6 POPULATION AND HUMAN HEALTH

6.1 Introduction

This chapter considers the impact of the proposed development in the context of employment, human health, amenity, and health and safety. It determines significant impacts, if any, of the proposed development on the receiving environment in respect of population and human health and, where applicable, proposes measures to avoid, reduce or remedy these impacts.

6.2 Methodology

The methodology for this chapter involves examination and compilation of all relevant population and socio-economic data collected by the Central Statistics Office (CSO) and any other relevant bodies. This is based on a desktop study and draws on information contained in other chapters in this EIAR (*i.e*. landscape, air and climate, traffic and transport, *etc*.), and in from published sources including the statutory development plans of SDCC and DCC.

After describing the baseline, this chapter provides an assessment of the potential impacts of the proposed development on population and human health, then sets out mitigation measures that are required to lessen such impacts, if necessary.

6.3 Existing Environment

This section provides a brief overview of the existing environment in and around the proposed Scheme as it relates to population and human health.

6.3.1 Site and Development Context

The proposed works are at several points along the River Poddle from Tymon Park to Harold's Cross as shown in **EIAR Volume 3**. Refer to **Chapter 5** *The Proposed Development* for a detailed description of the proposed development and proposed construction methods, and the accompanying planning drawings.
There are three areas where more substantial works are proposed including Tymon North and Tymon Park in Tallaght, Whitehall/Wainsfort Manor Crescent in Terenure, and Ravensdale Park in Kimmage. During the construction phase, this would be the part of the Scheme most likely to have the greatest impact on the local population and human health.

The construction of the Flood Alleviation Scheme at these locations will involve excavation and importation of earth material, movement of vehicles and personnel, and construction work, all of which have the potential to give rise to impacts in relation to noise and vibration, dust, delays and congestion on the public roads, restricted pedestrian access in the Parks, and visual amenity impacts.

The proposed Flood Alleviation Scheme will result in permanent changes to the local environment in the three substantial works areas that will impact access and enjoyment of public spaces by the local population.

- Tymon Park – earthen embankments and a flow control structure, replacement footbridge, ICW, tree removal, changes to pedestrian paths.
- Whitehall Park/Wainsfort Manor Crescent – channel diversion and land re-profiling.

- Ravensdale Park – flood protection walls, replacement footbridge, and tree removal.

The remaining works in the Flood Alleviation Scheme are walls or embankments at a number of locations along the River, and removal of trees at some locations. In one location at Kimmage Road West, works will require access through private property. The impacts that will be experienced by the local population during the construction of the embankments and walls, and removal of trees at these locations will be temporary in duration. In locations where removal of trees is proposed, this will result in a permanent alteration of the local environment.

6.3.1.1 Land Use

With the exception of Tymon Park, the works for the Flood Alleviation Scheme are located in a highly urbanised setting. The main land uses along the River Poddle where works are proposed are primarily recreation and open space and residential, and a builder's providers and KCR Industrial estate nearby Ravensdale Park.

6.3.1.2 Land take

The land take for the proposals is approximately 12ha, taking in all works areas, including construction traffic routes and temporary stockpiling in Tymon Park, and temporary works/set down areas at Whitehall/Wainsfort Manor Crescent and Ravensdale Park. For the remainder of the Scheme the works areas are confined to the banks of the River and in the public roads. The actual footprint of the built elements of the Scheme (embankments and flood protection walls) is minimal when compared to the land take required for the construction phase.

6.3.1.3 Generalised Land Use Zonings and Planning Policy

The working areas in the proposed Poddle River Flood Alleviation Scheme is in an urban / suburban setting in the south-west of Dublin City in the administrative areas of SDCC and DCC. The Poddle River passes through areas of industrial, commercial, residential and open space/recreational uses. Much of the area in the vicinity of the proposed works is urban and well developed.

In South Dublin County Council area the works planned at Tymon Park and Whitehall Park are located within areas zoned Open Space which has as its objective in the CDP *"To preserve, provide and improve recreational amenity and open space and green networks."* The proposed works are necessary to provide flood protection to properties nearby in a 1% AEP flood event, and to provide some flood storage. The remainder of the works in the South Dublin County Council administrative area involve tree removal and replacement or reinforcement of existing walls in areas that are zoned Residential.

The works planned at Ravensdale Park are located within an area zoned Amenity/Open Space Lands/Green Network (Zone Z9) in the Dublin City Development Plan which has as its objective *"To* preserve*, provide and improve recreational amenity and open space and green networks."* The proposed works are necessary to provide flood storage in a 1% AEP flood event, and alleviate flooding experienced by local residents in Ravensdale. The provision of flood management is a function of open space as green infrastructure which is recognised in Chapter 10 of the Dublin City Development Plan 2016 – 2022. The remainder of the works in Dublin City administrative area entail tree removal and replacement or reinforcement of existing walls for flood alleviation in areas that are zoned Residential.

6.3.2 Local Population

The impact of the proposed development will be felt in the immediate area surrounding the proposed development in South Dublin County Council and Dublin City Council areas. The population context of these areas is detailed below, showing the current population and population trends for these areas since 2006 to 2016.

6.3.2.1 Population Change

Table 6-1 shows the total population and change for each of the South Dublin County Council and Dublin City Council areas from Census years 2006 to 2016. In the period 2006 – 2011 South Dublin County Council area experienced a rate of population growth nearly twice that of Dublin City Council. The rate of population growth in South Dublin County Council area decreased from 2011 – 2016, but slightly increased for Dublin City Council area.

Table 6-1: Population change by council area 2006 to 2016

	2006 Census	2011 Census	2016 Census
South Dublin County Population	246,935	265,205	278,767
Percentage Population Increase	-	7.40%	5.11%
Dublin City Population	506,211	527,612	554,554
Percentage Population Increase	-	3.8%	4.8%

Source: Central Statistics Office

6.3.2.2 Characteristics of the Population

Table 6-2 provides general population characteristics for the study area which is defined as the electoral divisions (EDs) along the River Poddle covering the areas of the proposed works. This is defined as the study area for the purposes of this baseline description. These statistics provide more detail on the characteristics of the population for the study area, including population change from 2011 – 2016, and the age dependency ratio and relative deprivation scores for 2016.

Table 6-2: Population Census Statistics for the Area

Electoral Division	2016 Population	Percentage Population change 2011 2016	2016 Age Dependency Ratio	2016 Relative Deprivation Score
Kimmage C	3,043	-3.36	25.94	8.63 marginally above average
Kimmage D	2,462	-3.71	28.51	-0.17 marginally below average
Kimmage E	3,395	-4.91	30.73	-0.39 marginally below average
Tallaght-Kingswood	3,996	-0.55	30.27	-1.09 disadvantaged
Tallaght-Tymon	4,956	-1.39	37.62	-11.30 disadvantaged
Templeogue-Kimmage Manor	4,856	-4.72	34.76	13.92 affluent
TempleogueLimekiln	3,449	1.49	39.07	-2.37 marginally below average
TempleogueOrwell	2,056	3.84	39.86	4.89 marginally above average
TempleogueOsprey	2,246	3.77	33.54	4.90 marginally above average

Source: Pobal maps portal, https://maps.pobal.ie/

All of the EDs in the study area experienced a decline in population with the exception of three EDs in Templeogue which experienced a small to moderate (1.49% to 3.84%) population increase from 2011 – 2016.

The age dependency ratio shows the number of people aged 0 - 14 and 65+ compared to the working age population (age 16 – 65) for the EDs in the study area for 2016. The average age dependency ratio for the study area is 33.4% with higher age dependency ratios above 39% in parts of Templeogue. The age dependency ratios for the EDs and the average for the study area are much lower than for South Dublin Council and Dublin City Council areas which had overall age dependency ratios of 51.7% and 39.0% respectively, and for the State which was 52.7% in 2016.

The relative deprivation score is a measurement of different factors to determine how affluent or deprived a particular area is based on key indicators including the proportion of skilled professionals, educational attainment, employment levels, age dependency ratio and the number of single-parent households. In the study area the relative deprivation index varies considerably from disadvantaged in Tallaght – Tymon (-11.30) to affluent in Templeogue – Kimmage Manor (13.92). The relative deprivation index for Dublin City Council area overall is 3.1 and for South Dublin County Council it is 0.3 in 2016.

6.3.3 Community Facilities

The community facilities nearest to the proposed main works areas include the Riverview Educate Together National School, which also has a Forestry School in Tymon Park, and the recreational buildings and facilities in Tymon Park including a Cricket Club, playground, and football pitch.

6.3.4 Public Transport

Public transport in the study area is by Dublin Bus which run along the main arterial routes. Some of the proposed works along the River for the Flood Alleviation Scheme have the potential to disrupt public transport from traffic control required for lorries to enter the proposed construction sites at the three main works areas.

6.3.5 Amenity Green Spaces and Parks

There are local amenity green spaces which can be enjoyed by the local population along the stretch of the River where construction works are planned. These green spaces are both formal and informal and can be accessed directly from residential areas by footbridges across the River. Amenity green spaces include the green space at Whitehall Park, informal riverside footpaths such as at Wainsfort Manor Crescent, footbridges such as Mt Argus, and small open spaces and parks in residential areas adjacent to the River such as at St Martin's. More substantial amenity green spaces exist in Tymon Park and Ravensdale Park.

6.3.6 Tourism and Recreation

6.3.6.1 Local Attractions

Tymon Park is the second largest park in Dublin after Phoenix Park. It is over 300 acres of parkland, forest and lakes. It services the local communities of Tallaght, Templeogue, Firhouse, and Walkinstown. The Park is included in the South Dublin County Council Tourism Strategy as a tourism initiative. It is a venue for local events and is a popular area for walkers, runners and joggers and for field sports. The Park is bisected by the M50 motorway. There is access between the two sections of the park in two pedestrian footbridges over the M50, one at Greenhills Road, the other at Templeogue Road. It has lakes, fed by the River Poddle, with a network of walking paths and a woodland with marked walking trails.

There are four main entrances which provide access by vehicles, and several entrances directly from residential areas for pedestrians. There are car parks at Tymon North Road, Greenhills Road, Limekiln Road and Willington Lane.

In July 2019, Tymon Park was awarded its first ever Green Flag, alongside being recognised as one of the country's top recreational outdoor spaces and the overall category winner for best Town Park nationwide. Over the last several years the Park has been

developed to include a fairy trail, forest walks, ponds and lakes, playing pitches, and a diverse woodland landscape and wildflower meadows to support and encourage biodiversity.

6.4 Potential Impacts

6.4.1 "Do Nothing" Scenario

If the proposed development were not to proceed, the existing river channel would remain as it is, resulting in many of the same potential impacts on human beings as have occurred previously (most recently in October 2011).

There would remain the risk of flooding of residential properties and commercial premises within the floodplain, with potential impacts on:

- public health;
- roads and transportation networks, including pedestrian access;
- wastewater and surface water collection networks;
- commerce;
- utility service networks (gas, electric and water).

If the proposed development were not to proceed, the opportunity to protect the local communities from future flooding events would be lost.

6.4.2 Health and Safety

Flooding poses a risk to human health and safety. It can cause physical injury, illness and loss of life. Deep, fast flowing or rapidly rising flood waters can be particularly dangerous, especially if the floodwater is carrying debris. The most significant danger in rapid rise of floods is drowning or physical injury due to being trapped or swept away by floods.

There is a long history of flooding of the River Poddle. The most recent severe event was in October 2011 which resulted in the death of a woman who became trapped in her basement flat in Harold's Cross.

Floodwater contaminated by sewage or other pollutants (*e.g*. chemicals stored in garages or commercial properties) can potentially cause illness, either directly as a result of contact with the polluted floodwater or indirectly as a result of sediments left behind. Floodwater may hide other hazards for wading pedestrians, such as manhole openings where the covers have been lifted by flood flows.

The impact on people and communities as a result of the stress and trauma of being flooded or even of being under the threat of flooding can be immense. Long-term impacts can arise from chronic illnesses and the stress associated with being flooded. Vulnerable people such as the elderly, disabled or those with a chronic illness are less able to cope with floods than others. Some may lack the financial means to recover and maintain acceptable living conditions after a flood.

6.4.3 Land Uses

The Scheme is based on detailed surveys and modelling that has determined with a high degree of precision where flood protection measures are required. Thus, all elements of the proposals are essential to the effective operation of the Scheme. While the proposals

will introduce significant and permanent changes to the local landscape, there are no new land uses proposed. The Scheme makes the best use of available green infrastructure and open spaces in this highly urbanised area of Dublin to provide flood protection to in excess of 1,000 homes and businesses currently at risk of flooding. It is anticipated that the parks and green spaces will retain their function as amenities for the local population, and for biodiversity, once the Scheme is completed and all mitigation and enhancements recommended in this EIAR are implemented.

6.4.4 Population

The surrounding area is densely populated. It comprises two elements, the resident population and workers in the offices, commercial and industrial premises nearby. In general, both groups occupy the area at different times. The proposal will impact both groups in different ways.

In relation to broader impacts on the receiving population, it is noted that the potential for effects on human health are dealt with in this EIAR under the more specific topics of the environmental subject areas by which they might be caused including **Chapter 12 Noise and Vibration** and **Chapter 13 Air Quality and Climate**, and C**hapter 14 Traffic and Transport**.

Once the proposed development is operational, there will be a positive impact for the immediate surrounding population and the catchment population through flood prevention.

6.4.5 Tourism, Recreation and Amenity

The proposals will have a short-term negative impact on access to and enjoyment of the river and waterbodies in Tymon Park and at Ravensdale Park. Elsewhere there are footpaths along the River at various sections. Access along these footpaths will be restricted during the construction stage.

The main impacts of the Scheme on the local population will be during the construction phase where there will inevitably be disruption to users of the parks and green spaces where works are proposed. All effort has been made to maintain access to the parks and green spaces and minimise community severance when planning the Scheme.

In some cases, as with Ravensdale Park, construction of the Scheme will require full closure of the Park, for the duration of the works, in the interests of health and safety. All entrances to the Park from Ravensdale Drive, Ravensdale Park, Kimmage Road, and via the footbridge at the green space from Kimmage Road West will be closed.

In Tymon Park the closure of footpaths is necessary in the interests of health and safety in the areas where the temporary compound, the embankments and the ICW are to be constructed. Access through the eastern and southern part of the Park will be maintained throughout to ensure that there is no severance for the local community to access the Park for leisure and recreation or travelling to and from school.

SDCC and DCC have engaged with local residents and Tymon Park user groups who will be affected by the Scheme, by disruption and disturbance, and have notified them by letter of the proposed works. Advance notice will be given to the receiving communities through regular updates on the project website www.poddlefas.ie and through the use of signage at entry points to parks and green spaces as the construction progresses.

The landscape changes and visual effects brought about by the Scheme are addressed in **Chapter 10 Landscape and Visual** of the EIAR. The landscape changes will be significant

during the construction phase of the Scheme with the loss of trees, woodlands and bankside vegetation in the main works areas. The greatest landscape change will be in Tymon Park, especially with the main flood storage embankment and ICW. The landscape mitigation and tree planting plans propose the replanting of trees and woodland, reinstatement of habitats, and enhancement of the public realm in the main works areas. Through time, these changes will become part of the local landscape, and barely perceived by the local community.

The introduction of flood walls through the centre of Ravensdale Park is also a significant change which, once completed, could have a positive impact on the local community by providing amenity in seating areas encouraging people to make greater use of the Park.

The impacts on the population and human health as outline above will mainly arise in the construction stage. Any impacts experienced by the local population by community severance, traffic disruption, noise and vibration, and dust will be temporary in duration over 24 months in total.

Overall the positive benefits of the flood alleviation scheme to provide protection in the case of a 1 in 100 year storm event to 921 properties in the Poddle catchment should outweigh any negative impacts, especially during the construction phase.

6.4.6 Health and Safety

The aim of the Flood Alleviation Scheme is to reduce the risk to properties and human beings along the River, as far as possible and to as many as possible so that the long-term health and safety of those who live along the River can be secured.

Construction sites, with movement of machinery and storage of materials, pose a potential health and safety hazard to workers and members of the public if site rules are not properly implemented.

Construction of the proposed development will require ground works at Tymon Park and the establishment of a contractor's compound. Measures will be put in place during the construction stage to divert pedestrian access, especially at local parks and footpaths along the River.

Other sites for the proposed works are multiple and at various points along the river. These will be accessed by small teams of workers who will park equipment and trailers on the public roads nearby. Some works will require entry on to private property.

6.5 Mitigation Measures

The mitigation measures proposed in the section below relate to the construction and operational period of the proposed development. Such measures relate only to the avoidance, reduction or remedy of impacts, which affect human beings in particular those which relate to the local population and human health in relation to Noise and Vibration, Air Quality, and Landscape character and Visual amenity, and traffic and transport.

Reference should also be made to **Chapter 17** for a summary of all mitigation measures and residual impacts.

6.5.1 Construction Phase

Impacts associated with construction – such as noise, dust, the passage of heavy works vehicles *etc*., will be short-term effects that will end once the project is operational. The

appropriate management of construction activities and traffic will mitigate against significant impacts, as set out in various sections of this EIAR.

A scheme specific Construction Environmental Management Plan for the development will be prepared prior to construction by the successful Contractor and will identify a variety of measures that will be incorporated to mitigate against nuisance including provisions in relation to traffic, vermin, noise and dust on the site.

Techniques to minimise the generation of dust before during and after the works and to protect receptors from dust and noise during construction and construction traffic have been dealt with in **Chapter 12 Noise and Vibration** and **Chapter 13 Air Quality and Climate.**

6.5.2 Operational Phase

The plans for the scheme incorporate landscaping and public realm proposals at Tymon Park and Ravensdale Park to ensure public access and enjoyment of the river and parks is enhanced as a result of the proposed development. The proposals provide additional benefits, over and above flood protection, including public access and public realm, biodiversity and water quality. Thus, the operational phase will bring long-term positive impacts that will outweigh the short-term impacts during the construction phase, and the changes in the local environment necessitated by the flood protection works.

The operation of the Scheme will be in-line with the measures set out in this EIAR. A range of strategies will address operating conditions on the sites and deal with particular activities including maintaining landscaping to less visual impact, on-site environmental conditions such as noise, odour monitoring *etc.* Traffic accessing the site will be low intensity and will be managed by appropriate design measures. The current employment levels will remain the same once the development is operational.

There are no other anticipated significant impacts on human beings that require the incorporation of mitigation measures.

6.6 Residual Impacts

There will be indirect positive residual impacts on patterns of employment and economic development resulting from the construction phase of the development. In addition, there will be longer-term, strategic impacts arising from the operation and existence of the Scheme where once completed, the infrastructure that is in place will provide flood protection to vulnerable properties and the population in SDCC and DCC areas. It can be stated that these impacts to the local population will be positive due to the nature of the proposed development.

Whilst there will be some residual impacts from the pluvial flooding which will remain, affecting some 200 properties, overall the positive benefits of the flood alleviation scheme to provide protection in the case of a 1 in 100 year storm event to 921 properties in the Poddle catchment should outweigh any negative impacts, especially during the construction phase.