Council roads department. If required, road users will be notified of any works with the potential to cause inconvenience. Machinery will be transported to site during non-peak traffic hours.

During the operational phase, all existing car parking facilities will be used and the locations listed in Chapter 3 of the EIS shall be resurfaced as specified on the drawings in Appendix 3-1. It is not envisaged that there will be a requirement for additional parking along the Blueway, as the above existing parking arrangements will allow people to park at numerous locations along the length of the route.

## **Interaction of the Foregoing**

Sections 4 to 11 of this EIS identify the potential significant environmental effects that may occur in terms of Human Beings population and human health, Biodiversity Flora and Fauna, Geology and Soils, Hydrology and Hydrogeology, Air and Climate, Noise, Landscape, Cultural Heritage and Material Assets, as a result of the proposed development. All of the potential impacts of the proposed development and the measures proposed to mitigate them have been outlined in the relevant sections of this report. However, for any development with the potential for significant environmental impact there is also the potential for interaction amongst these impacts. The result of interactive impacts may either exacerbate the magnitude of the impact or ameliorate it.

A matrix is presented in Section 12 of the EIS to identify interactions between the various aspects of the environment already discussed in the EIS. The matrix highlights the occurrence of potential positive or negative impacts during both the construction

and operational phases of the proposed development. Where any potential interactive impacts have been identified, appropriate mitigation is included in the relevant sections (Sections 3-12) of the EIS.