Chapter 07
Population

CONTENTS

7. POPULATION

7.1 Introduction

This chapter has assessed the potential effects on Population arising from the DART+ Coastal North project ("the Proposed Development") during the Construction and Operational Phases based on the draft Railway Order, Chapter 4 (Description of Proposed Development) and Chapter 5 (Construction Strategy).

In accordance with the EPA Guidelines on the information to be Contained in Environmental Impact Assessment Reports (EPA, 2022), this chapter examines:

- Land use change
- Journey characteristics and journey amenity
- General amenity and community infrastructure
- Severance; and
- Economic activity

Population is a broad topic which interacts with other environmental factors to one degree of another. The principal interactions between the Population assessment are to be found with the following assessments and should be read in conjunction with these chapters in Volume 2 of this 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 14 (Noise and Vibration)
- Chapter 15 (Landscape and Visual)
- Chapter 16 (Material Assets: Agricultural Properties)
- Chapter 17 (Material Assets: Non-Agricultural Properties)
- Chapter 23 (Human Health); and
- 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 (Section 7.5). Section 7.6 sets out the mitigation measures proposed to avoid, reduce, and/or mitigate the impacts identified, with details of any residual impacts described in Section 7.7.

7.2 Legislation, Policy and Guidance

7.2.1 Legislation

The Population assessment has been undertaken in accordance 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 2001 Act"), and 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 2001 Act.

7.2.2 Policy

The following policy documents have informed the Population assessment:

- "Project Ireland 2040" – National Planning Framework; and National Development Plan 2021-2030 (Government of Ireland, 2018)
- Greater Dublin Area Transport Strategy 2022-2042 (NTA, 2022)
- Transport Strategy for the Greater Dublin Area 2016-2035 (NTA, 2016)
- Eastern and Midland Assembly Regional Spatial and Economic Strategy 2019-2031 (EMRA, 2018)
- Greater Dublin Area Cycle Network Plan (GDA, 2021)
- Dublin City Development Plan 2022-2028 (DCC, 2022)
- Fingal Development Plan 2023-2029 (Fingal County Council, 2023)
- Local Area Plan for Donabate 2016 (extended until 2026) (Fingal County Council, 2016)
- Meath County Development Plan 2021-2027 (Meath County Council, 2021)
- Louth County Development Plan 2021-2027 (Louth County Council, 2021); and
- Planning Strategy for the Greater Drogheda Area (Drogheda, East Meath, South Louth) (Louth County Council, 2022)

7.2.3 Guidance

The Population assessment has been undertaken in accordance with the following guidance relevant to environmental impact assessment in Ireland:

- Guidelines on information to be contained in the Environmental Impact Assessment Reports (EPA, 2022)
- Draft Advice Notes for preparing Environmental Impact Statements (EPA, 2015); and
- Guidelines on the Treatment of Tourism in an Environmental Impact Assessment (Failte Ireland, 2011)

7.3 Methodology

7.3.1 Study Area

The study area for the Proposed Development has been defined with consideration of the extent of potential impacts arising during the Construction and Operational Phases and is informed by the availability of relevant demographic data for the main settlements along the railway line and for Electoral Divisions (EDs) (see Table 7-1).

While most impacts are likely within 500m either side of the Proposed Development, it is possible that the proposed project could impact on populations and activities across a wider area, for example in relation to vehicle traffic movements during Construction Phase. Therefore, relevant population and demographic data have also been collected at county level for Dublin City, County Fingal, County Meath and County Louth. Community facilities and businesses within 100m of the Proposed Development have been identified in the assessment (see Figure 7.1 – Land Use Survey, in Volume 3A of this EIAR) along with key facilities outside of this corridor. Table 7-1 and Figure 7.2 (Electoral Divisions), in Volume 3A of this EIAR, show the EDs along the DART+ Coastal North project.

Table 7-1 Electoral Divisions (ED) along the Northern line or which contain areas where works are contained

Nearest Station	Electoral Division	County / Local Authority administrative area
Harmonstown/Raheny	Clontarf East A	Dublin City
Killester	Clontarf East B	Dublin City
Clontarf West/Killester	Clontarf East C	Dublin City
Clontarf West/Killester	Clontarf East D	Dublin City
Killester	Clontarf East E	Dublin City
Killester	Clontarf West A	Dublin City
Killester	Clontarf West B	Dublin City
Clontarf West/Killester	Clontarf West C	Dublin City
Clontarf Road (Fairview Depot) *	Clontarf West D	Dublin City
Harmonstown	Harmonstown A	Dublin City
Harmonstown/Raheny	Harmonstown B	Dublin City
Raheny	Edenmore	Dublin City
Raheny	Ayrfield	Dublin City
Howth Junction Donaghmede*/ Clongriffin*	Grange A	Dublin City
Clongriffin*	Grange B	Dublin City
Howth Junction & Donaghmede*	Grange C	Dublin City
Raheny/Kilbarrack	Grange D	Dublin City
Raheny	Grange E	Dublin City
Raheny	Raheny St. Assam	Dublin City
Kilbarrack	Raheny-Foxfield	Dublin City
Kilbarrack/ Howth Junction & Donaghmede*	Raheny Greendale	Dublin City
Baldoyle/Sutton	Sutton	Fingal
Howth	Howth	Fingal
Baldoyle/Clongriffin*	Baldoyle	Fingal
Portmarnock South	Balgriffin	Fingal

Nearest Station	Electoral Division	County / Local Authority administrative area
Portmarnock South	Portmarnock	Fingal
Portmarnock South/Malahide*	Kinsaley	Fingal
Malahide*	Malahide East	Fingal
Malahide*	Malahide West	Fingal
Malahide*	Swords-Seatown	Fingal
Donabate	Donabate	Fingal
Lusk*	Lusk	Fingal
Lusk	Rush	Fingal
Skerries	Holmspatrick	Fingal
Skerries	Skerries	Fingal
Skerries*/Balbriggan	Balbriggan Rural	Fingal
Balbriggan	Balbriggan Urban	Fingal
Balbriggan	Balscadden	Fingal
Gormanston	Stamullin	Co. Meath
Laytown	Julianstown	Co. Meath
Drogheda	St Mary's (Meath)	Co. Meath
Drogheda	St. Mary's (part Louth)	Co. Louth
Drogheda	St. Lawrence Gate	Co. Louth
Drogheda	West Gate	Co. Louth
Drogheda	Fair Gate	Co. Louth
Drogheda	St. Peters	Co. Louth

7.3.2 Survey Methodology

7.3.2.1 Desktop Study

A desk-based assessment has been undertaken based on drawings and maps provided by the design team, in combination with information obtained on the location of residential development, commercial and industrial development, community facilities and transport infrastructure in the vicinity of the Proposed Development. Data has also been collected on demographic trends, economic activity, recreation and tourism. The data sources are described further in Section 7.3.2.2.

7.3.2.2 Data Sources

The Population assessment requires an understanding of the community and of the characteristics of the study area. The assessment has been informed by relevant planning policy, demographic data, information obtained from site visits, consultation feedback from the public, stakeholders and community representatives.

- In addition to the range of relevant planning and transport policy documents listed in Section 7.2.1, data sources used for this assessment include Census 2022, 2016 and 2011 data as issued by the Central Statistics Office (CSO)
- other relevant environmental data considered during the environmental assessment contained in this EIAR, particularly traffic, noise, air, landscape and visual, and material assets
- aerial photography including Google Maps and Google Earth
- maps of the Proposed Development along with OSi maps numbers 36, 43 and 50;
- reports and submissions from the public consultation process; and
- site visit to confirm land use, transport and pedestrian movements in the study area

7.3.2.3 Survey

A walkover survey was undertaken in May 2023 and in September 2023 at locations where key infrastructure is proposed as part of the Proposed Development. The survey was carried out to inform the assessment of the baseline environment by confirming the location of land uses, settlement patterns, and the sensitivity of receptors within the 500m study area corridor and to observe traffic and pedestrian movements. Important elements of community infrastructure include:

- schools and educational facilities
- work places, including offices and industrial facilities
- amenity space and sports facilities
- churches and other religious buildings
- shops and other retail outlets
- medical facilities and hospitals; and
- accommodation and tourist infrastructure

7.3.3 Consultation

Consultation for the Proposed Development has been undertaken with the general public, statutory consultees, business and community groups. Chapter 1 (Introduction) and Chapter 3 (Alternatives) describes the consultation undertaken for the Proposed Development and provides a summary of the feedback received.

Appendix A3.1 and Appendix A3.2 in Volume 4 of this EIAR includes the consultation findings reports for the two public consultations held for the Proposed Development. Close collaboration with the project team and other specialists has also helped to inform the assessment.

7.3.3.1 Public Consultation No. 1 (PC1) Feedback

A total of **2,115 submissions** were received by Iarnród Éireann via the communication channels provided. Submissions received after the close of the public consultation period (08th of April 2022) continued to be accepted and are taken into consideration as part of an overall body of feedback on the content of Public Consultation No.1. The feedback received ranges from personal submissions from affected residents and commuters to detailed proposals from public bodies and various associations.

Due to the largely digital nature of the public consultation (as a result of Covid-19), it was common for the respondents to submit queries via email seeking further information or clarity regarding the Emerging Preferred Option.

Of the 444 email submissions received, 315 related to registration for online webinars, 43 contained both comments and queries, 86 consisted of comments only. Of the 1,652 feedback forms received, 69 forms contained queries. Every effort was made during the public consultation period to respond to those correspondences containing queries to allow people make an informed submission.

It was requested during public webinars, by webinar participants, that all comments, suggestions, objections, and general feedback provided during the public webinars would be considered as part of the overall submission analysis. While it was recommended that formal submissions should be made to ensure specific feedback and queries were captured, comments and feedback from these webinars have been assessed and considered as part of the public consultation process. Feedback received through webinar forums carried the same weight as feedback received through feedback forms, phone calls, emails, or letters.

7.3.3.2 Public Consultation No. 2 (PC2) Feedback

A total of **1,748 submissions** were received by Iarnród Éireann via the communication channels provided. Submissions received after the close of the public consultation period (23rd June 2023) continued to be accepted and are taken into consideration as part of an overall body of feedback on the content of Public Consultation No.2.

Table 7-2, below, includes submissions that were received up until the 07th July 2023 (including those received up to two weeks of submissions post PC2).

Table 7-2 Public Consultation No.2 Submissions

Channel	Number of Submissions
Feedback Forms	1,304 (1,295 digital* & 9 hard-copy forms)
Emails	407 (123 containing queries)
Phone Calls	19
Letters	18
Total	1,748

* A limited number of digital feedback forms submitted contained limited or no actual information.

The feedback received ranges from personal submissions from affected residents and commuters to detailed proposals from public bodies and various associations.

Further detail on PC1 and PC2 consultations can be found in Appendix A3.1 and Appendix A3.2 in Volume 4 of this EIAR.

Of the submissions, the largest number (1,472) referenced the Howth Branch. There were concerns about the possible introduction of a shuttle service and the associated potential requirement to change trains at Howth Junction and Donaghmede Station, as well as security issues at the station and concerns relating to level crossing closures and impacts on traffic. Aside from the Howth Branch, the key concerns related to journey time, safety, and traffic impacts, train frequency, capacity and reliability, station facilities, development/planning implications, access and mobility, noise and health, and environmental and heritage impacts. Positive submissions referred to the prospect of improved reliability, frequency of services, capacity of services, and to the extension of DART services to Drogheda.

7.3.4 Population Impact Assessment Categories

The purpose of the Population assessment is to identify the likely significant impacts that the Construction and Operational Phases of the Proposed Development may have on the population and communities. Impacts are compared between the Do-Minimum and the Do-Something scenarios and result from direct, indirect, induced and cumulative effects.

The EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022) describe the significance of an effect as being determined by the relationship between the nature of the environmental effect, including:

- the magnitude of the effect
- the duration, frequency and probability of the effect

and the nature of the existing environment, namely:

- the size or extent of the area or population affected
- the significance of the location, community facility or workplace affected; and
- the sensitivity of the local population and its capacity to absorb change

7.3.4.1 Nature of environmental effect and magnitude

As the assessment deals primarily with the social and economic impacts of a development, type and magnitude are often determined by the physical nature of environmental effects which are addressed by other specialist assessments such as Noise and Vibration, Air Quality or Landscape and Visual. The Population assessment takes its lead from these assessments and reference is made to these chapters in the text. Other effects fall more exclusively in the realm of Population such as accessibility, severance and economic effects, although projections of traffic movement and volumes may be relevant here too.

7.3.4.2 Sensitivity of the existing environment

While the Population assessment is informed by the assessment of environmental effects in other chapters, a distinction arises in terms of the degree to which the effect is realised by people as "receptors" depending on the time they are exposed to an effect, their proximity and their numbers. In addition, people's sensitivity to effects will depend on their individual characteristics. Receptor groups which are particularly sensitive include children, older people and people with disabilities. Sensitivity also depends on:

- The location in which impacts are realised by people, e.g. at home, at community facilities, when travelling from one destination to another; and
- The capacity of the population to absorb change

Community facilities may be described as sensitive because they are sensitive to certain types of impact, but also because they are used by sensitive population subsets as with schools and children. Significance is influenced by the importance of a community facility to the local community or to certain population subsets. In addition, impacts on individual businesses are assessed. In this case, sensitivity will be influenced by the nature of the business and the dependence of its operations on good accessibility or its effect of environmental impacts such as air quality, noise and vibration, water quality, or landscape in the case of tourism. Significance is influenced by the importance of a business to the local economy and the level or type of employment it provides.

Impacts can be positive, neutral, or negative. The significance of an impact can be described as imperceptible, slight, moderate, significant, very significant or profound. Its duration may be described as momentary, brief, temporary, short-term, medium-term, long-term, permanent or reversible in accordance with the timescales detailed in Table 7-3 below.

The frequency of that impact can also influence significance i.e., if the effect will occur once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, or annually. For example, disruption to road traffic 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 and businesses 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 7-3 which has been adapted in accordance with the EPA Guidelines (EPA, 2022).

Effects for individual properties and businesses are also discussed, where appropriate, in Chapter 16 (Material Assets: Agricultural Properties) and Chapter 17 (Material Assets: Non-Agricultural Properties) in Volume 2 of this EIAR.

Table 7-3 Criteria used to assess and describe population effects (adopted from EPA 2022)

Quality of effects	
Positive	A change which improves the quality of the environment as realised or perceived by human beings.
Neutral	No effects realised or perceived by human beings, 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 as realised or perceived by human beings.
Significance of an effect	
Imperceptible	An effect capable of measurement but without significant consequences on Population.
Not Significant	An effect which causes noticeable changes in the character of the environment as realised or perceived by human beings without affecting its sensitivities.
Slight effects	A small effect which causes noticeable changes in the character of the environment realised or perceived by human beings without affecting its sensitivities.
Moderate effects	An effect that alters the character of the environment as realised or perceived by human beings 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 environment as realised or perceived by human beings.
Very significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment as realised or perceived by human beings.
Profound Effects	An effect which profoundly impacts on characteristics of the environment as realised or perceived by human beings, especially as it effects sensitive subsets of the population
Describing the extent and context of effects	
Extent	The size of the area, the number of sites, and the proportion of a population affected by an effect.
Context	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).

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

- Land use change
- Journey characteristics and journey amenity
- General amenity including community infrastructure
- Community severance; and
- Economic activity, including tourism and employment

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

7.3.4.3 Land use change

The assessment of land use change will examine whether the Proposed Development conforms with land use policy and whether it will change the intensity of patterns, types of activities and land uses. A review of planning policy was undertaken along with an assessment of the existing and emerging baseline and its capacity to absorb potential change due to the Proposed Development.

The impacts associated with acquisitions of private property are specifically identified and assessed in Chapter 16 (Material Assets: Agricultural Properties) and Chapter 17 (Material Assets Non-Agricultural Property) of Volume 2 of this EIAR. If the Railway Order (statutory consent) for the Proposed Development is granted, compensation for impacts will be assessed as part of a separate process, following appropriate liaison with the property owners.

7.3.4.4 Journey characteristics and journey amenity

The assessment of journey characteristics (length, duration and journey patterns) is inevitably dependent on precisely where an individual journey originates and ends, when it is undertaken (e.g. within or outside peak hours) and by whom it is undertaken, i.e. by drivers, cyclists, users of public transport or pedestrians including individuals whose transport options may be restricted. Journey length refers to the distance associated with a particular journey, whilst duration is the time taken to make the journey. Aside from the operational impact on rail services, the impacts of the Proposed Development on journey characteristics arise mainly from temporary road and footpath closures and diversions. The assessment is cross-referenced, where necessary, with relevant Chapter 5 (Construction Strategy) and Chapter 6 (Traffic and Transportation) in Volume 2 of this EIAR. While the significance of impact varies for each journey, common destinations can usually be identified.

Impacts on journey amenity from the Proposed Development arise largely from the use of the local road network by construction vehicles. The assessment of journey amenity is supported by cross-reference, where necessary, with the relevant specialist chapters such as Chapter 14 (Noise and Vibration), or Chapter 12 (Air Quality) in Volume 2 of this EIAR. The level of traffic on a road, the proximity and separation of footpaths and cycle-paths, the nature of any detours or road crossings, the legibility of a journey (including signage), visual intrusion (including sightlines) and safety for all road users, are amongst the factors relevant to the assessment of journey amenity, as are the number and types of people affected. There are interactions between the assessment of journey amenity and those for journey characteristics and community severance (discussed below).

7.3.4.5 General amenity and community infrastructure

Observations can also be made with regard to effects on the general amenity (including residential amenity) and community infrastructure for people living in the vicinity of the Proposed Development. The key criterion here is community wellbeing, including social sustainability and the effect of the Proposed Development on nearby residents and use of community facilities. Direct impacts on communities due to large numbers of residential demolitions or the loss of open space can also impact on community wellbeing or social interaction. At a community level, indirect impacts may result from changes in environmental quality, for instance, from noise or visual intrusion. The effect of noise or air quality on people's health is specifically addressed in Chapter 23 (Human Health) in Volume 2 of this EIAR.

Community facilities are important for community well-being and can be physical, social, and economic in nature. Such facilities are valuable for large sections of the population, including for sensitive subsets. They include schools and colleges, health facilities, places of worship, public spaces or places to relax, playing pitches and sports grounds, community centres, and libraries. Places of employment, shops and bars are also relevant.

In this chapter, the significance of environmental effects arising from noise are informed by Chapter 14 (Noise and Vibration), although are referenced with respect to the sensitivity of the local population and the distance to community facilities or residential development. In all cases, the treatment of noise defers to the specialist assessment provided in Chapter 14 (Noise and Vibration).

7.3.4.6 Community Severance

The effect of community severance is to discourage pedestrian or cyclist movement and community interaction. Physical severance often occurs as an impact of linear infrastructure development such as rail lines or roads.

Its effect is to discourage community interaction and it occurs where access to community facilities or between neighbourhoods is impeded by a lengthening of journey time or by physical barrier(s). On the other hand, relief from existing severance may occur due to new crossing facilities or where traffic volumes or speed are moderated.

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.

For this Proposed Development, there are few instances of severance, for example as a result of bridge works in Drogheda. This severance will only occur as a consequence of short-term road traffic diversions during the Construction Phase.

7.3.4.7 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. In general, economic effects are assessed in this assessment at a community level, although distinct impacts may be addressed where they affect identifiable local business or are detailed in Chapter 17 (Material Assets: Non-Agricultural Properties) in Volume 2 of this EIAR. Other economic effects could affect the wider community, for example where a number of businesses are affected, in the case of tourism, or where the retail or business environment of a city / town is impacted.

As there will be numerous interventions during the Construction Phase, these have been assessed sequentially for each zone with effects on land use, journey characteristics and amenity, general amenity and community infrastructure, severance and economics identified for each intervention in turn. However, a summary of effects is provided in Table 7-16 and Table 7-17 for both the Construction and Operational Phases respectively and here the impacts have been grouped by type.

7.3.5 Difficulties Encountered / Limitations

No significant issues were encountered during the assessment.

7.4 Receiving Environment

7.4.1 Introduction

This section presents a description of the baseline environment as it relates to Population.

A summary of the context of the Proposed Development is first presented, followed by the population context, character, significance, and sensitivity of the study area. An overview of the land use, population demographics, and economic activity relevant to study area is presented.

7.4.2 Land Use

The DART+ Coastal North project will include interventions along c.50km of the Northern Line from just north of Connolly Station to Drogheda, inclusive of the Howth Branch. It involves the electrification of c37 km of the existing railway line from north of Malahide to Drogheda, to enable the extension of DART services as far as Drogheda MacBride Station. Stations on the Northern line within the Proposed Development area include Clontarf Road, Killester, Harmonstown, Raheny, Kilbarrack, Howth Junction and Donaghmede, Clongriffin, Portmarnock, Malahide, Donabate, Rush and Lusk, Skerries, Balbriggan, Gormanston and Laytown. The stations at Bayside, Sutton and Howth are connected to Howth Junction and Donaghmede by the Howth Branch.

Chapter 2 (Policy Context and Need for the Project) in Volume 2 of this EIAR details the background and policy context for the project. It details how the project will support the current and future populations and the economy and how it will contribute to a sustainable public transport network which will support the achievement of the national climate targets.

The project is supported by Project Ireland 2040, the National Planning Framework (NPF) and by the Exchequer as part of the National Development Plan 2021-2030 in which it is identified as a strategic investment priority and a key public transport investment. It will contribute to several of the National Strategic Outcomes (NSOs), specifically NSO 1 Compact Growth, NSO 2 Enhanced Regional Accessibility, NSO 4 Sustainable Mobility, and NSO 8 Transition to a Low Carbon and Climate Resilient Society. The Proposed Development is also included within the Regional Spatial and Economic Strategy 2019-2030 of the Eastern and Midland Regional Assembly.

7.4.3 Population

Between the Census of 2016 and 2022 the population of County Dublin rose by 8.2%, or 103,342, to 1,405,154, while that of County Meath rose by 13.2%, or 25,782, and County Louth by 8.4%, or 10,819, to 138,703. Natural population growth accounted for around half of this increase with the balance coming from net in-migration. Net migration accounted for 45.1% of the population increase in County Dublin between 2016 and 2022 at 46,559 persons, but this was exceeded by migration into Counties Meath and Louth at 59.0% and 50.6% respectively.

Table 7-4 illustrates this uplift in population growth and shows how it represents a continuation of trends since 2007. Table 7-4 and Table 7-5 together show that much of this increase occurred in County Meath and the administrative county of Fingal as new residential development has accommodated a disproportionate proportion of population growth in the Dublin Metropolitan Area. Much of this development has been accounted for by new development in Swords, but this residential expansion is now extending west towards Portmarnock and northwards around Donabate and Skerries. In total, the number of private households in Dublin City, Fingal, Meath and Louth is 418,241 as of 2022, of which 23.1% are in Fingal, 15.4% are in Meath and 10.9% are in Louth.

Table 7-6 shows that, by Electoral Division (ED), the level of population growth has been more varied, although only a small number of EDs, mostly in Dublin City, have experienced a reduction in population and here it has been slight. Other EDs have experienced considerable growth, often supported through large-scale residential, and especially, apartment development. Balgriffin, for example, has experienced growth of 77.8%. Elsewhere, in Dublin City, Clontarf West, Grange A, and especially Grange B, have had significant growth. Significant growth is also apparent in the vicinity of the railway line in Portmarnock South beside Balgriffin and further north in Donabate.

Table 7-4 Population 2007-2022 – Counties (CSO, 2016 and 2022)

County	Population 2022	% change 2016-22	% change 2011-16	% change 2007-11
Co Dublin	1,405,154	8.2	5.8	7.2
Co. Meath	220,826	13.2	5.9	13.1
Co. Louth	139,703	8.4	4.9	10.5
State	5,149,139	8.1	3.8	8.2

Table 7-5 Population 2007-2022 – Administrative counties (CSO, 2016 and 2022)

County	Population 2022	% change 2016-22	% change 2011-16	% change 2007-11
Dublin City	592,713	6.9	5.1	4.2
Fingal	330,506	11.6	8.1	14.3

Table 7-6 Electoral Divisions – Population 2022 (CSO, 2022)

ED	Population 2022	% change 2016-2022	Electoral Division	Population	% change 2016-2022
County Dublin			**County Dublin**		
Ayrfield	5,814	3.1	Grange D	3,946	-1.5
Balbriggan Rural	19,167	16.2	Grange E	2,566	-4.3
Balbriggan Urban	8,125	0.1	Harmonstown A	2,855	1.7
Baldoyle	8,106	7.7	Harmonstown B	2,903	5.3
Balscadden	744	5.2	Holmpatrick	4,173	20.7
Balgriffin	5,536	77.8	Howth	8,369	0.9
Clontarf East A	3,641	5.9	Kinsaley	11,542	20
Clontarf East B	7,111	0.1	Lusk	10,646	10.6
Clontarf East C	3,190	0.2	Malahide East	8,420	13.3
Clontarf East D	2,860	3.4	Malahide West	6,025	-2
Clontarf East E	1,736	-3.1	Portmarnock North	4,050	-1.4
Clontarf West A	3,787	3.5	Portmarnock South	4,751	31.2

ED	Population 2022	% change 2016-2022	Electoral Division	Population	% change 2016-2022
Clontarf West B	2,425	0.6	Raheny-Foxfield	2,535	1.9
Clontarf West C	4,512	23.3	Raheny-Greendale	2,258	4.1
Donabate	11,702	24.5	Raheny-St. Assam	3,907	6.4
Edenmore	2,832	-0.1	Rush	11,042	11.3
Grange A	12,552	29.5	Skerries	8,879	4.4
Grange B	7,441	39.7	Sutton	5,773	1.6
Grange C	3,035	-1.5	Swords-Seatown	7,489	6.9
County Meath			**County Louth**		
Julianstown	11,474	12.8	Fair Gate	10,935	4.9
St. Mary's (Part Rural)	16,438	38.6	St. Laurence Gate	4,213	3.6
Stamullin ED	5,489	9.6	St. Mary's (Part Urb)	6,709	-2.2
			St. Peter's	10,858	11.7
			West Gate	6,487	2.9

7.4.3.1.1 Socio-economic characteristics

The EDs have a lot of physical variation, both in terms of the total area they cover and their mix of urban and rural development. This can have the effect of obscuring local variation in economic status, social class and measures of deprivation. Consequently, Table 7-7 shows this variation at the level of the principal settlements in the rail corridor from where most passengers can be expected to commence their journeys.

The table indicates that the levels of people over 15 years of age at work vary between 38.5% and 65.7%. Much of this variation is due to significant differences in the proportion of the population who are either retired or unable to work. For example, the figures for Portrane partly reflect the presence of the National Forensic Mental Health Facility, while those for Gormanston, include the Mosney Accommodation Centre which has 800 residents, including mainly international asylum applicants. Unemployment, both short and long term, is relatively high in Drogheda West Gate and Balbriggan as reflected in the values reported by the latest Pobal HP Deprivation index (2023) of -11.80 (disadvantaged) and -4.70 (slight disadvantage) respectively compared with, for example, 9.00 and 9.61 (marginally above average) for Malahide West and Malahide East.[1]

[1] The Pobal HP Deprivation Index is a score which demonstrates the relative level of disadvantage in an area based on three dimensions of demographic profile, social class, labour market including indices such as unemployment, lone parent ratio, age dependency, socio-economic status, education, etc.

Table 7-7 Principal economic status – percent main settlements* (CSO, 2022)

	Total	At work	Looking first job	Short-term un employ	Long term un employ	Student	Home maker	Retired	Unable to work	Other
Howth ED	3,415	48.8%	0.5%	1.1%	1.3%	11.7%	8.6%	25.3%	2.2%	0.5%
Portmarnock	4,778	56.5%	0.4%	1.2%	1.2%	8.5%	7.0%	22.8%	2.1%	0.4%
Malahide	8,400	56.4%	0.4%	1.2%	1.2%	11.9%	7.3%	19.7%	1.6%	0.3%
Donabate	4,831	65.7%	0.6%	1.7%	2.0%	14.0%	5.5%	7.6%	2.5%	0.3%
Portrane	515	48.1%	0.5%	1.9%	1.6%	10.6%	4.2%	21.8%	11.0%	0.3%
Rush	4,969	58.8%	0.8%	1.8%	2.0%	12.9%	7.1%	12.5%	3.5%	0.6%
Lusk	4,094	63.5%	0.5%	1.7%	2.6%	13.2%	6.6%	7.7%	3.8%	0.5%
Loughshinny	291	47.2%	0.8%	1.8%	0.5%	12.0%	7.9%	26.6%	2.9%	0.3%
Skerries	4,725	56.2%	0.4%	1.6%	1.7%	11.4%	6.6%	18.8%	2.9%	0.4%
Balbriggan	10,430	57.5%	1.4%	2.3%	3.4%	13.4%	7.4%	9.1%	5.0%	0.5%
Gormanston	131	38.5%	0.3%	1.2%	1.5%	16.2%	5.6%	33.8%	2.9%	0.0%
Laytown/ Bettystown	7,032	59.1%	1.0%	1.9%	2.7%	11.4%	6.9%	12.3%	4.0%	0.7%
Drogheda	19,291	54.9%	1.2%	2.1%	3.7%	11.0%	6.6%	14.5%	5.4%	0.6%

*Except Howth for which only ED data is available.

In terms of the socio-economic groups, Table 7-8 shows that Balbriggan also has a rather low proportion of its population as either Professional workers or of people working in the Managerial and Technical group. Low figures are also evident for Rush and Julianstown. The proportion of semi-skilled workers and unskilled workers is, by comparison, lowest in Loughshinny and Laytown/ Bettystown, while figures for the unskilled subsets do not exceed 3.9% in any settlement.

Table 7-8 Socio-economic groups – percent main settlements (CSO, 2022)

	Total	Professional workers	Manager and technical	Non-manual	Skilled manual	Semi-skilled	Unskilled	Others employed
Howth	1,600	19.0%	44.6%	15.0%	6.0%	5.5%	0.6%	9.2%
Portmarnock	1,623	16.4%	49.3%	19.6%	0.0%	5.3%	0.9%	8.5%
Malahide	3,053	16.4%	48.1%	16.1%	6.4%	4.3%	1.0%	7.6%
Donabate	1,216	12.6%	45.2%	16.9%	8.5%	7.3%	1.5%	8.0%
Portrane	86	6.8%	36.8%	14.3%	12.7%	12.6%	2.1%	14.7%

	Total	Professional workers	Manager and technical	Non-manual	Skilled manual	Semi-skilled	Unskilled	Others employed
Rush	698	6.4%	35.4%	19.3%	12.7%	11.4%	2.9%	11.9%
Lusk	613	7.0%	35.3%	18.3%	14.0%	9.9%	2.7%	12.8%
Loughshinny	97	13.1%	34.8%	13.8%	10.1%	9.2%	2.7%	16.3%
Skerries	1,437	13.4%	43.4%	17.7%	8.9%	7.5%	1.5%	7.7%
Balbriggan	1,232	5.1%	26.7%	19.0%	14.3%	14.2%	3.6%	17.2%
Gormanston	29	7.6%	21.6%	11.1%	13.2%	8.9%	2.4%	35.3%
Laytown/ Bettystown	1,338	8.6%	35.9%	18.2%	13.4%	10.1%	2.6%	11.3%
Drogheda	2,691	6.1%	27.8%	16.8%	13.7%	13.8%	3.9%	17.8%

7.4.3.1.2 Transportation

Table 7-9 and Table 7-10 provide information on transportation choices and behaviour of people in counties most relevant to the investment in the Proposed Development. Table 7-9 shows that for these counties, the highest proportion of people travel to work by car, mainly as the driver, but also as a passenger. The figures do vary, however, with the highest proportion being 64.3% for County Meath and the lowest of 28.2% being recorded for Dublin City where more alternatives are available including travel by foot, bicycle or public transport. Outside of Dublin, there is also less opportunity to combine journeys to work with drop-offs at school or college. Journeys by train, DART or LUAS total 17,846 per working day into Dublin City or 6.1% of the total but are higher in the Fingal County Council area at 7.0%, even though Swords is not directly connected by either DART or Metro services. Journeys by foot are also significantly higher in Dublin City as might be expected given the greater likelihood of proximity to workplaces, school or college. In 2016, only small numbers of people were working from home, although this situation has now changed with an average of 11.2% of people of working age now doing so, if not necessarily for each day of the working week.

Table 7-9 Mode of travel to work – Percent all persons by county (CSO, 2022)

Admin County	Total	Train, Dart or Luas	Foot	Bike	Bus	Car driver	Car pass-enger	Van or lorry	Other	Work mainly from home	Not stated
Dublin City	294,327	6.1%	15.6%	9.0%	13.4%	26.3%	1.9%	2.1%	0.9%	11.7%	13.0%
Fingal	153,686	7.0%	4.7%	2.4%	10.1%	48.3%	3.2%	3.9%	0.9%	12.4%	7.1%
Meath	100,510	1.2%	5.0%	0.6%	4.9%	60.4%	3.9%	7.8%	0.9%	11.0%	4.2%
Louth	58,731	1.2%	9.1%	2.0%	4.1%	54.2%	5.1%	6.8%	0.8%	9.6%	7.3%
State	2,782,839	2.2%	6.4%	2.2%	4.3%	43.1%	3.0%	5.3%	0.8%	26.9%	5.9%

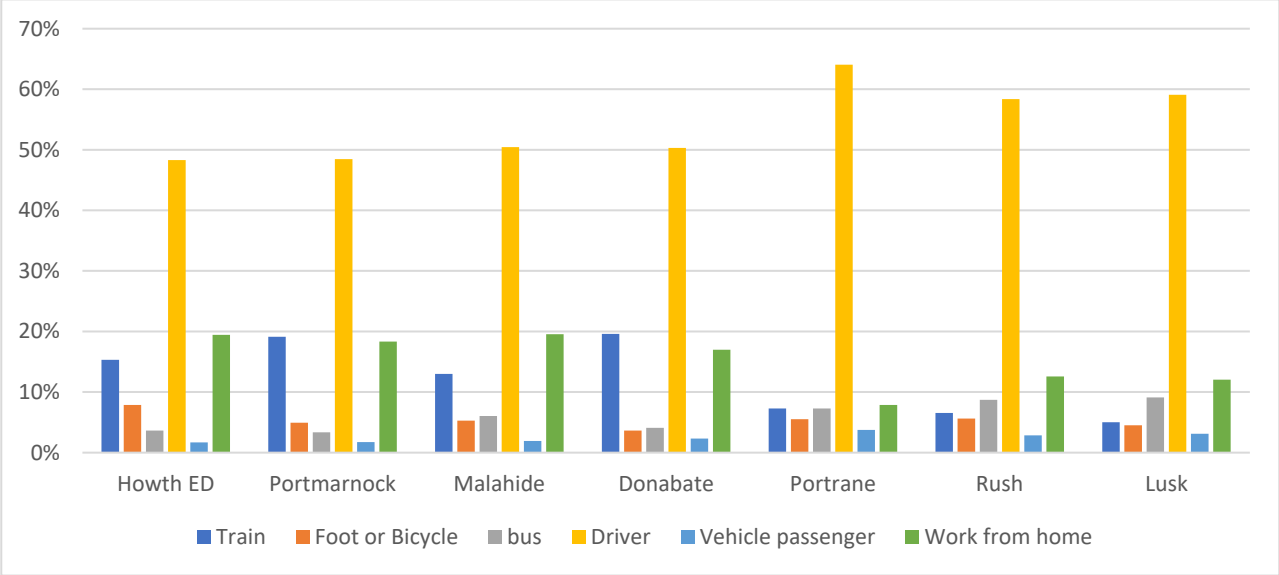
Table 7-10 shows the proportion of people in each county travelling to school, college or childcare. Naturally, the table indicates that a lower proportion of this group drive, but that 21.3%, mostly school children, travel by car as a passenger. Buses are used by 9.3% of this group, mostly school buses. Use of train, DART or Luas is just 1.4% on average.

Table 7-10 Mode of travel to school, college or childcare– Percent all persons by county (CSO, 2022)

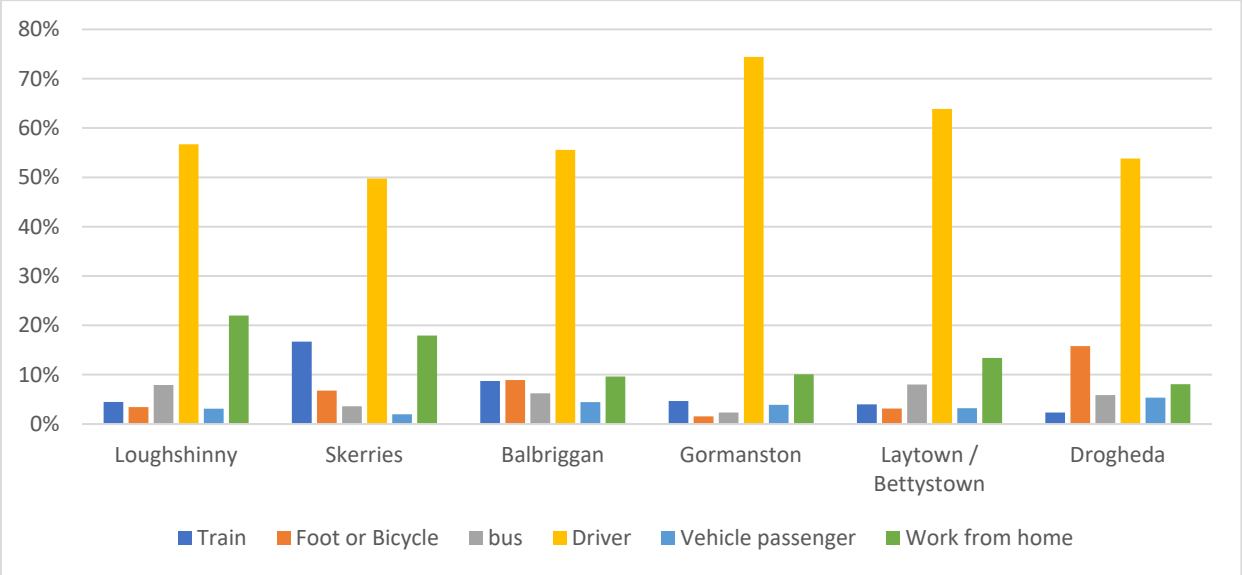
Admin County	Total	Train, Dart or Luas	Foot	Bike	Bus	Car driver	Car pass-enger	Van or lorry	Other	Work mainly from home	Not stated
Dublin City	123,547	1.6%	14.1%	3.6%	6.1%	0.8%	8.8%	0.0%	0.2%	0.3%	6.6%
Fingal	92,659	2.9%	19.3%	2.6%	7.9%	1.4%	20.4%	0.1%	0.1%	0.3%	5.3%
Meath	62,540	0.6%	14.5%	1.4%	12.1%	2.2%	27.5%	0.1%	0.1%	0.3%	3.6%
Louth	37,296	0.4%	14.2%	1.1%	11.1%	2.1%	28.7%	0.1%	0.0%	0.3%	5.4%
State	1,152,690	0.9%	9.0%	1.2%	7.3%	2.0%	17.5%	0.1%	0.0%	0.0%	3.4%

Graph 7-1 and Graph 7-2, along with Table 7-11 and 7-12, show the same patterns for key towns in the study area. Donabate has a high level of train travel to work at 19.6%, assisted to a degree by the central location of the local station, although the figure has fallen since the previous census. Skerries and Portmarnock have similarly high levels of use. By comparison, in Lusk and Loughshinny, where the nearest stations are more distant, there is a rather low level of travel by train and correspondingly high levels of car use at 57.1% and 54.3% respectively for both drivers and passengers. In Howth, where regular traffic congestion is experienced at Sutton Cross, the level of DART travel is similar at 15.3% of journeys, but higher than for other Dublin suburbs. The dominance of private car use is illustrated most clearly by and which also show a fall in train use north of Skerries. Use of the train in Drogheda for journeys to work is currently just 2.3%.

Overall, the table indicates that where stations are nearby or more accessible, train travel is a feasible option for journeys to work for many people and an alternative to the private car.



Graph 7-1 Mode of travel to work – key settlements between Howth and Lusk (CSO, 2022)



Graph 7-2 Mode of travel to work – key settlements between Loughshinny and Drogheda (CSO, 2022)

Table 7-12 shows the situation for students of schools and colleges and for those accessing childcare in key settlements. For this group, use of the train is relatively high in Malahide, Donabate, Portrane and Skerries. Buses, including school buses, account for levels of up to 16.7% and 27.7% in Laytown and Bettystown. Unfortunately, the figures are not disaggregated for students of colleges and third level institutions but can be expected to demonstrate a higher dependence on rail by this subset. Dependence on private car use continues to be high at an average of 38.7%, and up to 59.1% in Gormanston, but is represented this time mostly by passengers.

Table 7-11 Mode of travel to work – Percent key settlements (CSO, 2022)

	Total	Train, Dart or Luas	Foot	Bike	Bus	Car driver	Car pass-enger	Van or lorry	Other	Work mainly from home	Not stated
Howth ED	3,361	15.3%	4.6%	3.2%	3.6%	45.8%	1.7%	2.4%	0.7%	19.4%	3.1%
Portmarnock	4,727	19.1%	2.8%	2.1%	3.3%	45.1%	1.7%	3.4%	0.6%	18.3%	3.5%
Malahide	8,236	13.0%	3.5%	1.8%	6.0%	47.9%	1.9%	2.6%	0.6%	19.5%	3.3%
Donabate	4,798	19.6%	2.8%	0.9%	4.1%	46.9%	2.3%	3.4%	0.6%	17.0%	2.5%
Portrane	509	7.3%	3.9%	1.6%	7.3%	56.8%	3.7%	7.3%	1.6%	7.9%	2.8%
Rush	4,945	6.6%	4.4%	1.2%	8.7%	52.7%	2.9%	5.7%	1.2%	12.6%	4.2%
Lusk	4,075	5.0%	3.4%	1.1%	9.1%	54.0%	3.1%	5.0%	0.9%	12.0%	6.3%
Loughshinny	291	4.5%	2.1%	1.4%	7.9%	51.2%	3.1%	5.5%	1.7%	22.0%	0.7%
Skerries	4,688	16.7%	5.7%	1.1%	3.6%	45.8%	2.0%	4.0%	0.5%	17.9%	2.8%
Balbriggan	10,373	8.7%	8.0%	0.9%	6.2%	51.4%	4.4%	4.2%	0.6%	9.6%	5.9%
Gormanston	129	4.7%	1.6%	0.0%	2.3%	66.7%	3.9%	7.8%	0.0%	10.1%	3.1%
Laytown/ Bettystown	6,985	4.0%	2.7%	0.4%	8.0%	58.0%	3.2%	5.9%	0.5%	13.4%	3.9%
Drogheda	19,199	2.3%	14.3%	1.5%	5.9%	49.5%	5.3%	4.3%	0.6%	8.1%	8.2%

Table 7-12 Mode of travel to school, college or childcare- Percent key settlements (CSO, 2022)

	Total	Train, Dart or Luas	Foot	Bike	Bus	Car driver	Car pass-enger	Van or lorry	Other	Work mainly from home	Not stated
Howth ED	2,071	13.7%	25.8%	7.5%	11.9%	3.7%	32.8%	0.1%	0.2%	0.9%	3.3%
Portmarnock	2,685	6.7%	45.0%	1.4%	7.6%	2.9%	31.4%	0.0%	0.0%	0.6%	4.4%
Malahide	5,044	11.3%	31.1%	3.3%	10.1%	3.3%	37.1%	0.0%	0.1%	0.7%	3.0%
Donabate	3,030	14.9%	42.7%	4.8%	6.9%	1.8%	24.1%	0.1%	0.0%	0.6%	4.1%
Portrane	278	11.2%	7.2%	4.0%	16.5%	3.2%	53.6%	0.0%	0.4%	0.7%	3.2%
Rush	3,193	6.3%	30.5%	6.2%	14.6%	2.5%	33.3%	0.2%	0.0%	0.5%	5.9%
Lusk	2,940	3.8%	36.1%	5.0%	13.5%	1.8%	31.7%	0.2%	0.0%	0.2%	7.6%
Loughshinny	187	9.6%	26.7%	0.5%	16.6%	4.3%	34.8%	0.0%	0.0%	1.6%	5.9%

	Total	Train, Dart or Luas	Foot	Bike	Bus	Car driver	Car passenger	Van or lorry	Other	Work mainly from home	Not stated
Skerries	3,014	11.2%	42.6%	8.8%	4.5%	2.2%	27.1%	0.1%	0.2%	0.4%	2.9%
Balbriggan	7,725	5.7%	41.0%	4.4%	8.8%	1.5%	29.9%	0.1%	0.1%	0.5%	7.9%
Gormanston	66	6.1%	15.2%	0.0%	16.7%	3.0%	59.1%	0.0%	0.0%	0.0%	0.0%
Laytown/ Bettystown	4,613	3.0%	19.6%	2.3%	27.7%	2.0%	40.0%	0.1%	0.2%	0.6%	4.5%
Drogheda	11,545	1.4%	31.3%	1.8%	19.2%	2.1%	34.5%	0.1%	0.1%	0.4%	9.1%

Table 7-13 shows that the largest proportion of journeys occurs between 8.00 and 9.00 am, but with high proportion overall between 7.00 and 9.30 am including of school children and parents.

Table 7-13 Time leaving for work, school, college or childcare - Percent key towns (CSO, 2022)

	Total	06:30 - 07:00	07:01 - 07:30	07:31 - 08:00	08:01 - 08:30	08:31 - 09:00	09:01 - 09:30	After 09:30	Not Stated
Howth ED	4,547	3.5%	10.1%	12.1%	18.3%	26.3%	15.1%	9.5%	5.2%
Portmarnock	6,094	4.6%	9.5%	12.6%	20.5%	30.8%	9.2%	6.9%	6.0%
Malahide	9,931	4.6%	9.3%	12.6%	22.9%	28.2%	9.9%	6.8%	5.7%
Donabate	6,546	6.7%	11.7%	12.9%	18.9%	27.8%	11.2%	6.1%	4.7%
Portrane	7,21	8.5%	15.0%	14.1%	18.3%	19.7%	13.7%	7.1%	3.6%
Rush	7,129	8.9%	12.5%	10.9%	15.2%	23.8%	15.8%	5.6%	7.3%
Lusk	6,219	8.0%	11.6%	10.1%	17.9%	26.8%	9.5%	6.0%	10.0%
Loughshinny	393	7.6%	14.0%	11.7%	14.2%	23.2%	19.3%	6.1%	3.8%
Skerries	6452	6.3%	11.9%	10.2%	13.9%	27.8%	18.1%	6.5%	5.2%
Balbriggan	1,6314	10.3%	11.5%	8.5%	16.6%	19.3%	15.2%	8.5%	10.1%
Gormanston	176	8.0%	10.8%	10.8%	19.3%	26.1%	13.6%	4.0%	7.4%
Laytown/ Bettystown	10,081	11.0%	13.4%	8.7%	15.3%	21.7%	16.5%	6.5%	6.8%
Drogheda	27,950	9.5%	10.8%	8.9%	14.7%	22.0%	14.2%	8.3%	11.6%

7.4.4 Character

The Northern Line commences in central Dublin and passes through the north-eastern suburbs of the city before entering a semi-rural environment north of Clongriffin, passing through the settlements of Portmarnock, Malahide, Donabate, Skerries, Balbriggan, Gormanston, Laytown and between those of Lusk and Rush. Most of these settlements have expanded significantly over the past 15 years. Table 7-6 indicated large percentage increases in EDs, including communities such as Donabate where significant new residential development has occurred. However, there have also been significant increases in locations in Dublin already served by the DART represented often by high density apartment development in communities such as Donaghmede, Clongriffin, Balgriffin and Portmarnock. Malahide is an established community where population growth has been more modest. A near continuous sandy beach is the major attraction of the area and extends almost along the entire coast from Portmarnock to Mornington. Agriculture is represented largely by arable and market gardening, much of which is under glass.

The Howth Branch passes through the established urban neighbourhoods of Kilbarrack and Sutton on its route to Howth. Stations are located at Bayside, Sutton and Howth and level crossings are provided with Baldoyle Road, Strand Road, Launders Lane and Howth Lodge. There is a low-height underpass and bridge crossing from Howth Road to Claremont Road which are also used for access to Burrow Beach. The nine-hole Sutton Golf Club straddles the north and south of the line. Howth itself is a busy village which retains its status as a small fishing port, but also possesses a yacht club and marina. It is a popular destination due to its variety of restaurants and pubs and for the access it provides to walks around Howth Head.

The village is a popular destination for foreign tourists with many visitors arriving via the DART, but also by road. Traffic levels can be high on sunny weekends and congestion is frequent around Sutton Cross through which all vehicle traffic must pass.

Howth, Malahide and Portmarnock are among the more affluent communities in the study area as indicated by the high proportion of Professional workers and Managerial and Technical workers in these EDs (see Table 7-8) and are popular destinations for the beach, but also for Malahide Castle and Garden and for sailing on the Malahide Estuary. Malahide village also includes a hotel, marina and health spa as well as other community facilities, including a cricket club, tennis club, a branch of Avoca and restaurants, pubs and boutique shops in the village centre. The village is second only to Howth in attracting overseas tourists, in large part because of the existing DART connection.

At present, there is no connection to the north shore of the estuary, but works have commenced on the Broadmeadow Way greenway, a pedestrian and cycle trail, which will share the railway viaduct and connect to the established Baldoyle to Portmarnock Greenway and planned Sutton to Malahide Greenway to the south as part of the Fingal Coastal Way. It is currently projected that the greenway will open in 2025. The north shore adjoins Donabate and includes four golf clubs, an equestrian centre and a windsurfing launch site that is busy at weekends. The environs of Donabate also include the popular Newbridge Demesne, a caravan park and the Shoreline Hotel and restaurant located at the top of the beach beside a Martello Tower. The popular beach is interrupted by a low headland, that is followed by a coastal path which passes beside another caravan park to Portrane. As well as another wide beach, Portrane's community facilities include a golf course and the Turvey Nature Reserve on the Rogerstown Estuary. Donabate and Portrane were once popular holiday destinations for Dubliners, but now attract mostly day trippers.

Rush is located on the north side of the estuary. It too has a fine stretch of beach as well as a golf club and sailing club. Rush has an established, but rather quiet urban centre above the small harbour. The village was once, like Donabate and Portrane, a popular holiday destination with numerous modest sized holiday homes which have now been converted to principal residences. The station is located on the R128 road between Rush and Lusk. The latter settlement is located to the west and has experienced significant residential development in recent years as a services centre and dormitory town to Dublin. Loughshinny, to the north, is a small community with its own small harbour and Martello Tower which is connected to Rush and Skerries by the R128.

Skerries has always been a popular visitor destination and continues to be such mainly for people from Dublin who come for both the beach and the headland. Skerries Mills is a feature of the town's skyline and is both a museum and a café and often hosts community events. Skerries Harbour and the adjacent bars are popular with the sailing community. The limited height of the railway bridge has restricted new development allowing the village centre to retain a traditional charm, but significant recent housing development has occurred to the east of the railway line. Ardgillan Castle and Demesne is a popular family destination and is located to the north-east, neighbouring the railway line. Skerries Golf Club is located beside the line to the south.

Balbriggan is more of a working town centred on the harbour which retains a small number of inshore fishing boats. The town was once blighted by North-South through traffic before the construction of the M1 and has also been affected by some poorly designed and located apartment development. The population of the urban centre has remained static, but growth has been experienced here too, this time to the east of the established urban area. The transfer of through traffic also presents opportunities for urban design improvements in the town centre, while the central location of the station will allow the town to benefit from the extension of the DART service. The town also possesses fine natural and built heritage. This includes the fourteenth century Bremore Castle where restoration is nearing completion, the working harbour and an attractive sandy cove. Balbriggan Golf Club is located to the south-west of the town. Visitors have the option of staying in the four-star Bracken Court Hotel or in B&Bs around the town. The Victorian railway viaduct is a prominent feature rising high above the beach and harbour and which includes two footways on either side.

Gormanston and Delvin Bridge are small communities. An army camp is located inland from a lightly used long stretch of beach. The population of the community has increased in recent years largely due to the presence of the Mosney Accommodation Centre, a former holiday camp that has been extensively regraded as a centre to house refugees. A motocross (MX) track, pitch and putt and sports pitches are located north along the beach. Laytown and Bettystown are located on the continuation of this beach connected by a footbridge across the River Nanny beside the railway viaduct. The two communities, which now form an extended conurbation along with Mornington, have always been popular places to live for people who could work outside of Dublin, but along with most other communities have experienced significant new development and population growth in recent years. The town attracts many beach users from Dublin and Drogheda, has a golf course, caravan parks, hotels and guest houses. The Boyne Valley Hotel and Country Club is located beside the railway line on the edge of Drogheda. The Proposed Development would terminate in Drogheda which is a large industrial town of 42,000 inhabitants and a port connected by the River Boyne to the Irish Sea.

7.4.5 Significance

In Dublin City, Fingal, Meath and Louth, the proportion of the population of working age averages around 67%. Allowing for population growth since 2016, the proportion aged between 15 and 65 years would now amount to around 873,000 of whom around 450,000 live outside of Dublin City. Counties Meath and Fingal are amongst the five counties with the youngest age profile. The Regional Spatial and Economic Strategy 2019-2031 (RSES) predicts that the numbers of young people will increase, although the relative share of this age group will decline.

The study area is located in the Dublin Belfast Economic Corridor which connects Dublin, Dundalk and Drogheda, and includes the critical transport hubs of Dublin Port and Dublin Airport. Dublin City is a global economic hub providing the highest value jobs, but the Eastern Region as a whole has a robust base of traditional and emerging economic sectors. Drogheda is identified as a Key Functional Urban Area in the RSES, namely a town whose population and services have a distinct influence on the regional economy. While having experienced a loss of some former industries, Drogheda continues to have a strong base in the distilling and drinks sector, food sector and retail, and has also seen recent growth in the service and technological sector. Major employers include the Boyne Valley Group, Coca Cola and the Drogheda Port Company which handles over 1.5 million tonnes of bulk and specialist cargo each year. Key settlements in between include Malahide, Donabate, Skerries, Balbriggan, Laytown and Bettystown. These small towns have a high proportion of residents who commute daily to Dublin.

A major challenge facing the Region is the mismatch between the location of jobs and where people live. As the population has risen, so competition for housing has increased as new builds and the growth in housing has failed to keep pace. Consequently, house prices have increased significantly in Dublin City and many people have looked to the outer suburbs and wider study area to find homes to buy. A high proportion of new development, particularly in the outer Dublin suburbs, but also in Fingal and towns in the wider study area, have been apartments. Government policy for Consolidated Growth proposes that 30% of new homes in the Region will be in urban areas outside of Dublin. Key Towns are described in the RSES as those which have the capacity to deliver sustainable compact growth and employment. In line with demand and Government policy to encourage compact growth, many of these new developments have occurred within the vicinity of public transport nodes, including rail. Investment in rail can also make a significant contribution to reducing Greenhouse Gas Emissions and is a key element of the Transition to a Low Carbon Economy by 2050.

Table 7-14 Resident workers and local jobs 2016 (Source: AIRO)

County	Resident Workers	Jobs
Dublin City	256,634	319,092
Co. Fingal	132,153	94,751
Co. Meath	82,605	41,757
Co. Louth	49,712	35,451

7.4.6 Sensitivity

The study area has seen significant population growth and residential development as people have moved out of Dublin to find affordable housing and to benefit from the many fine natural attractions of the area. This has, however, brought many challenges. The mismatch between jobs and places where people live has led to a dependence on private vehicles and long-distance commuting. This has brought major roads closer to their capacity and led to problems of extended journey time and congestion and to effects on journey time reliability which can also affect the attractiveness of the region to investors. Table 7-11 above shows that dependence on the private car for commuting exceeds 51.5% in the three counties outside of Dublin and 64.3% in County Meath. Congestion in Dublin has been estimated by the (then) Department of Transport, Tourism and Sport - DTTAS (2017) as costing the economy over €350 million per year with the risk of this rising to €2 billion by 2033 if not addressed. In turn, journey time and poor journey amenity for people commuting into the city have an impact on quality of life, including on family time and stress-related health conditions. Government policy for Smarter Travel is aiming for a reduction in private vehicle modal share to 45% of commuting journeys.

The RSES aims for major improvements in accessibility and sustainable transport that will support new investment, development and resilience in the regional economy. It also makes the case for integrated transport to provide for connectivity, including between centres of employment and small towns and rural areas. There is a particular focus on investment in active travel and public transport, including rail for which the RSES identifies the electrification of the East Coast line (of which the Proposed Development rail line is part) as being among a number of priority infrastructure investments. It argues that the investment in transport generally will need to be supported by a better alignment of housing and employment.

It is inevitable that much of the population residing in the study area will remain dependent on employment opportunities in Dublin and to a much lesser extent work in Drogheda. The main settlements in the study area have attracted new business investment but remain largely dormitory towns. It is therefore essential to balance population increases with sustainable transport options to reduce car dependence, with compact growth that avoids urban sprawl and allows for community facilities and amenities to be reached within a short time, ideally by foot or bicycle. Rail makes a key contribution is this respect. It is also important for facilitating domestic and international tourism centred on day trips and weekend stays.

The study area as a whole is among the more affluent in the State, but pockets of disadvantage persist in all Electoral Divisions, most notably in Balbriggan, but also elsewhere including parts of Rush and Drogheda. As vehicle ownership is lower in such areas, access to public transport is an important factor in addressing disadvantage. This is particularly so when it comes to accessing opportunities for employment, but also for education and training, noting that the principal third level colleges are to be found in Dublin. The catchment and frequency of rail services has an important role to play in this regard.

7.5 Description of Potential Effects

7.5.1 Do-Nothing Scenario

The Do-Nothing Scenario assumes the Proposed Development does not proceed and that the existing traffic and transportation environment is not changed. It would result in a situation where prospective passengers living in communities north of Malahide will have no improvement in travel mode options or in rail passenger capacity. There would be a continued dependence on movement by road, impacting particularly on commuters. Over time, there will be an increase in traffic volumes in local communities and on roads connecting with the M1. This would have a cumulative negative effect on vehicle journey times, journey time reliability and connectivity, general and residential amenity, community severance and opportunities for employment, with further negative effect on opportunities for economic development. In Howth, the level of public transport demand has been rising in response to the village's attraction for leisure and tourism. New residential development is also likely to place additional demands on services which, to date, have been restricted in number due to the need to share the Northern Line with Malahide services. The alternative of vehicle access is itself subject to capacity constraints as all traffic must pass through Sutton Cross which is a regular source of congestion. Traffic will also continue to build up behind the level crossings, particularly those on Baldoyle Road and Strand Road.

7.5.2 Do-Something Scenario

The Do-Something scenario represents a situation where the Proposed Development proceeds. The Proposed Development will provide an extended electrified rail network to allow for increased passenger capacity and an enhanced train service between Dublin City Centre and Drogheda, including the Howth Branch. The Proposed Development requires track modifications including the provision of turnback facilities at Malahide, Clongriffin and Howth Junction and Donaghmede Stations. The project will also deliver the infrastructure at Howth Junction and Donaghmede Station that will enable the operation of both a DART shuttle service on the Howth Branch as required, and/or a direct through service to/from Dublin City Centre.

The Proposed Development enables an improved public transport connection between Malahide and Drogheda and stations in between, providing social and economic benefits to passengers, and benefits to businesses in terms of access to a larger catchment for employees and increased reliability for both commuting and business journeys. It will facilitate new economic and enterprise opportunities in the immediate vicinity of stations and the larger catchment of the line. The Proposed Development enables an increase in the frequency of services over time, as demand for such services dictates in line with future timetable changes (which will be subject to consultation). A doubling of the number of trains per hour is proposed for the Howth Branch, but to allow for increased capacity on both this line and the Northern Line, the Proposed Development will enable a DART shuttle service and a direct through service on the Howth Branch. If and when the DART shuttle service is utilised in the future (subject to separate operational timetabling decisions and associated statutory public consultation) this will require passengers to interchange at Howth Junction and Donaghmede Station. The proposal (enabled by the Proposed Development) for additional trains on the Howth Branch would require more frequent closures of the four level crossings.

7.5.3 Potential Construction Impacts

7.5.3.1 Potential impacts applicable to all zones

Construction works will occur over approximately 50km between Dublin City Centre (north of Connolly Station) and Drogheda. General Linear Works, much of which will occur within the existing railway corridor, will include trackside overhead line equipment (OHLE), works on and around bridges and civil infrastructure, installation of electrical traction substations, modifications of existing fencing, modifications to station canopies, enhancement of signalling and telecommunications equipment, and modification of track including turnback facilities and geometry. In addition, modifications to stations and depots will accommodate increased capacity. There will be some works where there would be impacts on nearby receptors, for example due to noise, lighting effects or construction traffic. Effects arising from these impacts are addressed in the specific chapters dealing with these environmental impacts but are relevant to Population where there are effects on the general or residential amenity, including community facilities.

Impacts due to noise are therefore taken into account. They have the potential to be significant at receptors such as individual properties or community facilities depending often on the type of works undertaken, but as these are construction impacts, they will be temporary and often of short duration. For example, works on each substation will occur over around six months, but with the principal works occurring over three months, while bridge works will be needed over longer period of time, but with a varying duration of impact due to environmental effects or road closures. Some works will be needed for very short periods directly on the railway line, for example track lowering. These may require night-time or weekend closures, or “possessions”, to minimise disruption to services and passengers at peak demand periods. A worst-case scenario could involve weekend or extended bank holiday weekend closures. Mitigation measures to minimise disruption to services may be possible such as working on one directional track at a time. Other works outside of the live railway line will be undertaken during daytime hours. A Community Liaison Officer will be appointed to provide information on upcoming works and to address concerns raised by residents and local people.

The Proposed Development will require a number of Construction Compounds. Each Construction Compound will require to remain operational for the duration of the works with which it is associated. This is dictated by the construction programme and varies for each compound, ranging from several months (in the case of the overbridge modifications) to three years (for instance, those servicing line wide works). Eight line-wide compounds will be needed to support OHLE, track and signalling works. Construction Compounds would often be active at night, but it is proposed that many deliveries will be made during daytime hours to minimise disturbance traffic to local residents. The locations of compounds outside of CIÉ lands are listed in Table 7-15 below. These compounds may be in operation for 24-hour periods and temporary lighting could be needed. Where it is not possible to locate Construction Compounds away from nearby residential properties or community facilities, mitigation will be necessary. Mitigation measures to be implemented by the contractor during the Construction Phase are noted within Appendix A5.1 (Construction Environmental Management Plan (CEMP)) in Volume 4 of this EIAR.

The temporary Construction Compounds will be used for the following uses:

- Station and depot works
- Track works

- Line wide works
- Electrical substations
- Structures/bridges modification
- Substations; and
- Level crossing closure

The full list of Construction Compounds is provided Chapter 5 (Construction Strategy). These are listed below in Table 7-15. Most will require a temporary land use change from private ownership.

Table 7-15 Proposed temporary Construction Compounds

Zone	Construction Compound ID	Location	Purpose	Existing land use	Access	Potential impacts
A	CC-2650	Fairview Depot South	Depot works	IÉ lands	R834	Community facility noise
A	CC-2700	Fairview Depot Centre	Depot works	IÉ lands	R834	Community facility noise
A	CC-3000	Fairview Depot North	Depot works	IÉ lands	R834	Business /community facility. Noise
B	CC-9000	Howth Junction and Donaghmede Station	Platform extension	Car park of commercial facility	Via Baldoyle Ind Estate to R139	Temporary land use change
B	CC-9050	Howth Junction and Donaghmede Station	Lifts and stairs	IÉ lands	Central access	Passenger amenity
B	CC-9100	Howth Junction and Donaghmede Station (Donaghmede entrance)	Access between platforms 2 3	Grass area beside station entrance	Via St. Donagh's Road to R104	Temporary use of communal lands and proximity to residences
B	CC-9200	Howth Junction and Donaghmede Station (Kilbarrack entrance)	Access between platforms 2 3	Scrubland.	Via Kilbarrack Ind Estate to R104	Not-significant for Population
B	CC-10600	Clongriffin Station	Permanent Way. Retaining wall and laying of track	Land currently awaiting development	To R123 to Coast Road or R809	Temporary land use & amenity
B	CC-15900 (E)	Malahide Turnback (Strand Court)	Permanent Way	Strand Court	Strand Court yard, Marina Road. Malahide Village	Residential amenity
B	CC-15900 (W)	Malahide Turnback (Bissett's Strand)	Permanent Way	Land beside railway line	To Bissett Road	Residential amenity. Economic
B	CC-16100	Malahide Turnback		Open ground	Sea Road / Cave Strand	on Proximity to school.

Zone	Construction Compound ID	Location	Purpose	Existing land use	Access	Potential impacts
		(Caves Strand)	Permanent Way.			
B	CC16250	Malahide Turnback (Marina Car Park)	Permanent Way.	Car Park	R106 Swords Road / Dublin Road / Main Street / Old St.	Car parking, residential amenity, amenity , economic.
B	CC16400	UBB30 Malahide Viaduct and approach	Structures	Marina boatyard	Marina Road and Village to R106, R132, R125.	. Boat space/ economic
C	CC-18800	Donabate Substation	Substation	Agricultural	L6165 to R126	Some perm land take. Nearby property
C	CC-19800	Donabate Station	Line works	IÉ lands	To R126	Non-significant for Population
C	CC-23500	Rush and Lusk Station	Substation	Agricultural	To R128	Passenger amenity and land use
C	CC-23772 (E) & (W)	Rush and Lusk E & W	Utility diversions	Agricultural	To R128	Non-significant for Population
C	CC-25626 (E)	OB44 Track Lowering	Permanent way	Agricultural	Tyrrelstown Road to R128	Non-significant for Population
C	CC-25626 (E) & (W)	Tyrrelstown E & W	Track lowering	Agricultural	Tyrrelstown Road to R128	Land use change
C	CC-27460 (E) & (W)	Baldongan E & W	Utility diversion	Agricultural	L1285	Non-significant for Population
C	CC-29000	Skerries South Substation	Substation	Agricultural	Golf Links Road to R127	Proximity of school and property
C	CC-29140 (E) & (W)	Golf Links Road E & W	Utility diversion	Agricultural	To R127	Non-significant for Population
C	CC-30200	Skerries Station	Permanent Way	IÉ lands	Barnageerag h Road to R127	Residential amenity
C	CC-31100	Skerries	Local works	Private land	To R127	Residential amenity
C	CC-32200	Skerries North Substation	Substation	Agricultural	L1270 to R127	Access beside private house and garden centre.
C	CC-34400 (E) & (W)	Balbriggan E & W	Utility diversion	Private land	To R132	Non-significant for Population
C	CC-36000	Balbriggan Viaduct	Structures	Car park and municipal park	Mill St and Quay St. to R132 Main St. and R122	Amenity, residential amenity
C	CC-37700	Balbriggan Substation	Substation	Agricultural	To R132	Land use change
C	CC-39720 (E) & (W)	Gormanston Station E & W	Utility diversion	Private land	To R132	Non-significant for Population

Zone	Construction Compound ID	Location	Purpose	Existing land use	Access	Potential impacts
C	CC-40200	Gormanston Station	Permanent way, line works	Private land	To R132	Non-significant for Population
D	CC-41400	Gormanston Substation	Substation	Department of Defence	To R132	Land use change
D	CC-44320 (E) & (W)	Laytown E & W	Utility diversion	Private land	To R132	Not significant for Population
D	CC-44500	UBB72 Laytown Viaduct (South Abutment and Pier)	Structures	Open ground	Coastview Cottage Road to R132	Journey amenity
D	CC-44600	UBB72 Laytown Viaduct (North Pier)	Structures	Open ground	R150 to R132	Journey and residential amenity.
D	CC-44700	Laytown Station	Line works	Private land	To R150	Residential amenity
D	CC-44900	Laytown	Line works	Private land	To R150	Residential amenity
D	CC-44920 (E)	Laytown	Utility diversion	Private Land	To R150	Residential amenity
D	CC-46900	Bettystown Substation	Substation	Open ground	Ardmore Court & Av, L5632, L5615	Residential amenity
D	CC-46900	OBB78 Colpe Road	Track lowering	Agricultural	Colpe Road to R132	Land use change, Residential amenity
E	CC-50270 (S) and (N)	Drogheda	Utility diversion			Non-significant for Population
E	CC-51800 and CC-51900	OBB80 McGrath's Lane Overbridge (North)	Structures	Agricultural and possibly also on scrubland	Railway Terrace and R150 to Colpe Road and R132	Residential amenity, detour
E	CC-52050	Drogheda Traction Substation	Substation	Agricultural	Existing	Non-significant for Population
E	CC-52250	Drogheda	Depot / Station	Station car park	To R132 and Donore Road	Residential amenity, Passenger amenity
E	CC-52200	UBK1 Dublin Road Overbridge (North)	Structures	Station car park	To R132 and Donore Road	Residential amenity, Passenger amenity
E	CC-52200	UBK1 Dublin Road Overbridge (South)	Structures		To R132 and Donore Road	Journey and residential amenity

Only four overbridges require major works with three of these effectively forming a linear extension of the same bridge (OBB80/80A/80B) at McGrath's Lane in Drogheda and the fourth being the pedestrian footbridge within Drogheda Station (OBB81).

A new underbridge (UBB19A) will be needed at Clongriffin to accommodate the railway realignment for the proposed turnback, and the Dublin Road Underbridge (UBK01) will also require reconstruction. Elsewhere, several bridge parapets will need to be raised and/or replaced with protective panels such as steel plate or mesh to protect against the proximity of electrified overhead cabling. These changes are in the interests of safety, but with traffic management will have a mostly slight negative impacts on Population with respect to **journey characteristics** and also on **journey amenity** by providing less visibility than is available at present and a more contained pedestrian environment especially for footbridges. Seventeen locations are identified for parapet modification. These parapets will need to be 1.8m high and of solid material for at least the first 1.2m. Both road bridges and footbridges are affected. Traffic management will be needed during these works unless works are conducted during night-time possession of track.

In terms of Land Use, the land take for Construction Compounds will include both internal CIÉ lands and private land as described above. The works will not require any demolition of privately owned buildings or physical impact on non-agricultural businesses. The Construction Compounds will typically require only temporary land use change.

Where possible, CIÉ lands were considered first to maximise the use of existing assets and reduce costs, and to reduce potential impacts to private lands. Some permanent land take will be needed for the substations at Donabate, Rush and Lusk, Skerries South, Skerries North, Balbriggan, Gormanston, Bettystown and Drogheda and this is addressed in the sections below. The land take required during construction will be slightly larger than that needed during the Operational Phase such that this excess can be returned to its former use on completion of the Construction Phase.

The Proposed Development has been divided into a number of geographic zones (5 no.) as described in Chapter 4 (Description of the Proposed Development). Impacts within each of these zones are described below.

7.5.3.2 Zone A

Only modest construction works will be needed in Zone A. Minor modifications will be undertaken at Fairview Depot over a period of approximately 12 months and will include a new train cleaning platform on sidings within the depot site. The depot is located beside the Global Ambition Enterprise Ireland offices and the Clasach Centre for Irish music. Given the nature of the latter community facility, there is a high sensitivity to external noise, but the design of the building is likely to have taken into account its proximity to the depot and no impact on amenity is predicted as additional noise effects are assessed as being not significant and short-term (see Chapter 14 (Noise and Vibration)). Two small Construction Compounds will be needed within the depot (CC-2650 and CC-2700) and a third (CC-3000) beside the West Wood Gym which is a low sensitivity facility. The community facilities are shown in Figure 7.1 ‘Land use Survey Categorisation’ in Volume 3A of this EIAR.

7.5.3.3 Zone B

7.5.3.3.1 Summary

A variety of construction works will be needed in Zone B. Among the principal works are track works at Clongriffin, Malahide, and Howth Junction & Donaghmede Stations.

These also include a new turnback at Clongriffin Station and at Malahide between Strand Road and the Viaduct which will require a new retaining wall at the start of the bridge structure. Supporting OHLE masts will be needed on the Malahide Viaduct. There is the potential for significant environmental effects at this location including from noise prior to mitigation (see Chapter 14 (Noise and Vibration)). Further detail is provided below. Construction Compounds will be needed at eight sites at Howth Junction/Donaghmede, Clongriffin and Malahide. Seven of these proposed sites are not on CIÉ lands. Site access, site preparation and a temporary change in land use will be needed.

7.5.3.3.2 Station works.

Platform 2 at the Howth Junction and Donaghmede Station will be extended along the Howth Branch to accommodate the proposed shuttle service, if and when required in the future. Demolition works and piling will be the most significant in terms of noise prior to mitigation (see Chapter 14 (Noise & Vibration)), potentially impacting on the **amenity** of sensitive residential receptors on Carndonagh Lawn and Carndonagh Road. At the station itself, it is also proposed to undertake major works to increase accessibility at passenger entrances and to the footbridge to include a connection to the central platform.

Access will be maintained throughout, but the works could induce some inconvenience to the **journey amenity** of passengers including temporary diversions to normal routes. They will include demolition of internal and external stairs with the potential for noise impacts, noting also that works will be undertaken in daytime hours over between one and two years. The level of use by passengers will be high at times and inevitably include some sensitive subsets. Demolition works and the erection of temporary stairs will also occur close to residential properties on Carndonagh Lawn. Therefore, these impacts have the potential to have an at least significant effect prior to mitigation.

The Baldoyle Training Centre is the nearest building with a community function to the platform works, but the activities here are unlikely to be affected. Dublin Thai Boxing is a business with a community use dimension and is located in this same area. There is also a small gym on the south side of the Howth Branch. These receptors are shown in Figure 7.1 ‘Land use Survey Categorisation’ in Volume 3A of this EIAR, but their sensitivity is judged to be low. Several businesses are located on the south side of the tracks, including Acoustic Technologies, a specialist hearing aid business for which there could be a sensitivity to vibration.

7.5.3.3.3 Track works

At Clongriffin, new track will be laid to the east of the station comprising an East Loop. Track works and piling will be undertaken for the construction of a retaining wall and an underbridge (UBB19A) to allow the existing unused Platform 0 to receive operational traffic. A potential cumulative effect arises in that the lands immediately beside the proposed works are intended for new housing development, but this has not commenced as yet (see Section 7.8). To the south, the installation of a new crossover is proposed beside housing backing onto the tracks at Myrtle Court. 32ensitiveity of the location means that noise impacts here could have a significant effect on residential **amenity** prior to mitigation (see Chapter 14 (Noise & Vibration)) but will be temporary in duration.

There is the potential for at least significant noise effects prior to mitigation on the residential **amenity** of apartment residents and community facilities to the west of the tracks. Community facilities include a small mosque and the Tasnuva Shamim Foundation whose aim is to further the integration of ethnic communities in Ireland and, as such, the sensitivity of these receptors is high.

The area to the east has yet to be developed and effects are not applicable unless residential properties are built and occupied by the time of construction. A park is also proposed by Fingal County Council. Coordination will be necessary with the local authority and the developers of the proposed residential site to ensure that there is not excessive construction traffic on Moyne Road.

At Malahide, the construction of a c500m retaining wall requiring associated piling, along with the need to move existing utility services, means there is high potential for environmental effects due to noise, vibration or lighting on the residential **amenity** of occupants of Marina Village. This applies especially where properties back onto CIÉ lands. Where practicable, works will be carried out during daytime, making use of weekend track possessions where possible. However, piling works at night, while avoided to the extent possible, may be required at times. Access to the works will be shifted between multiple points to help reduce the duration of the construction programme.

Malahide Marina is located on the far (eastern side) of the spit away from the works. Dinghy sailing and windsurfing are popular within Malahide Estuary to the west, but any environmental effects on these activities from works in Malahide, or from the widening of the stone embankment and erection of masts on the viaduct, are likely to be imperceptible given the distance.

The same applies to the amenity use of the spit at Corballis or golf at the Island Golf Club, both of which are distant from the proposed works.

The XB001 level crossing to the north of Malahide Estuary will be closed. The crossing is not used for public access. The sand spit to the east, which until recently was used for agriculture, will be managed for biodiversity.

7.5.3.3.4 Additional Construction compounds and traffic

Four Construction Compounds will be needed at Howth Junction and Donaghmede Station. Compound CC-9200 will support the platform extension works and be established within the carpark of an adjacent commercial facility but will not take up a larger area of the total car parking. A second Construction Compound (CC-9000) is proposed for the station on communal green space beside Carndonagh Lawn on the Donaghmede side of the Railway Station. The two other Construction Compounds (CC-9050 and CC-9100) will be on either side of the Howth Branch tracks where these depart from the Main Line. Most construction traffic will be accessing the R139 Grange Road to the north via the Baldoyle Industrial Estate or the R104 Kilbarrack Road to the south via Kilbarrack Way and another commercial estate. The use of these more major roads means that sensitivity is low such that effects on **journey amenity** are assessed as not significant. For works at the station there will be some use of St. Donagh's Road which is within a residential estate in Donaghmede. At up to two HGVs and six LGV per hour at peak times, there is potential for a significant effect on **residential amenity** from construction traffic in an area of high sensitivity.

A Construction Compound (CC-10600) is proposed for a site beside the development lands. Construction traffic will be restricted to the regional road network (R-routes) as far as possible. These routes are designed with the functionality of accommodating mobility needs of HGVs in mind. Options to travel along Station Road or Red Arches Road (local roads) are therefore not recommended. General construction access should be along the R123 (Moyle Road), R106 (Coast Road) and R809 (Grange Road).

Traffic along the R123 would pass a Traveller halting site at Moyne Park, although this location is set back from the road. Construction traffic of up to 6 HGVs per hour will need to cross the popular Walking and Cycle Way between Baldoyle and Portmarnock presenting a moderate significant impact on the **journey amenity** of users of the facility, albeit for brief periods of time, noting the number and sensitivity of users which include families and children. Construction traffic would then need to use the Coast Road and travel to the R124 via Station Road in Portmarnock along which there are residential properties, although these are mostly set back from the road. There is a signalised crossing facility approaching the roundabout between Coast Road and Station Road, although this does require cyclists to dismount. The haulage route is subject to regular traffic congestion, passes beside an area of amenity value and runs through residential areas in Portmarnock. Therefore, the area is of high sensitivity.

Five Construction Compounds are proposed in Malahide at Sea Road/Caves Strand, Bissett's Strand, Strand Court and the Marina Boatyard. The proposed site for the southern compound (CC-15900) would be near to the Strand Apartments and close to a sport studio and other services with potential for impacts from noise prior to mitigation (see Chapter 14 (Noise and Vibration). The northern section of the site would be partly served by a compound (CC-16400) located in the marina boatyard and another (CC-16250) to the south of the wastewater treatment plant beside a creche and Montessori close to works on the turnback facility. These two compounds will be accessed using shared use of the wastewater treatment facility road. The latter community facility inevitably introduces high sensitivity due to noise, but also due to the interaction between construction vehicle movements, parental drop-offs and marina traffic. Depending on the timing of works and the capacity within the main marina, there is potential for an effect on the boatyard and boat owners. However, environmental and traffic impacts here are moderated in that most works will be undertaken west of the railway line.

Construction access to the compounds on the western side of the railway line will be via the R106 and via Millview Road, Sea Road and Bissetts Strand. Several residential properties are located close to the proposed construction compound at Bissett's Strand and would be impacted by noise from within the compound and nearby works on the tracks. This applies particularly to the five nearest properties. Impacts on amenity from construction traffic are likely along Sea Road/Caves Strand as far as the proposed Bissett's Strand compound, where private housing with views across the estuary are located along the road for around 500m. In addition, the road is followed on its north estuary side by a popular amenity footpath. A moderate impact is likely on residential amenity and amenity use of the footpath due to environmental effects associated with construction traffic.

To the east, Pope John Paul II National School is located opposite, and just to the south, of the proposed Sea Road/Caves Strand compound. A Montessori is located nearby on the west side of Sea Road. There are existing speed bumps along the road, including where a footpath joins from the nearby Milford estate, but there is no footpath on the west side of the road until The Cove cul-de-sac. There are school crossing services on Yellow Walls Road at Londis and at the junction with Millview Road. Children might cross to the school from north of Yellow Walls Road where there are around 100 properties in Milford and adjacent areas.

Construction traffic at this location will not impact significantly on lessons or school activities, but would likely have a moderate impact on crossings of Sea Road by school children.

Impacts are also likely where construction traffic follows the residential Yellow Walls Road and in front of St. Sylvesters Infant School where there is a school crossing service before the road joins the R106 Dublin Road, which is better able to accommodate construction traffic, but is bounded by lower density residential development.

Construction traffic accessing the site at Malahide and the two compounds to the east of the railway line, will use the eastward continuation of Dublin Road. This section also includes access to Malahide Demesne. Much of this construction traffic will need to access the compounds via the wastewater treatment plant (WWTP) access road. This construction traffic will need to pass through Malahide Village using existing one-way access via Old Street (northbound) and James Terrace (southbound). Movements will occur between 10 am and 4pm to avoid peak hours and nighttime. The two streets are wider relative to other options in the village and are already used by buses and some HGV traffic, for example for the WWTP. James Terrace is a mixture of residential and offices and includes access to Malahide Strand footpath, Malahide Yacht Club, a public toilet and cycle parking. The more significant negative impact is likely on Old Street which is rather narrow and primarily residential, but given their presence in the centre of Malahide and the proximity of various amenities, both streets will be used by all population subsets, including more sensitive receptors such as children, older people and people with disabilities. See Chapter 6 (Traffic and Transportation) for further details of mitigation measures identified to mitigate these impacts. A Construction Traffic Management Plan (CTMP) has also been prepared and is appended to the Construction Environmental Management Plan (CEMP), see Appendix A5.1 in Volume 4 of this EIAR.

7.5.3.4 Zone C

7.5.3.4.1 Summary

Works in Zone C relevant to Population include modification of the UBB36 Rogerstown Viaduct and UBB56 Balbriggan Viaduct, and traction substation works at Donabate, Rush and Lusk, at Skerries South, Skerries North, and at Balbriggan, road and pedestrian overbridge parapet modifications and track lowering at the following bridges: OB39 Station Road, OBB44 Tyrrelstown and OBB55 Lawless Terrace/R127.

7.5.3.4.2 Substations

Five traction substations will be needed in Zone C. The first of these will be constructed over a period of three months at Donabate with access to the associated Construction Compound (CC-18800) via the L6165 to the R126 Corballis Back Road. The site is located on what is currently agricultural land. The access road is proposed to run alongside the boundary of a house and the railway, but some permanent land take will be necessary. A second traction substation (incorporating an OHLE maintenance compound) will be sited to the south of the Rush and Lusk Station car park to the east of the tracks. The works will occur over two periods of three months. Noise effects on **amenity** are assessed as being at least of moderate significance (see Chapter 14 (Noise and Vibration)) with the nearest houses being at 150m distance. A Construction Compound (CC-23500) is associated with the works which will also require an improvement to the station vehicle access given that the local road is busy and journeys from Lusk require a very sharp turn right. This junction upgrade can be retained once the works are complete. The adjacent R128 can accommodate the additional construction traffic and would be used for access linking to the strategic R127.

A third traction substation is proposed for Skerries South. This site and the associated Construction Compound (CC-2900) would be adjacent to a residential property and close to St. Michael's Special School to the east, a sensitive receptor.

Access to the compound would be to the west of the property to minimise permanent agricultural land take. Construction traffic would avoid the school entrance by entering and leaving the compound from the west past the entrance to Skerries Golf Club to the R127, using the L1285 and Golf Links Road, and avoiding the low railway bridge in Skerries. Any effects will be slight, noting also the low magnitude and short duration of the works.

A fourth traction substation is proposed for Skerries North along with an associated Construction Compound (CC-32200). Access to the site and compound by a maximum of 2 HGVs and 6 LGVs per hour, would be via a shared access lane adjacent to a garden centre and beside a residential property. The works themselves would be within 100m of the edge of a residential estate, but will be short-term over two periods of three months. An at least significant temporary noise effect is assessed prior to mitigation. Due to the restricted clearance of the railway underbridge to the east, larger vehicles would need to use the narrow local L1270 Barnageeragh Road, passing through a small village and beside the entrance to the Ardgillan Castle amenity to reach the R127. Some interaction with local and visitor traffic is likely, but effects on **journey amenity** are likely to be slight, noting also the low magnitude, although an avoidance of the holiday season would be preferable. The land take during construction, including the Construction Compound, will be slightly larger than the permanent land take and will be from agricultural land use.

A final traction substation in this zone will be sited to the north of Balbriggan at Bremore and would connect directly with the R132 and M1. Only slight to moderate noise effects are assessed together with a slight effect due to construction traffic passing two residential properties. The land take needed for construction, including Construction Compound (CC-37700), will be slightly larger than the permanent land take and be from agricultural land use.

7.5.3.4.3 Track works

A lowering of track will be needed at three bridges. The first of these will be at bridge OBB39 at the R128 immediately north of Rush and Lusk Station and is likely to occur over a weekend closure of one track at a time. The road here is relatively busy as it serves Lusk, Skerries and Balbriggan, but there will be no significant effect on journey characteristics during the works. Neither will there be a need for an additional Construction Compound given the availability of that proposed for the traction substation. Lowering will also be needed at the OBB44 Tyrrelstown Bridge again over a likely weekend closure depending on the availability of possessions. A line-wide Construction Compound (CC-25100) is proposed here and would be sited on agricultural land, presenting no community impact for Population. Two residential properties are located nearby on the far side of the track to the east, but noise effects are assessed as slight to moderate and any effect on **residential amenity** will be slight, noting also the low magnitude and short duration of the works. The local road connects with the R127 at Lusk Village, is narrow and passes beside a rural preschool, but any impacts on traffic or community facilities would also be slight noting the short duration of the works. Track lowering will also be needed below the OBB55 Lawless Terrace/R127 bridge. These works would be beside high density housing, but the impacts are likely to occur over a weekend closure and will be limited to slight to moderate effects due to noise as there is no space here for a Construction Compound with the works likely to be supplied by the Compound at Balbriggan (CC-37700).

7.5.3.4.4 Viaduct works.

Partial demolition of the masonry wingwalls will be needed at Rogerstown Viaduct to support the OHLE masts and will be replaced with concrete walls. The viaduct is in the vicinity of Beaverstown Golf Club and 1km east of the popular bird hide at Turvey Nature Reserve. However, the bulk of the works are likely to require just two weekends and noise effects on **amenity** are regarded as not significant. Potential impacts on biodiversity are separately assessed in Chapter 8 (Biodiversity) in Volume 2 of this EIAR and in the Natura Impact Statement that accompanies the Railway Order application. Construction would be supported by the Construction Compounds proposed at Donabate (CC-18800 and CC-19800) and Rush and Lusk Station (CC-23500) .

Visible works will be needed on Balbriggan Viaduct to accommodate two new OHLE masts. Slight to moderate noise effects are predicted prior to mitigation, but the work will require the closure of alternate pedestrian walkways for a short period. It is likely that one walkway will be closed at a time to avoid adding to journey time, limiting the impact to one of slight significance on journey amenity. A more significant impact on journey time would occur if a diversion were needed below the bridge. However, the consequence of any such impact would be of no more than moderate significance noting that the viaduct walkway mostly provides for **journey amenity** given that alternative routes are available to destinations such as the beach. Harbour Road will need to be closed several times to accommodate the crane needed to replace the walkway. At these times, a traffic management plan will be put into effect, but night-time closures are proposed in the first instance and traffic levels in the locality are light with alternative access is available to most destinations. In addition, a Construction Compound (CC-36000) is likely to be situated in an area that is currently a car park, but which the Local Authority propose for future public urban realm open space. Access to this area will be closed for the duration of the works, but the proximity of amenities such as a playpark, the beach and the harbour, along with sensitive population subsets, means that the magnitude and sensitivity are both high presenting potential for significant effects on general **amenity**, albeit of for a short period of around three months. Both works and construction traffic will be the source of these impacts, but measures are proposed to reduce noise and visual effects.

Construction vehicle access will be needed via the alternate one-way Quay Street and Mill Street in the vicinity of a playground and the beach access. A short section of Balbriggan Main Street will be used for construction traffic in the vicinity of shops and services to connect with the R122 Chapel Street which is largely residential but includes a national school. Harbour Road will need closing at night on several occasions to accommodate crane works. The expected volume of HGVs is low, but temporary diversions and interactions with local traffic will be a source of short-term slight-moderate negative effect on vehicle **journey amenity**. Moderate negative effects are also likely on the residential **amenity** of a households in the vicinity of the viaduct or roads used by construction traffic. This includes 12 properties and the Laurel Apartments on Quay Street and a large apartment complex on Mill Street. A slight to moderate effect is also possible for **amenity** use of the harbour and nearest part of the beach due to environmental impacts, including noise.

7.5.3.4.5 Additional Construction Compounds and traffic

Line wide temporary Construction Compounds are also proposed at Donabate and Skerries Stations. It is proposed to site the compound at Donabate (CC-19800) on the opposite (east) side of the tracks from apartments.

Construction vehicle access will be needed using the L2170 and Ascaill Thuirbhe in Donabate, without significant effects on nearby residences, but with the prospect of some interaction with other vehicles on the railway bridge. Similarly, in Skerries, a Construction Compound (CC-30200) is needed. A Compound for a Track Paralleling Hut (CC-31100) is also proposed beside Barnageeragh Road. The road has the capacity to take construction vehicles, although the final approach via St. Patrick's Close would take these vehicles past residential properties which represent sensitive receptors and would be moderately impacted by the works.

7.5.3.5 Zone D

7.5.3.5.1 Summary

Works in Zone D relevant to Population will include modification of the Laytown Viaduct to accommodate OHLE, installation of traction substations at Gormanston and Bettystown, track lowering works at the OBB78 Colpe Road Bridge, and modifications to the OBB74A Laytown Station footbridge.

7.5.3.5.2 Substations

A traction substation will be constructed at Gormanston on land owned by the Department of Defence which is currently under permanent grass. Land take for Construction Compound CC-41400 will be slightly larger than the permanent land take. There is a house and farm immediately to the west for which noise effects would be temporary, but moderate to significant prior to mitigation over the expected two 3-month construction periods, with the greater effects likely during the initial civil works, (see Chapter 14 (Noise and Vibration)). The local road provides access to a handful of properties and farms to the R132. It also provides access to the beach, although there is no car park and access can be subject to closure by the military. The impact of additional construction vehicles will therefore be restricted to noise effects on residential **amenity** (see Chapter 14 (Noise and Vibration)). This road connects with the R132 and thereon to the M1.

A second traction substation is proposed at Bettystown on the east of the railway line where effects are possible for the amenity of residents in the adjacent Ardmore Estate (Ardmore Rise, Close and Lane) due to significant to very significant environmental impacts such as noise or lighting prior to mitigation (see Chapter 14 (Noise & Vibration) and Chapter 15 (Landscape and Visual)). The proximity of Construction Compound CC-46900 to residential housing means that the location is of high sensitivity, although the works are temporary over two 3-month periods. Dedicated access to the L5632 Narroways Road is proposed. Although this would take construction vehicles to the rear of a number of local houses, this traffic would avoid use of the local road serving these same residences which, being recently built, are occupied by a high proportion of families with young children. Most properties are set back from the road. Onward access is to the L5615 Pilltown Road and the R132. Land take from undeveloped land will be slightly larger during construction than the permanent land take.

7.5.3.5.3 Track works

Track lowering over a distance of 200m will be required at the OBB78 Colpe Road Bridge on the southern side of Drogheda. The works will be located adjacent to apartments with the Construction Compound CC-49600 located off the embankment carrying the local road immediately to the south. Works will likely occur over the weekend depending on track possessions.

Moderate environmental effects on residential **amenity** are likely for the short duration of the works due to noise prior to mitigation (see Chapter 14 (Noise and Vibration)). The compound would require a temporary change in land use from agricultural. A new school is nearing completion to the east of the railway line but would not be impacted. Construction vehicles would use Colpe Road to connect with the R132. Eleven residential properties are set back from the road as is Drogheda Presbyterian Church and others in the recently built Grange Rath Estate are separated by railings so any impact from the light construction traffic on **amenity** will likely be imperceptible. A combined footpath and cycle path crosses the bridge separated from road traffic.

7.5.3.5.4 Viaduct works.

Two new OHLE gantries will be erected on Laytown Viaduct. Temporary scaffolding will be needed in an area designated for amenity (see Chapter 15 (Landscape and Visual)) and a Construction Compound established on a small layby beside the south pier. There are five nearby properties on the south bank and environmental effects such as noise are likely to have a significant to very significant effect on the residential amenity of those closest to the works prior to mitigation. There is nearby parking for the beach, sports clubs and pitches, and a pitch and putt course on the dunes, but the **amenity** of these community facilities will not be impacted as vehicle access will be maintained, although traffic management measures will be necessary. However, activity in this area includes sensitive groups such as young children and so **amenity** use of the area, the footbridge across the River Nanny and the connecting path will be moderately impacted for the duration of the works. Access from Construction Compound CC-44500 will be to the R132 via Coastview Cottages, a narrow road with some sharp bends and junctions. As HGVs would be unable to pass below the viaduct on the south bank, heavier materials will be brought to the site by rail, reducing pressure on use of the local road where traffic is typically light.

On the north bank, the works will be undertaken adjacent to a car park and a short distance south from Laytown Station. A Construction Compound CC-44700 will be sited on an existing rail maintenance yard on the south side of the R150 to the west of the station and road bridge. A second compound will be sited west of the railway line just to the north of the station and station car park. This site is under permanent grass and scrub cover. A small garden centre is located to the north of the bridge and the Sidings Apartment complex is situated beside the east side of the railway line opposite the second Construction Compound. Environmental effects on **amenity** are likely here due to construction, including an at least significant effect due to noise (see Chapter 14 (Noise and Vibration)). Access to both Construction Compounds will be via the rather narrow R150 connecting with the R132 to the west. This access route will avoid Laytown, but as the road carries traffic for both the town and beach, the works may require traffic management measures, although expected construction traffic movements are light and only a slight effect is likely on **journey amenity**.

7.5.3.5.5 Additional Construction Compounds and traffic

Line-wide Construction Compounds are proposed for the existing maintenance compounds. The compound at Gormanston would be on agricultural land and place construction traffic on the same minor road as is used to access the station and the beach (although traffic is light here as there is no car park at the beach). The compound at Laytown would be to the north of the station and west of the tracks opposite apartments. Some noise effects are likely here.

7.5.3.6 Zone E

Works in Zone E relevant to Population will include reconstruction of McGraths Lane Bridge at OBB80/80A/80B Railway Terrace, the UBK01 Dublin Road Bridge and the OBB81 Drogheda Station footbridge, construction of a new platform 4, installation of a traction substation, works internal to the depot, Stabling Roads and works on a Northern Headshunt.

7.5.3.6.1 Substation

A new traction substation will be constructed beside the existing depot on the north side of the station area over a short period of three months. Residential properties are located at around 60m from the proposed works and noise effects are predicted to be temporary, at least moderate to significant prior to mitigation impacting on residential **amenity** (see Chapter 14 (Noise and Vibration)). Construction traffic will enter via the west end of the station car park and a route through the existing maintenance tunnel. Traffic on this route is likely to have a slight environmental impact on nearby residents in Pines Hamlet. The alternative of the proposed temporary road from Marsh Road (R150) to McGraths Lane would apply in the case of larger vehicles.

7.5.3.6.2 Station works.

The deck of the OBB81 footbridge within Drogheda Station will also need to be removed and replaced. Significant works will be required for a short period within the station affecting passenger **journey amenity**. Construction traffic will use the R105 as for other works.

The new Platform 4 will be constructed in conjunction with works on the associated turnback facility and will require removal of the existing retaining wall and construction of a new wall. The works will be coordinated with the construction of the Dublin Road bridge (UBK01). At least significant effects due to noise are predicted prior to mitigation which would include timing the works for weekends to reduce disruption to services. A Construction Compound is proposed for the Drogheda Station car park.

External track works on the northern headshunt and stabling together with internal works at the depot are proposed and will be serviced by Construction Compound CC-51800 to be sited on lands to the east requiring a temporary change in land use from agricultural. A slight effect due to environmental noise effects from the proximity of the works is likely for players using the Pitch and Putt Club.

7.5.3.6.3 Bridge works

The McGraths Lane Bridge (OBB80/80A/80B) consists of three spans and will need to be demolished and replaced with a new bridge with greater clearance over an 18-month period. The bridge connects Railway Terrace with two properties on the cul-de-sac and agricultural land off McGrath's Lane to the north of the railway. Temporary possessions of the rail line over a number of weekends and nights will be needed, most likely long weekends of four days duration, with works occurring over an 18-month period. Land take will be necessary to continue to provide access to the two properties and land will also be needed for the Construction Compounds. The much larger of these (CC-51800) will include the access from Marsh Road and involve a temporary change in land use from agricultural. The minor compound (CC-51900) will be located on scrubland beside the southern abutment to the bridge and be shared with the works on the new signalling building.

Construction vehicles would use the temporary access road from Marsh Road, but also some access from the south using Railway Terrace. The Marsh Road link will also need to be used by the residential properties on the north side of the tracks, presenting a slight-moderate negative effect on **journey characteristics** for occupants' depending on their specific needs to access community facilities using the existing access across the bridge. At least very significant noise effects prior to mitigation are predicted for the closest residential receptors on Railway Terrace, Harvest Way and a single property on McGrath's Lane affecting residential amenity.

The UBK01 bridge over the R132 Dublin Road will also be widened. This will require a period of full road closure over some weekends and contraflow at other times with an impact on vehicle journey characteristics. The Drogheda Freight Sidings will also need to be closed for intermittent periods over a small number of weeks, however, as this line is only relevant to freight there will be no impact on commuters or the general public associated with the closures. Vehicle diversions will be needed for short periods via Meadow View Road along which there is housing fronting on the road for around 350m and a primary school, though set back behind railings. A short-term temporary **severance** impact could arise in relation to the primary school as a sensitive receptor prior to mitigation. On the connecting Blackbush Road, a narrow rail underbridge with space sufficient for a single flow of traffic, would require a signalised contraflow and so affect **journey amenity** to local community amenities. Larger HGV traffic will be directed to continue on Meadow View Road to the R108 Beamore Road/Duleek Street which has more capacity to take this additional traffic and from here into the town centre. Noise effects due to the bridge works are predicted to be short-term, but at least significant prior to mitigation on the residential amenity of residential receptors closest to the works, including on St. Mary's Villas, Mount Auburn, and a single property accessible from Dublin Road (see Chapter 14 (Noise and Vibration)). Closure of part of St. Mary's Villas Road where it connects with Dublin Road will be necessary at times, presenting a negative effect by requiring residents to divert via Sunnyside Cottages or Blackbush Lane.

7.5.3.6.4 Construction traffic

Access will use the relatively quiet R150 Marsh Road to the north using a temporary road which will also serve the residential properties and farmland during the construction phase. Other construction traffic will travel east on the R150 away from Drogheda centre to join Colpe Road and the R132 for which the impact would be additional to that for the bridge works at this location. The route includes an Educate Together School and Grammar School on the R150, although these are set back from the road and their distance from Drogheda suggests that most students arrive by school bus or car such that sensitivity is moderate. The access route also includes short stretches of residential along Mill Road, but most properties here are set back from the road and any resulting **community severance** will be temporary, negative and slight. A moderate negative impact before mitigation is likely at the new Educate Together Secondary School at Colpe East. The school is set back from the road. Many students arrive by two school bus services, but a high proportion also walk or cycle from residential areas west of the railway line. There is no severance for students arriving from most of these areas as a footpath follows the north side of Colpe Road West. At the roundabout at the school, there are signalised crossings to cater for a very small number of students arriving from south of Colpe Road where there is currently no onward pedestrian or cycle infrastructure for students from Donacarney. Nevertheless, there is a need to moderate impacts due to construction traffic on Colpe Road and Mill Road. Traffic on the R132 at the Dublin Road bridge will be reduced to a single lane with bi-direction flow introduced, with complete closure needed for short periods of time during demolition works.

Some limited access will be needed along Railway Terrace to the bridge works at OBB80/80A/80B This is a narrow and quiet residential road, and includes just eight properties which front onto the road. Effects on residential **amenity** will be slight. Construction vehicles will also be diverted south to the R132 away from the town centre.

A negative effect on **amenity** is likely due to increased construction traffic on visits to Calvery Cemetery on Blackbush Lane where major noise impacts are predicted. Donore Road, to the west, will be used for occasional larger loads as it has more capacity, but does pass beside small areas of residential development.

Table 7-16 Summary of Construction Phase Effects

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
All zones									
Land use				Land take will be necessary for works' access roads and substations. Permanent land take will be needed too, but generally much less than that needed temporarily.	Varies by existing land use. More significant for agricultural.	Short term (varies)		Addressed rather by compensation	Neutral
Journey characteristics	Parapet works (low and tall)	Parapets too low	Low-High	Vertical extension of parapets requiring traffic management	Slight negative	Short-term (<10 days)	Low	See 6.6.1.1. Traffic management	Slight negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Zone A									
Amenity	Fairview	Clasach Centre is beside busy road and railway depot. Gym is slightly to north.	Clasach = High; West Wood = Low	Possible noise effects due to modifications to Fairview Depot	Not significant to Slight	Short-term (c12 months)	Low	See General N&V mitigation listed in 14.6.1	Not significant
Zone B									
Land use	Howth Junction & Donaghmede and Clongriffin	1x private car parking, 1x development land, 1x green space, 1x boatyard.	n/a	Land take from private ownership for Construction Compound access to substation works, platform, boundary and on-line works.	Significant	Short-term (varies)	-	Addressed rather by compensation	Neutral
Journey amenity	Passengers Howth & Donaghmede Station	Existing station	High. Includes sensitive subsets	Works on new connection to central platform and improvements to station entrances, but accessibility maintained.	Moderate negative	Short term (up to 24 months)	High	Signage and facilities for people with disabilities	Slight to moderate negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Journey amenity	Clongriffin construction traffic. Portmarnock Walking Cycle Way	Popular facility linking Baldoyle and Portmarnock	High. Includes sensitive subsets	Impact from delay and on amenity generally from construction vehicles from Clongriffin station construction using Moyne Park	Moderate negative	Short term (up to 12 months)	High	Flag man needed at times of most construction traffic movement	Slight to moderate negative
Journey Amenity	Clongriffin. construction traffic	Coast Road and Station Road	High. Road is used for access and amenity.	Construction traffic could add to congestion and impact on amenity	Moderate - significant	Short term (up to 12 months)	High	See CTMP 6.6.1.1	Slight to moderate negative
Amenity	Howth Junction & Donaghmede Station.	St. Donagh's Road (residential road)	High	Construction traffic access to support Construction Compound at Howth Junction and Donaghmede Station	Moderate negative	Short term (up to 24 months)	Medium	See CTMP 6.6.1.1. Use other accesses where possible	Slight to moderate negative
Amenity	Howth Junction & Donaghmede Sta.	Carndonagh Quiet residential area	High	Demolition works and piling for platform extension.	At least very significant negative	Short-term (up to 24 months)	Medium	See 14.6.1	Significant negative
Amenity	Howth Junction & Donaghmede Station.	Kilbarrack Business Park. Dublin Thai Boxing and gym	Low	Demolition works and piling for platform extension	Slight negative	Short-term (up to 24 months)	Low	See 14.6.1	Slight negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Amenity	South and east of Clongriffin Station, e.g. retaining wall.	Myrtle Court. Quiet residential area.	High	Noise effects on existing nearby residential properties, but only on others if built within the construction phase.	At least moderate to significant negative	Short term (up to 12 months)	Medium	See 14.6.1	Moderate to significant negative
Amenity	West of Clongriffin Station	Apartments and community facility	High	Noise effects on apartments and community facilities	At least moderate to significant negative	Short term (up to 12 months)	Medium	See 14.6.1	Significant negative
Amenity	Malahide Marina Village	Residential area backing onto railway. Creche and Montessori.	High	Works on tracks, including noise from night-time works, and use of local road by construction vehicles	Significant to v. significant negative	Short term (up to 18 months)	High	See 14.6.1 and 6.6.1.1	Significant negative
Amenity	Sea Road and Bissett's Strand	Lightly trafficked road accompanied by residential properties and footpath used for amenity.	High	Works in the vicinity of Bissett's Strand.	Significant to v. significant negative	Short term (up to 18 months)	Low	See 14.6.1 and 6.6.1.1	Moderate to significant negative
Amenity	Yellow Walls Road, Sea Road and Bissett's Strand	Road accompanied by residential properties and footpath used for amenity. Schools beside Sea Road and Yellow Walls Road.	High	Construction traffic	Moderate-Significant negative	Short term (up to 18 months)	High	See also 14.6.1 and 6.6.1.1. Low HGV speed limit with trip to avoid school access times..	Moderate negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Amenity	Marina Village	Quiet residential area	Medium	Turnback and viaduct works	Significant to Very Significant	Short term (up to 18 months)	High	See 14.6.1 and 6.6.1.1	Moderate to significant, negative
Amenity	Malahide Village centre	Old Street is mainly residential. James Terrace residences, offices and access to amenities.	High	Use by construction traffic	significant negative	Short term (up to 18 months)	High	General construction access along the public road will take place between 10am and 4pm avoiding peak hours and nighttime.	Moderate negative
Economic	Clongriffin. Businesses in trading estates,	Businesses beside railway tracks	Low-High	Possible noise impacts from Clongriffin depot works on sensitive businesses.	Moderate - significant negative	Short term (up to 12 months)	Low		Moderate to significant negative
Zone C									
Land use	Donabate, Rush & Lusk, Skerries South, Skerries North, and Balbriggan North.	5x Agricultural. (Rush & Lusk proposed for residential development)	n/a	Land take from private ownership for Construction Compound access to substation works, OHLE maintenance facility, electricity diversions and on-line works.	Significant for agriculture	Short-term (varies)	-	Addressed rather by compensation	Neutral

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Journey amenity	Harbour Road below Balbriggan Viaduct	Local access to harbour and beach	Medium	Occasional closure.	Moderate negative	Short-term	Low	See 6.6.1.1	Slight to moderate negative
Journey amenity	R127 Skerries South substation	Local L1285 light traffic to community facilities including special school and golf club.	School: High Golf club: Low	Addition of substation construction traffic, but rather to west away from school	Slight negative	Short-term 3+3 months	Medium	See 6.6.1.1	Slight negative
Journey amenity	Skerries North substation. L1270 Barnageeragh Road	Narrow local road includes access to Ardgillan Castle	Low	Addition of substation construction traffic. Small number of residential properties and vehicle access to castle amenity.	Very significant negative	Short-term 3+3 months	Medium	Minimise construction traffic during holiday periods. See also 6.6.1.1	Significant negative
Journey amenity	Balbriggan Viaduct	Closure of elevated pedestrian walkways	Low	Temporary closure of one walkway at a time. Noise effects.	Moderate negative	Short-term	Medium	Avoid simultaneous closure of both walkways	Slight to moderate negative
Journey amenity and Amenity	Quay Street, Mill Street, Main Street, Balbriggan	Nearby apartments, playground, beach access, shops and shopping.	High	Use by nearby roads by construction vehicles working on Balbriggan Viaduct	Significant negative	Short-term	High	Temporary closure of playpark. See 6.6.1.1 and 14.6.1.	Moderate negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Amenity	Track lowering at Lawless Terrace.	Residential area	High	Environmental effects due mainly to noise, but short duration	Moderate negative	Short term (weekend)	Medium	See 14.6.1	Slight to moderate negative
Amenity (residential)	Skerries St. Patrick's Close	Properties beside haulage route	High	Noise effects	Moderate negative	Short-term	Medium	See 6.6.1.1	Slight to moderate negative
Amenity (residential)	Skerries North.	Properties beside rail line	High	Noise and visual effects	At least moderate to significant negative	Short-term	Low	See 14.6.1	Moderate negative
Amenity (residential)	Balbriggan	Two properties beside rail line	High	Noise and visual effects from construction of substation	Not significant	Short-term	Low	See 14.6.1	Slight to moderate negative
Amenity (residential)	Tyrrelstown	Two properties beside rail line	High	Noise and visual effects from track lowering, including some night-time works	Moderate negative	Short-term	Low	See 14.6.1	Slight to moderate negative

Zone D									
Nature of Effect	**Location / Sub-Group**	**Current situation**	**Sensitivity**	**Construction Effect**	**Significance**	**Duration**	**Number of receptors**	**Proposed Mitigation**	**Residual significance**
Land use	Gormanston and Bettystown	1x Agricultural. 1x development land.	n/a	Land take from private ownership for Construction Compound access to substation works, electricity diversions and on-line works.	Significant for agriculture and development land	Short-term (varies)	-	Addressed rather by compensation	Neutral
Journey amenity	R150 to Laytown	Rather narrow road carrying local and beach traffic	Low	Addition of construction vehicles	Slight to moderate negative	Short term	High	See 6.6.1.1	Slight to moderate negative
Journey amenity	Gormanston substation.	Local road carries light traffic	Low	Addition of construction vehicles on local road serving small number of properties	Moderate to significant negative	Short-term 3+3 months	Low	See 6.6.1.1	Slight to moderate negative
Amenity	Laytown Viaduct	Amenity area near to beach and facilities	High	Noise and visual effects, mainly for users of footbridge. Access to community facilities maintained	At least significant negative	High	High	See 14.6.1	Significant negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Amenity (residential)	Laytown Viaduct	Properties beside rail line	High	Noise and visual effects	At least moderate negative	Short term	Low	See 14.6.1	Moderate to significant negative
Amenity (residential)	Sidings Apartments, Laytown	Located beside rail line.		Opposite Laytown Construction Compound. Noise and visual effects	At least significant negative	Short term	Medium	See 14.6.1	Moderate to significant negative
Amenity (residential)	Gormanston substation	Residences near works	High	Nearby construction and noise	Moderate-Significant	Short term 3+3 months	Low	See 14.6.1	Slight to moderate negative
Amenity (residential)	Bettystown substation. Ardmore Estate Narroways Road	Residential roads and new estate	High	Proximity of housing to substation works. Noise and visual effects, but avoidance of residential road by construction traffic	Significant to negative	Short term 3+3 months	High	Dedicated access to Narroways Road	Moderate negative
Amenity (residential)	Track lowering at OBB78.	Residences elevated above rail line	High	Proximity to works. Noise and visual effects including from some night-time works	Slight to moderate negative	Short term	Medium	See 14.6.1	Significant negative

Zone E									
Nature of Effect	**Location / Sub-Group**	**Current situation**	**Sensitivity**	**Construction Effect**	**Significance**	**Duration**	**Number of receptors**	**Proposed Mitigation**	**Residual significance**
Land use	Drogheda	Agricultural	n/a	Land take from private ownership for Construction Compound access and for substation works, electricity diversions and on-line works.	Significant for agriculture	Short-term	-	Addressed rather by compensation	Neutral
Journey characteristics	Access to properties north of railway line	Access via Railway Terrace	Medium	Closure of current access and replacement with access from R150 Marsh Road	Moderate negative	Short term (up to 18 months)	Low	See 6.6.1.1	Slight to moderate negative
Journey characteristics	Meadow View Road/Blackbush Road/ R108	Moderate traffic	Medium	Meadow View and R108 used as northbound diversion during works on Dublin Road UBK01 bridge. Contraflow on Blackbush Road.	Significant negative	Short term (up to 18 months)	High	See 6.6.1.1	Moderate negative
Journey characteristics	R150 Dublin Road, Drogheda	n/a	Low	Construction traffic during works on Dublin Road UBK01 bridge	Significant negative	Short term (up to 18 months)	Medium	See 6.6.1.1	Moderate negative
Journey characteristics	St. Mary's Villas	Connects with Dublin Road	Low	Temporary closure of road at time	Moderate negative	Short term	Medium	See 6.6.1.1	Moderate negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Journey Amenity	Drogheda Station	Demolition of existing footbridge	Includes some sensitive subsets	Demolition of footbridge and erection of new. Temporary passenger diversions	Significant negative	Short term	High	See 14.6.1. Directional signage	Moderate negative
Journey Amenity	Drogheda Station car park	Large car park	Low	Car park used for Construction Compounds, reducing number of parking spaces	Slight negative	Short term	Medium	Minimise duration of works if possible	Slight negative
Community severance	St. Mary's Primary School, Meadow View, Drogheda	Traffic continues along R132 Dublin Road	High	Meadow View used as northbound diversion during works on Dublin Road UBK01 bridge. Severance on school.	Significant negative	Short term (up to 18 months)	Medium	See 6.6.1.1 Facilitate crossing of school children.	Moderate negative
Amenity	Substation at Drogheda station	Railway traffic noise	High	Noise affecting small number of residential properties within 60m of works	Moderate to significant negative	Short term	Low	See 14.6.1	Moderate negative
Amenity	Some properties on Harvest Way	Quiet residential road, but for trains	High	Construction works and noise associated with OBB80/80A/80B works	At least significant to very significant	Short term	Medium	See 14.6.1	Significant negative
Amenity (residential)	Railway Terrace, Drogheda	Quiet residential road	High	Use of some construction traffic for OBB80/80A/80B	At least significant to very significant	Short term (up to 18 months)	Low	See 6.6.1.1	Slight to moderate negative

Nature of Effect	Location / Sub-Group	Current situation	Sensitivity	Construction Effect	Significance	Duration	Number of receptors	Proposed Mitigation	Residual significance
Amenity (residential)	St. Mary's Villas, Mount Auburn	Quiet residential areas	High	Proximity of construction works for UBK01	At least significant to very significant	Short term (up to 18 months)	Medium	See 14.6.1	Significant to v. significant negative
Amenity (residential)	Mill Road, Mornington and parts of Colpe Road (east & west)	Road serving moderately sized community	Low	Road would carry most construction traffic for OBB80/80A/80B	Slight-moderate negative	Short term	High	See 6.6.1.1	Slight negative
Amenity (Residential)	Meadow View, Drogheda	Residential road. Light traffic.	High	Meadow View used as northbound diversion during works on Dublin Road UBK01 bridge	Moderate negative	Short term (up to 18 months)	High	See 6.6.1.1	Moderate negative
Amenity (Residential)	Pines Hamlet, Drogheda	Short residential road backing onto the mainline near station.	Medium	Impacts due to construction vehicles for depot and substation works	Moderate negative	Short term	Low	See 14.6.1	Slight negative
Amenity (Residential)	Calvery Cemetery	Quiet location		Impacts due to noise effects and construction traffic on visits to cemetery	Significant negative	Short term	Medium	See 14.6.1	Moderate negative
Amenity (General)	MacBride Pitch and Putt Club	Quiet location excepting railway noise	Medium	Proximity to headshunt and stabling	Significant negative	Short term	Low	See 14.6.1	Moderate negative

7.5.4 Potential Operational Impacts

7.5.4.1 Potential impacts applicable to all zones

During the Operational Phase, the electrification of the line will provide the infrastructure to permit increased capacity and frequency of services over time. There will be more frequent services on the line between Dublin and Drogheda and also an improvement in journey time reliability, providing for a significant positive effect in terms of **journey characteristics** and **journey amenity** for passengers. Overall, the project would provide people in towns and settlements along the line with more choice in relation to journeys to Dublin or Drogheda, and stations in between. A positive effect would apply in terms of social inclusion too in that people without access to a car will have improved accessibility to employment and education opportunities in Dublin and elsewhere. Similarly, there are potential wider economic benefits in that employers in Dublin and other centres connected by DART+ Coastal North will have access to a larger employee catchment with productivity benefits for the economy. There are potential external social and economic benefits if the improved capacity and services encourage a transfer from private vehicles and more trips by public transport.

The increased frequency of services enabled by the Proposed Development has the potential to affect noise and vibration. More frequent services mean more instances of elevated noise with potential effects on residential **amenity**. However, the noise effects will also be moderated by the electrification itself and use of EMUs when compared with to the use of existing diesel locomotives running at the same speed. Minor adverse impacts on a large number of residential properties, along with a small number of non-residential receptors, are identified in Chapter 14 (Noise and Vibration), with the largest number of properties listed within Zone C. However, these effects are assessed as being not significant following mitigation. Some significant effects due to proposed housing developments are assessed in Chapter 26 (Cumulative Effects) in Volume 2 of this EIAR.

7.5.4.2 Howth Branch

The additional capacity enabled by the Proposed Development will also remove the need to limit train frequencies on the Howth Branch to three trains per hour in each direction. Instead, it is proposed to increase the number of trains on the Howth Branch to six trains per hour. This would represent a significant positive impact on **journey characteristics**. The prospect of the proposed DART shuttle service to/from Howth will have an effect on **journey amenity** by require passengers to interchange to some mainline services at Howth Junction & Donaghmede Station if and when implemented in the future. The proposed platform extension will allow for this interchange and be able to accommodate the additional passengers.. Station entrances and platform connections will also be upgraded as part of the project.

Although passengers will be required to change at Howth Junction and Donaghmede Station if using DART shuttle services, those services on the Northern Line will be more frequent and therefore able to accommodate more passengers than before. Furthermore, the introduction of turnbacks at Clongriffin and Malahide, ensures that some services will terminate/commence at these stations, ensuring capacity for those boarding at Howth Junction & Donaghmede Station. In this respect, the extended platform will be a positive intervention, providing for more space and less potential confusion for passengers. Clear signage, including updated information for passengers will be essential, even more so for tourists and those unfamiliar with the need to change. In addition, a waiting shelter will be provided along with seating at regular intervals along the platform.

The prospect of more frequent services on the Howth Branch will also have a positive impact by reducing on-board congestion, particularly during the holiday season. Although numerous concerns were raised during the public consultation, it is expected that these concerns will diminish once additional services are running smoothly and are combined with passengers' increased familiarity. No negative impact on tourism is anticipated. Indeed, the more frequent services will improve the accessibility and comfort of journeys for tourists.

An effect of the proposed doubling of the number of services on the line will be more frequent closures of the level crossings on Baldoyle Road (Kilbarrack), the R106 Station Road (Sutton), Lauders Lane (Cosh) and Claremont Level Crossing. At present, there is regular traffic congestion on the R809 Baldoyle Road and on the R106 Station Road. At busy times, such as summer weekends, vehicle tail backs can extend north along Strand Road almost as far as the junction with Baldoyle Road. These tailbacks impact on both journey time and journey amenity, and on the residential amenity of people living on these roads, including their visual amenity across to Portmarnock Beach.

Modelling undertaken for the assessment of the proposed project indicates that an increase in queues can be expected at most times at the Kilbarrack Crossing on Baldoyle Road, largely due to an increase in the frequency of barrier closures and a likely increase in their duration. Sensitivity modelling indicates a possibility for an increase in queues, but that these will remain within the queuing capacity of the road. Under the most likely outcome, a slight negative impact on vehicle **journey characteristics** and **journey amenity** is likely. The frequency of wait times for pedestrians and cyclists is also expected to increase, but this will be a slight impact in that these will be between only 2 to 5 minutes. Pedestrians and cyclists living nearby would be able to consult IÉ timetables to determine when barriers are most likely to be closed or open. The number of people impacted is high in both cases.

To the east, the Sutton Cross road junction represents the only vehicle access into Howth via Howth Road and Greenfield Road. This road junction is subject to regular traffic congestion which becomes severe at weekends and during sunny weather as people travel to Howth village, impacting significantly on local journeys and the amenity of visitors. While it might be perceived by drivers that they are being delayed twice, more frequent closures of the level crossings will not necessarily add to traffic congestion as its principal origin is Sutton Cross. Moreover, the modelling indicates a decrease in queue length in part due to shorter barrier closure times. Here too, sensitivity modelling does indicate the possibility for an increase in queues. However, under the most likely outcome, a slight positive effect on **journey characteristics** and **journey amenity** is likely. A slight negative effect is likely though for pedestrians and cyclists in that wait times are expected to decrease, but again will be a slight impact in that these will be between only 2 to 5 minutes. The number of people affected is again high in both cases.

Further east, the Cosh Level Crossing at Lauder's Lane permits a connection with Burrow Road along which there is access to the popular Burrow Beach and to numerous houses. A slight increase in delay is projected by the modelling, but traffic volumes are light and alternative access is available for pedestrians and cyclists via a restricted height underpass further east and for vehicles via a narrow overbridge. However, pedestrian counts at Lauder's Lane total 510 crossings on average between 06.00 and 20.00. The crossing also provides access to the 9-hole Sutton Golf Club. The course is spread over both sides of the DART line with three holes to the south. Golfers therefore need to use the level crossing to cross from one side to the other.

Extended delays are inconvenient and can allow the next group of players to catch up with the previous group. The modelling indicates a negative impact due to an increase in the frequency of delays. Although wait times will continue to be short at between 2 to 5 minutes, a moderate negative impact on the **amenity** of golfers can be expected due to the effect of additional delay to the transition between groups of players.

A final level crossing at Claremont allows access to the Howth Lodge residential development to the east, but does not provide a vehicle, pedestrian or cyclist connection with Burrow Road. Surveys here show there to be only an average of 97 pedestrian crossing per day. The assessed effect here is slight negative but will be perceived as more significant by residents aiming to drive or walk to the nearby Howth village centre.

In summary, by being less dependent on the connection with the Northern Line, the proposed shuttle service will be able to keep to a more independent regular and reliable timetable. In these circumstances it will be possible to accommodate the more frequent services. This represents a significant positive impact for the **journey characteristics** of people living and visiting Howth, while the extension of the platform at Howth and Donaghmede Station will cause the net **journey amenity** effects of changing from the proposed DART shuttle to the mainline service to be neutral. There would be a positive impact on the consumer/hospitality/sailing **economy** in Howth due to the potential for more tourism visits, although it is noted that the number of visitors can be perceived by local residents to already be high at times in the peak summer season. For road users, there is likely to be a mix of mostly slight positive and negative journey time and amenity impacts for traffic congestion and for delays for pedestrians and cyclists.

Table 7-17 Summary of Operational Effects

Direct impacts								
Nature of Effect	**Location / Sub-Group**	**Current situation**	**Operational Effect**	**Significance**	**Duration**	**Number of receptors**	**Proposed Mitigation**	**Residual significance**
Land use	At all substation locations and Rush and Lusk	Agricultural and development lands,	Some mostly small areas of permanent land take from private ownership for substation works and permanent access.	Moderate	Permanent	Low	None proposed	Addressed rather by compensation
Journey characteristics	Dublin to Drogheda	No DART services between Malahide and Drogheda	More frequent services and more choice of transport mode overall	Profound positive	Long-term	High	None proposed	Very Significant positive
Journey characteristics	Howth Branch	Three trains per hour I each direction. Delays due in part to mainline link	Doubling of number of trains using a shuttle service.	Very significant positive	Long-term	High	None proposed	Very significant positive
Journey amenity	Passengers at Howth Junction & Donaghmede Station	Confined entrances	Improvements to station entrances	Moderate positive	Long term	High	None proposed	Moderate positive
Journey amenity	Passengers at Howth Junction and Donaghmede Station	Passengers need to change from mainline services for Howth Line	Passengers will need to change to Shuttle service. Extended platform with regularly spaces benches	Slight negative to Neutral	Long term	High	Provide visible security against anti-social behaviour	. Neutral
Journey characteristics and amenity	Howth Branch: Kilbarrack, Cosh and Claremont Level Crossings	Regular significant congestion in combination with road junctions. Slight delays for pedestrians and cyclists	Slight increase in queue length due mainly to more frequent closures of barriers	Slight to moderate negative	Long term	Low (Claremont) Medium (Cosh), High (Kilbarrack)	Promote timetables as service now more regular. Consider real time information.	Slight negative
Journey characteristics and Journey amenity	Howth Branch: Sutton Level Crossing	Regular significant congestion originating mainly at Sutton Cross junction. Slight delays for pedestrians and cyclists	Slight decrease in queue length. More frequent wait times for pedestrians and cyclists.	Slight negative (peds & cyclists) to slight positive (vehicles)	Long term	High	Promote timetables as service now more regular. Consider real time information	Neutral to slight/ moderate positive
Journey amenity	Rush and Lusk station vehicle entrance	Constrained entrance off busy road	Improved and safer access through junction upgrade.	Moderate positive	Permanent	High	None proposed	Moderate positive
Indirect and cumulative impacts								
Nature of Effect	**Location / Sub-Group**	**Current situation**	**Operational Effect**	**Significance**	**Duration**	**Magnitude**	**Proposed Mitigation**	**Residual significance**
Journey Characteristics	People without access to a car and disadvantaged groups	Inferior public transport options	Improved journey characteristics of rail and improved access to employment and education opportunities	Significant positive	Long term	High	None proposed	Significant positive
Economic	Businesses in Dublin and connecting stations	Restricted access to workforce and limited connectivity	Access to larger employee catchment and improved transport connectivity	Significant positive	Long term	High	None proposed	Significant positive

7.6 Mitigation Measures

In addition to the design measures included in Chapter 4 (Description of the Proposed Development) and Chapter 5 (Construction Strategy), and to the mitigation proposed in the specialist chapters for Chapter 6 (Traffic and Transportation), Chapter 14 (Noise and Vibration), and Chapter 15 (Landscape and Visual), the following mitigation measures are proposed to be implemented as far as reasonably practicable:

- Portmarnock Walking and Cycle Way - provide flag man at R123 Moyne Road crossing at times of most construction traffic movement
- Howth Junction and Donaghmede - use access points east of tracks where possible to avoid undue impacts on residential estate in Donaghmede
- Malahide Village - Adherence to the CTMP, including low limits on HGV speed. Construction traffic access will take place between 10am and 4pm and avoid nighttime
- Sea Road, Caves Strand, Yellow Walls Road. Adherence to the CTMP, including low limit on HGV speed. Construction traffic access will take place between 10am and 4pm and avoid nighttime
- Information signage should be provided for the duration of the construction works to provide appropriate information on the nature and duration of works, for cyclists and pedestrians using the Broadmeadow Way Greenway in the vicinity of works at Malahide
- Skerries North, Ardgillan - avoid use of local road by construction traffic during summer weekends and holiday periods where possible
- Balbriggan Viaduct - avoid simultaneous closure of both viaduct walkways
- Balbriggan - temporarily close playpark during the busier period for construction traffic
- Station works - Howth Junction and Donaghmede and Drogheda Stations - provide clear directional signage and access facilities for passengers during works internal to the station, bearing in mind the needs of more sensitive subsets and people with disabilities
- Provide visible security measures within Howth Junction and Donaghmede Station and on the platform extension, for example good lighting, CCTV and panic buttons; and
- Drogheda - St Mary's Primary School, Meadow View - during term time, provide for facilitated crossing of school children if local road is being used as a diversion for Dublin Road during UBK1 bridge works

7.7 Residual Effects

7.7.1 Construction Phase

Numerous effects arise at various locations due to noise and are identified in Chapter 14 (Noise and Vibration). While temporary, many of these effects are potentially significant, very significant or profound, but will be reduced in most cases in response to the mitigation measures. Significant effects will remain in the vicinity of Howth Junction and Donaghmede Station, Clongriffin, Malahide and Drogheda where residential properties and some community facilities are situated close to the railway line and some degree of impact cannot be avoided. Wherever possible, works will be timed to minimise noise effects, but significant residual effects on local community receptors are identified due to the bridge works proposed in Drogheda. Residual effects will also arise from construction traffic.

The haulage routes identified in Chapter 6 (Traffic and Transportation) have been selected to minimise impacts on local communities and road traffic movement, although residual effects on journey amenity due to heightened severance or general amenity due to HGV noise are inevitable at some locations including in residential areas beside Howth Junction and Donaghmede Station, and in the vicinity of residential areas and community facilities in Portmarnock, Malahide Village, Skerries North, Balbriggan and Drogheda. Road traffic diversions will be needed during bridge works in Drogheda and these diversions will introduce additional traffic to roads serving residential neighbourhoods and community infrastructure, including schools. Some delays are likely due to temporary contraflow measures or other traffic management. Some residual effects from either construction noise or traffic are likely for amenities in Portmarnock and Balbriggan.

While all residual construction effects are negative, they are also temporary. Those works associated with parapet modifications or track lowering will be of low magnitude and short duration. More significant works associated with OHLE piling and substation construction will also occur over short periods at any one location. By comparison, bridge modifications and station modifications will occur within periods of months to years. The extended works, with more significant residual effects for local residential areas, are likely at Howth Junction and Donaghmede, Clongriffin, Malahide and Drogheda.

7.7.2 Operational Phase

Once the Operational Phase is realised, the implications for rail services are both positive and profound or very significant, relating as they do to the increased frequency and capacity of services. A positive effect in terms of journey characteristics will be realised by all passengers, but especially by commuters for whom journey time reliability is most important. The proposed doubling of services on the Howth Branch will have a significant positive impact on the journey characteristics of train passengers. In terms of journey amenity, the proposed changes to the Howth Branch, including the proposed introduction of a shuttle service, will present inconvenience to some passengers due to the need to change to mainline services at Howth Junction and Donaghmede Station, if and when a DART shuttle service is implemented. However, the new platform extension at the station will provide direct and level access between the Howth Branch and Northern Line platforms such that the net impact, with mitigation, will be neutral. The separation of some services from those on the mainline will reduce the reliance on the timing of services on the mainline and permit a reliable and predictably timed service for passengers using the Howth Branch. Modelling does indicate a slight increase in the frequency of wait times for pedestrians and cyclists at all four level crossings and a slight increase in queues for vehicles. However, at the Sutton Level Crossing, which currently suffers from significant congestion especially at summer weekends, there is the likelihood of a slight reduction in queues.

Over both the Northern Line and Howth Branch there will be a significant positive impact for businesses in terms of the ability to recruit employees from a larger catchment and directly for business meeting and activities. These positive impacts extend to the wider economic benefits, including for economic productivity. There are also benefits for tourism in terms of improved access to Howth and to destinations such as Laytown.

The investment presents an opportunity to encourage a modal shift from private vehicles to public transport with further potential benefits in terms of land use, spatial planning and compact growth around public transport nodes and for environmental quality due to aspects such as reduced pollution and a more congenial environment for pedestrians and cyclists.

7.8 Cumulative Effects

The cumulative assessment of relevant plans and projects is undertaken separately in Chapter 26 (Cumulative Effects) in Volume 2 of this EIAR.

7.9 References

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