

## **4 HUMAN BEINGS, POPULATION AND HUMAN HEALTH**

### **4.1 Introduction**

This section of the Environmental Impact Statement (EIS) describes the potential impacts of the proposed development on human beings and has been completed in accordance with the guidance set out by the Environmental Protection Agency (EPA), in particular the *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, August 2017) and *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (EPA, 2003). The EPA is currently revising this guideline document; cognisance of the draft guidelines have also been had in compiling this EIS.

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 impacts arising from the construction and operation of a development. Ultimately, all the impacts 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.

### **4.2 Receiving Environment**

The proposed route originates in Lowtown, Co. Kildare and terminates in St. Mullins Co. Carlow. The route is located within counties Kildare, Laois and Carlow and will pass through the settlements of Rathangan, Monasterevin, Vicarstown, Athy, Carlow, Leighlinbridge, Bagenalstown, Goresbridge, Graiguenamanagh and St. Mullin's.

It is proposed to develop the existing towpath along the banks of the Grand Canal (Barrow Line) and track along the River Barrow between Lowtown and St Mullins. The development is to consist of an upgrade to the existing Grand Canal towpath and Barrow Way walking trail to a multi-use leisure route, approximately 115 kilometres in length. The route will have a typical width of 2.5 metres. A detailed description of the proposed route and all proposed works is provided in Chapter 3 of this EIS.

#### **4.2.1 Methodology**

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. This survey has also been used in preparation of the Human Beings Chapter and is attached as Appendix 4-1 to this document.

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 approximately 27 kilometers 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.

The main towns and villages located along or adjacent to the proposed development site include (from north to south) Lowtown, Rathangan, Monasterevin, Athy, Maganey, Carlow, Leighlinbridge, Bagenalstown, Goresbridge, Borris, Graiguenamanagh and St. Mullin's. The Cities of Kilkenny and Dublin are located approximately 17.5 and 37.5 kilometres west and north-east of the proposed development site respectively. In order to make inferences about the population and other statistics in the vicinity of the proposed development, the Study Area for the Human Beings section of this EIS was defined in terms of Counties.

## 4.2.2 Population

### 4.2.2.1 Population Trends

In the four years between the 2011 and the 2016 Census, the population of Ireland increased by 3.7 per cent. During this time, the population of County Kildare grew by 5.8% to 222,504 persons and the population of Laois also grew by 5.8% to 84,697 persons. Carlow's population increased by 4.2% to 56,932 persons and Kilkenny's population rose by 4% to 99,232 persons. Other population statistics for the State, Counties Kildare, Laois, Kilkenny and Carlow have been obtained from the Central Statistics Office (CSO) and are presented in Table 4.1.

**Table 4.1 Population 2006 – 2016 (Source: CSO)**

Area	Population			% Population Change	
	2006	2011	2016	2006-2011	2011-2016
State	4,239,848	4,588,252	4,757,976	8.2%	3.7%
County Kildare	186335	210312	222,504	12.9%	5.8%
County Laois	67059	80559	84,697	20.1%	5.1%
County Carlow	50349	54612	56932	8.5%	4.2%
County Kilkenny	87558	95419	99232	9.0%	4.0%
Study Area	391,301	440,902	463,365	11.2%	4.8%

The data presented in Table 4.1 shows that the population of the four counties increased by 11.2% between 2006 and 2011, and by 4.8% between 2011 and 2016. This rate of population growth is slightly higher than that recorded at State level during the same time periods.

#### 4.2.2.2 Population Density

The population densities recorded within the State and four counties during the 2016 Census are shown in Table 4.2.

**Table 4.2 Population Density in 2016 (Source: CSO)**

Area	Population Density (Persons per square kilometre)
State	69.49
County Kildare	131.24
County Laois	49.25
County Carlow	63.50
County Kilkenny	47.87
Study Area	72.57

The population density of the Study Area recorded during the 2016 Census was 72.6 persons per square kilometre. This figure is higher than the national population density of 69.5 persons per square kilometer. Table 4.2 above indicates that population density in County Kildare is significantly higher than that of Counties Laois, Carlow and Kilkenny.

#### 4.2.2.3 Household Statistics

The number of households and average household size recorded within the State and Counties Kildare, Laois, Carlow and Kilkenny during the 2011 and 2016 Census are shown in Table 4.3.

**Table 4.3 Number of Households and Average Household Size 2011 – 2016 (Source: CSO)**

Area	2011		2016	
	No. of House-holds	Avg. Size (persons)	No. of House-holds	Avg. Size (persons)
State	1,654,208	2.8	1,697,665	2.8
County Kildare	70,763	2.9	75,598	2.9
County Laois	28,020	2.8	29,787	2.8
County Carlow	19,436	2.8	21,410	2.7
County Kilkenny	33,679	2.8	36,231	2.7
Study Area	151,898	2.9	163,026	2.8

In general, the figures in Table 4.3 show that while the number of households at State and County level has continued to increase, the average number of people per household has decreased slightly in counties Carlow and Kilkenny, i.e. there are more households but less people per house. Average household size recorded within the Study Area during the 2016 Census is in line with that observed at State and County level during the same time period.

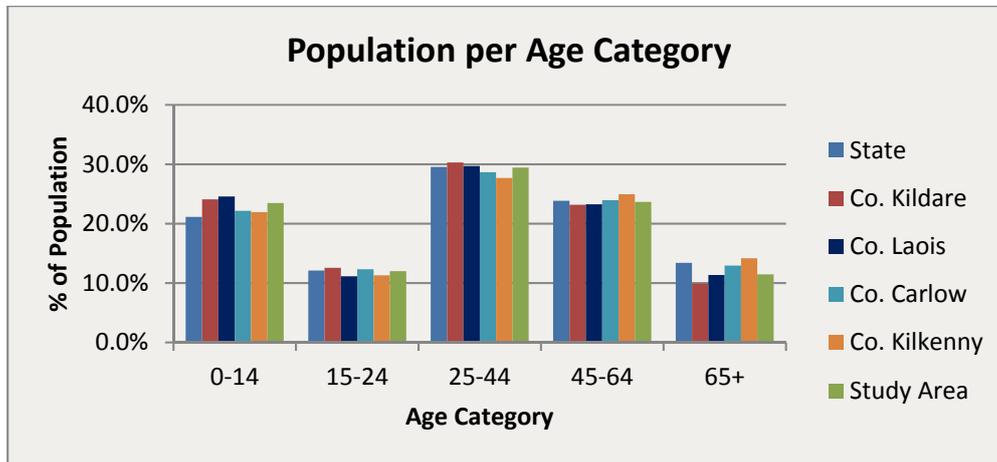
#### 4.2.2.4 Age Structure

Table 4.4 presents the percentages of the Counties Kildare, Laois, Carlow and Kilkenny within different age groups as defined by the Central Statistics Office during the 2016 Census. This data is also displayed in Figure 4.1.

**Table 4.4 Population per Age Category in 2016 (Source: CSO)**

Area	Age Category				
	0 - 14	15 - 24	25 - 44	45 - 64	65 +
State	21.1%	12.1%	29.5%	23.8%	13.4%
County Kildare	24.1%	12.6%	30.3%	23.2%	9.9%
County Laois	24.6%	11.1%	29.7%	23.3%	11.3%
County Carlow	22.2%	12.3%	28.7%	23.9%	12.9%
County Kilkenny	21.9%	11.3%	27.7%	24.9%	14.2%
Study Area	23.5%	12.0%	29.4%	23.7%	11.4%

The proportion of the Study Area population within each age category is similar to those recorded at national level. Within the Study Area, the highest population percentage occurs within the 25-44 age category. The lowest population percentage occurs within the 65+ age category.



**Figure 4.1 Population per Age Category in 2016 (Source: CSO)**

## 4.2.3 Employment and Economic Activity

### 4.2.3.1 Economic Status of the Study Area

The labour force consists of those who are able to work, i.e. those who are aged 15+, out of full-time education and not performing duties that prevent them from working. In 2016, there were 2,304,037 persons in the labour force in Ireland. Table 4.5 shows the percentage of the total population aged 15+ who were in the labour force during the 2016 Census. This figure is further broken down into the percentages that were at work, seeking first time employment or unemployed. It also shows the percentage of the total population aged 15+ who were *not* in the labour force, i.e. those who were students, retired, unable to work or performing home duties.

**Table 4.5 Economic Status of the Total Population Aged 15+ in 2016 (Source: CSO)**

	Status	State	County Kildare	County Laois	County Carlow	County Kilkenny	Study Area
	% of population aged 15+ who are in the labor force	<b>61.4%</b>	<b>64.1%</b>	<b>62.0%</b>	<b>59.7%</b>	61.2%	62.5%
% of which are:	At work	87.1%	4.2%	1.5%	1.0%	1.8%	87.0%
	First time job seeker	1.4%	0.1%	0.0%	0.0%	0.0%	1.4%
	Unemployed	11.5%	0.5%	0.2%	0.2%	0.2%	11.7%
	% of population aged 15+ who are not in the labour force	<b>38.6%</b>	<b>35.9%</b>	<b>38.0%</b>	<b>40.3%</b>	<b>38.8%</b>	37.5%
% of which are:	Student	29.4%	33.9%	26.7%	28.5%	27.2%	30.3%
	Home duties	21.1%	23.9%	24.7%	23.0%	21.7%	23.4%
	Retired	37.6%	31.1%	33.3%	33.9%	39.3%	33.7%
	Unable to work	10.9%	10.3%	12.2%	13.8%	10.9%	11.3%
	Other	1.0%	0.9%	3.0%	0.8%	0.9%	1.3%

Overall, the principal economic status of those living in the Study Area is similar to that recorded at national level. The main difference is in the 'Retired' category. During the 2016 Census, over 87% of those recorded as being in the labour force at State level were in employment, which was in line with the Study Area. Of those who were not in the labour force during the 2016 Census, the highest percentage of the Study Area population were 'Retired' or 'Students.'

#### 4.2.3.2 Employment by Socio-Economic Group

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required. The 'Higher Professional' category includes scientists, engineers, solicitors, town planners and psychologists. The 'Lower Professional' category includes teachers, lab technicians, nurses, journalists, actors and driving instructors. Skilled occupations are divided into manual skilled, such as bricklayers and building contractors; semi-skilled, e.g. roofers and gardeners; and unskilled, which includes construction labourers, refuse collectors and window cleaners. Figure 4.2 shows the percentages of those employed in each socio-economic group in the State and the Study Area during 2016.

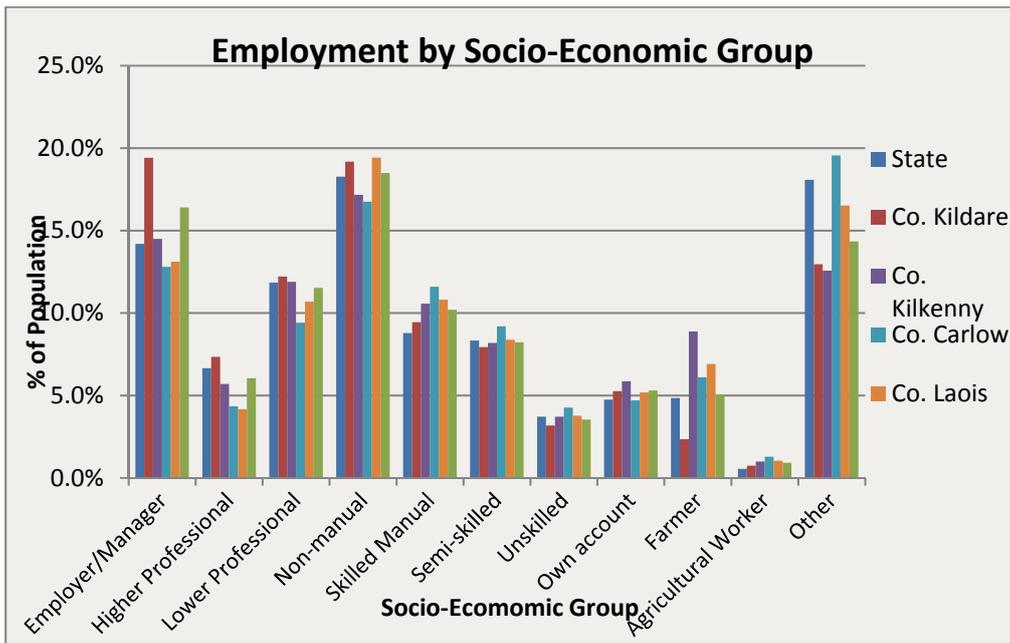


Figure 4.2 Employment by Socio-Economic Group in 2016 (Source: CSO)

The highest level of employment within the Study Area was recorded in the 'Non-manual' category. Approximately 18.5% of those employed within the Study Area form part of this category. After Farming, the next highest levels of employment within the Study Area are in the 'Employer/Manager' and 'Other' categories. The categories in which the lowest percentage of the Study Area population were recorded are 'Agricultural worker' (0.9% of the Study Area population) and 'Unskilled' (3.5% of Study Area population).

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the "Other" category in Figure 4.2.

#### 4.2.4 Land-use

The total area of farmland within the four counties measures approximately 471,559 hectares or 73.9% of the total area, according to the CSO Census of Agriculture 2010. There are 11,429 farms located within the Study Area, with an average farm size of 41.3 hectares. This is higher than the national average of 32.7 hectares. Within the Study Area, farming employs 23,775 people, and the majority of farms are family-owned and run. Table 4.6 shows the breakdown of farmed lands within the Study Area. Pasture accounts for the largest proportion of farmland, followed by silage.

Table 4.6 Farm Size and Classification within the Study Area in 2010 (Source: CSO)

Characteristic	Value
Size of Study Area	638, 004 hectares
Total Area Farmed within Study Area	471,559 hectares
Farmland as % of Study Area	73.9%
Breakdown of Farmed Land	Area (hectares)
Total Pasture	239,169 ha

Characteristic	Value
Total Silage	106,663 ha
Rough Grazing	14,988 ha
Total Hay	25,053 ha
Potatoes	1,214 ha
Total Cereals	71,270 ha
Other Crops	13,205 ha

#### 4.2.5 Services

Most of the amenities and community facilities, including churches, GAA and other sports clubs, youth clubs and recreational areas, available in the area around the proposed development site are located in the nearby main settlements of Rathangan, Monasterevin, Vicarstown, Athy, Carlow, Leighlinbridge, Bagenalstown, Goresbridge, Graiguenamanagh and St. Mullin's.

##### 4.2.5.1 Education

###### Co. Kildare

Within County Kildare there are a number of schools in close proximity to the site. Multiple schools are located within the towns of Rathangan, Monasterevin and Athy, through which the proposed route passes. The closest school within the town of Rathangan, Ardscoil Rath Iomgháin, is located approximately 100m south of the site. Within Monasterevin, St Pauls Secondary School is located roughly 130m east of the site. The town of Athy contains a number of schools which are located within 1km of the site including; Scoil Phadraig Naofa, Kilberry National School and Athy Community College. Outside of the before mentioned main towns the closest schools are Scoil Naomh Lorcaín, Robertstown National School and Allenwood Boys/Girls National School located approximately 1.5km east, 1.75 km east and 1.7 km northwest of the site respectively.

###### Co. Laois

The nearest schools within County Laois are located in the village of Vicarstown and the townland of Kilbrackan, located approximately 1.25 km west and 250m west of the proposed site respectively.

###### Co. Carlow

A large number of schools are located within Carlow town, within distances of 100m to 2km from the proposed development. The closest schools include; Carlow Vocational School, St Marys Academy CBS and Scoil Nais Iosef Naofa. The proposed site also passes through the settlements of Leighlinbridge and Bagenalstown, both of which contain multiple schools in close proximity to the development. Leighlinbridge National School is the closest within Leighlinbridge at approximately 500m from the site. The closest schools in Bagenalstown are; Newtown Dunleckney Mixed National School, St Bridget's Monastery National School and Muine Bheag Vocational School, all of which are within 500m of the site. A number of schools are also located within the town of Borris, approximately 1.5km from the site. Glyn National School is located within the settlement of St. Mullins at the southern end of the proposed site.

### **Co. Kilkenny**

The only schools in immediate proximity to the site within Co. Kilkenny are located within the towns of Goresbridge and Graiguenamanagh. Goresbridge National School is located approximately 500m west of the proposed site. A number of schools are present in Graiguenamanagh, the closest of which to the proposed development being Graiguenamanagh Boys National School (180m from the site) and Duiske College (Approximately 500m from the site).

## **4.2.5.2 Access and Public Transport**

### **Co. Kildare**

The proposed development can be divided into two sections within County Kildare, the northern section from Lowtown to Monasterevin and the southern section around Athy and straddling the Kildare/Laois border. The northern section of the proposed Kildare site can be accessed via a number of regional roads such as the R415 at Lowtown or the R414/R401 at Rathangan. The National Road, N7 can also be used to access the site southwest of Monasterevin. The southern section of the Kildare route can be accessed via Regional (R428, R417) and National Roads (N78) at Athy. The site can also be accessed using the R429 at Maganey and at multiple points as the R417 runs adjacently. Where Regional or National Roads do not provide direct links to the site, local roads can be used to provide access in a number of locations.

Within Co. Kildare the towns of Monasterevin and Athy, through which the proposed development passes, are served by Irish rail services. These routes provide links to the cities of Dublin and Kilkenny where nationwide connections are available. Numerous local and national bus routes are available from towns, adjoining and nearby the proposed site including Robertstown, Athy, Monasterevin and Rathangan.

### **Co. Laois**

The proposed development within Co. Laois can be accessed via the R427 Regional Road at Vicarstown and via a range of local roads in the surrounding area. Further south the site can be approached from Co. Laois utilizing the R429 at Maganey and the R430 at Carlow. Local roads also provide multiple access points in the area.

No direct rail links to the site are located within Co. Laois. The nearest stations (within Co. Laois) being located in Portarlinton and Portlaoise. There are also no bus routes which provide direct access to the site from within Co. Laois, however nearby bus connections can be made at Stradbally and Portarlinton.

### **Co. Carlow**

Carlow Town also provides access to the route via Regional Roads (R417, R430) and National Roads (N9, N80). A range of other Regional Roads can be used to access the proposed development at various points from within Co. Carlow, including the R705, R724, R702 R729 and R703. The N9 National Road also provides access to the site just north of Leighlinbridge.

Rail links pertinent to the proposed development within Co. Carlow are available from within Carlow Town with destinations including Dublin and Waterford. A number of bus services are also available from the major towns in the area of the site such as Carlow, Leighlinbridge and Bagenalstown.

### **Co. Kilkenny**

As the proposed site straddles the Kilkenny/Carlow border, much of the same Regional Roads can be used for providing access from Co. Kilkenny as from Co. Carlow. Namely, the R705, R724, R702 R729 and R703. No National roads provide access to the site from within Co. Kilkenny but a number of local roads can be used to approach the proposed development.

The nearest train station to the site within Co. Kilkenny is located in Thomastown approximately 13km west of the site. As with the before mentioned counties bus connections are available from major towns along the proposed route e.g. Goresbridge and Graiguenamanagh.

#### **4.2.5.3 Amenities and Community Facilities**

The majority of amenities and community facilities, including GAA & other sports clubs, youth clubs and recreational areas in the area are located within the centres of settlement through which the site passes and throughout the wider area. Retail and personal services within the vicinity of the site are provided in the larger settlements of all four counties such as Monasterevin, Athy, Carlow Town, Goresbridge and Graiguenamanagh.

The proposed development is intended to provide improvements to the existing local amenities of the existing Grand Canal Barrow Line and Barrow River. A description of the proposed development is provided in Chapter 3 of this EIS.

#### **4.2.6 Human Health & Safety**

The purpose of the development is to encourage an outdoor lifestyle and to facilitate this for everyone including vulnerable users. This potential expansion of the types of people who can enjoy the route will deliver positive health effects which are limited in the 'Do Nothing' scenario.

The proposed development will support a number of recreational activities, and will provide a safe path for the public to walk and cycle along. Having this facility will be likely to encourage locals to get out and active more often, which will in turn have a beneficial consequence for their health (i.e. reduced weight, increased fitness, reduced risk of heart attack and stroke, etc.). In addition, there will be a benefit in terms of road safety, as walkers and cyclists will be likely to use the proposed path rather than existing roads.

Walking, cycling and canoeing activities have been shown to be highly sustainable as people engage in low group numbers, all year round and require services and facilities similar to those readily available in the towns and villages along the Barrow Valley.

#### **4.2.7 Vulnerability of the Project to Natural Disaster**

A Blueway is not a recognised source of pollution. Should a major accident or natural disaster occur the potential sources of pollution onsite during both the construction and operational phases are limited. Sources of pollution with the potential to cause significant environmental pollution and associated negative effects on health such as bulk storage of hydrocarbons or chemicals, storage of wastes etc. are limited.

There is limited potential for significant natural disasters to occur at the site. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to flooding. The risk of flooding is addressed in Chapter 7. It is considered that the risk of significant environmental or human health effects associated with natural disasters is negligible.

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment; such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The proposed Blueway is not regulated or connected to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e. SEVESO sites and so there is no potential effects from this source.

## 4.3 Tourism

### 4.3.1 Tourist Numbers and Revenue

Tourism is one of the major contributors to the national economy and is a significant source of full time and seasonal employment. During 2016, total tourism revenue generated in Ireland was €8.3 billion. Overseas tourist visits to Ireland in 2016 grew by 8.8% to 8.74 million (*Tourism Facts 2016*, Fáilte Ireland, August 2017).

Ireland is divided into eight tourism regions. Table 4.7 shows the total revenue and breakdown of overseas tourist numbers to each region in Ireland during 2016 (*Tourism Facts 2016*, Fáilte Ireland, August 2017).

**Table 4.7 Overseas Tourists Revenue and Numbers 2016 (Source: Fáilte Ireland)**

Region	Total Revenue (€m)	Total Number of Overseas Tourists (000s)
Dublin	€1,975 m	5,687
Mid East	€251 m	626
Midland	€72 m	226
South-East	€273 m	946
South-West	€849 m	2,079
Mid West	€390 m	1,215
West	€543 m	1,675
Border	€286 m	815
Total	€4,639 m	13,269

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

Table 4.8 shows the breakdown of overseas tourist numbers to the East & Midlands and South-East Regions during 2015 (for which the latest county data is available) and the associated revenue generated. The East & Midlands region was part of a regional classification used until 2015 and comprises Counties Kildare, Longford, Meath, Offaly (East), Laois, Louth, Wicklow and Westmeath. The regional data shows that County Kildare had the highest tourism revenue within the East & Midlands Region during 2015, while County Longford had the lowest. Within the South-West Waterford saw the most revenue generated from tourism and Kilkenny had the highest number of overseas tourists. Carlow generated the lowest tourism revenue and hosted the lowest number of overseas tourists in the South-West Region.

Regarding the proposed development, the county with the highest tourism revenue was Co. Kildare with Kilkenny showing the highest number of tourists. Offaly (East) received the lowest number of overseas visitors and lowest amount of tourism revenue.

**Table 4.8 Overseas Tourism to East & Midland and South-East Regions during 2015**  
**[Source: Fáilte Ireland]**

Region	County	Revenue Generated by Overseas Tourists (€m)	No. of Overseas Tourists (000s)
East & Midlands	Kildare	89	214
	Longford	8	30
	Meath	44	134
	Offaly (East)	12	38
	Laois	18	57
	Louth	36	125
	Wicklow	82	248
	Westmeath	36	116
South-West	Carlow	32	62
	Tipperary (South)	41	133
	Wexford	65	221
	Kilkenny	45	267
	Waterford	75	263

### 4.3.2 Tourist Attractions

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, cycling and walking.

Ireland's Ancient East is a major marketing campaign which is aimed at increasing tourism in the East of the country. The proposed development is to be located within

this region and would represent a significant addition to the region and could be incorporated into the overall tourism development.

### **Kildare**

While no tourist attractions are in the immediate vicinity of the northern portion of the Co. Kildare development site there are a range of popular tourism sites in the wider area of Kildare including world famous race courses (The Curragh and Punchestown) and golf courses (The K Club). The Irish National Stud is also located within County Kildare, which contributes to the strong equine aspect of tourism in the county. Other tourist attractions in County Kildare include Castletown House, Kildare Town Visitor Center and Larchill Arcadian Gardens.

Athy is located in the southern portion of the Kildare section of the route and has been designated as the Heritage Town of Ireland. Attractions in the area include Athy Heritage Centre-Museum and Burtown House and Gardens.

### **Laois**

Within the immediate vicinity of the proposed development, no tourism sites are present in Co. Laois although several tourism sites are located in the wider area of the county. Emo Court is a large neo-classical mansion designed in 1790 for the Earl of Portarlington and is located approximately 8.6km west of the site. The Rock of Dunamase and Dunmase Arts Center are popular tourist attractions in the Co. Laois and are located approximately 8.6km and 14km west of the site respectively. Other tourist attractions in the County include Stradbally Steam Museum, Hollywood Gardens and Donaghmore Famine Workhouse Museum.

### **Carlow**

A number of tourist attractions are located within Carlow Town, in close proximity to the site including, Carlow County Museum, the Visual Arts Center, the George Bernard Shaw Theatre and Delta Sensory Gardens.

Leighlinbridge and Bagenalstown also contain a number of tourist attractions which are in close proximity to the site of the proposed development such as Garryhill House (Bagenalstown), Black Castle (Leighlinbridge), Leighlinbridge Memorial Garden and the Arboretum lifestyle and garden center Leighlinbridge.

Other items of interest in close proximity to the site include; Dunleckney Manor, Borris House and Brownsholl Dolmen located approximately 1.5 km east, 1.2km east and 2.7km east respectively. In the wider area tourist attractions include; Altamont Gardens and Duckett's Grove 19<sup>th</sup> century great house.

### **Kilkenny**

The City of Kilkenny is a popular tourist attraction in itself, although this is located approximately 17.6km west of the proposed development. Attractions here include Kilkenny Castle and a range of other historic buildings and monuments. Other attractions within the City include; the National Craft Gallery and the Canal Walk.

A variety of smaller scale tourist attractions are available in the towns adjoining the proposed route including The Cistercian Duiske Abbey (Graigueamanagh), Cushendales Woolen Mills and the scenic village of St Mullins.

In the wider County of Kilkenny further tourist attractions can be found, such as; Kells Priory, Woodstock Garden & Arboretum and The Garden of Remembrance in the village of Newmarket.

#### **4.3.3 Amárach Consumer and Business Surveys**

A Consumer Survey relating to the proposed development was conducted by Amárach Research in order to gauge public opinion and attitude to the proposed Blueway. The survey took place in July 2016 and was conducted by deploying interviewers at 8 locations alongside the Barrow. Users of the existing track were invited to partake in a 5-minute survey and various demographic characteristics of each participant were noted. In total 409 people were surveyed.

The findings indicated a positive attitude towards the development of the Blueway with 79% of those surveyed indicating that they believed the proposed surface would be good and 60% of the responses to the proposal could be categorized as positive with just 17% negative. Further details of this survey can be found in Appendix 4-1.

A Business Survey was also conducted regarding the proposed development. The business survey was carried out by contacting businesses located along the length of the proposed route and asking owners and managers of these businesses to participate in a survey. In total 60 businesses replied to the survey.

The overall reaction was positive with the survey finding that local businesses recognise the need to upgrade the current facilities along the Barrow in order to realise its potential as a tourist attraction. 87% of the businesses surveyed believed that the proposed Blueway would draw tourists to the area. Further details of this survey can be found in Appendix 4-1.

#### **4.3.4 Case Study: The Great Western Greenway – Economic Impact**

The Great Western Green way is a traffic-free cycling and walking facility which extends from Westport through Newport and Mulranny to Achill in Co. Mayo. The first section of the route, from Newport to Mulranny was opened in 2010 with two further sections linking Westport and Mulranny opened in July 2011. The greenway is 42km in length and is located mostly off-road. The project has generally been regarded as a success and therefore, Failte Ireland commissioned Fitzpatrick Associates to conduct a case study style economic impact study of the Greenway in October 2011, some of the key findings of which are summarized below.

It is important to note that this study can be considered indicative only as a number of estimates and assumptions were used in its preparation. In addition, the Great Western Greenway is, in many ways, a different tourism offering than that of the proposed Barrow Blueway. However, we are using it for comparison reasons only and to provide context.

It was determined that users came from three key markets; the local, Co. Mayo market, the domestic visitor market and the overseas visitor market. The domestic visitor market accounted for the highest percentage of visitors at 39% with the local market comprising 38% and the overseas market comprising 23% of users.

It was noted that walking was the most popular activity for local users with domestic and overseas visitors being more likely to participate in cycling as their sole activity on the Greenway at 90% and 80% respectively. This can be seen as a positive indication for the proposed Barrow Blueway as it is upgrade to a mixed-use trail from the existing walking route will facilitate an increase in visitors to the region wishing to partake in cycling. Once again it should be noted that these results are indicative only.

The visitor survey conducted as part of the Greenway economic impact study revealed that 70% of domestic visitors and 45% of overseas visitors stated that the Greenway was an important factor in their decision to visit the local area.

User estimates prepared as part of the study suggest that the Greenway would attract nearly 23,000 visitors from outside the local area i.e. domestic and overseas visitors. Through visitor surveys it has been estimated that the average visitor spend by overseas and domestic visitors was approximately €50 per day with local users of the greenway spending an average of €27. Using these estimates, it was calculated that users of the Greenway would contribute a projected 7.2 million euro in direct expenditure (i.e. all expenditure associated with the Greenway) to the local economy over a full year. This consists of nearly €940,000 in expenditure by local residents, over €3.5 million in expenditure by domestic visitors and nearly €2.8million in expenditure by overseas visitors.

It should be noted that not all revenue generated by users of the Greenway can truly be considered "additional" to the local economy. This is because only revenue from visitors whose purpose/reason for coming to the local area was to use the Greenway can be considered additional, as others may have visited the region regardless. Therefore, only the 70% of domestic visitors and 45% of overseas visitors which sited the Greenway as an important factor for visiting the region can be considered to have contributed "additional" revenue to the local economy. On an indicative basis therefore, the Greenway can be considered to have contributed an additional €3.8million to the local economy.

## **4.4 Likely and Significant Impacts and Associated Mitigation Measures**

### **4.4.1 Do-nothing Scenario**

If the development of the Barrow Blueway does not commence on these lands, the lands will continue to be managed as they are and used for recreational activities such as walking & cycling and under maintenance from Waterways Ireland. Occasional construction activity in the form of maintenance would continue to take place. Any benefits from the construction of the proposed Blueway, including enhanced local amenities, increased tourism revenue, direct employment during construction, and indirect employment based on increased local revenue would be lost.

### **4.4.2 Construction Phase**

#### **4.4.2.1 Human Health and Safety**

The cycle path civil works involve the surfacing of the existing trackway on both the River Barrow and on the Grand Canal Barrow Line to facilitate cycling activity in the

area. These works will require the use of machinery along the public road and would necessitate the presence of a construction site which in the absence of mitigation or health and safety plans poses a potential hazard to construction workers and members of the public. This is considered to be a short-term potential significant negative impact.

### **Mitigation**

During the route works all staff will be made aware of and adhere to the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006'*. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan. Appropriate health and safety signage will be erected at locations along the site.

Construction traffic will be subject to standard construction health and safety requirements which will ensure traffic speeds are limited to 15 mph/25 kph.

All works will be carried out in a safe manner and members of the public will be informed through the provision of advance notification and advised in relation to any temporary localised traffic management protocols (e.g. local stop-go traffic control systems etc.).

### **Residual Impact**

Short-term potential slight negative impact

### **Significance of Effects**

Based on the above assessment, there will be no significant effect

#### **4.4.2.2 Employment and Investment**

It is likely that many of construction workers and materials will be sourced locally, thereby helping to sustain employment in the construction trade. This is considered to be a short-term moderate positive direct impact.

The injection of money in the form of salaries and wages to those employed during the construction phase of the proposed project has the potential to result in a slight increase spending and demand for goods and services in the local area. This would result in local retailers and businesses experiencing a short-term positive impact on their cash flow. This is considered to be a short-term slight positive indirect impact.

#### **4.4.2.3 Population**

Those working on the construction phase of the proposed development will travel daily to the site from the wider area. The construction phase will have no impact on the population of the Study Area in terms of changes to population trends or density, household number or age structure.

#### **4.4.2.4 Land-use**

The proposed development consists of an upgrade to the existing towpath and trackway which run along the Grand Canal Barrow Line and River Barrow which are currently already used for recreational purposes. Therefore, land-use in the area of the site is not anticipated to change.

There will be no impact on existing land-uses in the wider area as a result of construction of the proposed development. Therefore, it is anticipated that the proposed development will have no impact on land-use.

#### **4.4.2.5 Noise**

Details on potential noise impacts are included in Chapter 9 of this EIS. In relation to the construction phase, a precautionary approach has been adopted and Chapter 9 demonstrates that although the construction works may give rise to noise impacts on sensitive receptors in the area, these noise impacts will be very temporary in nature as the works move along the route.

##### **Mitigation**

Best practice measures for noise control will be adhered to onsite during the construction phase of the proposed development in order to mitigate the slight short-term negative impacts associated with this phase of the development. The measures include:

- Sensitive location of equipment, taking account of local topography and natural screening.
- Working methods: construction noise will be controlled by prescribing that standard construction work will be restricted to the specified working hours. Any construction work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance. The phasing of works has also been designed with regard to avoidance of noise impacts.
- Plant will be selected taking account of the characteristics of noise emissions from each item. All plant and machinery used on the site shall comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.
- Operation of plant: all construction operations shall comply with guidelines set out in British Standard documents 'BS 5338: Code of Practice for Noise Control on Construction and Demolition Sites' and 'BS5228: Part 1: 1997: Noise & Vibration Control on Construction and Open Sites'. The correct fitting and proper maintenance of silencers and/or enclosures, the avoidance of excessive and unnecessary revving of vehicle engines, and the parking of equipment in locations that avoid possible impacts on noise-sensitive locations will be employed.
- Training and supervision of operatives in proper techniques to reduce site noise, and self-monitoring of noise levels, if appropriate.

##### **Residual Impact**

Short-term slight negative impact. Although the construction works may give rise to noise impacts on sensitive receptors in the area, these noise impacts will be very temporary in nature as the works move along the route.

##### **Significance of Effects**

Based on the above assessment, there will be no significant effect.

#### **4.4.2.6 Dust**

Some minor dust emissions associated with construction vehicles and plant are expected. These are addressed further in Chapter 9 of this EIS. This potential impact

will not be significant and will be restricted to the active construction area, which will be localised and small and also limited to the duration of the construction phase at that local location. This is expected to have a short-term slight negative impact.

#### **Mitigation**

The active construction areas will be small, ranging from 50-100m in length at any one time. Separate crews will be used during the construction phase and they will generally be separated by a number of kilometres. All construction machinery will be maintained in good operational order while on-site, minimising any emissions that are likely to arise. Aggregate materials for the construction of the Blueway will be sourced locally, where possible, to reduce the amount of emissions associated with vehicle movements. Potential dust emissions during the construction period will not be significant and will be relatively short-term in duration.

#### **Residual Impact**

Short-term slight negative impact.

#### **Significance of Effects**

Based on the above assessment, there will be no significant effect.

#### **4.4.2.7 Tourism and Amenity**

As there will be some traffic restrictions in place through the construction phase, there may be a short-term slight negative impact to local tourism and the existing use of the towpath and track as recreational amenity. Any impacts will however be limited to the active construction areas and will be temporary in nature. The construction phase will impede the use of the existing towpaths which could result in a negative impact to tourism in the area on a temporary basis.

It is considered that the construction phase of the proposed development has the potential to give rise to a short-term slight negative impact on tourism in the area given that a greater number of vehicles associated with construction will be using the road than would otherwise be the case. The existing towpath and trackway will also be temporarily obstructed leading to the potential to create a short-term slight negative impact on tourism. However, once the proposed development is complete, it is anticipated that the resurfaced track will result in an increase to tourism in the region.

Following the application of mitigation outlined below, the potential residual impact is considered to be short term in duration, on the basis that any potential impact will only arise during the construction phase.

#### **Mitigation**

Resurfacing of the existing towpath and tracks has been designed to work in conjunction with a traffic management plan which will be developed to ensure a safe system of works, allowing access to be maintained during the construction period.

#### **Residual Impact**

Short-term imperceptible negative impact.

#### **Significance of Effects**

Based on the above assessment, there will be no significant effect.

### **4.4.3 Operational Phase**

As referenced in the previous application, in the River Barrow Cycling Trail – Feasibility and Technical Specifications Report, 2012 a calculation on the existing and proposed users of the River Barrow walking trail was carried out. Based on information extrapolated from other similar public trail projects, it is assumed that existing walkers would represent 50% of the final number of walkers and that existing cyclists are at 10% of the projected number of cyclists. Visitors that both walk and cycle during their trip are estimated at being 20% of their final estimated number. The calculations and basis for these assumptions is provided in Appendix 3-4.

However, in order to provide the Planning Authorities with additional information, and as a response to the Further Information Request, a further document was produced entitled 'Analysis of Existing and Projected Visitor Numbers along the Proposed Barrow Blueway Trail. This is included in Appendix 3-5. This document includes both data gathered from automated counters as well as physical recordings to validate this data. Both documents support the rationale for designing the upgraded trail to cater for less than 1,500 users per day.

Potential operational impacts associated with noise and dust are addressed in Chapter 8.

#### **4.4.3.1 Human Health and Safety**

The main concern regarding health and safety during the operational phase of the proposed development relates to road crossings and traffic junctions. These concerns are addressed in detail in Chapter 11 of this EIS.

The existing towpath and trackway has been maintained as a National Waymarked Trail for many years and inspected on a routine and structured basis to comply with the Irish Sports Council standards. The proposed Blueway will improve the existing walkways surfacing. The proposed Blueway design allows for the protection of vulnerable users.

The proposed development will provide a facility for people to become more active and get more regular exercise, thereby having a positive impact on human health.

#### **4.4.3.2 Employment and Investment**

It is anticipated that the proposed development will have a long-term moderate positive impact on employment in the area. Not only will the proposed upgrade result in an increased level of employment associated directly with the development such as bike rental, hospitality etc, the proposed development will also attract more visitors to the area which will contribute to the local economy in the vicinity of the proposed Blueway. No negative impacts are anticipated and therefore no mitigation measures are considered to be required.

The proposed development will result in the creation of a significant tourism attraction in the region this will lead to increases in employment and investment in the region. Therefore, it is anticipated that the Blueway will have a significant positive impact.

#### **4.4.3.3 Population**

It is expected that positive impacts to the local economy as a result of the proposed development will result in positive impacts to the local population by providing jobs and opportunities for members of the local communities. No negative impacts are anticipated and therefore no mitigation measures are considered to be required.

#### **4.4.3.4 Land-use**

As the proposed development consists of an upgrade to existing tracks and towpaths along the River Barrow and Grand Canal Barrow Line no impacts on land use are anticipated as part of the proposed development, therefore no mitigation measures are necessary relating to land-use.

#### **4.4.3.5 Tourism and Amenity**

It is anticipated that the proposed development will have a long term significant positive impact on tourism in the region. While the trackway and towpaths which currently exist along the site of the proposed development are already used for tourism and recreation purposes, the proposed upgrade to a multi-purpose track along its entire length will facilitate an increased level of usage, particularly relating to cycling. Waterways Ireland has successfully branded and marketed Blueways on the North Shannon and the Shannon-erne navigations. A Blueway is a network of approved and branded multi-activity recreational trails and sites, based on, or closely linked with the water, together with providers facilitating access to activities and experiences. Blueways combine water activities with land based activities such as cycling and walking. The offering also involves the capacity building of local and new businesses and is promoted and marketed in joint collaboration among the private sector, public sector organisations, and the community and voluntary sectors. The Blueway initiatives on the North Shannon, which opened in 2014, have been hugely successful in attracting both national and out of state visitors and have led to the rural regeneration of the area. It is estimated that approximately 100,000 visitors experienced the Blueway on the North Shannon in 2016 and this influx of visitors has encouraged the establishment of small scale enterprises ranging from canoe hire and cycle hire to bed and breakfast provision, whilst also enhancing already existing businesses. It is anticipated that the proposed development on the Barrow will have a similar impact in terms of attracting visitors, and will also provide an excellent amenity for the existing population in the area which will ultimately result in health and social benefits for locals.

As outlined above in Section 4.3.4 the Great Western Greenway in Co. Mayo has largely been a success in terms of attracting tourism to the region. It is anticipated that the proposed development will have a similar impact on tourism in the region.

The entire length of the proposed development lies within the 'Ireland's Ancient East' tourism initiative, being promoted by Fáilte Ireland. The area is so rich in heritage and culture and has so much to offer in uncovering the intriguing stories of our past. The development will provide family friendly infrastructure for tourists to access the colourful history of the area, and thus will provide a mechanism for increased tourism activity and the provision of supporting amenities to service such increased activity along the route.

#### **4.4.4 Cumulative Impact Assessment**

The potential cumulative impacts between the proposed development and the other projects described in Section 2.4 of this report (hereafter referred to as other projects) have been considered in terms of impacts on human beings. Due to the nature of the proposed development, which comprises a narrow development corridor only two live planning applications are considered in the cumulative impact assessment. These projects consist of small scale residential and agricultural developments. Further details can be found in Section 2.3.2 of this EIS.

Potential cumulative impacts associated with noise and dust are addressed in Chapters 9 and 8 respectively.

##### **4.4.4.1 Human Health and Safety**

Any potential cumulative impacts between the proposed cable route construction and the other projects in terms of health and safety will be mitigated by the requirement for all construction projects to abide by Health & Safety legislation.

##### **4.4.4.2 Employment and Investment**

In terms of employment and economic benefit, there will be a significant, short-term, positive, cumulative impact between the proposed development and the other projects due to the majority of construction workers and materials being sourced locally, thereby helping to sustain employment in the construction trade.

The injection of money in the form of salaries and wages to those employed during the construction phase of the proposed project has the potential to result in a slight increase in household spending and demand for goods and services in the local area. This would result in local retailers and businesses experiencing a short-term positive impact on their cash flow.

##### **4.4.4.3 Population**

Those working on construction of the proposed Blueway will travel daily to the site from the wider area, therefore there are no potential impacts on population as a result of the proposed development and no potential for cumulative impacts. The operational phase of the Blueway is expected to attract visitors which will not affect the permanent population of the human being's study area.

##### **4.4.4.4 Land-use**

Land-use will remain to be the same following the construction of the proposed Blueway, therefore there is no potential for cumulative impacts.

##### **4.4.4.5 Tourism and Amenity**

There will be no cumulative construction phase impacts on tourism between the proposed Blueway and other projects once the mitigation measures in Section 4.4.2.7 above are implemented. Any slight impact that the proposed development may have on tourism and amenity will be temporary in nature and the potential for cumulative impacts with the projects listed in Chapter 2 are negligible.