Chapter 3:
Climate Action and Infrastructure

3.1 Introduction

Climate action is one of the most significant policy challenges we have today, with its impacts already having far-reaching environmental, economic and social consequences. The '*layered*' format of the County Development Plan aims to facilitate a holistic approach to ensuring Climate Action is at the forefront of all future developments within the County. This has been done by creating policies and objectives which enables significant change moving us towards addressing climate change and reducing the County's carbon emissions in a meaningful and tangible way. Given the increasing challenge climate change places on local communities, climate action forms a key part of this LPF.

The SDCC Climate Action Plan 2024 – 2029 (CAP) sets out mitigation, adaptation and other climate measures to create a low carbon and climate resilient County. The Climate Action Plan sets out a range of actions across six theme areas of Energy and Buildings, Transport, Flood Resilience, Nature Based Solutions, Circular Economy and Resource Management and Citizen Engagement. As well as this Clondalkin has been identified as a 'Decarbonisation Zone' within the CAP, creating opportunities for the LPF to support measures which will aid in reducing carbon emissions by 51%.

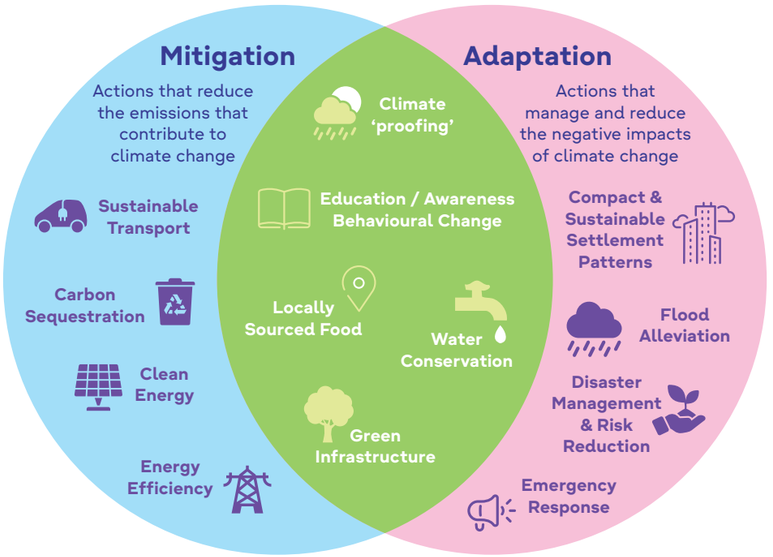


Figure 3.1: *Climate Action – Mitigation and Adaptation Actions (Source: Climate Action Regional Office)*

South Dublin is responsible for enhancing climate resilience, increasing energy efficiency and reducing greenhouse gas emissions, across its own assets, services and infrastructure, whilst also demonstrating a broader role of '*influencing and coordinating*' other sectors to meet their own climate targets and ambitions. Climate change mitigation and adaptation measures are integral to achieving this, with a focus on compact settlements through the ten-minute neighbourhood, improvements and the electrification of the public transport network, improving energy efficiency in new buildings and supplying appropriate renewables.

As well as dealing with climate mitigation and adaptation, this chapter will also deal with infrastructure and environmental services. The quality of our environment has implications for our health and wellbeing. The availability of high-quality infrastructure networks and environmental services is critical to securing economic investment, creating sustainable and attractive places, ensuring health and well-being for all and in safeguarding the environment.

Each chapter of the Clondalkin LPF has been prepared with the purpose of integrating climate action policies and provisions as they relate to land use planning. Figures 3.1 and 3.2 outline the role that spatial planning plays when it comes to climate action.

3.2 Climate Action

The South Dublin County Development Plan 2022-2028 and its provisions reflects that Climate Action is now a key responsibility of spatial planning. The County Development Plan supports local and central government actions in addressing maximum co-ordination between the County Development Plan, the South Dublin Climate Action Plan 2024-2029 and other climate related policies and programmes. The Clondalkin LPF being subject to the provisions of the County Development Plan has a key role to play in delivering the wider strategic climate objectives of the CDP at the local level.

The Local Planning Framework has been assessed against its impact on the receiving environment through the SEA and AA processes. The LPF has also been subject to a Strategic Flood Risk Assessment (SFRA) taking account of the most up to date flood risk information available.

Reflecting the approach of the County Development Plan, the theme of Climate Action is integrated into all the themes of the LPF with policies and objectives crafted in a manner which contributes significantly towards addressing climate change and reducing the County's carbon emissions in a meaningful and tangible way. These overarching climate action principles align closely with the key action areas of the South Dublin Climate Action Plan 2024-2029; namely Energy and Buildings, Transport, Flood Resilience, Resource Management and Nature based solutions.

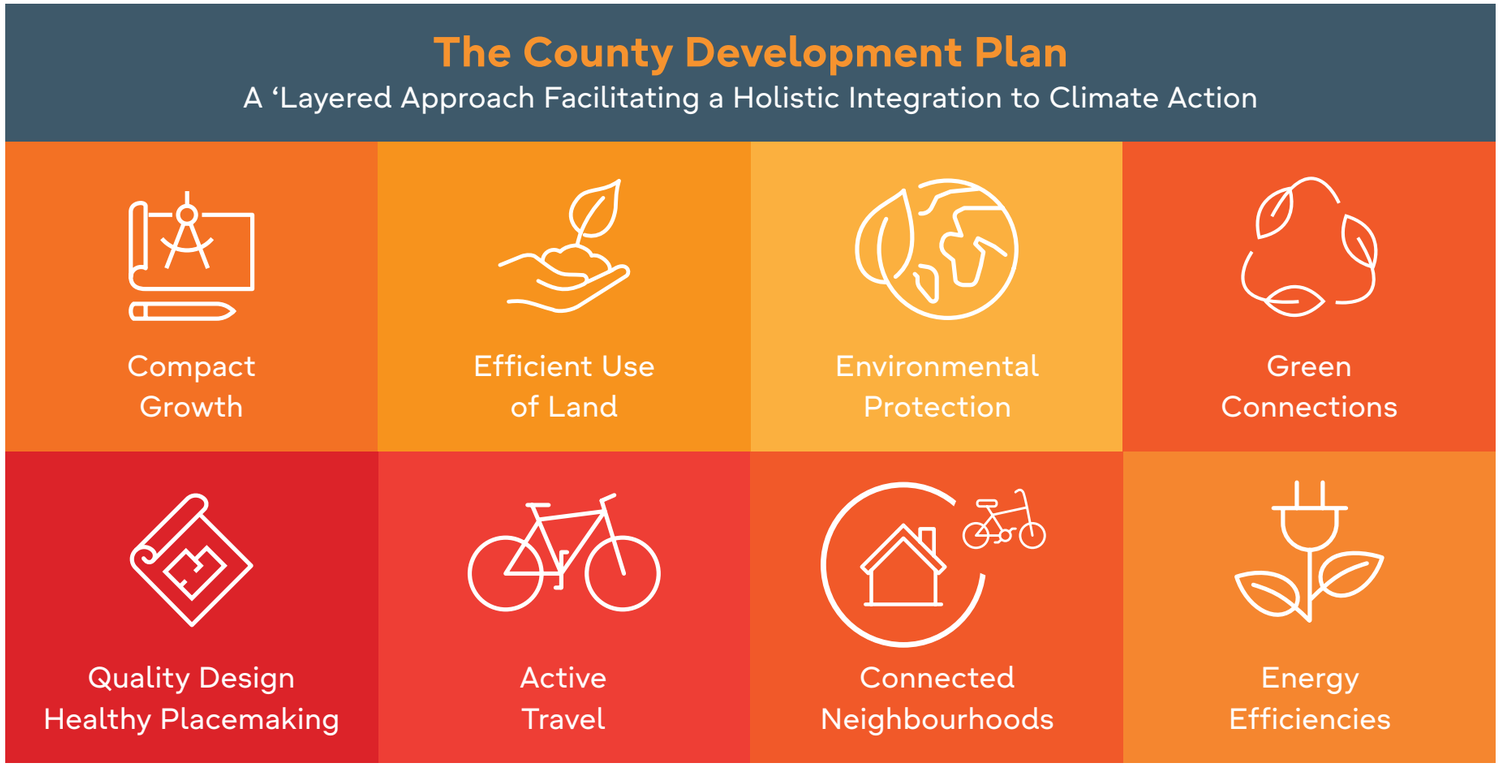


Figure 3.2: *The South Dublin County Development Plans 'Layered' approach that facilitates holistic integration to Climate Action.*

The LPF complies with the Compact Growth approach as set out in the County Development Plan through providing guidance for the development of identified Framework sites where existing public transport infrastructure and proposed active travel networks can be availed of thus reducing the need for car-based travel, contributing towards a reduction in carbon emissions. A climate resilient environment can be achieved through high-quality design and layout of buildings, appropriate mix of uses, densities, height and the sensitive integration of the natural and built environment. Creating a strong sense of place and enabling connections across the Plan area and the wider County can be enhanced through a robust and resilient Green Infrastructure network employing nature-based solutions and contributing directly to climate action measures through carbon sequestration, water quality improvements and other measures (see Chapter 4 Green Infrastructure).

CA1: Climate Action

CA1 Objective 1:

Support the County Development Plan 2022 -2028 and the South Dublin County Climate Action Plan 2024 – 2029 in delivering the wider strategic climate objectives at local plan level.

3.2.1 Clondalkin Decarbonisation Zone

As part of Ireland's National Climate Action Plan 2019 (CAP) Action 165, and the 2024 CAP action LG/24/2, every Local Authority is required to develop '*Decarbonising Zones*'. In 2023, Guidelines for Local Authority Climate Action Plans, Decarbonising Zones, were issued. South Dublin County Council (SDCC) selected Clondalkin to establish the decarbonising zone. To qualify as Decarbonising Zones, the chosen areas need to have certain characteristics that have potential for climate action across a variety of sectors.

Clondalkin was chosen as a Decarbonising Zone as it was considered;

1. To be ready to support climate action,
2. To have a strong sense of community,
3. To be the right size in terms of population (at least 5,000 people for urban decarbonising zones).

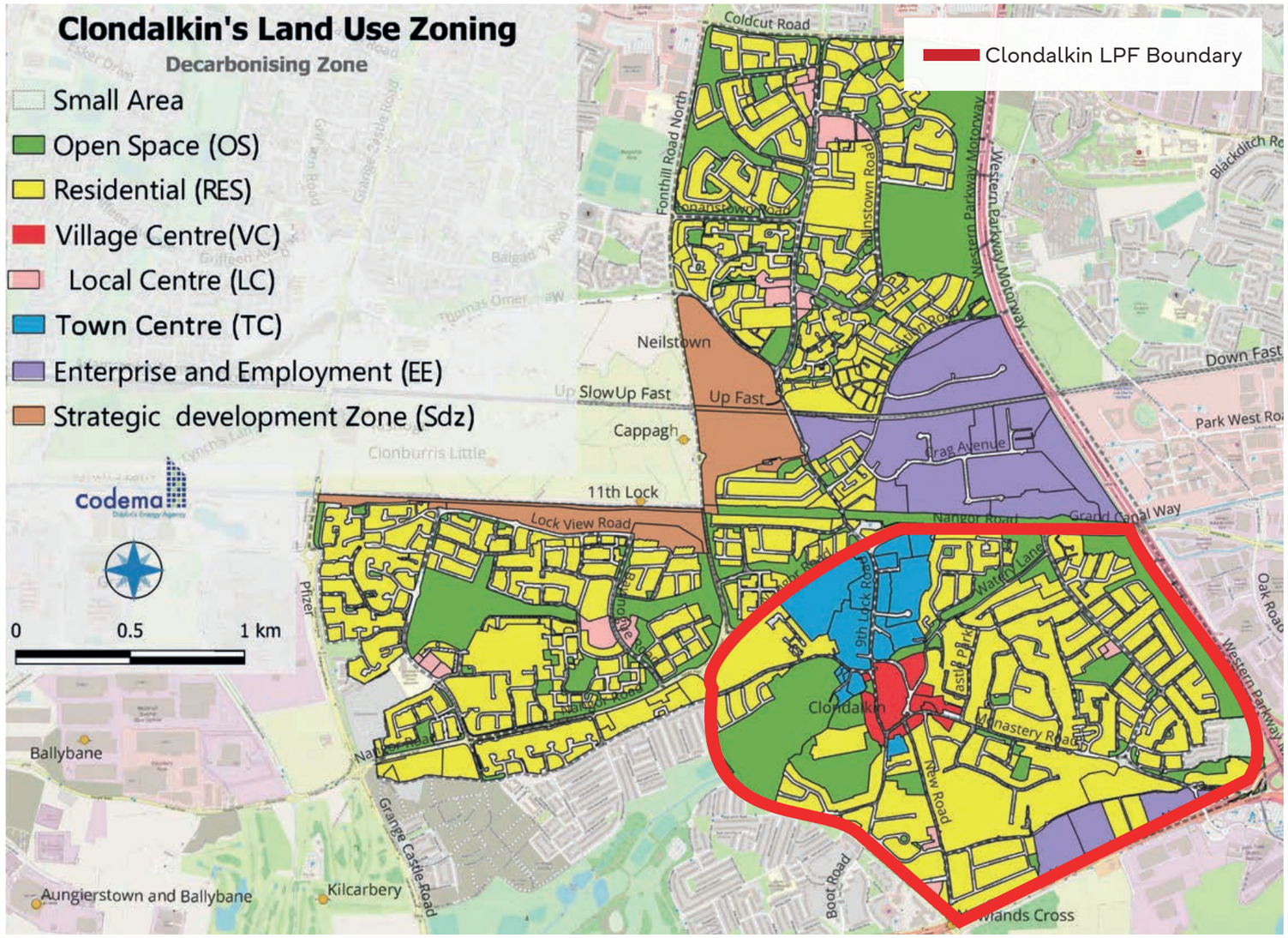


Figure 3.3: *The Clondalkin Decarbonisation Zone Boundary showing Land Use Zoning and identifying the LPF area within the red line.*

As a decarbonising zone, Clondalkin has potential for developing new and existing climate projects, with opportunities for tackling a variety of issues, including air quality improvements, energy sustainability and greening projects. The SDCC Climate Action Plan 2024-2029 sets out a vision for the Clondalkin Decarbonising Zone as follows:

The Decarbonisation Zone of Clondalkin will showcase the opportunities for decarbonisation and sustainable living in our County.

CA2: Clondalkin Decarbonisation Zone (DZ)

CA2 Objective 1:

Engage and support the emerging Decarbonisation Zone within Clondalkin and the surrounding area, facilitating co-ordination between SDCC Climate Action Plan and spatial planning to increase the impact and benefits that relevant plans and projects will have on the locality.

CA2 Objective 2:

Seek to achieve the DZ carbon emissions targets as set out in the SDCC CAP 2024 – 2029 through collaboration with the community and relevant stakeholders, the utilisation of sustainable development principles and the promotion and adoption of best practice measures.

The key goal of the Decarbonisation Zone is to reduce greenhouse gas emissions by 51% by 2030, compared to 2018 levels. This will require all areas of the local economy to come together and highlight efficient means to reduce carbon emissions. The boundary of the proposed DZ includes the LPF boundary but also extends to parts of west and north Clondalkin.

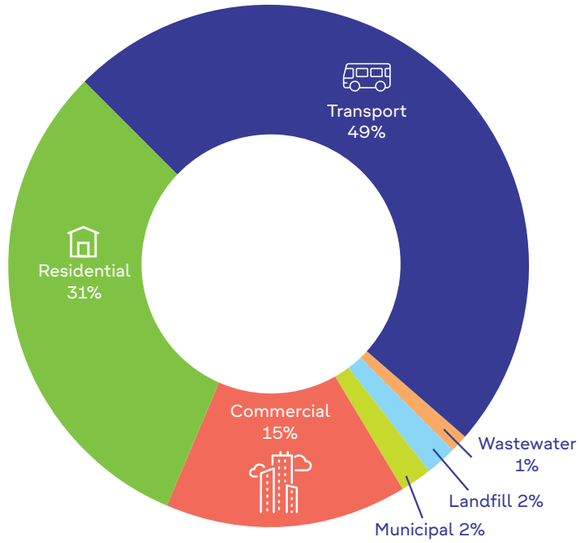


Figure 3.4: *Baseline Emissions Inventory (BEI) for Clondalkin Decarbonising Zone showing key sources of GHG Emissions*

3.2.2 Energy Efficiency in Buildings

A Building Energy Rating (BER) certificate rates a home's energy performance on a scale between A and G. A-rated homes are the most energy efficient, while G-rated homes are the least energy efficient. The design, construction and operation of new buildings have a significant role to play in reducing energy demand and increasing energy efficiency into the future.

As stated in the County Development Plan written statement (CDP), Policy E3 looks to support high levels of energy conservation, energy efficiency and the use of renewable energy sources in new and existing buildings including the retro fitting of energy efficiency measures in the

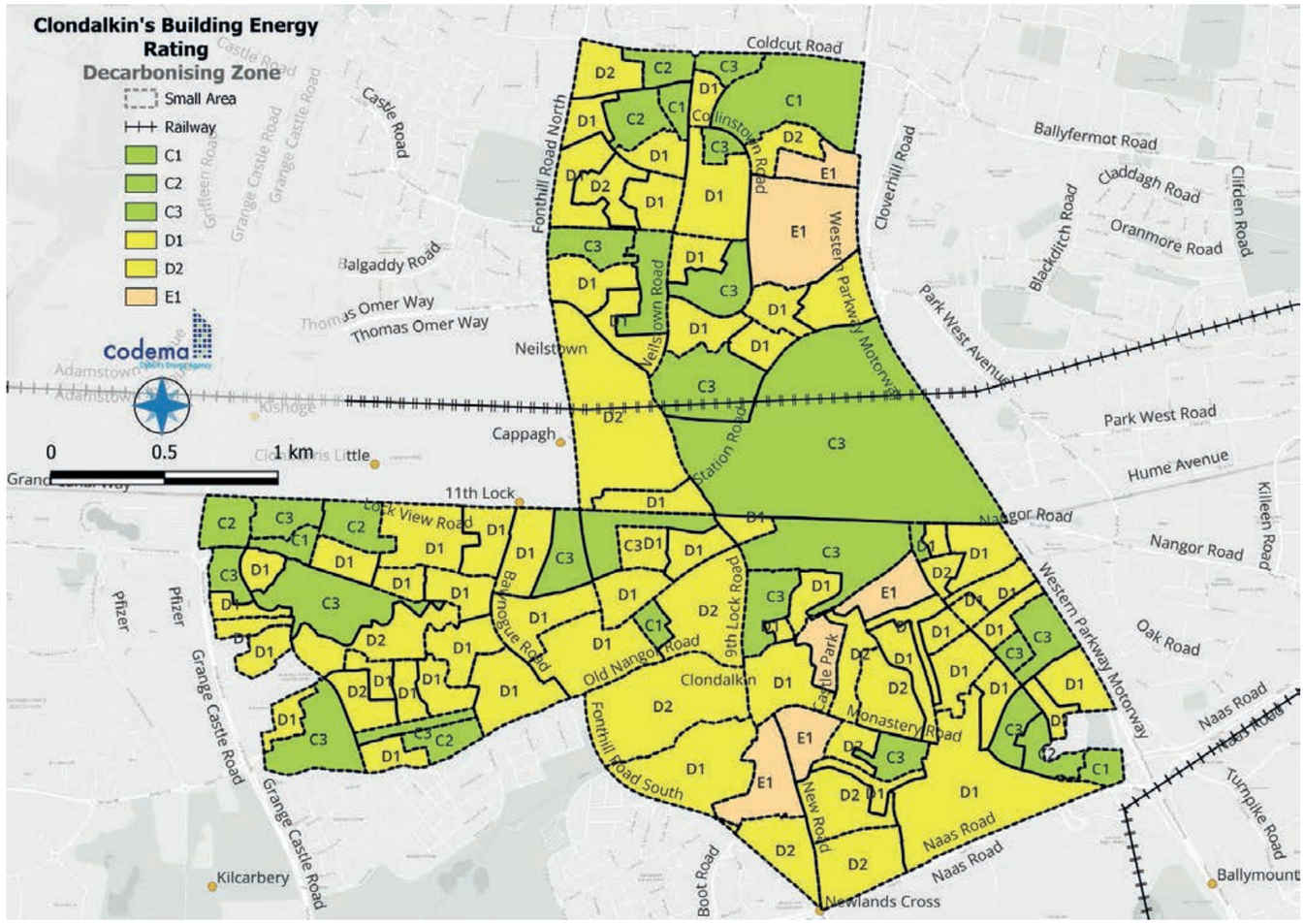
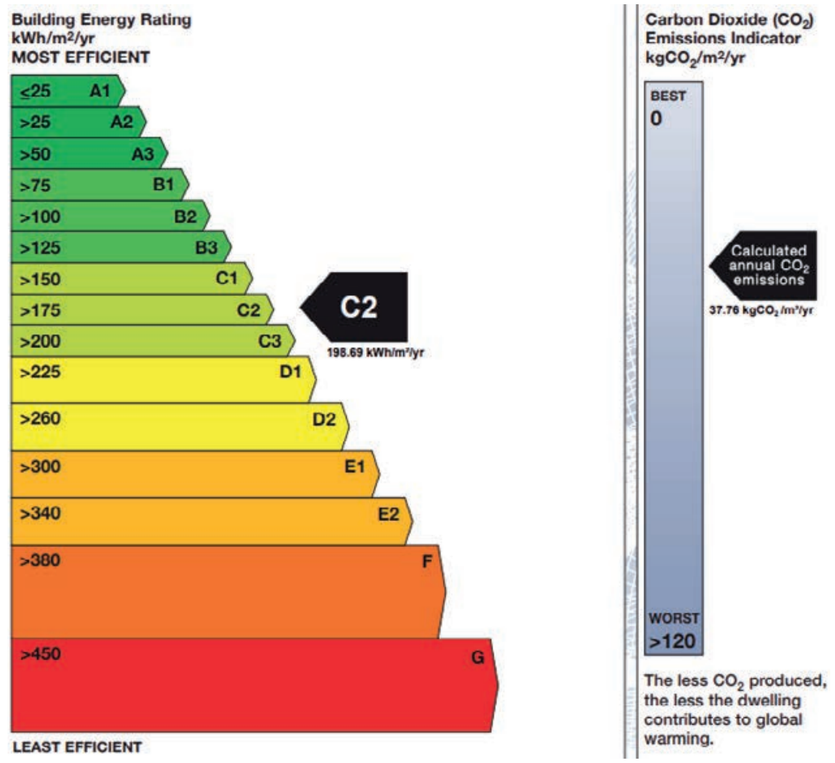


Figure 3.5: *Estimated Average Building Energy Rating (BER) of the houses in each small area in the Clondalkin DZ.*



Building Energy Rating (BER), Example Assessment

existing building stock in accordance with relevant building regulations, national policy and guidance and the targets of the National and South Dublin Climate Change Action Plans.

For the most part, the Building Regulations, which are implemented outside the planning system, set the standards for building construction. However, planning policy can influence through encouragement of repair and refurbishment of existing buildings rather than demolition and through the positioning of new buildings to achieve solar gain. In line with E3 Objective 2 of the written statement of the CDP, the LPF will prioritise where possible the retrofitting of buildings over demolition and reconstruction to reduce the large quantities of embodied carbon energy generated from building materials when building from the ground up.

CA3: Energy Efficiency

CA3 Objective 1:

Prioritise, in line with RPO 7.40 and CDP Policy E3, the retrofitting and refurbishment of buildings over demolition and reconstruction where possible to reduce the large quantities of embodied carbon energy generated from building materials.

CA3 Objective 2:

Promote the retrofitting of buildings, through the Climate Action Team in partnership with local businesses and community groups, with the aim of delivering and improving energy efficiency and building climate resilience within Clondalkin.

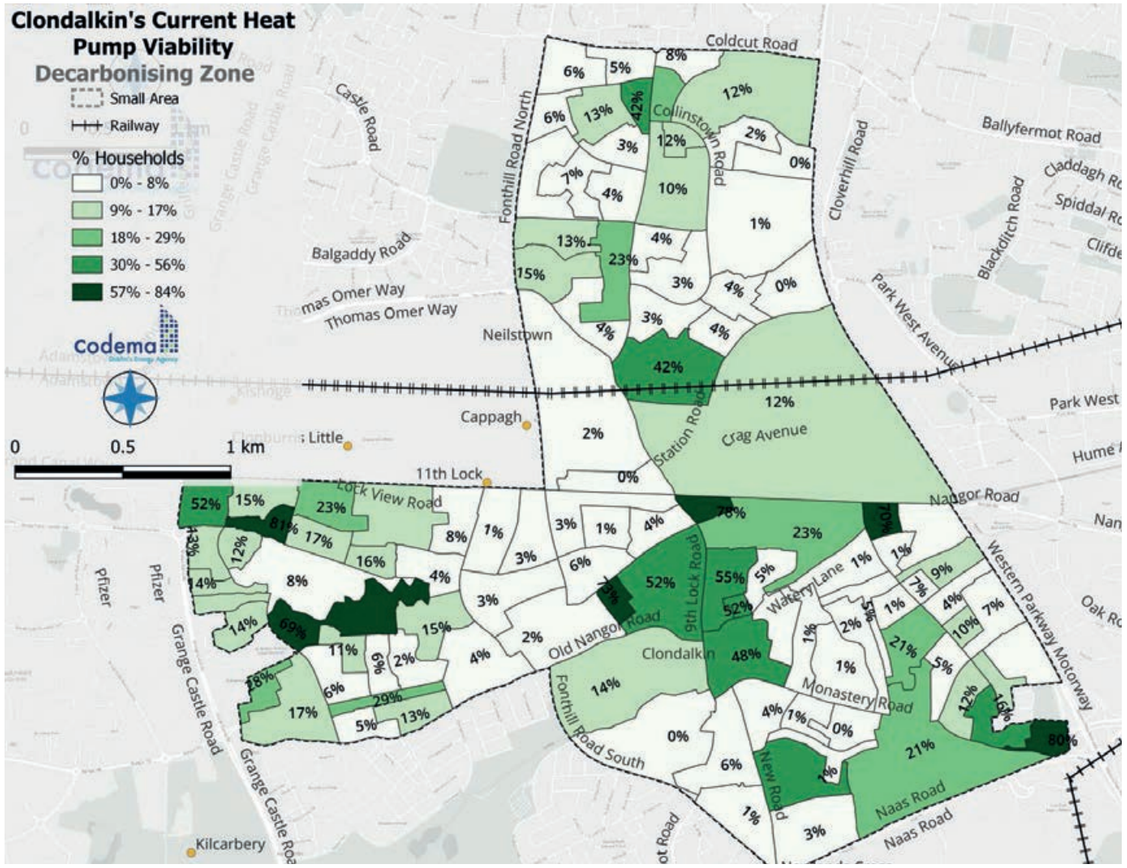


Figure 3.6: *Heat pump suitability potential in Clondalkin DZ.*

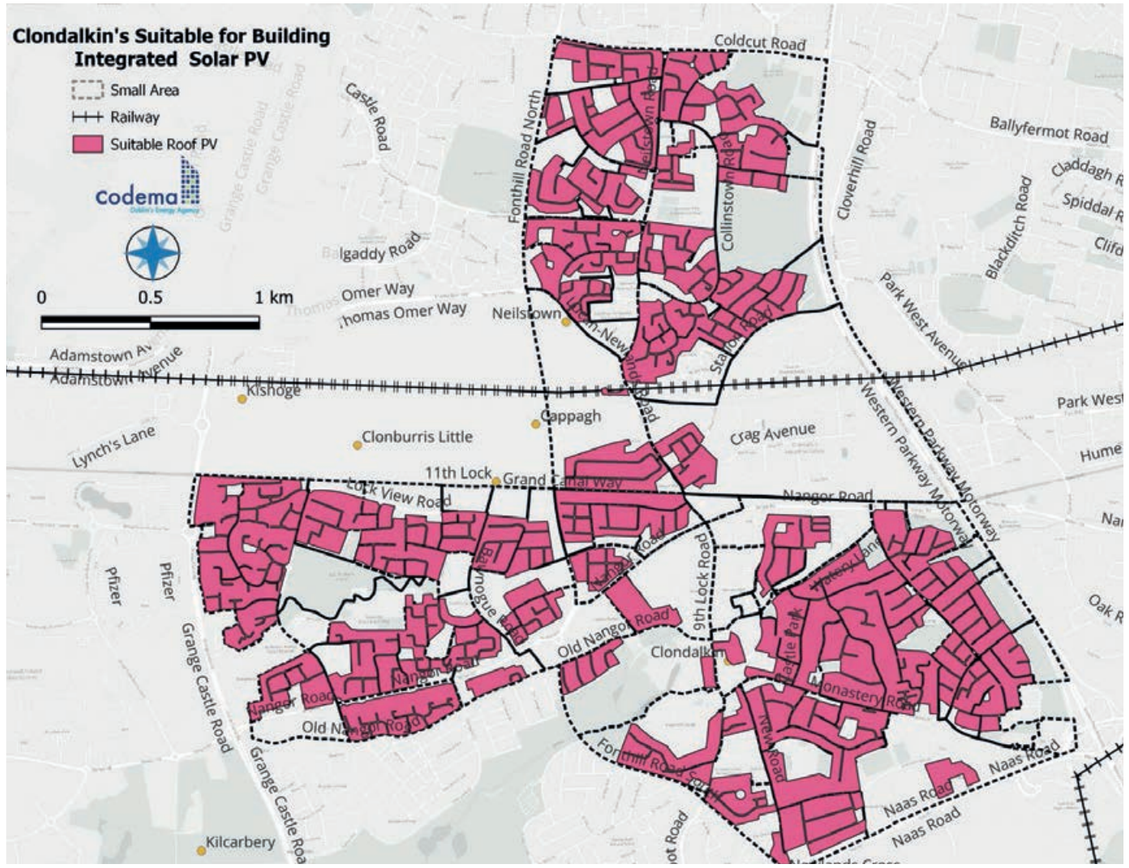


Figure 3.7: *Potential Rooftop solar electricity opportunity in Clondalkin DZ.*

3.2.3 Renewable Energy

As 2030 approaches, Ireland's need and requirement for further investment in renewable energy infrastructure has become more apparent. An increase in the use of renewables and low carbon resources including more local solutions in solar, heat pumps and district heating are supported and promoted by the LPF. Increased use of renewables is required to support the energy transition away from fossil fuels to reliant low carbon options.

The Clondalkin LPF, will support the Decarbonisation Zone, in the development of energy upgrades and improvements to provide appropriate renewable systems where possible. Supports can also be provided through information sessions so the wider community are aware of the benefits of renewable energy, what forms may suit them best and any available grants.

CA4: Renewable Energy

CA4 Objective 1:

Promote the benefits of choosing renewable energy through public information campaigns / community energy clinics among the community, ensuring homeowners understand available grants and incentives and their potential energy savings.

CA4 Objective 2:

Support renewable energy as part of new development and through retrofitting of existing buildings, including through an increase in solar panels, heat pumps, and micro wind energy where feasible.

3.2.4 District Heating

District Heating provides opportunities to decarbonise while expanding economic development within the wider Clondalkin settlement area. District heating enables the use of excess heat from large energy users and recycles it to provide heating for commercial and residential purposes. District heating is climate friendly and is typically more efficient than individual heating systems, leading to less maintenance and future proofing the energy network. Due to the abundance of large energy users within the county, district heating has the potential to supply a significant percentage of the County's heat demand.

The Dublin Region Energy Masterplan (DREM) proposed Grange Castle as an area that may represent further opportunities in terms of providing district heating, subject to a feasibility test.

CA5: District Heating

CA5 Objective 1

Explore opportunities for Clondalkin to create a sustainable district heating network which can provide heat to local homes and businesses, as well as provide opportunities in SDCC owned buildings and / or framework sites.

CA5 Objective 2

Promote engagement with potential district heating providers in the area and developers with a view to investigating the use of district heating for new development on the 9th Lock Road framework site and/or other sites where feasible.

3.2.5 Decarbonising Transport

As part of the Local Transport Plan (LTP), objectives for investment and improvements to a sustainable transport network have been identified in the transition to a climate resilient, low carbon community. To roll out the decarbonisation zone within Clondalkin, interventions are required to promote active travel, improve public transport provision and reduce the number of journeys made by private transport (See Chapter 5 for further detail).

CA6: Decarbonising Transport

CA6 Objective 1:

Support as appropriate, initiatives or interventions to help create a climate resilient, low carbon community in line with the roll out of the Clondalkin Decarbonisation Zone and implementation of the Local Transport Plan (LTP).

CA6 Objective 2:

Deploy public EV charging hubs within Clondalkin LPF at key transport nodes, as part of the Dublin Local Authority Electric Vehicle Charging Strategy.

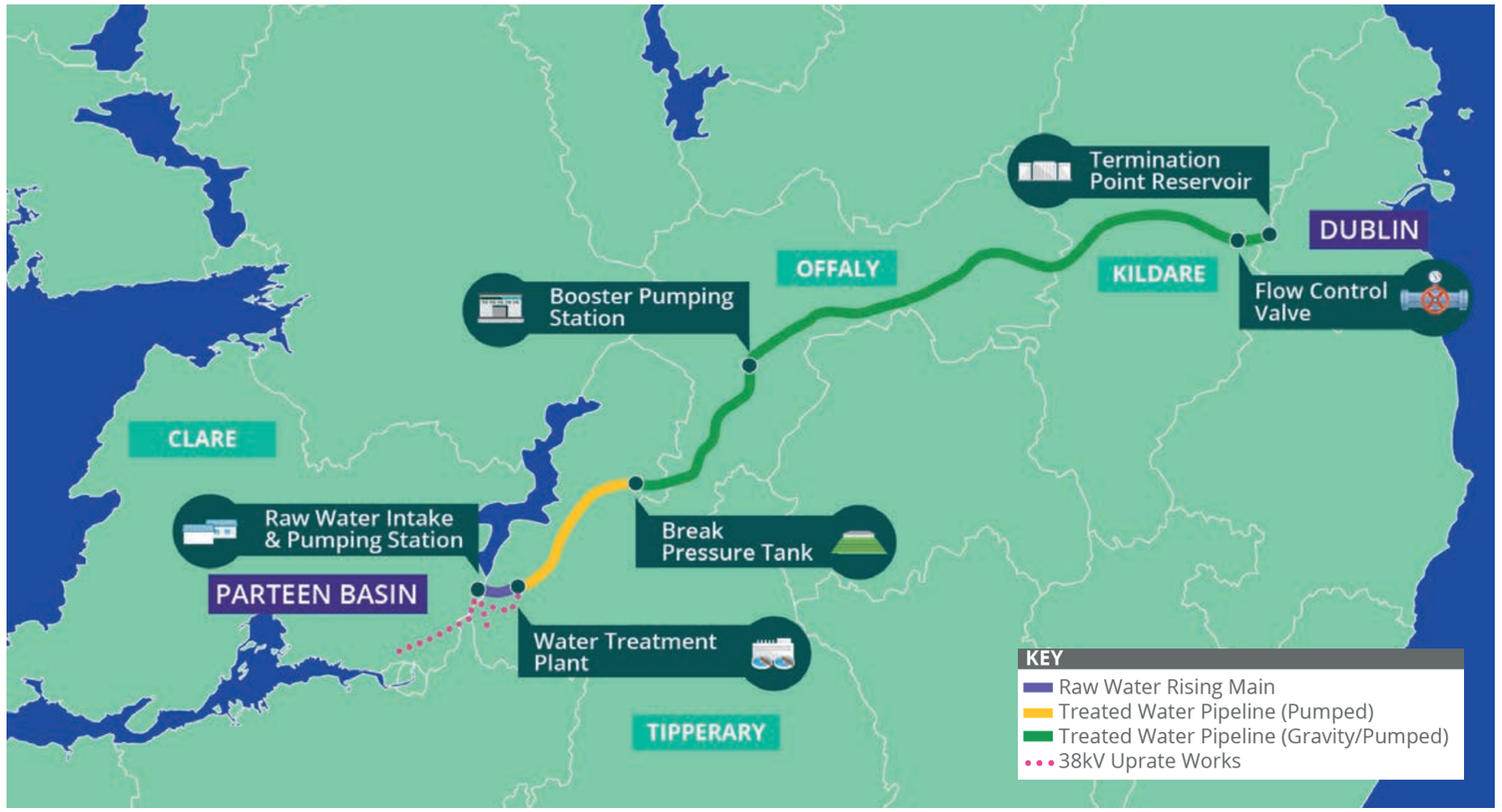


Figure 3.8: *Route of Uisce Éireann Proposed Water Supply Project Eastern and Midlands Region, with proposed termination reservoir at Peamount.*

3.3 Infrastructure

Water Supply and Wastewater

The *Water Framework Directive* (2000 / 60 / EC) provides the overarching set of arrangements governing the management of water quality across Europe. The *Urban Wastewater Treatment Directive* and the *Drinking Water Directive* set standards for wastewater and water supply respectively and have been transposed into Irish legislation through regulations.

Uisce Éireann is the agency responsible for the operation of public water services nationally, mandated with the delivery of secure, safe and sustainable water services for Ireland, by delivering the highest quality drinking water and ensuring the wastewater system is properly treated and safely returned to the environment. SDCC is committed to working with Uisce Éireann to support the provision of water services to ensure sufficient water supply and wastewater infrastructure to allow for sustainable growth.

Water Supply

Water supply in Clondalkin is drawn from the Leixlip Water Treatment Plant and Ballymore Eustace Water Treatment Plant. Water supply within the wider Dublin area is at critical levels of demand, with the Water Supply Project for the Eastern and Midlands Region intended to ensure sufficient treated water to meet the longer-term growth of the wider region up to 2050. The termination point for this large infrastructure project is intended to be within SDCC at Peamount. The project has undergone a non-statutory consultation early in 2025 and is due to be submitted by Uisce Éireann to An Coimisiún Pleanála for a planning decision later in 2025.

Wastewater

Wastewater in Clondalkin is delivered by Uisce Éireann. Under the Greater Dublin Strategic Drainage Study (GDSDS, 2001), a strategic analysis was carried out of the existing foul and surface water systems within the Dublin Region. SDCC will continue to support Uisce Éireann in delivering key wastewater service projects. Upgrade works are ongoing at Ringsend Treatment Plant, necessary to provide for growth in the GDA. The Clonshaugh Treatment Plant, when constructed will significantly increase capacity in Ringsend. The Irish Water Investment Plan 2020 – 2024 includes for upgrade works to the 9B sewer. This sewer serves much of the population in Clondalkin and will require duplication in the future to ensure continued capacity in the wider network.

CA7: Water Supply and Wastewater

CA7 Objective 1:

Support Uisce Éireann in protecting existing water and drainage infrastructure and in promoting the ongoing upgrade and expansion of water supply and wastewater services to meet the needs of the existing and future population of the LPF area and beyond.

CA7 Objective 2:

Require all new developments within the Clondalkin LPF area to provide for a separate foul and surface water drainage system.

Surface Water and Groundwater

South Dublin County Council is responsible for surface water management and aquifer protection in the County, with the Office of Public Works (OPW) having responsibility for flood risk management. The main objective of the EU Water Framework Directive (WFD) is to protect and restore water quality in both surface and groundwater.

Sustainable Urban Drainage Systems (SuDS)

Sustainable Urban Drainage Systems (SuDS) are a nature-based solution to water management that aims to address surface water in a sustainable manner, by utilising and mimicking natural infiltration processes from the environment to reduce the rate of water run-off and improve water quality. The four objectives / pillars that SuDS seek to meet are highlighted in the Figure 3.9.

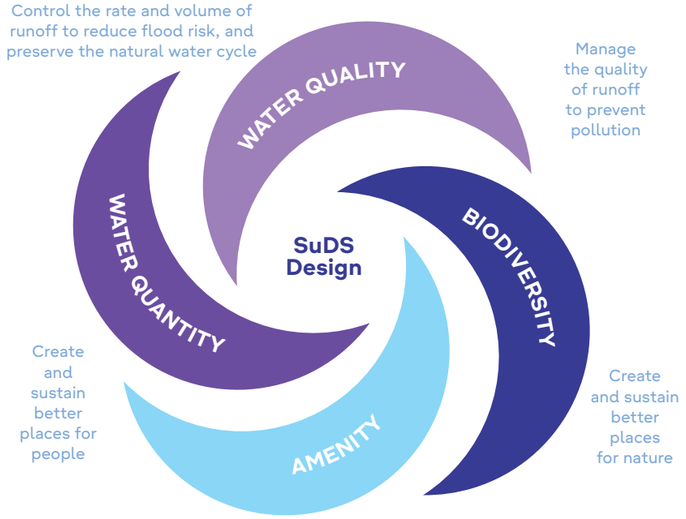


Figure 3.9: *SuDS Objectives (Source: SDCC Sustainable Drainage Explanatory Design and Evaluation Guide 2022)*

The Camac River flows through Clondalkin, in an east-west direction through the centre of the village. Though culverted in places, the river serves as a multi-functional ecosystem acting to mitigate flooding and improve water quality (see Riparian Corridors in this chapter and in Chapter 4), providing recreational amenity and clean / cool air as part of a key green infrastructure corridor (See Chapter 4 Green Infrastructure).

SuDS forms an important pillar in managing the quality of runoff to prevent pollution. The main objective of the EU Water Framework Directive (WFD) is to protect and restore water quality in both surface and groundwater. The LPF will continue to promote the use of the 'South Dublin Sustainable Drainage Explanatory Design and Evaluation Guide' (2022) to promote the use of SuDS solutions within the LPF area. SuDS measures properly implemented on development and other sites also ensures that there is a reduction in surface water entering older combined surface water and wastewater drains (sewers), thus freeing up capacity for wastewater and limiting any unwanted overflow into the environment.

CA8: Surface Water and Groundwater

CA8 Objective 1:

Ensure that surface water management plans are provided for all development proposals to include a surface water assessment for all sites, reported either in a standalone report, including drainage design drawings and supporting calculations, or they may form part of a more detailed flood risk assessment, which will also consider other flood risks.

CA8 Objective 2:

To require that climate change impacts are incorporated into drainage and surface water design, using the most recent allowances in the OPW Climate Change Sectoral Adaptation Plan

CA8 Objective 3

Promote the retrofitting of SuDS on private and public lands, such retrofitting could include permeable paving on driveways, installation of rainwater harvesting systems and the provision of vegetated systems such as swales and bioretention areas within private gardens or public areas.

CA8 Objective 4:

To ensure that proposals for development demonstrate compliance with the EU Water Framework Directive and the River Basin Management Plan for Ireland 2022-2027. Proposals shall demonstrate that they will not, either individually or cumulatively, adversely affect the status of any waterbody, except where relevant exemptions apply. This will include requiring the removal of sediments and contaminants through the implementation of SuDS, ensuring that the quality of discharge from new development into the surrounding watercourses will not negatively impact their existing condition.

CA8 Objective 5:

Promote wetlands, where feasible, as a SuDS solution which has the additional benefit of promoting habitat creation.

Flood Risk Management

The EU Floods Directive and the recommendations of the 2004 National Flood Policy Review Report are driving forces behind flood management in Ireland. The Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and DECLG Circular P12 / 2014 address the interface between flood risk management and the planning system. The guidelines state that the steps in the plan making process and its Strategic Environmental Assessment need to be supported by an appropriate analysis of flood risk.

JBA Consulting have completed the Clondalkin LPF Strategic Flood Risk Assessment (SFRA) as part of this plan preparation, supporting the Strategic Environmental Assessment (SEA) of the plan. The assessment was carried out in accordance with the requirements of the Flood Risk Management Guidelines and the EU Water Framework Directive. The SFRA report is a separate document to be read in parallel with this Plan. The SFRA identifies and maps flood risk within the LPF boundary, supporting a sequential approach to planning, in accordance with the recommendations of the Flood Risk Management Guidelines.

Climate change adaptation and resilience has become one of the fundamental considerations for strategic planning especially with the fact that the LPF plan area is within the wider Decarbonisation Zone, adding emphasis to this. The impact or assessment of climate change has formed a core aspect of the SFRA process and as such, an appraisal of the potential impacts of climate change was carried out as part of the Strategic Flood Risk Assessment with regard to the OPW climate change parameters stated in the Flood Risk Management Climate Change Sectoral Adaptation Plan (2019), also international best practice within other European jurisdictions and the latest scientific studies.

For new developments within the LPF boundary a site-specific flood risk assessment which is in accordance with all appropriate guidance is required. A Hydromorphological assessment is required to be undertaken where proposed development is within lands which are partially or wholly within the Riparian Corridors (see Chapter 4 of this Plan and Policy GI3 and related objectives within Chapter 4 of the written statement of the CDP).

The Camac River flows directly through the LPF area creating a green infrastructure corridor as it flows from the southwest to the northeast of the Plan area. Flooding has occurred along the Camac including within Clondalkin. As this plan is being written, the Camac Flood Alleviation Scheme is being prepared by the OPW, SDCC and Dublin City Council (DCC) to help overcome the flooding of urban areas.

CA9: Flood Risk Assessment

CA9 Objective 1:

To require an appropriately detailed flood risk assessment (FRA) to be undertaken in support of any planning application (see Section 5.2 of the accompanying Strategic Flood Risk Assessment (SFRA) document) for new developments within the Plan area, in accordance with The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009) and the requirements of DECLG Circular P12 / 2014. For sites within Flood Zones A or B, a site-specific '*Stage 2 – Initial FRA*' will be required and may need to be developed into a '*Stage 3 – Detailed FRA*'.

CA9 Objective 2:

To ensure that flood risk assessments demonstrate the use of the sequential approach as set out in the Planning System and Flood Risk Management Guidelines for Planning Authorities, in terms of the site layout and design and satisfies the Justification Test (where required), demonstrating that appropriate mitigation and management measures are put in place before any proposal can be considered acceptable in principle. Consideration to the potential impacts of climate change is required in accordance with the LFP SFRA for new development.

CA9 Objective 3:

Support and facilitate, in tandem with the OPW and DCC, the delivery of the Camac Flood Alleviation Scheme, in as environmentally sensitive a way as possible and to ensure that zoning or development proposals do not impede or prevent the progression of this scheme.

Riparian Corridors

As highlighted in the CDP, riparian corridors are now regarded as essential for ecosystem provision including flood risk management. Hydromorphological integrity is identified in the WFD as one of the three key criteria for determining waterbody status, with an objective of the LPF to require Hydromorphical Assessment of development proposals that are within riparian corridors to demonstrate how the integrity of the riparian corridor can be maintained and enhanced having regard to flood risk management, biodiversity, ecosystem service provision, water quality and hydromorphology. See also Chapter 4 of this Plan.

CA10: Riparian Corridors

CA20 Objective 1:

To develop, protect and conserve riparian corridors in the Clondalkin LPF, in accordance with Policy GI3 and related objectives of the County Development Plan increasing riparian corridor connectivity where possible.

CA10 Objective 2:

To protect existing floodplains and ensure that inappropriate development does not occur along existing watercourses that flow through lands or on floodplains within the LPF area.

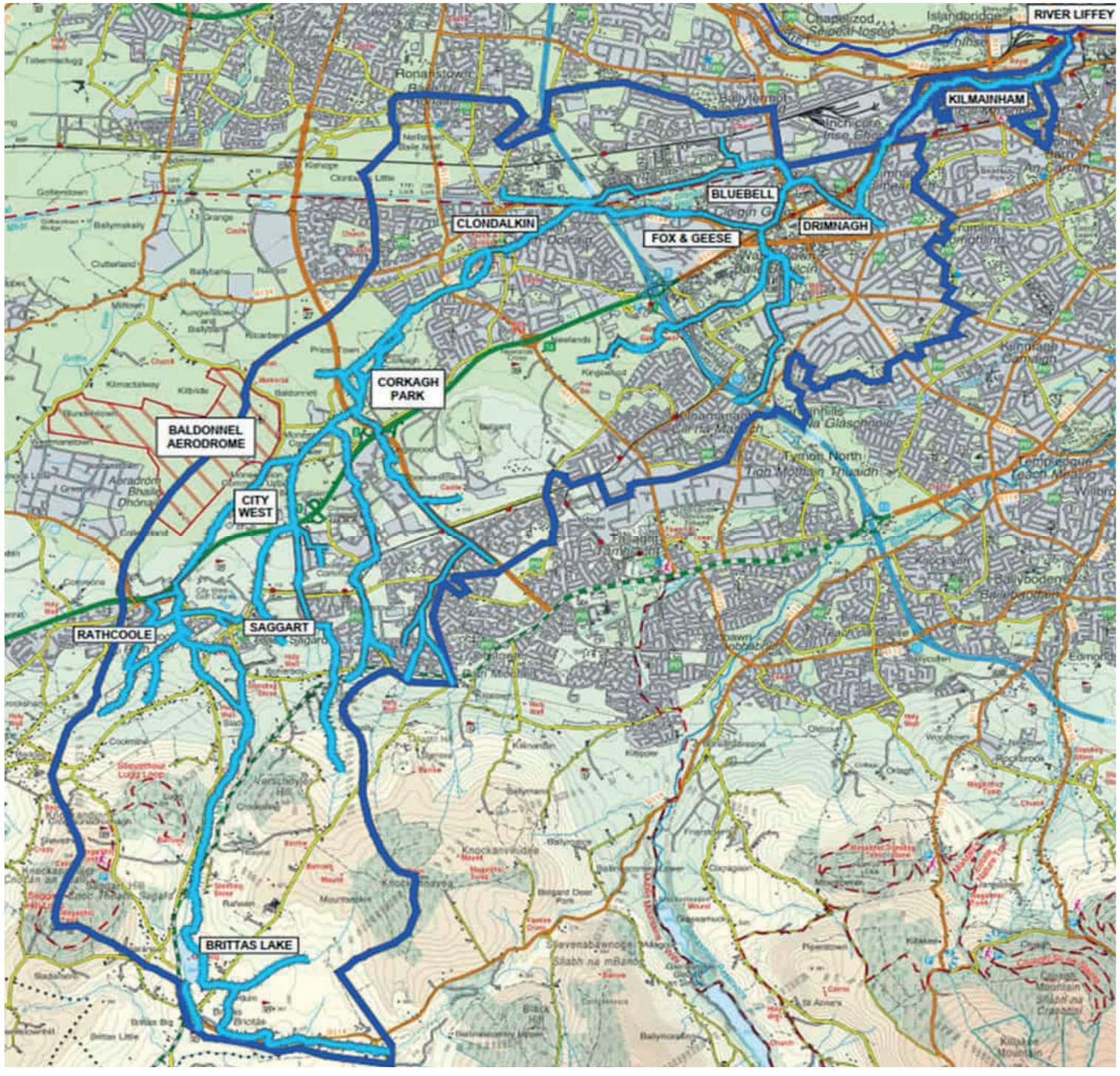


Figure 3.10: *The Camac River Flood Alleviation Scheme Catchment Area.*

3.4 Electricity Infrastructure

In terms of overground electricity infrastructure, the LPF area has one High Voltage Cable:

- 110 kV Overhead Line
- 110 kV Underground Cable

In addition, a 38Kv substation is located towards the north of the Ninth Lock Road, providing power to the local area. For planning and development purposes, certain limits are imposed on building activity adjacent to transmission lines, especially in the case of suburban type residential developments and commercial / industrial developments. There is potential for some development or development types around existing electrical infrastructure, subject to their meeting the legislative and safety requirements, of Eirgrid and / or ESB Networks Ireland.

While the presence of the high voltage cable line in Clondalkin facilitates the area to meet the future electricity demands of customers, the concentration of such infrastructure passing through the village has visual and land use implications. The potential undergrounding of cables would help alleviate this issue and enhance the visual amenity of the area, though cost is high and may not always be feasible.

Figure 3.11: *Electrical Infrastrucutre.*

CA11: Electricity Infrastructure

CA11 Objective 1:

To protect the existing electricity infrastructure and support the development of a safe, secure and reliable supply of electricity and support the development of enhanced electricity networks where required, subject to the relevant environmental assessments.

CA11 Objective 2:

To explore with the ESB, the potential to relocate the existing substation on the Ninth Lock Road subject to it being feasible and maintaining the ability to cater for the current and future electricity demands in the LPF area.

CA11 Objective 3:

To investigate the potential for undergrounding of cables and where demonstrated not to be a feasible option to provide for appropriate development within or alongside identified safety areas associated with the electricity infrastructure.

> *District Heating provides opportunities to decarbonise while expanding economic development within the wider Clondalkin settlement area.*