
Chapter 7

Population

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7. POPULATION

7.1 Introduction

This chapter assesses the likely construction and operational stages of the DART+ West project referred hereafter as the ‘proposed development’ on the population. In accordance with the EPA *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022), this chapter will examine:

- Land use change.
- Journey characteristics and journey amenity.
- Community infrastructure.
- Severance.
- Economic activity, including tourism and employment.

Population assessment is a broad ranging topic and interacts with all other environmental factors to some degree or another. Chapter 4 details the description of the proposed development, Chapter 5 contains the Construction Strategy, and it is not repeated beyond where is it relevant to this impact assessment. This chapter has been prepared with and should be read in conjunction with the following chapters that are contained in Volume 2 of the EIAR:

- Chapter 2 Policy Context and Need for the Project.
- Chapter 4 Description of the Proposed Development.
- Chapter 5 Construction Strategy.
- Chapter 6 Traffic and Transportation.
- Chapter 12 Air Quality.
- Chapter 13 Climate.
- Chapter 14 Noise and Vibration.
- Chapter 15 Landscape and Visual Amenity.
- Chapter 16 Material Assets & Land: Agricultural Properties.
- Chapter 17 Material Assets & Land: Non-Agricultural Properties.
- Chapter 18 Material Assets: Utilities.
- Chapter 23 Human Health.
- Chapter 24 Risk of Major Accidents and Disasters.
- Chapter 26 Cumulative Effects.

This chapter sets out the relevant legislation, policy, and guidance (Section 7.2), the methodology used for the population assessment (Section 7.3), a description of the receiving environment (Section 7.4) and the potential impacts of the proposed development on population (Section 7.5). Section 7.6 sets out mitigation measures devised to avoid, reduce, and/or mitigate impacts identified, with details of any residual impacts described in Section 7.7. A list of reference material used to compile this chapter is contained in Section 7.10.

7.2 Legislation, Policy, and Guidance

7.2.1 Legislation

This population assessment has been undertaken in accordance inter alia with EU Directive 2011/92/EU as amended by Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (“the EIA Directive”), the Transport (Railway Infrastructure) Act 2001 (as amended and substituted), the European Union (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 (S.I. No. 743/2021) which give further effect to transposition of the EIA Directive by amending the Transport (Railway Infrastructure) Act 2001.

7.2.2 Policy Context

Relevant policy documents that have informed this chapter include:

- “Project Ireland 2040” – National Planning Framework; and National Development Plan 2021-2030.
- Transport Strategy for the GDA 2016-2035 and the Draft GDA Transport Strategy 2022-2024.
- Eastern and Midland Region’s Regional Spatial and Economic Strategy 2019-2031.
- Transport Strategy for the Greater Dublin Area 2016-2035.
- Draft Greater Dublin Area Transport Strategy 2022-2042.
- GDA Cycle Network Plan.
- Dublin City Development Plan 2016–2022 & draft Dublin City Development Plan 2022-2028.
 - North Lotts and Grand Canal Dock SDZ Planning Scheme 2014.
 - Ashtown-Pelletstown Local Area Plan 2014.
- Fingal Development Plan 2017-2023; and Draft Fingal Development Plan 2023-2029.
 - Hansfield Strategic Development Zone Planning Scheme 2006.
 - Barnhill Local Area Plan 2018.
 - Kellystown Local Area Plan 2021.
- Kildare County Development Plan 2017-2023; and Draft County Development Plan 2023-2029.
 - Maynooth Local Area Plan 2013-2019.
 - Kilcock Local Area Plan 2015-2021.
 - Leixlip Local Area Plan 2020-2023.
- Meath County Development Plan 2021-2027.
 - Dunboyne, Clonee & Pace Local Area Plan 2009-2015.

An overview of the relevant planning policy is outlined in Section 7.4.2 as it informs land use and further details are contained in a separate Planning Report which accompanies this RO application.

7.2.3 Guidance

This chapter has been undertaken in accordance with the EIA guidance documents listed in Chapter 1 of this EIAR and other key guidance to include:

- *Guidelines on information to be contained in the Environmental Impact Assessment Report* - Environmental Protection Agency, May 2022.
- *Draft Advice Notes for preparing Environmental Impact Statements* - Environmental Protection Agency, 2015.
- *Guidelines on the information to be contained in Environmental Impact Statements* - Environmental Protection Agency, 2002.
- *Advice notes on current practice in the preparation of Environmental Impact Statements* - Environmental Protection Agency, 2003.
- *Environmental Impact Assessment of National Road Schemes - A practical Guide - National Roads Authority/ Transport Infrastructure Ireland, Revision 1, November 2008.*
- *Guidelines on the Treatment of Tourism in an Environmental Impact Assessment* - Fáilte Ireland, 2011.

7.3 Methodology

7.3.1 Study Area

There is no national guidance available on an appropriate study area to focus the population assessment. The study area has been defined considering the potential for impact from the proposed development during the construction and operational stage and is informed by the availability of relevant demographic data and

professional judgement. Considering these factors, two study areas are used to inform the population assessment, comprising:

- Land uses within 500 m either side of the proposed development.
- Demographic data based on the Electoral Divisions (EDs) pertaining to the proposed development which is further informed by the relevant county level demographic data for counties Dublin, Fingal, Meath and Kildare. (Illustrated on Drawing no. *MAY-MDC-ENV-ROUT-DR-V-71000-D to 71011-D - Electoral Divisions* Refer to Volume 3A of this EIAR.

To assist with informing the community profile, demographic data pertaining to key locations where there are proposed major permanent infrastructural works required are developed. The location of these major infrastructure works or 'local study areas', associated EDs and the County/local authority, to which they relate are listed in Table 7-1 and include the works associated with the following:

- Level crossings closures and replacement works at Ashtown, Coolmine, Porterstown, Clonsilla, Barberstown and Blakestown.
- Construction of a new 'Spencer Dock' train station.
- Capacity enhancements works at Connolly train station.
- Construction of a new depot east of Maynooth close to Kilcock in County Kildare.

It is recognised that due to the nature of this public transport project it can influence populations and activities across a wider area than 500 m, therefore relevant population and demographic data is gathered at county level for Dublin, Fingal, Meath, and Kildare and informs this assessment.

Table 7-1 Electoral Divisions (EDs) wholly and / or partially contained within 500m of the major permanent works at level crossings and stations

Major infrastructure works 'local study areas '	Names of Electoral Divisions within 500m study area	County / Local Authority administrative area
Level Crossings & Associated Replacement Works		
Ashtown	Ashtown A	Dublin City
	Ashtown B	
	Phoenix Park	
	Castleknock - Park	Fingal
	Blanchardstown - Abbotstown	
Coolmine	Castleknock - Knockmaroon	Fingal
	Blanchardstown - Delwood	
Porterstown	Castleknock - Knockmaroon	Fingal
	Blanchardstown - Delwood	
	Blanchardstown - Blakestown	
	Lucan North	
	Blanchardstown - Coolmine	
Clonsilla & Barberstown	Blanchardstown - Blakestown	Fingal
	Lucan North	
Blakestown	Leixlip	Kildare
	Maynooth	
	Celbridge	
Proposed Spencer Dock Station	North Dock B	Dublin
	South Dock	
	Mansion House A	

Major infrastructure works 'local study areas '	Names of Electoral Divisions within 500m study area	County / Local Authority administrative area
	North Dock C	
Connolly Station	North Dock C	Dublin
	Ballybough A	
	Mountjoy A	
	Rotunda A	
	North City	
Proposed depot	Maynooth	Kildare
	Rodanstown	
	Kilcock	

7.3.2 Survey Methodology

7.3.2.1 Desktop

Initially, a desk-based exercise informed the existing receiving environment, in relation to the current settlement patterns and community infrastructure, population and census data, economic activity, employment data, tourism, and recreation amenities. Topographical maps and Google maps have also been used to inform the baseline assessment.

Data Sources

The population assessment requires that an understanding of the community and characteristics of the area is established. This is informed by relevant planning policy, demographic data (including census), information obtained from site visits, consultation feedback from the public, stakeholders and community representatives.

Data sources consulted include:

- Population, demographics:
 - Census 2016 and 2011 by the Central Statistics Office (CSO).
- Other relevant environmental data considered during the various environmental assessments contained in this EIAR particularly traffic, noise, air and climate, water, land and soil, material assets, landscape and visual impacts, etc.
- Review of aerial photography including Google Earth to inform observations of settlement/development patterns, transportation routes, and to inform the land use survey.
- Consideration of the issues and/or concerns raised during public consultations as part of the design and EIA process.
- Site visit to confirm land uses along the route.

A range of planning and transport policy documents that may affect existing and future populations were used to inform this assessment as listed in Section 7.2.2 of this chapter.

7.3.2.2 Survey

A walkover survey was carried out in June 2021 at locations where key infrastructure is proposed as part of the DART+ West project. The purpose of the survey was to confirm the findings of the desktop study in relation to the land uses and sensitive receptors within the 500 m study area and to further inform the baseline environment. The walkover survey also observed travel patterns and settlement patterns including community and amenity uses and gain a greater appreciation of the local environment.

The land use survey helps to identify land uses and potentially sensitive receptors including residential uses, educational facilities, community, and institutional uses (including churches, libraries, recreational facilities, etc), amenity and open spaces, commercial, business, research and development, industrial, medical facilities,

and tourism uses. All residential land uses are considered sensitive receptors. Residential receptors and mixed-use development (residential with commercial) were also noted during site visits. However, based on the large number identified in the study area residential receptors and mixed-use developments are not mapped but are visible to the assessment team due to the good quality aerial photography and are considered as part of the assessment.

Land uses that are mapped are illustrated on Drawing no. MAY-MDC-ENV-ROUT-DR-V-70000-D to 70011-D contained in Volume 3A of this EIAR, and are classified under the following categories:

- Medical facilities.
- Educational facilities.
- Community and/ or institutional facilities.
- Commercial and/ or research and development facilities.
- Industrial facilities.
- Amenity and open space facilities.
- Hotels and/ or bed and breakfast (B&Bs).

Appendix A7.1 Land Use Classifications in Volume 4 of this EIAR details the land use categories and associated land use types under each category. It should be noted that due to the large quantity of residential and mixed uses (commercial and retail) in the study area particularly in the Dublin City Centre area, individual properties are not mapped in GIS. The land use types are visible on aerial photography and google maps which was further informed by the site visits and is considered as part of this assessment.

7.3.3 Consultation

Consultation, and the consideration of feedback from the public, statutory consultees, business, and community groups etc. is a key part of the EIA process and integral to informing the design development and this environmental assessment.

The key consultation phases and the feedback received that has informed this chapter include:

- Non-statutory EIA Scoping Report.
- Options Selection process and the associated two public consultation periods (PC1 and PC2), local Ashtown public consultation on the revised preferred option, and associated feedback received through submissions and public information events.

Chapter 3 of this EIAR includes detail relating to the consultation undertaken during the project. The feedback received is summarised in the public consultation findings reports which has informed this chapter as appropriate. Close collaboration with the project team and other EIA specialists has also helped inform the population assessment.

7.3.4 Population Impact Assessment Categories

The purpose of the population assessment is to identify the likely significant effects that the construction and operation phases of the proposed development may have on the population. It usually follows that impacts of a population are a function of:

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

Impacts result from direct, indirect, secondary, and cumulative effects on existing environmental conditions. Effects can be *positive, neutral, or negative*. The significance of an effect depends on, among other considerations, the nature of the environmental effect, the timing and duration of an effect, and the probability of the occurrence of an effect. The significance of an effect can be described as *imperceptible, slight, moderate, significant, very significant* or *profound*. The duration of an effect may be described as *momentary, brief, temporary, short-term, medium-term, long-term, permanent* or *reversible* in accordance with the timescales detailed in Table 7-2 below. The frequency of that effect can also influence significance i.e., if the effect will occur once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually. For example, disruption to road for a few hours could be described as having an *imperceptible, negative, brief* impact versus the complete closure of a road for a number of months which could be described as a *very significant, negative, temporary* impact.

The population assessment addresses impacts at a community level rather than for individuals or identifiable properties, although population effects for individual properties are discussed where these are significant and/or located within proximity to the proposed development.

The criteria used to describe the potential population effects are outlined in Table 7-2 which has been adapted in accordance with the EPA Guidelines, (EPA, 2022).

Table 7-2 Criteria used to assess and describe population effects (adapted from the EPA, 2022)

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

Temporary Effects	Effects lasting less than a year.
Short-term Effects	Effects lasting one to seven years.
Medium-term Effects	Effects lasting seven to fifteen years.
Long-term Effects	Effects lasting fifteen to sixty years.
Permanent Effects	Effects lasting over sixty years.
Reversible effects	Effects that can be undone, for example through remediation or restoration.
Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hour, daily, weekly, monthly, annually).
<i>Note 1: For the purposes of planning consent procedures</i>	

In accordance with the EPA (2022) *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*, this chapter will examine the attributes and characteristics associated with:

- Land use change.
- Journey characteristics and journey amenity.
- Community infrastructure.
- Severance.
- Economic activity, including tourism and employment.

These topics are discussed in terms of their relevance to the assessment in the following sections.

7.3.4.1 Land use change

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

The project will require acquisition and / or demolition of a number of private properties. Demolition and property acquisition can have impact on both the occupants themselves but also at community level due to impact on community ties and amenity of residents, local economy, etc. The impacts associated with demolition and/or acquisition of private property is identified and assessed in Chapters 16 (Material Assets: Agricultural property) and Chapter 17 (Material Assets Non-Agricultural property) of Volume 2 of this EIAR. It is recognised that the project has the potential to impact social networks/community ties which cannot be mitigated against in this EIAR. If the project is successful compensation for these impacts will be assessed as part of a separate process, following appropriate liaison with the property owners affected and is not assessed further as part of this population assessment.

7.3.4.2 Journey characteristics and journey amenity

Journey length refers to the distance associated with a particular journey, whilst duration is the time taken to make the journey. Average walking speed for pedestrians is estimated to be 5 km/h while the average cycling speed is estimated to be 20 km/h¹. Journey amenity and community severance are described below. There are obvious interactions between each of these categories and economic impacts and therefore the assessments are combined. Positive impacts result from a decrease in journey length or duration and negative impacts result from an increase in journey length or duration. In addition, new transport facilities can improve accessibility or connectivity through the combined effect of reduced journey time and reduced severance.

¹ Project Appraisal Guidelines for National Roads Unit 13.0 Pedestrian and Cycling Facilities, TII, October 2016

The assessment of journey amenity relies on the significance categories detailed in Table 7-2 and is supported by cross-reference, where necessary, with the relevant specialist chapters. The level of traffic on a road, the proximity and separation of footpaths and cycle-paths, the nature of any crossings / junctions to be negotiated, the legibility of a journey (including signage), visual intrusion (including sightlines) and safety for equestrians, are amongst the factors relevant to the assessment of journey amenity, as are the number and types of people affected. The principal concern is with pedestrians and cyclists, but journey amenity impacts also apply to drivers; for example, due to safety and anxiety associated with the crossings of major roads. There are also interactions with the assessment of journey characteristics and community severance (discussed below).

7.3.4.3 Community infrastructure

Community infrastructure is important for providing general amenities to a population. This type of infrastructure can be far reaching and can include community infrastructure that is physical, social, and economic in nature that adds to the community or general amenity value of a population. Community infrastructure can also be valuable for large sections of certain populations, these can include places of worship, or places where people can relax and enjoy public spaces such as parks, playing pitches, sports grounds, community centres, libraries.

7.3.4.4 Community severance

The definition of severance is not precise. It often occurs as an impact of transport infrastructure development such as roads or bridges. Its effect is to discourage community interaction and it occurs where access to community facilities or between neighbourhoods is impeded by a lengthening of journey time or by physical barrier(s). On the other hand, relief from existing severance may be provided by a new road or bridge where traffic volumes or speed are moderated, by the inclusion of crossing facilities in the design or through the presence of over-bridges and/or underpasses.

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

Table 7-3 provides the criteria used in the assessment of severance. Where the assessment varies from these definitions, due to the context in which the impact occurs, the rationale for the assessment is described in the assessment text. There may also be potential for interactions with journey amenity.

Table 7-3 Criteria used in the assessment of severance impacts

Impact Level	Significance Criteria
Imperceptible	No noticeable consequences for journey patterns.
Not significant	Some minor effects on connectivity but present journey patterns are maintained.
Slight	Slight effects on connectivity but journey patterns are maintained with some hindrance to movement.
Moderate	Moderate effects on connectivity. Some moderate hindrance to movement is likely to be experienced by some populations but journey patterns maintained.
Significant	Significant effects on connectivity i.e., changes could dissuade/ promote populations from making particular journeys or result in requirement for alternative route to origin and destination.
Very significant	Very significant effects on connectivity i.e., dramatic changes could dissuade/ promote populations from making particular journeys or result in requirement for alternative route to/from origin and destination.
Profound	Profound changes to connectivity. Populations are likely to be required to completely alter journey patterns.

7.3.4.5 Economic impacts

Economic and employment impacts can occur at the regional and local scale and can be either positive or negative. Changes in access or connectivity as a result of a development, can have significant effects on

existing businesses or investment opportunities. Strategic transport infrastructure is normally proposed with the intention of improving national/regional and/or local competitiveness and economic/social linkages. For instance, in relation to improving access to/from areas, reducing journey time, and improving journey time reliability for the commuting workforce, commercial goods, or for tourists. There can also be negative effects in relation to indirect effects such as loss of passing trade to businesses, effects to car parks and those who cannot use public transport and/or rely on vehicular access to facilities which may be affected by the proposed transport infrastructure.

In general, the economic impacts are assessed at a community level however the proposed development may affect identifiable local business which are detailed in the Chapter 16 and Chapter 17 Material Assets (Agricultural and Non-Agricultural properties respectively). Other economic impacts could affect the wider community, for example where a number of businesses are affected, tourism, or where the retail or business environment of a city / town is impacted.

7.3.5 Difficulties encountered / limitations

This assessment was prepared during the Covid 19 pandemic. During this time, Census 2021 was postponed to 2022 therefore population and demographic data is from Census 2016. Due to certain government restrictions travel, community events, gatherings and 'normal' in person activities associated with the EIA process were affected. Travel to work, school college; changes to settlement patterns; use of open spaces; community activities were impacted during this period and are considered as part of this population assessment, as far as possible in an evolving global pandemic. There were no particular difficulties encountered in preparing the population assessment.

7.4 Receiving environment

7.4.1 Introduction

The section includes a description of the baseline as it relates to the population. In accordance with the EPA guidelines a summary of the population context, character, significance, and sensitivity of the study area is outlined in the following sections and is used to inform this assessment. An overview of the land use, population demographics, and economic activity relevant to study area is presented.

7.4.1.1 Context

The proposed development involves electrification of c.40 km of the Iarnród Éireann (IÉ) existing Great Southern & Western Railway (GSWR) and the Midland Great Western Railway (MGWR) rail lines from Dublin City centre extending west of Maynooth town as far as the proposed depot (east of Kilcock), and to M3 Parkway Station extending across Dublin City, Fingal, Kildare and Meath. Settlements affected include Dublin City and its suburbs along the line, and the towns of Maynooth, Leixlip and Dunboyne. Train stations located along the Maynooth line are Dublin Connolly, Drumcondra, Broombridge, Ashtown, Navan Road Parkway, Pelletstown, Castleknock, Coolmine, Clonsilla, Leixlip Confey, Leixlip Louisa Bridge, and Maynooth. Train stations along the M3 Parkway line are M3 Parkway Station, Dunboyne, Hansfield and Dublin Docklands station.

Chapter 2 of Volume 2 of this EIAR details the Background and Policy Context for the project and demonstrates how the project is supported at national, regional, and local levels. It details the how the development of the project will support existing and future populations the economy and, support the development of a sustainable, climate resilient public transport network which support the achievement of the national climate targets.

DART+ is supported in the National Planning Framework (NPF) and will contribute to the implementation of several the National Strategic Outcomes (NSOs), specifically; (NSO 4) sustainable mobility, (NSO 1) compact growth, and (NSO 8) transition to a low carbon climate resilient society. The DART+ programme is further supported by the exchequer as part of the National Development Plan 2021-2030 and is identified as a

strategic investment priority, and the cornerstone of rail investment within the lifetime of Project Ireland 2040 representing the single biggest investment in the Irish rail network.

The Eastern and Midlands Regional Spatial Economic and Strategy (EM RSES) 2019-2030 highlights the importance of providing of enabling infrastructure for Dublin and the sequential growth of Maynooth.

At county level, the DART+ Programme is supported in the relevant County Development Plans. For further details of relevant planning policies and objectives, refer to Chapter 2 of this EIAR and also the separate Planning Report which accompanies the RO application.

7.4.1.2 Character

The railway line and stations have a significant influence on the character of the area and surrounding populations, particularly at the level crossings, stations, and areas adjacent to the railway corridor. The proposed development is primarily located within the boundary of the Maynooth to Dublin and M3 Parkway rail lines. From east to west, the proposed development travels through Dublin City centre, which comprises a high density, established, and developing urbanised, mixed-use area. Significant regeneration and development is proposed, and is currently taking place at the location of the proposed Spencer Dock station. Ashtown, Coolmine, Porterstown and Clonsilla level crossings are well established urban neighbourhoods in the suburbs of the city, with infill and/or brownfield sites being planned for development in certain locations.

As the railway extends westwards towards Fingal, Kildare and Meath, the character of the area becomes more suburban in nature with some significant greenfield sites interspersed along both sides of the railway line, many of which are zoned for future development. The Ashtown, Coolmine, Porterstown and Clonsilla settlements are located around and or near existing level crossings and are well established neighbourhoods in the suburbs of the city. The zoned greenfield sites are predominantly at Barberstown and Blakestown level crossings. The location of the new depot is located on unzoned agricultural lands in the immediate vicinity of Kilcock (less than 1 km) and adjacent to the Royal Canal Way, there is some dispersed one-off housing and farm enterprises in the vicinity of the proposed depot.

The Royal Canal has a significant influence on the character of the area and is a significant feature of the built historical heritage which runs adjacent to the existing Dublin to Maynooth railway line. The Royal Canal is designated as a proposed Natural Heritage Area (pNHA) for the species it supports along its linear habitats. It is also a residential area with housing located fronting onto/adjacent to the canal and also the many canal boats along its corridor. As well as these it has multiple functions including, as a transport route itself and the adjacent Royal Canal Way, and as a tourism, amenity and recreational resource. The Royal Canal contributes significantly to the character of the area and is a valuable natural, built, transport and cultural heritage asset.

The railway line extending towards the M3 Parkway, travels through the areas of the Hansfield Strategic Development Zone (currently under construction) and the greenfield sites zoned as part of the Barnhill Local Area Plan 2019. As the rail line travels west it becomes more rural in nature and is characterised by unzoned agricultural lands in County Meath. Dunboyne Train Station and the surrounding town to the west is also located along the line. There are extensive areas of unzoned agricultural lands located between Hansfield Station and the M3 Parkway Station. The M3 Parkway station and park and ride facility was recently completed and is located parallel to the Dublin to Navan motorway (M3).

7.4.1.3 Significance

As Ireland's capital, Dublin is a national economic driver and is the only city in Ireland of international scale². It has a strong influence on employment and commuting patterns particularly within the GDA including those in the study area. Dublin has an extensive public transport network, including the existing railway which supports populations within the GDA and outside with services to the west of the country as far as Sligo on the GSWR line. The rail line is also supported by other modes of transport through bus connections, carparks at

² Source: Eastern Midland Regional Assembly Regional Spatial and Economic Strategy 2019 - 2031

stations, pedestrian and cycling infrastructure. The transport demand from the commuting population within, and into the city is discussed in further detail in Section 7.4.4 of this Chapter.

The National Development Plan 2018-2027, objective 'NSO 4 Sustainable Mobility', outlines how increases in passenger demand are to be supported and catered for by the development of a sustainable public transport system which supports a reduction in private car use. Investment in sustainable transport infrastructure is seen as a significant driver to support compact sustainable development for existing and future populations and a driver of the local and national economy as well as supporting the achievement of ambitious climate targets and reductions in greenhouse gas emissions from the transport sector.

The DART+ programme (including DART+ West) are significant transport infrastructure projects together with the development of BusConnects and Metrolink for the GDA and are supported in the NDP 2018-27 as major national infrastructure projects.

The Eastern and Midland Regional Spatial and Economic Strategy 2019 – 2031 (EM RSES) estimates that Dublin City will grow by between 13% -15% by 2031; Fingal by 13% - 15%; Kildare by 14% - 17%; and Meath by 14% - 16%. As such, the upgrade of public transport services to increase the capacity, reliability, and frequency is critical to support this planned population growth and support sustainable integrated development across the GDA.

The proposed DART + West project aims to electrify the existing Maynooth to Dublin (Sligo line to Maynooth) and the M3 Parkway rail lines and contribute to the support a reduction of carbon emissions from the transport sector. The increased frequency and capacity of train services proposed also aims to encourage the uptake of rail based public transport and to meet future transport demand.

7.4.1.4 Sensitivity

The existing road and railway transport infrastructure are essential assets to the population, economy, and tourism industry, and as such, and are sensitive assets in their own right. The populations that adjoin the railway lines have become accustomed, to a degree, to the nuisances associated with an active railway which is currently powered by diesel operated trains. The populations at the level crossings and/or train stations would also be more accustomed to the level crossing closures and associated road congestion, noise from trains, traffic, and passenger demands/footfall at these locations.

As previously stated, the proposed development is in a predominantly urban and suburban area extending across the GDA. Urbanised populations are generally exposed to greater levels of activity and are generally less sensitive to changes than their rural counterparts, however the sensitivity would depend on the nature of the activities which take place and the absorptive capacity of the population to the changes that can occur during the construction or the operational phase of a development.

The land use surveys have identified the existence of potentially sensitive population receptors in these areas to include residential areas, educational, medical, community, amenity/leisure/sports/recreational facilities as well as commercial, industrial and research and development. Rural populations could be considered more sensitive to change as they are generally more remote with less potential sources of disturbance and nuisance than their urban counterparts and therefore any change is more noticeable than in an urban location.

The Royal Canal is located adjacent to the proposed development from Dublin City to the proposed depot location. As already stated, the canal corridor serves an important function from both a transport and amenity resource for the local population and visitors. It forms part of the Royal Canal Way which comprises of towpaths from Dublin City (intermittently). The Royal Canal Way is uninterrupted from Ashtown continuing past the proposed depot site for approximately 105 km to the village of Abbeyshrule in County Longford. The Canal is used for walking, cycling, fishing and boating amenities and is also designated as a proposed Natural Heritage Area for ecological reasons and a 'conservation area' which includes Record of Protected Structures (RPS including canal bridges, and lock keeper cottages, etc. along its extents. The Canal can also be classified as a residential area in certain locations where it accommodates canal boats and where people live year-round. Based on the above, the Royal Canal and the Royal Canal Way are deemed to be a sensitive residential,

recreation, amenity, landscape, tourism, ecological, cultural, and built heritage resources as well as a transportation and tourism resource.

7.4.2 Land Use

The relevant characteristic of the proposed development together with the proposed land use change are summarised in the following sections and is used to inform the population impact assessment. The existing land uses and planning policy/ zoning has informed this assessment. The study area can be split into three main existing land uses categories, comprising:

1. CIÉ railway corridor and supporting infrastructure associated with the Great Southern & Western Railway (GSWR) and the Midland Great Western Railway (MGWR) rail lines running from Dublin City centre extending west of Maynooth town, and to the M3 Parkway Station.
2. The developed urbanised areas of Dublin City and its suburbs, and the towns of Maynooth, Leixlip and Dunboyne.
3. Existing agricultural and/or greenfield sites either zoned or un-zoned sites along the Railway line located in Fingal, Meath and Kildare.

The proposed development will utilise the existing operational railway corridor. The predominant land use change will involve the electrification and signalling upgrades of the existing railway line which will result in works adjacent to the railway line, landscape changes and an intensification of land use due to the increase in the number of trains.

This population assessment considers scheme wide effects and focuses on the key infrastructural works described in Chapter 4 and Chapter 5 and associated land use changes that will occur outside of the railway corridor. The key land use changes are located (from east to west) at:

- Spencer Dock Station.
- Connolly Station.
- Level Crossing of: Ashtown, Coolmine Porterstown, Clonsilla, Barberstown, Blakestown and Blakestown.
- The proposed depot.

7.4.2.1 Construction Compounds

The proposed development will require a number of temporary construction compounds to construct the project and will result in temporary land use change. To reduce potential impacts to private lands CIÉ owned lands were considered first to construct the project including the locations of temporary construction compounds. This was undertaken to maximise the use of existing assets, reduce costs and reduce potential impacts to private lands and neighbouring communities. However, lands outside CIÉ ownership have been identified as being required temporarily for a number of construction compounds. The locations of these compounds are illustrated in Volume 3A and listed in the table below. Additionally, efforts were made by the design team to locate compounds away from residential areas however it was not possible in all situations due to the lack of available lands and the requirement to construct the infrastructure as close as possible to the construction sites. For example, the construction compounds that are required to construct the level crossings replacement works are required to be in proximity to the construction sites.

The various discipline teams have identified construction compounds necessary to construct the work which may occur for longer or shorter durations depending on the activities taking place. This is detailed in Chapter 5 of this EIAR. The temporary construction compounds will be used for multi-disciplinary uses including:

- Signalling electrification & telecommunications (SET).
- Telecommunications.
- Permanent way (PW).
- Structures modifications.
- Level crossing closure and replacement works.

- Substations.
- Stations.

Table 7-4 Proposed temporary construction compound locations

Compound Code	Zone	Location	Chainage	Compound Category	Primary Discipline Served
CC-STA-S1-7800-B	A	Connolly Station	7+800	Satellite Compound	Station
CC-PW-S1-10300-B	A	Connolly Station	10+300	Satellite Compound	Permanent way
CC-PW-S3-33340-B	A	Glasnevin	33+340	Satellite Compound	Permanent way
CC-SUB-S3-33460	A	Glasnevin	33+460	Satellite Compound	Substation
CC-SET-S3-00000-B	A	Cabra Road	00+000	Satellite Compound	SET
CC-SUB-S2A-20280	B	Spencer Dock	20+280	Main Compound	Substation
CC-PW-S2A-20750-B	B	Spencer Dock	20+750	Main Compound	Permanent way
CC-STA-S4-40230-B	B	Spencer Dock	40+230	Main Compound	Station
CC-STA-S4-40250-B	B	Spencer Dock	40+250	Main Compound	Station
CC-SET-S4-40280-B	B	Spencer Dock	40+280	Main Compound	SET
CC-PW-S4-40380-B	B	Spencer Dock	40+380	Main Compound	Permanent way
CC-PW-S4-43200-B	B	Glasnevin	43+200	Satellite Compound	Permanent way
CC-STR-S5-51480-B	C	OBG5	51+480	Satellite Compound	Structures
CC-SET-S5-51530-B	C	Reilly	51+530	Satellite Compound	SET
CC-SET-S5-52180-B	C	Reilly	52+180	Satellite Compound	SET
CC-SUB-S5-53600-B	C	Ashtown	53+600	Satellite Compound	Substation
CC-STA-S5-53660-B	C	Ashtown	53+660	Satellite Compound	Station
CC-LC-S5-53820-B	C	Ashtown	53+820	Satellite Compound	Level Crossing
CC-SET-S5-54750-B	C	Navan Road Station	54+750	Satellite Compound	SET
CC-STR-S5-56060-B	C	OBG9	56+060	Satellite Compound	Structures
CC-STR-S5-56130-B	C	OBG9	56+130	Satellite Compound	Structures
CC-STR-S5-56460-B	C	Castleknock	56+460	Satellite Compound	Structures
CC-SUB-S5-56500-B	C	Castleknock	56+500	Satellite Compound	Substation
CC-SUB-S5-57550-B	C	Coolmine	57+550	Satellite Compound	Substation
CC-STA-S5-57900-B	C	Coolmine	57+900	Satellite Compound	Station
CC-LC-S5-58670-B	C	Coolmine	58+670	Satellite Compound	Level Crossing
CC-LC-S5-58800-B	C	Porterstown	58+800	Satellite Compound	Level Crossing
CC-LC-S5-60150-B	C	Clonsilla	60+150	Satellite Compound	Level Crossing
CC-PW-S5-59970-B	C	Clonsilla siding	59+970	Satellite Compound	Permanent way
CC-SUB-S8-101070	D	Hansfield	101+070	Satellite Compound	Substation
CC-PW-S8-101660	D	OBCN286	101+660	Satellite Compound	Permanent way
CC-PW-S8-104970	D	Dunboyne	104+970	Satellite Compound	Permanent way
CC-SUB-S8-105060	D	Dunboyne	105+060	Satellite Compound	Substation
CC-PW-S8-106950-B	D	M3 Parkway	106+950	Main Compound	Permanent way
CC-SET-S8-106950-B	D	M3 Parkway	106+950	Main Compound	SET
CC-SUB-S8-106950	D	M3 Parkway	106+950	Main Compound	Substation
CC-LC-S6-71100-B	E	Barberstown	71+100	Satellite Compound	Level Crossing

Compound Code	Zone	Location	Chainage	Compound Category	Primary Discipline Served
CC-SET-S6-70700-B	E	Barberstown	70+700	Satellite Compound	SET
CC-PW-S6-72830-B	E	OBG13	72+830	Satellite Compound	Permanent way
CC-STR-S6-74660	E	Leixlip	74+660	Satellite Compound	Structures
CC-SUB-S6-74680-B	E	Leixlip	74+680	Satellite Compound	Substation
CC-STR-S6-76470-B	E	Leixlip (Louisa Bridge)	76+470	Satellite Compound	Structures
CC-STR-S6-76540-B	E	Leixlip (Louisa Bridge)	76+540	Satellite Compound	Structures
CC-SUB-S6-78180	E	Blakestown	78+180	Satellite Compound	Substation
CC-SET-S6-78200-B	E	Blakestown	78+200	Satellite Compound	SET
CC-PW-S6-79950-B	E	OBG18	79+950	Satellite Compound	Permanent way
CC-SUB-S6-82260	E	Maynooth	82+260	Satellite Compound	Substation
CC-STR-S7-91880-B	F	Millfarm	91+880	Main Compound	Structures
CC-PW-S7-92340-B	F	Millfarm	92+340	Main Compound	Permanent way
CC-SET-S7-92100-B	F	Millfarm	92+100	Main Compound	SET
CC-STR-S7-92850-U	F	OBG23A	92+850	Satellite Compound	Structures
CC-STR-S7-92900-U	F	OBG23A	92+900	Satellite Compound	Structures
CC-DEP-S7-93060-D	F	Depot	93+060	Main Compound	Depot SET
CC-DEP-S7-UP-93370-U	F	Depot	93+370	Main Compound	Depot Permanent way

7.4.2.2 Main Storage and Distribution Centre

A main storage and distribution centre (MSDC) will be required to provide materials to the construction compounds that will be located along the line, reducing the required local storage space. The chosen site is a property approximately 20 km north-west of Dublin City Centre and the port of Dublin and it covers an area up to 25 acres.

The planned activities to be carried out will be the material storage, the loading/unloading of material and the pre-assembly of material. The MSDC is required to be operational for approximately 39 months in order to service the SET construction activities. Activities will be carried out continuously 24 hours a day, 7 days a week. The potential impacts on the property are assessed in Chapter 17 Material Assets Non-Agricultural properties in Volume 2 of this EIAR.

7.4.2.3 Permanent Maintenance Compounds

Two new operational phase maintenance facilities are required to support the project. The new compounds will be located at:

- Navan Road Parkway station
- The proposed depot which will host a maintenance facility.

The existing maintenance facility adjacent to the Docklands Station area will be relocated within the CIÉ owned lands in the same Dockland's area. The existing permanent compound will be provided with an access ramp descending from Sheriff Street Upper. The extension of the proposed DART+ West line to the new Spencer Dock station will result in severing access to this area following completion of the proposed works. The new access ramp will provide alternative access to the construction compound during the construction phase and provide a permanent access point to the proposed permanent maintenance compound after the works are completed.

7.4.3 Population

The population of Ireland is 5 million in April 2021³. Dublin was estimated to have 1.43 million people in same period, comprising 28.5% of the total population⁴. The population of the Greater Dublin Area, a region comprising Dublin and the counties of Meath, Kildare and Wicklow, is estimated to be 2.02 million, or 40.5% of the total population, as of April 2021. The population of the Greater Dublin Area is set to grow to 2.2 million by 2031. The population of Dublin is set to grow to 1.8 million by 2036.

In Census 2016 Leinster experienced a 5.2% increase in population since the 2011 Census and was the only province to record a greater increase in population than the State average of 3.6%. The latest Census results from 2016 report that the population of Dublin City and suburbs was 1,173,179 persons, Fingal was 296,020, Meath 195,044, and Kildare 222,504 persons. Between the 2011 and 2016 Census Dublin City increased by 5.1% (+26,942 persons); County Meath increased by 5.9% (+10,909 persons), and County Kildare 5.8% (+12,192 persons). Fingal was the fastest growing County in the State and grew by 8% (+22,029 persons), more than twice the growth rate of the State overall, and had the youngest population in the State, followed by County Kildare.

The Eastern and Midland Regional Spatial and Economic Strategy (RSES) 2019 – 2031 estimate that from 2016 to 2031, the populations of the counties will continue to grow with Dublin City and Fingal projected to grow by between 13% - 15% respectively; County Kildare is expected to grow by 14% - 17%; and County Meath by 14% - 16% population growth. Table 7-5 below indicates the total population in 2016 and projected population change to 2031 across the four counties in the study area.

Table 7-5 Eastern and Midland RSES 2019-2031 County population projections

County	2016 Population	2031 Population Projections	Population Change	% Population Change
Dublin City	554,500	638,500 – 655,000	84,000 – 100,500	13% - 15%
Fingal	296,000	340,000 – 349,000	44,000-53,000	13% - 15%
Kildare	222,500	259,000 – 266,500	36,500 – 44,000	14% - 17%
Meath	195,000	225,500 – 231,500	30,500 – 36,500	14% - 16%

A review of the population data relating to the Electoral Divisions (EDs) within 500 m of the proposed level crossing closures at: Ashtown, Coolmine, Porterstown, Clonsilla, Barberstown and Blakestown level crossings and at the proposed Spencer Dock station and depot area. The population and population change for these EDs⁵ is shown in Table 7-6 below.

Table 7-6 Population change in local 'study areas' (Census 2016)

Locations	2011 Population	2016 Population	Population Change	% Change
Level Crossings and associated replacement works				
Spencer Dock train station	22,716	23,578	862	3%
C Connolly train station	23,196	24,940	1,744	6%
Ashtown	24,319	26,267	1,948	6%
Coolmine	23,115	24,180	1,065	4%
Porterstown	71,349	75,830	4,481	5%
Clonsilla	37,415	40,330	2,915	6%

³ CSO 2021 Population and Migration Estimates, April 2021

⁴ CSO 2021 Population and Migration Estimates, April 2021

<https://www.cso.ie/en/csolatestnews/pressreleases/2021pressreleases/pressstatementpopulationandmigrationestimatesapril2021/>

⁵ See Table 7-1 for a full list of EDs contained within 500m of existing level crossings and stations.

Locations	2011 Population	2016 Population	Population Change	% Change
Barberstown	37,415	40,330	2,915	6%
Blakestown	44,537	47,227	2,690	6%
Depot	19,851	22,928	3,077	13%

Note: The study area refers to average of the EDs, listed in Table 7-1 located wholly or partially within 500m of proposed works.

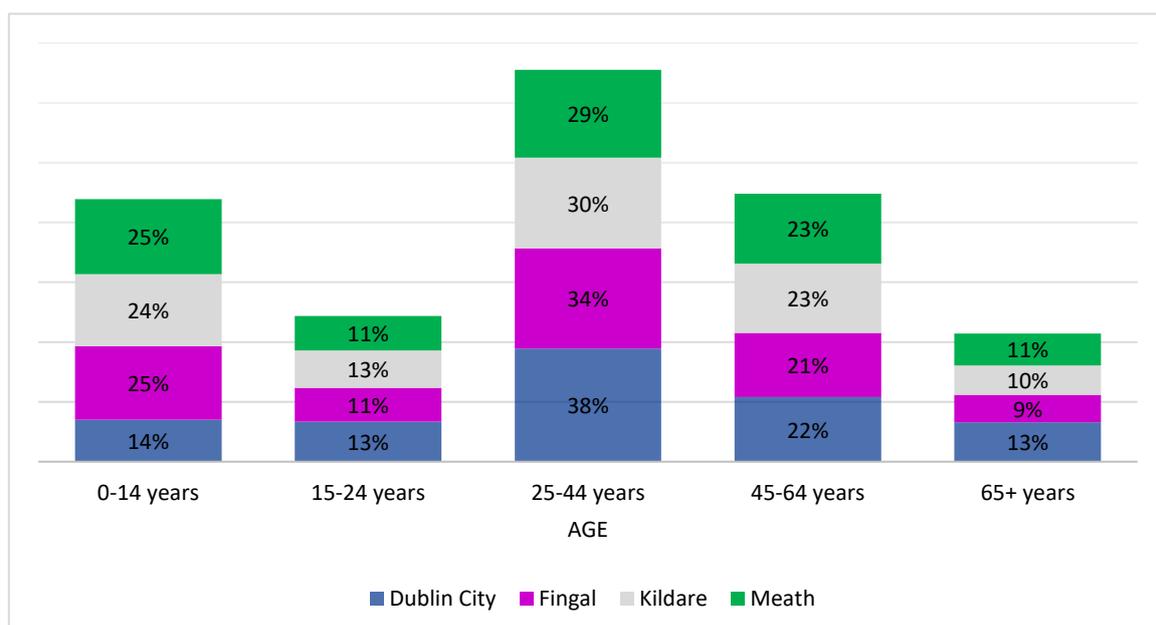
The table above indicates that all areas experienced an increase in population. The EDs within 500 m of the proposed depot experienced the greatest population change during the 2011 – 2016 period, where the population increased by 13%. In comparison, population in EDs within 500m of the Coolmine level crossing and at the proposed Spencer Dock train station experienced the least change, where population growth was recorded at 4% and 3% respectively. The Spencer Dock area EDs are currently undergoing significant redevelopment and regeneration with parts of the area currently under construction. This area consists of significant commercial and residential (apartment blocks), and offices use. This area is expected to increase population significantly in the future in accordance with the North Lotts and Grand Canal Dock SDZ Planning Scheme.

There are a number of zoned brownfield and/or greenfield sites located within the development extents of the project which will support significant additional population and economic development. The future development intent for these lands is included in the respective county development plans and supported by various LAPs/Masterplans already listed in this chapter. These zoned lands provide for significant population growth and aim for sustainable compact settlements which are in favour of supporting sustainable transport modes including the development of DART+ West.

Age profile

Census 2016 data was reviewed to analyse the age profile with the study area. The age profile for the counties Fingal, Kildare and Meath are broadly comparable. All counties have a large young population with 0-14 and 25-44 age cohort and also of working age indicating a generally active population that would benefit from improvements in public transport (See Table 7-7).

Table 7-7 Age profile of counties Dublin, Fingal, Kildare and Meath (Census 2016)



7.4.4 Travel to work, school or college

Passenger capacity on the Maynooth line is projected to increase from 5,000 per hour per direction in 2019 to 13,200 passengers per hour per direction. The Irish Heavy Rail census 2019 reports that the Kildare line has increased in proportional terms significantly increasing from 8% in 2003 to 14% in 2019, due to year-on-year growth in patronage from 2012. The fastest journey time in 2019 on the Maynooth line was reported to be 32 minutes with 79 number services per weekday⁶.

Dublin City and suburbs attract a large cohort of the daytime working population which consists of those who live and work in the urban area and those who commute from the surrounding areas. According to Census 2016 data⁷, 382,003 persons, or 90% of the daytime working population residing in Dublin City and suburbs also work there. 130,447 persons or 25% of the daytime working population commute from outside the city and suburbs. Fingal and Kildare have a high percentage (22%) of daytime workers commuting to Dublin City and suburbs. Furthermore, approximately 75% of those who commute into Dublin city and suburbs reside in the counties of Fingal, Kildare, Meath and Wicklow.

Census 2016 commuting patterns within Dublin City, Fingal Kildare and Meath were reviewed as part of the study area. Settlements within these counties are currently serviced by the Dublin – Maynooth and M3 Parkway rail lines.

The predominant means of travel to work, school or college in the State and in all counties in the study area is the private car. Meath and Kildare have the highest percentage of the population using the private car at 68% and 66% respectively followed by Fingal at 55%, and Dublin City at 34%.

The use of public transport (including bus and rail) as means of travel is the highest in Dublin City at 22%, followed by Fingal at 21%, Kildare and Meath are 14% and 13% respectively. Dublin City has the highest percentage of people travelling on foot and by bicycle at 36%, followed by Fingal, Kildare and Meath at 18%, 16%, and 14% respectively. Refer to Table 7-8 for a full breakdown of the modes of travel to work, school, or college.

Table 7-8 Population aged 5 years and over by means of travel to work, school or college (Census, 2016)

Mode of travel	State	Dublin City	Fingal	Kildare	Meath
On Foot	14%	26%	15%	14%	13%
Bicycle	3%	10%	3%	2%	1%
Public Transport (bus)	10%	16%	13%	10%	11%
Public Transport (rail)	3%	6%	8%	4%	2%
Private Vehicle	63%	34%	55%	66%	68%
Work Mainly at or from home	3%	1%	2%	3%	3%
Not Stated	5%	8%	5%	3%	3%

Census 2016⁸ reports that 10% of the population in Maynooth use rail transport to as a means of travelling to work, school or college. This is the highest out of the four main settlements in the study area. Maynooth is closely followed by Leixlip at 9%, Dublin City and suburbs at 7% and Dunboyne at 6%, refer to Table 7-9 below for breakdown of travel modes.

⁶ NTA (2019) National Rail Census Report 2019 Available At: https://www.nationaltransport.ie/wp-content/uploads/2020/08/NTA_Heavy_Rail_Census_Report_2019..pdf

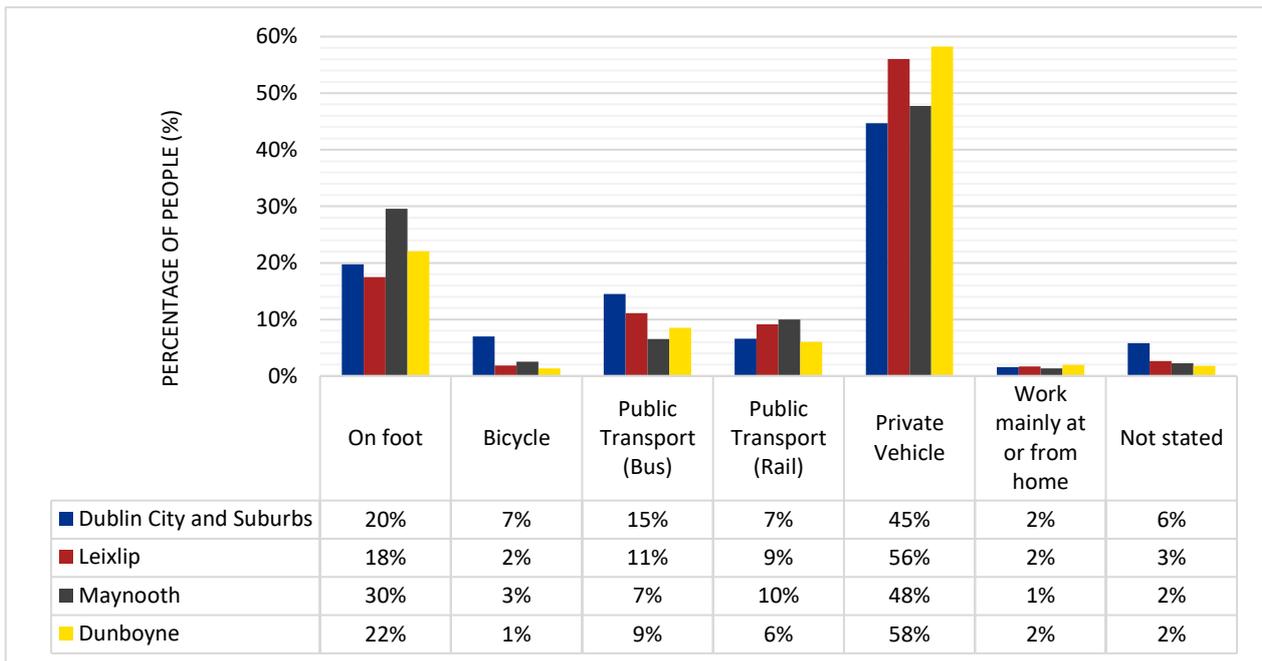
⁷ CSO (2016) Census of Population 2016 – Profile 6 Commuting in Ireland. Available At: <https://www.cso.ie/en/releasesandpublications/ep/p-cp6ci/p6cii/p6www/>

⁸ 2016 Census Small Area Population Statistics – Settlements- Profile 6 Commuting in Ireland. Source <https://cso.maps.arcgis.com/apps/webappviewer/index.html?id=4d19cf7b1251408c99ccde18859ff739>

Furthermore, to understand travel patterns at the local level Commuting Census 2016 data was consulted to inform travel to work, school, or college for the EDs within 500m of the six existing level crossings and the proposed Spencer Dock train station. Consistent with the State and county level data, the primary mode of travel in these EDs is the private vehicle, followed by on foot, public transport; bus and rail respectively (refer to Table 7-10).

The proportion of the population using rail-based transport is higher in the EDs in proximity to Clonsilla and Barberstown level crossing both at 15% respectively. These EDs also have a high proportion of the population who do not commute or work from home at 19% and a lower percentage of the population who use private car 20%. The city centre locations of Spencer Dock and around Connolly Station also have a much higher percentage of commuters by foot, bicycle, and public transport than by private vehicle.

Table 7-9 Travel to work, school and college in key settlements (Census, 2016)



The primary mode of transport in the EDs within 500 m of the proposed Spencer Dock and Connolly Station’s are sustainable modes with the predominant mode by foot 45% and 42% respectively, the private vehicle use is lower than all other EDs, 15% and 10% respectively. The difference in the commuting patterns compared to the other study areas is likely linked to the central location of residents to work, school, or college and therefore there is a reduced need to travel by car or long distances. Journeys can be made faster and cheaper on foot than other modes of travel.

Table 7-10 Population aged 5 years and over by means of travel to work, school, or college in study area (Census, 2016)

Study Area	Modes of Commuting to work, school, or college.						
	On Foot	Bicycle	Public Transport (Bus)	Public Transport (Rail)	Private Vehicle	Do not Commute (work mainly at or from home)	Not Stated
Level crossings and associated replacement works							
Ashtown Level Crossing EDs	12%	6%	18%	8%	50%	2%	5%
Coolmine Level Crossing EDs	15%	5%	10%	11%	54%	2%	4%

Study Area	Modes of Commuting to work, school, or college.						
	On Foot	Bicycle	Public Transport (Bus)	Public Transport (Rail)	Private Vehicle	Do not Commute (work mainly at or from home)	Not Stated
Porterstown Level Crossing EDs	17%	4%	12%	7%	54%	1%	5%
Clonsilla Level Crossing EDs	8%	10%	12%	15%	20%	19%	3%
Barberstown Level Crossing EDs	8%	10%	12%	15%	20%	19%	3%
Blakestown Level Crossing EDs	20%	3%	11%	7%	56%	2%	3%
Spencer Dock Station EDs	45%	10%	9%	8%	15%	1%	13%
Connolly Station EDs	42%	7%	15%	7%	10%	1%	19%

Note: The study area refers to average of the EDs, listed in Table 7-1 located wholly or partially within 500m of proposed works.

7.4.4.1 Journey time

Commuting in Ireland was reviewed from Census 2016. Census report that ‘the average commute for those at work increased in 2016 to 28.2 minutes, having fallen between 2006 to 27.5 mins and in 2011 to 26.6 mins. It goes on to state that ‘counties bordering Dublin had the longest average commuting time.’ Average journey times for those in county Meath is the highest of all four counties in the study area is at approximately 35 minutes, followed by Kildare just under 34 minutes, Fingal at 33 minutes, and Dublin City at nearly 29 minutes, on average⁹.

In 2016¹⁰ the top twelve large towns in Ireland (with populations of over 10,000 persons) have been identified where the highest percentage of workers commute for over an hour to their places of work. Maynooth is ranked fourth, with journeys for 23% of workers residing in Maynooth being over an hour long.

Census 2016 data on time leaving home was reviewed for Dublin City, Fingal, Kildare, and Meath. As detailed in Table 7-9 the majority of the population leave for work between the hours of 08:01 – 08.30 (21% on average) followed by 08.31 – 09.00 (19% on average) and 07:31 – 08:00 (15% on average). These times would correspond with the increase in traffic conditions/ congestions patterns and the proximity of work, school, or college to the place of residence.

Table 7-11 Time leaving work, school or college for counties Dublin City, Fingal, Kildare, and Meath (Census, 2016)

Time leaving home	Dublin City	Fingal	Kildare	Meath	Average
Before 06:30	5%	8%	8%	9%	7%
06:30-07:00	7%	9%	9%	10%	9%
07:01-07:30	10%	11%	10%	11%	10%
07:31-08:00	15%	16%	15%	14%	15%
08:01-08:30	23%	21%	20%	19%	21%
08:31-09:00	18%	18%	21%	20%	19%
09:01-09:30	5%	4%	7%	9%	6%
After 09:30	9%	7%	7%	6%	7%
Not stated	8%	6%	4%	4%	5%

⁹ Census of Population 2016 – Profile 6 Commuting in Ireland. <https://www.cso.ie/en/releasesandpublications/ep/p-cp6ci/p6cii/p6td/>

¹⁰ Census of Population 2016 - Profile 6 Commuting in Ireland. <https://www.cso.ie/en/releasesandpublications/ep/p-cp6ci/p6cii/p6td/>

7.4.5 Community infrastructure

Community infrastructure is far reaching and can include infrastructure that is physical, social, and economic in nature. Community infrastructure includes places where people can relax and enjoy public spaces such as parks, sports grounds and other sports and youth centres/clubs or amenity walks such as the Royal Canal way located parallel to the Dublin City - Maynooth railway line. There are a wide range of community and social services available in the study area such as primary, secondary, and third level education facilities, places of worship, community centres as well as outdoor amenity areas. All these community facilities are considered to be significant and sensitive receptors within the study area. The existing land use facilities within 500m of the proposed development are mapped in Volume 3A Land Use Drawing no.: MAY-MDC-ENV-ROUT-DR-V-70000-D to 70011-D

7.4.6 Economic activity

According to Census 2016 ¹¹, the Eastern and Midland Region generated 51% of the national Gross Domestic Product (GDP) in 2018, estimated to be €166 billion. County Dublin alone contributed 40% to the national GDP in 2018. In 2018, the Dublin NUTS3 region comprising Dublin City and County recorded a 17% higher per capita disposable income than the State average¹². It is the only region to surpass the State average for the 2009 – 2018 period. The following sections include a review of employment and a review of commercial, retail and tourism activity in the study area.

7.4.6.1 Principal economic status

Census 2016 was consulted to determine the principal economic status of the population of Dublin City, Fingal, Meath Kildare in comparison with the State average, (Refer to Table 7-12). All counties are nearly at 60% in active employment, which exceeds the State average of 53%. Unemployment levels are the same as the State average (7%) across the counties. All counties have approximately 11% of a student population.

Table 7-12 Principal Economic Status of Persons aged 15 years and over (Census, 2016)

Region	State	Dublin City	Fingal	Kildare	Meath
At Work	53%	56%	60%	57%	57%
Looking for First Job	1%	1%	1%	1%	1%
Unemployed having lost or given up job	7%	7%	6%	7%	7%
Student	11%	11%	11%	12%	11%
Looking after home/family	8%	6%	8%	9%	9%
Retired	15%	14%	11%	11%	12%
Unable to work due to sickness / disability	4%	4%	3%	4%	4%
Other	0%	1%	0%	0%	0%

7.4.6.2 Employment

The labour force consists of those who are able to work i.e., those aged 15 and over and out of full-time education. Census 2016 reports the average rate of unemployment in the State was 13%. Table 7-13 provides the percentage of people engaged under each socio – economic group within the counties Dublin City, Fingal, Meath, and Kildare compared to the State average. The highest percentage of the workforce within the four counties are engaged in ‘Non-manual’ work, followed by ‘Employers and Managers’ and ‘All others gainfully occupied and unknown’.

¹¹ CSO statistical release, 24 Feb 2021 – County Incomes and Regional GDP. Table 9 GVA per Region at Current Market Prices (GDP), 2010 – 2019. Available at: <https://www.cso.ie/en/releasesandpublications/er/cirgdp/countyincomesandregionalgdp2018/>

¹² CSO statistical release, 24 Feb 2021 – County Incomes and Regional GDP. Available at: <https://www.cso.ie/en/releasesandpublications/er/cirgdp/countyincomesandregionalgdp2018/>

Table 7-13 Persons by socio-economic group (Census 2016)

Socio - Economic Group	Dublin City	Fingal	Kildare	Meath	State
A. Employers and managers	13%	18%	17%	17%	14%
B. Higher professional	9%	7%	6%	7%	7%
C. Lower professional	13%	14%	12%	13%	13%
D. Non-manual	22%	24%	22%	22%	21%
E. Manual skilled	6%	7%	10%	9%	8%
F. Semi-skilled	7%	7%	8%	8%	8%
G. Unskilled	4%	3%	3%	3%	4%
H. Own account workers	3%	4%	5%	4%	4%
I. Farmers	0%	1%	3%	2%	4%
J. Agricultural workers	0%	0%	1%	1%	1%
Z. All others gainfully occupied and unknown	24%	15%	13%	15%	18%

7.4.6.3 Tourism amenities

Tourism activity is a significant contributor to the Irish economy, the region and the local economy. Failte Ireland report that in 2019, out-of-state (Overseas and Northern Ireland) expenditure amounted to €5.6 billion, combining spending by international tourists with the money spent by Irish residents taking trips here and receipts paid to Irish carriers by foreign visitors, total tourism expenditure in 2019 was estimated to be €9.5 billion¹³.

Tourism activity also supports a substantial number of jobs in Ireland. In Q4 2019, the CSO reported that 179,200¹⁴ people (comprising 7.6% of total employment) are directly working within the 'Accommodation and food services activities' category which comprises positions in hotels, restaurants, bars, canteens, and catering.

A review of tourism related locations, community amenities and recreation facilities has been established in the study area. Dublin City and its environs has a rich tourism and amenity offering available year-round which is supported by transport infrastructure including the existing railway line, the Royal Canal Greenway, supporting walking, and cycling infrastructure as well as boating opportunities along Royal Canal. Popular tourist destinations also include Trinity College Dublin, EPIC The Irish Emigration Museum, 3Arena, The Convention Centre Dublin, The River Liffey, Royal Canal and Royal Canal Way, Phoenix Park, Croke Park Stadium, museums, parks and other tourist sites and cultural heritage sites located within the study area. The study area has many supporting services for the tourism industry including hotels, hostels, café, restaurants, and tourist offices, etc. which are considered in this assessment.

The Royal Canal

The Royal Canal Way is a national waymarked trail that travels parallel to the Dublin Maynooth rail line. The construction of the Royal canal began in 1970 with the objective of providing a 145 km link between Dublin and the River Shannon in county Longford to encourage trade and industrial development in the country at the time. Today, the Royal Canal serves predominantly as a recreational amenity area for locals and tourists alike, as well as a transport route.

The Royal Canal Way comprises approximately 145 km of cycling and walking trail. It links the River Liffey in County Dublin to the River Shannon in County Longford. The Royal Canal also facilitates fishing and boating activities including canal boat tours and facilitates residential canal boats that moor along the Canal. The canal

¹³ Failte Ireland (2021). Key Tourism Facts 2019 [Accessed 07 June 2021]
https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/4_Visitor_Insights/KeyTourismFacts_2019.pdf?ext=.pdf

¹⁴ CSO Labour Force Survey (LFS) Quarter 4 2019

has several road over-bridges that span the Canal and, in some places, facilitate vehicular access to dwellings that front onto the Canal.



Plate 7-1 Royal Canal Way at Lock 15 (Chambers Bridge), Co. Kildare



Plate 7-2 Royal Canal view North at Docklands Station, Dublin City

7.4.6.4 Transport infrastructure

Transport infrastructure plays an important role in the tourism sector by providing a means of travel for visitors to their intended locations, or it can serve as an experience in its own right. The Dublin rail network in particular provides visitors with important linkages within the city and the settlements in neighbouring counties, namely Maynooth and Leixlip on the Dublin – Maynooth rail line. The rail network also provides connections to wider locations in the country including, but not limited to, Galway, Sligo, Cork, Waterford, Wexford (with connection to Rosslare Harbour), and Belfast in Northern Ireland.

The European Commission's 2017 Mobility and Transport¹⁵ country information on Ireland was reviewed. Ireland's rail transport ranks 19th out of 26 EU Member States (excluding 2 member states that have rail network) based on consumer satisfaction. The ranking is based on the 'Market Performance Indicator' (MPI) — a composite index which indicates how well a given market performs, according to consumers. The MPI is calculated based on the components: comparability, trust, problems and detriment, expectations, and choice¹⁶.

In 2016, the Irish Tourist Industry Confederation (ITIC) published a report on *"A Review of Public Transport & Tourism in Ireland"* which examined the characteristics of the public transport system (bus and rail only) in Ireland by overseas visitors. The Report identified the influencing factors in visitor's choice of, and satisfaction with, public transport which include, but are not limited to: travel time/number of transfers; quality of service; fare; service frequency; and flexibility. The DART+ West project seeks to address many of these factors along the Maynooth and M3 Parkway lines.

Furthermore, Department of Transport, Tourism and Sport's *"People, Place and Policy – Growing Tourism to 2025"* Report identifies that *"there is the need to encourage intermodal connectivity in public transport, in particular the scheduling of local public transport (trains, and public and private bus services) to coincide with arrivals and departures at national and regional airports, and ferry ports"* to encourage visitor's uptake of public transport options in Ireland. The supporting walking and cycling infrastructure, including the existing and planned infrastructure along the Royal Canal Greenway, are important aspects of the transport infrastructure and economic activity in the study area.

7.5 Description of Potential Impacts

This section of the chapter evaluates the potential impacts for the 'Do-Nothing' scenario followed by an assessment of impacts for the 'Do-Something' scenario, 'the proposed development' during the construction phase and the operational phase under the headings of, journey characteristics and journey amenity, community infrastructure, community severance, and economic activity.

Chapter 4 presents the detailed project description - relevant to population, the proposed development aims to increase train frequency from the current 10-minute frequency to a 5-minute all-day frequency and to increase trains from four to eight carriages. This will be achieved by increasing services from the current 6 trains per hour per direction to 12 trains per hour per direction, increasing passenger capacity from 5,000 to 13,200 subject to passenger demand. This will help to deliver a more efficient transport system, deliver on carbon emissions reductions, while also facilitating people to make sustainable travel choices, reduce road congestion, improve safety at level crossings and improve quality of life factors.

To achieve the required increased train frequencies, the proposed DART+ West will electrify c.40 km of the railway track from Connolly/Docklands in the city centre eastwards to a new maintenance depot facility located west of Maynooth, and to M3 Parkway. It also includes upgrade and reconfiguration of existing railway infrastructure in the city centre, closure of the six level crossings and associated infrastructure replacement works (where appropriate) at Ashtown, Coolmine, Porterstown, Clonsilla, Barberstown, and Blakestown level crossings, as well as the construction of a new Spencer Dock station and all ancillary works in the Docklands area.

The proposed development will be a predominantly online project with electrification of the line and a significant portion of the works will be undertaken within existing CIÉ lands. Development works outside of these lands will be required at several locations of the project such as the level crossing replacements, the construction of

¹⁵ EC (2017) Mobility and Transport Accessible [Accessed 07 June 2021] https://ec.europa.eu/transport/facts-fundings/scoreboard/countries/ireland/people_en

¹⁶ EC (2017) Mobility and Transport Accessible [Accessed 07 June 2021] https://ec.europa.eu/transport/facts-fundings/scoreboard/countries/ireland/people_en

the depot, the construction of substations to facilitate power to the line and private lands adjoining the Irish Rail corridor associated with modifications to the main permanent way (railway corridor).

Due to the liner nature of the project the construction of the proposed development will take place in a phased basis over a 47-month period as detailed in Chapter 5 Construction Strategy.

The key relevant characteristics of the proposed development considered in this assessment include the construction impacts of the development. In particular, the assessment will focus on potential temporary construction impacts and permanent land use changes that will affect the population associated with elements summarised below:

- Construction and operation of the electrified rail line and ancillary works.
- Construction of Spencer Dock Station.
- Capacity improvements at Connolly Station.
- Level crossing closures and construction and operation of replacement infrastructure (where appropriate) at Ashtown, Coolmine, Porterstown, Clonsilla, Barberstown and Blakestown.
- Construction and operation of the proposed depot.
- Temporary construction compounds effects.
- Operation of permanent maintenance compounds.
- Construction and operation of substations and ancillary works

7.5.1 Do-Nothing Scenario

The 'Do-Nothing' scenario of the proposed development assumes the proposed development is not built and that the existing traffic and transportation environment is not changed.

7.5.1.1 *Journey characteristics and journey amenity*

There is likely to be a continuation and worsening of the poor journey characteristics and journey amenity for all road and rail users. These worsening conditions will be experienced, particularly at existing level crossings resulting in worsening traffic congestion on roads and all modes. Capacity constraints at stations will become even more evident as the population grows and demand for rail services increases over time. In 2019 rail experienced significant overcrowding. Iarnród Éireann determined that there was very little additional capacity that could be brought on to the network without the implementation of DART+ West project. Regular delays, overcrowding and congestion on the road network at level crossing particularly at peak hours would continue as characteristics of the capacity constraints. 'Rat-runs' on local roads (roads which are not designed for high traffic volumes) will increase or commuting times will start earlier and earlier to avoid the peak hour tailbacks which will affect the residential amenity in these neighbourhoods. Continued congestion with no interventions would undermine the potential to fully realise future population growth and development associated with the zoning objectives contained in the respective Development Plans and planning policies including, but not limited to, future development at Spencer Dock, Ashtown and Pelletstown LAP, Barnhill LAP, Leixlip LAP, Maynooth, Dunboyne, etc.

Furthermore, in the do-nothing scenario, there is a continued use of the diesel-powered fleet which would not improve journey characteristics or the amenity value of rail users and /or surrounding neighbourhoods or communities. Opportunities for improved public transport integration and the promotion of safe and sustainable modes of travel will be restricted. The commuters in the GDA will have limited options but to continue to use private car with journey times likely to increase and become more extended across the day in the do-nothing scenario.

7.5.1.2 *Community infrastructure and severance*

Combined with the existing poor journey characteristics and journey amenity the do-nothing scenario will continue to increase delays to accessing community facilities. The ongoing conflict at the road rail interface at level crossings will worsen, increasing congestion levels and will cause the greatest level of perceived

community severance which would have a negative impact on all populations particularly vulnerable groups, including the young, old, and people with reduced mobility or disabilities.

7.5.1.3 Economic activity

Increasing demand for travel will result in high traffic volumes for all modes across the study area and beyond, resulting in increased congestion which will stifle economic development and limit the GDA and respective settlements along the proposed route to realise their full potential. The city and various settlements along the route of the proposed development will be constrained by regular traffic congestion, poor journey time reliability, and journey amenity due to congested at station and on trains. The opportunities for integrated land use and sustainable transit-oriented developments earmarked for future development will be constrained. Inward investment may be slower if there is competition with other areas that have a modernised sustainable transportation system, which will be required to attract new populations and business.

7.5.2 Do-Something Scenario

To avoid repetition, a summary of the likely significant impacts on population that are common to all zones is described. The likely significant impacts that are unique to the EIAR Zones A-F are then described from east to west, as follows:

- Zone A Loop Line Bridge to Phibsborough/ Glasnevin (on GSWR line) and East Wall Junction (on Northern Line).
- Zone B Spencer Dock Station to Glasnevin Junction located on GSWR Line.
- Zone C Glasnevin junction/ Phibsborough to Clonsilla Station/Junction.
- Zone D Clonsilla Station /Junction to M3 Parkway Station.
- Zone E Clonsilla Station / Junction to Maynooth Station.
- Zone F Maynooth Station to Depot.

Zones A-F are illustrated in Chapter 4 (Figure 4.2) and in greater detail in Volume 3A of this EIAR.

7.5.3 Potential Construction Impacts

The total construction programme for the proposed development is estimated to be approximately 47 months which is defined as *short-term* (Refer to Table 7-2). Chapter 5 details the Construction Strategy and is not repeated in detail in this chapter. The key relevant characteristics of the construction phase that will affect the population are, the nature of the works, the location, phasing, and duration of the construction works and the associated effects on communities.

The project is a predominantly a linear project taking place within the existing CIÉ railway boundary with localised construction works taking place outside of the railway boundary at various locations. As a result of these linear works, many of the impacts will be localised and transient for the majority of locations during the construction period.

The likely construction impacts are discussed in the following sections, firstly describing impacts applicable to all EIAR Zones and then describing specific likely significant impacts in each of the individual EIAR Zones (A-F) under each of the impact assessment categories, as appropriate.

7.5.3.1 Potential impacts applicable to all Zones

Potential construction impacts on the population include:

- *Negative, slight to moderate, temporary to short-term impacts on land use characteristics due to construction activities including construction compounds.*
- *Negative slight to moderate, short-term impacts to journey characteristics and journey amenity due to construction activities associated with construction traffic, HGVs, traffic diversions, disruption, and nuisance.*

- *Negative, slight, temporary* increase in travel times due to traffic diversions impacting road users including walkers and cyclists during localised construction works particularly during level crossing replacement works that will affect connectivity to social, economic and community facilities, transport infrastructure.
- *Negative, slight to significant, temporary to short-term* disturbance and nuisance effects due to construction activities affecting residential properties, businesses, and communities located in proximity to the proposed construction works and construction compounds during both the day and night-time construction works.
- *Positive, slight to moderate, temporary to short-term* effects on economic activity as a result of localised expenditure by construction workers and purchase of construction related materials throughout the construction period. The effects will vary across the various zones due to the liner and phased nature of the works.
- *Positive, slight to moderate, temporary* effects on the economy as a result of local, direct, and indirect employment opportunities during the construction period.

7.5.3.1.1 Journey characteristics and journey amenity

General construction activities

Construction works and temporary construction compounds will result in a range of activities taking place during the day and night and will including the movement of HGV traffic, traffic diversions, dust emissions, noise and vibration emissions which will result in *negative, slight to moderate, temporary to short-term* impacts to journey characteristics and journey amenity for all transport modes particularly those located close to construction sites and compounds.

Works within the Permanent Way

The majority of permanent way works will be carried out during night-time rail possessions (outside of the operational rail times) therefore reducing negative effects on rail passengers journey characteristics. Works will include track lowering and OHLE installation. However, some of the construction works at certain locations will impact rail services due to the requirement for works to take place on or over the railway for extended periods of time. In these instances, full or partial closure of the railway (known as 'rail possessions') is required which will result in disruption and/or the temporary suspension of all rail services. Chapter 5 'Construction Strategy' details the indicative construction strategy and schedule of working hours including the proposed infrastructure works requiring rail possessions which is likely to impact rail services. The contractor will be required to limit disruption to road and rail users with works to the permanent way occurring during weekends where possible, reducing the potential for significant impacts on peak commuter rail traffic. Replacement bus transfer services will be provided to rail passengers as appropriate throughout the duration of the disruption/closure of the line. The potential effect of rail possessions on journey characteristics and journey amenity to road and rail users is *negative, slight to moderate temporary* impact.

Bridge Parapet Heightening

The construction of the parapet heightening works at road bridges and footbridges will likely impact on the journey characteristics and journey amenity of road users at these locations. The works will require restrictions along footpaths and roads at these structures to facilitate the works however alternative access will be maintained. The potential effect on journey characteristics and journey amenity for road users including pedestrians is *negative, slight, and temporary* impact.

Haulage Routes

The construction phase of the proposed development will require the development of temporary construction compounds at a number of defined locations across the extent of the proposed development. Construction traffic including HGVs will increase to and from the compounds along designated haulage routes which is likely to impact on the journey characteristics and journey amenities of road users. The haulage routes for all

compounds are discussed in Chapter 5 of this EIAR. There will be some nuisance and disruption to traffic and communities along these haulage routes, resulting in a *negative, slight to moderate, and temporary to short-term* effects on journey characteristics and journey amenity for all road users.

7.5.3.1.2 Severance

The construction works will result in some temporary diversions across the study area, particularly during works associated with the level crossing replacement works and a number of the rail-overbridge modifications, resulting in temporary road closures. This will create temporary diversions for road users including pedestrians and cyclists during these localised construction phases which will consequently affect the ease of access to social, economic and community facilities including transport infrastructure. Alternative routes/diversions and access to properties will be made available throughout therefore there will be no severance.

7.5.3.1.3 Community Infrastructure

The majority of the construction works will take place in developed areas with residential and community infrastructure across the scheme extents including, sports facilities, educational, religious, medical, etc. Construction traffic will be routed through the existing urban and/or the rural road network which will result in increased construction traffic travelling through the built environment during the day and night which will likely affect journey characteristics and journey amenity. However, access to community infrastructure and amenities will be maintained as far as practicable during these short-term construction periods. The potential effect on these areas from construction traffic and the operation of construction compounds on community infrastructure is likely to have a *negative, slight to moderate, temporary to short-term* effect, depending on the nature of the activities (day or night) and duration of the construction activities taking place within and/or near these sites.

A number of construction compounds will be erected within open spaces/grassed areas which will impact on the footprint and functionality of these areas available to the local communities for amenity purposes. The potential effects on these open spaces is *negative, and ranges from slight to significant, temporary to short term* depending on the duration and extent of the temporary works/land take required within each area. The direct impacts are described and assessed in the respective Zones below.

7.5.3.1.4 Economic Impacts

Employment and economic development

The proposed development will create approximately 1,166 direct jobs which will require both skilled and unskilled labour force at various stages during the construction phase. Due to the specialist nature of the works it is likely that employment opportunities will extend across local regional, national and international levels depending on the skills required and will also result in indirect employment and spin-off industries to support the project e.g. accommodation for the workforce, restaurants, etc. The proposed development will have a *positive, moderate to significant, and short-term* effect on employment. Furthermore, the construction phase will necessitate the purchasing of large quantities of various materials requiring services from a range of economic operators. Again, due to the specialist nature of the rail project and materials requirements which are not available in Ireland (steel, electrical cabling, etc.) some of these materials are likely to be purchased from overseas however there will also be indigenous suppliers and professional services procured where possible throughout the project. The proposed development will have a *positive, moderate and short-term* effect on the economy including benefits to the local economy and spin-off industries.

Retail, Tourism and Hospitality

Access will be maintained to all businesses premises as far as practicable during the construction phase. However, traffic diversions/ disruptions and nuisance from construction activities may impact on general amenity and journey characteristics by altering transport routes and passing trade in both a positive and/or negative way across certain areas. Furthermore, extended construction activities resulting in nuisance, noise particularly during nighttime works, and general disruptions may have a direct and indirect economic impact

on sensitive sites such as hotels, B&Bs, and other commercial properties in the vicinity of the construction works. There is potential for *negative, direct and indirect, slight, temporary to short-term* impacts. Local expenditure, hospitality, and retail sales are also likely to increase due to expenditure from construction workers at these sites which is likely to be positive, *direct, and indirect, and slight to moderate short-term* effects to the local economy.

7.5.3.2 Zone A

The main works within Zone A relevant to the population impact assessment include:

- Modification works in Connolly Station.
- Bridge parapet heightening.
- Track lowering works under bridge structures.
- Erection of temporary construction compounds and associated activities.

7.5.3.2.1 Land Use Change

The majority of the construction works within Zone A will be carried out within the existing CIÉ railway boundary, consisting of OHLE installation, track lowering, and modifications to Connolly Station which is consistent with the existing land uses.

Five temporary construction compounds will be developed within Zone A to facilitate the construction of various elements of the proposed development. Three compounds will be located within the existing CIÉ boundary and will not have a significant effect on the existing land uses however are likely to affect adjoining properties due to construction related activities including movement of HGVs during day and night. The potential impact to neighbouring land uses including residential areas is *negative, slight to moderate, short-term* impacts.

To facilitate the construction of the Glasnevin substation a temporary construction compound (CC-SUB-S-33-460-B) will be developed on the edge of St. Vincent's School playing pitch. The playing pitch is zoned as Zone Z15 'Institutional and Community' in the Dublin City DP 2016 – 2022. The compound will be in place for the duration of the construction phase of the substation (approximately 7 months) and the lands will be reinstated to a playing pitch upon completion of the works. The impact on this land use is a *slight, negative, temporary, and reversible*.

7.5.3.2.2 Journey characteristics and journey amenity

Connolly Station

The majority of works for modifications at Connolly Station will be carried out below the existing platform level and will not cause disruption to rail services. Construction works will be carried out at platforms 5, 6, and 7 and will temporarily restrict the passenger platform boarding area for the duration of works, whereby passengers will not be able to board train cabins that are fronting the construction areas. During peak commute hours, journey times may be impacted slightly due to the reduced number of boarding points on trains, which may affect the time that commuters take to exit and enter the trains at these platforms. The potential effect on journey characteristics and journey amenity for rail users during the works on platforms at Connolly Station is *negative, slight, and temporary*.

7.5.3.2.3 Severance

There will be temporary severance at certain locations within Zone A during the proposed works. However, vehicular, and non-vehicular diversions will be in place during the works to maintain access throughout.

7.5.3.2.4 Community infrastructure

The Glasnevin substation compound (CC-SUB-S-33-460-B) is located within the sports grounds of St. Vincent's School. Construction vehicles will access the compound via Clareville Court, which is a residential area. Due to the relatively short duration of construction works (approximately 7 months), the scale of

development, and the scheduling of works to avoid peak school months, the likely effect on general amenity to this residential and community/ educational uses is *negative*, slight, and a *temporary* impact.

7.5.3.3 Zone B

Construction works within Zone B relevant for the population impact assessment are as follows:

- Construction of the Spencer Dock Station.
- Reconstruction of the OBD228 Sheriff Street Bridge.
- New slab track configuration at Spencer Dock-Docklands-East Wall area.
- Track Lowering and structural intervention at OBO36.
- General track lowering along the MGWR line.
- Parapet Heightening at OBO36 and OBO11.
- Erection of temporary construction compounds and associated activities.

7.5.3.3.1 Land Use Change

Works associated with the demolition and reconstruction of OBD228 Sheriff Street Bridge will remove a number of existing on-street car parking spaces along the bridge. The land use change associated with the removal of public car parking spaces is likely to have a *negative*, *slight*, *temporary* effect on parking availability but will also further promote the use of sustainable modes. The car parking spaces along Sheriff Street Bridge will be reinstated upon completion of the works.

The site of the proposed Spencer Dock Station is located within lands designated as Strategic Development & Regeneration Area (S.D.R.A. 6) under the Dublin City DP 2016 - 2022; an area that has substantial development capacity and the potential to deliver the residential, employment and recreational needs. The site is currently inaccessible to the public and is currently used as construction compound to facilitate construction works in the vicinity. Seven temporary construction compounds will be erected within Zone B to facilitate the construction of various elements of the proposed development. All compounds will be located within the existing railway boundary and are likely to have a *negative*, *slight* to *moderate*, *temporary* impacts to adjoining residential land uses and general amenity during times of operation, particularly during required nighttime works.

7.5.3.3.2 Journey characteristics and journey amenity

Spencer Dock Station

Construction works of the proposed Spencer Dock Station will be primarily offline, away from the existing road/rail network and will not have a significant effect on journey characteristics. Impacts on journey amenity are likely to be *negative*, *slight*, and *short-term* due to the increase in construction traffic to/from the site.

Reconstruction of Sheriff Street Bridge (OBD228)

The existing Sheriff Street Bridge (OBD228) which is under Sheriff Street Upper a regional road number (R101) is required to be demolished and reconstructed to facilitate works associated with the proposed Spencer Dock Station. The road at this location will be closed for the duration of the demolition and reconstruction period of approx.1.5 years, negatively affecting journey characteristics and journey amenity for all road users. Chapter 6 of this EIAR has assessed the Traffic and Transport impact because of this closure and presents results from modelling of this closure. The diversion route for vehicular traffic to reach the existing Docklands Station will be the continue to the west via Guild Street however those accessing from the east of Sheriff Street Bridge will have a circuitous route eastward along Sheriff Street towards East Wall Road (R101) and along North Wall Quay and Guild Street. Travelling from the East Wall area, all road users will be redirected to Castleforbes Road to North Wall Quay for the duration of the works.

Pedestrians and cyclists will be able to utilise a shorter walking route via New Wapping Street via Mayor Street to Guild Street to reach the existing Docklands Station, approximately 1 km diversion route resulting in an

additional 10minute journey time to Docklands Station resulting in a *slight, negative, short-term* impact on journey characteristics and journey amenity.

The works will have no direct impacts on the rail services as they are taking place offline.

7.5.3.3.3 Severance

As already stated, there will be temporary diversions at certain locations within Zone B during the proposed works, most notably during the construction works at Sheriff Street Bridge. The closure of Sheriff Street Upper (R101) is deemed to have a *significant negative, short term effect* on connectivity i.e., changes could dissuade/promote populations from making particular journeys and will result in requirement for alternative route to origin and destination. Access will be maintained to all properties throughout the construction phase.

7.5.3.3.4 Community Infrastructure

The land use within the Docklands area is primarily mixed use with establish and new residential, commercial and industrials. Abercorn Road and the R101 Sheriff Street will serve as access points to construction compounds at varying times and durations during the construction phase. There are residential properties located along Abercorn Road and the R101 Sheriff Street Upper which are currently located adjacent to the Docklands Station and Iarnród Éireann North Wall Freight Depot. Construction activities, at and around this location will likely have a *negative, slight to significant, short-term* effect on residential amenity and general amenity.

7.5.3.3.5 Economic activity

Economic operators, such as offices, hotels, B&Bs, and restaurants located in the Docklands area may be indirectly affected by the construction activities in the area however, due to the increase in construction workers there is also likely positive effects to the local economy in this area. The 3Arena, The Convention Centre and other events spaces/tourism centres are located in this area and attract large volumes of people at particular times of the day/ night, due to the closure of Sheriff Street Upper at Sheriff Street Bridge, it is likely to increase journey times for vehicular traffic accessing this area resulting in a *negative, significant and brief effects* when events take place. Overall, the potential effect on economic operators during the construction phase is *negative, direct, and indirect, slight to moderate, temporary to short-term* impacts.

7.5.3.4 Zone C

Construction works within Zone C relevant for the population impact assessment are as follows:

- Broombridge arch deck reconstruction.
- Level crossing road replacement works at Ashtown, Coolmine, Porterstown, and Clonsilla level crossings.
- 200m of track lowering under the M50 roundabout.
- Works at existing Ashtown and Coolmine train stations.
- Construction of substations at Ashtown, Castleknock and Coolmine areas.
- Bridge deck modifications for OBG5 Broombridge, OBG9 Old Navan Road Bridge, and OBG11 Castleknock bridge.
- Bridge parapet heightening works.
- Erection of temporary construction compounds and associated activities.

7.5.3.4.1 Land Use Change

The construction works for the proposed development are mainly confined to the existing railway corridor, with the exception of some of the construction compounds and works associated with level crossings replacement infrastructure. The land use changes associated with the development of construction compounds and works outside of the railway corridor are detailed in Table 7-14 below.

Table 7-14 Effects on land use zoning due to temporary construction compounds within Zone C

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
CC-STR-S5-51480-B	OBG5 Broombridge Structures Compound	The area of land occupied by the construction compound is within the premises of the Broombridge Station.	Located within Dublin City DP 2016 – 2022 lands zoned as Z10 Inner Suburban and Inner City Sustainable Mixed Uses which aims to <i>“To consolidate and facilitate the development of inner city and inner suburban sites for mixed uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-SET-S5-52180-B	Reilly’s SET Complementary	Located within unoccupied lands of Glen Industrial Estate.	Located within Dublin City DP 2016 – 2022 lands zoned as Z6 Employment/Enterprise to <i>“provide for the creation and protection of enterprise and facilitate opportunities for employment creation”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-SET-S5-51530-B	Reilly’s SET	Located within the built-up area of TU Dublin Sports Broombridge. The car parking areas at the premises will not be impacted.	Located within Dublin City DP 2016 – 2022 lands zoned as Z1 Sustainable Residential Neighbourhoods which aims to <i>“protect, provide and improve residential amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-SUB-S5-53600 & CC-STA-S5-53660	Ashtown substation compounds	Located within the green amenity area of Martin Savage Park.	Located within Dublin City DP 2016 – 2022 land use zoning Z9 Amenity/Open Space Lands/Green Network to <i>“preserve, provide, and improve recreational amenity and open space and green networks”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-LC-S5-53820-B	3 no. Ashtown Level Crossing main compounds	A compound is located to the north of Ashtown level crossing within the existing road network.	The compound is partially located within the Ashtown Pelletstown S.D.R.A. identified within the Dublin City DP 2016 -2022 and within lands zoned as HA- High Amenity in the Fingal County DP 2017 – 2023 which aims to <i>“Protect and enhance high amenity areas”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
		A larger compound is located to the north of Ashtown level crossing within the Ashton House Demesne.	The compound is located within Fingal County DP 2017-2023 lands zoned as HA-High Amenity which aims to <i>“Protect and enhance high amenity areas”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, moderate and short-term</i> .
		A compound is located within undeveloped lands directly to the south of the level crossing.	The compound is located within Fingal County DP 2017-2023 lands zoned as HT-High Technology which aims to <i>“Provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and short-term</i> .
CC-SET-S5-54750-B	Navan Road Station SET compound which will also serve as a permanent maintenance compound after completion of	Located within unoccupied undeveloped lands adjacent to the Navan Road Parkway station and car park.	The compound is located within Fingal County DP 2017-2023 lands zoned as HT-High Technology which aims to <i>“Provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment”</i> .	This compound will be in place after the construction phase, resulting in a permanent land use change. The potential effect on land use is <i>direct, negative, slight and long-term</i> .

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
	the construction stage.			
CC-STR-S5-56130-B	OBG9 Old Navan Road Bridge structures compound	Located within an existing 12 th lock car park at OBG9 Old Navan Road Bridge. A number of car parking spaces will be lost temporarily.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-STR-S5-56060-B	OBG9 Old Navan Road Bridge structures compound	Located within an undeveloped area in proximity to OBG9 Old Navan Road Bridge and adjacent to the Royal Canal towpath. The towpath will remain open at this location.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-STR-S5-56460-B & CC-SUB-S5-56500	Castleknock structures and substation compounds	Located south of Castleknock station within Laurel Lodge Green, changing its use from a recreational amenity area to construction site.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. Due to the scale of the compound relative to the total area of this land use, the potential effect on land use is <i>direct, negative, moderate and temporary</i> .
CC-SUB-S5-57550	Coolmine substation compound	Located approx. 385m to the east of Coolmine station within Sycamore Green, changing its land use from recreational amenity area to construction site.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-STA-S5-57900	Coolmine station compound	Compound is located within a car parking area of Coolmine station. A number of car parking spaces will be lost temporarily.	The compound is located within Fingal County DP 2017-2023 lands zoned as RS-Residential which aims to <i>“Provide for residential development and protect and improve residential amenity”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-LC-S6-68670900-B	5 no. Coolmine level crossing compounds	Located south of Castleknock station within Laurel Lodge Green, changing its use from a recreational amenity area to construction site.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, moderate and temporary</i> .
		Compound is located within a car parking area of Coolmine station. A number of car parking spaces will be lost temporarily.	The compound is located within Fingal County DP 2017-2023 lands zoned as RS-Residential which aims to <i>“Provide for residential development and protect and improve residential amenity”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
		Compound is located on the northern side of the canal, adjacent to the Royal Canal towpath. The towpath	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to <i>“Preserve and provide for open space and recreational amenities”</i> .	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct,</i>

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
		will remain open throughout the works.		<i>negative, slight and temporary.</i>
		Compound is located within a greenfield area adjacent to Diswellstown Road. The area is inaccessible to the public.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to “ <i>Preserve and provide for open space and recreational amenities</i> ”. The lands are also zoned for the ‘Light Rail Corridor’.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
		Compound is located within a greenfield area adjacent to the Diswellstown Road / Porterstown road junction. The area is inaccessible to the public.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to “ <i>Preserve and provide for open space and recreational amenities</i> ”. The lands are also zoned for the ‘Light Rail Corridor’.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
CC-LC-S6-686707-B	2 no. Coolmine level crossing compounds	Compound is located within lands that are inaccessible to the public and currently used as construction compounds to facilitate construction works in vicinity.	The compound is located within lands zoned by Fingal Count DP to be developed as part of the Kellystown Local Area Plan (LAP) which was prepared and adopted by FCC in January 2021. Land within the Kellystown LAP is designated as RA- Residential Area in Fingal County DP 2017-2023 which aims to “ <i>Provide for new residential communities subject to the provision of the necessary social and physical infrastructure</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
		Compound located within greenfield lands north of Porterstown level crossing that are inaccessible to the public.	The compound is located within lands zoned under Fingal CDP to be developed as part of the future Old School Masterplan. Fingal County Council are, at the time of writing this EIAR, currently in the process of preparing a Masterplan for Old School House, a protected structure. Land within the Masterplan is designated as RA- Residential Area in the Fingal County DP 2017-2023 which aims to “ <i>Provide for new residential communities subject to the provision of the necessary social and physical infrastructure</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
CC-LC-S5-58800-B	2 no. Porterstown Level Crossing compounds	Compound is located within lands that are inaccessible to the public and used as construction compounds to facilitate construction works in vicinity.	The compound is located within lands zoned by Fingal Count DP to be developed as part of the Kellystown Local Area Plan (LAP) which was prepared and adopted by FCC in January 2021. Land within the Kellystown LAP is designated as RA- Residential Area in Fingal County DP 2017-2023 which aims to “ <i>Provide for new residential communities subject to the provision of the necessary social and physical infrastructure</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
		Compound located within greenfield lands north of Porterstown level crossing that are inaccessible to the public.	The compound is located within lands zoned under Fingal CDP to be developed as part of the future Old School Masterplan. Fingal County Council are, at the time of writing this EIAR, currently in the process of preparing a Masterplan for Old School House, a protected structure. Land within the Masterplan is designated as RA- Residential Area in the Fingal County DP 2017-2023 which aims to “ <i>Provide for</i>	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
			<i>new residential communities subject to the provision of the necessary social and physical infrastructure”.</i>	
CC-LC-S5-60150--B	2 no. Clonsilla Level Crossing compounds	Compound is located to the south of the rail corridor within greenfield lands currently used as Beechpark Allotments.	The compound is located within Fingal County DP 2017-2023 lands zoned as HA-High Amenity which aims to “ <i>Protect and enhance high amenity areas</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, moderate, and short-term</i> .
		Compound is located to the north of the rail corridor.	The compound is located within Fingal County DP 2017-2023 lands zoned as OS-Open Space which aims to “ <i>Preserve and provide for open space and recreational amenities</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary</i> .
CC-PW-S5-59970-B	Clonsilla Siding permanent way compound	Compound is located within agricultural lands south of the Royal Canal - to the east of Clonsilla Station.	The compound is located within lands zoned by Fingal Count DP to be developed as part of the Kellystown Local Area Plan (LAP) which was prepared and adopted by FCC in January 2021. Land within the Kellystown LAP is designated as RA- Residential Area in Fingal County DP 2017-2023 which aims to “ <i>Provide for new residential communities subject to the provision of the necessary social and physical infrastructure</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, moderate and short-term</i> .

7.5.3.4.2 Journey characteristics and journey amenity

Level Crossing Replacements

Ashtown level crossing

A new road including an approximately 45 m underpass will be constructed approximately 100 m to the west of the existing level crossing. From the south it will branch off the existing Ashtown Road, extending along Mill Lane, under the Canal and Railway line and tie into the existing Ashtown Road to the north. The new vehicular access will accommodate vehicles, and also cyclists via a two-way cycle access along the eastern side of the new road. A 1.5 m pedestrian access will also be provided along Mill Lane to cater for users of the road and underpass who may have a breakdown. The project will construct a new pedestrian and cyclist over bridge at Ashtown Station in the vicinity of the previous level crossing, ensuring continued integration with Ashtown village and prioritising sustainable mobility in the area. The new sustainable transport bridge will also cater for the planned capacity enhancements at the station.

The existing Ashtown level crossing will remain open during the construction of the foot bridge to maintain pedestrian and cyclist accessibility. When the level crossing is closed and during periods of railway possessions, pedestrians and cyclists will be redirected to use the existing footbridge at Ashtown Station. The temporary diversion will have an *imperceptible* effect on the journey times of pedestrians due to the proximity of the footbridge to the existing level crossing. However, *slight* negative impacts are envisaged for cyclists who will need to dismount to cross the existing footbridge. The potential impacts on journey characteristics and journey amenity of pedestrians and cyclists are *negative, not significant and temporary*. The proposed development will permanently remove vehicular access at the level crossing, the impacts during the construction phase on road users are the same as those described for operation phase in Section 7.5.4.4.2.

The construction sequence of the Ashtown Underpass has been split in two sections: the rail underbridge, and the canal aqueduct. The construction of an aqueduct beneath the Royal Canal requires dewatering and

closure of the canal between Lock 10 and Lock 11. The potential effect on the boating activities on the Canal is *negative, significant, short-term and reversible*.

The majority of the works will be carried out during the night-time, outside of the operational rail times. However, rail possessions may be required at certain times. The potential effect on rail users has been assessed in Section 7.5.1.1.1.

The entrance to the Martin Savage Park residential area will be accessible throughout the construction works. Traffic management measures will be implemented during construction works to maintain access to all properties and minimize impacts to the public. Journey characteristics and journey amenity for equestrian users on the public road in this area is likely to be negatively impacted. In general construction activities will have a *negative, slight to moderate, short-term impact* on journey characteristics and journey amenity for all road users.

Coolmine level crossing

Upgrade works to junctions at Diswellstown Road, Porterstown Road, Clonsilla Road, and the Castleknock Road will be carried out prior to the construction of the pedestrian and cyclist bridge and the closure of the Coolmine level crossing. Traffic management measures will be implemented to maintain vehicular and non-vehicular traffic along these roads at all times during the construction works. The potential impacts on journey characteristics and journey amenity are likely to be *negative, slight to moderate, and temporary*.

A new pedestrian and cyclist bridge will be constructed at Coolmine Station to improve rail passenger access and cater for capacity enhancements which will also be accessible to the public to cross the level crossing. The construction works of the new cycle and pedestrian bridge at Coolmine level crossing will commence after the upgrades to junctions have been completed. The existing Coolmine level crossing will remain open during the construction of the bridge to maintain pedestrian and cyclist accessibility. When full possession of the railway is required, pedestrians and cyclists will be redirected to use the existing footbridge at Coolmine Station.

The potential impacts on journey characteristics and journey amenity of pedestrians and cyclists are *negative, slight to moderate, and temporary*. Access to residential properties along Sheepmoor Lane will be maintained throughout the works, except during lifting operations for the proposed pedestrian and cyclist bridge. The potential effect is *negative, moderate, and temporary*.

The proposed development will permanently remove vehicular access at this location. The potential impacts on vehicular users during construction phase are the same as those described for operation phase in Section 7.5.4.4.2.

Construction compounds for works associated with Coolmine level crossing will be located within the existing car parking area of Coolmine train station, reducing the number of car parking spaces by 20. The reduced number of spaces at the station may have an impact on journey characteristics, whereby rail passengers may use other train station car parks or must use an alternative mode of travel to reach their destination.

The majority of the works will be carried out during night-time, outside of the operational times. However, rail possessions may be required. The potential effect on rail users has been assessed in Section 7.5.1.1.1.

Porterstown level crossing

A new pedestrian and cyclist bridge will be constructed at Porterstown level crossing to improve rail passenger access and cater for capacity enhancements which will also be accessible to the public to cross the level crossing. The existing Porterstown level crossing will remain open during the construction of the bridge to maintain pedestrian and cyclist accessibility. When full possession of the railway will be required, pedestrians and cyclists will be redirected to use the existing road network which consists of the Porterstown Viaduct. The diverted route will increase journey times of pedestrians and cyclists by approximately 8 minutes and 2 minutes respectively. These estimates are established travelling from the residential estate along Village Road (the

closest residential estate to the existing level crossing from the north) who may need to travel to Scoil Choilm Community National School and Luttrellstown Community College. The potential impact on journey characteristics and journey amenity of pedestrians and cyclists is a *slight to moderate, temporary negative effect*.

The proposed development will permanently remove vehicular access at this location. The potential impacts on vehicular users during construction phase are the same as those described for operation phase in Section 7.5.4.4.2.

The majority of works to the railway will be carried out during night-time, outside of the operational times. However, weekend rail possessions may be required. The potential effect on rail users has been assessed in Section 7.5.1.1.1.

Clonsilla level crossing

The existing Clonsilla level crossing will remain open during the construction of the cycle and pedestrian bridge and will maintain vehicular, pedestrian and cyclist accessibility during the construction phase. The potential impacts on journey characteristics and journey amenity are *negative, slight, and temporary*.

The existing Clonsilla level crossing will remain open during the construction of the bridge to maintain pedestrian and cyclist accessibility. When full possession of the railway will be required, pedestrians and cyclists will be redirected to use the existing footbridge at Clonsilla Station. The potential impacts on journey characteristics and journey amenity of pedestrians and cyclists are *negative, slight to moderate and temporary*. The proposed development will permanently remove vehicular access at this location. The potential impacts on vehicular users during construction phase are the same as those described for operation phase in Section 7.5.4.4.2.

The construction of the pedestrian and cyclist bridge will require works within the Royal Canal, resulting in a local closure of the canal at Clonsilla for approximately 3 months at this location. The works will be undertaken outside of the permitted navigational period (i.e., between September and April) and as such, only recreational marine activities are envisaged to be impacted for the duration of the works. The potential effect on marine journey characteristics is *negative, significant, temporary, and reversible*.

The majority of works to the railway will be carried out during night-time, outside of the operational times. However, rail possessions may be required. The potential effect on rail users has been assessed in Section 7.5.1.1.1.

Bridge Modification Works

The majority of bridge modification works within Zone C will be carried out during daytime working hours with some night-time works required, outside of the operational rail service times. The potential effect on rail users has been assessed in Section 7.5.1.1.1.

The potential impacts on journey characteristics and journey amenity from bridge deck reconstruction works for OBG5 Broombridge, OBG9 Talbot Court Bridge and OBG11 Castleknock Bridge are discussed below.

OBG5 Broombridge

During the reconstruction of the bridge deck of OBG5/Broombridge, Broombridge Road will be closed at this location to vehicular and non-vehicular modes. The works will require the complete closure of the Broombridge Road to vehicular traffic for 15 weeks and a further 19 weeks of partial road closure (one lane open) will be required. Vehicular traffic will be redirected to use Ratoath Road via Reilly's Bridge. The diversion route results in approximately 2.7 km total diversion route for vehicular traffic to Broombridge Station. The impact on journey characteristics and journey amenity for vehicular traffic is *negative, moderate and temporary*.

Pedestrian access at this location will be closed for 13 weeks. Pedestrian movements will be diverted through a temporary ramp across the Canal, which will be executed at platform level in Broombridge Station. This temporary ramp will be operational for the duration of the road closure resulting in a *negative, slight, temporary* impact for pedestrians.

OBG9 Talbot Court Bridge/Old Navan Road

Modification works to OBG9 Talbot Court Bridge will require the complete closure of the Old Navan Road at this location resulting in effects to vehicular and non-vehicular traffic for 9 weeks with a further 25 weeks of partial road closure (one lane open) also required. During the 9-week road closure, vehicular traffic will be redirected to use the bridge crossing along Castleknock Road. Access to four residential properties on Castleknock Mews will be severed. However, a temporary road access will be constructed between Ashleigh Green (residential road) linking to the Old Navan Road. Potential effects on journey characteristics and journey amenity for vehicular traffic at this location is *negative, slight to moderate and temporary*. Pedestrian and cyclist access along the Old Navan Road will be completely closed for 7 weeks at OBG9. Pedestrians will be diverted to use the temporary road access between Ashleigh Green (residential road) linking to the Old Navan Road. Potential effects on journey characteristics and journey amenity of non-vehicular users result in a *negative, significant and temporary* impact.

OBG11 Castleknock Bridge

Modification works to OBG11 Castleknock Bridge will require the complete closure of the Castleknock Road (R806) to vehicular and non-vehicular traffic for 15 weeks and a further partial road closure (one lane open) for 19 weeks. Vehicular traffic travelling from east to west will be redirected to the M50 junction connecting to N3 Navan Road, while traffic travelling from the west to east, will be redirected to use the Coolmine level crossing. Diversion routes are described in more detail in Chapter 5. The potential effect on journey characteristics and journey amenity for vehicular traffic is *negative, moderate and temporary*.

Pedestrian and cyclist access over the bridge at this location will be completely closed for 13 weeks however an alternative route will be facilitated through the existing Castleknock Station footbridge. Impacts are likely to be negative, slight and temporary

Construction of Substations

The construction activities associated with the construction of Ashtown, Castleknock and Coolmine substations will have no significant impacts on road users.

7.5.3.4.3 Severance

There will be temporary diversions at certain locations within Zone C during the construction works and access will be maintained to properties throughout.

Marine navigation along the Royal Canal between Locks 10 and 11 and at Clonsilla Station will be severed for several months to facilitate the construction works, having a *negative, significant, temporary* effect on boating and marine uses in this area. Access to the Royal Canal towpath will be maintained throughout the works, however temporary local diversions may be required where works are to be carried out near and/or over the Royal Canal at certain locations, namely for the construction works at Ashtown and Clonsilla.

The construction compound for the Ashtown substation will be located within a grassed open space area associated with Martin Savage Park residential estate. There is a pedestrian entrance to the GAA training fields/Martin Savage Park which will be affected for the duration of the works, an alternative temporary entrance will be constructed to maintain access to this amenity, therefore no severance will be experienced.

7.5.3.4.4 Community Infrastructure

Broombridge construction STR compound is located within a car parking area of TU Dublin Sports Complex which will be directly impacted by the construction compound footprint resulting in a reduction of parking spaces for coach/ bus parking.

The construction compounds for the Castleknock substation and OBG11 Castleknock Bridge will be located within Laurel Lodge Green, a public park adjacent to a leafy, residential area. The construction compounds will reduce the footprint of this amenity area temporarily, and the defined pedestrian walkways in the park. The operation of construction vehicles and the general construction activities is likely to affect the amenity value for the duration of the works. The potential effect on the general amenity is *negative, slight to moderate and temporary*.

The construction compound for the Coolmine substation is located within Sycamore Green, a landscaped open space area adjacent to a Maple Green residential area. The impact will be *negative, slight and temporary* on this open space amenity area.

Construction compounds to facilitate works for the construction of cyclist and pedestrian bridge over Porterstown level crossing, and for junction upgrade works at Diswellstown Junction will be located within lands adjacent to St. Mochta's Football pitch. The construction activities will not impact on the operation of the pitch during the construction phase. No significant effects are envisaged.

Construction works for the cyclist and pedestrian bridge at the Clonsilla level crossing will be located within Beechpark allotments, a commercial allotment that has an environmental, social and economic value. The construction works will directly impact the field system (not developed as allotments at the assessment). The access road to the allotments will be used by the construction traffic and will likely reduce journey amenity value in the area for the duration of the works. The potential effect on Beechpark allotments is *negative, moderate, temporary and reversible*.

There is potential for indirect impacts on key facilities in the study area due to construction activities on community facilities, such as educational (schools, colleges, creche etc), parks, and sports grounds located in vicinity of the construction sites, construction compounds, or along haulage routes within Zone C. These include the following sites: St. Mochta's Football Club, St. Mochta's National School, Scoil Choilm Community National School and Luttrellstown Community College can all be accessed via Porterstown level crossing. Clonsilla level crossing provides access to Beechpark, while Pelletstown Educate Together National School can be accessed via Ashtown level crossing.

The surrounding road network is utilised by vehicular and non-vehicular modes of transport to access a range of community facilities via the aforementioned level crossings. Particular stages of the works will however require road closures which will result in more circuitous routes to these facilities affecting journey characteristics including journey times for a period. To minimise the impact of the proposed works on traffic in the immediate vicinity of construction sites and on haulage routes, a Traffic Construction Management Plan (TCMP) and a Construction Environmental Management Plan (CEMP) will be implemented for the duration of the works to minimise any likely significant effects.

The existing entrance to the GAA training fields at Ashtown from the Martin Savage Park residential area will be inaccessible to the public for the duration of the Ashtown substation works, however an alternative temporary entrance will be constructed to maintain access to this amenity. There will be no significant impacts on the GAA training fields during the construction phase of the proposed development.

7.5.3.5 Zone D

Construction works within Zone D relevant for the population impact assessment are as follows:

- Construction of Hansfield, Dunboyne and M3 Parkway substations.
- OBCN286 and OBCN290 track lowering.

- Bridge parapet heightening works.
- M3 Parkway sidings.
- Erection of temporary construction compounds and associated activities.

7.5.3.5.1 Land Use Change

The construction works for the proposed DART+ West development are mainly confined to the existing railway corridor, with the exception of some of the construction compounds and the works associated with level crossings replacement infrastructure. The impact assessment of construction compounds and works outside of the railway corridor on land uses is detailed in Table 7-15 below.

Table 7-15 Effects on land use zoning due to temporary construction compounds within Zone D

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
CC-SUB-S8-101070	Hansfield (SUB) substation compound	The construction compound for Hansfield substation is located within agricultural lands.	Fingal CPP 2017 – 2023: Zoned 'RA' Residential Area in to "Provide for new residential communities subject to the provision of the necessary social and physical infrastructure".	Due to the relatively short duration of construction works and the size of the construction compound, the potential effects on the land use is <i>direct, negative, not significant and temporary</i> .
CC-PW-S8-101660	OBCN286 PW compound	The construction compound is located within agricultural lands adjacent to L2222 Stirling Road.	Meath CDP 2021 – 2027 designated the lands as RA – Rural Area with the aim to "protect and promote in a balanced way, the development of agriculture, forestry, and rural-related enterprise, biodiversity, the rural landscape, and the built and cultural heritage".	The construction compound will result in a temporary land use change from agricultural to a construction compound. The potential effect on land use is <i>direct, negative, slight and short-term effect</i> .
CC-PW-S8-104970-B & CC-SUB-S8-105060	Dunboyne PW and SUB compounds	These temporary construction compounds will be located within the car parking area of Dunboyne Station.	Meath CDP 2021 – 202. Zoned TU – Transport and Utilities "to provide for essential transport and public utilities and infrastructure including rail stations, park and ride facilities, water and wastewater infrastructure, electricity, gas, and telecommunications infrastructure".	The construction compounds will reduce the number of car parking spaces at Dunboyne Station, having a <i>negative, moderate, temporary to short-term effect</i> on this land use.
CC-PW-S8-106950-B, CC-SET-S8-106950-B & CC-SUB-S8-106950	M3 Parkway PW, SET and SUB compounds	These temporary construction compounds will be located within the car parking area of M3 Parkway station.	Meath CDP 2021 – 2027 zoned TU – Transport and Utilities "to provide for essential transport and public utilities and infrastructure including rail stations, park and ride facilities, water and wastewater infrastructure, electricity, gas, and telecommunications infrastructure".	The construction compounds will reduce the number of car parking spaces at Dunboyne Station, having a <i>negative, moderate, temporary to short-term effect</i> on this land use.

7.5.3.5.2 Journey Characteristics and journey amenity

The proposed works within Zone D are not likely to have significant effects on journey characteristics of vehicular and non-vehicular road users as the majority of works will occur within the footprint of the existing M3 Parkway railway line, with no modifications to existing road network.

The temporary construction compounds within the car parking areas of Dunboyne Station and the M3 Parkway station will temporarily reduce the number of car parking spaces within the stations by 180 and 324 spaces respectively. Both parking areas are currently operating below capacity and such, the likely effect on journey characteristics and journey amenity of rail users is *negative, slight, temporary to short-term* in nature.

7.5.3.5.3 The majority of works will be carried out during daytime hours however, rail possessions will be required in some circumstances affecting journey times for rail passengers. The potential effect on rail users is *negative, slight to moderate temporary impact*. Severance

There will be temporary severance at certain locations within Zone D during the proposed works. However, vehicular, and non-vehicular diversions will be in place during the works to maintain access.

7.5.3.5.4 Community Infrastructure

The majority of the haulage routes travel through rural areas or low-density urban areas. However, some routes will pass through areas of ribbon development, while construction traffic for the Hansfield Station will be routed to R149 Regional Road which skirts around Hansfield residential area. Due to the location of the construction compounds, the scale and nature of the works within Zone D, the likely effect on residential amenity is *negative, indirect, slight, temporary to short-term* in nature.

There are no other sensitive amenity receptors in vicinity of proposed works within Zone D that may be significantly affected by the construction phase of proposed development.

7.5.3.6 Zone E

Construction works within Zone E relevant for the population impact assessment are as follows:

- Level crossing road replacement works at Barberstown level crossing and the closure of Blakestown level crossing.
- OBG 13 and OBG18 track lowering.
- Bridge parapet heightening works.
- Construction of Leixlip Confey and Blakestown substations.
- OBG14 and OBG16 bridge reconstruction works.
- Erection of temporary construction compounds and associated activities.

7.5.3.6.1 Land Use Change

The construction works for the proposed DART+ West development are mainly confined to the existing railway corridor, with the exception of some of the construction compounds and the works associated with level crossings replacement infrastructure. The impact assessment of construction compounds and works outside of the railway corridor on land uses is detailed in Table 7-16 below.

Table 7-16 Effects on land use zoning due to construction compounds within Zone E

Compound code	Description	Existing Land Use	Land Use Zoning	Potential Effect
CC-SET-S6-70700-B	Barberstown SET compound	The compound is located on greenfield land between the rail line and the Royal Canal to the east of the existing Barberstown level crossing.	Fingal CDP 2017-2023 lands zoned as OS- Open Space to “ <i>Preserve and provide for open space and recreational amenities</i> ”.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight, and short-term</i> .
CC-LC-S6-71100-B	2 no. Barberstown Level crossing compounds	Compound is located within agricultural lands to the south of Royal Canal and the rail line, adjacent to R121 Anna Liffey Mills Road.	Fingal CDP 2017-2023 zoned HA- High Amenity which aims to “ <i>Protect and enhance high amenity areas</i> ”.	The compound will be in place for the duration of the construction works. Due to the size of the compound compared to the total area of the land use at this location, the potential effect on land use is

Compound code	Description	Existing Land Use	Land Use Zoning	Potential Effect
				<i>direct, negative, moderate, and short-term.</i>
		Compound is located within agricultural lands to the north of Royal Canal and the Royal Canal towpath.	Fingal CDP 2017-2023 'RA-Residential' under which aims to "Provide for residential development and protect and improve residential amenity". and zoned Hansfield Strategic Development Zone (SDZ) and as part of the Barnhill Local Area Plan (LAP).	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight, and short-term.</i>
CC-PW-S6-72830-B	OBG13 Permanent way compound	Compound is located within agricultural lands to the south of Royal Canal and the rail line, adjacent to L3005 local road.	The compound is located within the administrative area of Kildare County Council however no land use zoning has been identified for the area under the Kildare County Development Plan 2017 – 2023.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and temporary.</i>
CC-SUB-S6-74680 & CC-STR-S6-74660	Leixlip substation and structures compounds	3 no. compounds located within a green amenity area of Greendale Estate in Leixlip town.	Leixlip Local Area Plan (LAP) 2020 -2023 zoned these lands as B – Existing / Infill Residential with the aim to "protect and enhance the amenity of established residential communities and promote sustainable intensification".	The compound will be in place for the duration of the construction works. Due to the size of the compound compared to the total area of the land use at this location, the potential effect is <i>direct, negative, moderate and temporary.</i>
CC-STR-S6-76470-B & CC-STR-S6-76540-B	Leixlip (Louisa Bridge) Station structures compounds	2 no. compounds are located within 2 no. Leixlip (Louisa Bridge) Station car parking areas.	Leixlip Local Area Plan (LAP) 2020 -2023 zoned these lands as U – Transport and Utilities with the aim to "protect and enhance the amenity of established residential communities and promote sustainable intensification".	The compound will be in place for the duration of the construction works, however they will reduce the number of available car parking spaces at the station. Due to the size of the compound compared to the total area of the land use, the potential effect is <i>direct, negative, slight and temporary.</i>
CC-SUB-S6-78180 & CC-SET-S6-78200-B	Blakestown substation and SET compounds	The temporary construction compounds are located within agricultural lands to the south of Blakestown level crossing.	As part of Leixlip LAP, the lands are zoned as the 'Collinstown Strategic Employment Lands' which will be subject to a Masterplan (Objective COL 1.1).	The compounds will be in place for the duration of the construction works. Due to the size of the compounds compared to the total area of the land use at this location, the potential effect is <i>direct, negative, moderate and temporary.</i>
CC-PW-S6-79950-B	OBG18 Permanent Way compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal Canal in vicinity of Pike Bridge.	Kildare CDP. Unzoned land	The compounds will be in place for the duration of the construction works. Due to the size of the compounds compared to the total area of the land use at this location, the potential effect is <i>direct, negative, moderate and temporary.</i>

7.5.3.6.2 Journey characteristics and journey amenity

Road Replacement Works

Barberstown level crossing

The road replacement works at Barberstown level crossing are mainly offline and will not significantly impact road users during construction. Traffic management measures will be implemented when tie ins to the existing road network, namely to R121 Anna Liffey Mills Road and L7005 Barberstown Lane South will be required. The potential effects on journey characteristics are likely to be *negative, slight-moderate and short-term*.

The majority of works will be carried out during daytime hours. However, rail possessions will be required in some circumstances affecting journey times for rail passengers. The potential effect on rail users is assessed in Section 7.5.1.1.

Blakestown level crossing

It is proposed to permanently close the Blakestown level crossing. The effect of this closure on journey characteristics, journey amenity and severance are assessed under Section 7.5.4.

Bridge Modification Works

OBG14 Cope Bridge

Modification works for OBG14 Cope Bridge will require the complete closure of the bridge to vehicular and non-vehicular users for 15 weeks and a partial road closure (one lane open) for 19 weeks. Significant diversions for vehicular traffic will be in place for those travelling from the north wishing to enter Leixlip and they will be redirected to the Collins Bridge along L3005, connecting to Leixlip Road through Lucan. The potential impact on journey characteristics and journey amenity for vehicular users is *negative, significant, and temporary*.

Pedestrian and cyclist access over the bridge will be completely closed for 13 weeks having *negative, profound and temporary* effects on pedestrians and cyclists.

OBG16 Louisa Bridge

Modification for OBG16 Louisa Bridge will require the complete closure of the bridge to vehicular traffic for 9 weeks. 25 weeks of partial road closure (one lane open) will also be required. Vehicular traffic will be diverted to the R449 Regional Road to cross the Royal Canal west of OBG16 Louisa Bridge. The potential impact on journey characteristics and journey amenity for vehicular users is *negative, slight to moderate, and temporary*.

Pedestrian and cyclist access will be closed for 7 weeks.

Construction compounds for modification works of OBG16 Louise Bridge will be located within the car parking areas of Louisa Bridge Station, reducing the number of parking spaces by 22. Due to the relatively small size of the construction compounds and the large capacity of car spaces of the car parking areas (combined), the potential effects on journey characteristics are *negative, slight, and temporary*.

7.5.3.6.3 Severance

There will be temporary severance at certain locations within Zone E during the proposed works. However, vehicular, and non-vehicular diversions will be in place during the works to maintain access.

7.5.3.6.4 Community Infrastructure

Construction compounds for modification works at OBG14 Cope Bridge will be located within a green amenity area within the Greendale estate, a residential area in Leixlip. The construction compounds will physically

reduce the footprint of this amenity area. The movement of construction vehicles and the general construction activities pertaining to each compound are likely to indirectly affect the use of this green amenity area by the public during construction phase. The potential effect on this amenity area is *negative, significant, and temporary*.

The haulage routes for construction compounds within Zone E are described in Chapter 5. The majority of the routes consist of construction traffic being routed through existing urban, trafficked areas including suburban villages and residential areas, specifically to construction compounds such as facilitating works at OBG14 Cope Bridge and OBG16 Louisa Bridge in Leixlip. The presence of these compounds and the general construction activities on sites will have *negative, indirect, slight to moderate, temporary to short-term* effects on residential amenity.

There are a number of community facilities, such as educational (schools, colleges, creche etc), parks and sports grounds located in vicinity construction sites, construction compounds, or along haulage routes within Zone E. The potential impacts on key facilities are discussed below.

Westmanstown Sports Complex and Shackleton community gardens can be accessed via the existing Barberstown level crossing. Access to these community facilities will be maintained throughout the works at this level crossing, and as such, significant negative effects are not envisaged.

OBG14 Cope Bridge in Leixlip is the only access point to Confey GAA Club. During deck modification works on OBG14, a temporary footbridge to the northern platform at Leixlip (Confey) Station will be constructed, while maintaining pedestrian and cycle traffic to the GAA club via the existing station footbridge at this location. However vehicular traffic will be redirected to the existing road network, having a potentially *negative, indirect, slight, and short-term* effects on the GAA club.

Leixlip Amenities Sports Centre can be accessed via OBG15 Louisa Bridge. During deck modification works on OBG16, pedestrian and cyclist access will be redirected to use the footbridge within Louisa Bridge station, maintaining access to the sports centre at this location. However vehicular traffic will be redirected to the existing road network, having a potentially *negative, indirect, slight, and short-term* effect on the sports centre.

7.5.3.7 Zone F

Construction works within Zone F relevant for the population impact assessment are as follows:

- Works within Maynooth station incl. modifications to existing platforms, parapet heightening works and construction of substation.
- Construction of UBG22A, UBG22C and OBG23A.
- L5041 Diversion works.
- Construction of a new depot.
- Temporary construction compounds and associated activities.

7.5.3.7.1 Land Use Change

The construction works for the proposed DART+ West development are mainly confined to the existing railway corridor, with the exception of some of the construction compounds and the works associated with level crossings replacement infrastructure. The impact assessment of construction compounds and works outside of the railway corridor on land uses is detailed in Table 7-17 below.

Table 7-17 Effects on land use zoning due to construction compounds within Zone F

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
CC-SUB-S6-82230	Maynooth substation compound	Temporary construction compound for the Maynooth substation will be located within the car parking area of Maynooth Station. The construction	Maynooth Local Area Plan 2013 – 2019 (incorporating	The compound will only be in place for the duration of the construction works, however it will reduce the number of car parking areas

Compound code	Description	Existing Land Use	Land Use Zoning Objective	Potential Effect
		compounds will reduce the number of car parking spaces available.	amendment 1) zoned J - Transport and Utilities with the aim to "provide for and protect transportation infrastructure and public utilities".	available to the public. The potential effect on land use is <i>direct, negative, moderate and temporary</i> .
CC-STR-S7-91880-B	Millfarm structures compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal Canal, east of Jackson's Bridge.	Kildare CDP unzoned land.	The compounds will be in place for the duration of the construction works. <i>direct, negative, slight and temporary impact</i> .
CC-SET-S7-92100-B	Millfarm SET compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and short-term</i> .
CC-PW-S7-92340-B	Millfarm Permanent way compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and short-term</i> .
CC-STR-S7-92850-U	OBG23A structures compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and short-term</i> .
CC-STR-S7-92900-U	OBG23A structures compound	The temporary construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compound will be in place for the duration of the construction works. The potential effect on land use is <i>direct, negative, slight and short-term</i> .
CC-DEP-S7-93060-D	Depot SET compound	The construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compounds will be in place for the duration of the construction works. Due to the size of the compounds compared to the total area of the land use at this location, the potential effect is <i>direct, negative, moderate and long-term</i> .
CC-DEP-S7-UP-93370-U	Depot Track compound	The construction compound is located within agricultural lands to the south of the rail line and the Royal west of Jackson's Bridge.	Kildare CDP unzoned land.	The compounds will be in place for the duration of the construction works. <i>Direct, negative, moderate and long-term</i> .

7.5.3.7.2 Journey characteristics and journey amenity

Works at Maynooth Station

Modifications to Station Platforms

To facilitate the realignment of tracks west of Maynooth, the existing platforms at Maynooth Station will be modified which consists of demolition and realignment works to the platform ends west of the Station and extending the platforms east of Station.

Although the platforms will remain operational throughout the works, it is likely that sections of the platforms will be restricted to the general public causing nuisance and disturbance to the rail passengers, having *negative, slight, and temporary* effects on journey characteristics and journey amenity.

Maynooth Substation

The Maynooth substation will be constructed within the existing car parking area of Maynooth Station. The car parking spaces at the train station will be temporarily reduced by 22. Vehicular and pedestrian access to the car parking area and the station will be maintained at this location however, there may be some nuisance and disruption due to the movement of construction traffic to the site. The potential effect on journey characteristics and journey amenity is *negative, slight and temporary*.

There is a private property at the end of the carparking area of Maynooth Station. The only access to the property is through the car parking area and as such, access to the property will be required to be maintained throughout the construction works.

Construction of New Bridge Structures

UBG22A and UBG22C

Two new underbridges are proposed to be constructed to carry the new double track over Lyreen River to connect to the new depot. The proposed works will be undertaken offline from the existing road network and have a *neutral* effect on journey characteristics and journey amenity of road users.

OBG23A

A new overbridge (OBG23A) will be constructed as part of the proposed development between the new depot and Maynooth, providing access from R148 to the depot. The majority of the works will be carried out offline from the existing road network with the exception of tie in points which will be constructed over the weekend or at night-time. The potential impact on journey characteristics and journey amenity for road users is *negative, slight and temporary*.

L5041 Road Diversion

The existing L5041 local road will be redirected as part of the proposed development. Access along the existing L5041 will be maintained, with the majority of the works undertaken offline from the existing road network. The tie in points for the road will be constructed over the weekend or at night-time. The potential impact on journey characteristics and journey amenity for road users is *negative, slight and temporary*.

Depot

The site of the proposed depot and the associated construction activities will be undertaken offline from the existing road network and will have a *neutral* effect on journey characteristics and journey amenity of road users. The majority of works will be carried out during daytime hours however, rail possessions will be required in some circumstances affecting journey times for rail passengers. The potential effect on rail users is assessed in Section 7.5.1.1.

7.5.3.7.3 *Community Infrastructure*

The existing North Kildare Club sports complex is located directly across the Royal Canal from the construction activities for the proposed depot. Due to the proximity of club to the construction site and the extended duration of the construction works *negative, indirect slight and short-term* effects are likely on the club and its users.

7.5.3.7.4 *Severance*

There will be temporary severance at certain locations within Zone F during the proposed works. However, vehicular, and non-vehicular diversions will be in place during the works to maintain access.

7.5.4 Potential Operational Impacts

7.5.4.1 Potential impacts within all Zones

The likely significant operational impacts on the population include:

- The increased frequency of train services will have a *significant positive long-term* effect on rail passenger travel, accessibility to employment and will promote sustainable travel patterns and future development opportunities across the study area and beyond.
- By removing the road and rail interface at the existing level crossings there will be *positive significant long-term* effects on journey characteristics, journey amenity, reduced perceived community severance and improvements in safety.
- The development will contribute to the overall economic activity of the region by providing enhanced reliable, smarter and cleaner public transport network which will have a *positive, slight to moderate, long-term effect* on economic activity in the area and improve competitions of the region.
- Reduced congestion at level crossings will have a *positive, slight to moderate, long-term* effect on local populations, the local transport network and economic activity around stations and level crossings.
- The DART+ West project will help support the societal response required to combat unsustainable transport and travel patterns by providing a more sustainable, cleaner and reliable public transport train service. The proposed project will have an indirect, *positive long-term* effect on the tourism sector and recreational resources within the region.
- Potential in-direct positive effects are likely on the population due to the long-term investment in sustainable travel and infrastructure influencing land use patterns, journey characteristics and journey amenities, and access to community infrastructure including open spaces.

7.5.4.1.1 Land Use

The DART+ Programme supports, and is consistent with, the national level planning and transport policies including the National Planning Framework, Transport Strategy for the Greater Dublin Area 2015-2035, the respective county development plans all of which are addressed in greater detail in Chapter 2 of this EIAR. Local land use changes within each Zone are described in sections below.

DART+ is identified as 'Action 240' in the Climate Action Plan 2019 which states '*Commence delivery of DART+ Programme and continue heavy rail fleet investment*' which will complement the other measures/ actions and integrate positively with other major public infrastructure projects in the GDA such as BusConnects, GDA cycle strategy etc. and will support the achievement of reducing emissions from transport and support the modal shift from private car to public transport and/or sustainable modes.

The project will serve to connect existing and future development to quality, reliable and modern public transport infrastructure and will also support economic development, regeneration effects, and support the sustainable development of existing and new communities along the route and wider economic and population benefits.

7.5.4.1.2 Journey characteristics and journey amenity

The DART+ West project will have far reaching positive transportation effects for communities along the railway corridor. The development will significantly increase rail capacity and frequency along the existing Maynooth / Sligo rail line to Maynooth and M3 Parkway that is currently constrained on the network. It will transport passengers in high quality trains that are designed to best suit the needs of growing communities, providing all day capacity, but crucially during peak AM and PM commuter periods. The frequency of trains along the rail line will also increase from 6 to 12 trains per hour allowing for more flexible use of the rail service.

Furthermore, the proposed development will improve multimodal transport connectivity through the interchange with the Luas network at Broombridge and at the proposed Spencer Dock Station, and the future Metrolink project at Glasnevin / Phibsborough creating an integrated and well-connected public transport

system to meet future public transport demands in line with the projected increase in population within the Greater Dublin Area. The increased capacity and frequency offered by the Dart+ West development as well as its integration with other public transport systems may assist with uptake of public transportation options within the GDA.

The journey characteristics and journey amenity of the population within the GDA will improve. For rail users, the proposed development will increase the capacity and frequency of rail services which will improve the level of comfort experienced when travelling whilst reducing overcrowding on the Dublin to Maynooth and M3 Parkway rail lines, specifically during the peak AM and PM commuter periods. Furthermore, there will be greater support for integrated sustainable mobility through the provision of improved bicycle spaces in the locomotives, including 4 bike spaces per HLU (half-length unit or half-length train) and 8 bike spaces per FLU (full length unit or full length train).

The bicycle parking at stations has been provided on the basis of the 2043 projected passengers and NTA guidance of 2.5% of daily boarders. Cycle parking is provided at stations that are being altered or new, i.e. Spencer Dock, Connolly Station (supplementing existing parking), Ashtown and Coolmine stations. The provision of additional bicycle parking in these locations will have a positive long-term effect supporting sustainable mobility measures.

For all road users, the proposed development will induce local changes on journey characteristics and journey amenity which are discussed under the relevant Zones.

7.5.4.1.3 Community infrastructure

The proposed modernised electrified rail fleet and capacity enhancements will provide greater access by rail to existing community infrastructure including educational, community, medical, etc. by increasing the frequency of commuter services at train stations along the Maynooth and M3 Parkway rail lines. Rail users including commuters will be afforded with more options when choosing their time of departure to access facilities and vice versa, having an *indirect, positive, and long-term* effect.

Impacts on community infrastructure and general amenities related to specific elements of the proposed development in each zone are discussed in sections below.

7.5.4.1.4 Severance

Where alternative vehicular access is not provided and/or is changed at the existing at-grade level crossings there will be a perceived *negative, moderate- significant, permanent* residual community severance effects for the properties and communities either side of the level crossings.

7.5.4.1.5 Economic Impacts

The proposed development will have positive economic impacts primarily in relation to relieving aggregated congestion and improving economic competitiveness within the Greater Dublin Area. In 2017, The Department of Transport's report on 'The Costs of Congestion an Analysis of the Greater Dublin Area' identified that aggravated congestion leads to an array of costs for the economy primarily in relation to lost time to road users, emissions from vehicles idling, vehicle operating costs, and wider economic impacts. According to the report, congestion can also increase the costs of doing business while also reducing the attractiveness of an area to establish a business in. The 2017 report measured the value of time lost to road users as a result of aggregated congestion within the GDA by mode of travel and the location. The report revealed that the economic costs incurred by aggregated congestions are the greatest for private car users at 59% of all road users, and that the areas associated with the majority of these costs are "*between the M50 and the canals, on key arterial routes*".

The proposed development will have a positive impact on local economy and the GDA by relieving aggregated congestion at the six existing level crossings and improving journey time reliability for all populations particularly, commuters and tourists. Furthermore, the rail service improvements will support sustainable

compact growth and support economic development and improve competitiveness. In relation to tourism, the increased frequency of train services will improve connections to and from tourist destinations and will have a positive effect on both, the tourism economic operators and the rail transport as a service. The proposed development will have *positive, moderate, and long-term, direct and indirect effects* on the economy.

7.5.4.2 Zone A

7.5.4.2.1 Land Use Change

This section identifies elements of the proposed development within Zone A which are located outside of the existing railway corridor. The impact assessment of the potential land use changes is also outlined.

Connolly Station

In addition to the land use impacts identified in Section 7.5.4.1.1 above, the proposed development within Zone A will increase the capacity of the existing Connolly Station, having a *positive, significant, and long-term* effect on land use by supporting the future population trends in the area and meeting the population demand for rail transport. The car parking spaces at the station will be permanently reduced by 16 spaces.

Glasnevin Substation

The Glasnevin substation proposed as part of the development will be located within the sports grounds of St Vincent's School in Glasnevin, changing the land use from Zone Z15 Institutional and Community to transport and utilities. Due to the discrete location of the substation and its relatively small size when compared to the total area of the sports grounds it will not have a significant effect on the land use itself or its land use designation.

7.5.4.2.2 Journey characteristics and journey amenity

Connolly Station

The proposed development will increase the capacity of Connolly Station to meet the current and future rail transport demand. The new access to Connolly Station from Preston Street will facilitate the proposed capacity enhancements and improve the overall distribution of passengers entering and exiting the station by providing direct access to platforms 5, 6, and 7. The proposed modifications at Connolly Station will alleviate bottlenecks at the existing station entrance and will improve the general circulation of rail users in the station in a planned and co-ordinated manner ensuring safety standards are maintained. The proposed capacity enhancements will have *significant, positive, long-term* effects on journey characteristics and amenity.

7.5.4.2.3 Community Infrastructure

The Glasnevin substation will be located on the western edge of St Vincent's School playing pitch. The existing area is partially vegetated and does not represent a significant loss to the sports facility and after reinstatement works will not affect the functionality of the playing pitch. The proposed substation will have a *neutral* effect on this educational/sports infrastructure.

7.5.4.2.4 Severance

The proposed development will not cause severance within Zone A.

7.5.4.2.5 Economic Impacts

The exiting vaults at Connolly Station will be refurbished to serve as a concourse area linking the new Preston Street entrance to the station platforms. The design of the concourse area includes for provision of retail areas, offering an opportunity for employment within the station building, having a *positive, long-term, direct and indirect* effect on employment and economic development in the area.

7.5.4.3 Zone B

7.5.4.3.1 Land Use Change

This section identifies elements of the proposed development within Zone B which are located outside of the existing railway corridor. The impact assessment of the potential land use changes is also outlined.

Spencer Dock Station

The new Spencer Dock Station will be developed within the Docklands area as part of the proposed DART+ West project. The proposal is consistent with the North Lotts and Grand Canal Dock Strategic Development Zone (SDZ) Planning Scheme 2014 which states that “*the more long-term proposals for a DART Underground Station at Spencer Dock will potentially result in the lands becoming the most accessible and connected part of the city and State*”.

The proposed Spencer Dock Station supports the following key objectives of the Planning Scheme:

CD14: *To promote the development of street infrastructure, walking and cycling routes and public transport routes to enhance connections between residential areas and the community facilities that exist in the wider neighbourhood.*

MV2: *To support and facilitate the development of an integrated public transport network with efficient interchange between transport nodes, to serve the existing and future needs of all ages in association with relevant transport providers, agencies, and stakeholders and to facilitate the integration of walking and cycling with public transport*

The proposed Spencer Dock Station will support the emerging population trends in the Docklands area by providing an alternative means of travel to, and from the area. The new station will also facilitate multimodal interchange between the public transport services in Dublin City, namely with the Luas and bus services.

7.5.4.3.2 Journey characteristics and journey amenity

The proposed Spencer Dock station will replace the existing Docklands Station and will primarily serve the population catchment residing or working in the Docklands area by providing an alternative mode of travel. It's likely that the location of this station will attract more people to use the rail as a form of transport and will likely change the journey characteristics in this population catchment. Furthermore, the close proximity of the new station to the Luas line, specifically to the Spencer Dock Luas stop will improve the interchange between the light rail and heavy rail network in Dublin and will be a more attractive option for commuters in place of private car use.

The proposed station will have a *positive, significant, and long-term* effect on journey characteristics and journey amenity within Zone B of proposed development.

7.5.4.3.3 Community infrastructure

The Docklands area within Zone B of the proposed development is currently undergoing significant regeneration in the form of new residential and office developments as part of the North Lotts and Grand Canal Dock Planning Scheme 2014. The proposed Spencer Dock station will support this new development by providing accessible public transport connections within the area to the rest of the city and beyond.

The proposed development will have a *positive, significant, and long-term* effect on existing and emerging community infrastructure within Zone B.

7.5.4.3.4 Severance

The operation phase of the proposed development will not cause severance within Zone B.

7.5.4.3.5 Economic Impacts

The proposed development will significantly improve public transportation links to the Docklands area/ Dublin City Centre to the GDA providing ease of access to its array of events, hospitality and tourism assets. The Docklands area encompasses some of Dublin's key cultural and recreational amenities including the Convention Centre, Bord Gáis Energy Theatre, Point Village which will be all within a walking distance of the new Spencer Dock Station. In addition, a range of hospitality assets including The Gibson, The Mayson, and the Spencer Hotel are all also located within a walking distance of the new station. The proposed development provides both locals and visitors frequent and ease of access to and from this new urban quarter and its transport links including Luas, bus and walking and cycling facilities which will boosting its economic potential and competitiveness. The proposed development will have *positive, moderate, and long-term* direct and indirect effects on the economy.

7.5.4.4 Zone C

7.5.4.4.1 Land Use Change

This section identifies elements of the proposed development within Zone C which are located outside of the existing railway corridor. The impact assessment of the potential land use change is also outlined.

Ashtown level crossing

To the south of Ashtown level crossing, sections of the level crossing replacement infrastructure are located within lands that are included within the Navan Road Parkway LAP which are zoned under Fingal DP for High Technology, with the objective to *"provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment"*. The proposed road replacement infrastructure mainly follows the existing road network and will maintain access to the LAP lands.

The area to the east of the level crossing is subject to the Ashtown Pelletstown LAP 2014. This area is designated to provide over 3,500 new homes and will accommodate between 6,300 to 7,200 new residents including development of recreational areas and community facilities.

The proposed development will support existing and future populations and support the high-density developments in the existing settlements. The development will improve the rail-road interface and congestion associated with the existing level crossing closures. The proposed footbridge at Ashtown station will maintain pedestrian and cyclist connectivity at the level crossing for all road and rail users.

A substation will be constructed next to Ashtown Station within the existing railway boundary and will not have a significant effect on land uses in the area.

Navan Permanent Maintenance Compound

A permanent compound is proposed immediately to the west of the Navan Road Parkway station car parking area. The construction compound borders Navan Road from the north and is located within undeveloped lands zoned under the Navan Road Parkway LAP. The adjacent land uses are primarily greenfield and undeveloped. The land use designation for the LAP by the Fingal CDP 2017 - 2023 is HT - High Technology to *"Provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment"*. The local area plan for Navan Road Parkway has not been developed at the time of writing the EIAR.

Castleknock substation

The proposed Castleknock substation and associated access road is located within Laurel Lodge Green, a green amenity area within a residential estate. The lands are zoned as OS-Open Space under Fingal County DP 2017-2023 to *"Preserve and provide for open space and recreational amenities"*. Due to the relatively

small footprint of the proposed substation and access road within the OS-Open Space land use zoning, the potential effect on the land use zoning is *negative, slight, and permanent*.

Coolmine level crossing

The proposed development will permanently close the existing Coolmine level crossing and provide an upgrade to the existing road network to cater for displaced vehicular traffic. Relevant FC DP 2017-2023 map-based Objectives include **Objective 142** “*Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing*”. The proposed development will improve journey characteristics for cyclist and pedestrian in the area future development trends which prioritises sustainable modes of travel including rail as demonstrated in Chapter 6 Traffic and Transportation of this EIAR the existing road network together with the proposed junction upgrade works will accommodate the existing and future traffic in this area.

The proposed pedestrian and cyclist bridge is located on lands north and south of the existing Coolmine level crossing. The southern extents of the bridge are located within the Coolmine car parking area which is zoned under Fingal County DP 2017-2023 as RS- Residential to “*Provide for residential development and protect and improve residential amenity*”. There will be no loss of the car parking spaces at the train station car park.

The northern extents of the proposed bridge are located within an area of existing vegetation and scrub fronting on to the Royal Canal zoned Open Space. The potential effect on the land use zoning is *negative, slight, and permanent*.

Coolmine Road which carries traffic through the Coolmine level crossing is identified as an ‘Indicative Cycle / Pedestrian Route’ in the Fingal County DP 2017-2023. The proposed development will maintain and support the future realisation of this route.

Junction Upgrade Works

The proposed development will involve upgrade works to the following junctions to meet the current and future road traffic demand:

- Diswellstown Road Junction.
- Porterstown Road Junction.
- Clonsilla Road Junction.
- Castleknock Road Junction.

The majority of the upgrade works for the junctions will be confined to the existing roadbed however, minor road widening will be required in lands zoned as OS – Open along road verges. The required land take of these lands is minimal and the potential effect on the OS-Open Space land use is *negative, not significant, and permanent*.

Coolmine substation

The proposed Coolmine substation is located to the south of the existing railway line in an open space area ‘Sycamore Green’ which fronts onto a small residential estate. The lands are zoned as OS – Open Space. Due to the relatively small footprint of the proposed bridge within the, the potential effect on the land use zoning is *negative, slight, and permanent*.

Porterstown Level Crossing

The proposed development will permanently close the existing level crossing and replace it with a pedestrian and cyclist footbridge at this location. Vehicular traffic will be redirected to Porterstown Viaduct. Map-based Objective 137 of Fingal County DP 2017-2023 states “*Preserve the existing pedestrian and vehicular right of way at the level crossing at Porterstown*”. An ‘Indicative Cycle / Pedestrian Route’ in the Fingal County DP 2017-2023 is also indicated at this location. Although the proposed development will divert vehicular traffic to the existing road network it will provide pedestrian and cyclist access at this location through the provision of

a dedicated pedestrian and cyclist over bridge spanning the Royal Canal and railway. The proposed development will support the development of this objective for a cycle / pedestrian route at this location and supports higher level policies associated with the DART+ West project.

Lands to the south of the existing level crossing are zoned for development as part of the Kellystown Local Area Plan (LAP) which was adopted by Fingal County Council in January 2021. Kellystown LAP has the capacity to accommodate approximately 1,055 – 1,583 additional residential units, resulting in a significant population increase for the area in the future which will require access to sustainable modes of travel such as those proposed by DART+ West.

Lands to the north of the existing Porterstown level crossing are zoned to be developed as part of the Old School House Masterplan. Zoned for residential purposes (RA) and will benefit from improved access to rail, pedestrian and cyclist infrastructure proposed as part of the development.

Porterstown level crossing and the proposed replacement works are also located within lands north and south of the Royal Canal which are zoned as 'OS – Open Space' within the Fingal CDP which aim to "*Preserve and provide for open space and recreational amenities*". The extents of the proposed bridge are also located within lands zoned as RA- Residential Area which are designated to be developed as part of Kellystown LAP and the future Old Schoolhouse Masterplan. The impacted land is part of a bigger zoned plot and will not significantly impact the zoned lands.

Clonsilla Level Crossing

The proposed pedestrian and cyclist bridge is located on lands north and south of the existing Clonsilla level crossing. The southern extents of the bridge are located on a site associated with the Beechpark allotments which are zoned HA – High Amenity' to "*Protect and enhance high amenity areas*" under the Fingal CDP 2017-2023. Due to the relatively small footprint of the proposed bridge within the HA- High Amenity zoned area. The northern extents of the proposed bridge are located on areas of scrub zoned as part of Open Space designation along the Royal Canal. Due to the relatively small footprint required for the replacement footbridge at this location the effect on the respective land use zoning designations is *negative, slight, and permanent*.

7.5.4.4.2 Journey characteristics and journey amenity

Ashtown level crossing

The proposed development will permanently close the existing level crossing at Ashtown and redirect traffic to under the Royal Canal into Ashtown Village via the new road infrastructure. By removing the rail-road interface, the delays currently experienced by road users due to closures of the level crossing will be eliminated. The traffic modelling analysis undertaken as part of Chapter 6, Traffic and Transportation determined that there will be a 'moderate' impact on vehicular traffic. The likely effect on journey amenity of these vehicular users is *negative, moderate, and long-term*.

Coolmine level crossing

The proposed development will permanently close the existing level crossing at Coolmine and upgrade the existing junctions in the area to improve the traffic flow. By removing the rail-road interface, the delays currently experienced by road users due to closures of the level crossing will be eliminated, however access to vehicular users will no longer be permitted at this location. The traffic modelling analysis undertaken as part of Chapter 6, Traffic and Transportation determined that the diversion routes will increase the journey distance by approximately 3.4 km – 5 km as a result of the level crossing closure having a 'moderate' impact on vehicular traffic. The likely effect on journey amenity of vehicular users is *negative, moderate, and long-term*.

The proposed development will improve the journey amenity and journey characteristics through a purpose built pedestrian and cycle bridge over the Royal Canal and railway always allowing unrestricted access over the railway line improving journey times, amenity, and safety. Furthermore, the junction upgrade works will ensure that there is continuation of existing cycling facilities by providing dedicated lanes on approach to the

new roundabouts. The segregated cycling and pedestrian facility may also encourage the uptake of active travel modes in the area, having a positive and long-term effect on journey characteristics.

Porterstown level crossing

The proposed development will permanently close the existing level crossing at Porterstown without providing replacement infrastructure for vehicular road users to cross the rail corridor and the Royal Canal at this location. By removing the rail-road interface, the delays on the road network currently experienced by road users due to closures of the level crossing will be eliminated. Road traffic will be redirected via Diswellstown Road creating a 1.7 km road diversion. The traffic modelling analysis undertaken as part of Chapter 6 Traffic and Transportation determined that there will be a 'moderate' impact on vehicular traffic. The likely effect on journey amenity of vehicular users is *negative, moderate, and long-term*.

The proposed development will improve the journey amenity of cyclists and pedestrians through the provision of a dedicated pedestrian and cycle bridge over the Royal Canal and railway in proximity to the existing level crossing. This safer facility may also encourage an increase in active travel modes in the area, having an indirect *positive and long-term* effect on journey characteristics and journey amenity.

Clonsilla level crossing

The proposed development will permanently close the existing level crossing at Clonsilla without providing replacement infrastructure for non-vehicular road users to cross the rail corridor and the Royal Canal at this location. By removing the rail-road interface, the delays on the road network currently experienced by road users due to closures of the level crossing will be eliminated improving journey amenity for pedestrians and cyclists. Vehicular traffic will be redirected via the existing road network creating a 4.1 km to 5.9 km diversion. The traffic modelling analysis undertaken as part of Chapter 6 Traffic and Transportation determined that there will be a 'moderate' impact on vehicular traffic. The likely effect on journey amenity of these vehicular users is *negative, moderate, and long-term*.

The proposed development will improve the journey amenity of cyclists and pedestrians through the provision of a dedicated pedestrian and cycling footbridge over the Royal Canal. The segregated cycling and pedestrian facility may also encourage the uptake of active travel modes of travel in the area, having a *positive and long-term* effect on journey characteristics.

7.5.4.4.3 Community infrastructure

Castleknock substation

The proposed Castleknock substation and associated road access will be located within Laurel Lodge Green, a public park area. The proposed infrastructure will permanently reduce the footprint of this amenity area during the operation phase of the proposed development. As the amenity will largely remain functional, the potential effect is *negative, slight, and permanent*.

Coolmine substation

The Coolmine substation is located in an open space area on Sycamore Green adjacent to a residential cul-de-sac. It will result in a reduction in the size of the open space area, the potential effect is likely to be *negative, not significant, and permanent*.

Porterstown Pedestrian and Cyclist Bridge

The southern extents of the proposed cyclist and pedestrian bridge at Porterstown level crossing are located within the premises of St. Mochta's Football Club. The proposed bridge does not directly affect the playing pitches in the club, however existing access may be impacted. As part of Kellystown LAP it is proposed to relocate St. Mochta's Football Club to a new location, as such, the proposed development will not have a significant effect on this amenity over the long-term.

Ashtown level crossing

As part of the proposed road replacement works at Ashtown level crossing, the proposed development will redirect the vehicular traffic via the new underpass to the back of residential apartments, while moving it away from residential properties along Ashtown Road. As such, the residential amenity of some properties will slightly improve, but slightly decrease for others. Overall, the proposed development may have a *negative, not significant, and long-term* effect on residential amenity within Ashtown Village centre

Porterstown level crossing

The proposed development will permanently close vehicular access at Porterstown level crossing but improve access for pedestrians and cyclists. There is a range of community infrastructure located to the north and south of the level crossing, namely St. Mochta's National School, St. Mochta's FC, Scoil Choilm Community National School, Luttrellstown Community College and Luttrellstown Community Centre. Vehicular access will be redirected to the nearby Porterstown Viaduct which provides alternative access to the aforementioned areas and as such, no significant effects are envisaged during the operation phase.

Clonsilla level crossing

The proposed development will permanently close vehicular access at Clonsilla level crossing but improve access for pedestrians and cyclists. There is a range of community infrastructure located to the north and south of the level crossing, namely the Beechpark Allotments, Beechpark, and St. Mary's Church of Ireland. Vehicular access will be redirected via the new Barberstown road infrastructure, and the Porterstown Viaduct. This detour will increase the journey times to reach the aforementioned areas and will result in *slight, negative, and long-term* effects during the operation phase.

7.5.4.4.4 Severance

The proposed development will permanently remove the existing public rights of way over the existing level crossing at Ashtown level crossing, Coolmine level crossing, Porterstown level crossing and Clonsilla level crossing. At all four of these locations, pedestrian and cycle bridge infrastructure will be provided in proximity to the level crossings therefore acting as a new public right of way. Consequently, there is no severance to pedestrians and cyclists within Zone C.

Alternative vehicular access will not be provided to replace the existing 'at grade' level crossings at Coolmine, Porterstown and Clonsilla. Vehicular traffic will be redirected to the exiting road network. There will be *significant effects* for those communities located directly either side of the level crossing particularly those who rely on vehicular access. However, in general the effects to vehicular road users will result in *moderate, negative, and long-term impacts*.

Vehicular access will be maintained at Ashtown to the west of the existing level crossing via the proposed underpass structure. Consequently, there is no severance to vehicular road users at Ashtown.

7.5.4.4.5 Economic Impacts

The proposed development will impact on some economic operators as a result of the level crossing replacement works which is assessed as part of the Chapter 16 and 17 of this EIAR.

The proposed development will have a positive impact on local economy and the GDA by relieving aggregated congestion at the six existing level crossings and improving journey time reliability for all populations particularly, commuters and tourists. Furthermore, the rail service improvements will support sustainable compact growth and support economic development and improve competitiveness. In relation to tourism, the increased frequency of train services will improve connections to and from tourist destinations and will have a positive effect on both, the tourism economic operators and the rail transport as a service. The proposed development will have *positive, moderate, and long-term, direct and indirect effects* on the economy.

7.5.4.5 Zone D

7.5.4.5.1 Land Use Change

This section identifies elements of the proposed development within Zone D which are located outside of the existing railway corridor. The impact assessment of the potential land use changes is also provided.

Hansfield substation

The proposed Hansfield substation is located on zoned residential lands currently used for agricultural purposes adjacent to the railway line. Relevant planning policies are contained with draft Fingal CDP 2023-2029 and the Barnhill Local Area Plan (LAP) 2019 identify that this area of land is part of a large tract of residentially zoned land, 'RA – Residential Area' to *"Provide for new residential communities subject to the provision of the necessary social and physical infrastructure"*. The Barnhill LAP aims to deliver between 950 to 1150 residential units and associated amenity and educational facilities. The LAP includes a policy *"PU2 Facilitate the provision of an adequate supply of electricity and gas to developments in the plan area, to the requirements of the relevant service provider and in accordance with the principles of proper planning and sustainable development."* The proposed development conforms to this policy development. The location of the substation, close to existing rail services and the relatively small size of the substation development will not impact significantly this land use zoning particularly considering the positive effect improved services will have on the area and the zoned lands available for residential purposes, the impact on the land use is *negative, slight and permanent*.

Dunboyne and M3 substations

The proposed Dunboyne and M3 Parkway substations are both located within the train station carparks adjacent to the train line. The lands are zoned TU – Transport and Utilities to *"provide for essential transport and public utilities and infrastructure including rail stations, park and ride facilities, water and wastewater infrastructure, electricity, gas, and telecommunications infrastructure"* under the Meath County Development Plan 2021-2027. The proposed substations support the development of transport services and are therefore consistent with this zoning objective.

7.5.4.5.2 Journey characteristics and journey amenity

The proposed development is mainly confined to the existing perway within Zone D and as such, no additional potential operational phase effects on journey characteristics and journey amenity to those already outlined in Section 7.5.4.1.2 are envisaged.

7.5.4.5.3 Community Infrastructure

The proposed development is mainly confined to the existing perway within Zone D and as such, no additional potential operation phase effects on general amenity to those already outlined in Section 7.5.4.1.3 are envisaged.

7.5.4.5.4 Severance

The operation phase of the proposed development will not cause severance within Zone D.

7.5.4.5.5 Economic Impacts

The proposed development will have a positive impact on local economy and the GDA by relieving aggregated congestion at the level crossings and improving journey time reliability for all populations particularly, commuters and tourists. Furthermore, the rail service improvements will support sustainable compact growth and support economic development and improve competitiveness. In relation to tourism, the increased frequency of train services will improve connections to and from tourist destinations and will have a positive effect on both, the tourism economic operators and the rail transport as a service. The proposed development will have *positive, moderate, and long-term, direct and indirect effects* on the economy.

7.5.4.6 Zone E

7.5.4.6.1 Land Use Change

Barberstown level crossing

The proposed development will permanently close the existing Barberstown level crossing while providing road replacement infrastructure to maintain vehicular and non-vehicular access at this location over the Royal Canal.

The extents of the proposed Barberstown level crossing road replacement infrastructure to the south of the Royal Canal is largely located within agricultural lands which are zoned under the Fingal County DP 2017-2023 for HA- High Amenity to “*protect and enhance high amenity areas*”. Land use zoning for OS- Open Space to “*Preserve and provide for open space and recreational amenities*” also occurs either side of the Royal Canal. The proposed development will likely have *negative, slight, and permanent* effects on the HA- High Amenity land use zoning due to the scale and nature of the proposed road infrastructure. Potential effects on OS- Open Space land use zoning is likely to be *negative, not significant, and permanent* as the majority of the road will be carried over this land use via an overbridge.

Lands to the north of the existing Barberstown level crossing are also largely agricultural in nature but are zoned to be developed as part of the Barnhill LAP (2018) and the Hansfield SDZ Planning Scheme (2006) with the Fingal County DP 2017-2023 land use designation of RA – Residential Area to “*Provide for new residential communities subject to the provision of the necessary social and physical infrastructure*”.

It is proposed to develop the Barnhill–Ongar Road within the Barnhill LAP lands. The proposed Barberstown level crossing road replacement infrastructure will connect with the proposed Barnhill–Ongar Road ensuring that the future population within the Barnhill LAP are connected to the existing road network and have a link to the lands south of the Royal Canal.

The lands subject to the Hansfield SDZ Planning Scheme bound the M3 railway line and the Barberstown level crossing from the north. Sections of SDZ have already been developed, with existing land uses including hospital lands, residential units and existing road and rail infrastructure etc. Considering the aforementioned land uses, approx. 54.25 ha of the SDZ is available for new residential development. Hansfield SDZ has capacity for approximately 3,000 dwelling units on the available land.

By enhancing the vehicular and non-vehicular infrastructure at the Barberstown level crossing the proposed development will support the future land use trends and associated population growth to the north of the Royal Canal, having a *positive, significant, and long-term* effect on land use/development in this area.

Leixlip Confey substation

A new substation is proposed to be located within a green amenity area within a residential estate. The lands are zoned under Leixlip Local Area Plan (LAP) 2020 – 2023 for B: Existing /infill Residential. Due to the discrete location and the relatively small footprint of the proposed substation and access road within the B: Existing /infill Residential land use zoning, the potential effect on the land use zoning is *negative, slight, and permanent*.

OBG16 Cope Bridge

It is proposed to construct two footbridges either side of the existing Cope Bridge in Leixlip. The footbridge and the associated access roads are on lands zoned under Leixlip Local Area Plan (LAP) 2020 – 2023 for B: Existing /infill Residential and U: Transport and Utilities to the south of the level crossing. The potential effect of the proposed development on these land use zonings is *neutral*.

To the north of the level crossing, the proposed footbridges travel over lands zoned for F2 Strategic Open Space and MU: Mixed Use. The footprint of the proposed footbridge to the east of Cope Bridge is located on

a training ground currently used by the Confey GAA. The training grounds are zoned for MU: Mixed Use and are subject to development under the Confey Design Framework. The Framework proposes to move the training grounds to a new location to facilitate the mixed-use development. The proposed footbridges will have a *positive, long-term* effect mixed use land use zoning by improving the pedestrian and cyclist facilities across the Royal Canal and the rail line at this location. The potential effect on the F2 Strategic Open Space is likely to be *negative, slight, and long-term*.

Blakestown level crossing

Closure of the Blakestown level crossing

Due to the existing low levels of use by both vehicles and active modes the proposed development will permanently close the existing Blakestown level crossing. The project has determined that it does not require the investment of alternative infrastructure at this location. There is existing vehicular access available to properties that will be severed via the R449 and R418. Access will be maintained to the future Collinstown employment lands via the R449 Regional Road which will provide direct access further access improvements are likely to be proposed as part of the Masterplan (once it is prepared). The closure of the level crossing will result in a cul-de-sac arrangement at this location, no other direct land use impacts will occur, resulting in a not *significant, long-term impact* on existing land uses.

Blakestown substation

A new substation is proposed immediately south of the Blakestown level crossing on un-zoned agricultural lands within the administrative area of Kildare County Council outside of the Leixlip and Maynooth development boundaries. Due to the relatively small footprint of the substation, the potential effect on agricultural lands is *negative, slight, and permanent*.

7.5.4.6.2 Journey characteristics and journey amenity

Barberstown level crossing

The proposed development will permanently close the existing level crossing at Barberstown and provide segregated vehicular, pedestrian, and cyclist road infrastructure at this location. By removing the rail-road interface, the delays on the road network currently experienced by road users due to closures of the level crossing will be eliminated, however all traffic will be redirected to the existing road network creating a 1.3 km diversion. The traffic modelling analysis undertaken as part of Chapter 6 Traffic and Transportation determined that there will be a 'moderate' impact on vehicular traffic. Although the journey distance will be increase for road users, the upgrade to the road infrastructure will likely have a *positive, moderate, and long-term* effect on journey characteristics and journey amenity of road users.

Blakestown level crossing

The proposed development will permanently close the Blakestown level crossing for both vehicular and non-vehicular users. All traffic will be redirected to the existing road network creating a 3.4 km diversion. The traffic modelling analysis undertaken as part of Chapter 6 Traffic and Transportation determined that there will be a 'moderate' impact on vehicular traffic. The likely effect on journey amenity of vehicular users is *negative, moderate, and long-term*.

As there is a low number of pedestrians and cyclists utilising the existing Blakestown level crossing, the potential impact on journey characteristics and journey amenity is *negative, slight, and long-term*.

Cope Bridge

The proposed development will construction two footbridges either side of the existing Cope Bridge in Leixlip, which will segregate pedestrians and cyclists from road traffic, having *positive, moderate and long-term* effects on their journey characteristics and journey amenity.

7.5.4.6.3 Community infrastructure

Access to and from the Royal Canal amenity area will be impacted because of the closure of the level crossing. No additional potential operation phase effects on community infrastructure to those already outlined in Section 7.5.4.1.3 are envisaged.

7.5.4.6.4 Severance

Barberstown level crossing

The proposed development will permanently close Barberstown level crossing however, level crossing replacement infrastructure will be provided as part of the development to maintain access to road traffic across the canal and the railway line and create a new public right of way. Additionally, the proposed development will provide dedicated pedestrian and cyclist facilities at this location. Consequently, *imperceptible, long-term* community severance effects.

Blakestown level crossing

The proposed development will permanently close Blakestown level crossing. The level crossing is located in a rural area with low volumes of traffic utilising the crossing. The potential impact on community severance particularly for residential, agricultural properties either side of the level crossing is *negative, significant and permanent*.

As part of the Leixlip LAP 2020 -2023, lands to the east of the level crossing are zoned as the 'Collinstown Strategic Employment Lands' which will be subject to a Masterplan (Objective COL 1.1) Kildare CDP 2017-2023. This Masterplan will include a study of the required transportation provisions to be developed to accommodate the future growth of the area and will be considered as part of those plans.

7.5.4.6.5 Economic Impacts

The proposed development will have a positive impact on local economy and the GDA by relieving aggregated congestion at the level crossings and improving journey time reliability for all populations particularly, commuters and tourists. Furthermore, the rail service improvements will support sustainable compact growth and support economic development and improve competitiveness. The proposed development will likely have *positive, moderate, and long-term, direct and indirect effects* on the economy.

7.5.4.7 Zone F

7.5.4.7.1 Land Use Change

Maynooth substation

A new substation is proposed to be located within the confines of the existing car parking area of Maynooth station. The lands are zoned under Maynooth Local Area Plan (LAP) 2013 – 2019 (amendment No. 1) for J: Transport and Utilities to “*provide for and protect transportation infrastructure and public utilities*”. The proposed substation is consistent with the land use zoning objective for Transport and Utilities however, it will permanently reduce the number of car parking spaces for rail users by 10 spaces, having a *negative, slight, and permanent* effect on the car park.

Depot

The Kildare County Development Plan (CDP) 2017 – 2023 was reviewed to identify the land use zoning in the area. The depot is located on un-zoned agricultural lands within the administrative area of Kildare County Council outside of the Maynooth LAP and Kilcock LAP development boundaries. The proposed development will change the existing land use from agricultural to transport and depot facility. Due to the large footprint of the depot area, the potential effect on existing land use is neutral, *moderate, and permanent*.

7.5.4.7.2 Journey characteristics and journey amenity

The proposed development will construct a new bridge (OBG23A) and realign the L5041, an existing local road as part of the depot works.

7.5.4.7.3 Community infrastructure

Operation of the proposed depot will include maintenance works to the rail fleet on site and the increase in the movement of road vehicles to the area. The upgrades proposed to the existing road network will support the additional traffic movements to the depot. The depot is located adjacent to the Royal Canal Way used by community for recreational purposes the development will have a negative, not significant effect on general amenity.

7.5.4.7.4 Severance

The proposed development will demolish the existing farm access bridge over the railway line and the canal as part of the depot construction works. The existing bridge access is private property and therefore will not impact any public rights of way. The impact of the bridge demolition on the operation of the farm is assessed in Chapter 16 Material Assets and Land: Agricultural properties.

7.5.4.7.5 Economic Impacts

The operation of the proposed depot will generate employment for approximately 220 direct jobs. Comprising 113 jobs for the day shift and approximately 107 jobs for the night shift. Further indirect spin-off benefits to the local economy are likely due to supply of goods and services to the depot as well as the spin-off workforce benefits to the local economy. The additional employment will have a *positive, moderate, long-term* effect on the economy.

Furthermore, the rail service improvements will support sustainable compact growth and support economic development and improve competitiveness of the area. The proposed development will have *positive, moderate, and long-term, direct and indirect effects* on the economy.

7.6 Mitigation and Monitoring Measures

7.6.1 Construction Phase

As a result of this assessment the following mitigation measures are required to be implemented:

1. Implementation of the Construction Strategy and all mitigation measures set out in Chapter 5 Construction Strategy of this EIAR and in the other chapters of this EIAR – particularly those directly impacting communities which include: Chapter 6 Traffic and Transportation, Chapter 10 Water, Chapter 12 Air Quality, Chapter 14 Noise and Vibration, Chapter 9 Land and Soils, Chapter 16 Material Assets: Agricultural Properties, Chapter 17 Material Assets: Non-Agricultural Properties and Chapter 23 Human Health.
2. A Construction Environmental Management Plan (CEMP) will be required to be developed and implemented by the Contractor(s) to address all environmental issues including noise emissions from both machinery and noise from the workforce, dust minimisation, lighting spill on neighbouring residential areas at night-time, etc. The CEMP will be agreed with Iarnród Éireann prior to the commencement of the construction phase.
3. A Construction Traffic Management Plan (CTMP) will be required to be developed and implemented by the Contractor(s) to address all modes of transport during the construction stage and will be agreed with Iarnród Éireann and the respective local authority prior to the commencement of the construction phase.
 - a) The CTMP will be required to maximise the safety of the workforce and the public and to minimise traffic delays, disruption and maintain access to properties.

- b) The CTMP will also address temporary disruption to traffic signals, footpath access and the management of pedestrian crossing points, temporary disruption to rail traffic. It will also address the provision of appropriate temporary signage to direct road users to alternative car parking arrangements.
 - c) The CTMP will be required to minimise disruption to economic amenities, Royal Canal/marine users, and residential properties and will ensure access is maintained along haulage routes and in vicinity of the construction site(s) for vehicles, pedestrians, cyclists, and economic operators at all times.
 - d) A Mobility Management Plan will be developed by the Contractor(s) as part of the CTMP and will address all modes of transport and travel required to deliver the project during the construction phase. This will include details regarding construction workers travelling to site, car-parking, haulage routes and construction compounds.
 - e) In the interest of maintaining car spaces for rail passengers construction staff shall not be permitted to use large sections of the same station car parks for parking site vehicles where construction compounds are in situ -.
 - f) When railway services are planned to be disrupted for extended periods IÉ will provide suitable bus transfer services to replace the services affected.
 - g) IÉ will be required to communicate disruption to rail passengers and the public in advance of all construction works that will impact service users and road-based users. The campaign should seek to communicate replacement services available and/ or alternative routes. The notification shall include the proposed planned closure period of station car parking including the number of spaces to be affected.
4. The Contractor will be required to develop and implement a Stakeholder Management and Communication Plan (SMCP) which will be agreed with Iarnród Éireann prior to the construction phase.
 - a) The Employer will appoint a Public Liaison Officer, or equivalent, who will be consulted in the preparation of the Plan as well as its maintenance and implementation. The SMCP will provide the means of the stakeholder and members of the public to communicate with the project team, and for the project team to communicate relevant information of the project.
 - b) All stakeholders will be required to be agreed with Iarnród Éireann prior to construction commencing and reviewed periodically; and
 - c) Details of general construction process/phasing will be communicated to the relevant stakeholders prior to implementation to ensure local residents and businesses are fully informed of the nature and duration of construction.
 5. The Contractor will ensure that works within the Royal Canal requiring the closure of the canal will be limited to reduce potential impacts on the permitted navigational period and ensure appropriate licences and notifications are agreed with Waterways Ireland in advance of such closures.
 6. The Contractor will ensure that works within the Royal Canal requiring the closure of the canal and any boats/moored residential boats are notified well in advance (at least 6 months) and are accommodated elsewhere on the Canal system.
 7. The Broombridge replacement pedestrian bridge shall be designed to be accessible to all users.
 8. The main construction works at St. Vincent's School shall take place during summer months and in agreement with the school operators so as to reduce disturbance and negative impacts to student populations and facilities.
 9. During the construction works at OBO11 Castleknock and OBO16 Louisa Bridge IÉ will facilitate replacement pedestrian access to the public through the existing station footbridges at Castleknock and Leixlip (Louisa Bridge) at all times.
 10. Pedestrian access will be maintained during the construction works associated with OBG14 Cope Bridge (including the bridge deck modification works).

7.6.2 Operation Phase

The implementation of the mitigation measures identified throughout this EIAR will benefit the population in some form or another and are supported in this assessment. Specific mitigation measures associated with the population assessment for the operation phase include:

1. Installation of 24/7 monitored CCTV cameras at suitable locations in and around the proposed underpass at Ashtown level crossing which will be determined in consultation with An Garda Síochána and Fingal County Council as part of detailed design stage.
2. Design and maintain landscaping and public realm infrastructure to complement other environmental mitigation in this EIAR that promotes safety for all users and create a sense of place.
3. At detailed design stage the design team will ensure safety is integrated into the design and maintenance of public spaces with a focus on promoting a sense of safety and comfort for all users particularly the young, old and people with disabilities. The perspectives from trained professionals relating to designs affecting these user groups shall be included as part of the design team.
4. The public realm designs shall encourage passive surveillance of public spaces and on transport infrastructure, e.g., through appropriate lighting, pleasant surroundings and design that discourages anti-social behaviour, graffiti, etc.
5. Planned works including maintenance of the railway infrastructure shall be communicated to neighbouring properties as part of the CIÉ notification procedures.
6. Iarnród Éireann will continue to progress and support the implementation of future Park and Ride facilities to improve services and enhance sustainable mobility measures to support the DART+ West capacity enhancements in a planned and co-ordinated manner.
7. All level crossing replacement bridges and footbridges shall be designed to integrate with existing and future transport networks and promote sustainable mobility in line with government transport and decarbonisation/climate policies.
8. IÉ will consider community gain including biodiversity enhancement proposals along the proposed disused railway line in the vicinity of Jacksons Bridge— this mitigation measure will be subject to further investigation after IÉ determine if the railway line is surplus to requirements. IÉ will consult with Kildare County Council regarding any such future proposals.

7.7 Residual Effects

7.7.1 Construction Phase

7.7.1.1 Land Use Change

There is no opportunity for mitigating construction phase impacts on land use. The potential effects on land use are as stated in Section 7.5.3 of this Chapter.

7.7.1.2 Journey Characteristics and Journey Amenity

The potential residual effects on rail users are *negative, slight temporary impact due* to rail service disruptions. Following the implementation of mitigation measures, the potential residual effect on journey characteristics and journey amenity of road users is *negative, slight and temporary* along haulage routes and along localised road diversions.

7.7.1.3 Severance

Following the implementation of mitigation measures, residual effects on pedestrians and cyclists during the bridge modification works at OBO5 Broombridge Bridge, OBO11 Castleknock Bridge, OBO14 Leixlip Confey and OBO16 Leixlip Louisa Bridge is *negative, slight and temporary*.

There is no opportunity for mitigating construction phase impacts on mariners along the Royal Canal, where marine navigation will be severed to facilitate the construction works. The residual effect on the boating activities on the Canal is *negative, significant, short-term and reversible residual effect*.

7.7.1.4 **Community Infrastructure**

Following the implementation of mitigation measures, the potential residual effect for populations accessing community infrastructure including recreational facilities is *negative, slight, temporary to short-term* effects.

7.7.2 **Operation Phase**

7.7.2.1 **Land Use Change**

Overall, the proposed development will likely have *positive, significant and long-term* residual effect on the existing and emerging land use trends which support population growth and zoned development. Where elements of the existing development reduce the footprint of zoned land such as open spaces there is no opportunity for mitigation, and the potential effects on land use is as stated in Section 7.5.4 of this Chapter.

7.7.2.2 **Journey Characteristics and Journey Amenity**

The residual effects on journey characteristics and journey amenities for rail passengers are *positive, significant, long-term* effects. Following the implementation of mitigation measures associated with the vehicular level crossing closure at Coolmine, Porterstown, and Clonsilla, the residual effect for vehicular road users will be *negative, slight and long-term* due to increase in journey times to certain locations however the overall effect will be *positive* due to reduction in congestion levels. Following mitigation measures at Barberstown and Ashtown level crossing closures, the upgrade to the road infrastructure will have a *positive, moderate, and long-term* effect on journey characteristics and journey amenity for all road users. *Positive and long-term* residual effects are likely for pedestrians and cyclists at all level crossings, with the exception of Blakestown whereby residual effects remain as stated in Section 7.5.4 of this chapter.

7.7.2.3 **Severance**

No access to properties will be severed as a result of the proposed development. The residual effects on severance is as stated in Section 7.5.4 of this Chapter.

Alternative vehicular access is not provided to replace the existing at-grade level crossings at Coolmine, Porterstown and Clonsilla, with resulting *negative, slight permanent* residual community severance effects for properties and communities either side of crossing.

The Blakestown level crossing will be closed without providing replacement infrastructure. For the properties either side of the level crossing they will experience a *negative, significant and permanent residual community severance effects*.

7.7.2.4 **Community Infrastructure**

The proposed modernised electrified rail fleet and capacity enhancements will provide greater access by rail to existing community infrastructure including educational, community, medical, etc. by increasing the frequency of commuter services at train stations along the Maynooth and M3 Parkway rail lines. Commuters will be afforded with more options when choosing their time of departure to amenity areas and vice versa, having an *indirect, positive, and long-term* effect on general amenity areas.

7.8 **Cumulative effects**

The cumulative assessment resulting from the many minor or significant effects resulting from the entirety of the project is assessed as *positive, moderate and long-term* cumulative effects on the community and economy due to improvements in public transport infrastructure. The cumulative assessment of relevant plans and projects is undertaken separately in Chapter 26 of this EIAR.

7.9 References

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