Cork Line Level Crossings

Volume 3, Chapter 6: Population and Human Health

Iarnród Éireann

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Client Name:	Iarnród Éireann
Project Manager:	Alex Bradley
Author:	Bryony Kershaw/Heidi Curran

Jacobs U.K. Limited
Artola House
3rd & 4th Floors
91 Victoria Street
Belfast
BT1 4PN
T +44 (0)28 9032 4452
F +44 (0)28 9033 0713
www.jacobs.com

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Contents

Table of Acronyms

Acronym	Meaning
CEMP	Construction Environmental Management Plan
CSO	Central Statistics Office
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GVA	Gross Value Added
LEAa	Local Electoral Areas
PRoW	Public Right of Way
RoI	Republic of Ireland
WCH	Walkers, Cyclists and Horse Riders

6. Population and Human Health

6.1 Introduction

The Population & Human Health assessment seeks to identify effects, both tangible and intangible, that the proposed Project may have on people, communities and local businesses. These effects may include changes in employment levels and economic opportunities, community demographics, demand for public services and the amenity value of the local area. These effects have been assessed on the basis of expected consequences arising from a potential change in baseline conditions (impact) at each of the seven sites that form the proposed Project during construction and operation.

As set out in other chapters of the EIAR, CIÉ is making an application to An Bord Pleanála ('the Board') for a proposed Railway Order (RO) under the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) ('the 2001 Act') to eliminate/upgrade seven public road level crossings on the Dublin-Cork Railway Line ('the proposed Project') and the application is made in accordance with the 2001 Act and the EIA Directive (as codified and amended) and the Habitat/Birds Directives (as amended).

The assessment has covered effects at the local level, on people and communities in the immediate vicinity of the proposed Project and extend to the region of County Cork and Limerick City and County. More information on the study areas used in this assessment is provided below.

The following aspects of the receiving environment will be assessed:

- Amenity (term used to describe the overall pleasantness or attractiveness of the surroundings);
  - Communities;
  - Public Right of Ways (PRoWs);
  - Tourist attractions and recreational resources; and
  - Commercial receptors.
- Health;
  - Effects on wellbeing as a result of amenity effects, taking into account the national indicators for Sustainable development as set out in the Republic Of Ireland (ROI) Sustainable Development Goals 2019; and
  - The likelihood of any identified significant effects, across all topics, breaching WHO guideline values and standards for human health, as described in the relevant topics of the Environmental Impact Assessment Report (EIAR) including Volume 3, Chapter 10: Noise and Vibration, Chapter 11: Traffic and Transport, Chapter 13: Landscape and Visual and Chapter 15: Air Quality.
- Land Use (temporary or permanent land-take or change in access, and the category of land use); and
- Wider Effects:
  - Employment;
  - Tourism; and
  - Expenditure (supply chain).

6.2 Study Area

In the socio-economic context there is typically a wide range of receptors, including: individual land interests; communities and their facilities; tourist attractions and recreational sites; and commercial interests. Defining the spatial scope can be complex since these receptors would experience aspects of the proposed Project in different

ways and in different locations. This section sets out the various study areas used in the assessment of each type of socio-economic effect and is summarised in Table 6.1.

Local study area: defined by the small area which intersects the level crossing location. Small areas are defined by the Central Statistics Office (CSO)[1] as "*areas of population generally comprising between 80 and 120 dwellings*" (CSO, 2019). For the purposes of this assessment, six small areas have been assessed, baseline data for each Is provided in the subsequent section.

Wider study area: Defined by the local electoral areas (LEAs); LEAs are used to define local electoral areas for elections to County and city councils are considered an appropriate scale to assess impacts on the wider community (CSO, 2019). The LEA's considered in this assessment include Cappamore — Kilmallock, Fermoy and Kanturk – Mallow. For the assessment of agricultural land, the wider study area refers to the rural districts of Mallow and Kilmallock.

Regional effects: Defined by the County within which the crossing sits. The regions considered in this assessment include County Cork and Limerick City and County.

At each site, impacts have been assessed at the three spatial scales outlined above and displayed in Table 6.1. The assessment of amenity has examined impacts within the local study area. This has considered those residents who are in the closest proximity to the construction works and are most likely to suffer consequences as a result of the proposed Project. Health effects have also been examined within the local study area before being compared and contrasted with the wider study area.

Investigation into land use effects primarily considered the local study area before being compared against the wider County. This provides a good indication of the how the type of land use within the small area compares to the wider region in which it is located.

The nature of employment and tourism effects mean that the benefits are likely to extend further afield than just local study area. Therefore, this section of the assessment utilises the local, wider and regional data to present the demographics of the surrounding area in order to identify the individuals and receptors most likely to be impacted by the proposed Project. This includes the indirect and induced effects of the proposed Project (e.g. benefits to the supply chain and benefits arising from employment during construction) as well as the potential negative effects (e.g. increase in commute times due to congestion arising from construction works and the resulting reduction in access to employment sites).

Table 6. 1: Study area for each topic within the assessment of effects on population and human health

Assessment topic	Local study area	Wider study area	Regional study area
Amenity	✓	×	×
Health	✓	✓	×
Land use	✓	✓	×
Employment	✓	✓	✓
Tourism	✓	✓	✓
Expenditure	✓	✓	✓

6.3 Consultation

Consultation responses of relevance to Population and Human Health are summarised in Table 6.2.

Table 6. 2: Consultation Responses

Consultee	Comment	Response
Limerick County Council	In the Population and human health section it might be worth stressing increased safety of the rail network following the works, in this situation perhaps it might be worth citing the accident figure mentioned earlier in the scoping reports as they relate to the seven crossing points. This might also tie win with S17.2 on page 72 of the scoping document.	This is stressed in the assessment of each site of the proposed Project.
Cappamore-Kilmallock Municipal District Council (MDC)	In regard to Fantstown, Elected Members outlined concerns raised by local community regarding the lengthy diversion involved and that the community was being split in two with the suggested closure of this railway crossing. Unanimously requested consideration of an overbridge.	The diversion at Fantstown is considered in Section 6.6.1 of this chapter. The low use of the level crossing by all users means there is no significant effect as a result of the diversion. This includes use by the local community of two houses. Volume 2, Chapter 2 Considers the Project Need and Alternatives and provides further details on the options for this crossing.
	Requested consideration of impacts upon the local community, increased traffic commute times should be considered.	Impacts on the local community are considered in this chapter for all sites. Increased commute times have been considered in Volume 3, Chapter 11: Traffic and Transport.
Ballyhea Village Community Group	Residents expressed opposition to the proposed road from XC211 Newtown to the back of the Beechwood Estate on the basis that this proposal would introduce additional traffic. The provision of a pedestrian/cycle path on the same route was suggested as an acceptable alternative.	The concerns expressed by the local residents were taken into consideration by the Project Team and as a consequence of the community engagement process the route of the solution for XC211 Newtown was changed from the 'Green Route' to the 'Blue Route' (See Volume 2, Chapter 2: Project Need and Alternatives). A further consultation exercise was undertaken from 10th February – 6th March 2020 as a result of this engagement and is summarised at section 1.4.3 of Volume 2, Chapter 1: Introduction and Volume 5, Appendix 1E). The outcome of the further consultation was broad support for the 'Blue Route' as is now proposed. The impact on the residents of Ballyhea Village is assessed in this chapter at Section 6.6.4
	Concerns raised in regard to the proximity of the proposed bridge to the houses at the front of the Beechwood Estate. Issues such noise, visual impact, light and overshadowing were raised	The combination of noise, visual and traffic impacts are assessed in this chapter as 'amenity effects' There are no significant impacts on noise or traffic; impacts on views are assessed in Volume 3, Chapter 13 Landscape and Visual. Potentially significant impacts identified will be mitigated by a substantial planting scheme. No significant amenity impacts are anticipated.

Consultee	Comment	Response
	Some issues were raised in regard to the location of proposed infrastructure, proximity to dwellings, impacts upon amenity (noise and visual impacts), concerns regarding increased traffic and potential drainage issues. In addition, the legality of the proposed Project was questioned, the potential for a cattle underpass at XC215 and concerns regarding the movement of cattle were also raised.	Impacts on amenity are assessed in this chapter in Section 6.6. The potential for severance is also assessed in this chapter and also in Volume 3, Chapter 11: Traffic & Transport. No significant effects are identified for either amenity or severance.
Initial Public Consultation November 2019 to January 2020.	Issues raised: Severance caused by the existing railway line; Safety improvements required; Delay in crossing the railway line at present; Line of sight concerns Roads turned into Cul De Sacs; Potential for anti-social behaviour; Illegal dumping; Increased Isolation; and Potential Impact upon property value. Severance of agricultural land; Negative impacts upon nearby dwellings and settlements; Health impacts; Impacts upon privacy; Concerns regarding impact upon amenity; Loss of views;	Impacts on amenity, health, safety and severance are assessed in this chapter.
Second consultation	Local residents of Ballyhea village (Beechwood Estate) confirmed their preference for the connecting road to XC211 to be to the east of the railway.	Impacts on amenity and safety formed part of the assessment of options. See Volume 2, Chapter 2: Project Need and Alternatives.

6.4 Baseline Environment

For a description of the proposed Project and locations refer to Volume 2, Chapter 3: Project Description.

The proposed Project includes the elimination/upgrade of seven public road level crossings (henceforth referred to as level crossings) along the Limerick to Cork rail line. The sites sit within six distinct small areas, three Local Electoral Areas (LEAs) and two Counties. Key data for the wider study area and County is summarised in Table 6.3.

Table 6. 3: Baseline population statistics within the study area

	County		Wider study area (LEA's)		
	County Cork	Limerick City and County	Cappamore - Kilmallock	Fermoy	Kanturk - Mallow
Total Population	417,211	194,899	34,821	44,125	48,601
% of residents unemployed[2]	5.7%	8.3%	7.7%	6.8%	6.3%
% of residents with 'very good' self-reported health	63.1%	56.9%	59.7%	59.9%	59.5%
% of residents with 'very bad' self-reported health	0.2%	0.3%	0.2%	0.2%	0.3%
% of residents who travel less than 15 mins to work school or college	33.6%	35.0%	33.8%	38.4%	37.0%
% of residents employed in agriculture[3]	8.1%	6.4%	13.8%	11.8%	12.6%
% of manual skilled workers	10.1%	9.8%	11.5%	11.3%	10.2%

Table 6.3 shows that overall, County Cork has a lower unemployment rate and a higher proportion of residents with 'very good' self-reported health than Limerick City and County. There are less noteworthy differences between the LEAs in the wider study area, with little variation in the demographics of health, commute lengths, agricultural and manual skilled employment. Compared to the County statistics, the LEAs have a substantially higher percentage of residents employed in agriculture.

6.4.1 XC187 Fantstown

Amenity and Health

The local study area (represented by the relevant small area) covers a total area of 14.7km^2 and contained a population of 340 residents (as of Census day 2016). According to the 2016 Census, approximately 87.4% residents reported that they were healthy, 9.4% reported having fair health and 0.9% suffer from poor health[4] (CSO, 2016g). Of those who suffer from poor health, there are approximately 12 residents who are unable to work due to their sickness or disability (CSO, 2016c). The local study area has better health than its surroundings, with only 0.9% of residents suffering 'poor health', compared to 1.5% of residents in the wider study area (Cappamore-Kilmallock LEA).

Land Use

While the area is predominantly a dispersed rural area consisting of agricultural lands and farm buildings, there are also 338 residential properties within the local study area (CSO, 2016b). The nearest dwelling is less than 10m away from crossing XC187 Fantstown. The through road on which the crossing is located is a Public Right of Way and has several houses to the north, whilst the section of road to the south of the crossing is predominantly used for access to agricultural lands and holds one dwelling adjacent to the crossing. Just outside the local study area but within 1.5km of the crossing there are several recreational and community facilities including Staker Wallace

[2] Includes those "unemployed having lost or given up previous job" and "looking for first regular job"
[3] Includes those employed as "agricultural workers" or "farmers"
[4] Based on responses to the 2011 Census, the five potential responses have been combined to create three broader categories of health; Healthy (combining very good and good), Fair, and Poor (combining bad and very bad). Due to the fact that respondents are asked to self-report their health, these responses are highly subjective.

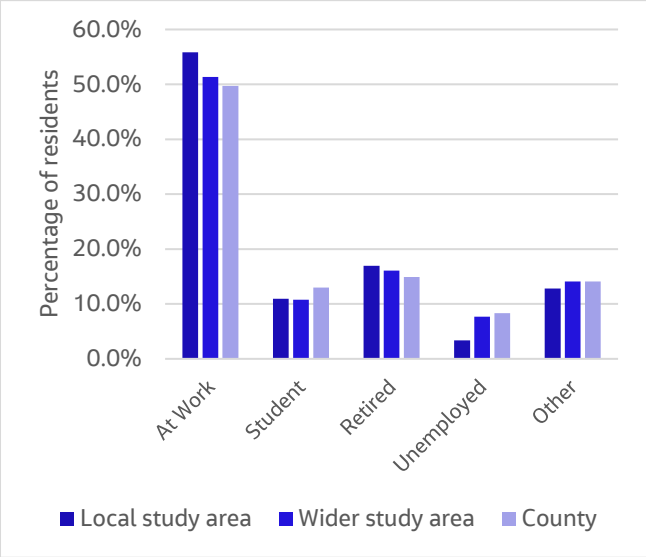
GAA Club. There is an existing Public Right of Way (PRoW) across the level crossing; there are no schools, emergency or health services within the local study area.

Wider Effects

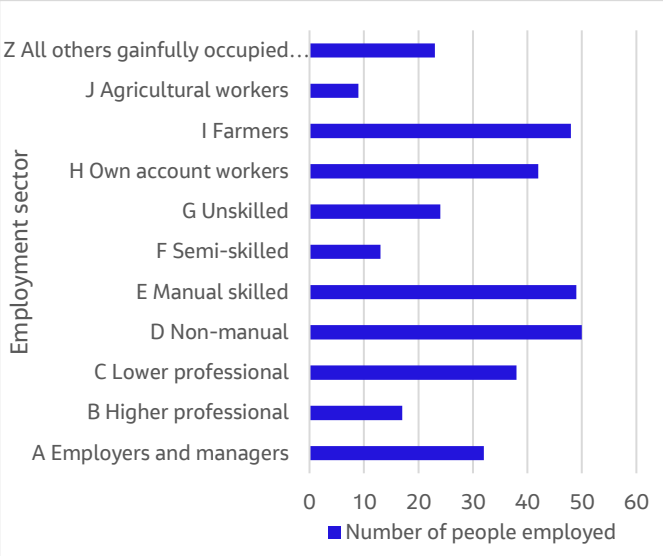
Employment

Inset Figure 6.2 and Inset Figure 6.1 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.2: Population aged 15 and over by principal economic status (CSO, 2016c)



Inset Figure 6.1 Employment by sector within the local study area (CSO, 2016d)



Inset Figure 6.2 shows that within the local study area, 55.8% of residents are 'at work', 10.3% are students and 17.0% are retired. The local study area exhibits different characteristics to the wider study area, with a higher number of people at work and consequently considerably lower unemployment. The percentage of people 'unemployed' is 4.3% lower than the wider study area, whilst the percentage of residents who are retired is 0.9% higher.

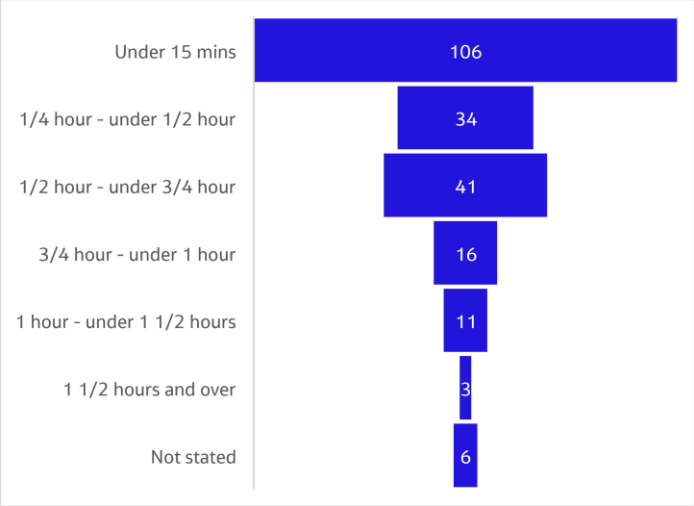
Inset Figure 6.1 shows that the three largest employment sectors in the local study area are non-manual, manual skilled and farming; between them employing approximately 147 residents. The graph shows that 16.5% of the population is employed in agriculture[5], with nine agricultural workers and 48 farmers. This is greater than the Limerick City and County average of 6.4% and reflects the large proportion of agricultural land within this area (CSO, 2016d). The closest major employment source to the crossing is Kilmallock, located approximately 3km to the west of the existing crossing in the wider study area. This area contains Killmallock Business Park, which includes several companies such as Zest Pharmacy and JJ's Craft Brewing Company. Apollo School of Motoring is located within the wider study area, 1.5km from the crossing.

[5] Employment in agriculture consists of those who reported their socio-economic group as "farmers" or "agricultural workers"

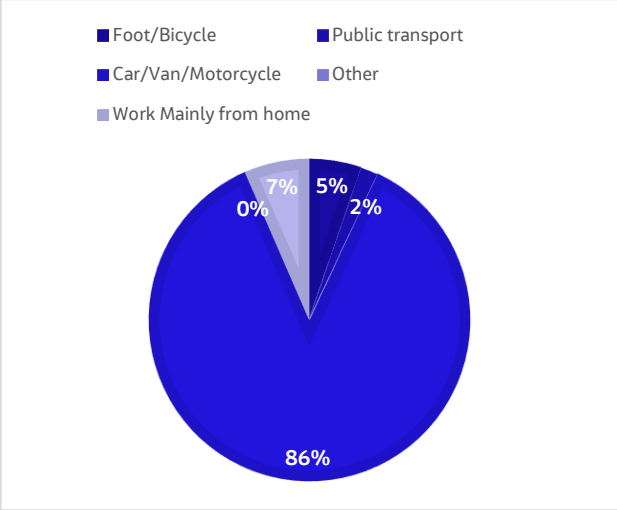
Travel to Work, School or College

Inset Figure 6.4 and Inset Figure 6.3 show the number of residents travelling to work, school or college by journey time and mode of travel.

Inset Figure 6.4 Population aged 5 years and over by journey time to work, school or college within the local study area (CSO, 2016f)



Inset Figure 6.3 Population aged 5 years and over by means of travel to work, school or college within the local study area (CSO, 2016e)



Inset Figure 6.4 shows that within the local study area, approximately 106 residents take less than 15 minutes to travel to work, school or college. This equates to 48.8% of total journeys in the study area. Overall, most residents travel less than 45 minutes, with only 14 residents travelling over one hour to get to work, school or college. Inset Figure 6.3 shows that travel by car/van/motorcycle is the most common form of travel with over 87% of residents travelling to work, school or college via this mode. Less than a tenth of residents in the local study area (6.5%) work mainly from home.

Tourism

The local study area is not a popular tourist destination with only one guest house, House of Aunt Mary's B&B, located approximately 800m to the west of the level crossing. Within the wider study area is Kilmallock, the fourth largest town in County Limerick. Kilmallock is a historical town which contains the remains of medieval walls and King John's Castle. The town is also home to the Friars Gate Theatre and Arts centre, a civic centre and is located 10km from the Ballyhoura Mountain Biking Centre which is a key tourism destination in the region. Kilmallock is also home to many small enterprises including The Old Strand Bar & Restaurant, Abbey Veterinary Clinic and Deebert House Hotel.

In 2017, County Limerick generated tourism revenue of over €307million, with 931,000 visits from domestic and overseas tourists (Limerick City and County Council, 2019). Total expenditure arising from domestic residents' trips to Limerick totalled €46million, averaging approximately €162 spent per trip. Limerick underperforms in the domestic tourism market with a significantly lower numbers of trips, compared to other counties in the west of Ireland. Similarly, the quantity of accommodation stock, specifically hotels, in Limerick County is low when compared to other Irish cities and counties with only 28 hotels compared to 147 in Dublin, 78 in Cork and 79 in Galway. The total accommodation stock (including guesthouses, bed and breakfasts and hostels) registered with Fáilte Ireland in 2017 totals 69, equating to 6,177 bed spaces. The biggest tourist attractions in the County are The Hunt Museum, King John's Castle and Limerick City Gallery of Art.

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.4.2 XC201 Thomastown

Amenity and Health

The local study area (the relevant small area) covers a total area of 9.7km^2 and as of Census day 2016, contains a total population of 337. According to the 2016 Census, 92.6% of residents are in good health, 5.0% reported having fair health and 0.9% suffer from poor health (CSO, 2016g). Of these approximately 12 residents are unable to work due to their sickness or disability (CSO, 2019c). The local study area has better health than the surrounding areas, with only 0.9% of residents suffering 'poor health' compared to 1.5% in the wider study area.

Land Use

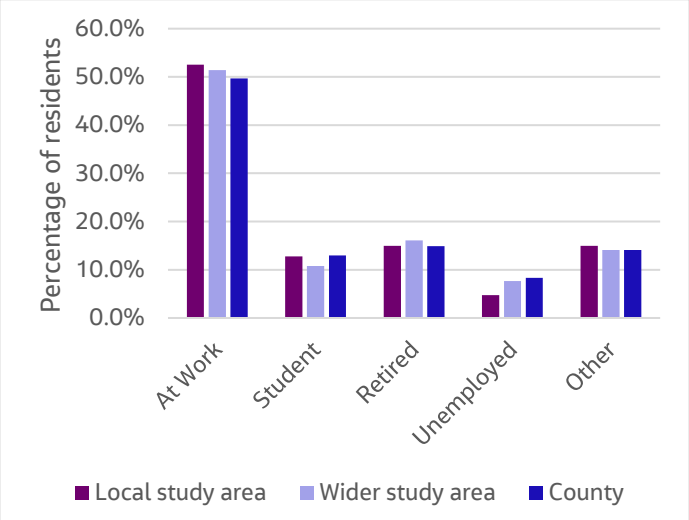
Crossing XC201 Thomastown is located approximately midway between Kilmallock and Charleville (approximately 4.5km to each). The local study area is predominantly rural, consisting of agricultural lands and farm buildings and 337 residential properties (CSO, 2016b). The nearest dwelling is located within 10m of the crossing. The through road on which the crossing is located is a Public Right of Way and has approximately four houses to the north of the railway and approximately four houses on the stretch of road south of the crossing. Within the wider study area, approximately 1.5km from the site is Dermot Kelly Motors and Our Lady Queen of Peace Church and Church hall. There are no schools, emergency or health services or PRoW located near the site.

Wider Effects

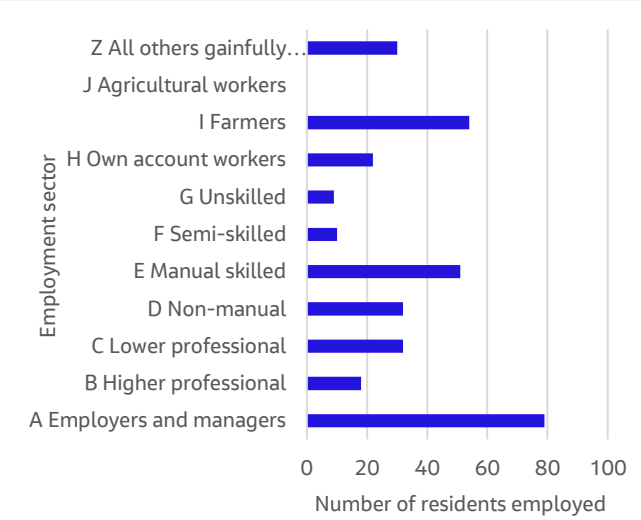
Employment

Inset Figure 6.5 and Inset Figure 6.6 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.5 Population aged 15 years and over by principal economic status (CSO, 2016c)



Inset Figure 6.6 Persons in private households by socio-economic group of reference in the local study area (CSO, 2016d)



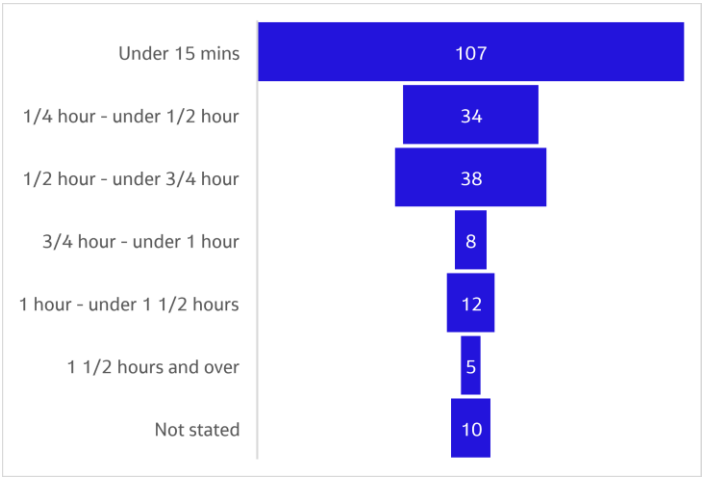
Inset Figure 6.5 shows the local study area has very similar characteristics to the wider area, with a marginally higher number of people at work. The majority of the local study area (52.6%) are employed, 12.8% are retired, and 4.7% are unemployed. The percentage of people 'at work' is marginally higher (1.2%) than the wider study area, while the number of students is 2.0% greater.

Inset Figure 6.6 shows that, within the local study area, approximately 79 residents were employed as employers and managers. The next most popular employment category was famers, with 54 residents employed in this category. No residents were employed as agricultural workers. Similarly, only a small proportion of the local study area fall within the unskilled or semi-skilled employment groups.

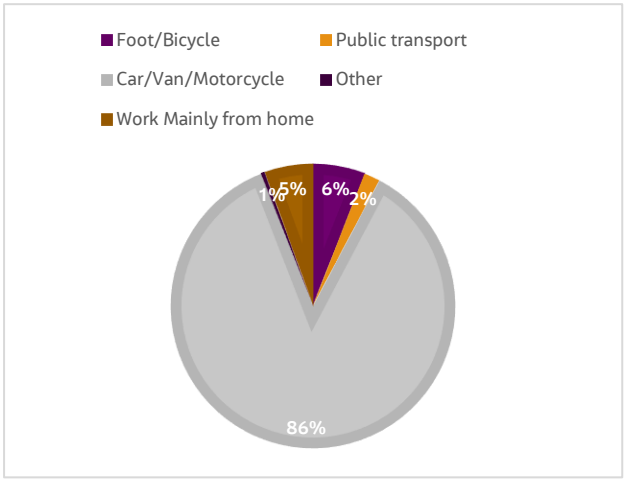
Travel to work, school or college

Inset Figure 6.7 and Inset Figure 6.8 show the number of residents travelling to work, school or college by journey time and mode of travel.

Inset Figure 6.8 Population aged 5 years and over by journey time to work, school or college in the local study area (CSO, 2016f)



Inset Figure 6.7 Population aged 5 years and over by mode of travel to work, school or college in the local study area (CSO, 2016e)



Inset Figure 6.8 shows that within the local study area, approximately 107 residents (52.5%) have a commute time of less than 15 minutes, and 17 residents (7.9%) travel for longer than an hour, both of which are higher than the average for the wider study area. Inset Figure 6.7 shows that the vast majority of commuters (86.4%) travel by car/van/motorcycle, while very few utilise public transport (1.8%). Approximately 5.9% of the study area travel to work, school or college by foot. A similar number (5.5%) work mainly from home.

Tourism

There are no hotels or B&B's in the local study area however the crossing is located almost mid-way between Charleville and Kilmallock in the wider study area which will attract a small number of visitors.

Charleville borders the counties of Cork and Limerick and is home to Charleville Golf Club, Charleville Park Hotel and Leisure Club, Geary's bar and a local design and craft studio. Kilmallock is located approximately 4.5km away and is the fourth largest town in County Limerick. Kilmallock is a historical town which contains the remains of medieval walls and King John's Castle. The town is also home to the Friars Gate Theatre and Arts centre, civic centre and located 10km from the Ballyhoura Mountain Biking Centre which is a key tourism destination in the region. Kilmallock is also home to many small enterprises including The Old Strand Bar & Restaurant, Abbey Veterinary Clinic and Deebert House Hotel.

For tourism information in Limerick County, see baseline information provided for crossing XC187 Fantstown.

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.4.3 XC209 Ballyhay

Amenity and Health

The local study area covers a total area of 2.2km^2 and as of Census day 2016, contains a total population of 166. Within the local study area 88.0% residents report their health as good, 10.2% reported fair health and 1.2% suffer from poor health (CSO, 2016g). Of these five residents are unable to work due to their sickness or disability (CSO, 2016c). The local study area has better health than the surrounding area, with only 1.2% of residents suffering 'poor health' compared to 1.5% in the wider study area (Fermoy).

Land Use

Within 10 metres of the crossing there is a residential dwelling and a stable. The through road is a Public Right of Way and a forked junction where three roads meet at the crossing -the each containing a number of residential houses and farm buildings. The local study area surrounding the XC209 Ballyhay crossing is characterised as a rural dispersed community consisting of 163 residential properties (CSO, 2016b) and a built-up area which consists of a supermarket distribution centre, GAA Club and ribbon development centring on a crossroads to the west.

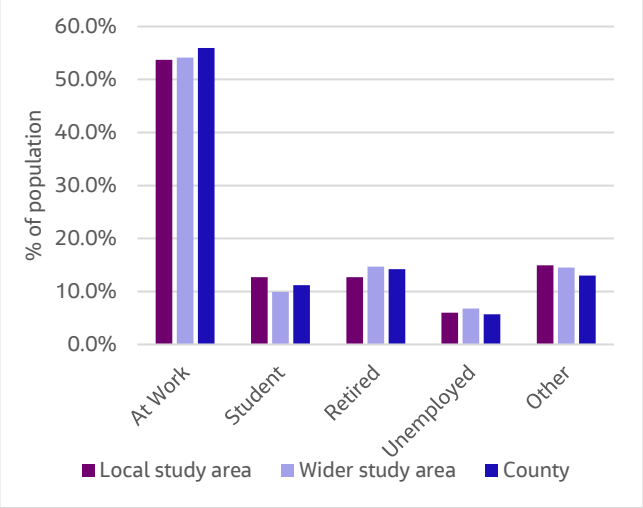
In the wider study area, there are a number of small businesses (including O'Riordan Sheds), housing clusters and individual houses, farm buildings and recreational facilities (including Ballyhea GAA club). There are no schools, emergency or health services or PRoW located in close proximity to the site.

Wider Effects

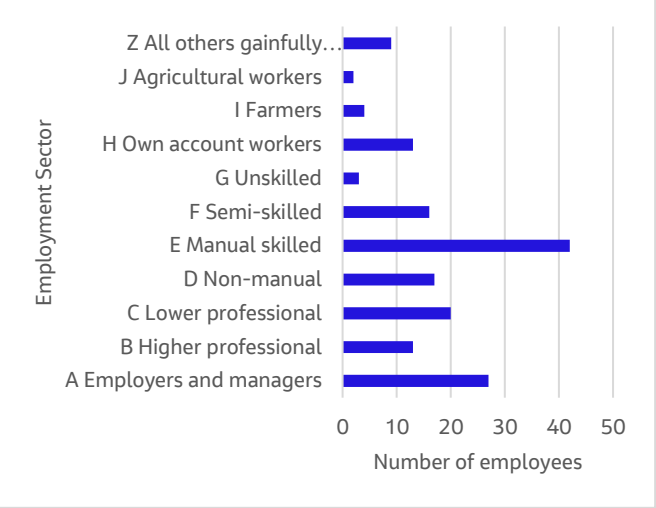
Employment

Inset Figure 6.9 and Inset Figure 6.10 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.9 Population aged 15 years and over by principal economic status (CSO, 2016c)



Inset Figure 6.10 Persons in private households by socio-economic group of reference person in the local study area (CSO, 2016d)



Inset Figure 6.9 shows that 53.7% of the local study area are at work, 12.7% are students and 12.7% are retired. The local study area has a lower percentage of its population "at work," and a higher percentage of the population listed as students than the wider study area (Fermoy).

Inset Figure 6.10 shows that despite being a relatively rural area, farmers and agricultural workers were the lowest and third lowest socio-economic groups according to the 2016 census, with only six members of the local

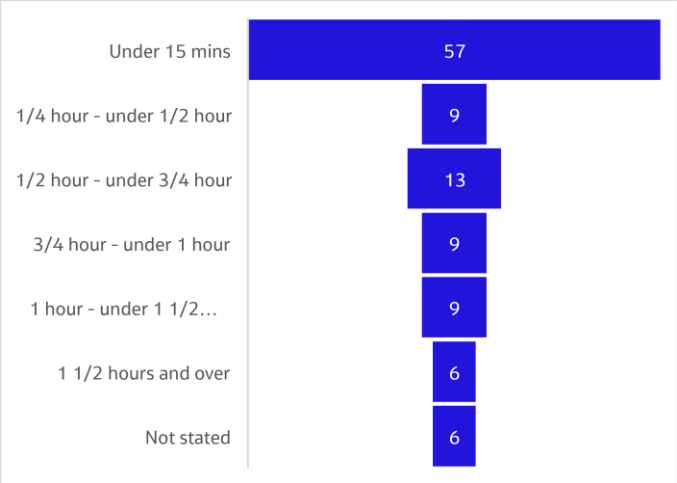
population employed in these industries. The most popular employment category is the manual skilled category, with 42 employees, with 'employers and managers' and 'lower professional' in second and third respectively.

Charleville is just under 5km away and is the nearest town to the site. There are also a number of businesses on the L1322 road approximately 1km to the West of the crossing, including a Lidl Distribution Centre and O'Brien Refrigeration and Catering Equipment.

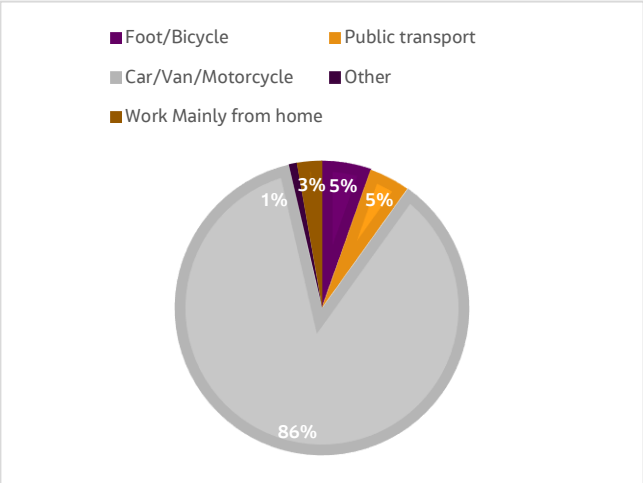
Travel to work, school or college

Inset Figure 6.11 and Inset Figure 6.12 show the number of residents travelling to work, school or college in the local study area by journey time and mode of travel.

Inset Figure 6.11 Population aged 5 years and over by journey time to work, school or college (CSO, 2016f)



Inset Figure 6.12 Population aged 5 years and over by means of travel to work, school or college (CSO, 2016e)



Inset Figure 6.11 shows that within the local study area, the majority of residents (52.3%) travel less than 15 minutes to work, school or college. This is higher than the wider study area average of 38.4%. Very few residents travel between ¼ - ¾ hour (20.2%) compared to the wider study area average (39.0%).

Inset Figure 6.12 shows that the majority of residents (86.5%) in the local study area travel to work, school or college by car/van/motorcycle, while only 5.4% travel by foot/bicycle. The graph also shows that 4.5% of the study area use public transport as their main means of travel and 2.7% work mainly from home.

Tourism

The crossing is located in County Cork which is well known for Blarney Castle, Charles Fort and the Fota wildlife park. The wider study area (Fermoy) is not known for being a tourist destination but does include a handful of attractions such as Fermoy Town (home to the Thomas Kent Bridge) and Corrin Wood National forest. The local study area is not a key tourism destination with only one B&B, Marengo Guest accommodation, located approximately 1.5km south west of the crossing.

In 2018, the top free attraction in County Cork was Blarney Castle and Gardens attracting 460,000 visitors. The top paid attraction was Doneraile Park which attracted 490,000 visitors in 2018. In 2017, there were 1,600,000 overseas visitors to the County, spending €631m making Cork the third most popular County behind Dublin and Galway (Limerick City and County, 2019). Domestic visitors accounted for 1,113,000 visits, accounting for €247million in tourism revenue and making it the second most popular County in Ireland. In 2017, there were 78 registered hotels with an average room costing €94.60 (Limerick City and County, 2019).

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.4.4 XC211 & XC212 Newtown and Ballycoskery

Amenity and Health

The local study area covers a total area of 7.64km^2 and contains a total population of 273 (Census 2016). 86.8% of residents reported being healthy; 10.3% reported having fair health and 2.2% reported suffering from poor health (CSO, 2016g). Of these there are 14 who are unable to work due to their sickness or disability (CSO, 2016c). The local study area has poorer health than the surrounding area, with 2.2% of residents suffering 'poor health' compared to 1.5% in the wider study area (Fermoy).

Land Use

The XC212 Ballycoskery crossing is located close to the local Primary School (east side) and the Beechwood housing estate (west side), whilst the XC211 Newton crossing is approximately 500m further to the north-east in a slightly more rural, dispersed location outside the village. Both crossings are Public Rights of Way. There is a total of 274 residential properties within the local study area surrounding the XC211 & XC212 crossings (CSO, 2016b).

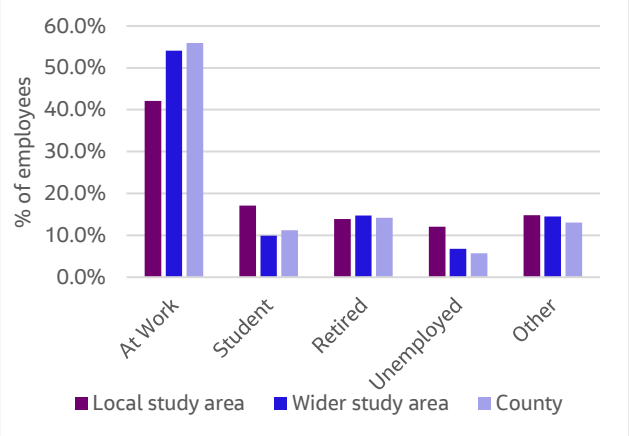
The nearest dwelling to the Newton crossing is 15m away, with four dwellings on the through road south of the crossing and a number of dwellings on the through road heading north towards Ballyhay. Crossing XC212 Ballycoskery is close to some main settlements. The Beechwood Drive housing development is located within 50m to the west of the crossing and the Ballyhea National school is approximately 80m to the east. Within the wider study there is also St Mary's Roman Catholic Church, Top Oil petrol station and Supermac's fresh express restaurant. There are no emergency or health services, or PRoW located in close proximity to the site.

Wider Effects

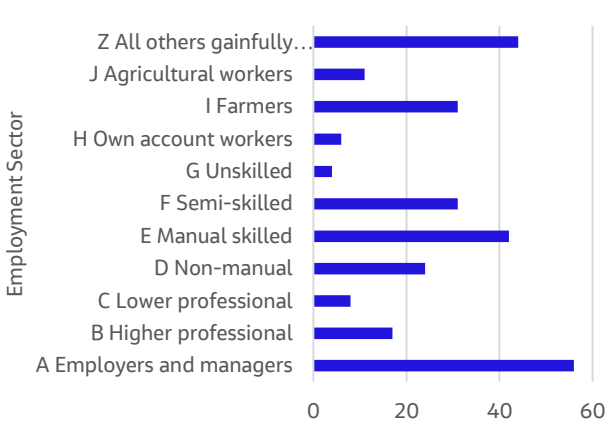
Employment

Inset Figure 6.13 and Inset Figure 6.14 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.13 Population aged 15 years and over by principal economic status (CSO, 2016c)



Inset Figure 6.14 Persons in private households by socio-economic group of reference person within the local study area (CSO, 2016d)



As shown in Inset Figure 6.13, within the local study area, 42.1% of residents are at work, 17.1% are students and 13.9% are retired. The local study area has considerably higher levels of unemployment (12%) than the wider

study area (6.8%) and the County (5.7%). The number of students in the local study area is also 5.9% higher than the County average (11.2%).

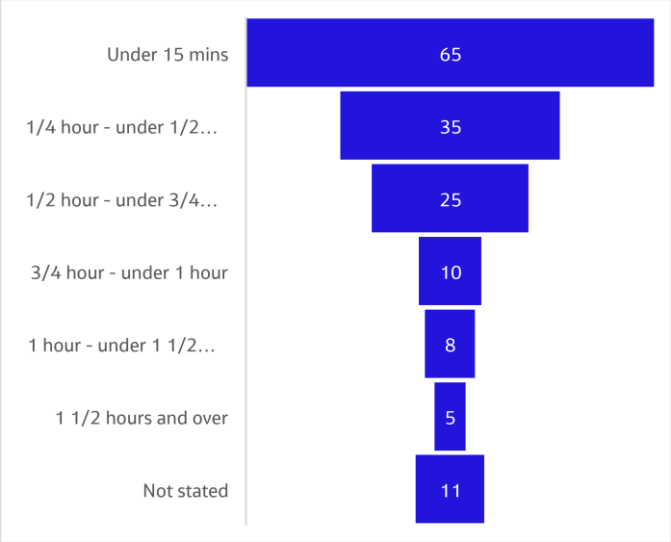
Inset Figure 6.14 shows that within the local study area, the majority of residents (56) are employed as employers and managers. There were very few unskilled and lower professionals, indicating a good level of educational attainment within the area. Within the local study area 15.3% of the population are employed in agriculture, with approximately 11 agricultural workers and 31 farmers. This is greater than the County Cork average of 8.1% and indicates a considerable presence of agricultural land within the area (CSO, 2016d).

Within the local study area there are a number of commercial facilities including a filling station and Supermac's Fresh Express fast-food outlet. Charleville, located 5km to the north of the local study area, is a key local employment hub.

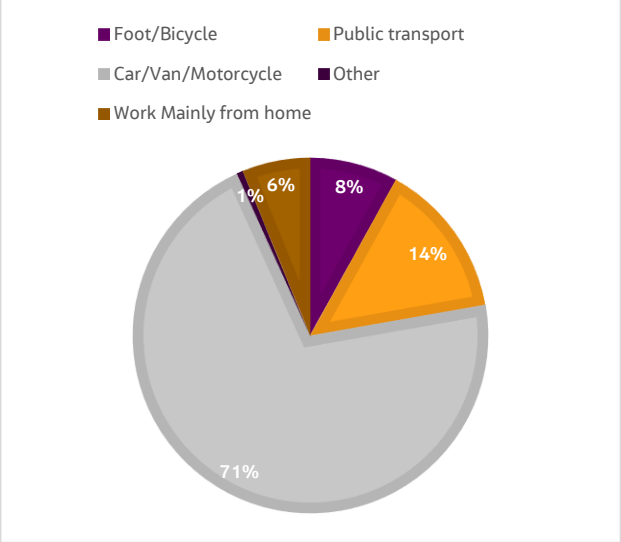
Travel to work, school or college

Inset Figure 6.15 and Inset Figure 6.16 show the number of residents travelling to work, school or college by journey time and mode of travel.

Inset Figure 6.15 Population aged 5 years and over by journey time to work, school or college (CSO, 2016f)



Inset Figure 6.16 Population aged 5 years and over by means of travel to work, school or college (CSO, 2016e)



Inset Figure 6.15 shows that the majority of the local study area (65 residents) travel less than 15 minutes to work, school or college. Approximately 13 residents have commute times of over one hour. Inset Figure 6.16 shows that the majority of the local study area (71.0%) travel by car/van or motorcycle, 8.0% by foot/bicycle and 6.2% work mainly from home. The local study area has a higher percentage of residents travelling by public transport (14.2%) compared to the wider study area (7.0%).

Tourism

The crossing is located in County Cork which is well known for Blarney Castle, Charles Fort and the Fota wildlife park. The wider study area (Fermoy) is not known for being a tourist destination but does include a handful of attractions such as Fermoy Town (home to the Thomas Kent Bridge) and Corrin Wood National forest. The local study area is not a key tourism destination with only one B&B, Marengo Guest accommodation, located approximately 1.2km north-west of the proposed Project.

For tourism data in County Cork, see the baseline information provided for crossing XC209 Ballyhay.

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.4.5 XC215 Shinanagh

Amenity and Health

The local study area covers a total area of 23.9km^2 and contains a total population of 344 (Census 2016). Within the local study area, 92.4% residents good or very good health, 4.9% reported fair health and 1.7% reported poor health (CSO, 2016g). Of these, nine are unable to work due to their sickness or disability (CSO, 2016c). The local study area has poorer health than the surrounding area, with 1.9% of residents suffering 'poor health' compared to 1.5% in the wider study area (Fermoy).

Land Use

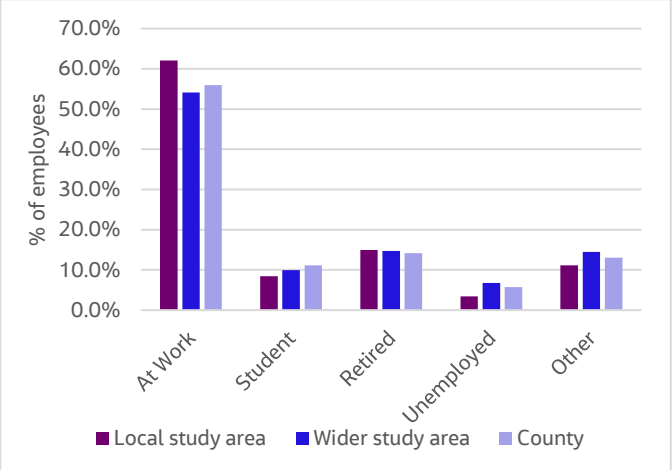
The wider study area is predominantly rural in character with a dispersed population and low-density individual housing. There are a number of farm buildings and rural dwellings as well as a few housing clusters within the local study area. Similarly, within the local study area there are 356 residential properties (CSO, 2016b). The nearest dwelling is less than 10m away from the site but appears to be derelict. Thereafter, the nearest dwelling is approximately 400m away from the crossing. The through road, on which the crossing is located, is a Public Right of Way and leads directly onto the N20 road between Limerick and Cork. Within the wider study area there are two motor businesses, O'Callaghans Garage and Ballyhea tyres, as well as an old church and graveyard ruin. There are no schools, emergency or health services or PRoW located in the local study area.

Wider Effects

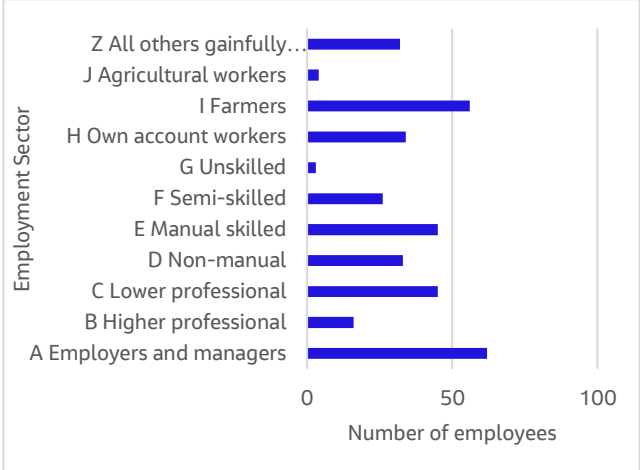
Employment

Inset Figure 6.17 and Inset Figure 6.17 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.18 Population aged 15 years and over by principal economic status (CSO, 2016c)



Inset Figure 6.17 Persons in private households by socio-economic group of reference person in the local study area (CSO, 2016d)



The local study area surrounding the site has 62.1% of its population 'at work', which is higher than the County Cork average and 8% greater than the wider study area average (54.1%).

Within the local study area, 17.4% of the local population are employed as employers or managers. Farmers were the second largest socio-economic group according to the 2016 census, with 16.9% of the population employed

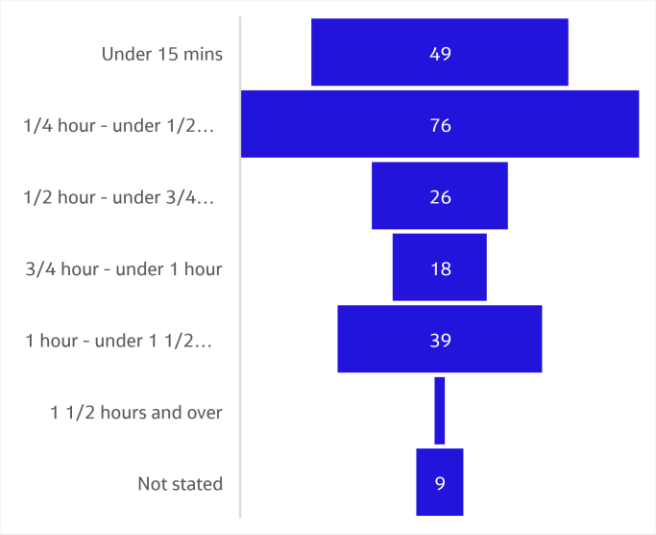
in agriculture[6]. This includes four agricultural workers and 56 farmers which is greater than the County Cork average of 8.1% and reflects the large proportion of agricultural land within the area (CSO, 2016d).

The site is located close to several employment hubs including Buttevant, 5km from the proposed Project and Charleville, 8km to the north; it is approximately mid-way between Limerick and Cork, both of which are easily accessible by car.

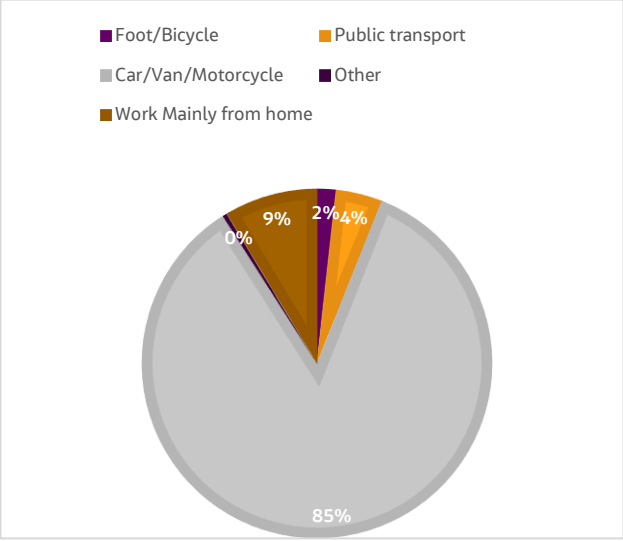
Travel to work, school or college

Inset Figure 6.20 and Inset Figure 6.19 show the number of residents travelling to work, school or college by journey time and mode of travel.

Inset Figure 6.20 Population aged five years and over by journey time to work, school or college (CSO, 2016f)



Inset Figure 6.19 Population aged 5 years and over by means of travel to work, school or college (CSO, 2016e)



Inset Figure 6.20 shows that within the local study area, the majority of residents travel for between ¼ hour to ½ hour, comprising 34.7% of total commutes. This is higher than the wider study area average of 22.6%. There are also a large number of commuters travelling between 1 hour and 1.5 hours (17.8%), which is considerably higher than the wider study area (6.9%).

Inset Figure 6.19 shows that within the local study area the vast majority of the local population travel to work/school or college by car/van/motorcycle (85.0%) whilst a relatively high percentage work mainly from home (8.6%). Approximately 4.3% of residents commute by public transport and only 1.7% travel to work, school or college by foot/bicycle.

Tourism

The crossing is located in County Cork which is well known for Blarney Castle, Charles Fort and the Fota wildlife park. The wider study area (Fermoy) is not known for being a tourist destination but does include a small number of attractions such as Fermoy Town (home to the Thomas Kent Bridge) and Corrin Wood National forest. However, within the relevant local study area there are no hotels, B&B's, or other potential tourist attractions.

[6] Employment in agriculture consists of those who reported their Socio-economic group as "farmers" or "agricultural workers"

For tourism data in County Cork, see the baseline information provided for crossing XC209 Ballyhay.

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.4.6 XC219 Buttevant

Amenity and Health

The local study area covers a total area of 0.8km^2 and contains a population of 165 (Census 2016). 80% of residents reported their health as good or very good, 10.9% reported fair health. 4.8% reported suffering from poor health (CSO, 2016g), this compares to 1.6% in the wider study area (Kanturk-Mallow) in which 12 residents are unable to work due to their sickness or disability (CSO, 2016c);

Land Use

The local study area is rural in character with some higher-density housing and small-scale commercial enterprises in Buttevant town - located 500m to the south-east. Buttevant has a number of local facilities including schools, churches, a GP surgery, a number of shops, cafes, bars, restaurants and a number of other services and businesses. Within the local study area there are a total of 163 residential properties (CSO, 2016b).

The nearest dwelling is 100m from the crossing. The through road, on which the crossing is located, is a Public Right of Way and has a number of houses to the east and west of the crossing in addition to a number of farm buildings and farm yards. Buttevant Rail Disaster Memorial is also 30m to the east of the crossing.

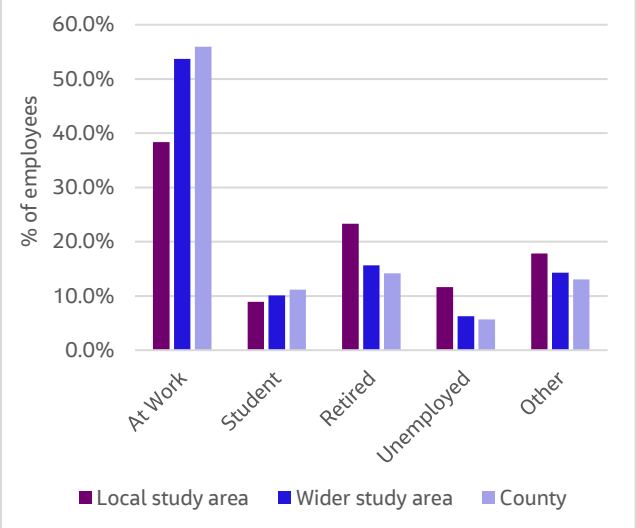
Within the local study area, Coláiste Pobail Naomh Mhuire is 500m from the site, and within 1km are Greenpark Industrial Estate and Buttevant GAA Club. Within the wider study are, there are many other facilities in Buttevant town which is less than 1km away, including a pharmacy, Buttevant Soccer Club, a playground, St Mary's Catholic Church, a number of pubs, restaurants, and a number of other small and large businesses. Along the main access road from the west, approximately 1.3km to the west, is Crossroads Gertys gastro pub.

Wider Effects

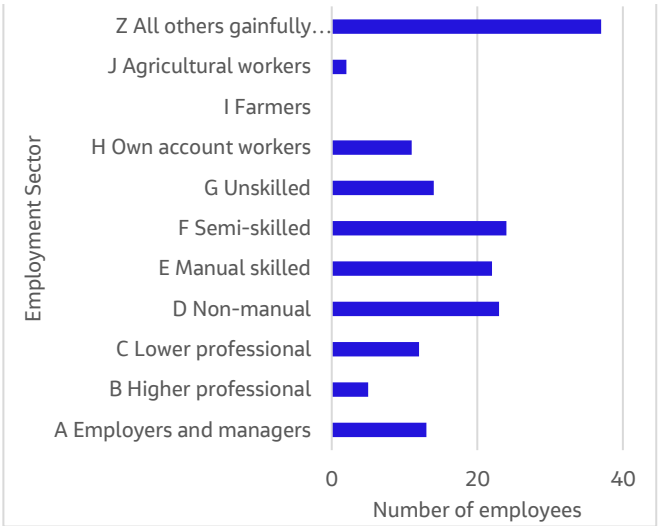
Employment

Inset Figure 6.21 and Inset Figure 6.22 show the employment status of residents across the three spatial scales of the assessment.

Inset Figure 6.21 Population aged 15 years and over by principal economic status (CSO, 2016c)



Inset Figure 6.22 Persons in private households by socio-economic group of reference person in the local study area (CSO, 2016d)



Inset Figure 6.21 shows that within the local study area, 38.4% of the study area are "at work", 8.9% are students, 23.3% are retired and 11.6% are unemployed. Compared to the wider study area, the local study area has considereably lower levels of employment and significantly higher number of unemployed and retired residents.

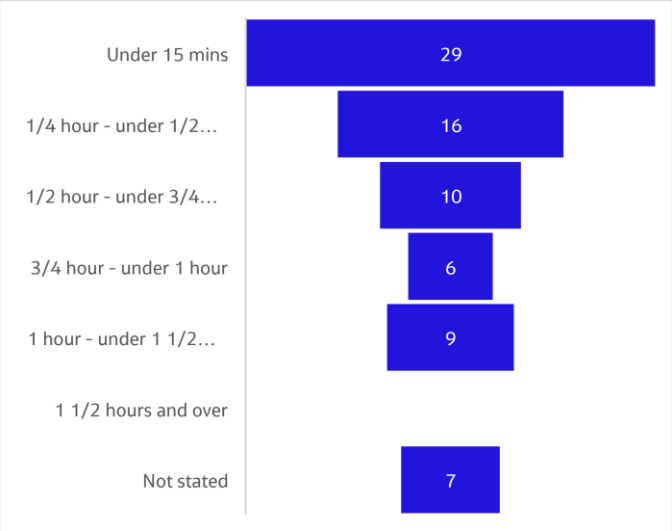
Inset Figure 6.22 shows that there are a wide variety of socio-economic groups represented within this local study area, with the top 3 comprising of semi-skilled, non-manual and manual skilled. Additionally, 1.2% of the population are employed in agriculture[7], with only two agricultural workers and no farmers. This is less than the County Cork average of 8.1% and indicates a lack of agricultural land within the area (CSO, 2016d).

There will be some employment within Buttevant town itself, with Greenpark Industrial Estate and a handful of other small/medium enterprises. The more industrial area of Mallow is located at approximately 11km to the south, estimated to be a 15 minute drive and provides a wider variety of employment.

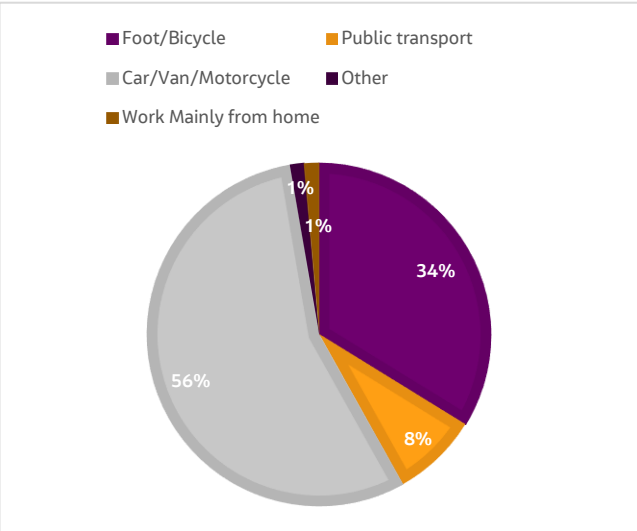
Travel to work, school or college

Inset Figure 6.23 and Inset Figure 6.24 show the number of residents travelling to work, school or college by journey time and mode of travel.

Inset Figure 6.23 Population aged five years and over by journey time to work, school or college (CSO, 2016f)



Inset Figure 6.24 Population aged 5 years and over by means of travel to work, school or college (CSO, 2016e)



Inset Figure 6.23 shows that the most common commute time is under 15 minutes (37.7%). Within the local study area commute times vary, however the figure shows that no residents commute for more than 1 ½ hours to work, school or college. Inset Figure 6.24 shows that over half the population (55.4%) travel to work, school or college by car/van/motorcycle, 33.8% travel by foot/bicycle, 8.1% travel by public transport and 1.4% work mainly from home. The percentage of residents travelling by foot/bicycle is considerably higher than the wider study area (Kanturk – Mallow) (9.8%).

Tourism

The crossing is located in County Cork which is well known for Blarney Castle, Charles Fort and the Fota wildlife park. The wider study area (Fermoy) is not known for being a tourist destination but does include a handful of attractions such as Fermoy Town (home to the Thomas Kent Bridge) and Corrin Wood National forest. However, within the relevant local study area there are no hotels, B&B's, or other potential tourist attractions.

[7] Employment in agriculture consists of those who reported their Socio-economic group as "farmers" or "agricultural workers"

For tourism data in County Cork, see the baseline information provided for level crossing XC209 Ballyhay.

Survey Work

No field surveys are required for any of the assessments in this chapter.

6.5 Assessment Methodology

6.5.1 Legislation, Policy & Guidance

Legislation

The following legislation and policy documents have been used to inform the assessment of impacts on population and human health:

- 'European Union (planning and development) (Environmental Impact assessment) Regulations 2018' (S.I. no. 296 of 2018):
- 'Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development, Ireland' (2019);
- Cork County Development Plan 2014;
- Cork 2050 – Delivering a Bright Future for Cork (CCC);
- Limerick County Development Plan 2010 to 2016; and
- Limerick 2030 – An economic and Spatial Plan for Limerick.

Guidance

There is no definitive guidance on the assessment of population and health effects within EIA, and no prescribed method for determining the sensitivity of receptors or the significance of effects on those receptors. Professional judgement has therefore been applied throughout the assessment.

The method to be applied for the amenity assessment draws upon existing sector-specific guidelines, relevant planning policy, and existing industry best practice, including examples from other nationally significant infrastructure projects, as well as available literature on ex-post (after the event) effects.

The method for the wider effects' and land use assessment will be informed by the following documents (a number of which are guidance for roads, the principles of which can will be applied to this site specific and linear project):

- Guidelines on Information to be Contained in Environmental Impact assessment Reports (Draft), EPA, August 2017;
- Guidelines and Principles for Social Impact Assessment (Environmental Impact Assessment Review 15.1 (1995);
- Health Impact Assessment in EIA (UK), (IEMA, 2018); and
- Design Manual for Roads and bridges Volume 11 (UK) (2019).

Assessment Methodology

Amenity

The amenity assessments draws on the residual impacts identified in other assessments, specifically, visual, traffic and transport, air quality and noise. As a result, the amenity and health assessments are inherently built on the assumptions and limitations of the constituent assessments, with sometimes differing 'worst case scenarios.'

For the purposes of this assessment, detrimental effects on amenity are considered to arise when a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor, although for

commercial and tourism receptors a secondary amenity effect can occur as a result of just one of these effects. For example, a visual effect could have a secondary effect on the operation of the tourism business, potentially resulting in a loss of trade. The purpose of the amenity assessment is to recognise and assess these effects.

In determining whether the combined topic effects create a significant effect at a community level, the minimum threshold of a community is applied: an effect must be shared by at least five properties. Where moderate or major effects are experienced by fewer than five properties, this will be noted.

Health

The assessment will consider the baseline health of the study area and identify potential disruption to various determinants of health and health pathways for example;

- Potential for severance from community/recreational facilities including green space and health care facilities,
- Changes to the existing transport network and usage in the area including PRoW, cycle ways, non-designated public routes and public transport routes,
- Existing air quality management areas and ambient air quality levels,
- Areas recognised as being sensitive to noise,
- Sources and pathways of potential pollution (e.g. land/water contamination); and
- Landscape amenity.

The assessment will consider the direct effects reported by the other environmental topics within this ES (Noise, Air Quality, Traffic and Transport and Landscape and Visual) to determine changes to health determinants. Health outcomes are determined as per Table 6.4.

Table 6. 4: Human health outcome categories

Health outcome category	Health outcome description
Positive	A beneficial health impact is identified
Neutral	No discernible health impact is identified
Negative	An adverse health impact is identified
Uncertain	Where uncertainty exists as to the overall health impact

Land Use

The land use assessment will draw broadly on guidance outlined in the Design Manual for Roads and Bridges (Volume 11 – Population and Human Health). Whilst the guidance was written specifically for the United Kingdom, it is a highly comprehensive guide outlining specific criteria to assess the impacts on all forms of land use. Therefore, based on the absence of comprehensive guidance for Ireland, the DMRB guidance is commonly used for population and health assessments and is deemed applicable for this assessment. The assessment will consider likely changes to accessibility and severance on private property and housing, community land and assets, development land and businesses and agricultural land holdings. It will also consider, specifically, walkers, cyclists and horse riders (abbreviated to WCH in the assessment for ease of reference). This takes into account the location and number of properties/assets where access will be affected, the type and number of agricultural land holdings at risk and the type, location, and extent of WCH provision (e.g. public rights of way (PRoW)).

Employment

The employment assessment will consider any potential increase or decrease in employment as a result of the proposed Project. The assessment will also consider any impacts on people accessing employment through increased traffic flow, road closures or diversions.

Tourism

Effects on individual tourism receptors are considered within the assessment of amenity effects on tourist attractions and commercial receptors. In the case of visitor numbers, available research and evidence from similar projects have been considered to determine whether or not a significant effect on tourism is likely to occur. Similarly, the presence of construction workers resulting in an increased demand in the tourism accommodation sector has been assessed based on the estimated peak workforce and the likely effects that would occur based of evidence from similar projects.

Expenditure (supply chain)

The assessment considers revenue and supply chain effects arising from expenditure during construction of the proposed Project. This also includes the effects of construction workers spending on tourism accommodation and facilities in the local area. Professional Judgement is applied to keep the assessment proportionate. The expenditure is considered in the context of the strength of the local, wider and regional economy. The project is not expected to have a significant impact on expenditure during operation. Therefore, this is scoped out of the assessment.

Sensitivity of Receptors

The relative sensitivity of each resource or receptor will be considered on an individual basis, using Professional judgement and taking into account various factors as outlined in Table 6. 5.

Table 6. 5: Sensitivity of receptors for the population and human health assessment

Assessment topic	Sensitivity of receptors
Amenity	Sensitivity of receptors is determined based on Professional judgement. For example, specific questions to assess the sensitivity of commercial receptors include: Is this an outdoor asset and therefore more reliant on the quality of the environment, e.g. a football stadium? Does the operation of the business rely on the visual landscape to attract trade, e.g. a restaurant or hotel? Are the customers or visitors to the commercial receptor particularly sensitive to environment effects, e.g. office workers sensitive to noise?
Health	Sensitivity of receptors has not been assessed explicitly, rather the sensitivity of the population is considered qualitatively based on the baseline health of the study area for example, the percentage of the community with increased susceptibility to health issues.
Land use	The sensitivity of land use receptors will be based broadly on the guidance set out in the DMRB: Residential land: Residential land is assigned a high sensitivity. Derelict land or unoccupied buildings are assigned a low sensitivity. Community land and assets: Community land used frequently, by the majority of the community, and where there is a lack of alternatives available is defined as high sensitivity. Community land used infrequently by a low number of users and where there are many alternatives available is defined as low sensitivity. Development land and businesses: Proposed development on land allocated for employment (e.g. strategic employment sites) is defined as high sensitivity. Proposed development on unallocated sites with planning permission in the process are defined as low sensitivity. Agricultural land holdings: Areas of land where access is required daily, and the land is wholly reliant on the spatial relationship to key agricultural infrastructure is defined as high sensitivity. Agricultural land for which access is not required frequently, and which is not reliant on key agricultural infrastructure is defined as low sensitivity. WCH: National/regional trails used for recreation with limited substitutions available and/or rights of way crossing roads at grade with >8,000 – 16,000 vehicles per day are defined as high sensitivity. Routes which

Assessment topic	Sensitivity of receptors
	are scarcely used for utility or recreational purposes and/or rights of way crossing roads at grade with <4000 vehicles per day are defined as low sensitivity.
Wider effects - Employment	Sensitivity is determined by levels of unemployment and fluctuations in employment over time. Where there are high levels of unemployment or large fluctuations in employment over time the labour market is considered to have poor resilience to change and is assigned a high sensitivity. Conversely, where there are low levels of unemployment or low fluctuations in employment the labour market is considered to be resilient to change and is assigned a low sensitivity.
Wider effects - Tourism	Sensitivity and magnitude have not been assessed explicitly, rather tourism effects are considered against baseline tourism performance e.g. the size and strength of the existing tourist offering to determine whether the effects are significant or not significant.
Wider effects - Expenditure (supply chain)	Sensitivity and magnitude have not been assessed explicitly; rather expenditure effects are considered against baseline economic performance as measured by gross value added (GVA) to determine whether the effects are significant or not significant.

Magnitude of Impact

Magnitude of impacts considers the nature, duration and degree of change considered likely to occur. The magnitude of impact for each topic is defined as per Table 6.6.

Table 6. 6: Magnitude of impact on population and human health receptors

Assessment topic	Magnitude of Impact
Amenity	The magnitude of impact is not assessed explicitly. The assessment considers the residual significance of the effects reported by the environmental effects (Noise and Vibration, Air Quality, Traffic and Transport, and Landscape and Visual). The level of significance from each environmental effect is determined by the individual environmental methodologies.
Health	The magnitude of impact has not been assessed explicitly, rather the overall health outcome is identified as per Table 6.4.
Land use	The magnitude of impact on land use receptors will be based broadly on the guidance set out in the DMRB: Residential land, community land and assets, development land and businesses and agricultural land holdings: The magnitude is assessed as major in cases where there is a loss of resource or severe damage to key characteristics, features or elements for example direct acquisition and demolition of buildings or where there is introduction or removal of complete severance with no accessibility provision. The magnitude is assessed as minor in cases where there is only minor loss or detrimental alteration to one or more characteristics, features or elements for example acquisition of non-operational land, businesses, community assets or agricultural land holdings which does not compromise the overall viability of the land. Minor impacts would also occur where there is introduction or removal of severance with adequate accessibility provision. €: The magnitude of impact is assessed as major in cases where there is greater than 500m increase or decrease in WCH journey length. Minor impacts occur where the increase (adverse) or decrease (beneficial) in WCH journey length is between 50m-250m.
Employment	The magnitude of impact is determined by the change in direct and/or induced employment opportunities relative to the existing labour market, and the potential for employment generation to impact on skills and labour availability. The magnitude of the impact is considered to be high where the creation of new

Assessment topic	Magnitude of Impact
	employment opportunities could substantially influence the employment choice of many employees sufficient to impact on skills and labour availability[8].
Tourism	Sensitivity and magnitude have not been assessed explicitly, rather tourism effects are considered against baseline tourism performance e.g. the size and strength of the existing tourist offering to determine whether the effects are significant or not significant.
Expenditure (supply chain)	Sensitivity and magnitude have not been assessed explicitly; rather expenditure effects are considered against baseline economic performance as measured by gross value added (GVA) to determine whether the effects are significant or not significant.

Significance of Effect

Generic guidance set out in Volume 2, Chapter 4: EIA Process and Methodology will be used to determine significance of effects. It should be noted that as this assessment includes a wide range of considerations, the final significance category may be adjusted in some instances using Professional Judgement. Where such an adjustment is made, an explanation will be provided within the assessment.

6.6 Potential Effects of the proposed Project

6.6.1 XC187 Fantstown

Do Nothing

Population growth would be expected to occur over the operation of the proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region of Ireland will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather, which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the level crossing experienced one incident and one crossing equipment failure. In absence of the proposed Project, the level crossing would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain.

Construction Phase

As there is no construction associated with the closure of the existing crossing, there will be no impacts to population and human health.

Operational Phase

Amenity

Amenity considers the impact on the pleasantness of the local environment. As stated in Volume 3, Chapter 11: Traffic and Transport, increases in traffic flows are predicted to be in the order of 19 vehicle movements per day which would result in no significant impacts. Within the local study area, this increase in traffic would result in no perceptible change in air quality from the Do-Nothing scenario and changes to pollutant concentrations at receptor locations close to the local road network would be negligible. Similarly, Volume 3, Chapter 10: Noise

[8] Note to EIA: Construction employment effects are unlikely to be significant on a route-by-route basis, but this impact could become important for the cumulative assessment.

states there would be no perceptible change in noise levels at sensitive receptors. In the absence of any significant traffic, air quality or noise effects, no significant amenity effects are expected.

The proposed Project would require the extinguishment of a Public Right of Way (PRoW): the level crossing is considered to be a public road, permission for the crossing of which by the Dublin to Cork Railway is set out in the GWSR extension to City of Cork and branch to Limerick Act 1845. The crossing will be stopped up and there will be no access by vehicles or non-motorised users (WCH).

A prior application was made to close this crossing in 2006 when CIE requested Limerick County Council to extinguish the public Right of Wat at the location using the procedures set out in Section 73 of the Roads Act, 1993. A hearing was held on the 10th November 2009 and the Inspector recommended the extinguishment of the public right of way and consequent closure of the crossing but highlighted that improvements needed to be undertaken to the alternative route in the interest of road safety. However, the extinguishment failed to gain the necessary support of the elected members of the council due to local concerns over the proposal. The making of an Extinguishment Order and the consideration of objections / representations thereto are reserved functions of the Elected Members. The matter was not put to a vote of the elected members and the closure did not progress.

Volume 3, Chapter 11: Traffic and Transport does not identify the closure of the public road as a significant impact on road users, which includes consideration of pedestrians and non-motorised forms of transport as well as vehicle movements. No other topics identified the closure as a significant impact and as a result it does not present a significant impact on amenity.

Health

The local area is not sensitive to noise or recognised as an air quality management area and impacts on air quality and noise as a result of operation are not considered to be significant. Therefore, no significant health effects are expected from noise or air quality.

Between January 2016 and June 2019 there was one crossing equipment failure and one public road level crossing incident. The proposed Project will result in better safety as a result of the diversion of traffic to a public road level crossing. Considering that the baseline levels of health in the study area are good, and the proposed Project will result in better safety, the overall health outcome is positive.

The assessment on WCH users of the level crossing concludes that there would be no significant effect on those receptors, despite the 6km diversion which would be in place. This is because the use in infrequent, as borne out by recent surveys in February 2020 and the low sensitivity of the route. As such, there would be a low magnitude of impacts on the health of these users and a subsequently negligible significance of impact.

The assessment of effects on Community Facilities considered the Stake Wallace GAA Club; based on the low sensitivity of the receptor and low magnitude of impact, negligible impacts were identified for users of this receptor. As such, neutral impacts are identified for health.

Land Use (Agricultural land, Residential land, WCH, Community land and Development land)

<u>Public Rights of Way</u>

The existing level crossing is a Public Right of Way (PRoW) and will be extinguished as a result of the proposed Project. Traffic and Non-Motorised Users surveys indicate that the level crossing is used by few and infrequently. As such, the extinguishment will have a low magnitude of impact. The PRoW is of low sensitivity, given its infrequent use and so this would result in a negligible impact.

<u>Agricultural Land</u>

The local and wider study area is predominantly a dispersed rural area consisting of agricultural lands and farm buildings. The sensitivity of the agricultural land is assessed as low, due to the high availability of agricultural land and the lack of dependence on agricultural infrastructure. During operation, no permanent land take is expected.

One consultee responded by letter following the public consultation, to say that they rented land on both sides of the XC187 Fantstown level crossing for rearing young stock and providing silage for their dairy farm, which is located outside of the study area. The consultee considered that the closure of the level crossing and subsequent diversion would impact their farming business

Due consideration has been given to this concern in determining the magnitude of the impacts on this local business.

In terms of frequency of use, the livestock is not moved on a daily basis; it is unlikely that the livestock would be moved more than twice a year given its purpose. Similarly, silage would be cut only a few times of year and transported.

This infrequent use is supported by evidence given at the Fantstown Oral Hearing in 2009 which stated, "*there is little traffic using the road, even agricultural traffic, except at harvest time, and the latter would pose a high risk crossing a railway.*" The ABP Inspector makes specific reference in his recommendation to the *"very low level of usage*" of the Fantstown Level Crossing".

In addition, recent surveys carried out for the proposed Project continue to support this view: pedestrian, livestock and cyclists counts over a seven-day period were carried out in February 2020 to determine the frequency of use of this crossing. During the seven-day period observed, no pedestrian, cyclists or livestock crossed the railway via the level crossing.

Despite the infrequent use, the manner of the crossing could result in changes of a high magnitude; however, for both livestock and silage, the existing movement is by motorised transport - the livestock are not 'walked' across the level crossing and the silage is not moved manually. This minimises impacts in terms of any requirement to change existing practices for the transportation of goods and livestock.

As a result, it is considered that the 6km detour proposed as a result of the proposed closure, would have a low magnitude of impact on the business and when combined with the low sensitivity of the land (as access is not required daily) would result in a negligible effect.

Within the wider study area, due to the alternative access via the R515 for other users, no significant effects are expected.

Residential Land

The proposed Project has the potential to introduce severance effects for those living directly north and south of the crossing. As set out in Table 6. 5, residential land and private property is considered a high sensitivity receptor. Volume 3, Chapter 11: Traffic and Transport shows that traffic flows on the road that currently traverses the XC187 Fantstown are low: only 22 vehicles crossed the crossing, in either direction combined, over a seven-day period during surveys in October 2019, indicating a low number of users. It is not anticipated that access will be disrupted for the majority of people living within the local or wider study area due to the location of the crossing on a minor road which mainly provides access to a small number of houses. For the small number of local property owners who use this crossing for access to their dwellings, alternative roads are available in close proximity. Given the low number of users and availability of alternative access routes, the magnitude of impact on properties in the local and wider study area is expected to be negligible, resulting in no significant effects.

WCH users

Within the local study area there are no footways or dedicated cycling infrastructure. It is known that there is a local cycling hub within Kilmallock who use a circular route in close vicinity to the crossing however the route does not make direct use of the crossing. Surveys undertaken of pedestrian counts over a week-long period showed the maximum daily number of pedestrians was 11 with three cyclists. As the number of pedestrians and cyclists is low, WCH users are defined as low sensitivity. Potential effects may be faced by WCH users who would face a significant diversion of >5km however, since this route is not a well-known location for these activities, and the crossing is in a predominantly rural area, minor effects are expected on WCH. The overall significance is assessed as slight.

Community land, Development land and businesses

Within the local study area, no development land is identified and there are no businesses aside from agricultural businesses (farms). There is one community facility, the Stake Wallace GAA Club. Stake Wallace GAA club is situated 2km east of the proposed Project, by local roads. Aside from this, there are no other noteworthy public amenities and facilities including schools or emergency services within the local study area. There are no direct impacts on the GAA Club; however, XC187 Fantstown is a PRoW and therefore there is potential for severance effects for WCH users accessing the GAA club from north of crossing XC187 Fantstown in Gibbonstown.

As a result of the proposed Project, access from this town would be via the diverted route proposed, increasing the journey distance by approximately 1.5km. The GAA club is considered a low sensitivity receptor based on its rural location and relatively infrequent use by the local community (not daily). The diversion required is short, even if users use non-vehicular means (walking or cycling) to access it. It is considered unlikely that users of the GAA club would refrain from visiting due to the diversion put in place by the XC187 Fantstown crossing. Therefore, negligible effects are predicted for users of this receptor.

Wider effects (Employment and Tourism)

Employment

The XC187 Fantstown crossing is C type level crossing, generally closed to road traffic and opened to road traffic as required when the movement of trains allows. They are manned during the day and closed at night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

There are limited employment locations near the crossing with the closest centre of employment being Kilmallock, approximately 3km to the west. Similarly, there are no public transport services within the local study area. The closest station is Charleville train station which provides links to both Dublin and Cork however this is located approximately 10km away and access is not dependent on the crossing XC187 Fantstown. As stated in Volume 3, Chapter 11: Traffic and Transport, given the low level of flows using the existing crossing XC187 Fantstown, rerouting of the road network is not predicted to have a material impact on the operation of the local road network and therefore is unlikely to result in any impact on those travelling to work. The sensitivity of the study area is considered low and the magnitude of impact is minor, resulting in no significant effects on access to local employment.

Tourism and Expenditure

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. Within the wider study area, re-routing of the road network is not predicted to have a material impact on the operation of the local road network and therefore is unlikely to result in any impact on those accessing tourist facilities in the wider study area. Therefore, it is not anticipated that there will be any change to tourism in the area or a change in numbers of visitors to the area as a result of the operation of the proposed Project. There would be no impacts.

Summary of Findings

Table 6.7 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 7: Summary of Findings XC187 Fantstown

Type of Effect	Assessment	
	Construction	**Operation**
Amenity	No construction at this site. No impacts.	No other topics identified the closure as a significant impact and as a result it does not present a significant impact on amenity.
Health		No significant effects identified for amenity, noise or air quality; no significant effects on WCH users or users of the GAA Club. Therefore, no significant effects on health.
Land Use: Agricultural		No direct impacts on agricultural land. The 6km detour proposed as a result of the proposed closure, would have a low magnitude of impact on the existing uses of local agricultural land; when combined with the low sensitivity of the land (as access is not required daily) would result in a negligible effect.
Land Use: Residential		No direct impacts on residential land. Given the low number of users and availability of alternative access routes, the magnitude of impact on properties in the local and wider study area is expected to be negligible, resulting in no significant effects.
Land Use: WCH Users		There would be no significant effect on WCH users, despite the 6km diversion which would be in place. This is because the use in infrequent, as borne out by recent surveys in February 2020 and the low sensitivity of the route.
Land Use: Community and Development Land		Only one community facility and no development land or businesses asides from farms (addressed under agricultural land). The facility is the Stake Wallace GAA Club. Short diversion for users from Gibbonstown, and low sensitivity of the receptor and it users, means a negligible effect from the closure of the crossing is predicted.
Employment		The sensitivity of the study area is considered low and the magnitude of impact is minor, resulting in no significant effects on access to local employment.
Tourism		No tourism facilities nearby; no severance identified. No impacts predicted.
Expenditure		No impacts on local expenditure predicted.

Mitigation and Residual Effects

No significant effects have been identified therefore no mitigation is required. The residual effects are as set out in Table 6. 7.

6.6.2 XC201 Thomastown

Do Nothing

Population growth would be expected to occur over the operation of the proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region of Ireland will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather, which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the level crossing experienced one incident by which a road vehicle crashed into the crossing barrier. In absence of the proposed Project, the level crossing would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain.

Construction Phase

Amenity

The R515 regional road runs parallel to the railway; it connects, and provides local access to, the towns of Charleville and Kilmallock. During construction, amenity effects are most likely to be experienced by residents on the R515, to the west of the proposed new junction and directly south of the existing crossing at the junction linking the proposed road-over-rail bridge with the existing road.

Volume 3, Chapter 11: Traffic and Transport states that no significant impacts are predicted from construction phase traffic due to the temporary nature of the works and the low traffic flows involved. Similarly, Volume 3, Chapter 15: Air Quality concludes that the vehicle movements associated with the construction activities are below the criteria set out in the DMRB guidance for assessment of air quality changes and are therefore considered to be insignificant. Volume 3, Chapter 10: Noise and Vibration shows that during construction, three residential receptors would experience significant noise effects prior to mitigation. Proposed mitigation including clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours will result in no significant residual effects. Finally, Volume 3, Chapter: 13 Landscape and Visual concludes moderate-slight landscape impacts due to the physical disruption to land cover, and the change from baseline conditions. The primary form of mitigation in this case is to retain as much existing hedgerow as possible and during construction, supplement this with 'Hedgerow Type 1' where necessary. Residual effects are considered slight-imperceptible and not significant.

A detrimental amenity effect only occurs when a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

Volume 3, Chapter 15: Air Quality concludes that increases in traffic flows are insignificant and below the level at which DMRB guidance requires an assessment of air quality impacts. Construction in this location will be temporary and the area is not currently an air quality management area. Since the baseline health of the study area is good and the Project is not expected to result in significant increases in emissions, health effect is considered to be neutral.

Volume 3, Chapter 10: Noise and Vibration shows that during construction, three residential receptors experience significant noise effects. These effects are at a level above which adverse effects on health and quality of life can be detected and therefore has the potential to result in negative impacts on health. Health impacts from noise include sleep disturbance, increased aggression and impaired communication (WHO, 1995). Mitigation measures including restricting construction to working hours, positioning construction plant and activities to minimise noise

at sensitive locations and use of noise abatement site hoardings and screens where appropriate all help to reduce the impact on health. The baseline health of the study area is good, existing noise levels are low and the noise impacts will be temporary and mitigated as outlined above. Therefore, overall effects on health are likely to be negligible.

During construction, barriers enforced by construction traffic and increased traffic flows have the potential to disrupt social networks, and result in adverse health effects, through the creation of barriers preventing or reducing community interaction, and through reduction of, or changes to, amenity influencing people's perception of an area. At XC201 Thomastown, there are no schools, emergency or health services or PRoW located within the local study area however within 1.5km of the site is Dermot Kelly Motors, Our Lady Queen of Peace Church and a Church hall. During construction these receptors can be accessed via the R515 and Elffin Road without undergoing a significant diversion. Similarly, as stated above, no amenity effects are expected on the local community. Therefore, the health effects are likely to be negligible.

Between 2016 and 2019, the crossing experienced one incident in which a road vehicle struck into the barriers. No other road safety accidents were recorded within the immediate vicinity of the existing crossing XC201 Thomastown however it is recognised that level crossings pose a potential safety concern across the network. Increases in traffic, notably HGVs transporting material to the crossing construction site may increase the perceived risk of accidents due to the local road widths and speed limits. A Construction Traffic Management Plan (CTMP) will be used to prevent or minimise transport impacts during construction. This will include measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGVs and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is neutral.

Land Use (Agricultural land, Residential land, WCH, Community land and Development land)

Agricultural land

The proposed Project has the potential to result in severance to and loss of agricultural land. Severance to agricultural land occurs when a portion of agricultural land is separated from the remainder resulting in that piece of land becoming unviable for agricultural use. The local study area is predominantly a dispersed rural area consisting of agricultural lands, farm buildings and associated farm infrastructure. Whilst there is a high availability of land in the local study area, due to the presence of agricultural infrastructure that cannot be easily relocated, the local study area is defined as medium sensitivity. In the wider study area, the rural district of Kilmallock contains approximately 1,133 farms covering a land area of approximately 41,411 hectares. Based on the high availability of agricultural land, the wider study area is defined as low sensitivity.

No temporary land take is proposed for the construction phase of the proposed Project; only the permanent land requirement for the new crossing will be utilised however, impacts are considered here as they are expected to first occur during the construction phase. The construction of a new road and road-over-rail bridge will result in the loss of approximately two hectares of land across two land holdings. Compared to the size of the overall land holdings, which in total cover approximately 15 hectares, this is considered to have a minor effect on the viability of the land to continue operating resulting in slight but not significant effects.

Compared to the wider study area, it is assumed that the agricultural productivity lost will be absorbed by surrounding agricultural land. Based on the high magnitude of land available in the wider area, the magnitude of impact would be minor resulting in no significant effects.

During both construction and operation, severance may be experienced by the land holding to the west of Crossing XC201 Thomastown where construction of the road-over-rail bridge will leave a portion of agricultural land cut off by the Project and unviable for use as agricultural land. It is assumed that access arrangements will be provided for this land holding, resulting in a minor adverse effect on agricultural land. The overall effect is not considered to be significant. Within the wider study area, severance as a result of the proposed Project is not expected to result in any significant effects on agricultural land.

Residential Land

No land take effects are expected on residential land however the proposed Project does have the potential to introduce severance effects for those living directly north and south of the crossing due to high volumes of construction traffic, restricting access to residential property. As set out in Table 6. 5, residential land and private property is considered a high sensitivity receptor. Volume 3, Chapter 11: Traffic and Transport suggests that during construction, traffic movements along the unnamed road which traverses the crossing equate to an average of less than eight two-way movements per hour (four arrivals and four departures).

This is not likely to lead to any severance issues due to existing low traffic levels accessing the several properties on this existing road. Similarly, mitigation measures, such as engagement and communication with local land owners will help to ensure disruption is kept to a minimum resulting in no significant effects on residential land. Given the low number of users and availability of alternative access routes, the magnitude of impact on properties in the local and wider study area is expected to be negligible, resulting in no significant effects.

WCH users

For WCH users, there are no footways or dedicated cycling infrastructure however many locals may still use these roads for local commuting and recreation due to the rural nature and relatively low traffic flows. Pedestrian surveys conducted at Thomastown show a maximum daily average of 27 pedestrians and two cyclists using this route. As stated in Volume 3, Chapter 11: Traffic and Transport, no significant impacts are expected due to severance and construction of the proposed Project will not result in the closure or diversion to PRoW or other WCH infrastructure. Therefore, negligible effects are expected on WCH users.

Community and Development land

There is no community or development land in close vicinity to the crossing, therefore there is no potential for an effect.

Wider effects (Employment, Tourism, Expenditure)

Employment

Construction is expected to last a maximum of 41 weeks and employ approximately 10-15 workers. Locally, levels of employment are high with less than 5% of the economically inactive population unemployed. The employment generated by the proposed Project equates to less than 7% of the total employment in the local study area and less than 0.05% of the total employment in the wider study area. Based on the low levels of baseline unemployment, the sensitivity of the study area is deemed to be low and the magnitude of impact is minor, resulting in no significant effects on local or wider employment.

The proposed Project is located just under 5km from the towns of Kilmallock and Charleville which are key employment centres. It is not anticipated that access into either town will be disrupted for the majority of people living within the wider study area due to the location of the crossing on a minor road which mainly provides access to a small number of houses. Similarly, as stated in Volume 3, Chapter 11: Traffic and Transport, the road network surrounding the Proposed Project is currently operating comfortably within capacity. Any increases in traffic flow due to construction traffic are not anticipated to have a significant impact on driver delay. Therefore, negligible effects are expected on access to employment for those in the local and wider study area during construction.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. In the wider study area, there is a variety of tourist attractions attracting thousands of visitors each year; however due to the location of the crossing on a minor road which mainly provides access to a small number of houses, the effect of construction on tourism will be negligible.

Expenditure

During construction, there may be a small change in local revenue and expenditure as a result of construction workers spending money on rental accommodation and other local services. However, provision of suitable accommodation within the wider study area is scarce, therefore it is likely that construction workers will choose to commute from the wider region. If construction workers were to stay locally, the spending in the local area would be temporary and have a minor beneficial impact on the local and wider economy however this is not considered to be significant.

Operational Phase

Amenity

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

There are no schools, emergency or health services or PRoW located within the local study area. Therefore, there is no potential for severance from community or recreational facilities. Similarly, the local study area is not sensitive to noise or recognised as an air quality management area and impacts on air quality and noise as a result of operation are not considered to be significant.

The closure of the level crossing and alternative provision for crossing the railway reduces risk of incidents and accidents associated with level crossings (see Volume 2, Chapter 1: Introduction for further details on accident statistics). This reduces the likelihood of serious injury or fatality occurring and is a beneficial impact of the proposed Project. This applies to the users of the crossing (vehicular and WCH) and the gate keeper.

In addition, the proposed Project will enable emergency services and the wider public to use this route 24h a day whereas current access is restricted as the level crossing is closed at night.

The baseline levels of health in the study area are good; the proposed Project will result in better safety; therefore, the health outcome is considered to be positive.

Land Use (Residential land, WCH, Agricultural land, Community land and Development land)

Public Rights of Way

The existing level crossing is a Public Right of Way (PRoW) and will be extinguished as a result of the proposed Project. The proposed road-over-rail bridge at this site, is in the same vicinity as the PRoW, slightly to the south. The new crossing will have no impediment as currently exists, with users being required to wait for trains in order to cross. As such it is considered there may be a low magnitude beneficial impact on users of the PRoW. This PRoW also has a low sensitivity (<4,000 vehicles per day) and so would have a negligible beneficial impact.

Agricultural land

As stated above, impacts due to land take and severance first occur during the construction phase of the project and have therefore been considered in the assessment of construction effects.

Residential land

There is no residential land directly affected by land take. Similarly, during operation, Volume 3, Chapter 11: Traffic and Transport shows that the low levels of additional traffic generated by the construction of the proposed Project are not likely to result in any significant severance issues. Therefore, no significant effects are expected on residential land.

WCH users

For WCH users, there are no footways or dedicated cycling infrastructure however many locals may still use these roads for local commuting and recreation due to the rural nature and relatively low traffic flows. Pedestrian surveys conducted at Thomastown show a maximum daily average of 27 pedestrians and two cyclists using this route. As stated in Volume 3, Chapter 11: Traffic and Transport, no significant impacts are expected due to severance and operation of the proposed Project will not result in the closure or diversion to PRoW or other WCH infrastructure. Therefore, negligible effects are expected on WCH users.

Community and development land

There is no community or development land in close vicinity to the crossing, therefore there is no potential for an effect.

Wider effects (Employment and Tourism)

Employment

Level Crossing XC201 Thomastown is C type level crossings, generally closed to road traffic and opened to road traffic as required when the movement of trains allows. They are manned during the day and closed at night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. Therefore, it is not anticipated that there will be any significant change to tourism in the area or a change in numbers of visitors to the area as a result of the operation of the proposed Project.

Summary of Findings

Table 6. 8 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 8: Summary of Findings XC201 Thomastown

Type of Effect	Assessment	
	Construction	**Operation**
Amenity	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.
Health	▪ No impact on health from atmospheric emissions. ▪ Construction noise predicted at a level above which adverse effects on health and quality of life can be detected and therefore has the potential to result in negative impacts on health. ▪ Increases in traffic, notably HGVs transporting material to the crossing construction site may increase the perceived risk of accidents due to the local road widths and speed limits.	▪ Improved access across the level crossing for emergency services (24 hours a day). Improved safety at the level crossing. ▪ No significant increases in traffic predicted and therefore no noise or air quality impacts. ▪ Overall impact on health is predicted to be positive.

Type of Effect	Assessment	
	Construction	Operation
Land Use: Agricultural	▪ The construction of a new road and road-over-rail bridge will result in the loss of approximately two hectares of land across two land holdings. Compared to the size of the overall land holdings, which in total cover approximately 15 hectares, this is considered to have a minor effect on the viability of the land to continue operating resulting in slight but not significant effects. ▪ No significant effects on severance of agricultural land are predicted.	Addressed under construction phase.
Land Use: Residential	▪ No residential land directly affected. ▪ Potential severance effects for those living directly north and south of the crossing due to high volumes of construction traffic, restricting access to residential property; however, magnitude of this is negligible, resulting in no significant effects.	▪ No direct land-take. ▪ No severance of PRoW; increased access (24 hours) will occur during operation. Positive impact, although given low number of users, not significant.
Land Use: WCH Users	Construction of the proposed Project will not result in the closure or diversion to PRoW or other WCH infrastructure. Therefore, negligible effects are expected on WCH users.	No severance; increased access. Positive impact although not significant as low number of users.
Land Use: Community and Development Land	There is no community or development land in close vicinity to the crossing, therefore there is no potential for an effect.	There is no community or development land in close vicinity to the crossing, therefore there is no potential for an effect.
Employment	▪ No significant impacts from employment generated during construction. ▪ No severance impacts or reduced access to employment areas predicted.	No addition or loss of employment and no severance. No impacts on employment predicted.
Tourism	No important tourism receptors in the vicinity. Few examples of tourism accommodation in the study area; no significant impact predicted.	No important tourism receptors in the vicinity. No impact predicted.
Expenditure	A small increase in local expenditure by the construction workers is predicted but this is unlikely to be significant.	No impact.

Mitigation and Residual Effects

Construction Phase

Noise and Vibration: Mitigation measures are set out in Volume 3, Chapter 10: Noise and Vibration and include restricting construction to working hours, positioning construction plant and activities to minimise noise at sensitive locations and use of noise abatement site hoardings and screens where appropriate all help to reduce the impact on health. The baseline health of the study area is good, existing noise levels are low and the noise impacts will be temporary and mitigated as outlined above. Therefore, overall effects on health are likely to be negligible.

Traffic: As set out in Volume 3, Chapter 11: Traffic and Transport, a Construction Traffic Management Plan (CTMP) will be used to prevent or minimise transport impacts during construction. This will include measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other

road users of HGVs and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is neutral.

Operational Phase

No significant effects are predicted, and therefore no mitigation measures are proposed. The residual effects remain as those summarised in Table 6. 8.

6.6.3 XC209 Ballyhay

Do Nothing

Population growth would be expected to occur over the operation of the Proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the level crossing experienced two incidents in which a road vehicle crashed into the crossing barrier. Similarly, the crossing experienced one case of trespassing and one crossing equipment failure. In absence of the proposed Project, the level crossing would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain.

Construction Phase

The proposed Project involves installing CCTV to replace the staffed level crossing therefore minimal construction is expected to occur and impacts on population and human health are not expected to be an issue during the CCTV conversion.

Operational Phase

Amenity

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

The upgrade of the level crossing to CCTV is not expected to have a significant effect on traffic flows, air quality or noise. Similarly, there will be no change in the ability of the community to access community facilities such as GP surgery's or religious facilities. Positive health benefits from enhanced safety are expected as there is no longer a need to manually operate the crossing gates, thus reducing the potential for human factors to increase the risk of an incident or accident. In addition, the proposed Project will enable emergency services and the wider public to use this route 24h a day whereas current access is restricted as the level crossing is closed at night.

Therefore, the overall health impact is considered to be positive.

Land Use (Residential land, WCH, Agricultural land, Community land and Development land)

Since the proposed Project involves installation of CCTV to replace a staffed crossing, no effects are expected on land use.

Wider effects (Employment and Tourism)

Employment

The XC209 Ballyhay crossing is a CD type level crossings, generally open to road traffic during the day and closed to road traffic to facilitate the movement of trains. They are manned during the day and closed at night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

For those accessing employment in the local area, no additional traffic will be generated other than for the occasional routine maintenance of the cameras resulting in no significant effects on access to employment.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. Therefore, it is not anticipated that there will be any significant change to tourism in the area or a change in numbers of visitors to the area as a result of the operation of the proposed Project.

Summary of Findings

Table 6. 9 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 9: Summary of Findings XC209 Ballyhay

Type of Effect	Assessment	
	Construction	Operation
Amenity	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.
Health	Noise, traffic and air quality levels are anticipated to remain within acceptable limits and so no health effects from these sources is expected.	Positive health benefits from enhanced safety are expected as there is no longer a need to manually operate the crossing gates. Reducing the influence of human factors in incidents. Therefore, the overall health impact is considered to be positive.
Land Use: Agricultural	This is a public road, no temporary land use required	No effects are expected on land use.
Land Use: Residential	This is a public road, no temporary land use required	No effects are expected on land use.
Land Use: WCH Users	This is a public road, no temporary land use required	No effects are expected on land use.
Land Use: Community and Development Land	This is a public road, no temporary land use required	No effects are expected on land use.
Employment	Some potential for labour, but small as a very small piece of infrastructure. Not significant.	No effects predicted on employment, locally or more widely.
Tourism	No effects on tourism	No effects on tourism.
Expenditure	Positive effects from labour and local spending but small and not significant.	No effects on local expenditure.

Mitigation and Residual Effects

No significant effects have been identified therefore no mitigation is required. The residual effects are as set out in Table 6.9.

6.6.4 XC211 & XC212 Newtown and Ballycoskery

Do Nothing

Population growth would be expected to occur over the operation of the Proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather, which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, XC211 Newtown experienced one traffic incident and XC212 Ballycoskery experienced a road vehicle crashed into the crossing barrier and a level crossing equipment failure. In absence of the proposed Project, the level crossing would

continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain. The presence of a housing estate and local primary school at XC212 Ballycoskery introduces a higher number of sensitive users and, as a result, an increased risk at this location.

Construction Phase

Amenity

XC211 Newtown is located in a rural area with a small number of dwellings in close proximity to the crossing, the nearest being 15m from the crossing. XC212 Ballycoskery is located in a rural village (Ballyhea) with a church and housing development located 50m west of the crossing and a primary school immediately east of the crossing. Therefore, significant amenity effects could be experienced as a result of construction works close to a residential area and school.

Volume 3, Chapter 11: Traffic and Transport states that during the worst-case Construction Phase there will be additional traffic generation of approximately 14 two-way movements per hour (7 arrivals and 7 departures). The road is currently operating significantly below capacity and therefore the additional traffic generated by the project would not result in a significant traffic effect. Similarly, Volume 3, Chapter 15: Air Quality states that due to the low numbers of construction vehicles, no air quality effects are expected. A Dust Management Plan (DMP) will also be developed to control other sources of emissions from the proposed Project and any dust or air quality complaints will be dealt with appropriately and in a timely manner.

Volume 3, Chapter 10: Noise and Vibration states that significant noise effects are predicted at four receptors during construction. This is due to the long construction period of approximately 63 weeks (for XC212 Ballycoskery) and the presence of sensitive receptors including residential houses and a primary school. Proposed mitigation including clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours is expected to result in no significant residual effects on noise. The construction programme for XC211 Newtown would be a maximum of 15 weeks, however following consultation, the new route takes construction works for this level crossing away from sensitive receptors.

Finally, Volume 3, Chapter 13: Landscape and Visual concludes that prior to mitigation, substantial-moderate visual impacts are expected at XC212 Ballycoskery and slight visual impacts are expected at XC211. At XC211 Newtown, areas of existing retained hedgerow within the proposed Project site are to be supplemented. Similarly, at XC212 Ballycoskery, the dense hedgerow situated on the southern verge of the L1533 local road south of the Beechwood residential estate will be retained in so far as possible. Post mitigation, no significant residual effects are expected.

A detrimental amenity effect only occurs when a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. Prior to mitigation, noise effects are expected at three receptors and visual effects are expected at one location in the study area. Mitigation is expected to manage these impacts to reduce the impact on the community to a level at which it is not significant. As there are no significant residual effects from traffic, air quality or noise, no significant amenity effects are expected.

Health

There is no footpath or cycling provision within the immediate vicinity of existing crossing XC211 Newtown, however, there is a narrow footway on one side of the L1533 between Beechwood Drive and Dooley's Cross Roads as well as on Beechwood Drive itself. It is also known that local residents use a circular walking route of approximately 2.5km for recreation. This route travels out of Ballyhea to the east before looping north west and returning pass the XC211 Newtown crossing southwards back towards Ballyhea. During construction, this route will be directly impacted by construction activities as well as HGV routing which may make it less attractive as a recreational option. However, since the works will be temporary, and the wider area does not lack alternative green space, this is not likely to result in a long-term health effect and therefore the impacts on health are expected to be neutral.

Between 2016 and 2019, one accident/incident was recorded at XC211 Newtown and three were recorded at XC212 Ballycoskery due to crossing equipment failures and a road vehicle striking into the crossing gates. This increases the perceived risk of danger of the level crossing. Increases in traffic, notably HGVs transporting material import to the crossing construction site may also increase the perceived risk of accidents due to the local road widths and speed limits. As stated in Volume 3, Chapter 11: Traffic and Transport, the Construction Phase of the proposed Project will have a significant impact on fear, intimidation and delay given the proximity to sensitive receptors including the local primary school and housing estate.

A CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGVs and construction traffic. Similarly, to help reassure the local community, a Traffic Management Plan will be developed which will detail ways to reduce the construction traffic effect including i) avoiding transit at school arrival and departure times and ii) working with local businesses to ensure the construction traffic dose not interfere with deliveries or normal business traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is considered to be neutral.

The local study area is not sensitive to noise or recognised as an air quality management area and impacts on air quality and noise as a result of operation are not considered to be significant. Therefore, there will be no impacts on health from these sources.

Land Use (Agricultural land, Residential land, WCH, Community land and Development land)

Agricultural Land

The proposed Project has the potential to result in loss of agricultural land and severance. Severance to agricultural land occurs when a portion of agricultural land is separated from the remainder resulting in that piece of land becoming unusable. The local study area is predominantly a dispersed rural area consisting of agricultural lands, farm buildings and associated farm infrastructure. Whilst there is a high availability of land in the local study area, due to the presence of agricultural infrastructure that cannot be easily relocated, the local study area is defined as medium sensitivity. In the Rural District of Mallow, there are approximately 1,233 farms covering a land area of approximately 50,728 hectares. Based on the high availability of agricultural land, the wider study area is defined as low sensitivity.

No temporary land take is proposed for the construction phase of the proposed Project; only the permanent land requirement for the new crossing will be utilised however, impacts are considered here as they are expected to first occur during the construction phase. At crossing XC211 Newtown and XC212 Ballycoskery, the construction of a new road and road-over-rail bridge will result in the loss of approximately 3 hectares of land across three land holdings. Compared to the size of the overall land holdings, which in total cover approximately over 60 hectares, this is considered to have a minor effect on the viability of the land to continue operating. The overall effect is not considered significant.

Compared to the wider study area, it is assumed that the agricultural productivity lost will be absorbed by surrounding agricultural land. Based on the high magnitude of land available in the local area, the magnitude of impact would be minor resulting in no significant effects.

During construction and operation, there is potential that severance may be experienced by the land holdings to the south east and south west of crossing XC212 Ballycoskery where the road-over-rail bridge will restrict access to the parcel of land directly south of the crossing in between rail line, the unnamed road to the east and the N20 to the west. It is assumed that access arrangements will be provided for these land holdings, resulting in a minor adverse effect on agricultural land. The overall effect is not considered to be significant. Within the wider study area, severance as a result of the proposed Project is not expected to result in any significant effects on agricultural land.

Residential Land

XC211 Newtown is located in a rural area with a small number of dwellings in close proximity to the crossing, the nearest being 15m from the crossing. XC212 Ballycoskery is also located in a rural area with a church and housing development located 50m west of the crossing on Beechwood Drive and a primary school immediately to the east of the crossing. Residential land is deemed highly sensitive. No temporary or permanent residential land take is expected at either of these locations. As stated in Volume 3, Chapter 11: Traffic and Transport, during construction, an increase in traffic on the road network and the potential for HGV's moving to/from the site could result in perceived adverse severance effects for local residents who may face difficulties accessing properties or residential land. However, in reality, additional traffic volumes generated by the proposed Project temporarily during construction are unlikely to result in residual effects on severance and mitigation measures, specifically, timing and routing of construction phase traffic will assist in the minimising any perceived effects to a level that is not significant. Similarly, engagement with local residents will ensure that residential land is unaffected. No significant effects are therefore expected on residential land.

WCH users

There is no footpath or cycling provision within the immediate vicinity of existing crossing XC211 Newtown, however as stated above, some locals may still use these roads for commuting and recreation due to the rural nature and relatively low traffic flows. Pedestrian surveys conducted at Newtown show a maximum daily average of 29 pedestrians and 5 cyclists using this route. North of Newtown, maximum daily pedestrian counts are 18 and 3 for cyclists and at XC212 Ballycoskery, maximum daily pedestrian counts are in the region of 49 adults, 31 children and 8 cyclists. As stated in Volume 3, Chapter 11: Traffic and Transport, no significant impacts are expected due to additional traffic generation, accidents and safety or traffic delay. However, Volume 3, Chapter 11 Traffic and Transport states that the proposed Project will have a significant impact on fear, intimidation and delay and despite the no significant impacts on traffic flow, issues of severance may be perceived as significant given the proximity to sensitive receptors. As stated above, a CTMP will be used to prevent or minimise transport impacts during construction and result in no significant effects. Similarly, inspections of the transportation mitigation measures would be undertaken on a regular basis to confirm these measures are proving effective at reducing effects. Therefore, negligible effects are expected on WCH users.

Community Land

Within the local study area, Ballyhea National School is 85m to the east of crossing XC212 Ballycoskery. Similarly, in the wider study area, there are additional community facilities within 1.5km of the crossing locations including a Filling Station and a Fast Food Outlet. As the study area is rural in nature, these community facilities are likely to be frequented highly by the local community. Therefore, the community land is considered medium sensitivity.

Whilst there will be no direct loss to community land, during construction, the presence of HGVs and increased traffic flow could result in adverse severance effects for those accessing the school and local community facilities. For those accessing the school, mitigation will ensure that, as far as possible, the timing of HGV movements would be arranged to avoid school pickup and drop off times. During the worse-case construction phase, there will be 14 two-way movements per hour (7 arrivals and 7 departures). This is only expected to occur for a short period of time. Therefore, the impact of severance on community land is likely to be minor and result in no significant effects.

It is noted that there is a planning application for a new community centre on the school grounds to the north of the school; it is not yet constructed and there is not timeframe yet available for it. Notwithstanding, it is not expected that the proposed Project will have a significant effect on it during construction and may provide a benefit through improved ease of access to it during operation.

Wider effects (Employment, Tourism, Expenditure)

Employment

Construction is expected to last approximately 63 weeks for XC212 Ballycoskery and 15 weeks for XC211 Newtown and employ approximately 10-15 workers at each site. Locally, levels of employment are high with less

than 12% of the economically active population unemployed. The employment generated by the proposed Project equates to less than 6% of the total employment in the local study area and less than 0.03% of the total employment in the wider study area. Based on the low levels of baseline unemployment, the sensitivity of the local and wider study area is deemed to be low and the magnitude of impact is minor, resulting in no significant effects on local or wider employment.

The proposed Project is located less than 10km from the towns of Charleville and Buttevant which are both key local employment centres. There are no public transport services within the immediate vicinity of the proposed Project. As stated in Volume 3, Chapter 11: Traffic and Transport, the road network surrounding the proposed Project is currently operating comfortably within capacity. Any increases in traffic flow due to construction traffic are not anticipated to have a significant impact on driver delay. Impacts that do occur will be experienced for a short time period and affect a small proportion of the population. Therefore, negligible effects are expected on access to employment during construction.

Tourism and Expenditure

During construction, there may be a small change in local revenue and expenditure as a result of construction workers spending money on rental accommodation and other local services. Within the local study area, there is a B&B and a hotel. Workers may decide to stay in Charleville or commute from further afield. If construction workers were to stay locally, the spending in the local area would be temporary and have a minor beneficial impact on the local and wider economy however this is not considered to be significant.

Operational Phase

Amenity

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. Mitigation in the form of planting to screen the new structures is anticipated to reduce visual effects to 'not significant; as there are no significant residual effects on traffic, noise or air quality during operation, no significant amenity effects are expected.

Health

During the operational phase of the proposed Project there will be no additional traffic generated by the proposed Project other than the very occasional inspection or maintenance of the new road-over-rail bridge which is expected to be negligible. Similarly, the operation of the new crossing is not expected to have a significant impact on air quality or noise.

The closure of the level crossing and alternative provision for crossing the railway reduces risk of incidents and accidents associated with level crossings (see Volume 2, Chapter 1: Introduction for further details on accident statistics). This reduces the likelihood of serious injury or fatality occurring and is a beneficial impact of the proposed Project. This applies to the users of the crossing (vehicular and WCH) and the gate keeper. There will also be beneficial effects for those travelling to Ballyhea National School and the users of the Kilmallock Cycle Hub as a result of improved pedestrian provision and redistribution of traffic. During operation the local primary school will benefit from a new car park located directly adjacent to the building as a result of the Project. This will enable safer drop off and pick up for those using the school and significantly reduce the risk of accidents during busy times.

The overall health impact is considered to be positive.

Land use

Public Rights of Way

The existing level crossings at XC211 Newtown and XC212 Ballycoskery are Public Rights of Way (PRoW), which will be extinguished as a result of the proposed Project.

At XC211 Newtown, the existing level crossing through-road (the L5554) joins with the through road (L5531) for an existing road-over-rail bridge at about 400m north of the level crossing, to the west of the railway line. The proposed new access road is approximately 400m long also and provides a similar connection between the L5554 and L5531 as exists currently, but to the east of the railway line instead of the west, thereby removing the necessity for the level crossing. This is a very small change for most users and, as a result, for most users, no impact is expected from this change. Some change is expected for local residents who live on the L5554 between the two existing crossings, who, if they wished to travel south towards Ballyhea village, would have to travel north and then south on the new access road. However there are few local residents, and the diversion is not lengthy, and as such the magnitude is considered to be low. The sensitivity of the PRoW at XC211 is low; therefore the significance would be negligible.

At XC212 Ballycoskery, a road-over-rail bridge is proposed, which is in the same vicinity as the existing PRoW, slightly to the south. The new crossing will have no impediment as currently exists, with users being required to wait for trains in order to cross. As such it is considered there may be a low magnitude beneficial impact on users of the PRoW. This PRoW also has a low sensitivity and so would have a negligible beneficial impact.

Agricultural land

As stated above, impacts due to land take and severance first occur during the construction phase of the project and have therefore been considered in the assessment of construction effects.

Residential land

Within the local and wider study area, no residential land is directly affected by land take. Similarly, during operation, Volume 3, Chapter 11: Traffic and Transport shows that the low levels of additional traffic generated by the proposed Project are not likely to result in any significant severance issues. Therefore, no significant effects are expected on residential land.

WCH users

During operation, there will be an improvement of pedestrian footpath provision resulting in minor beneficial effects for WCH users. Similarly, minor beneficial effects are expected for the Kilmallock Cycle Hub who use the area on one of their cycle loops, due to a reduction in traffic to the east of the crossing and no requirement to stop at the level crossing. The overall effect is not considered significant.

Community land

As stated above, community land is considered medium sensitivity due to the frequency of use and the rural setting of the Project. During operation, the removal of the level crossing will result in greater accessibility to the community facilities in Ballyhea including Ballyhea National School. Previously, users would have to wait up at the crossing for a passing train. Based on the low number of users, the magnitude of impact is likely to be minor beneficial, resulting in no significant effects.

Wider effects (Employment and Tourism)

Employment

XC211 Newtown is a CD type level crossings, generally open to road traffic during the day and closed to road traffic to facilitate the movement of trains. They are manned during the day and closed at night. XC212 is a CD type level crossings but are operated as CX type level crossings, generally open to road traffic and only closed to road traffic to facilitate the movement of trains. They are manned day and night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

During operation, delays associated with the existing level crossing will be removed. Based on the low levels of existing traffic flows on this route, this is expected to result in minor beneficial effects on access to local employment. The effect is not considered to be significant.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. Therefore, it is not anticipated that there will be any significant change to tourism in the area or a change in numbers of visitors to the area as a result of the operation of the proposed Project.

Summary of Findings

Table 6.10 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 10: Summary of Findings XC211 & XC212 Newtown and Ballycoskery

Type of Effect	Assessment	
	Construction	**Operation**
Amenity	Prior to mitigation, noise effects are expected at three receptors and visual effects are expected at one location in the study area.	As there are no significant residual effects on traffic, noise or air quality during operation, no significant amenity effects are expected
Health	Construction traffic may have significant impacts on fear, intimidation and delay given the proximity to sensitive receptors including the local primary school and housing estate. Impacts on air quality and noise as a result of operation are not considered to be significant; therefore, no impact of health from these sources.	The overall health impact is considered to be positive
Land Use: Agricultural	During construction and operation, there is potential that severance may be experienced by the land holdings to the south east and south west of crossing XC212 Ballycoskery where the road-over-rail bridge will restrict access to the parcel of land directly south of the crossing in between rail line, the unnamed road to the east and the N20 to the west.	Addressed under construction phase effects.
Land Use: Residential	An increase in traffic on the road network and the potential for HGV's moving to/from the site could result in perceived adverse severance effects for local residents	No direct land take. No severance issues. No significant effects
Land Use: WCH Users	Potential delay due to construction traffic.	No severance issues. Increased access across the railway. No significant effects
Land Use: Community and Development Land	No significant effects	Increased access to school and community centre but not significant effects.
Employment	No significant effect on employment numbers or access to employment.	No significant effect on employment numbers; access to employment improved although not significant.
Tourism	No significant effects	No significant effects

Type of Effect	Assessment	
	Construction	Operation
Expenditure	No significant effects	No significant effects

Mitigation and Residual Effects

Construction Phase

Amenity

Noise & Vibration: Proposed mitigation is set out in Volume 3, Chapter 10: Noise and Vibration and includes clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours is expected to result in no significant residual effects on noise.

Landscape & Visual: Mitigation is set out in Volume 3, Chapter 13: Landscape & Visual. At XC211 Newtown, areas of existing retained hedgerow within the proposed Project site are to be supplemented. Similarly, at XC212 Ballycoskery, the dense hedgerow situated on the southern verge of the L1533 local road south of the Beechwood residential estate will be retained in so far as possible. Any mature trees removed to the north and west of the proposed Project will be replaced. Post mitigation, no significant residual effects are expected.

Traffic &Transport: Volume 3, Chapter 11: Traffic and Transport sets out that a CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGVs and construction traffic. Similarly, to help reassure the local community, a Traffic Management Plan will be developed which will detail ways to reduce the construction traffic effect including i) avoiding transit at school arrival and departure times and ii) working with local businesses to ensure the construction traffic dose not interfere with deliveries or normal business traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is considered to be neutral.

Air quality: Volume 3, Chapter 15: Air Quality sets out the mitigation proposed to reduce vehicle and dust emissions to not significant during construction. A Dust management Plan will be prepared by the contractor as part of the Contractors Construction Environmental management Plan (CEMP).

Health

The mitigation measures outlined for amenity will also mitigate any potential health effects associated with noise, traffic and air quality.

Land Use: Agricultural

Potential severance of land at XC212 Ballycoskery will be addressed through the provision of an alternative access to the fields. No significant effects will remain.

Land Use: Residential

Potential severance for residential users will be addressed through the CTMP as described.

Land Use: WCH Users

Potential delays for these users will be addressed through the CTMP.

There are no significant effects during operation; all other impacts remain as outlined in Table 6.10.

6.6.5 XC215 Shinanagh

Do Nothing

Population growth would be expected to occur over the operation of the proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the level crossing experienced one case of equipment failure and one level crossing equipment failure. In absence of the proposed Project, the level crossing would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain.

Construction Phase

Amenity

XC215 Shinanagh is located just off the N20 national road. During construction of the new road, potential amenity effects may be experienced by nearby residential receptors due to traffic, noise, visual and air quality effects associated with the construction activities.

During construction, Volume 3, Chapter 11: Traffic and Transport states that no significant impacts would be expected in relation to traffic generated by the Proposed Project. Similarly, Volume 3, Chapter 15: Air Quality states that due to the low numbers of construction vehicles (approximately 20 LDVs and 32 two-way HGV movements per day), no air quality effects are expected. Volume 3, Chapter 10: Noise and Vibration states that significant effects are predicted at three receptors during construction. This is due to the long construction period of approximately 44 weeks. Proposed mitigation including clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours will result in no significant residual effects on noise. Finally, Volume 3, Chapter 13: Landscape and Visual concludes that worst case, prior to mitigation, moderate-slight landscape effects are expected at XC215 Shinanagh. The primary form of mitigation in this case is to retain as much existing hedgerow as possible and during construction, supplement this with 'Hedgerow Type 1' where necessary. Post mitigation, this effect is considered slight-imperceptible.

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

Volume 3, Chapter 15: Air Quality concludes that during construction, there is no potential for significant adverse effects on air quality effect as a result of increased vehicle emissions. Therefore, there is no potential for a health effect.

Volume 3, Chapter 10: Noise and Vibration shows that during construction, three residential receptors experience significant noise effects. These effects are at a level above which adverse effects on health and quality of life can be detected and therefore has the potential to result in negative impacts on health. Health impacts from noise include sleep disturbance, increased aggression and impaired communication (WHO, 1995). Mitigation measures including restricting construction to working hours, positioning construction plant and activities to minimise noise at sensitive locations and use of noise abatement site hoardings and screens where appropriate all help to reduce the impact on health. The baseline health of the study area is good, existing noise levels are low and the noise

impacts will be temporary and mitigated as outlined above. Therefore, overall effects on health are likely to be neutral.

Between 2012 and 2016, no road safety accidents were recorded within the immediate vicinity of the existing crossing XC215 Shinanagh, indicating no existing safety issues. Increases in traffic, notably HGV's transporting material import to the crossing construction site may increase the perceived risk of accidents due to the local road widths and speed limits. A CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGV's and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is neutral.

Land Use

Agricultural land

The proposed Project has the potential to result in loss of agricultural land and severance. Severance to agricultural land occurs when a portion of agricultural land is separated from the remainder resulting in that piece of land becoming unusable. The local study area is predominantly a dispersed rural area consisting of agricultural lands, farm buildings and associated farm infrastructure. Whilst there is a high availability of land in the local study area, due to the presence of agricultural infrastructure that cannot be easily relocated, the local study area is defined as medium sensitivity. In the Rural District of Mallow, there are approximately 1,233 farms covering a land area of approximately 50,728 hectares. Based on the high availability of agricultural land, the wider study area is defined as low sensitivity.

No temporary land take is proposed for the construction phase of the proposed Project; only the permanent land requirement for the new crossing will be utilised however, impacts are considered here as they are expected to first occur during the construction phase. At crossing XC215 Shinanagh, the construction of a new road running parallel to the existing rail line will result in the loss of approximately 2 hectares of land. Compared to the size of the overall land holding, which is greater than 30 hectares, this is considered to have a minor effect on the viability of the land to continue operating. Similarly, for the land holding directly north of the existing crossing, the proposed Project will result in the permanent loss of less than one hectare of land compared to a land holding of over 35 hectares. This is not considered to compromise the overall viability of the agricultural holding, therefore minor adverse effects are expected.

Compared to the wider study area, it is assumed that any agricultural productivity lost will be easily absorbed by surrounding agricultural land. Based on the high magnitude of land available in the local and wider area, the magnitude of impact would be minor resulting in no significant effects.

During construction and operation, potential severance effects may be experienced as a result of the closure of the crossing restricting access to land holdings either side of the crossing. Agricultural land is defined as low sensitivity based on the availability of land locally and the lack of dependence on agricultural infrastructure. Where severance is introduced, alternative access is available by means of a tunnel underneath the rail line and via the new constructed road to the North of the crossing, however minor adverse effects may be experienced due to the necessary diversion. The overall effect is not significant.

Residential land

No permanent land take effects are expected on residential land during construction. There is potential for some residential properties within the local study area to experience severance effects as a result of increased traffic due to the construction works. Residential properties are defined as high sensitivity.

As reported in Volume 3, Chapter 11: Traffic and Transport, during the peak of construction, total two-way HGV movements will be on average only 32 which is not likely to lead to any severance effects. Mitigation measures, specifically, timing and routing of construction phase traffic will also assist in the minimising of any effects resulting in minor adverse and not significant effects on residential land.

WCH users

For WCH users, in the local study area there are no footways or dedicated cycling infrastructure however many locals may still use these roads for commuting and recreation due to the rural nature and relatively low traffic flows. Pedestrian surveys estimate that the maximum daily average of pedestrians using this route is 14, with 9 cyclists. A section of the 89km Ballyhoura Way national waymarked trail enters the wider study area from the north and passes immediately north and west of the proposed Project. As stated in Volume 3, Chapter 11: Traffic and Transport, no significant impacts are expected due to severance and construction of the proposed Project will not result in the closure or diversion to PRoW or other WCH infrastructure. Therefore, negligible effects are expected on WCH users.

Community and development land

There is no community or development land in close vicinity to the crossing, therefore there is no potential for an effect.

Wider effects (Employment, Tourism, Expenditure)

Employment

Construction is expected to last approximately 44 weeks and employ approximately 10-15 workers. Locally, levels of employment are high with less than 4% of the economically inactive population unemployed. The employment generated by the proposed Project equates to less than 5% of the total employment in the local study area and less than 0.03% of the total employment in the wider study area. Based on the low levels of baseline unemployment, the sensitivity of the study area is deemed to be low and the magnitude of impact is minor, resulting in no significant effects on local or wider employment.

The proposed Project is located approximately 5km from Buttevant and 8km from Charleville. It is approximately mid-way between Limerick and Cork, both of which are accessible by car on the N20. Volume 3, Chapter 11: Traffic and Transport states that during construction, in recognition of the increased difficulty for traffic turning right from the N20, there could be significant impacts on driver delay. Proposed mitigation measures include timing and routing of construction traffic outside key commuting hours. As this is a temporary impact and the current road is operating well within capacity, it is assumed that the impact on access to employment in the local and wider study area will be minor. Therefore, negligible effects are expected on access to employment during construction.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. In the wider study area, there are wider variety of tourist attractions attracting thousands of visitors each year however due to the location of the crossing on a minor road which mainly provides access to the N20 for a small number of houses, the effect of construction on tourism will be negligible.

Expenditure

During construction, there may be a small change in local revenue and expenditure as a result of construction workers spending money on rental accommodation and other local services. However, provision of suitable accommodation within the wider study area is scarce, therefore it is likely that construction workers will choose to commute from the wider region. If construction workers were to stay locally, the spending in the local area would be temporary and have a minor beneficial impact on the local and wider economy however this is not considered to be significant.

Operational Phase

Amenity

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

There are no schools, emergency or health services or PRoW located within the local study area. Therefore, there is no potential for severance from community or recreational facilities. Similarly, the local area is not sensitive to noise or recognised as an air quality management area and impacts on air quality and noise as a result of operation are not considered to be significant.

The closure of the level crossing and alternative provision for crossing the railway reduces risk of incidents and accidents associated with level crossings (see Volume 2, Chapter 1: Introduction for further details on accident statistics). This reduces the likelihood of serious injury or fatality occurring and is a beneficial impact of the proposed Project. This applies to the users of the crossing (vehicular and WCH) and the gate keeper. Considering that the baseline levels of health in the study area are good, and the proposed Project will result in better safety, the health outcome is considered to be positive.

Land Use

Public rights of Way

The existing level crossing is a Public Right of Way (PRoW), which will be extinguished as a result of the proposed Project.

The existing level crossing through-road (the L1320) connects to the N20 immediately to the east of the level crossing. The proposed new access road will render this junction redundant. Instead, users travelling from the south will be directed to cross the railway at an existing road-over-rail bridge approx. 850m to the north and travel back south again to the L1320 on the proposed new access road, constructed to the west of the railway line. Users travelling from the north, will be directed off the N20 onto the L5529, west of the N20 which will be tied-in to the new access road. The extinguishment of this PRoW is likely to present an inconvenience to those travelling from the south, however the diversion is not large (less than 2.5km) and the use of the L1320 indicates it is low sensitivity. In addition, no adverse impact is anticipated to users from the north; a small beneficial impact may be experienced by the removal of wait times at the crossing. It is therefore anticipated the propose Project will have a negligible impact on this PRoW.

Agricultural Land

As stated above, impacts due to land take and severance first occur during the construction phase of the project and have therefore been considered in the assessment of construction effects.

Residential land

There is no residential land directly affected by land take. Similarly, during operation, Volume 3, Chapter 11: Traffic and Transport shows that the low levels of additional traffic generated by the proposed Project are not likely to result in any significant severance issues. Therefore, no significant effects are expected on residential land.

WCH users

For WCH users, there are no footways or dedicated cycling infrastructure and as such the number of pedestrians and cyclists is low. As stated in Volume 3, Chapter 11: Traffic and Transport, no significant impacts are expected due to severance and construction of the proposed Project will not result in the closure or diversion to PRoW or other WCH infrastructure. Therefore, negligible effects are expected on WCH users. A short section of the Ballyhoura Way will see an increase in traffic due to the closure of the LC and proposed diversionary route for L1320 traffic, however, given low pedestrian and cyclist numbers no significant impacts are predicted.

Community and Development land

There is no community or residential or commercial development land in close vicinity to the crossing, therefore there is no potential for an effect. However, the proposed M20 is in close proximity to this site. In terms of sequencing, the M20 project team is still considering options so it is anticipated that the proposed Project (Cork Line level Crossings) would be determined and, if consented, potentially have construction commence before the application for consent for the M20 is submitted. The M20 team were consulted and a conference call held with them in March 2020; they raised no significant concerns. It is therefore unlikely that there would be a significant cumulative issue with the M20 project.

Wider effects (Employment and Tourism)

Employment

The XC215 Shinanagh crossing is CD type level crossings but are operated as CX type level crossings, generally open to road traffic and only closed to road traffic to facilitate the movement of trains. They are manned day and night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

During operation, delays associated with the existing level crossing will be removed. Based on the low levels of existing traffic flows on this route, this is expected to result in minor beneficial effects on access to local employment. The effect is not considered to be significant.

Tourism

As stated in the baseline, the local study area is not a popular tourist destination and the crossing does not provide direct access to tourist facilities. Within the wider study area, re-routing of the road network is not predicted to have a material impact on the operation of the local road network and therefore is unlikely to result in any impact on those accessing tourist facilities in the wider study area.

Summary of Findings

Table 6.11 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 11: Summary of Findings XC215 Shinanagh

Type of Effect	Assessment	
	Construction	**Operation**
Amenity	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.	No significant effects on any of the constituent topics during operation.
Health	Three residential receptors experience significant noise effects. These effects are at a level above which adverse effects on health and quality of life can be detected and therefore has the potential to result in negative impacts on health. Increase in the perceived risk of accidents due to the local road widths and speed limits.	No increase in air or noise emissions, no severance; increased access for emergency services. Overall positive effect on health although not significant.
Land Use: Agricultural	Potential severance but not significant. Land take is not significant.	Addressed under construction phase.

Type of Effect	Assessment	
	Construction	Operation
Land Use: Residential	No direct land-take. Potential for severance from construction traffic.	No direct land-take. Slight delay due to diversion but not significant.
Land Use: WCH Users	Potential delay as a result of construction traffic.	Potential slight delays to users of Ballyhoura Way due to diversion but not significant.
Land Use: Community and Development Land	No community facilities nearby. Proposed M20 motorway is within the study area. Potential for cumulative effects during construction.	No community facilities nearby. No effect on M20 proposals.
Employment	No significant increase in employment; no reduction in access to employment.	No effect on employment; no reduction in access to employment.
Tourism	No effects on tourism.	No effects on tourism.
Expenditure	No significant increase in expenditure locally.	No effects on expenditure locally.

Mitigation and Residual Effects

Construction Phase

Amenity and Health:

Noise & Vibration: Proposed mitigation is set out in Volume 3, Chapter 10: Noise and Vibration and includes clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours is expected to result in no significant residual effects on noise.

Landscape & Visual: Mitigation is set out in Volume 3, Chapter 13: Landscape & Visual. Post mitigation, no significant residual effects are expected.

Traffic &Transport: Volume 3, Chapter 11: Traffic and Transport sets out that a CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGVs and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is considered to be neutral.

Air quality: Volume 3, Chapter 15: Air Quality sets out the mitigation proposed to reduce vehicle and dust emissions to not significant during construction. A Dust management Plan will be prepared by the contractor as part of the Contractors Construction Environmental Management Plan (CEMP).

There are no further significant effects during construction and none during operation.

6.6.6 XC219 Buttevant

Do Nothing

Population growth would be expected to occur over the operation of the proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather which are not related to the construction of new developments. No changes in

amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the level crossing experienced four crossing equipment failures and experienced one incident by which a road vehicle crashed into the crossing barrier. In absence of the proposed Project, the level crossing would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain.

Construction Phase

Amenity

XC219 Buttevant is located on Station Road just 1km off the N20 national road. During construction of the new road, potential amenity effects may be experienced by nearby residential receptors due to traffic, noise, visual and air quality effects associated with the construction activities.

During construction, Volume 3, Chapter 11: Traffic and Transport states that no significant impacts would be expected in relation to traffic generated by the Proposed Project. Similarly, Volume 3, Chapter 15: Air Quality states that due to the low numbers of construction vehicles (approximately 20 LDVs and 34 two-way HGV movements per day), no air quality effects are expected.

Volume 3, Chapter 10: Noise and Vibration states that significant effects are predicted at three receptors during construction. This is due to the long construction period of approximately 56 weeks. Proposed mitigation including clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours will result in no significant residual effects on noise.

Finally, Volume 3, Chapter 13: Landscape and Visual concludes that worst case, prior to mitigation, moderate landscape effects are expected at XC215 Shinanagh. The primary form of mitigation in this case is to retain as much existing hedgerow as possible and during construction, supplement this with 'Hedgerow Type 1' where necessary. Post mitigation, this effect is considered slight-imperceptible.

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

Volume 3, Chapter 15: Air Quality concludes that vehicle movements associated with construction activities are below the criteria set out in the DMRB guidance and are considered to be insignificant. Therefore, there is no potential for a health effect.

Volume 3, Chapter 10: Noise and Vibration shows that during construction, prior to mitigation, three residential receptors experience significant noise effects. These effects are at a level above which adverse effects on health and quality of life can be detected and therefore has the potential to result in negative impacts on health. Health impacts from noise include sleep disturbance, increased aggression and impaired communication (WHO, 1995). Mitigation measures including restricting construction to working hours, positioning construction plant and activities to minimise noise at sensitive locations and use of noise abatement site hoardings and screens where appropriate all help to reduce the impact on health. The baseline health of the study area is good, existing noise levels are low and the noise impacts will be temporary and mitigated as outlined above. Therefore, overall effects on health are likely to be neutral.

Between 2012 and 2016, no road safety accidents were recorded within the immediate vicinity of the existing crossing XC219 Buttevant however two car accidents have occurred nearby. Increases in traffic, notably HGV's transporting material import to the crossing construction site may increase the perceived risk of accidents due to the local road widths and speed limits. A CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate

warning and speed control signs to warn other road users of HGVs and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is neutral.

Land Use (Agricultural land, Residential land, WCH, Community land and Development land)

Agricultural Land

The proposed Project has the potential to result in loss of agricultural land and severance. Severance to agricultural land occurs when a portion of agricultural land is separated from the remainder resulting in that piece of land becoming unusable. The local study area is predominantly a dispersed rural area consisting of agricultural lands, farm buildings and associated farm infrastructure. There is a high availability of land, therefore, the local study area is defined as low sensitivity. In the Rural District of Mallow, there are approximately 1,233 farms covering a land area of approximately 50,728 hectares. Based on the high availability of agricultural land, the wider study area is also defined as low sensitivity.

No temporary land take is proposed for the construction phase of the proposed Project; only the permanent land requirement for the new crossing will be utilised however, impacts are considered here as they are expected to first occur during the construction phase. At crossing XC219 Buttevant, the construction of a road-over-rail bridge will result in the loss of approximately one hectare of land across three agricultural land holdings. Compared to the size of the overall land holdings, which cover an area of over 20 hectares, the effect on the land to continue operating without compromising the overall viability is expected to be minor. The overall effect is not considered to be significant.

Compared to the wider study area, it is assumed that any agricultural productivity lost will be easily absorbed by surrounding agricultural land. Based on the high magnitude of land available in the local and wider area, the magnitude of impact would be minor resulting in no significant effects.

During construction and operation, the proposed Project has the potential to introduce minor adverse severance effects for owners of agricultural land either side of the new road-over-rail bridge. Land registry data suggests that for the two land holdings directly south of existing crossing, severance is likely to occur unless alternative access is provided. It is assumed that in cases where access is restricted, full accessibility provision will be provided to land owners to ensure access is maintained. Therefore, the overall effect on agricultural land is not significant.

Residential land

No temporary land take effects are expected on residential land during construction. However, it is likely that some residential properties within the local study area, notably the four residential properties located directly adjacent to the crossing on Station road, may experience severance effects as a result of increased traffic due to the construction works. Residential properties are defined as high sensitivity.

As reported in Volume 3, Chapter 11: Traffic and Transport, during the peak of construction, total two-way HGV movements will be on average 54 movements per day equating to less than 8 two-way movements per hour. This is not likely to lead to any severance effects. Mitigation measures, specifically, timing and routing of construction phase traffic will also assist in the minimising of any effects resulting in minor adverse and not significant effects on residential land.

WCH users

East of the existing public road level crossing a footpath runs the entire length of the R522 however to the west of the crossing there is no provision. There is also no dedicated cycling provision in this area however based on the proximity of the crossing to the local community of Buttevant, it is likely that there is some walking and cycling for recreation locally. Pedestrian and cyclist survey counts show a maximum daily average of 19 pedestrians and 26 cyclists using this route. During construction, there is not likely to be any closures to WCH infrastructure or increases in WCH user journey length. Therefore, negligible effects are expected on WCH users.

Community and Development land

To the east of the crossing is the town of Buttevant which has a number of local facilities including schools, churches, GP surgery and a number of shops, cafes, bars, restaurants, and a number of other services and businesses. Due to the rural location, it is likely that these facilities are used regularly by the local community and therefore the community land in the local study area is defined as medium sensitivity.

Whilst there will be no direct loss to community land, during construction, presence of HGVs and increased traffic flow could result in adverse severance effects for those accessing the school and local community facilities. For those accessing the school, mitigation will ensure that, as far as possible, timings of HGV movements avoid school pickup and drop off times. The overall impact on the local community is expected to be slight and not significant.

Wider effects (Employment, Tourism, Expenditure)

Employment

Construction is expected to last approximately 56 weeks and employ approximately 10-15 workers. Locally, levels of employment are high with less than 4% of the economically inactive population unemployed. The employment generated by the proposed Project equates to less than 5% of the total employment in the local study area and less than 0.03% of the total employment in the wider study area. Based on the low levels of baseline unemployment, the sensitivity of the study area is deemed to be low and the magnitude of impact is minor, resulting in no significant effects on local or wider employment.

Locally, the proposed Project is located approximately 500m from Buttevant town and approximately 15 minutes by car from Mallow. There are no public transport services within the immediate vicinity of crossing XC219 Buttevant however it is possible to access Charleville and Mallow train stations which provide links to Dublin, Cork and Tralee. Volume 3, Chapter 11: Traffic and Transport states that during construction, based on the current state of the road, operating well within capacity, no significant effects are expected on driver delay. Therefore, negligible effects are expected on access to local employment during construction. Within the wider study area, the crossing is situated mid-way between Limerick and Cork, both of which are accessible by car on the N20. Based on the low traffic flows on the existing road and the lack of impacts locally, it is unlikely that there would be any wider impacts on access to employment in the region.

Tourism

As stated in the baseline, the local area is not a popular tourist destination and the crossing is not in close vicinity to a high number of tourism receptors. In the wider County, there are wider variety of tourist attractions attracting thousands of visitors each year however due to the location of the crossing on a minor road which mainly provides access to the N20 and smaller rural communities, the effect of construction on tourism will be negligible.

Expenditure

During construction, there may be a small change in local revenue and expenditure as a result of construction workers spending money on rental accommodation and other local services. However, provision of suitable accommodation within the wider study area is scarce, therefore it is likely that construction workers will choose to commute from the wider region. If construction workers were to stay locally, the spending in the local area would be temporary and have a minor beneficial impact on the local and wider economy however this is not considered to be significant.

Operational Phase

Amenity

A detrimental amenity effect only occurs when there a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor. As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.

Health

The local area is not sensitive to noise or recognised as an air quality management area and the proposed new route alignment does not lead to road traffic emissions being any closer to receptors than the Do Nothing scenario. Therefore, no changes to pollutant concentrations at receptor locations close to the local road network are expected and the air quality and noise effects would be insignificant.

The closure of the level crossing and alternative provision for crossing the railway reduces risk of incidents and accidents associated with level crossings (see Volume 2, Chapter 1: Introduction for further details on accident statistics). This reduces the likelihood of serious injury or fatality occurring and is a beneficial impact of the proposed Project.

Considering that the baseline levels of health in the study area are good, and the proposed Project will result in better safety, the health outcome is considered to be positive.

Land Use (Residential land, WCH, Agricultural land, Community land and Development land)

Public Right of Way

The existing level crossing is a Public Right of Way (PRoW) and this will be extinguished as a result of the proposed Project. The proposed road-over-rail bridge at this site, is in the same vicinity as the PRoW, slightly to the south. The new crossing will have no impediment as currently exists, with users being required to wait for trains in order to cross. As such it is considered there may be a low magnitude beneficial impact on users of the PRoW. This PRoW also has a low sensitivity (<4,000 vehicles per day) and so would have a negligible beneficial impact.

Agricultural Land

As stated above, impacts due to land take and severance first occur during the construction phase of the project and have therefore been considered in the assessment of construction effects.

Residential land

There is no residential land directly affected by land take. Similarly, during operation, Volume 3, Chapter 11: Traffic and Transport shows that the low levels of additional traffic generated by the proposed Project are not likely to result in any significant severance issues. Therefore, no significant effects are expected on residential land.

WCH users

There are no footways or dedicated cycling infrastructure associated with the crossing, however for the small number of users who do use the road, there will be a small diversion to use the new road-over-rail bridge. This is not expected to have a significant effect on WCH users.

Community land

During operation, the removal of the level crossing will result in greater accessibility to the community facilities in Buttevant. Previously, users would have to wait up to 10 minutes at the crossing for a passing train. Based on the low number of users, the magnitude of impact is likely to be minor beneficial, resulting in no significant effects.

Development Land

There is no development land in the study area and therefore no potential for a significant effect.

Wider effects (Employment and Tourism)

Employment

The XC219 Buttevant crossing is a CX type level crossing, generally open to road traffic and only closed to road traffic to facilitate the movement of trains. It is manned day and night. During operation, the removal of the crossing will result in no requirement for a gate keeper. It is expected that the employee will be redeployed by their employer, resulting in no overall unemployment as a result of the Project and no significant effects on local or wider employment.

During operation, delays associated with the existing level crossing will be removed. Based on the low levels of existing traffic flows on this route, this is expected to result in minor beneficial effects on access to local employment. The effect is not considered to be significant.

Tourism

As stated in the baseline, the local study area is not a popular tourist destination and the crossing does not provide direct access to tourist facilities. Within the wider study area, re-routing of the road network is not predicted to have a material impact on the operation of the local road network and therefore is unlikely to result in any impact on those accessing tourist facilities in the wider study area.

Summary of Findings

Table 6.12 provides the summary of findings against each type of effect within the Population & Health chapter.

Table 6. 12: Summary of Findings XC219 Buttevant

Type of Effect	Assessment	
	Construction	**Operation**
Amenity	As there are no significant residual effects on traffic, air quality or landscape and visual, no significant amenity effects are expected.	No significant effects on constituent topics; no significant effects on amenity.
Health	Potentially significant impacts from noise on three receptors. Potential perceived increase in fear of intimidation from construction traffic.	No increases in noise or emissions, therefore no health effects form that source. Increased safety and access provide overall health benefit although not significant.
Land Use: PRoW	Access will be maintained during construction. No impacts are predicted.	The PRoWs will all be extinguished, replaced by road-over-rail bridges in four instances; by new access roads in two instances; and one complete closure. Some positive effects, not significant. Negligible negative effect on the complete closure.
Land Use: Agricultural	Potential for severance during construction and operation.	Addressed during construction phase
Land Use: Residential	Potential for severance due to construction traffic.	No direct land-take. No severance. Improved access. No significant effect.
Land Use: WCH Users	Potential for delays due to traffic.	Increased access; positive effect although not significant.
Land Use: Community and Development Land	Several facilities in Buttevant; potential delay in access to them as a result of construction traffic.	Increased access; positive effect although not significant.

Type of Effect	Assessment	
	Construction	Operation
Employment	No significant effects from slight increase in employment; no significant effect on access to employment.	Increased access to employment; positive effect although not significant.
Tourism	No effects on tourism	No effect on tourism
Expenditure	No significant effect as a result of slight increase in local expenditure dur to construction workforce.	No effect on local expenditure.

Mitigation and Residual Effects

Construction Phase

Amenity and Health

Noise & Vibration: Proposed mitigation is set out in Volume 3, Chapter 10: Noise and Vibration and includes clear communication with residents, noise abatement hoardings and screens, and programming works to ensure minimal work takes place outside of normal working hours is expected to result in no significant residual effects on noise.

Landscape & Visual: Mitigation is set out in Volume 3, Chapter 13: Landscape & Visual. Post mitigation, no significant residual effects are expected.

Traffic &Transport: Volume 3, Chapter 11: Traffic and Transport sets out that a CTMP will be used to prevent or minimise transport impacts during construction. This includes measures to reduce the perceived risk of accidents for example erecting appropriate warning and speed control signs to warn other road users of HGVs and construction traffic. With the appropriate mitigation, the impact on health as a result of construction traffic and risk of accidents is considered to be neutral.

Air quality: Volume 3, Chapter 15: Air Quality sets out the mitigation proposed to reduce vehicle and dust emissions to not significant during construction. A Dust management Plan will be prepared by the contractor as part of the Contractors Construction Environmental Management Plan (CEMP).

Land: agricultural

Potential severance addressed through provision of alternative access arrangements. No residual effects.

Land: residential

Potential severance effects addressed through CTMP and timing of traffic movements. No residual effects.

Land Use: WCH Users

Potential delay effects addressed through CTMP. No residual effects.

Land Use: Community Facilities

Potential delay effects addressed through CTMP. No residual effects.

There are no further construction effects and no operational effects. All other residual effects are as outlined in Table 6.12.

6.6.7 Combined Effects of all Sites

Do nothing

Population growth would be expected to occur over the operation of the proposed Project. Regional population projections produced by the CSO suggest the population of the South-West region will increase by approximately 0.5% per year up to 2031 (CSO, 2013). This level of population growth would not substantially alter the local demographics across all sites and therefore no additional consideration has been made for population growth. Similarly, tourist numbers and revenue fluctuate year on year, primarily due to external factors such as the economy, foreign exchange rates and the weather which are not related to the construction of new developments. No changes in amenity are expected, other than where changes from the baseline scenario are already accounted for in topics that have been drawn upon for the assessment of amenity effects for example traffic, noise and air quality. The interface between road and rail presents a key safety issue. Between January 2016 and June 2019, the seven public road level crossings experienced a total of 19 incidents. This represents a fraction of those experienced across the entire Irish Rail network. In absence of the proposed Project, the seven level crossings would continue to operate and the existing risk at this interface, whilst low and which the proposed Project seeks to permanently remove, would remain. in this part of the network.

Construction phase

Amenity

No significant amenity effects are predicted at any of the sites during construction. Therefore, the combined effect of all sites is not significant.

Health

Health effects as a result of air quality, noise or access to community facilities are largely localised to the local study area. The sites are far enough apart that there is unlikely to be a cumulative effect as a result of all sites.

During construction, increased construction traffic, especially running along the N20 and R515 roads could result in a greater risk of traffic accidents in the region. However, as stated in Volume 3, Chapter 11: Traffic and Transport, the roads are large enough in capacity to incorporate construction traffic into the wider network. Therefore, the health effect is likely to be neutral.

Land use

Agricultural land

The seven sites are located within the Rural region of Mallow and Kilmallock which together cover a land area of over 91,000 hectares and contain approximately 2,300 farms. In the context of the agricultural land available in the wider study area, the land take impacts are expected to be minor resulting in no significant effects on agricultural land.

Residential land

During construction, there is no permanent land take of residential land or significant effects as a result of severance. Any minor effects are expected to be localised and would therefore not combine to create a significant effect across the wider study area.

WCH users

During construction, no significant effects are expected across any of the sites on WCH users. Any minor effects are likely to be localised and would therefore not combine to create a significant effect across the wider study area.

Community and development land

During construction, there is no permanent land take of community or development land or significant effects as a result of severance. Any minor effects are expected to be localised and would therefore not combine to create a significant effect across the wider study area.

Wider effects

Employment

Construction is expected to last approximately between 15 and 63 weeks depending on the site and employ up to 30 workers per site. Within the wider study area, there are low levels of unemployment, suggesting the market is not sensitive to changes in employment provision. Total employment in the wider study area is approximately 116,000, and within the counties of Limerick and Cork is approximately 735,000. In the context of the wider region, the employment generated by the proposed Project is minor. Therefore, the overall effect is not significant.

Within the wider region, the increased construction traffic on the N20 could result in restrictions in access to local rail stations including Charleville Station and Mallow station which provide links to both Dublin and Cork. Volume 3, Chapter 11: Traffic and Transport states that the road network has a high enough capacity to absorb the extra construction traffic. Effects on driver delay could build up across the study area however the main effects would be on minor roads in close vicinity of the crossing locations. Therefore, it is not likely that a commuter would experience a build-up of delays on their journey to or from work. The overall effect is not significant.

The total investment in the scheme is approximated at €15 million.

Operation phase

Amenity

No significant amenity effects are predicted at any of the sites during operation. Therefore, the combined effect of all sites is not significant.

Health

Health effects as a result of air quality or noise are largely localised to the local study area. The sites are far enough apart that there is unlikely to be a cumulative effect as a result of all sites.

During operation, positive health effects are expected as a result of increased safety due to the removal of six level crossings, the upgrade of one to CCTV and associated road improvements at each existing crossing. In the wider region, this is expected to result in positive health and enhanced safety benefits although the extent of these are uncertain. The Proposed Project will also enable emergency services and the wider public to use these routes 24h a day whereas previously access would be restricted (particularly at night). It is anticipated that for most of the existing crossings, the proposed Project will also improve local access, enabling local communities to experience greater mobility across the region, improving access to wider community facilities and enabling social interaction. In the wider region the overall health benefit is expected to be positive.

Land use

Public rights of Way

The extinguishment of seven PRoWs in seven separate locations is not anticipated to create a combined impact on PRoW users in the region. Further, at four of the seven sites, the existing PRoWs are being replaced by new ones in the immediate vicinity; at two of the sites, new access roads will lead to some inconvenience to some users but these will into combine to a greater level of significance than predicted for individual sites.

Agricultural land

During operation, severance effects are expected locally. In the context of the availability of land and the general provision of accessibility across the wider study area, this is not expected to be significant.

Residential land

During operation, there is no permanent land take of residential land or significant effects as a result of severance. Any minor effects are expected to be localised and would therefore not combine to create a significant effect across the wider study area.

WCH users

During operation, no significant effects are expected across any of the sites on WCH users. Any minor effects are likely to be localised and would therefore not combine to create a significant effect across the wider study area.

Community and development land

During operation, there is no permanent land take of community or development land or significant effects as a result of severance. Any minor effects are expected to be localised and would therefore not combine to create a significant effect across the wider study area.

Wider effects

During operation, no significant effects are expected across any of the sites on tourism or employment. Any minor effects are likely to be localised and would not combine to create a significant effect across the wider study area.

6.7 Mitigation Measures

Mitigation measures are set out under each site where required. These include noise abatement and traffic control measures during construction to prevent health effects; and changed access arrangements to avoid severance. No further significant effects were identified, and no further measures required.

6.8 Residual Effects

Following implementation of mitigation measures there are no significant residual effects in relation to the construction or operation of the proposed Project in relation to population and human health.

6.9 Interactions

There are no further interactions expected over and above those already considered in this chapter.

6.10 Cumulative Impacts

The list of 33 projects identified at Stage 3 have been reviewed in relation to population and human health for cumulative impacts. Due to distance, scale and nature of the development projects from the proposed Project all projects have been screened out for cumulative impacts in relation to population and human health during the Construction and Operational Phases.

The proposed M20 has been considered to be in close proximity to this site. In terms of sequencing, the M20 project team is still considering options so it is anticipated that the proposed Project would be determined and, if consented, potentially have construction commence before the application for consent for the M20 is submitted. The M20 team were consulted and a conference call held with them in March 2020; they raised no significant concerns. It is therefore unlikely that there would be a significant cumulative issue with the M20 project.

6.11 Difficulties Encountered in Compiling Information

Population statistics are provided in Ireland at a range of geographical scales, a number of which were used to inform this assessment. At a very local level, the statistics are organised into 'Small Areas'. This provides local useful information on health, age, education and employment; however the Small Areas' boundaries do not match perfectly with the requirements of the assessment. A site may, for example, be in one Small area but close the boundary of another; or a new access road may cross more than one, or even two small area boundaries. Professional judgement is used in these cases to determine the 'best fit' or alternatively an average across statistics is used.

6.12 References

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