

Chapter 6

Population and Human Health

6.1 Introduction

This chapter addresses the potential population and human health impacts related to the construction and operation of the proposed Dursey Island Cable Car and Visitor Centre development, referred to hereafter as the 'proposed development'. The proposed development involves the replacement of the existing Dursey Island Cable Car, the construction of associated structures (including the visitor centre, café, welfare facilities, and cableway line stations) and completion of road improvement works on the R572 – the principal approach road to the site. For a detailed description of the proposed development, refer to Chapter 4 of this Environmental Impact Assessment Report (EIAR). Actual and perceived effects of the proposed development on population and human health may arise from various aspects of the proposed development. These effects are dealt with throughout this EIAR. In particular, interactions will occur with the effects described in the chapters listed in Table 6.1.

Table 6.1 Interactions between this Chapter and other Chapters of this EIAR

Relevant Aspect(s)	Chapter & Specialist Contributor
Human Health: Traffic	Chapter 5: Traffic Analysis (ROD)
Human Health: Contaminated Land	Chapter 8: Soils and Geology (ROD)
Human Health: Noise and Vibration	Chapter 12: Noise and Vibration (AWN Consulting)
Human Health: Air Quality and Climate	Chapter 13: Air Quality and Climate (AWN Consulting)
Human Health: Water Quality and Flooding	Chapter 10: Hydrology (ROD)
Human Health: Landscape and Visual	Chapter 11: Landscape and Visual Analysis (Cunnane Stratton Reynolds; Pederson Focus)
Human Health: Material Assets	Chapter 16: Material Assets and Land (ROD)
Human Health: Major Accidents and Disasters	Chapter 17: Interrelationships, Major Accidents and Cumulative Effects (ROD)

In accordance with the Draft Environmental Protection Agency (EPA) *Guidelines on Information to be contained in the Environmental Impact Assessment Report (2017)*, this chapter examines the characteristics of the proposed development with respect to:

- Land use and social considerations, including effects on general amenity, journey characteristics, severance, amenity uses of the site or of other areas in the vicinity;
- Economic activity and employment, including tourism; and

- Human health, considered with reference to interactions with, other environmental receptors contained in corresponding chapters such as air, noise, traffic and flooding, as appropriate.

The contents of this chapter are presented as follows:

- Section 6.2 outlines the methodology employed to conduct the population and human health impact assessment.
- Section 6.3 presents a description of the (baseline) receiving environment with respect to population and human health.
- Section 6.4 describes the predicted effects of the construction and operation of the proposed development with respect to population and human health.
- Section 6.5 sets out a suite of measures to avoid, prevent, reduce or offset any significant, adverse effects identified in Section 6.4.
- Section 6.6 describes potential residual effects – those which may occur after proposed mitigation measures have been implemented.
- Section 6.7 outlines any difficulties encountered in compiling information for the purposes of this Chapter.
- Section 6.8 presents a summary and conclusion of the population and human health impact assessment.
- Section 6.9 presents a list of reference material used in the preparation of this Chapter.

6.2 Methodology

This population and human health impact assessment has been undertaken in accordance with Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU and as transposed into Irish law through S.I. No. 296 of 2018.

6.2.1 Relevant Guidelines

The following guidelines have influenced the preparation of this chapter:

- *Draft Guidelines on Information to be contained in the Environmental Impact Assessment Report* – Environmental Protection Agency, 2017;
- *Draft Advice Notes for Preparing Environmental Impact Statements*, - Environmental Protection Agency, 2015;
- *Guidelines on the Information to be contained in Environmental Impact Statements* – Environmental Protection Agency, 2002;
- *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* – Environmental Protection Agency, 2003;
- *Environmental Impact Assessment of National Road Schemes – A Practical Guide (Revision 1)* – National Roads Authority & Transport Infrastructure Ireland, 2008;
- *Guidelines on the Treatment of Tourism in an Environmental Impact Assessment* – Fáilte Ireland, 2011;
- *Additionality Guide* – UK Homes and Communities Agency, 2014;
- *Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report* – European Commission, 2017;

- *Health Impact Assessment Resource and Tool Compilation* – United States Environmental Protection Agency, 2016;
- *Health Impact Assessment Guidance* – Institute of Public Health Ireland, 2009; and
- *Framework for Human Health Risk Assessment to Inform Decision Making* – United States Environmental Protection Agency, 2014.
- *Guidance on the Assessment of Dust from Demolition and Construction* – Institute of Air Quality Management, 2014

The description of the quality, significance, extent (magnitude), probability and duration of effects outlined within this assessment are based on the definitions set out within Section 3.7 of the *Draft Guidelines on Information to be contained in Environmental Impact Assessment Reports* (EPA, 2017).

6.2.2 Study Area

There is no national guidance available on an appropriate study area for the assessment of population and human health effects. The study area has been defined with reference to the potential for effects from the proposed development using professional judgement and based on the availability of relevant information. The most significant human health environmental effects are likely to be confined within 50-100m of the proposed development. Some effects, such as those related to air quality and traffic, may accrue to a wider study area, and these are considered as part of the respective specialist assessments that inform this assessment.

A study area of 500m outside of the boundary of the site of the proposed development (Plate 6.1) has been defined as part of this assessment. The study area is located in the Kilnarnagh Electoral Division (ED) (Plate 6.2). EDs are the smallest legally defined administrative areas in Ireland for which Small Area Population Statistics (SAPS) are published every 5 years from the national census. The EDs and SAPS are the best available units of measurement for collecting population and human health data and are relied upon where relevant in order to inform the population and human health profile of the study area.



Plate 6.1 Population and Human Health Study Area – Site of proposed development (red) plus 500m buffer zone (black)

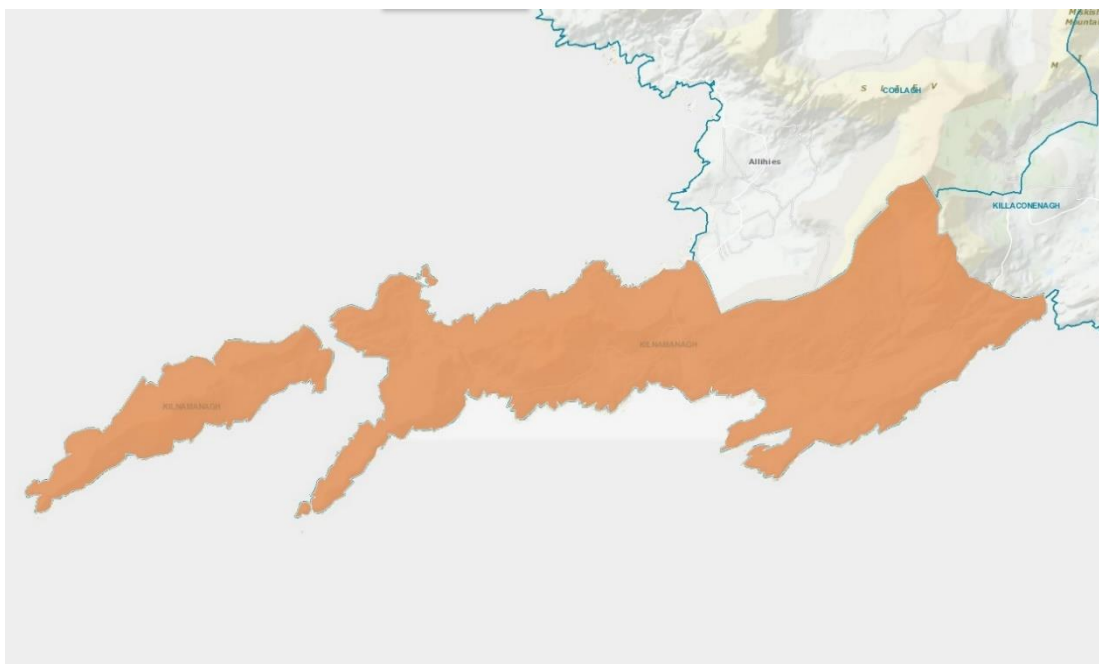


Plate 6.2 Kilnamanagh Electoral District (orange). Source: MyPlan.ie

6.2.3 Data Collection Methods

Primary and secondary data were employed in the completion of this impact assessment. Initially, a desk study was conducted to describe the existing receiving environment with respect to population and human health.

6.2.4 Data Sources

Data sources consulted during the desk study included:

- Population, demographics and health data sources:
 - Central Statistics Office (CSO) 2011 and 2016 National Census data
 - An Post GeoDirectory,
 - Failte Ireland;
 - Pobal;
 - the Institute of Public Health (IPH); and
 - the Health Service Executive (HSE);
- An Bord Pleanála planning application database
- Cork County Council (CCC) planning application database
- Other relevant environmental data collated during the various environmental assessments conducted for the purposes of this EIAR, particularly traffic, noise, air and climate, water, land and soil and landscape and visual impacts;
- Ordnance Survey of Ireland aerial photography; and
- Submissions/comments made during stakeholder/public consultations.

A range of planning and development policy documents and technical reports were reviewed as part of the assessment process, including the following key documents:

- *Project Ireland 2040 – National Planning Framework & National Development Plan* – Government of Ireland, 2017;

- *Rural Development Plan 2014 – 2020* – Department of Agriculture, Food and the Marine, 2014;
- *Realising Our Rural Potential – Action Plan for Rural Development* – Government of Ireland, 2017;
- *People, Place and Policy Growing Tourism to 2025* – Department of Transport, Tourism and Sport, 2015;
- *Draft Southern Regional and Spatial Economic Strategy 2019 – 2031* – Southern Regional Assembly, 2019;
- *Cork County Development Plan 2014 – 2020* – CCC, 2014
- *Cork Tourism Strategy 2016: Growing Tourism in Cork: A Collective Strategy* – Cork Strategic Tourism Task Force, 2016;
- *Cork County Draft Landscape Strategy* – CCC, 2007;
- *West Cork Municipal District Local Area Plan 2017* – CCC, 2017; and
- *West Cork Islands Integrated Development Strategy 2010* – Cork County Development Board & RPS, 2010.

6.2.5 Consultations

This section presents a summary of feedback obtained from consultees and members of the public related to potential impacts of the proposed development on population and human health. Non-statutory public consultation events were held in three locations:

- Lehanmore Community Centre in October 2018,
- The Eccles Hotel, Glengarriff, on the 27th of March 2019,
- Lehanmore Community Centre on the 23rd of April 2019

At each of these events, interested parties were invited to submit any comments on the proposed development. Additionally, 75 statutory and non-statutory consultees (relevant organisations and authorities) were invited to submit comments on an EIA Scoping Report developed for the proposed development. Issues raised that informed this assessment include:

Ticketing system: A number of interested parties enquired about how locals and island residents would be accommodated under the new cable car ticketing system.

Movement of goods/ livestock in the cable car: Queries were raised regarding the movement of goods to-and-from the island by Dursey Island residents and farmers. It was suggested that an agreement should be developed setting out details of type, nature and volumes of goods permitted in the proposed cable cars and a timetable for their movement.

Traffic: Concerns were expressed regarding additional traffic on the R572 as a result of the proposed development.

Support for the road improvement works on the R572 was expressed. Suggestions regarding traffic management were made, including that:

- Restrictions should be placed on the movement of coaches and campervans on the R572 beyond the R572-R575 junction at Bealbarnish Gap. It was suggested that these vehicles could potentially access the site through the use of a park-and-ride service.

- Priority should be given to cyclists and pedestrians on the approach road.

Economic effects: A number of submissions supported the proposed development and expressed that it should lead to opportunities for local employment and business development in the immediate and wider area.

Tourism Destination: A submission by Fáilte Ireland pointed out that the unspoilt nature of such sites contributes to their appeal as tourist destinations. It advised that effects detracting from the unspoilt nature of the site should be avoided in order to avoid indirect loss of tourism amenity value at the site.

Access: The layout of the proposed development should allow for emergency services and maintenance access to the carrier cabins. The site should also be accessible to wheelchair users.

In some cases, the consultation process has resulted in design changes and/or agreement of appropriate mitigation measures as part of the design of the development. Where relevant, this mitigation has been integrated into this assessment.

6.2.6 Population Impact Assessment Categories

6.2.6.1 Overview

The purpose of the population assessment is to identify the likely significant impacts as they might affect users of the proposed development and the local community. It usually follows that impacts of a population and human health nature are a function of:

- the location and character of the local environment;
- the sensitivity of the local population and its capacity to absorb change;
- the nature of the environmental effect;
- the scale or extent of the effect in terms of area or population affected;
- the duration and frequency of an effect; and
- the probability of an impact's occurrence and the possibility of effectively reducing the effects through mitigation.

Impacts can result in direct, indirect, secondary and cumulative effects on existing environmental conditions. Effects can be positive, neutral or negative. The significance of an effect depends on, among other considerations, the nature of the environmental effect, the timing and duration of an effect and the probability of the occurrence of an effect. The significance of an effect is described as imperceptible, slight, moderate, significant, very significant or profound. The impacts may be short-term, medium-term or long-term. The duration of an effect may be momentary, brief, temporary, short-term, medium-term, long-term, permanent or reversible in accordance with the timescales detailed in Table 6.2. The frequency of that effect can also influence significance i.e. if the effect will occur once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually. For example, road works involving disruption to road users for a few hours could be described as having a brief imperceptible, negative, brief impact versus the complete closure of a road for a number of months which could be described as a very significant, negative, temporary impact.

The population and human health assessment addresses impacts at a community level rather than for individuals or identifiable properties, although impacts for

individual properties are discussed where these are significant or located within close proximity to the proposed development, as appropriate.

This EIAR is focused on providing a clear documentary trail of analysis used to arrive at conclusions. The terms used to describe the predicted effects across impact assessment categories are defined in Table 6.2.

Table 6.2 Definitions of terms used to describe population effects (adapted from *Draft Guidelines on Information to be contained in the Environmental Impact Assessment Report, EPA, 2017*)

Quality of Effects	
Positive	A change which improves the quality of the environment.
Neutral	No effects, or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative	A change which reduces the quality of the environment.
Significance of Effects	
Imperceptible	An effect capable of measurement but without significant consequences on population.
Not Significant	An effect which causes noticeable (<i>Note 1</i>) changes in the character of the population environment without affecting its sensitivities.
Slight effects	A small effect which causes noticeable changes in the population and character of the environment without affecting its sensitivities.
Moderate effects	An effect that alters the character of the population environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the population environment.
Very significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the population environment.
Profound Effects	An effect which obliterates sensitive characteristics.
Extent and Context of Effects	
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measure are properly implemented.
Duration and Frequency of Effects	
Momentary Effects	Effects lasting from seconds to minutes
Brief Effects	Effects last less than a day

Temporary Effects	Effects lasting less than a year
Short-term Effects	Effects lasting one to seven years
Medium-term Effects	Effects lasting seven to fifteen years
Long-term Effects	Effects lasting fifteen to sixty years.
Permanent Effects	Effects lasting over sixty years
Reversible effects	Effects that can be undone, for example through remediation or restoration.
Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hour, daily, weekly, monthly, annually).

Note 1: For the purposes of planning consent procedures

The relevant components of the population aspect of this chapter examine the attributes and characteristics associated with social considerations of the community. These components (i.e. population impact assessment categories) include land use change, journey characteristics, journey amenity, general amenity, severance, and economic activity. The following sections (6.2.6.2 – 6.2.6.6) describe these impact categories.

6.2.6.2 Land Use Change

Land use change can affect populations in different ways. Planning policy plays an important role in guiding and facilitating approximate changes in land use which can influence settlement as well as transportation patterns. Planning policy ensures these changes are managed sensitively and are appropriate to the unique existing and emerging social, economic and environmental conditions. The primary consideration relating to land use change is to assess whether the proposed development conforms with land use policy and to identify if the proposed development is likely to change the intensity of patterns, types of activities and land uses. Therefore, a review of planning policy was carried out as part of this assessment (Section 6.3.2) as well as an assessment of the existing and emerging baseline and its capacity to absorb predicted changes.

6.2.6.3 Journey Characteristics

'Journey length' refers to the distance associated with a journey, while 'duration' refers to the time taken to make that journey. There are obvious interactions between these journey characteristics and 'journey amenity' and 'severance', described in the following sections, as well as with economic impacts and therefore the assessment is combined. The assessment will consider both positive impacts resulting from a decrease in journey length/time as well as negative impacts resulting from an increase in journey length/time. In addition, new transport facilities can improve accessibility or connectivity through the combined effect of reduced journey time and reduced severance. For the purposes of this EIA, average walking speed for pedestrians is assumed to be 5km/h and average cycling speed is assumed to be 20km/h.

6.2.6.4 Journey Amenity and General Amenity

The assessment of journey amenity relies on the significance categories set out in Table 6.2 and is supported by cross-reference where necessary with the relevant chapters of this EIAR. The level of traffic on a road, the proximity and separation of

footpaths and cycle-paths, the nature of any crossings/junctions to be negotiated, the legibility of a journey (including signage), visual intrusion (including sightlines) and safety for equestrians, are amongst the factors relevant to the assessment of amenity, as are the number and types of people affected. The principal concern is with pedestrians and cyclists, but journey amenity impacts also apply to drivers; for example, due to safety and anxiety associated with the crossings of major roads. There are also interactions with the assessment of journey characteristics and community severance.

6.2.6.5 Severance

The definition of severance is not precise. Severance is an impact of transport infrastructure development such as roads. Its effect is to discourage community interaction and it occurs where access to community facilities or between neighbourhoods is impeded by a lengthening of journey time or by the creation of a physical barrier. For example, construction of a road can create a physical barrier between communities but can also create further severance due to high traffic volumes or associated perimeter fencing.

The type of severance depends on the location of community facilities, the level of use of facilities, the time of day or duration when traffic conditions are experienced, the sensitivity of the population affected and the geographical spread of the community. Children, the elderly, the mobility impaired and people without access to a private car are among those most likely to be affected by community or social severance and any corresponding loss of neighbourhood interaction or safety concerns caused by barriers such as roads. On the other hand, relief from existing severance may be provided by a new road where traffic volumes or speed are moderated, by the inclusion of crossing facilities in the design or through the presence of overbridges or underpasses. New severance is a negative impact that occurs when a barrier is created between people and community facilities. Where there are implications for real and perceived safety, there are also potential interactions with journey amenity.

Sensitive groups are identified specifically where they comprise a higher proportion of pedestrian journeys or where specific amenities are associated with these groups. Sensitive groups can include children and young people, the elderly, the mobility impaired and people at risk of social isolation. Relevant facilities include schools, surgeries, hospitals, churches, post offices and shops.

Relief from severance is a positive impact which can be defined in relation to existing severance. Relief from severance could follow from a transference of traffic from improvements to road design or sightlines, or from the introduction of crossing facilities, underpasses or bridges.

Table 6.3 Definitions of terms used in the assessment of severance

Impact Level	Significance Criteria
Imperceptible	No noticeable consequences for journey patterns
Not significant	Some minor effects on connectivity but present journey patterns are maintained.
Slight	Slight effects on connectivity but journey patterns are maintained with some hinderance to movement.
Moderate	Moderate effects on connectivity. Some moderate hinderance to movement is likely to be experienced by some populations but journey patterns maintained.

Impact Level	Significance Criteria
Significant	Significant effects on connectivity i.e. changes could dissuade/ promote populations from making particular journeys or result in requirement for alternative route to origin and destination.
Very Significant	Very significant effects on connectivity i.e. dramatic changes could dissuade/ promote populations from making particular journeys or result in requirement for alternative route to/from origin and destination.
Profound	Profound changes to connectivity. Populations are likely to be required to completely alter journey patterns.

Table 6.3 outlines definitions of terms used to describe the magnitude of (positive and negative) severance impacts. Where the assessment varies from these definitions due to the context in which the relief occurs, the reasons for the assessment are discussed in the text.

6.2.6.6 Economic Activity

Economic and employment impacts occur at both the regional and local scale and can be either positive or negative. Transport infrastructure is normally proposed with the intention of improving national competitiveness and economic/social linkages; for instance, in relation to improving access to areas, reducing journey time and improving journey time reliability for commercial goods, or for travel and commuting of tourists and the workforce. However, there can also be negative impacts in relation to loss of passing trade to businesses, car parks and those who rely on vehicular access which may be affected by transport infrastructure.

Economic impacts are assessed at community level. However, development may affect identifiable local business. In this case, impacts on individual companies are discussed where relevant. Other economic impacts could affect the wider community, for example where a number of businesses are affected, tourism, or where the retail or business environment of a city or town is impacted.

6.2.7 Human Health Impact Assessment Categories

This section describes the methodology relating to the assessment of human health effects. Health, as defined by the World Health Organization (WHO), is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The United States Environmental Protection Agency (US EPA) Human Health Risk Assessment is a useful framework for considering potential human health impacts. It includes four basic steps to inform decision making, detailed in Table 6.4

Table 6.4 Framework for assessment of potential human health impacts (adapted from US EPA Human Health Risk Assessment Framework)

Step 1 – Hazard Identification	Examines whether a stressor has the potential to cause harm to humans and/or ecological systems, and if so, under what circumstances. For example, in the case of a transport infrastructure project, one might consider an emission such as noise or air pollutants and examine its potential for harm.
Step 2 – Dose Response Assessment	Examines the numerical relationship between exposure and likely human health response/effects. For example, typically when the dose/emission increases the response/health effect increases. Some individuals may have a different dose response/ health effect than others e.g. vulnerable groups such as the old, very young or sick.

Step 3 – Exposure Assessment	Examines what is known about the frequency, timing, and levels of contact with a stressor (e.g. emission). For example, estimating human exposure to an emission/agent in the environment or estimating future exposure of an agent that has not yet been released/present in the future environment.
Step 4 – Risk Characterisation	Examines how well the data support conclusions about the nature and extent of the risk from exposure to environmental stressors. A risk characterisation conveys the risk assessor's judgement as to the nature and presence or absence of risks, along with information about how the risk was assessed, and where assumptions and uncertainties still exist. (This includes cross-referencing with the other environmental chapters of this EIAR).

6.2.7.1 Significance of Health Effects

The assessment of significance relates to the identification and assessment of potential human health effects on the community. It does not assess effects on an individual basis. It is recognised that some individuals may have a different response to effects than others, this might include potential vulnerable groups, such as the elderly, very young or the sick.

The 2002 EPA 'Guidelines on the Information to be contained in Environmental Impact Statements' states that:

“The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment.”

The significance criteria to assess human health effects are defined in Table 6.5 (as adapted from EPA, 2017). The quality of effects (positive, negative or neutral) as well as the probability, duration and timing of effects that are used to qualify the type of human health impact, are defined in Table 6.5.

Table 6.5 Criteria Used in the Assessment of Human Health Impacts (adapted from EPA, 2017)

Impact Level	Significance Criteria
Imperceptible	An effect capable of measurement but without significant human health consequences.
Not significant	An effect which causes noticeable changes in the character of the environment without affecting the community human health sensitivities.
Slight	A slight/ small effect which causes noticeable changes in the reported symptoms of the population without affecting the community human health sensitivities (morbidity or mortality).
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging community's human health baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment affecting human health (morbidity or mortality).

Impact Level	Significance Criteria
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment affecting the community's human health (morbidity or mortality).
Profound	An effect which changes a sensitive characteristic of the environment that profoundly affects the human health status of the community.

6.2.7.2 Health Based Standards

Health based standards are environmental health thresholds set for a range of environmental parameters by bodies such as the WHO and the European Union (EU). The standards are set at levels so as to ensure no adverse health effects on the most vulnerable in society. For example, air quality and noise levels are set at levels to protect the vulnerable rather than the robust (see Chapter 12 -Noise and Vibration - and Chapter 13 - Air Quality and Climate - of this EIAR for the relevant standards). These standards are set to ensure scientific analysis (i.e. modelling) is undertaken on the baseline environment which includes an analysis of the likely changes in the receiving/baseline environment as a result of the proposed development, to predict potential human health effects. This results in a level of certainty in relation to the potential effects (positive or negative) before a project is developed. This scientific analysis provides decision makers with a clear methodology outlining what information was used, data gaps and any assumptions that were made in order to provide a comprehensive assessment of impacts on human health.

Regardless of the methodology, psychosocial effects or wellbeing effects are difficult to quantify since these effects are more subjective in nature. It must also be recognised that there are uncertainties in relation to assessing impacts on individuals due to availability of health data about individuals and the difficulty in predicting effects on individuals, which could be based on a variety of assumptions. Subsequently, the existing receiving environment and relevant health-based standards assessment are relied upon to arrive at conclusions relating to likely human health effects.

6.2.7.3 Identification of Vulnerable Groups

The population baseline characteristics or the community profile is required to inform the assessment of a proposed development on human health and this informs the identification of potential vulnerable groups in the environment. Children and adolescents constitute a vulnerable group as they lack the experience and judgement displayed by adults. Studies also show that they may be more sensitive than adults to noise and air pollution and other environmental impacts.

Older people also constitute a vulnerable group, but the vulnerability of individuals can vary depending on a number of factors including level of income, education, deprivation, individual preferences and genetics. However, an assumption can be made that older populations move more slowly than their younger counterparts, particularly when moving around in traffic and public places. Elderly persons are also more vulnerable to health conditions than their younger counterparts. Ease of access to medical and community facilities become very important in maintaining health and quality of life outcomes for all cohorts. Vulnerable groups, in general, have greater sensitivity to air pollution and potential effects on the respiratory system and cardiovascular system. There are many reasons for this, including the possible presence of other medical conditions such as respiratory or cardiovascular disease. Some subtle changes in the environment have the potential to have an adverse effect that would not be experienced by a younger more resilient person. Other vulnerable groups also include mobility impaired or those with mental illness.

6.2.7.4 Hazard Identification

Human health impacts related to transport infrastructure can arise as a result of a variety of factors and interactions across environmental receptors (e.g. traffic accidents, air and noise pollution, impacts on water quality, flooding, etc.) which have the potential to cause a threat to the health of populations and the wider environment. All aspects of the environment influence human health to some degree or another.

A review from similar projects elsewhere identified that human health impacts can be put into four main hazard categories to include: physical, psychosocial, chemical and biological (summarised in Table 6.6).

Table 6.6 Human health hazard categories

Category	Main hazards identified
Physical	<ul style="list-style-type: none"> • Noise (including nuisance/disturbance, noise-induced hearing impairment, interference with speech communication, sleep disturbance, hypertension and cardiovascular disease) • Vibration (including nuisance) • Air quality (including construction dust, carbon monoxide, fine particles) • Water quality (including effects due to contaminated land) • Soils (contamination of land) • Traffic (including collisions, injuries or fatalities) • Other physical hazards, e.g. radon
Psychosocial	<ul style="list-style-type: none"> • Nuisance • Anti-social behaviour • Suicide
Chemical	<ul style="list-style-type: none"> • Heavy metals • Other contaminants
Biological	<ul style="list-style-type: none"> • Surface water and ground water (including water contamination) • Aspergillus (a fungi with potential for human health impacts) • Rodent-borne diseases, e.g. Leptospirosis

A literature review was conducted which identified recognised health effects of infrastructure construction and operation on human health. Transport can affect health outcomes both directly and indirectly. For example, direct effects can accrue as a result of air pollution or traffic accidents while indirect effects might arise as a result of the global warming potential of vehicular greenhouse gas emissions.

The Institute of Public Health's (IPH's) 2005 'Health Impacts of Transport' report presented a summary of the pathways from transport aspects to human health impacts (Plate 6.3). The main impacts can be summarised as: road traffic injuries, air pollution, noise pollution, effects on physical activity, effects on community (social networks, social capital on health) and social inclusion (effect on access and social inclusion).

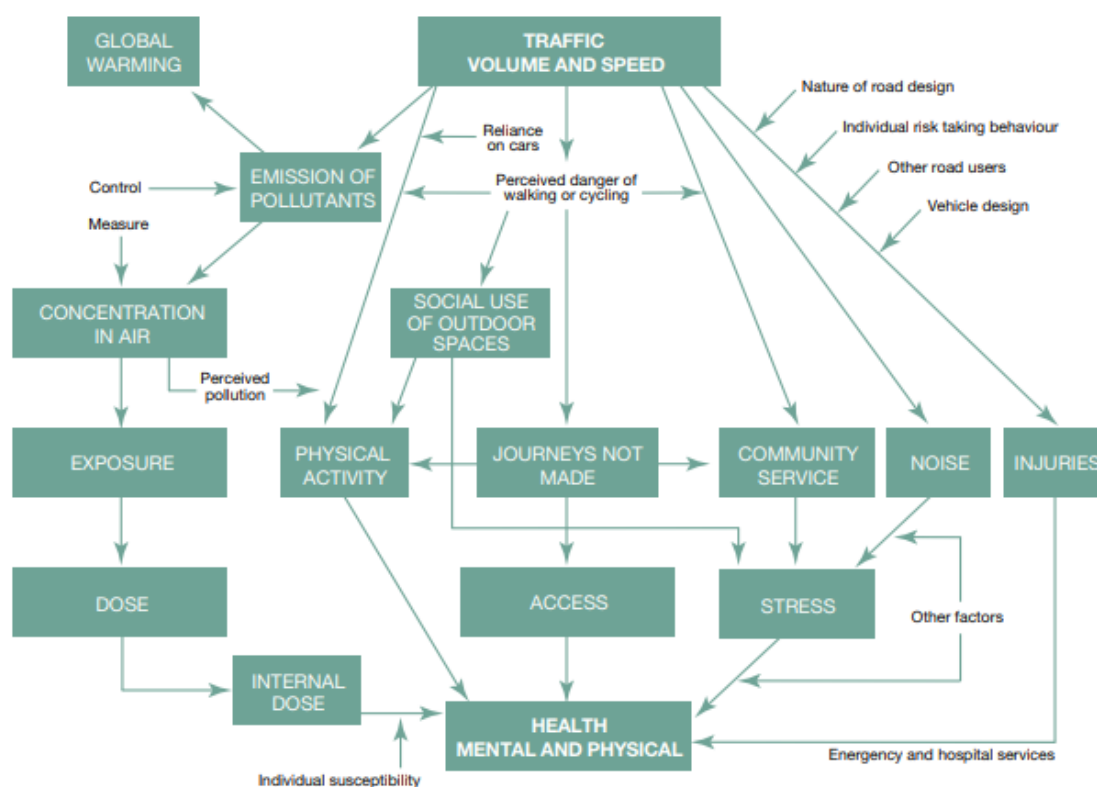


Plate 6.3 Pathways from transport policy to health outcomes. Source: IPH, 2005

6.2.7.5 Impact of Emissions to Air

Air quality is generally considered to be good in Ireland. However, traffic is a key pressure on air quality and is the main cause of air quality problems in our larger towns and cities (EPA, 2016). Vehicles emit a range of air pollutants including nitrogen oxides (NOx), particulate matter (PM10 and PM2.5), black carbon and volatile organic compounds (VOCs) particularly present in urban areas and areas with high congestion levels. Radon is a naturally occurring radioactive gas that originates from the decay of uranium in rocks and soils. It is colourless, odourless and tasteless and can only be measured using special equipment. Radon rises up through the ground to disperse in the air and only becomes a health hazard when it is trapped in buildings.

Pollutants such as those listed above may give rise to significant adverse human health effects, including cardiovascular pulmonary and mutagenic diseases (EPA, 2015).

National standards for ambient air pollutants in Ireland are generally derived from EU Council Directives. In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or 'Air Quality Standards' are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set (see Chapter 13, Table 13.1 and Appendix 13.1 Ambient Air Quality Standards of this EIAR). The 2014 Institute of Air Quality Management (IAQM) *Guidance on the Assessment of Dust from Demolition and Construction* have been used in this assessment.

6.2.7.6 Impact of Noise and Vibration Emissions

Noise

According to the WHO, noise is the second greatest environmental cause of health problems after air quality. Excessive noise can seriously harm human health, affect

mental health and people's daily activities, particularly at sensitive receptors such as residential properties, schools and workplaces, and during amenity or leisure time. Noise is measured using the standard decibel scale (SI unit = dBA; where 'A' represents a weighting which expresses the loudness of the noise in terms of human hearing).

The assessment and management of noise from the infrastructural transport sources (roads, rail, and airports) are governed by the Environmental Noise Directive and associated 2006 Environmental Noise Regulations (S.I. 140 of 2006). A detailed methodology relating to the assessment of noise and vibration impacts is set out in Chapter 12 of this EIAR - Noise and Vibration. There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. In lieu of statutory guidance, an assessment of significance has been undertaken in Chapter 12 as per *British Standard Institution (BSI) 5228-1: 2009 + A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise*. This standard sets out guidance on permissible noise levels relative to the existing noise environment. It calls for the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded at this location, indicates a significant noise impact is associated with the construction activities.

Table 6.7, which is replicated from Chapter 12, sets out the noise levels which, when exceeded, give rise to a significant adverse effect at the façades of residential receptors.

Table 6.7 Example Threshold of Potential Significant Effect at Dwellings

Assessment category and threshold value period	Threshold value, in decibels (dBA) ($L_{Aeq, T}$)		
	Category A ^A	Category B ^B	Category C ^C
Night-time (23:00 to 07:00hrs)	45	50	55
Evenings and weekends ^D	55	60	65
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75
<p><i>NOTE 1 A significant effect has been deemed to occur if the total L_{Aeq} noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level.</i></p> <p><i>NOTE 2 If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total L_{Aeq} noise level for the period increases by more than 3 dB due to construction activity.</i></p> <p><i>NOTE 3 Applied to residential receptors only.</i></p>			
<p>A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dBA) are less than these values.</p> <p>B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dBA) are the same as category A values.</p> <p>C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dBA) are higher than category A values.</p> <p>D) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.</p>			

During the assessment period - daytime, in this instance - the ambient noise level is determined through a logarithmic averaging of the measurements for each location and then rounded to the nearest 5dBA. If the construction noise exceeds the appropriate category value, then a significant effect is deemed to occur.

Table 6.8 presents the Design Manual Roads Bridges (2011) likely impacts associated with change in traffic noise level. The corresponding significance of impact presented in EPA guidance (EPA, 2017) is presented alongside this for consistency in wording and terminology.

Table 6.8 Likely Impact Associated with Change in Traffic Noise Level

Change in Sound Level DMRB, 2011 (dBA LA10)	Subjective Reaction DMRB, 2011	Impact Guidelines for Noise Impact Assessment Significance (Institute of Acoustics)	Impact Guidelines on the Information to be contained in EIAR (EPA)
0	No change	None	Imperceptible
0.1 – 2.9	Barely perceptible	Minor	Not Significant
3.0 – 4.9	Noticeable	Moderate	Slight, Moderate
5.0 – 9.9	Up to a doubling or halving of loudness	Substantial	Significant
10.0 or more	More than a doubling or halving of loudness	Major	Very Significant

The criteria in Table 6.8 reflect the key benchmarks that relate to human perception of sound. A change of 3dBA is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10dBA change in noise represents a doubling/halving of the noise level. The difference between the minimum perceptible change and the doubling/halving of the noise level is split to provide greater definition to the assessment of changes in noise level. What determines the noise level significance is the baseline noise environment and the amount of the 'exceedance'. For example, if the change from the current baseline is 3dBA or less, even if the absolute levels are above 55dBA the change is likely to be imperceptible.

It is assumed that average noise levels in a building with windows open will be at least an estimated 15dBA less than outside. Average sound inside a building with the windows closed can be greater than 35dBA, depending on the building fabric. Accordingly, the attenuation can vary depending on the size of windows, building type and other factors.

The potential health impacts due to noise include the following:

- Noise-induced hearing impairment;
- Interference with speech communication;
- Disturbance at sensitive receptors;
- Sleep disturbance; and
- Hypertension and cardiovascular disease.

The EPA (2016) states that “noise can disturb sleep, cause cardiovascular and psychophysiological effects, reduce performance and provoke annoyance responses and changes in social behaviour”. The EPA goes on to state that:

“a study commissioned by the European Commission on the health implications of road, railway and aircraft noise in the European Union (RIVM, 2014) found that exposure to noise in Europe contributes to:

- *about 910,000 additional prevalent cases of hypertension;*

- *43,000 hospital admissions per year;*
- *at least 10,000 premature deaths per year related to coronary heart disease and stroke."*

Adverse effects are more likely at higher noise levels - many effects are only demonstrated with ambient noise in excess of 70dBA. Whilst noise levels are often quoted with respect to potential effects on health and they are used in the significance assessment, it should be noted that the differences in significance between the different levels are relative rather than absolute.

Vibration

People can generally perceive vibration at levels which are substantially lower than those required to cause building damage. The human body is most sensitive to vibration in the vertical direction. The assessment of vibration-related effects on human health is informed by BSI Standards: *BS 6472-1:2008: Guide to evaluation of human exposure to vibration in buildings - Vibration sources other than blasting*. This standard does not give guidance on the limit of perceptibility, but it is generally accepted that vibration becomes perceptible at levels of approximately 0.15 to 0.3mms⁻¹.

Vibration has the potential to have health effects when perceptible. Potential adverse effects include, for example, sleep disturbance and nuisance. Another issue is sometimes described is infrasound - sound at frequencies so low that it is not audible to the human ear but, at high levels, may be perceived as vibration. Adverse effects due to vibration/infrasound, only occur when levels are high and perceptible to human beings - for example, vibration generated by an underground train.

6.2.7.7 Impact of Emissions to Hydrology and Hydrogeology

Emissions standards and pathways that affect human health relating to hydrology and hydrogeology include water quality and flood risk. From a human health perspective these pathways are discussed below.

Water Quality

Construction and operational activities pose a risk to watercourses, particularly contaminated surface water run-off from construction activities. Impacts to sources of drinking water are also sensitive and should be considered as part a human health issue in this context.

There are no bathing waters located within the development boundary. There are beaches at White strand (Billeragh Beach, Teernea Bay Beach) located to the north of the Dursey peninsula and Loughane beach located east of the proposed development (off the R572).

Flood Risk

Hydraulic structures such as bridges, culverts, channel diversions and outfalls can, if not appropriately designed, impact negatively on upstream water levels and downstream flows.

6.2.7.8 Impacts of Emissions to Soil

Emissions to the soil as a result of the construction/operation of development have the potential to adversely affect human health. It is also possible that the construction/operation of development will uncover substrate contaminated as a result of the previous land uses (e.g. waste disposal, industrial activities). Depending on the

nature of the contaminants in question, if not appropriately treated, such unearthed materials may have the potential to adversely affect human health.

6.2.7.9 Psychosocial Impacts

Consideration of likely negative psychosocial hazards relating to new developments includes nuisance, anti-social behaviour and suicide. On the contrary, there could also be positive psychosocial impacts on the community due to improved connectivity, particularly for pedestrians and cyclists and as a result of regeneration associated with land use changes and increased economic prosperity.

Demolition and property acquisition can also have psychosocial impacts on both the occupant themselves and also at the community level, due to the impact on community ties and amenity of residents, local economy, etc.

6.3 Description of Receiving Environment

6.3.1 Introduction

The proposed development will see the replacement of the existing Dursey Island Cable Car that comprises, one cable car that can convey 6 persons at a time to/from Dursey Island, the crossing takes approximately 6 to 7.5 minutes in one direction. The proposed cableway will include two new cable cars, each with a capacity of approximately 15 persons and will be capable of making the crossing in approximately one minute, however, it is not expected that the cable car will operate at this increased speed but that journey times would be maintained similar to the current time (4 – 6 minutes) in order to maintain the journey amenity and unique 'experience' of those using the cable car. According to ticket sales in 2018, the current cable car transports approximately 22,000 persons to Dursey Island, excluding islanders (who do not have to pay for tickets). The proposed development will be capable of transporting between 200-300 passenger per hour in each direction.

The cableway infrastructure will be comprised of a steel ropeway, a pair of cable cars, two pylons, and two stations – one each on the island and mainland – at which passengers will embark/disembark. The end-to-end length of the proposed cableway will be approximately 375m. The proposed development will also involve the construction of a new visitor centre, café, gift shop, welfare facilities and car park with approximately 100 spaces on the mainland side of the site. The existing approximately 10 no. car spaces on the island will be retained. It is also proposed to carry out improvement works on the R572, including the construction of 10 no. passing bays, 1 no. visibility splay and completion of a number of localised improvements to improve forward visibility.

The site of the proposed development is, for the most part, the same as that of the existing Dursey Island Cable Car, which connects the western end of the Beara Peninsula in west Co. Cork with the easternmost tip of Dursey Island via a narrow tidal channel, the Dursey Sound. The alignment of the proposed cableway infrastructure itself will be offset 14 m to the north-east of the existing structure. This slight relocation will ensure the existing cableway will be maintained in operation for the duration of the construction works, insofar as is possible to ensure safe access.

The Dursey Island Cable Car is primarily accessed via the R572 from the direction of Castletownbere. It can also be accessed from the direction of Kenmare via the N71, R571, R575 and R572 (in turn). Together these roads form an effective loop of the western end of the peninsula. This loop forms part of the Wild Atlantic Way (WAW) and sections of it are on the Beara-Breifne Way walking and cycling trail.

The design and the proposed construction methodology and programme is detailed in Chapter 4 of this EIAR – Description of the Proposed Development and is not repeated here beyond where it is strictly relevant.

An accurate assessment of the receiving environment is necessary to predict the likely significance of the impacts of the proposed development. The following paragraphs present an overview of the context, character, significance and sensitivity of the study area, as it relates to population and human health.

Context

Dursey Island is one of the 7 inhabited islands that lie off the west coast of Co. Cork. It is situated at the western tip of the Beara Peninsula. The island itself is 6.5km long and 1.5 km wide. It is separated from the mainland by a narrow stretch of water called the Dursey Sound, which has a very strong tidal race, and a reef of rocks in the centre of the channel, which is submerged at high tide. Dursey is the only inhabited west Cork island to not have a dedicated ferry route.

The mainland portion of the proposed development is located on the south coast of Ireland on the Beara Peninsula. The cableway infrastructure is situated in the townland of Ballaghboy. Castletownbere is the nearest major town, at approx. 22km from the site of the proposed development. The smaller village of Allihies is approx. 12km away. Cork City is located approx. 147km away.

Character

The general character of the area is rural, remote, isolated, open, treeless and rugged. The entire study area is dominated by farmland – both private land and shared upland commonage. The study area is situated in the Kilnamanagh ED, which comprises a 37km² area of the western end of the Beara Peninsula and Dursey Island. According to the national census, the Kilnamanagh ED had a population of approximately 342 persons (i.e. approximately 9 persons per km²) in 2016. According to census data, there are approximately 4 inhabitants living on Dursey Island, year round. At the time of writing, there are two permanent residents on the island, both of whom are male. According to the *West Cork Islands Integrated Development Strategy* (Cork County Development Board & RPS, 2010) and the *West Cork Municipal District LAP 2017* (CCC, 2017), the island is at substantial risk of depopulation over the coming years.

The island, historically, was made up of 3 distinct clusters of development - Ballynacallagh, Kilmichael, and Tillickafinna, respectively, from east to west. Many of the buildings in these areas are either derelict or temporarily occupied holiday homes. There is no major development outside of these areas. According to the *West Cork Islands Integrated Development Strategy*, this settlement pattern is unique among the West Cork islands, where dwellings tend to be more dispersed. There are no shops, pubs or restaurants on the island, with the exception of a mobile café, which is open at the car park adjacent to the cableway during the summer months.

The mainland side of the study area is characterised by scattered detached dwellings located primarily along local roads radiating from the R572.

The main land use types in the study area are transport infrastructure (road and cableway), agricultural land uses, and tourism, recreation and amenity uses. The road network is generally quite poor, with predominantly narrow winding roads with poor forward visibility. Agriculture is largely pastoral, comprising sheep and dry stock. The area is a popular tourist destination, particularly during summer months. Activities include sight-seeing, walking/hiking and bird and whale/dolphin watching. The study

area contains three overlapping national waymarked walking routes – the Beara-Breifne Way, the Beara Way and the Garinish Loop – all of which are in the immediate vicinity of the site of the proposed development.

Significance

The Dursey Island Cable Car is the only cableway in Ireland. Additionally, it is one of the only aerial ropeways in Europe to traverse the open ocean. As such, the site is a rare curiosity. The importance of the island as a tourist attraction is reflected in its designation as a 'Signature Discovery Point' of Fáilte Ireland's WAW experience brand. The cableway is one of the key visitor attractions of West Cork and contributes significantly to the local economy, attracting visitors from home and abroad.

The study area is of historical and cultural heritage significance. In 1602, the famed O'Sullivan Beare Gaelic chieftain – the last bastion of Irish resistance in the Nine Years' War – was defeated by English forces at the Dursey Massacre, after which Donal Cam O'Sullivan Beare, Lord of Beara and Bantry, set off northwards with his remaining followers in what has become the most well-known march in Irish history. The aforementioned Beara-Breifne Way (Plate 6.5) commemorates this historic march. The area has a very high density of archaeological sites, particularly megalithic monuments. Chapter 14 of this EIAR details the archaeology and cultural heritage of the study area.

The study area is also of significant ecological value, particularly for protected seabird species and marine habitats and species. This is reflected in the designation of two no. Natura 2000 sites in/immediately adjacent to the study area – the Kenmare River SAC and the Beara Peninsula SPA. The entirety of Dursey Island is also a proposed Natural Heritage Area (pNHA). Birdwatching and whale and dolphin watching are popular recreational activities in the area, particularly on Dursey Island. Chapter 7 of this EIAR – Biodiversity – details the natural heritage assets of the study area.

The *Cork County Draft Landscape Strategy* characterises the landscape in the study area as 'Rugged Ridge Peninsulas', a landscape type which is considered to be of 'Very High' sensitivity, particularly with respect to new developments, including tourist facilities. Chapter 11 of this EIAR details the significance of the study area in terms of landscape and visual amenity.

Sensitivity

As a result of its remote, rural and sparsely populated nature, any new developments in the study area would be noticeable, and the area is considered to be more sensitive to change than other more developed locations. In the context of this assessment, the most sensitive receptors to change in the study area are its inhabitants. Other sensitive receptors are road users of the R572, walkers/hikers, cyclists and tourists. The appeal of the study area (particularly the island) as a place to live and work is likely to be sensitive to significant regional developments.

6.3.2 Planning Policy Overview

The policy review in Chapter 2 of this EIAR – Need for the Proposed Development – has shown that the proposed development supports and aligns with national, regional and local planning policy. This section provides an overview of some of the key planning and land use considerations that are likely to influence existing and future land use and social considerations in the study area. For a more in-depth analysis of these policies, refer to Chapter 2.

'Project Ireland 2040'

Project Ireland 2040 is the overarching policy and planning framework for the social, economic and cultural development of the country. It includes the National Development Plan (a detailed capital investment plan for the period 2018 to 2027) and the 20-year National Planning Framework 2040. It addresses growing our regions, cities, towns and villages and rural fabric; building more accessible urban centres of scale; and better outcomes for communities and the environment through more effective and coordinated planning, investment and delivery. Objectives of this policy document of relevance to the proposed development are outlined in Chapter 2 of this EIAR.

Rural Development Plan 2014 – 2020

The Rural Development Plan 2014 – 2020 of the Department of Agriculture, Food and the Marine aims to (i) promote the competitiveness of the Irish agri-food sector, (ii) bring about more sustainable management of natural resources, and (iii) ensure more balanced development of rural areas. It sets out the need to promote social inclusion, poverty reduction and economic growth in rural areas.

The Action Plan for Rural Development sets out the objective to “*Support sustainable jobs through targeted rural tourism initiatives, including through the support of key marketing initiatives such as Ireland’s Ancient East and the Wild Atlantic Way*”.

People, Place and Policy Growing Tourism to 2025

This policy document sets out the Government’s long-term vision for the Irish tourism sector. Its overarching goals are to increase (i) revenue, (ii) employment and (iii) visitor numbers associated with tourism in Ireland. It aims to do so by marketing Ireland in accordance with Fáilte Ireland’s experience brand framework (which includes the WAW) and by targeting markets with the greatest growth potential. The Cork Tourism Strategy 2016, ‘Growing Tourism in Cork – A Collective Strategy’ similarly aims to promote growth of its tourism sector by aligning the attractions of the county with the national WAW brand, and by targeting promising market segments. At the same time, it seeks to differentiate the county as ‘Ireland’s Maritime Paradise’.

Draft Southern Regional, Spatial and Economic Strategy 2019 – 2031

The draft RSES provides a 12-year strategic framework for planning and economic development of the Southern Region in line with Project Ireland 2040. Objectives of this policy document that are of relevance to the proposed development include enhancement and promotion of tourism, the environment, and to seek investment in island and coastal communities. Specific policy objectives are outlined in Chapter 2 of this EIAR.

Cork County Development Plan 2014 – 2020

The Development Plan is Cork County’s principal planning and development policy document. The objectives of the Plan include the promotion of a stronger, sustainable tourism and leisure economy, protecting the natural, cultural and built heritage of the county, including its islands, supporting the development of infrastructure and services, and economic development on islands, and prioritising developments which contribute to the retention of permanent island inhabitants. Specific policy objectives are outlined in Chapter 2 of this EIAR.

West Cork Municipal District Local Area Plan 2017 - 2020

The West Cork LAP sets out the detailed planning and development policy for the West Cork Municipal District and is in line with the national and regional policies. It sets out

general planning and development objectives for all of the West Cork Islands as well as some specific objectives for Dursey Island. Both sets of objectives (as they relate to the proposed development) are outlined in Chapter 2 of this EIAR.

West Cork Islands Integrated Development Strategy 2010

In 2010, the West Cork Islands Interagency Group published a 10+ year strategy for the physical, economic, social and cultural development of the seven inhabited West Cork Islands – Dursey among them. The overarching aim for the island expressed in this Strategy is “To conserve the landscape and cultural quality of Dursey, while recognising the needs of its occupants and improving service provision to the island” (p. 2). A number of general objectives for all seven islands have been set down. Those of relevance are outlined in Chapter 2 of this EIAR.

With respect to the Dursey Island Cableway, the Strategy states:

“The cable car to Dursey Island represents a significant piece of infrastructure that is of strategic importance in terms of tourism in the South West of Ireland. The cable car, which was replaced in 2009, is Ireland’s only such facility. The cable car trip in itself is a unique experience in Ireland and its tourist potential should be maximised. It could attract additional visitors to Dursey, Beara and West Cork, with clear spin-off benefits for the West Cork Islands. A review of operating hours, pricing and promotion would support this objective.”

6.3.3 Land Use and Social Considerations

The predominant land uses in the study area include transport infrastructure, agricultural land and associated dwellings or one-off housing, amenity, recreation and tourism uses. Transport infrastructure in the area comprises the road network (regional roads, R572 and R575, and local unnamed roads) and the cableway infrastructure itself (for further details on transport infrastructure see Section 6.3.8).

The area is popular for tourism and recreation. The WAW traverses the study area in a number of locations, and Dursey Island itself is a Signature Discovery Point on this route. The cableway is the principal visitor attraction in the area. The area also features a number of popular national waymarked walking routes, including the Beara-Breifne Way, Beara Way and Garinish Loop. There are plenty of options for sight-seeing in the study area, including the many archaeological and architectural sites of interest; on Dursey for instance, there are the Signal Tower and St. Mary’s Abbey, while on the mainland there are Loughane More Ring Fort and the wedge tomb at Killough, among others. Dursey Island itself is popular for birdwatching and whale and dolphin watching.

There is a pedestrian route (See Plate 6.4 (1)) that leads into/out of the site of the proposed development on the mainland side of the site - a stile leading onto the Beara-Breifne Way/Garnish Loop/Ring of Beara walking route (Plate 6.5; on north-western edge of site) adjacent to the existing parking areas. There is also a gate leading onto private agricultural land immediately adjacent to this walking trail (Plate 6.4 (2)). The R572 itself forms part of the Beara Way cycling route.



Plate 6.4 Image depicting (1) entrance to Beara-Breifne Way/Ring of Beara walking route and (2) gateway to private farmland on the site of the proposed development. Source: Google Maps.



Plate 6.5 Location of a section of the Beara Way on Dursey Island and the mainland. Source: IrishTrails.ie

The study area is dominated by farmland, and agriculture on both the mainland and island is predominantly pastoral, with both sheep and dry stock cattle. Thin soils in the study area are suboptimal for tillage or arable farming. On Dursey Island, agricultural activity is concentrated on the less exposed, low lying southern flank of the land mass, while the exposed upland northern flank is dominated by open heathland. Despite the importance of nearby Castletownbere as a fishing port, the exposed nature of the western extremity of the Beara Peninsula and of Dursey Island has limited fishing activity. As stated in the West Cork Islands Integrated Development Strategy:

“a small level of [fisheries] activity is maintained [on Dursey] but opportunities have declined significantly since the closure of the salmon fishery. Neither the pier on the island or mainland are suitable for providing sheltered berthage for vessels. The viability of the fishery here is questionable and future entrants are unlikely at

the current time given the age profile of the island's residents. There may be tourist potential for rock fishing from the island however".

6.3.4 Population

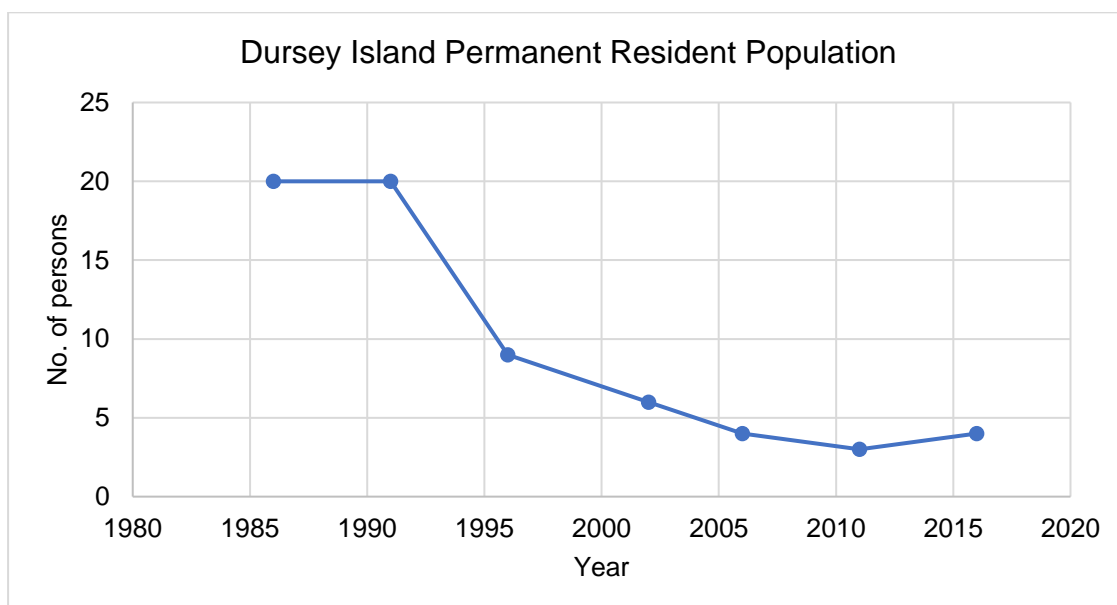


Plate 6.6 Permanent resident population of Dursey Island between 1985 and 2016 census years (Source: West Cork Municipal District LAP)

According to the most recent CSO national census, in 2016 the ED of Kilnamanagh had a population of 342 persons (174 males, 168 females). Of these, 4 persons were residents of Dursey Island (1 male, 3 female). However, reports from CCC representatives indicate that the permanent island population at present has reduced to just two persons in the interim, both of whom are male. The population of the ED declined by approximately 10% between the 2011 and 2016 censuses. The overall population trend for Dursey Island is one of continuing decline (Plate 6.6). According to the *West Cork Island Integrated Development Strategy*, the island is threatened with permanent depopulation. However, as stated in the *West Cork Municipal District LAP*, the population of the island increases considerably during the summer months, when holiday makers take up seasonal residence.

6.3.4.1 Age Profile

Plate 6.7 illustrates the age profile of the ED. The smallest groups are:

- infants (13 no. individuals aged 0 - 4),
- early-20s (13 no. individuals aged 20 - 24) and
- the very elderly (10 no. individuals aged 75 – 79; 12 no. individuals aged 80 – 84; 3 no. individuals aged over 85).

The majority of Kilnamanagh residents are in the five no. age groups between ages 45 and 69. The average age in the ED in 2016 was 44.5 years – an increase from 2011's average of 42.1. The national average age in Ireland in 2016 was 37.4.

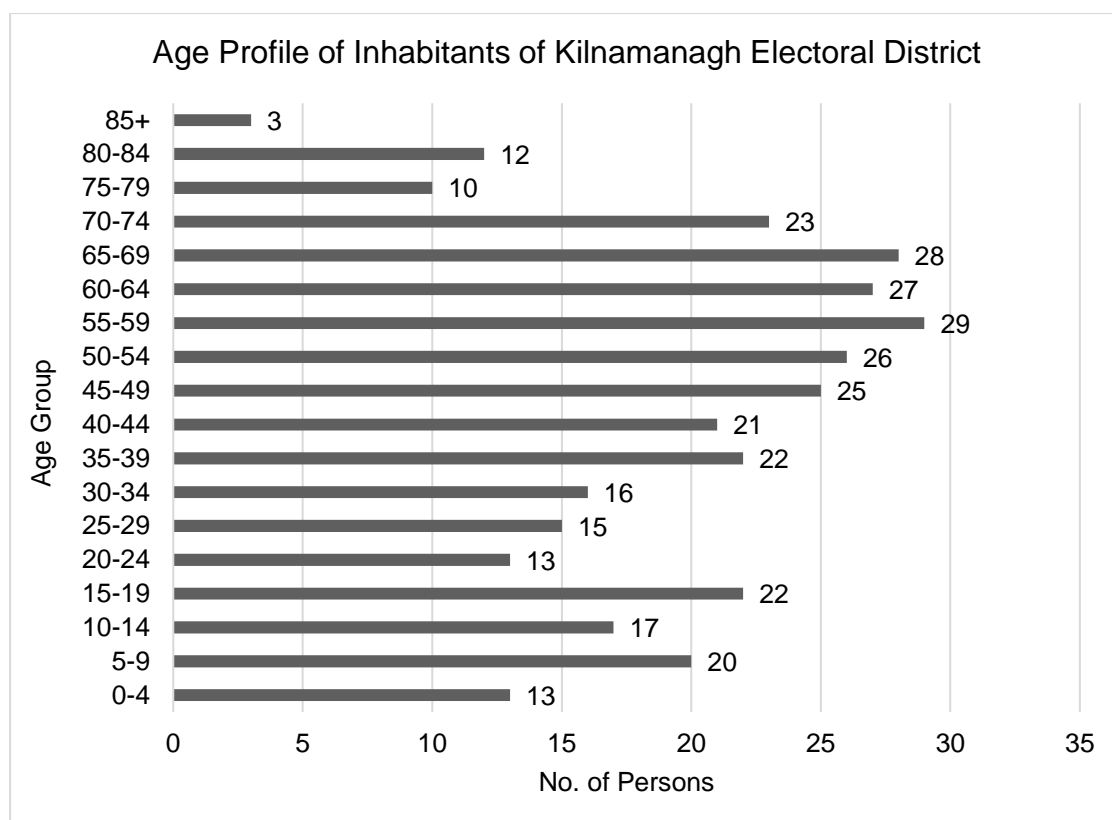


Plate 6.7 Persons per age group in Kilnamanagh Electoral District in 2016 (CSO, 2017)

The age dependency ratio is the ratio of those who are *not* typically in the labour force ('dependents' or those aged 0 - 14 and 65+) and those who *are* typically in the labour force (15 - 64). It is an indicator of the pressure on the productive population to support services for younger and older age cohorts. The age dependency ratio in the Kilnamanagh ED in 2016 was 58.3% – an increase from the 2011 figure of 51.6%, meaning the proportion of dependents relative to the working age population has increased in the study area in recent years. The proportion of dependents in Kilnamanagh was greater than the 2016 national average (52.7%) and that of the County (56%). However, it was lower than that of a number of other EDs in the vicinity, including that of Bere Island (74%) and Glanmore (81.3%).

6.3.5 Housing and Households

According to the national census, the total housing stock in Kilnamanagh ED in 2016 was 247 units. Of these:

- 52 were vacant (not including holiday homes),
- 59 were unoccupied holiday homes, and
- 136 were occupied (with one of these temporarily vacant) (Plate 6.8).

It is evident that a high proportion of housing stock in the ED are holiday homes. These data support the statement of the *West Cork Municipal District Local Area Plan* that the population of the study area increases substantially seasonally (i.e. during the summer months) due to the presence of holidaymakers.

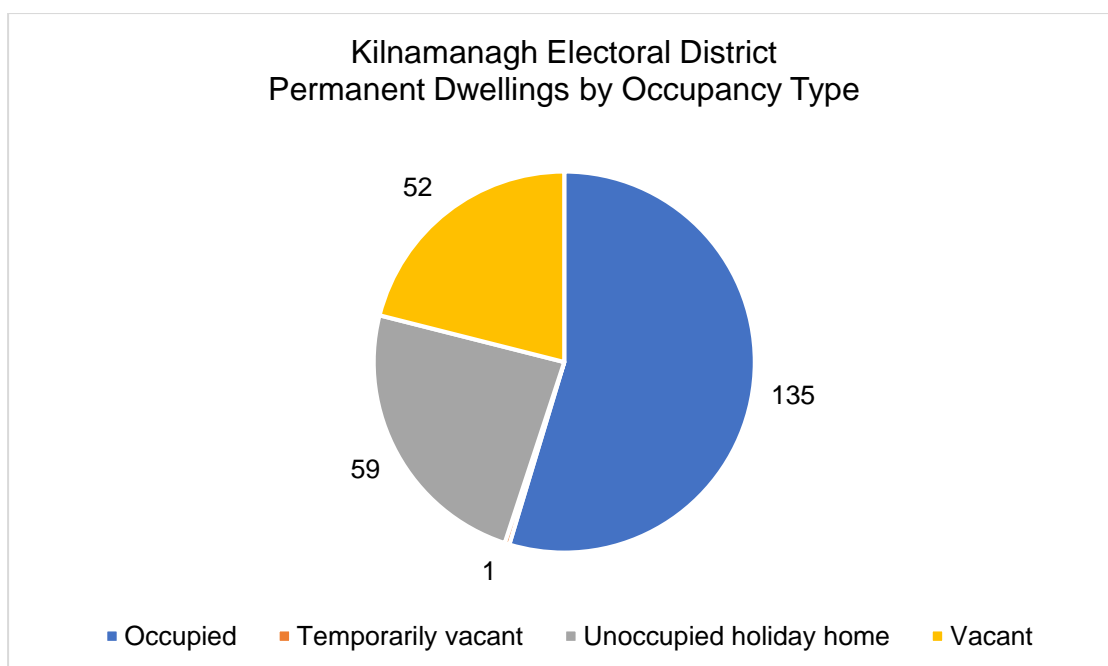


Plate 6.8 Permanent dwellings by occupancy type in Kilnarnagh ED in 2016 (CSO, 2017)

According to the national census, in 2016 there were 137 households in the ED (where 'households' refers to a usually inhabited dwelling and its inhabitants). The vast majority of households (128) were inhabiting a built house. Five were inhabiting a caravan/mobile home. Four households (7 persons) did not respond to this census question. Most households contained more than one person 61% (84 households). Of these, most were married couples with children (24% of total households (33 households)). Married couples without children were the next largest group (23 households; 17% of total households). The remainder of group households (28 households; 20% of total households) were of a variety of types, including cohabiting couples with and without children, single parent households, and non-familial households. Households with one person only were well represented (53 households; 39% of total households). According to the 2016 Census, there are also three 'communal establishments' in the ED, with a total of 8 persons in such living arrangements. For an overview of these data, see Plate 6.9.

In 2016, the vast majority of permanent residences in Kilnarnagh were owner occupied. Of these, the majority were owned without a mortgage (78 households; 59% of total households). Thirty-six households (27%) were owned with a mortgage. Six households were rented (5%). Six households were occupied without rent or ownership (5%). A further six census respondents declined to answer this question.

As is evident from these data, rented 'house share' type households are very uncommon in the study area. Most permanent residences are occupied by families or individual persons who own their homes.

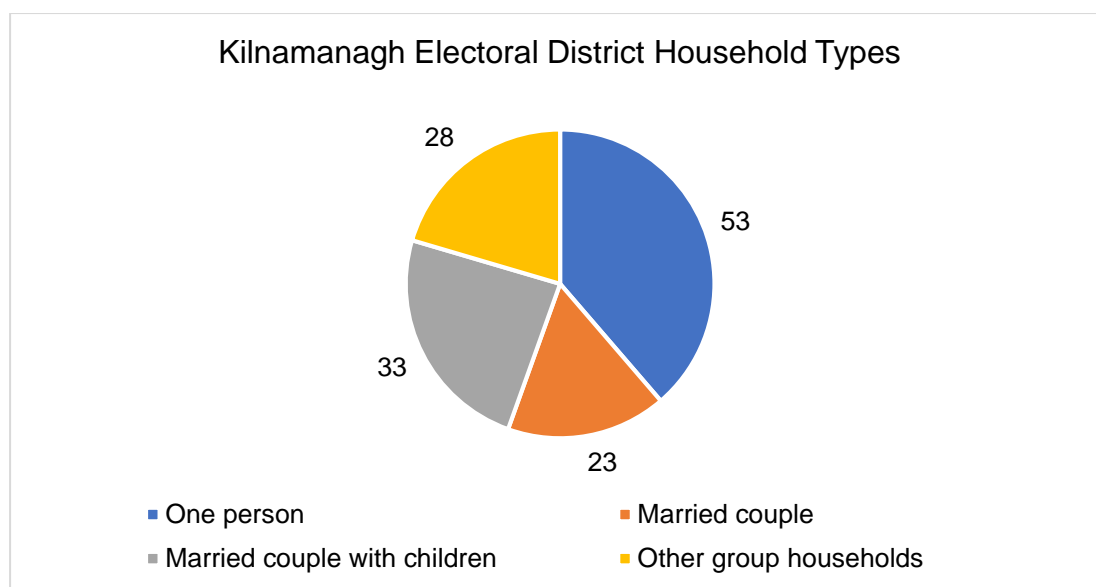


Plate 6.9 Household types in the Kilnarnagh ED in 2016 (CSO, 2017).

6.3.6 Education

In 2016, 25 persons in the Kilnarnagh ED were still in school/college. A further 12 persons indicated that they had not yet completed their respective educations (although they were not in formal education at the time). (CSO, 2017).

According to census 2016, Kilnarnagh ED was home to 255 persons aged 15 years and over in 2016. The highest level of education attained for persons in this group is presented in Plate 6.10. At least 18% had attained primary school education only. A further 30% approximately went on to complete some form of secondary level education (i.e. Leaving Certification and/or Junior Certificate). Approximately 18% went on to complete a technical/vocational course, advanced/higher certificate or apprenticeship. Approximately 16% attained an ordinary or Honours Bachelor' degree. Approximately 5% went on to complete Master' studies. One individual reported completing a Doctoral/Post-doctoral degree programme. 24 persons or approximately 9% declined to respond to this aspect of the census.

The census data reveals that males in the Kilnarnagh ED have been more likely to leave formal education early i.e. at primary or lower secondary levels than their female counterparts. Females have been more likely to complete studies for vocational/technical courses, Higher Certificate, Honours Bachelor and postgraduate courses/degrees. While males in the study area have been more likely than females to complete studies for Advanced Certificates, apprenticeships or ordinary Bachelor' degrees (CSO, 2017).

Reflecting the rural, agricultural nature of the region, the most common stated field of study among this group was 'Agriculture and Veterinary' (20 persons; approx. 8% of those aged ≤15), followed by 'Engineering, Manufacturing and Construction' (18 persons; approx. 7% of those aged ≤15), 'Health and Welfare' (17 persons; approx. 6.5% of those aged ≤15), 'Social Sciences, Business and Law' (17 persons; approx. 6.5% of those aged ≤15) and 'Education and Teacher Training' (16 persons; approx. 6% of those aged ≤15) (CSO, 2017).

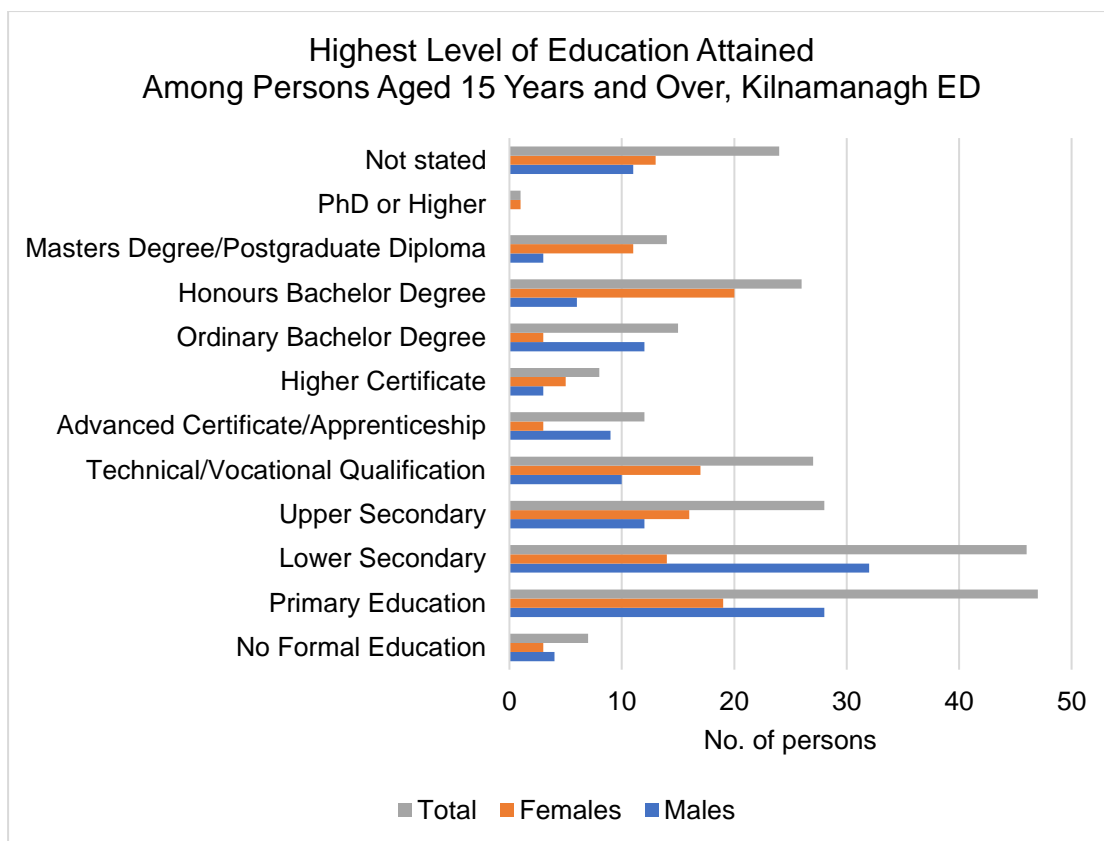


Plate 6.10 Education level attained among persons aged ≥15 in Kilnamanagh ED in 2016 (CSO, 2017)

6.3.7 Community Infrastructure

Community infrastructure can include a range of physical, social and economic infrastructure. It can comprise educational, religious facilities as well as other community facilities such as medical centres, youth clubs and sports centres. It can also include public parks or amenity areas such as walking trails.

There is no school, medical facility or place of worship in the study area. Lehanmore Community Centre (run by Lehanmore Community Co-Operative Society Ltd.) is immediately adjacent to the R572 in the townland of Loughane More (and within the study area) and serves the communities of Cahermore, Lehanmore and Garinish. It provides facilities for community events, camps, festivals and classes. The Community Centre also contains the Cable Car Café, a bar, and shop which stocks gifts, beach, and fishing equipment, and campervan parking facilities (all of which are open seasonally).

As already stated, the study area contains three overlapping national waymarked walking routes – the Beara-Breifne Way, Beara Way and Garinish Loop – all of which are in the immediate vicinity of the proposed development.

Public toilets are available on the mainland at the cableway line station for visitors of the site. There are no public toilets or any other community facilities on Dursey Island.

The nearest Garda Station and pharmacy are located in Castletownbere. The nearest major hospital is Bantry General Hospital, located approximately 66 km from the study area. Castletownbere also has a Community Hospital which serves the entire Beara

Peninsula including Bere Island and Dursey Island and provides long stay, respite, community support and palliative care.

According to the West Cork Municipal District LAP 2017, “*Durseley has an extremely limited and restricted level of social and community facilities. Such facilities need to be expanded and the needs of islanders met if the island is to retain a permanent population and expand this to a level that creates an environment to support further improvements over time*”.

Outside the Study Area

There are other facilities outside of the study area but within the Kilnamanagh ED. These facilities are outlined in Table 6.9.

Table 6.9 Community facilities outside the study area but within the Kilnamanagh ED

Facility and Location (Townland)	Distance from Site of Proposed Development
Cahermore National School, Killough East	1km
St. Michael's Catholic Church, Killough East	1.8km
Dzogchen Beara Buddhist Meditation Centre, Garranes	7.8km

6.3.8 Transport Infrastructure

Transport infrastructure are also considered important community facilities. The R572 and R575 regional roads serve the mainland section of the study area. A number of (largely unnamed) local roads branch off these regional roads, leading to private dwellings and farms. On Dursey Island, an unnamed public road runs along almost the full length of the island, linking inhabited areas on the southern flank of the island.

Traffic surveys conducted on the R572 (the approach road to the mainland-side site of the proposed development) have found that forward visibility is very limited on the road due to its winding nature, and the road itself is quite narrow, with insufficient passing space to support the volumes of traffic currently using the road. Local residents have complained about high volumes of traffic on the road as a result of visitors travelling to the existing cable car site. Additionally, site visitors are also known to park opportunistically along the R572 during busy periods when the visitor car park is full.

Public Transport

There are no public transport services operating in the study area. However, there are four public Bus Éireann routes serving the wider Beara region – the 270, 252, 236 and 282. Of these routes, the 282 and 236 come closest to the study area, with a bus stop located at the square in Castletownbere, opposite the Top petrol station. There is no rail network in the study area. The nearest train station is Rathmore (approx. 116km away). A number of private taxi services operate in the vicinity of the study area including Shanahan's Taxi, Beara Cabs and AD Hackney Service. There are also a number of private bus/coach operators in the vicinity. Harrington's Bus operates between Ardgroom and Cork city (via Castletownbere), with one service in each direction per day (excl. Thursdays). O' Donoghue's Bus also operates between Castletownbere and Cork city. There are no public transport services operating on Dursey Island, although there is at least one private bus service (Thomas Hartnett Coach Hire) in operation at certain times of the year on the island.

Transport to Work, School or College

Census data indicate that the principal means of transportation in the Kilnamanagh ED is the private car. According to the 2016 census, 106 of 132 households surveyed owned one or more car(s). Among those who worked/attended school or college outside of the home, car/van was also the primary means of transportation to/from work/school/college (101/175 persons; 58%). Bus/minibus/coach was the next most important means of transport for this group (41/175 person; 23%). Approx. 7% of this group (13 persons) identified walking as their principal means of transportation. Just one individual in the study area reported travelling to/from work/school/college by bicycle. Another reported travelling by motorcycle/scooter. Plate 6.11 presents a summary of this information (CSO, 2017).

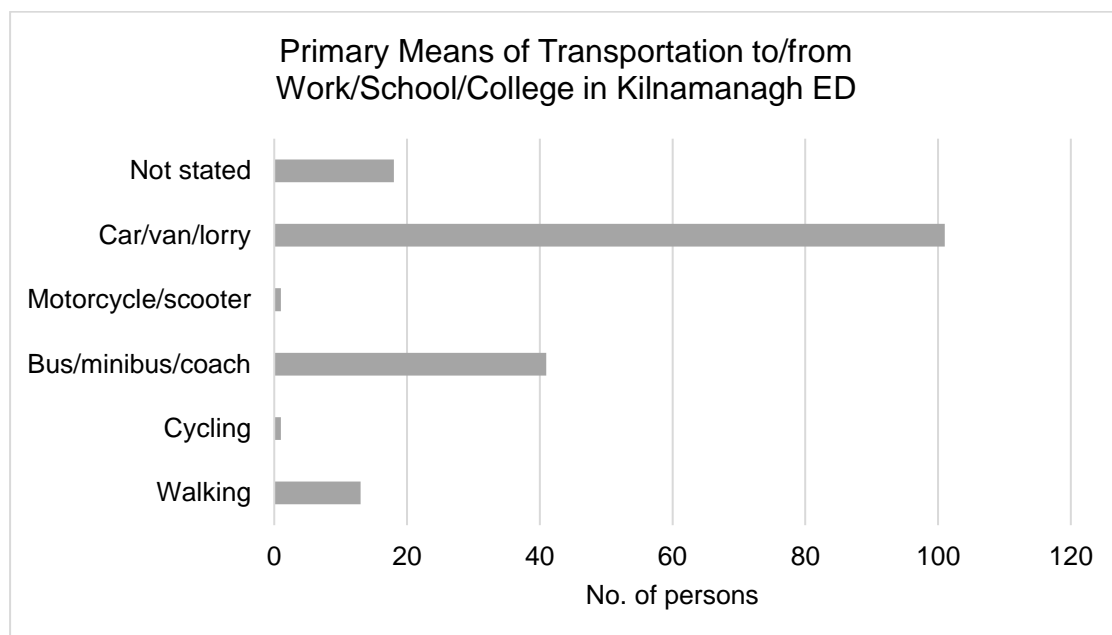


Plate 6.11 Primary means of transportation to and from work/school/college among residents of the Kilnamanagh ED who worked/were in education primarily outside of the home in 2016 (CSO, 2017).

In 2016, the greatest proportion of journeys to/from work/college/school (by all means of transportation) took somewhere between 15 and 30 minutes. Few people had a commute of one hour or more (Plate 6.12).

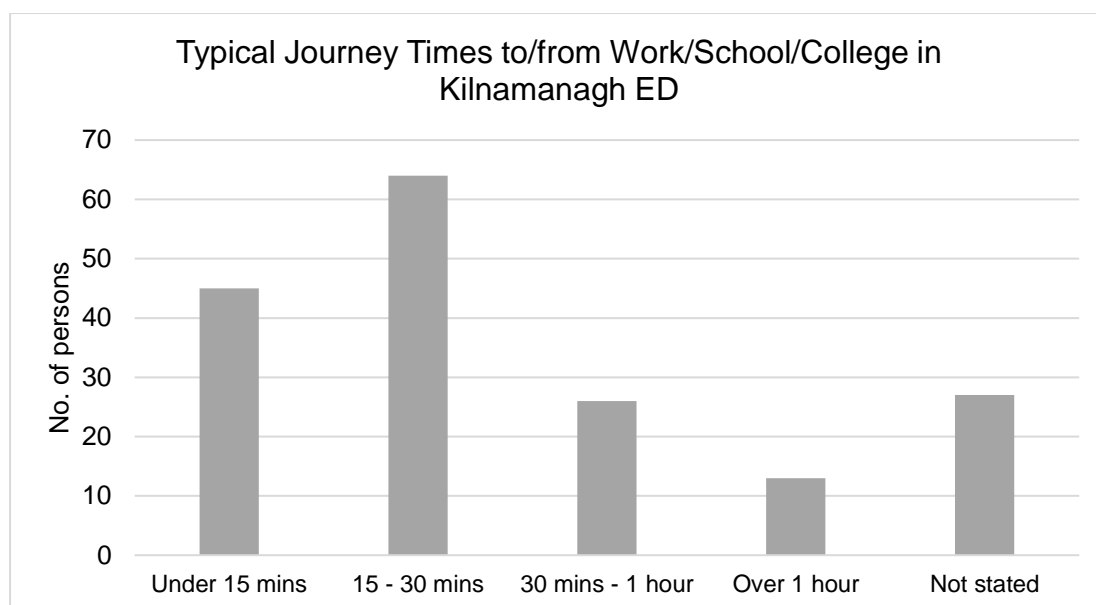


Plate 6.12 Typical journey times (for all means of transportation) to/from work/school/college in Kilnamanagh ED in 2016 (CSO, 2017).

Dursey Island Cable Car

The Dursey Island Cable Car (operated by CCC) is an essential means of transportation for residents of the island and for farmers who use land on the island. Up until 2012, the cableway was used to transport livestock to-and-from the island. The cableway is still used by islanders and island farmers for the transportation of goods required for home/agricultural use. According to the *West Cork Islands Integrated Development Strategy 2010*, unlike ferries to the other inhabited West Cork Islands, the Dursey Island Cable Car is not state-subsidised. However, there is an informal arrangement in place whereby islanders are permitted to travel on the cable car for free and are not expected to queue. At present, the cableway operates within set operating times (see Table 6.10), every day of the week (including Sundays). The cableway is closed for lunch between 13:00 and 13:30 daily. There is no service on Christmas Day (25th December), St. Stephen's Day (26th December) or New Year's Day (1st January). At present, the return fare for the cable car journey is €10 per adult and €5 per child. The journey itself typically takes between 6 - 7.5 minutes in one direction.

A safety inspection of the existing cableway carried out by ROD in 2016 concluded that, while there were no immediate safety concerns at the time, the existing infrastructure is not and cannot be fully compliant with the European Standards for 'The Safety Requirements for Cableway Installations Designed to Carry Persons', S.I. No. 470/2003 or S.I. 766/2007. ROD identified substantial corrosion of structures, including both pylons and the island station. In order to continue to operate in spite of these non-compliances, the cableway has been granted a number of exemptions by the Commission for Railway Regulation.

Table 6.10 Operating Hours of Dursey Island Cable Car in 2019. Source: DurseyIsland.ie

Period	Operating Hours
1 st March – 31 st May 2019	Monday – Sunday: 09:30 – 19:30

Period	Operating Hours
1 st June – 31 st August 2019	Monday – Thursday: 09:30 – 19:30 Friday – Sunday: 09:30 – 21:30
1 st September – 31 st October 2019	Monday – Sunday: 09:30 – 19:30
1 st November – 28 th February 2019	Monday – Sunday: 09:30 – 16:30

Marine Transport

There are three slipways for launching boats in the vicinity of the site of the proposed development, as follows:

1. A privately-owned slipway approx. 280m south-west of the cableway on Dursey island;
2. A slipway owned by CCC approx. 100m south of the cableway on the mainland; and
3. A privately-owned pier and slipway at Garinish Point, approx. 1.7km north-east of the mainland side of the cableway.

There is no regular ferry service between the island and the mainland. This is due to the hazardous prevailing conditions in the Dursey Sound, which is shallow and tidal with fast-moving currents. When conditions permit, the slipways on both island and mainland are used for launching and landing of boats. Since 2012, when the practice of moving livestock in the cableway ceased, CCC has provided ferries to move cattle between the island and mainland approximately 4 – 5 times per year (O'Sullivan, 2019, pers. comm.). Additionally, Dursey farmers are known to occasionally move sheep from island to mainland in small private boats via slipways 1 and 2, above (O'Sullivan, 2019, pers. comm.). While the pier at Garinish Point is used for the berthage of fishing vessels, the exposed nature of the Dursey Sound has discouraged fishing activity from the piers nearest the cableway (O'Sullivan, 2019, pers. comm.). Islanders keep small boats at the island-side slipway but – because of its especially exposed position – the slipway nearest the cableway on the mainland is not known to be used for the berthage of vessels or storage of equipment (O'Sullivan, 2019, pers. comm.). The pier at Garinish Point is shallow and may not be accessible at low tide. (O'Sullivan, 2019, pers. comm.).

6.3.9 Economic Activity

The 2016 Relative Pobal HP Deprivation Index measures the relative affluence/disadvantage of a Small Area using 2016 (i.e. most recent) census data. It is a function of three 'dimensions' of affluence/disadvantage, which themselves are calculated using quantitative indicators, as outlined in Table 6.11. The absolute Index Score for a Small Area is rescaled according to scores for other Small Areas to produce a Relative Index Score. Relative Index Scores may be interpreted according to the labelling system set out in Table 6.12, below.

Table 6.11 Framework for calculation of Pobal HP Deprivation Index (Haase & Pratschke, 2017)

Dimension	Indicators
1. Demographic Profile	<ol style="list-style-type: none"> 1. % change in population over previous 5 years 2. % of population of non-working age (≤ 15 and ≥ 64) 3. % of population with primary school education only 4. % of population with third level education 5. % of households with single parents and children aged < 15 6. Mean no. persons per room
2. Social Class Composition	<ol style="list-style-type: none"> 1. % of population with primary school education only 2. % of population third level education 3. % of households headed by professionals/managerial or technical employees (incl. farmers with ≥ 100 acres) 4. % of households headed by semi-skilled/unskilled manual workers (incl. farmers with < 30 acres) 5. Mean no. persons per room
3. Labour Market Situation	<ol style="list-style-type: none"> 1. % of households with single parents and children aged < 15 2. Male unemployment rate 3. Female unemployment rate

Table 6.12 Labelling system for Relative Pobal HP Deprivation Index Scores, showing proportion of Small Areas falling within each Index category in 2011 (Haase & Pratschke, 2017).

Relative Index Score	Label	Proportion of Small Areas (2011)
>30	Extremely affluent	30 (0.2%)
20 to 30	Very affluent	472 (2.6%)
10 to 20	Affluent	2,411 (13%)
0 to 10	Marginally above average	6,234 (33.7%)
0 to -10	Marginally below average	6,483 (35.1%)
-10 to -20	Disadvantaged	2,408 (13%)
-20 to -30	Very disadvantaged	448 (2.4%)
< -30	Extremely disadvantaged	2 (0.0%)

The Relative Deprivation Index Score for the ED of Kilnamanagh in 2016 was -2.06, meaning it falls within the category 0 to -10, 'Marginally below average', meaning the area is disadvantaged. As shown in Table 6.12, this category describes the greatest proportion (35.1%) of Small Areas in Ireland.

6.3.9.1 Employment

There are currently 3 operators employed by Cork County Council to operate the cableway, all of whom reside in the study area. Census 2016 reports that of the 147 individuals in active employment in the Kilnamanagh ED, the greatest proportion (42 persons or 28.5%) were employed in the 'agriculture, forestry and fishing' industry. The vast majority of those working in this industry were male 39/42 persons or 93%. The next most important industry was 'professional services' with a total of 35 persons

or 24% of all those in active employment, comprising 29 females and 6 males. The next greatest proportion of the labour force is in categories/industries not listed on the census options comprising 33 persons or 22% of all those in active employment in the ED. 'Commerce and trade' industry comprised 15 persons or 10% of all those in active employment in the study area. 'Building and construction', 'manufacturing', 'transport and communications' and 'public administration' industries were also represented in the study area, although to a lesser degree (each with 6 or fewer workers). (CSO, 2017).

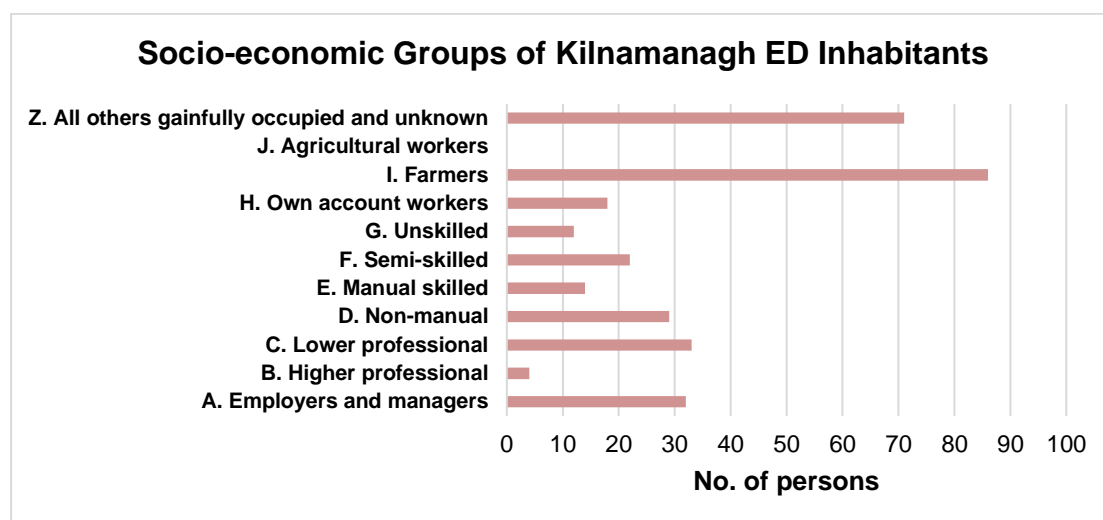


Plate 6.13 Socio-economic group categories of Inhabitants in Kilnamanagh ED (CSO, 2017).

The census reports that 'Farmers', comprises the largest socio-economic group in 2016 in the Kilnamanagh ED followed by 'all other gainfully occupied and unknown' (Plate 6.13).

According to the *West Cork Municipal District LAP 2017*, farming is the main economic activity on Dursey Island. However, additional costs associated with accessing services (such as veterinary and agricultural contractor services) and transportation of livestock and products to-and-from the island, reduce the competitiveness of island farmers with respect to their mainland counterparts.

At present, three persons are employed to operate the existing Dursey Island Cable Car. All of these are local residents.

6.3.9.2 Unemployment

Plate 6.14 shows the principal economic status of persons aged 15 years and over in the Kilnamanagh ED. According to the 2016 census, half of all working-age persons (147 individuals; 50%) were actively employed in the Kilnamagh ED. A large proportion of working-age people (63 individuals; 21.5%) were retired. Not considering retirees or individuals engaged in full-time education (25 individuals; 8.5%), full-time housekeeping/familial duties (32 individuals; 11%), or those unable to work due to long-term illness or disability (8 individuals; 3%), a minority of working-age persons were unemployed in the study area (12 individuals; 4%). This is less than half the 2016 rural national average unemployment rate of 11.2% (CSO, 2017).

The labour force participation rate in the study area was 48.3% in 2011 (AIRO Maps, 2019). This is substantially above the national average of 12.6% (AIRO, 2018).

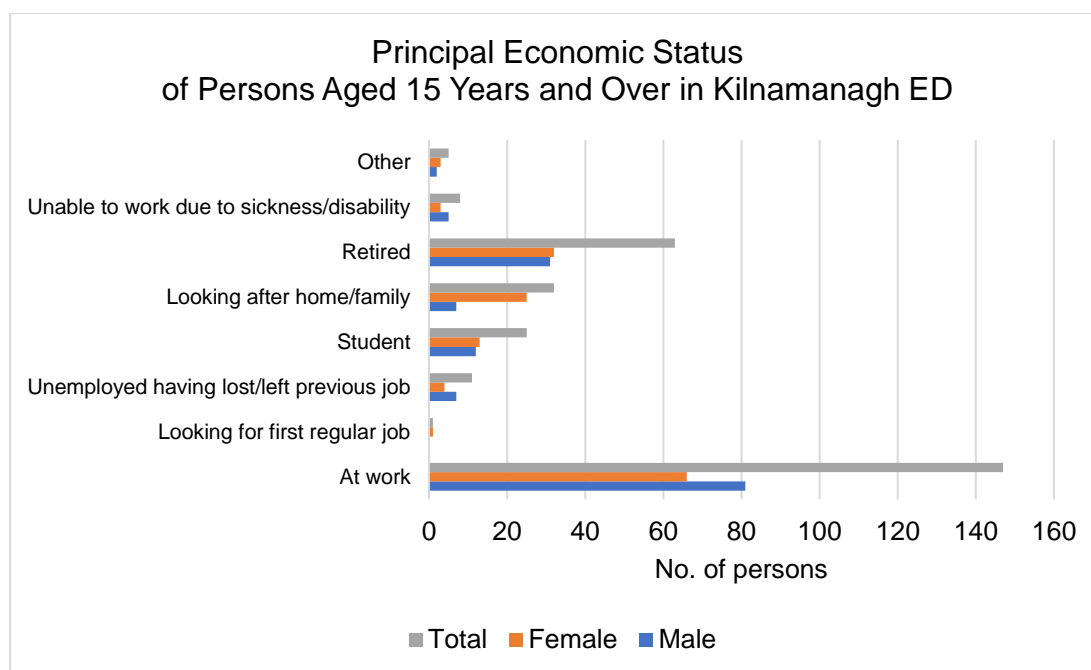


Plate 6.14 Principal economic status of persons aged ≥15 in Kilnamanagh ED in 2016 (CSO, 2017)

6.3.9.3 Retail and Commercial Activity

There is not a lot of retail or commercial activity in the study area. A list of private businesses obtained through desk studies is detailed in Table 6.13, below. This table does not include the holiday home rentals properties located in the study area. There is at least one B&B in the study area – the Harbour View B&B (in Garnish, immediately adjacent to the R572). There are other business present such as the Beara Baoi Tours whom offers guided walking tours of the Beara area and Dursey Island.

Table 6.13 Commercial businesses in the study area

Name	Details
Rosarie’s Mobile Café	A mobile café and shop offering snacks and beverages. Located in the existing car park immediately adjacent to the cableway on Dursey Island. Operation during the summer months only.
Murphy’s Mobile Catering (also known as ‘Dursey Deli’)	A mobile catering van offering hot food (fish and chips, etc.). It can be found in the carpark at the mainland side during the summer months.
Cable Car Café	Brick-and-mortar café/ restaurant, and gift shop located approximately 4.1km east, immediately adjacent to the R572 in the townland of Loughane More on the mainland.



Plate 6.15 Rosie's Mobile Café (left; on Dursey Island; Source: durseyisland.ie) and Murphy's Mobile Catering (right; in mainland-side visitor car park; Source: Tripadvisor)

There are no grocery shops within the study area or the greater Kilnamanagh ED. The nearest grocery store is located in the village of Allihies. Castletownbere, located approximately 22km from the mainland side of the site, is the nearest major retail and service centre for the population.

6.3.9.4 Tourism

The study area is a tourism and amenity destination which attracts both domestic and overseas visitors. The novelty of the cableway, and the dramatic, rugged landscape and remote, traditional character of the area form the basis of its appeal as a tourist destination. The study area is part of Fáilte Ireland's WAW tourist route. Dursey Island is one of 15 'Signature Discovery Points' on that route. In the Cork County Development Plan 2014, the site is identified as a "key tourist attraction of national importance".

Annual visitor numbers to Dursey Island in 2017/2018 were at approximately 20,424 (See Chapter 7 of Volume 2 of this EIA – Biodiversity; Table 7.28 and Plate 7.13). Visitor numbers are seasonal, with between 140 and 313 visitors per month during the winter months (November – February) and 4,954 and 4,943 per month during the peak months of July and August, respectively. Thus, over the two peak months of the year, Dursey receives approximately 50% of its annual visitor numbers. If it were not for the limited capacity and turnover of the cableway, it is highly likely that significantly more visitors would travel to the island during the peak months.

In order to inform this assessment, a survey of visitors to the site carried out by Tourism Development International (TDI) in 2018 found that:

- Half of the respondents came from Ireland with other principal nationalities in the sample being German, British and North American;
- Three out of four considered the area to be 'unspoilt', 'wild' and 'beautiful';
- 22% commented on the area's peacefulness, isolation and lack of crowds and commercialisation;
- 31% commented on the views;
- 21% commented on the site's authenticity, quaintness and simplicity
- 17% commented on the novelty of the site;
- Principal issues cited with respect to the site were long wait times (31%) and safety concerns related to the ageing appearance of the infrastructure (18%)
- Improvements suggested included increasing the capacity of the cableway to reduce queues (24%) and providing interpretive information on the island's history.

It is anticipated that considering the existing growth trend in the Irish tourism sector, visitor numbers at the site of the proposed development would continue to increase year-on-year without any intervention. However, at present, the limited capacity and turnaround of the cableway is severely limiting the number of individuals who can make the cable car crossing at peak times. During peak times, visitors are queueing for up to two hours (and sometimes more) to travel on the cable car.

Walking trails (the Beara-Breifne Way, Beara Way and Garinish Loop), rock fishing and birdwatching and whale/dolphin watching opportunities also attract visitors to the study area.

Tourism is of substantial economic value to the study area and surrounding environment, supporting small and medium-sized local business including B&Bs, holiday rental properties and cafés.

6.3.10 Human Health Profile

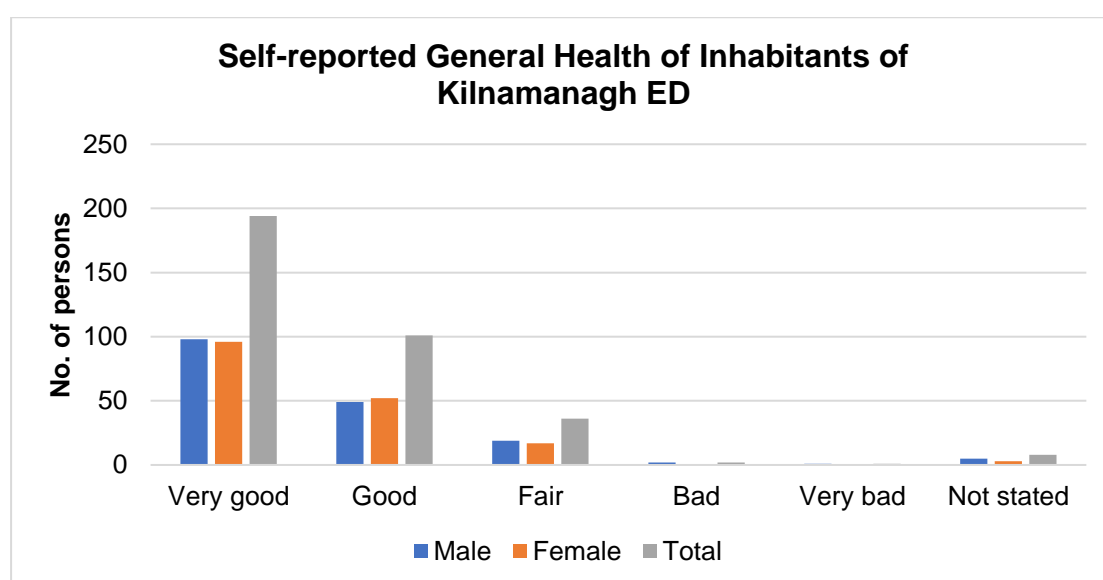


Plate 6.16 Self-reported general health condition of inhabitants of Kilnamanagh ED in 2016 (CSO, 2017).

In the 2016 census, the majority of Kilnamanagh inhabitants reported that their health was 'very good' or 'good' (57% and 29.5%, respectively) (Plate 6.16). Approx. 10.5% considered their general health to be 'fair'. Two individuals characterised their general health as 'bad'. Just one individual reported being in 'very bad' general health. A further 8 persons declined to answer this question.

Of the 342 inhabitants in the ED, a total of 46 persons were reported to have a disability in the 2016 census (26 males, 20 females).

6.3.10.1 Noise Environment

A baseline noise survey conducted at the site of the proposed development (in the vicinity of the cableway on the island and mainland and on the R572). The results from these surveys are as follows:

- General:
 - Baseline noise levels at all locations dominated by sea and wind noise with some bird calls audible.
 - Existing cableway silent in its operation.

- R572:
 - Ambient noise levels in the range of 50 to 51 dB LAeq.
 - Background noise levels on the R572 ranged from 48 to 49dB LA90.
- Mainland side of cableway:
 - Ambient noise levels ranged from 52 to 62 dB LAeq, the highest value being measured during a particularly gusty period.
 - Background noise levels ranged from 50 to 56 dB LA90.
- Island side of cableway:
 - Ambient noise levels ranged from 52 to 53 dB LAeq.
 - Background noise levels ranged from 49 to 50 dB LA90.

These values are considered to be representative of prevailing conditions in the study area for more information on noise and vibration levels refer to Chapter 12 of this EIAR.

6.3.10.2 Air Quality

The Environmental Protection Agency report on the current air quality at the time of writing (July 2018) the Rural West AQIH Region is reported as having 'fair' air quality.

Chapter 13 of this EIAR – Air Quality and Climate states, there were no air quality parameter recordings for the study area. However, based on existing data for similar rural areas, the following estimates have been developed:

- A conservative estimate of the current background NO₂ concentration for the region of the development is 11µg/m³. This is well below the annual average limit value of 40µg/m³.
- An appropriate estimate for the current background NO_X concentration in the region of the proposed development is 6µg/m³.
- Based on the above information a conservative estimate of the current background PM₁₀ concentration for the region of the development is 19µg/m³.
- A conservative ratio of 0.65 was used to generate a background PM_{2.5} concentration for the region of the development of 12.4µg/m³.
- A conservative estimate of the current background concentration in the region of the development is 0.2µg/m³.
- A conservative estimate of the current background CO concentration in the region of the development is 0.6mg/m³.

6.3.10.3 Road Traffic Collisions

According to the Road Safety Authority (RSA), there were 4 no. road traffic collisions in the study area between 2005 and 2015 – all of which involved minor casualties which occurred on the R572. Two incidents (in 2009 and 2011, respectively) occurred at virtually the same spot (a bend in the road at approx. 51.610879, -10.070395) suggesting this may be a particularly risky spot for road traffic incidents.

6.3.10.4 Hazardous Substances

Surveys were conducted at the site of the proposed development (i.e. in the proposed development footprint) for (i) asbestos containing materials (ACMs) and (ii) lead-based paints during April 2019. No evidence was found of asbestos at the site of the proposed development. The presence of lead was detected in the paint on a number of structures as detailed in Table 6.14.

Table 6.14 Locations at the site of the proposed development where lead-based paint identified

Location	Metal (Pb)	m/m (%)
Green paint on vertical steels on island anchor	473	0.05
Paint layers on horizontal section of island anchor	3551	0.36
Paint layers on angled steel section of islander anchor	2397	0.24
Cross section of island anchor	2084	0.21
Island pylon leg	6426	0.64
Island pylon leg	2984	0.30
Island pylon leg	3955	0.40
Island pylon leg	3340	0.33
Green paint on mainland anchor	305	0.03
Green paint on angled steel section on mainland	83	0.01
Layers of paint on mainland anchor	7451	0.75
Grey flaking paint on mainland anchor	526	0.05
Mainland pylon leg	2747	0.27
Mainland pylon leg	3035	0.30
Mainland pylon leg	3337	0.33
Mainland pylon leg	1975	0.20

6.4 Description of Predicted Impacts

In accordance with the EPA Guidelines and the above methodology, the following sections provide an overview of the predicted impacts on:

- Land use and social considerations, including effects on general amenity, journey characteristics, journey amenity, severance;
- Economic activity including tourism, e.g. employment and population including associated land use; and
- Human health, considered with reference to and interactions with other environmental receptors contained in corresponding chapters such as air, noise and traffic.

Likely or predicted significant impacts are split based on construction and operational phases under the headings above.

Do-Nothing Scenario

As discussed in Chapter 3 of this EIAR, the current cableway is not and cannot be made fully compliant with the requirements of the European Standards for “*The Safety Requirements for Cableway Installations Designed to Carry Persons*”, S.I. No. 470 / 2003 and S.I. 766 / 2007. Although exemptions for most of the non-compliances have been granted by the Commission for Railway Regulation, many of these exemptions have been granted on the basis that the cableway will be replaced in 3-5 years.

As a result, the do-nothing scenario would result in the closure of the Dursey Island Cable Car in the short to medium term for safety reasons thus significantly impairing

access for residents and visitors to the island. Due to the rough seafaring conditions to and from the island, the establishment of a dedicated ferry service would not be likely to occur, as is the case with all other West Cork Islands. It is likely that further depopulation would occur, and further land abandonment would occur on the island.

If the proposed development is not advanced, the site would continue to operate as it does at present. During the high season, the existing cableway would continue to operate at or over capacity with a supply deficit and (as a result) lengthy queues. This deficit would increase over time, as visitor numbers to the site increase (in accordance with the general trend of growth in the Irish tourism sector and promotion of the WAW by Fáilte Ireland). The annual visitors to Dursey Island would continue to be limited by the capacity of the existing cableway to somewhere in the region of 22,000/ year (based on upper figures reported in 2018). If the road improvements are not made, journey characteristics, journey times and journey amenity along the R572 would continue to pose a problem for users and would likely worsen over time. Additionally, the shortfall of the already oversubscribed visitor car park would increase over time, either exacerbating the existing issue of informal roadside parking on the R572 or resulting in detracting from the area due to traffic issues.

As the cableway serves an important function for the existing residents of the island and is a unique and distinguishing characteristic of the Beara Peninsula and West Cork, and has been for the past 50 years, it was decided that the do-nothing scenario was not a reasonable or realistic option.

6.4.1 Construction Phase Impacts

Details of the construction methodology are included as part of Chapter 4 of this EIAR, which has been relied on for this impact assessment and is not repeated here.

6.4.1.1 Land Use and Social Considerations

The site of the proposed development will be a substantial construction site for approximately 18 months. The large-scale visible land use changes will begin once the construction of the buildings and other structural elements – Visitor Centre, café, cableway and station buildings – and road improvement works commence. Noise, vibration, landscape and traffic associated with construction activities may cause nuisance and disruption to the study area for the duration of the works. Construction activities are likely to be confined to the site of the proposed development and construction compound.

While it will be necessary to divert some utility infrastructure during the construction phase (since there are ESB network lines crossing the site), these diversions will not result in any significant interruptions to utility services for residents in the study area.

As stated in Section 6.3.3, the main land use types in the study area are:

1. Agriculture;
2. Recreation, amenity and tourism; and
3. Journey Characteristics, Journey Amenity and Severance

Effects of the construction phase of the proposed development on each of these land use types are discussed in the following sections. Overall, it is considered that the construction phase of the proposed development will have a slight, temporary adverse impact on land use in the Study Area.

Agriculture

There will be no significant impacts to agriculture as a result of the construction works.

Recreation, Amenity and Tourism

Nuisance caused by noise, vibration, dust emissions and visual effects associated with construction works will result in a temporary loss of amenity value of recreational and amenity activities at the site of the proposed development and in its immediate vicinity. Surveys of visitors to the Dursey Island Cable Car conducted for the purposes of the proposed development indicated that the remote, unspoilt character of the site contributes to its appeal as a tourist destination. While the operation of the existing cable car will be maintained throughout the construction phase, it will be restricted during certain periods of the construction phase, thus impacting on tourists travelling on the cableway. Furthermore, the appeal of the site as a tourist attraction may be somewhat reduced by the adjacent works. Equally, the redevelopment may prompt greater visitor numbers, since a certain proponent will want to use the original cable car before the upgraded facility is constructed.

The recreation value of small sections of walking trails in the immediate vicinity of the site (i.e. the Beara-Breifne Way, Beara Way and Garnish Loop) will result in slight negative, short-term impacts. No significant impacts are likely on the environment.

Any adverse effects on recreation, amenity or tourism described in this Chapter will be slight negative and short-term in nature – lasting only as long as the works themselves (maximum of 18 months or shorter based on the phase of the development taking place). Furthermore, as the most disruptive aspects of the construction phase (including earthworks) are proposed to be carried out during the low season months – when tourist numbers are at their lowest – this will mitigate effects on recreation, amenity and tourism resources.

Journey Characteristics, Journey Amenity and Severance

Construction traffic will result in an increase in heavy goods vehicles (HGVs) transporting construction materials and plant/machinery on the R572. This construction traffic has the potential to effect journey times during specific periods for road users. However, in order to minimise disruptions, the most disruptive activities (i.e. earthworks) are proposed to be carried out during the low season when tourism and associated traffic volumes are at their lowest in the area. For a detailed assessment of traffic-related effects, refer to Chapter 5 of Volume 2 of this EIAR.

Construction of the passing bays and visibility splay on the R572 may also give rise to nuisance to road users for approximately three months, the proposed duration of the improvement roadworks. It is proposed to carry out these works during the off-season (September – April), in order to minimise traffic disruption. Access will be maintained to all properties along the R572 throughout the construction works. There will be a slight negative temporary impact to road users during the road improvement works. The works will also involve the installation of Variable Messaging Signs (VMS) at four locations along the approach roads, namely on: the R572 at Bealbarnish Gap, the R572 Castletown-Bearhaven, at R575 at Eyeries Cross and on the N71 (junction with the R572) at Glengarrif. These installation works will not cause any significant impacts to road users.

In order to maintain access to and from Dursey Island for residents and tourists, the existing cableway will remain in operation with some potential restrictions throughout the duration of the construction phase. Restrictions will be avoided insofar as possible and stakeholders will be notified in the event of any interruptions. Keeping the

cableway in operation during the construction phase (insofar as possible) will minimise any temporary severance of the island and mainland-side communities. If islanders were temporarily restricted from travelling to/from the island on short notice, the impact will be moderate, temporary and negative in nature.

The construction compound will be situated in the mainland-side visitor car park area and will significantly reduce parking spaces available at the site, however as the disruptive elements of the construction phase will take place during the off-season (September – April) this is not expected to impact users significantly. Access to the Beara Breifne Way/ Garnish Loop at the car park site will be maintained throughout the construction phase. However, there will be slight negative short-term impacts to journey amenity as a result of the construction activities. There is also a private access (farm gate) leading to agricultural land. This access will be relocated during the construction phase to facilitate maintaining vehicular access to these lands. Access or alternative access will be maintained in agreement with the landowner throughout the construction phase, no significant impacts will occur.

Access to slipways on the island and mainland will be maintained throughout construction and operation. As stated in Chapter 4 of this EIAR, it is likely the slipways will need to be used to transport materials to the island side of the site of the proposed development during the construction phase. This use of the slipways may give rise to temporary disruptions to those launching/landing craft at these sites. However, because of the often-hazardous seafaring conditions in the Dursey Sound, these slipways are reported as being seldom used and, therefore, impacts will not be significant.

Nuisance due to construction traffic on haulage routes is likely to result in momentary negative effects to walkers/hikers at points where the road network traverses the Beara-Breifne Way and the Beara Way.

In summary, the construction phase of the proposed development is expected to have short-term to temporary, moderate, negative effects on journey characteristics, journey amenity and severance for users in the study area.

6.4.1.2 Economic Activity

The two mobile catering facilities currently operating at the cable car site (one on the island and one on the mainland) will be required to be relocated during the construction works. Any associated adverse effects are likely to be moderate and temporary in nature, lasting only as long as it takes to establish the businesses in question elsewhere.

Increased direct and indirect employment opportunities will occur as a result of the construction phase of the proposed development. There will be approximately 20 - 30 persons employed on-site at any one time during each construction phase. Services required by construction workers will include accommodation and provision of food these services will provide opportunities for local businesses during the 18-month construction period. It is considered that these effects will be positive, slight, and short-term in nature.

The revenue of the existing cableway (which will be kept open during the construction of the proposed development, insofar as possible), as well as that of nearby businesses may be adversely affected during the construction phase, as people may be less likely to travel to the area due to (real or perceived) adverse effects related to construction works. However, these businesses are seasonal in nature and will be closed during the winter months, when it is proposed to carry out the most disruptive

aspects of the construction works. It is considered that any such adverse effects arising as a result of the construction phase will be imperceptible to slightly negative effects that will be short-term in nature.

6.4.1.3 Human Health Impacts

As already stated, environmental health standards are set to protect the vulnerable and not the robust, who are generally more resilient to changes in their environment. In accordance with the methodology outlined in Section 6.2, a summary of likely significant human health impacts/hazards relating to the proposed development have been identified to include:

- Impacts of emissions to air;
- Impacts of noise and vibration emissions;
- Impacts of emissions to hydrology;
- Impacts of collisions/ risks of accidents; and
- Psychosocial impacts.

Effects relating to each of these pathways are considered in turn in the following sections.

6.4.1.4 Impacts of Emissions to Air

A preliminary asbestos survey of the site of the proposed development was carried out by OHSS Safety Consultants in 2019. It found no evidence of asbestos containing materials (ACMs) at the proposed development site. However, the report recommends that a more detailed asbestos survey will be required prior to any refurbishment or demolition works. With the implementation of standard construction practices dealing with ACMs including appropriate training, PPE and appropriate licences, there will be no significant adverse human health effects during the construction phase.

An occupational hygiene survey including paint sample analysis was carried out at the site of the proposed development, by OHSS Safety Consultants in 2019. The analysis found evidence of lead-based paint on a number of structures that will be demolished/decommissioned as part of the development works (Refer to Table 6.14). With the appropriate standard construction practices implemented at the construction stage including appropriate training, PPE and appropriate licences there will be no significant human health effects.

The Air Quality and Climate assessment of this EIAR (Refer to Chapter 13), best practice mitigation measures associated with a low risk of temporary human health impacts are proposed for the construction phase of the proposed development. These will focus on the pro-active control of dust and other air pollutants to minimise generation of fugitive emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of the construction of the proposed development is likely to be short-term and imperceptible with respect to human health.

6.4.1.5 Noise and Vibration Impacts

The Noise and Vibration assessment of this EIAR (Refer to Chapter 12) assessed impacts on human health from noise and vibration. It found that with the implementation of standard best practice construction methods, binding hours of operation and mitigation measures in that Chapter, any effects due to noise and vibration will be temporary in nature and will not affect human health.

6.4.1.6 Impacts of Emissions to Surface and Groundwater

Water Quality

Construction activities within and alongside coastal and surface waters can contribute to the deterioration of water quality. There are no bathing waters located in proximity to the proposed development.

Chapter 10 of this EIAR – Hydrology includes an assessment of water quality impacts including to potable water supplies. Construction shall be undertaken in accordance with the measures outlined in the Construction Environmental Management Plan. It is considered that, provided the mitigation measures are adhered to, there will be no significant human health effects as a result of the construction phase of the proposed development. With the application of standard construction methods, the EOP and mitigation measures detailed in Chapter 9 and 10 of this EIAR any impacts to water supply and quality were found to be unlikely and temporary in nature, therefore, there is a slight impact on human health during the construction phase.

6.4.1.7 Impacts of Collisions/Accidents

Construction activities may increase the risk of collisions due to an increase in the number of movements of HGVs entering and exiting from the construction compound and travelling on a trafficked roadway (R572). Construction workers may be at risk of potential accidents from working at heights or close to the sea. It is considered that the risk of such accidents occurring is low, and that implementation of a Construction Traffic Management Plan will mitigate against such an event occurring.

6.4.1.8 Psychosocial Impacts on Human Health

There may be some minor, temporary nuisance to properties, businesses and road users along the R572, during the 3-month roadworks phase and main construction works. There will be no significant psychosocial effects as a result of the construction phase of the proposed development.

Acquisition of private agricultural lands/hedgerows is required in order to carry out road improvement works/construction of passing bays along the R572. The acquisition of these lands will not cause severance or interfere significantly with current land uses.

No demolition or acquisition of private houses is required as part of the proposed development.

Overall, it is considered that the construction phase of the proposed development will not result in any significant psychosocial effects as a result of the proposed development.

6.4.2 Operational Phase

6.4.2.1 Land Use and Social Considerations

The proposed development is consistent with national, regional and local planning policy. It is aimed at creating a coherent, distinct, environmentally sensitive and considered tourism destination at the existing location of the Dursey Island Cableway.

The main land uses in the study area are:

1. Agriculture;
2. Recreation, amenity and tourism; and
3. Journey Characteristics, Journey Amenity and Severance

Overall, it is considered that the operation of the proposed development will have a long-term, significant, positive effect on land use and social considerations in the Study Area.

Agriculture

As described in Chapter 4 of this EIAR, the proposed road improvement works will require the acquisition of small areas of private farmland. Additionally, construction of the island-side structures of the proposed development will result in the acquisition and loss of a small area of commonage land which is currently being used for livestock grazing. Details of landowner and impacts is set out in Chapter 16 of Volume 2 of this EIAR – Material Assets and Land – and concludes that since the scale of land acquisition is relatively small, associated effects on agricultural land are considered to be imperceptible or slight in nature and insignificant at County level.

Additionally, by improving the ease of access to and from Dursey Island, the operation of the proposed development will facilitate/support, to some degree, repopulation and economic activities of the island and has the potential to reverse the current trend of depopulation and land abandonment on the island. Thus, it is considered that the operation of the proposed development will have a long-term, slight to moderate, positive effect on agriculture in the Study Area.

Recreation, Amenity and Tourism

The proposed development will increase the capacity and turnover of the Dursey Island Cable Car, based on a maximum of 80,000 persons to travel to the island per year (upper limit set by CCC, although cableway capable of conveying a greater number). The proposed development will improve the transportation network between Dursey and the mainland and will enhance the recreational value of the area. The addition of a Visitor Centre and café will also serve to enrich the overall experience of visitors to the site. It will improve the comfort levels of visitors to the site, who currently spend protracted periods queuing in an unsheltered outdoor area in order to use the cableway. The overall visitor experience will be improved not only by the improvements in the physical infrastructure but also as a result of the provision of practical and interpretative information, which will provide information to visitors on the natural and cultural heritage of the area, and activities available in the area (e.g. birdwatching, whale/dolphin-watching). Additionally, in order to promote broad economic benefits for the tourism sector in the greater Beara/West Cork region, it is proposed to promote local businesses in the visitor centre. The operational phase of the proposed development will have a very significant, long-term, positive effect on recreation, amenity and tourism in the study area.

Journey Characteristics, Journey Amenity and Severance

Road improvement works to be carried out on the approach road (R572), and the proposed use of VMS to advise road-users when the visitor car park is full will serve to improve traffic flows on the R572. The increase in capacity of on-site parking facilities from 70 to approximately 100 spaces (43% increase) and 1 bus bay will facilitate increased passenger numbers visiting the site. As stated in Chapter 5 of this EIAR – Traffic and Transport – it is considered that the proposed car park will provide sufficient parking for anticipated visitor numbers. The proposed development is also likely to reduce severance between the island and mainland; by increasing the capacity and turnover of the cableway. The proposed development will also increase the safety and comfort of the cable car journeys for its users. The operation of the proposed development is not expected to affect access to pre-existing slipways on the island or mainland.

As part of the proposed development on the mainland, a section of the existing cable site that is currently used for car parking will be removed to facilitate the construction of the cable car station building. There are two accesses that are currently located to the north west of this general area and will be required to be altered to maintain access: one public access (pedestrian) and one private access (Refer to Plate 6.4). The private access is a vehicular farm gate leading to private agricultural land and will be relocated in line with the internal road network to create a new vehicular access to these lands. The public access is a pedestrian access, that forms part of the Beara Breifne Way/ Garnish Loop and will be relocated behind the station building. The walking route leading towards the walking route will be altered slightly due to the construction of the proposed development buildings and internal road network.

The cableway will be capable of making the 375m crossing in approx. 1 minute which will be a significant reduction from the current journey time, of approximately 6 – 7.5 minutes. However, it is not expected that the cable car will operate at this increased speed but that journey time would be maintained similar to the current duration (or slightly decreased to between 4 and 6 minutes) in order to maintain the journey amenity and unique user 'experience' of the cable car. The speed can be increased if required (i.e. for residents when there are no tourists using the cable car and in case of emergencies). This will improve journey times for those who live and/or work on Dursey Island. According to ticket sales in 2018, the current cable car transports approximately 22,000 persons to Dursey Island, this figure excludes islanders (who do not have to pay for tickets). As a result of the proposed development works the cableway will be capable of transporting between 200-300 passenger per hour in each direction.

Additionally, since the proposed cableway will feature two desynchronised cabins, those travelling to/from the island will have less time to wait or indeed will not have to wait at all. The operational phase of the proposed development will have a significant, positive, long-term effect on journey characteristics including journey times, journey amenity and general amenity and will reduce severance between the mainland and the island.

Social and Community Considerations

Improved transportation infrastructure and improved confidence in transportation networks can contribute to revitalising rural areas such as the Beara Peninsula and Dursey Island. This area has suffered population decline over the years, and prevention of total depopulation is a foremost objective for Dursey Island in local planning and development policy. Additionally, the development of the interpretative centre will serve to improve local community facilities. The proposed development will also improve the overall comfort and safety for users of the cable car into the future. Furthermore, increased capacity and arrangement of the car, the provision of expanded parking, as well as the improvements in the local road network will contribute to enhancing the physical infrastructure and connectivity of the area for local users and emergency services. The proposed development will enhance and support community networks and infrastructure as well as support further economic and community development opportunities. By facilitating further economic development opportunities on Dursey Island and improving ease of access to-and-from the island, it may indirectly contribute to the prevention of depopulation on the island and improve community networks. The operational phase of the proposed development will have significant, long-term, positive effects on social and community infrastructure in the area.

6.4.2.2 Economic Impact

By supporting increased visitor numbers at the Dursey Island Cable Car, the proposed development will increase the revenue generated by its operator, CCC, and will create economic opportunities for local business owners and entrepreneurs.

Because of the nature of the proposed car park, and the presence of a new café as part of the proposed development, it is unlikely that mobile catering facilities will be able to continue to operate in the car park of the Dursey Island Cable Car and Visitor Centre during its operation. As a result of the mobile nature of these businesses (which can establish themselves elsewhere), any resultant change is likely to have a temporary, moderate adverse effect on these businesses.

The proposed development will create additional employment opportunities at the site of the proposed development. It is expected that approximately 3 employees will continue to operate the cable car and another 3-5 employees will be employed to operate the visitor centre and café.

The proposed development will support the development of Fáilte Ireland's value proposition for the Wild Atlantic Way, and will increase access to Dursey Island, a Signature Discovery Point of that route. By referencing other attractions in the Beara Peninsula and broader west Cork areas, and on the Wild Atlantic Way, the interpretive materials in the proposed visitor centre will encourage longer dwell times – and, as a result, economic/tourism sector growth - in these areas.

It is proposed to increase the return fare price for the cableway in order to ensure the economic viability of the proposed development. The particulars of the pricing system for tickets for the proposed development have not yet been determined and will be determined after the economic and operational plan has been completed.

Overall, it is considered that the operation of the proposed development will give rise to very significant, long-term, positive economic effects for the population in the study area, the extent of which will be moderate to large.

6.4.2.3 Human Health Impacts

In accordance with the methodology outlined in Section 6.2, a summary of likely significant human health impacts/hazards relating to the proposed development have been identified to include:

- Impacts of emissions to air;
- Impacts of noise and vibration emissions;
- Impacts of emissions to hydrology;
- Impacts of collisions/ risks of accidents; and
- Psychosocial impacts.

Effects relating to each of these pathways are considered in turn in the following sections. Overall, it is considered that the operation of the proposed development will result in a net long-term, slight or imperceptible positive effect on human health.

6.4.2.4 Impacts of Emissions to Air Quality

As stated in Chapter 13 of this EIAR – Air Quality and Climate - traffic related air emissions have the potential to impact air quality which can affect human health. However, as the traffic generated by the proposed development is below the

thresholds requiring quantitative assessment, it can be determined that the impact to human health during the operational stage is long-term and imperceptible.

6.4.2.5 Impacts of Noise and Vibration Emissions

Chapter 12 of this EIAR, Noise and Vibration, details the assessment of noise and vibration on human health. The assessment did not identify any likely significant effects related to noise and vibration during the operation phase of the proposed development that will affect human health.

6.4.2.6 Impacts of Emissions to Surface and Groundwater

Water Quality

Development of hardstanding surfaces can lead to increased surface water run-off which can contribute to the deterioration of water quality. As discussed in Chapter 10 of this EIAR – Hydrology - the proposed development will incorporate sustainable drainage systems which will mitigate any potential adverse effects related to changes in run-off rates and volumes, whilst also maintaining quality of water in the vicinity of Dursey Sound. It is, therefore, considered that any adverse human health effect of the operation of the proposed development related to water quality will be imperceptible and insignificant in nature.

Potable Water Supply

Chapter 9 & 10 of this EIAR have been cross-referenced to inform this aspect of the human health assessment. No significant impacts are likely to occur to drinking water supplies and water quality as a result of the proposed development.

Flooding

The hydrological impact assessment carried out in Chapter 10 of this EIAR found no indication that the site floods from coastal, fluvial or pluvial sources. The proposed development will incorporate sustainable drainage systems which will maintain the current flow regime to receiving water bodies. As such, there will be significant human health impacts related to flooding as a result of the proposed development.

6.4.2.7 Impacts of Collisions/ Risk of Accidents

Visibility on the R572 regional road is poor and increased volumes of traffic on the road as a result of the proposed development may lead to an increase in the risk of road traffic collisions. However, road improvement works proposed for the R572 should serve to improve road safety conditions and decrease the likelihood of road traffic accidents occurring.

It is considered that the overall safety of the cableway infrastructure will be increased substantially as a result of the proposed development. The existing infrastructure is outdated and substantially rusted in places.

In order to prevent the occurrence of accidents, unlike the existing cableway, the proposed development shall include all necessary safety features, as required by the relevant Eurocode requirements.

Maintenance works on the cableway and associated structures have the potential to result in accidents. All maintenance to be carried out during the operation of the proposed development will be executed in accordance with the relevant guidelines. Additionally, an operational maintenance manual will be developed for the site.

An evacuation procedure plan is in place for the existing site, and a new plan will be developed for the proposed development.

In short, it is considered that the operation of the proposed development will reduce the risk of road traffic collisions and other accidents, having a moderate, long-term, positive effect in this respect.

6.4.2.8 Psychosocial Impacts on Human Health

Increased volumes of traffic on the R572 approach road and increased volumes of visitors on Dursey Island may result in some minor nuisance for properties in the vicinity. It is considered that any associated adverse psychosocial effect would be insignificant and very limited in extent, affecting only a small proportion of the population.

There is a growing body of research indicating that there are causative relationships between positive psychosocial health/wellbeing and (i) recreation in the natural environment (Coon *et al.*, 2011; Hartig *et al.*, 2014) and (ii) exposure to biodiversity (Sandifer *et al.*, 2015; Prescott *et al.*, 2016). Thus, it is conceivable that biodiversity loss and/or habitat destruction/degradation can have negative implications for human health. It is difficult to characterise the significance of such potential effects since the relationship between biodiversity and psychosocial health is not well understood. Additionally, since the Study Area is a popular destination for nature-based recreation, particularly fishing, whale and dolphin watching and birdwatching, significant biodiversity loss (particularly of species of fish, marine mammals and birds) in the Zone of Influence will almost certainly diminish the recreational value of the area. Since the area of habitat loss as a result of the construction of the proposed development is relatively small, and since anticipated adverse effects on recreation, amenity and tourism have been characterised as temporary and slight (insignificant) in nature, it is not considered the operation of the proposed development will have a significant adverse effect on psychosocial health that is related to biodiversity. As stated in Chapter 7 of this EIAR – Biodiversity - it is considered that, provided the mitigation measures set out in this EIAR – particularly those in Chapter 7 – are adhered to, no adverse effects on population and human health related to biodiversity will occur.

By providing substantially enhanced welfare and shelter facilities and eliminating the need for visitors to spend protracted periods queuing outdoors, it is anticipated that the proposed development will provide a more comfortable and more enjoyable experience for cable car users.

Overall, it is considered that the operational phase of the proposed development, will have a neutral to positive effect on psychosocial health.

6.5 Mitigation and Monitoring Measures

6.5.1 Construction Stage Mitigation Measures

The following mitigation measures are required to be implemented:

- The Contractor shall undertake a more detailed asbestos survey prior to the commencement of works.
- A Construction Environmental Management Plan (CEMP) shall be developed by the Contractor in agreement with the location authority, prior to the commencement of works. As stated in Chapter 4, the CEMP should address any potential risks related to working near asbestos and lead-based paint. This document shall also include a Dust Management Plan, including the following measures to prevent adverse effects related to lead-based paints:

- A HEPA-filter vacuum shall be employed to clean up debris resulting from the removal (accidental or otherwise) of paints on the structures in question.
- Where paint removal is required, a wet-based method shall be applied.
- Any paint debris shall be disposed of in accordance with the Waste Management Act.
- All personnel engaged in the removal of (or otherwise working on or near) structures which have been determined to be coated with lead-containing paint shall wear appropriate protective clothing.
- A Stakeholder Management and Communication Plan shall be developed by the Contractor in agreement with CCC prior to the commencement of the construction phase. It shall include measures addressing the communication of information to local residents, those working in the area, businessowners and visitors regarding the nature and duration of works to be carried out. The Plan shall be implemented throughout the duration of the construction works.
- All of the mitigation measures set out in Chapters 7, 9, 10, 12 and 13 of this EIAR are required to be implemented.
- When restrictions/ changes to the operation of the cableway are required the Contractor shall be required to:
 - Provide written notice and/or verbal notice to all Dursey Island residents and landowners at least 1 week prior to the first day of the interruption, or as soon the interruption is known.
 - In the event of emergency situations, the contractor will be required to notify the 2 Dursey Island residents and landowners immediately or as soon as is practicable by phone/in person and in writing to notify them of changes to the operation of the cableway.
 - Provide up to date notifications to the general public about any interruptions to the service via a webpage set up for the purpose on the site website (for example on: DurseyIsland.ie). The notification(s) should include details regarding the nature of the interruption (i.e. whether the cableway is partly operational or fully out of service) and the duration of the interruption.

6.5.2 Operational Stage Mitigation Measures

This impact assessment has found that, provided the mitigation measures set out in the other Chapters of this EIAR are implemented, the operation of the proposed development will have a net long-term, significant, positive impact on population and human health in the Study Area. Provided the mitigation measures set out elsewhere in this EIAR are implemented, no significant adverse effects on population and human health are likely to occur during the operation of the proposed development. Therefore, no further mitigation measures are necessitated.

6.6 Residual Impacts

Provided the mitigation measures set out in this EIAR are adhered to, it is considered that no significant, negative residual effects will occur as a result of the proposed development.

6.7 Difficulties Encountered

No particular difficulties were encountered in preparing the population assessment. In terms of the human health assessment, there are uncertainties in relation to assessing impacts on individuals or communities due to the lack of available health data and the difficulty in predicting effects, which could be based on a variety of assumptions.

6.8 Conclusion

This population and human health impact assessment has found that, without mitigation, the proposed Dursey Island Cable Car and Visitor Centre development is likely to have (i) a net short-term to temporary, slight to moderate, negative impact during the construction phase and (ii) a net long-term, significant, positive impact during the operational phase on population and human health. Assuming implementation of the mitigation measures set out in Section 6.5 of this Chapter and in Chapters 4 - 16 of this EIAR are implemented, it is considered that no significant, negative effects on population and human health will occur as a result of the construction or operation of the proposed development. Chapter 18 of this EIAR presents a compilation of all required mitigation measures.

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