

Chapter 3:

Population and Human Health

3.0 POPULATION AND HUMAN HEALTH

3.1 INTRODUCTION

The 2014 EIA Directive (2014/52/EU) has updated the list of topics to be addressed in an EIAR and has replaced 'Human Beings' with 'Population and Human Health'. This chapter of the EIAR was prepared by Paul Turley, BA, MRUP, Dip Environmental & Planning Law, MIPI, of John Spain Associates, Planning & Development Consultants. This chapter should be read with other relevant chapters in particular Biodiversity, Landscape and Visual, Land and Soils, Water, Air Quality and Climate, Microclimate and Noise and Vibration, and the Daylight and Sunlight Assessment included as Appendix 1, which all consider issues of relevance to population and human health.

Population and Human Health comprise an important aspect of the environment to be considered. Any significant impact on the status of human health, which may be potentially caused by a development proposal, must therefore be comprehensively addressed.

Population and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'. While most developments by people will affect other people, this EIAR document concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions.

3.2 STUDY METHODOLOGY

European Commission Guidance on the preparation of documents for the implementation of the EIA Directive states that "*Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise etc.*" This chapter of the EIAR document has been prepared with reference to recent national publications which provide guidance on the 2014 EIA Directive including the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017.

The 2018 EIA Guidelines published by the DHPLG state that there is a close interrelationship between the SEA Directive and the 2014 EIA Directive. The Guidelines state that the term 'Human Health' is contained within both of these directives, and that a common interpretation of this term should therefore be applied.

To establish the existing receiving environment / baseline, several site visits were undertaken to appraise the location and likely and significant potential impact upon human receptors. Desk based study of published reference documents such as Central Statistics Office Census data, the ESRI Quarterly Economic Commentary, the Regional Planning Guidelines for the Greater Dublin Area 2010-2022 and the Dun Laoghaire Rathdown County Development Plan 2016-2022 was also carried out.

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology, architectural and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are

of intrinsic direct and indirect consequence to human health. For detailed reference to particular environmental topics please refer to the corresponding chapter of the EIAR.

The Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA states that *'in an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc'*.

This chapter of the EIAR document focuses primarily on the potential likely and significant impact on Population, which includes Human Beings as required under the Schedule 6 of the Regulations, and Human Health in relation to health effects/issues and environmental hazards arising from the other environmental factors. Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to. The reader is directed to the relevant environmental chapter of this EIAR document for a more detailed assessment.

3.3 THE EXISTING RECEIVING ENVIRONMENT (BASELINE SITUATION)

3.3.1 Introduction

A description of the relevant aspects of the current state of the environment (baseline scenario) in relation to population and human health is provided below. Specific environmental chapters in this EIAR provide a baseline scenario relevant to the environmental topic being discussed. Therefore, the baseline scenario for separate environmental topics is not duplicated in this section; however, in line with guidance provided by the EPA and the Department, the assessment of impacts on population and human health refers to those environmental topics under which human health effects might occur, e.g. noise, water, air quality etc.

An outline of the likely evolution without implementation of the project as regards natural changes from the baseline scenario is also provided.

The existing environment is considered in this section under the following headings:

- Economic Activity;
- Social Patterns;
- Land-Use and Settlement Patterns;
- Employment;
- Health & Safety; and
- Risk of Major Accidents and Disasters.

3.3.2 Economic Activity

The CSO's Quarterly Labour Force Survey (which has now replaced the Quarterly Household Survey) for Q1 2018, indicated that there was an annual increase in employment of 2.9 % or 62,100 in the year to the first quarter of 2018, bringing total employment to 2,220,500. This compares with an annual increase of 3.1% or 66,800 in the year to Q4 2017, 2.2% or 48,100 in employment in the previous quarter and an increase of 3.8% or 79,200 in the year to Q4 2016.

The increase in total employment of 62,100 in the year to Q1 2018 was represented by an increase in full-time employment of 72,000 (+4.3%) and a decrease in part-time employment of 9,900 (-2.1%), representing an improvement in the quality and quantity of employment in the economy.

Unemployment decreased by 30,500 (-18.6%) in the year to Q1 2018 bringing the total number of persons unemployed to 132,900. The CSO state that this is the twenty third quarter in succession where unemployment has declined on an annual basis.

Employment increased in eleven of the fourteen economic sectors over the year (excluding *Not stated*). The largest rates of increase were recorded in the *Public administration and defence; compulsory social security* (+10.4% or 9,800) and the *Administrative and support service activities* (+10.1% or +9,200) sectors.

The overall unadjusted unemployment rate decreased from 7.1% to 5.7% over the year to Q1 2018. The total number of people unemployed was 132,900, an annual decrease of -30,500.

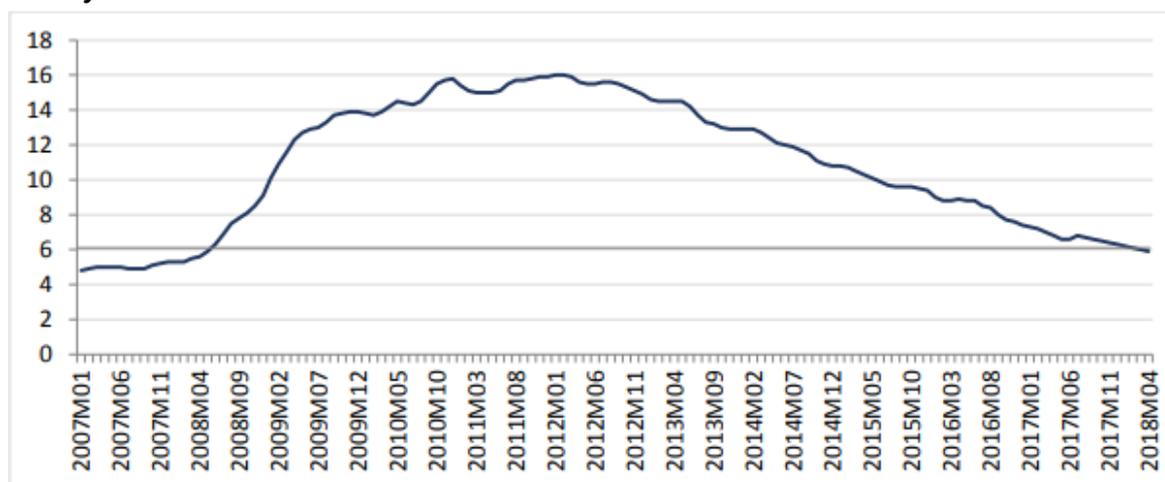
The ESRI Quarterly Economic Commentary for Summer 2018 states that full-time employment now accounts for 79.2 per cent of total employment, this compares with 81.1 per cent in the Q4 2007 peak and 74.8 per cent in the Q3 2013 downturn. On the other hand, part-time employment fell by 23,000 (-4.7 per cent) to 461,500 and now accounts for 20.7 per cent of total employment.

The ESRI further state:

“As the Irish economy is approaching full employment (around 5 per cent) we continue to expect the unemployment rate to decline, but at a slower pace than in the previous quarters. Given the latest review of the CSO labour market figures, we believe that the unemployment rate will average 5.6 per cent through 2018 and 5.0 per cent through 2019. Employment is set to exceed 2.25 million by the end of 2018 and to increase to 2.29 million by the end of 2019.”

The above sources demonstrate that the national economy and employment levels were expected to improve further through 2018 and beyond into 2019, with the Government faced with the challenge of sustaining economic activity and competitiveness during a period of likely full employment. This in turn results in increased demand for residential dwellings particularly within the Dublin region.

Figure 3.1: Unemployment rate in Ireland by quarter (Q1 2011 – Q1 2018) (%) CSO Labour Force Survey



Source: Labour Force Survey, Central Statistics Office.

The ESRI Quarterly Commentary further indicates that household consumption is set to continue benefitting from elevated levels of consumer sentiment and an improved labour market over the next two

years. It is expected that consumption expenditure to grow by 2.4 per cent this year and to grow at a slightly faster pace of 2.5 per cent in 2019.

The ESRI Quarterly Commentary notes strong growth in the domestic economy of 7.8 percent in 2017, however this headline growth figure is tempered by the fact that a small number of multinational firms operating in the Irish jurisdiction likely have a distorting impact on the growth rate of the national economy. This makes it difficult to accurately benchmark or forecast the growth rate of the Irish economy at present. Revised measurements for the growth rate of the national economy are under preparation by the CSO.

At a local level, Blackrock has a relatively strong employment base. Frascati and Blackrock Shopping Centre and office developments on Frascati Road are significant employment generators. Nonetheless there is a significant opportunity to develop and reinforce the employment function of Blackrock and to provide for residential development at Frascati as provided in the County Development Plan / Blackrock LAP.

3.3.3 Social Patterns

The CSO data illustrates that the population of the Irish State increased between 2011 and 2016 by 3.8%, bringing the total population of the Irish State to 4,761,865. The rate of growth slowed from 8.1% in the previous census, attributable to the slower economic activity in the early part of the census period resulting in a reduced level of immigration, albeit offset to a degree by strong natural increase.

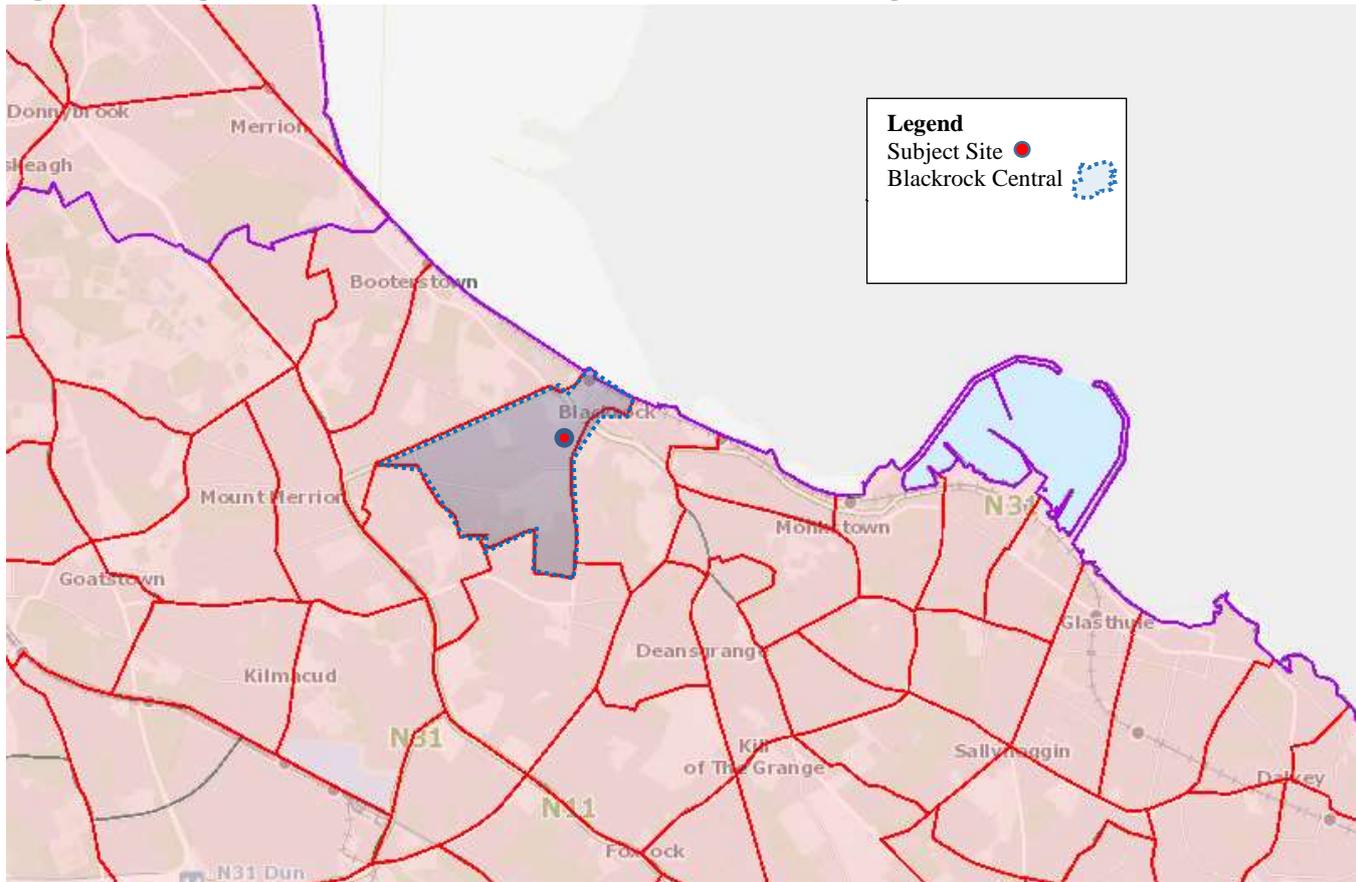
The economy has recovered in recent years with consequent population growth predominantly attributed to natural increase, greater economic activity, increased job opportunities and continued immigration.

Table 3.1: Population change in the State, Dublin County, and Glencullen ED 2011-2016 (Source: CSO)

Area	Number of Persons		
	2011	2016	% change 11-16
Ireland - State	4,588,252	4,761,865	3.8
Dublin County	1,273,069	1,347,359	5.8
Dun Laoghaire Rathdown County	206,261	218,018	5.7
Electoral Division of Blackrock Central	3,841	3,733	-2.8

The CSO data provided above illustrates that the population of the Irish State increased between 2011 and 2016 by 3.8%, bringing the total population of the Irish State to 4,761,865. The rate of growth slowed from 8.1% in the previous census, attributable to the slower economic activity, particularly in the early part of the census period.

Figure 3.2: Image of the Blackrock Central electoral division indicating site location



Notably, the population of the Blackrock Central electoral division decreased, breaking with the wider trend for Dublin County or Dun Laoghaire Rathdown County over the 2011-2016 intercensal period. This can be attributed to an ageing population in the area and a lack of new development due to the largely developed nature of the area. The provision of additional residential accommodation will help support existing services in the area.

3.3.4 Land Use & Settlement Patterns

The predominant land use immediately surrounding the subject site is retail and commercial office use to the east and residential use to the north west, west and south west. The wider Blackrock area is characterised by a mix of low and medium density residential developments. The subject site is currently undergoing redevelopment associated with the rejuvenation of the Frascati Shopping Centre.

The residential use on Georges Avenue, Frascati Park and Mount Merrion Avenue, which abut the boundary of the application site, are the only sensitive land uses in terms of future development proposals in the vicinity of the site.

The adjoining residential development on Georges Avenue and Frascati Park consist of two storey semi-detached and terraced properties. Mount Merrion Avenue consists of 2 storeys over lower ground floor Georgian properties and also contains the 4 storey Lisalea apartment scheme which abuts the northern boundary of the application site. The wider area consists of mainly of established residential neighbourhoods of a medium residential density with occasional more recent higher density schemes.

3.3.5 Health & Safety

The surrounding context consists of a mix of residential, transport-related, recreational and amenity related land uses. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which would be likely to result in a risk to human health and safety.

3.3.6 Risk of Major Accidents and Disasters

The 2018 EIA Guidelines state that an EIAR must include the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project.

In this respect, taking cognisance of the other chapters contained within this EIAR document, it is not considered that the proposed development site presents risks of major accidents or disasters, either caused by the scheme itself or from external manmade or natural disasters.

3.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

Consideration of the characteristics of the proposed development allows for a projection of the level of impact on any particular aspect of the environment that could arise. In this chapter the potential impact on population and human health is assessed.

A full description of the proposed development is provided in Section 2.

The proposal is for a residential development of 45 no. apartment units over 3 no. storeys, from second to fourth floor level, over the permitted ground and first floor levels of retail / restaurant floorspace and permitted lower ground floor car park. The proposal will be an extension of the Rejuvenation Scheme permitted under Reg. Ref.: D14A/0134 (which was the subject of an EIS), as amended by Reg. Ref.: D16A/0235 / ABP Ref.: PL 06D.246810, Reg. Ref.: D16A/0798, Reg. Ref.: D16A/0843 and Reg. Ref.: D17A/0599.

The proposed apartment mix consists of 3 no. 1 bed units, 36 no. 2 bed units and 6 no. 3 bed units. Balconies are provided for the residential apartments on the north eastern, north western, south eastern and south western elevations. Access to the residential units will be provided via a stair and lift core from lower ground and ground floor level. 51 no. car parking spaces within the lower ground floor car park will be allocated to the residential units. The development includes 54 no. bicycle parking spaces for the apartments, located at lower ground floor level and the proposed first floor level podium car park. The development also includes a bin store and plant area at lower ground floor level, two communal terrace areas at second floor level and roof level and plant enclosures at roof level. The proposal will result in the omission of the second floor level restaurant unit and storage floorspace permitted under the Rejuvenation Scheme.

The proposal includes a first floor level podium car park, over the permitted podium car park, located at the north west of the site, which will provide 81 no. car parking spaces. The total car parking provision for the scheme as amended by this permission will be 604 no. spaces, which comprises of 51 no. spaces for the proposed residential units and 553 no. spaces for the permitted retail and restaurant floorspace.

The application site area is 0.625 ha.

The proposal is an extension of the Rejuvenation of Frascati Shopping Centre, which is currently at an advanced stage of construction, and which related to an overall application site area of approximately 3.41 hectares, including the Frascati Road area included in the red line boundary of that application, the development site area, i.e. excluding Frascati Road, is 2.7 hectares. The development comprises primarily of the improvement of the current retail offer within the centre, along with the inclusion of

additional retail services floorspace, the provision of additional café/restaurant floorspace and the reorganisation of the current car parking provision and access and circulation system.

The basement area, which will accommodate the car parking area for the residential units, has been constructed and the replacement car parking for the retail floorspace is proposed in an additional podium level as part of this residential extension application.

This development also provided for works to the Frascati Road (N31) including access, pedestrian and cycle improvements adjacent to the application site. This will include an upgraded pedestrian crossing on the Frascati Road (N31) which will provide more convenient access between the Frascati Shopping Centre and the remainder of the core retail area of Blackrock. These works have been implemented.

3.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

3.5.1 Introduction

This section provides a description of the specific, direct and indirect, impacts that the proposed development may have during both the construction and operational phases of the proposed development. As stated, guidance documents from the EPA and the Department outline that the assessment of impacts on population and human health should focus on health issues and environmental hazards arising from the other environmental factors, and does not require a wider consideration of human health effects which do not relate to the factors identified in the EIA Directive.

Additionally, this section addresses the socio-economic and employment impacts of the proposed development. For a more detailed assessment of potential impacts please refer to specific chapters of the EIAR which assess the environmental topics outlined in the EIA Directive.

3.5.2 Water

Construction Phase

Provision of water infrastructure for the proposed development would involve construction activities within the subject lands mainly involving trench excavations conducted in parallel with the other services. The potential impact on the local public water supply network would be short term and imperceptible. Therefore the impact on human health and population in this regard is considered to be insignificant.

During the construction phase there is potential that surface water runoff may also contain increased silt levels or pollutants from the construction processes. The discharge of these contaminants, such as concrete and cement, which are alkaline and corrosive. A number of mitigation measures are outlined in Chapter 8 – Water.

Operational Phase

The impact of the operational phase of the proposed development on the public water supply will increase the demand on the existing supply. The estimated peak demand from the development combined with the permitted shopping centre as rejuvenated will be 3.65 l/s, with an estimated total daily flow of c. 53,130 l/day.

As such additional water quantities would need to be treated at the reservoir and supplied through the existing network to the site. This will require extra cost as well as increasing abstraction volumes from the existing source. The impact on human health and population in this regard is considered to be insignificant.

SUDs will be implemented in accordance with the recommendations of the GSDSDS and Dun Laoghaire Rathdown County Council requirements. In addition, the 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' will be adhered to.

Therefore, the potential impact on population and human health in this regard is considered to be insignificant.

3.5.3 Noise

Construction Phase

During the construction phase there will be works, involving construction machinery, construction activities on site, and construction traffic, which will all generate noise. The highest noise levels will be generated during the general construction activities. The construction noise levels will occur over an approximate 16 month period and will only occur during daytime hours which will serve to minimise the noise impacts at local existing receptors over the course of the construction phase.

The closest noise sensitive buildings to the proposed residential extension are typically 40m to the south along Georges Avenue and at 50m to the north-west at the Lisalea apartments along Frascati Road. Given the extent of existing structures already completed as part of the rejuvenation development, however, the main noise sources associated with this element of the extension (e.g. tower cranes, generators, lifting equipment etc.) will be largely screened from the nearest noise sensitive properties by these structures within the confines of the site.

Indicative construction noise levels based on the above assumptions are calculated at 68 and 65dB L_{Aeq} at the closest noise sensitive locations.

It is predicted that the construction phases shall result in a short term increase in noise levels in the area as well as introducing tonal and impulsive noise as a result of construction activities such as vehicle movements and general manual construction activities.

The proposed construction phase noise mitigation measures as detailed in the Noise and Vibration chapter of this EIAR shall ensure that all construction activities are controlled and managed and audited by an independent acoustic consultant to confirm that the mitigation measures are implemented throughout the construction phase.

Operational Phase

The main potential for altering the noise environment once the development is operational, and thus impacting neighbouring residential receptors, is road traffic noise associated with the development.

The noise impact of the operation of the new first floor podium car park is predicted to be minor and long term.

The number of vehicle trip movements associated with the proposed apartments is determined to increase traffic on the adjoining Frascati Road in the order of approximately 0.46% and 0.29% for the morning and evening peak traffic hour periods, respectively. This relates to additional 9 vehicles during the AM peak and 7 vehicles during the PM peak onto Frascati Road. The traffic generated by the proposed development is concluded to have little or no material impact on the existing background traffic on Frascati Road.

From a noise point of view, an increase of traffic of this magnitude will be of negligible impact (an increase of less than 0.5dB) and will not be perceptible.

Within the proposed development, sounds generated by everyday domestic activities including waste facilities, pedestrians, children, and use of open spaces, are part of everyday living, and are not considered “noise” in the sense of a potential nuisance. This activity noise would not have any potential for impact beyond the boundaries of the site. In particular, the design of the proposed development has ensured that waste management facilities will not result in impacts on adjacent sensitive receptors.

3.5.4 Air Quality & Climate

Construction Phase

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 200m of a construction site, the majority of the deposition occurs within the first 50m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction.

Overall, in order to ensure that no dust nuisance occurs during the construction and trackout activities, a range of dust mitigation measures associated with a **medium risk** of dust impacts must be implemented. When the dust mitigation measures detailed in the Air Quality and Climate chapter of the EIAR are implemented, fugitive emissions of dust from the site will be insignificant and pose no nuisance at nearby receptors.

The Air Quality and Climate chapter of this EIAR determines that the risk of human health impacts as a result of all relevant construction activities is considered low.

CO₂ and N₂O emissions during construction will have a negligible impact on climate or human health therefore no mitigation measures are required.

Operational Phase

The primary impacts to air quality or climate would involve the change in traffic flows or congestion in the local areas which are associated with the development. However, none of the road links impacted by the development satisfy the criteria to complete an air modelling assessment, it can therefore be determined that the impact to air quality and climate from traffic emissions during the operational stage are **imperceptible** and **not significant** for the long and short term.

In addition, there are no predicted impacts to human health during the operational stage of the development.

3.5.5 Landscape and Visual Impact

Construction Phase

The construction phase will have short term landscape and visual impacts. The impacts are not considered significant on population and human health, particularly given the ongoing redevelopment of the subject site.

Potential construction impacts will be similar in nature to those currently on site, and will arise from:

- Establishment of scaffolding and site enclosures at ground level and above the first floor retail level;
- General construction, emergence of new built elements, car parking and site infrastructure.
- Craning activities, site lighting, etc.

Potential construction stage impacts, though visually significant, will be temporary to short-term and commonplace within the urban environment.

Operational Phase

Given the existing shopping centre use and the ongoing emergence of the permitted *Rejuvenation Scheme*, it is considered that the potential for landscape / townscape and visual impact during operation stage is reduced.

Nevertheless, the proposed development includes a taller structure over the north eastern portion of the site than previously permitted, and an increase in the intensity of development on the site. Therefore the development does have the potential to result in a significant change both in the appearance of the anticipated and permitted *Rejuvenation Scheme*, in particular from Frascati Road, in the townscape experience along the N31, and from proximate residential properties.

The range and extent of influence of such impacts is substantially restricted to the site, the N31 / Rock Road corridor, and to immediately adjoining residential properties to the north and southeast and it is considered that these visual impacts will not precipitate any significant impact on population or human health.

3.5.6 Economic Activity

Construction Phase

The construction phase of the proposed development is likely to result in a positive net improvement in economic activity in the area of the proposed development site particularly in the construction sector and in associated and secondary building services industries. Thus, the construction phase is likely to enhance economic activity in the construction sector.

The construction phase will also have secondary and indirect ‘spin-off’ impacts on ancillary support services in the area of the site, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. These beneficial impacts on economic activity will be largely temporary but will contribute to the overall future viability of the construction sector and related services and professions over the c. 16-month construction period.

The commercial impact of the construction of the proposed development is likely to result in some adverse impact to existing retailers and businesses operating from the subject site and immediate surrounds due to the obstruction and deferral of business from Frascati Shopping Centre and associated ‘spin-off’ to other retail outlets in the wider area. These impacts will be short-term.

Operational Phase

The operational phase of the proposed development will result in a rejuvenated Frascati Shopping Centre with an additional element of residential development as proposed. This will provide accommodation for residents in the form of 45 no. high quality residential apartments located on a site which is appropriately situated and serviced for such development in planning terms. This increase in occupancy in the area will enhance local spending power and will assist with the delivery of a critical mass of population which will

support a wide range of additional local businesses, services, transport infrastructure and employment opportunities.

3.5.7 Social Patterns

Construction Phase

The construction phase of the proposed development is unlikely to have any significant impact on social patterns within the surrounding area. Some additional temporary additional local populations may arise out of construction activity. However, these impacts are imperceptible, temporary in nature and therefore not considered significant.

It is acknowledged that the construction phase of the project may have some short-term negative impacts on local residents. Such impacts are likely to be associated with construction traffic and possible nuisances associated with construction access requirements. These impacts are dealt with separately and assessed elsewhere in the EIAR, including Chapter 2 - Project Description and Alternatives Examined, Chapter 9 - Air Quality and Climate and Chapter 11 - Noise and Vibration.

Such impacts will be short term and in the longer term, the completed scheme will have beneficial impacts for local businesses, residents and the wider community. Any disturbance is predicted to be commensurate with the normal disturbance associated with the construction industry where a site is efficiently, sensitively and properly managed having regard to neighbouring activities.

Operational Phase

The addition of new residents to the area will improve the vibrancy and vitality of the area and will help to support existing community and social infrastructure. The subject lands are located adjacent to public transport including frequent bus and DART services. There is also a considerable range of existing and planned community and social infrastructure in this area of the County, which the proposed development will be able to avail of. The proposed development will provide much needed homes in this area of the County, which will help cater for the considerable pent up and consistent demand in the GDA, which is not being met at present.

3.5.8 Land-Use & Settlement Patterns

Construction Phase

The construction phase of the proposed development will involve the addition of a residential element comprising 45 no. units above the permitted rejuvenated existing Frascati Shopping Centre. The development works will be largely confined to the proposed development site and have the potential to impact adversely and result in the temporary degradation of the local visual environment on a short-term basis. The visual impacts are assessed in greater detail in Chapter 6 of this EIAR.

Operational Phase

The operational phase of the proposed development will provide for an additional residential element in addition to the established retail use of the lands.

3.5.9 Health & Safety

Construction Phase

The construction phase of the proposed development may give rise to short-term impacts associated with construction traffic, migration of surface contaminants, dust, noise and littering. Secondary impacts may include resulting increased traffic arising from hauling building materials to and from the proposed development site which are likely to affect population and human health receptors distant from the proposed development site, including adjacent to aggregate sources and landfill sites.

Construction impacts are likely to be short term and are dealt with separately in the relevant chapters of this EIAR document. The development will comply with all Health & Safety Regulations during the construction of the project.

Operational Phase

The proposed development is unlikely to have any significant impacts on human health and safety once completed and operational. The proposed development will be required by relevant legislation that it does not constitute a health and safety hazard. The proposed development is unlikely to result in any emissions which are likely to be harmful to human health.

3.5.10 Risk of Major Accidents or Disasters

Construction Phase

Having regard to the topography, nature and location of the subject site, it is not considered likely that there will be any impact related to a major accident or disaster during the construction phase of the proposed development, stemming internally from within the development, or externally.

The works proposed in proximity to roadways will be governed by best practice and appropriate safety procedures, ameliorating any risk of a major accident in those contexts.

Operational Stage

The proposed development will be located on land which is not at any significant accident or disaster. The traffic arrangements and parking have been designed so as to avoid any risk of a major accident associated with the surrounding road network.

Therefore, it is considered that there is no significant risk related to major accidents or disasters, external or internal, man-made or natural in respect of the proposed development.

3.6 POTENTIAL CUMULATIVE IMPACTS

The potential cumulative impacts of the proposed development on population and human health have been considered in conjunction with the ongoing changes in the surrounding area and in particular the ongoing rejuvenation project at the Frascati Shopping Centre.

The cumulative impact of the proposed development will be a further increase in the population of the wider area and a further increase in the overall size and scale of development at Frascati. The subject site, which heretofore had accommodated retail and associated uses within the existing shopping centre, will accommodate 45 no. new residential units. This will have a minor impact on the population in the area. This impact is likely to be long term and is considered to be positive, having regard to the zoning

objective for the subject lands, and their strategic location in close proximity to high quality, high frequency public transport, and the high level of demand for new housing in the area.

With regard to human health, the cumulative impact of the proposed development in conjunction with other nearby developments and the ongoing development on the subject site will provide for the introduction of high-quality new housing stock in the area with a high level of accessibility and amenity. The overall cumulative impact of the proposed development will therefore be long term and positive with regard to human health, as residents will benefit from a high quality, visually attractive living environment, with ample opportunity for active and passive recreation and strong links and pedestrian permeability, with a direct and convenient link to high frequency public transport modes.

3.7 'DO NOTHING' IMPACT

In order to provide a qualitative and equitable assessment of the proposed development, this section considers the proposed development in the context of the likely impacts upon the receiving environment should the proposed development not take place.

A '*do nothing*' impact would result in the subject lands continuing to be used as a shopping centre, with rejuvenation works currently underway, with no residential element as now proposed. This would be an underutilisation of the site from a sustainable planning and development perspective, particularly considering the proximity of the subject lands to high quality public transport. The status of the environmental receptors described throughout this EIA document would be likely to remain unchanged. The potential for any likely and significant adverse environmental impacts arising from both the construction and operational phases of the proposed development would not arise.

However, similarly the potential for any likely and significant positive environmental impacts arising from both the construction and operational phases of the proposed development would also not arise.

3.8 AVOIDANCE, REMEDIAL & MITIGATION MEASURES

Avoidance, remedial and mitigation measures describe any corrective or mitigative measures that are either practicable or reasonable, having regard to the potential likely and significant environmental impacts.

Construction Phase

A range of construction related remedial and mitigation measures are proposed throughout this EIA document with reference to the various environmental topics examined and the inter-relationships between each topic. These remedial and mitigation measures are likely to result in any significant and likely adverse environmental impacts on Population and Human Health during the construction phases being avoided. Readers are directed to Chapter 14 of this EIA document which summarises all of the remedial and mitigation measures proposed as a result of this EIA. The following mitigation measures are proposed for the construction phase of the proposed development with reference to Population and Human Health:

HB CONST 1: A construction, including traffic, management plan should be implemented during the construction phase to protect local amenities and the integrity and operation of the local road network.

Operational Phase

The operation phase is considered to have likely significant positive impacts on human beings in relation to providing residential accommodation and an improved urban built environment and mix of uses within a District Centre zoned site.

3.9 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied. It should be noted that in addition to remedial and mitigation measures, impact avoidance measures have also been built in to the EIA and project design processes through the assessment of alternatives described in Chapter 2 of this EIA document.

Construction Phase

The construction phase of the proposed development will result in the addition of a residential element, comprising 45 no. residential units to the permitted rejuvenation scheme of Frascati Shopping Centre. This will provide for a more sustainable use of the subject site, with a greater mix of uses on a highly accessible site. Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on Population and Human Health most likely with respect to nuisance caused by construction activities. It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIA document any adverse likely and significant environmental impacts will be avoided. Positive impacts are likely to arise out of an increase in employment and economic activity. The overall predicted likely and significant impact of the construction phase will be short-term, temporary and likely to be neutral.

Operational Phase

The proposed development will result in a generally positive alteration to the existing site in terms of urban design, architecture, economic activity and provision of residential accommodation in accordance with adopted land use planning policy.

The implementation of the range of remedial and mitigation measures included throughout this EIA document are likely to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on Population and Human Health.

The proposed development will generate additional economic activity in the area and provide for a high standard of residential accommodation. This will be a significant positive impact of the proposed development.

3.10 MONITORING

This section addresses the effects that require monitoring, along with the methods and the agencies that are responsible for such monitoring.

No ongoing monitoring is considered necessary in relation to the impact of the development on Human Beings.

3.11 REINSTATEMENT

While not applicable to every aspect of the environment considered within the EIAR, certain measures may be proposed to ensure that in the event of the proposal being discontinued, there will be minimal impact to the environment.

There are no reinstatement works proposed with respect to Population and Human Health.

3.12 INTERACTIONS

As noted above, there are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to human health. This chapter of the EIAR has been instructed by updated guidance documents reflecting the changes within the 2014 EIA Directive. These documents are the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017. Therefore, in line with the guidance documents referred to, this chapter of the EIAR focuses primarily on the potential likely and significant impact on Population and Human Health in relation to health effects/issues and environmental hazards from the other environmental factors and interactions that potentially may occur.

Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to. However, the reader is directed to the relevant environmental topic chapter of this EIAR document for a more detailed assessment.

3.13 DIFFICULTIES ENCOUNTERED IN COMPILING

No significant difficulties were experienced in compiling this Chapter of this EIAR document.

3.14 REFERENCES

Regional Planning Guidelines for the Greater Dublin Area 2010-2022.

Dun Laoghaire Rathdown County Development Plan 2016-2022.

2018 Labour Force Survey Q1 – www.cso.ie.

2017 Labour Force Survey Q4 – www.cso.ie.

ESRI Quarterly Economic Commentary, Spring 2018.

ESRI Quarterly Economic Commentary, Summer 2018.

Central Statistics Office www.cso.ie.

Pobal.ie.