

CHAPTER 3

Climate
Action



3.1 Introduction

Background

Climate change is one of the most pressing global challenges facing this, and future generations.

Climate change can be defined as the alterations to climate directly or indirectly attributed to human activities, which release greenhouse gases into the atmosphere.

Greenhouse gases (GHGs), namely carbon dioxide (CO₂), methane (CH₄) and nitrogen oxide (NO_x), accumulate and prevent heat energy from leaving the Earth, resulting in what is referred to as the greenhouse effect.

While global mean temperatures caused by GHG emissions have been increasing since the industrial revolution, the rate at which temperatures are increasing has doubled since the mid-1980s and, in 2018, the accumulation of greenhouse gases was at a new record high of 457 parts per million (ppm) CO₂ equivalent (compared with 330 ppm in 1970 and 286 ppm in 1870).

The expression of increased concentrations of GHGs is experienced as changes in average weather or climate change impacts. These include: extreme weather events; sea level rise; flooding; coastal erosion; drought; increased rainfall; and extreme temperatures. None of these events occurs in isolation, but rather as compound events with cascading impacts that have direct and indirect impacts on the environment, society and the economy.

If we continue to do nothing, levels of atmospheric carbon dioxide will continue to increase, average temperatures will continue to rise and the climate will become more volatile.

Climate Change and Dublin City

As acknowledged in the Dublin City Council Climate Action Plan (CCAP) (2019-2024), the effects of climate change are already impacting Dublin City at a significant rate and are very likely to increase in their frequency and intensity.

For example, the average sea level in Dublin Bay has risen by nearly twice the global average. In the last 20 years, the number of days with heavy rainfall has also increased as have the amount of extreme flooding events in Dublin in the last 10 years.

Dublin City has also experienced temperature extremes, such as in 2018 when Met Éireann issued its first ever Status Red warning for snow in February, followed by one of the hottest summers on record during June and July of the same year.

With over 15% of the country's population living within Dublin City Council's administrative area, the Council will be active in influencing and enabling the changes to allow for the city to play its role in transitioning to a low-carbon society in a just and equitable way.

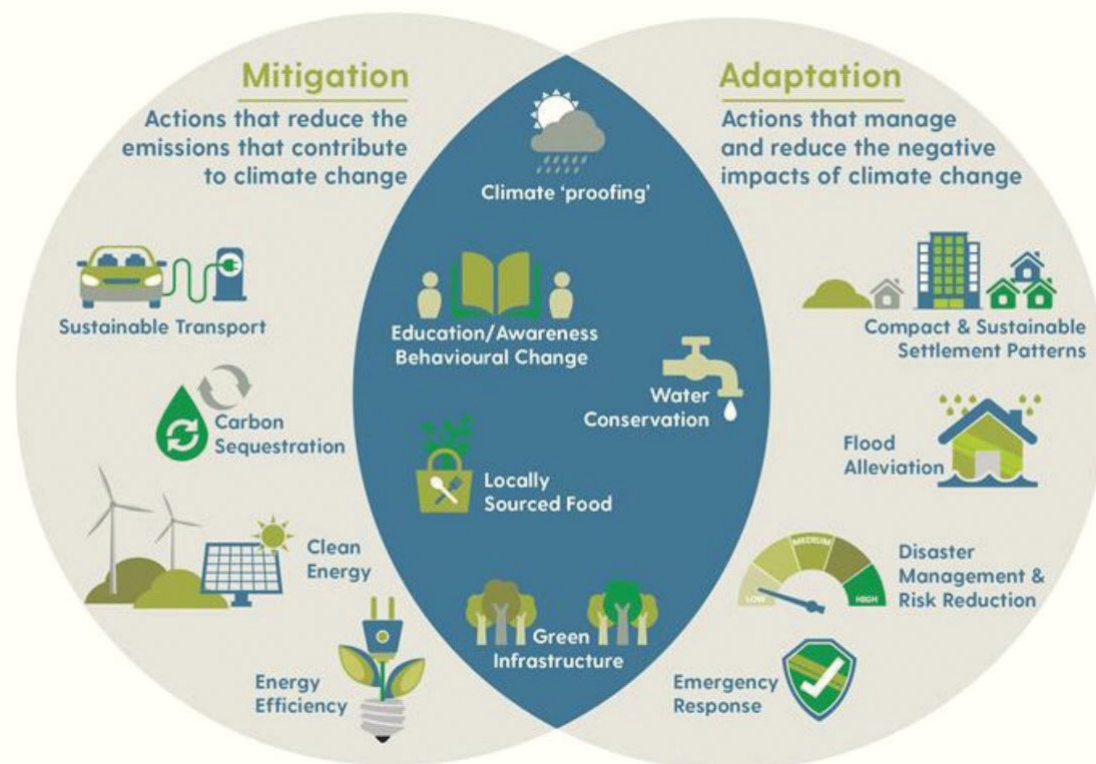
Reducing greenhouse gas emissions and building climate resilience can also create co-benefits including cleaner air, health benefits and more energy efficient buildings. This in turn will have positive benefits for residents, businesses and visitors alike. There are also economic opportunities to be realised in tackling climate change through innovative and technological solutions such as renewable energy, sensor technologies and 'Smart City' solutions such as those being trialled by Smart Dublin.

Mitigation and Adaptation

Climate change can be addressed by two primary complementary responses, namely, mitigation and adaptation. As defined by the United Nations Intergovernmental Panel on Climate Change (UN IPCC):

- mitigation is a human intervention to reduce the sources, or enhance the sinks of greenhouse gases; and
- adaptation is the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

Figure 3-1: Examples of Climate Mitigation and Adaptation Measures



Source: Eastern and Midlands CARO

As the examples shown in Figure 3.1 above suggest, mitigation addresses the causes of climate change, whereas adaptation addresses the impacts of climate change. While historically, priority has been given to mitigation measures, it is now recognised that adaptation is just as important as mitigation, and both actions taken in conjunction are crucial to limiting the impacts of climate change.

International, National and Local Climate Policy

In recent years, a succession of policies and actions have been developed at global, European, national, regional and local levels to address climate change, with an increasing focus on the decarbonisation of society.

At a European level, the 2030 Climate and Energy Framework, the European Green Deal and the EU Biodiversity Strategy to 2030 provide an overall framework for climate action in EU member states. The main aim of the European Green Deal is to be climate-neutral by 2050, which means an economy where there is a net-zero balance between GHG emission sources and sinks. To ensure the right trajectory, the Fit for 55 Plan sets out how the EU will achieve a reduction in carbon emissions by 55% compared with 1990 levels by 2030.

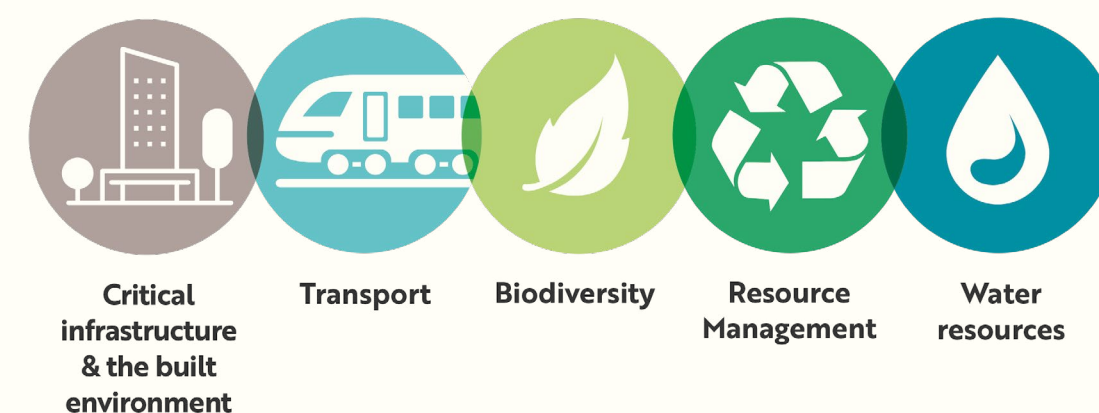
Nationally, the government's 2019 Climate Action Plan (CAP) provides a detailed framework which identified how Ireland will achieve its 2030 targets to reduce greenhouse gas emissions by 30% compared with 2005 limits. This target was increased to 51% under 'Our Shared Future', the 2020 programme for government. The CAP commits to delivering a just transition, recognising the significant level of change required and that the burden must be as fairly distributed as possible.

In addition, under the National Adaptation Framework, twelve Sectoral Adaptation Plans were published by various government departments in 2019, setting out key risks faced across the different sectors and the approach being taken to address these risks and build climate resilience for the future.

More recently, the Climate Action and Low Carbon Development (Amendment) Bill 2021 has been adopted, putting Ireland on a legally binding path to net-Zero emissions no later than 2050, and to a 51% reduction in emissions (relative to a baseline of 2018) by the end of this decade.

At the city level, the Dublin City Climate Change Action Plan, 2019-2024 (CCAP) demonstrates Dublin City Council's commitment to transitioning to a low carbon society and economy. The CCAP, which is reviewed quarterly and reported on annually, sets out four key targets and over 200 actions that the Council is undertaking in the areas of energy and buildings, transport, flood resilience, nature-based solutions and resource management.

Figure 3-2: Action Areas identified in the Dublin City Climate Action Plan



The CCAP is a key element of the Council's strategic approach to climate action and has informed and guided the policies and objectives contained in this development plan.

Spatial Planning and Reducing Carbon Emissions

In spatial planning policy terms, both the National Planning Framework (NPF) and the Eastern and Midland Regional Assembly's Regional Spatial and Economic Strategy (RSES) set out the role of the City Development Plan in relation to climate action.

The NPF's National Strategic Outcome (NSO) No. 8 'To Transition to a Low Carbon and Climate Resilient Society' establishes a national objective to transition to a competitive, low carbon economy by the year 2050 and National Policy Objective (NPO) 54 seeks to "reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emission reductions".

At the regional level, a key element of the RSES's climate strategy is the need to monitor progress towards achieving national commitment to reduce GHG emissions by 40% to 2030, and to support a transition to a low carbon society by 2050. EMRA is to establish a regional GHG emissions inventory and agree reduction targets in accordance with national plans.

In accordance with Regional Policy Objective (RPO 3.6) of the RSES, Dublin City Council will need to assess the impact of the development plan on carbon reduction targets, and to develop appropriate mechanisms to monitor greenhouse gas emissions in order to be in a position to fully measure progress against key milestones demonstrating carbon reduction over the coming years.

As outlined in the RSES, this exercise will be dependent on the publication of guidelines, prepared by the Department of Housing, Local Government and Heritage (DHLGH) which will provide clarification around the development of a suitable methodology for measuring carbon emissions appropriate to strategic land use designation and related transport infrastructure in the context of the preparation of city/county development plans.

In view of the changing context in respect of climate action policy at national level, Dublin City Council will consider a variation of the development plan within a reasonable period of time to ensure the development plan will be consistent with the approach to climate action recommended in any relevant guidelines issued by the DHLGH.

3.2 Achievements

In addition to the significant flood protection and waste infrastructure initiatives described in Chapter 9, the Council has been active in progressing the following climate action related policies and projects:

Climate Action Regional Office (CARO)

The Climate Action Regional Office (CARO) covering the four Dublin local authorities was established in 2018 with Dublin City Council as the lead authority. CARO's role includes assisting local authorities in preparing Climate Change Action Plans and developing education and awareness initiatives for the public.

The Climate Change Action Plan for Dublin City (2019-2024)

In 2019, a Climate Change Action Plan (CCAP) was prepared by Codema for Dublin City Council that sets out over 200 actions across five key areas (energy and buildings, transport, flood resilience, nature-based solutions and resource management) in order to make Dublin City Council and its related operations more adaptive and resilient to the current and future impacts of climate change.

The CAP for Dublin City was completed in accordance with the requirements of the Covenant of Mayors for Climate and Energy to which Dublin City Council is a signatory. The annual report on the CCAP for Dublin City will reflect updated Covenant of Mayors CO2 emission reduction targets for the city.

As outlined in the CCAP, Dublin City Council has reduced its CO2 emissions by 24% in the last 10 years, has improved its energy efficiency by 29.8% and has met and exceeded its 2020 target of 33% by 8.6% (for a total of 41.6%).

In addition, Dublin City Council is continually upgrading its social housing units through its Fabric Upgrade Programme, and since 2013, over 8,000 units have been refurbished, resulting in significant energy and cost savings, and improved comfort levels for residents.

WHO Breathe Life Campaign

In launching the Breathe Life Campaign with the local Comhairle na nÓg, DCC has made a commitment to future generations to ensure that Dublin is a city with clean air, clean water and a high quality of life. As per national and regional policies, the identification of decarbonised zones, low emission zones, and strategic energy zones in the development plan will be essential to ensuring future air quality.

The Dublin District Heating System (DDHS)

Dublin City Council is currently developing the Dublin District Heating System (DDHS) to supply low-carbon heat to houses and businesses throughout the Docklands and the wider Poolbeg peninsula. Waste heat will be taken from the Poolbeg waste-to-energy facility and delivered through insulated pipes to the buildings connected to the system, replacing fossil fuel heating systems and, therefore, reducing air pollution and GHG emissions.

MODOS

MODOS, a DCC circular economy training programme, is designed for small and medium sized businesses and consists of four modules which explain the circular economy and how it will provide benefits for businesses in terms of reducing costs, creating a competitive advantage and future proofing. The first series of modules were delivered to 37 small and medium sized businesses in 2020.

Energy Performance Contracting

In July 2016 Dublin City Council was the first local authority in Ireland to implement Energy Performance Contracting (EPC) to facilitate energy-efficiency upgrades and guarantee energy savings for three of DCC's largest leisure centres - namely Markievicz Sports and Fitness Centre, Finglas Sports and Fitness Centre and Ballymun Sports and Fitness Centre. Such innovations led to DCC winning the Public Sector - Energy Leadership Award at the 2020 Sustainable Energy Authority of Ireland (SEAI) Energy Awards.

3.3 Challenges

Decarbonising the City and Reducing Greenhouse Gas Emissions

Fossil fuels such as oil, coal, gas and peat have been the main drivers of development and economic growth since the industrial revolution. Moving forward, the challenge is to decouple fossil fuels and economic growth, in order to reduce emissions while maintaining quality of life.

As Dublin City continues to grow, the need to sustainably manage water, land, transportation, energy, housing and waste disposal will increase. The challenge will be to reduce energy demand and greenhouse gas emissions and to encourage the development of decentralised, alternative sources of energy.

Under the recently adopted Climate Action and Low Carbon Development (Amendment) Act, Ireland is committed to cutting its greenhouse gas emissions by 51% by 2030 (relative to a baseline of 2018) and Dublin City will have a key part to play in achieving this target. The Dublin City Climate Action Plan sets targets for the Council's buildings, operations and social housing. These account for less than 4% of the total emissions in Dublin City, which highlights the need to work with stakeholders and tackle the remaining 96% of emissions produced citywide. Key challenges in this regard, include the need to improve the energy efficiency of existing building stock across the city and to reduce dependence on fossil fuel based transport.

Flooding and Flood Risk

A significant climate-related challenge facing the city is that rising sea levels and more frequent and severe rainfall events are contributing to increased flooding and flood risk which is, in turn, putting the city's people, property and critical infrastructure at risk. To respond to this challenge, it will be necessary to adapt the response to flood risk management to address the impacts of climate change.

Adapting to Climate Change

Dublin City faces the threat of extreme weather events, sea level rise and pluvial and fluvial flooding which will impact on communities, infrastructure, heritage, and the environment. The rise in mean annual temperatures will also create new challenges for Dublin City in particular as the air, surface and soil temperatures in cities are almost always warmer than in rural areas (a phenomenon known as the urban heat island effect). Extreme temperatures, hot and cold will also have adverse impacts on critical infrastructure, such as water supply, transportation and energy.

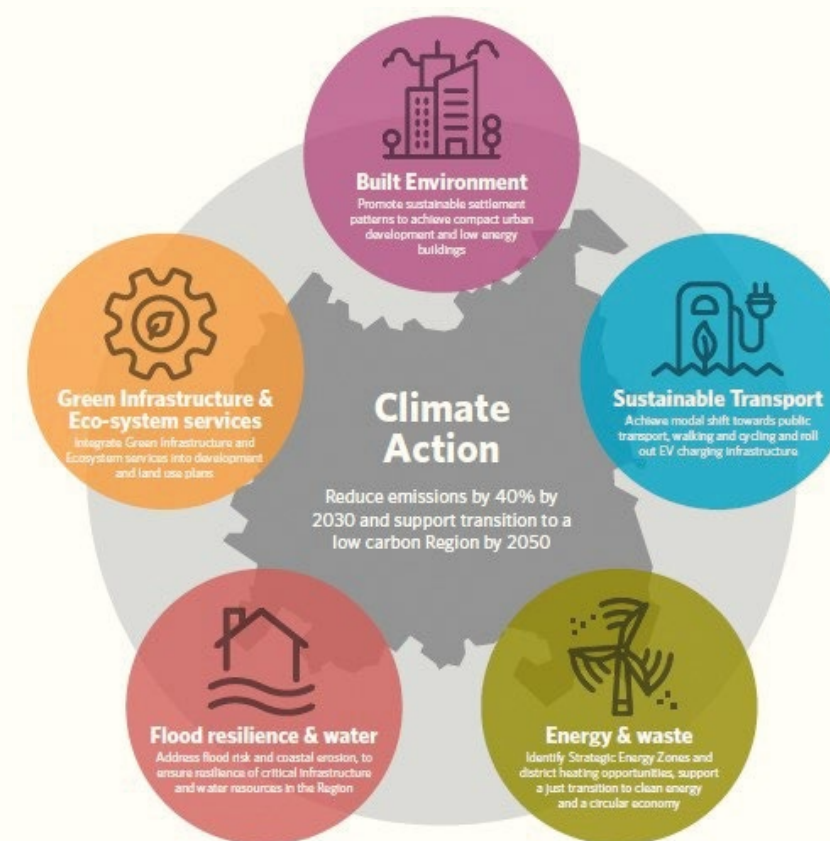
Dublin City must rise to the challenge of adapting and becoming more resilient to such events. This will entail making physical changes to the city's environment via nature based solutions (green walls, green roofs, green infrastructure) and hard engineering solutions (flood walls, barriers, early warning systems), but also by encouraging behaviour change, such as encouraging citizens to choose to use sustainable building materials, to cycle and walk more, to use less water and energy and to reduce the waste they produce.

3.4 Strategic Approach

Having regard to the action areas identified in the NPF and RSES, as well as those set out in the Dublin City Climate Change Action Plan, the main strategic areas addressed in the following sections of this chapter include:

- sustainable settlement patterns;
- the built environment;
- energy;
- waste;
- sustainable transport;
- flood resilience and water; and
- Green Infrastructure and ecosystem services.

Figure 3-3: RSES Climate Strategy



The overall strategic approach to climate action is to integrate climate mitigation and adaptation principles across all chapters of the plan in order to ensure that Dublin becomes a low carbon and climate resilient city.

While this chapter provides the overall strategic approach to climate action, related more specific detailed policy requirements are provided in each individual development plan chapter.

3.5 Policies and Objectives

The policies and objectives set out below accord with the overall objectives of national climate action policy, the Dublin City Council CCAP as well as the climate action principles set out in the NPF and RSES.

As climate action policy continues to develop with the publication of the draft Development Plan Guidelines for Planning Authorities and the anticipated introduction of new climate action legislation, Dublin City Council acknowledges that it may be necessary to adapt policies in future in order to ensure full compliance with any new legislative or policy requirements.

It is the Policy of Dublin City Council:	
CA1	National Climate Action Policy To support the implementation of national objectives on climate change including the 'Climate Action Plan 2019 to Tackle Climate Breakdown', the 'National Adaptation Framework' 2018 and the 'National Energy and Climate Plan for Ireland 2021-2030' and other relevant policy and legislation.
CA2	Mitigation and Adaptation To prioritise measures to address climate change by way of both effective mitigation and adaptation responses in accordance with available guidance and best practice.

It is an Objective of Dublin City Council:	
CAO1	Dublin City Council Climate Change Action Plan To implement Dublin City Council's 2019 Climate Change Action Plan in consultation and partnership with stakeholders including the Dublin Metropolitan Climate Action Regional Office (CARO), Codema, residents and elected representatives.
CAO2	Variation of Development Plan to Reflect New Guidance / Legislation To consider a future variation(s) of the development plan, where required, to ensure consistency with the approach to climate action recommended in forthcoming ministerial guidelines, any other relevant guidelines and/or relevant legislation and government climate action policy.
CAO3	Quantification of Greenhouse Gases To support the Eastern and Midland Regional Assembly (EMRA) in identifying a robust method for quantifying the relative GHG impacts of alternative spatial planning policies as part of the European Union ESPON 'QGasSP' research programme.

3.5.1 Sustainable Settlement Patterns

Settlement patterns, built form, mobility and the mix of land uses in the city will be key factors in transitioning to a low carbon city, as well as providing a range of other environmental, social, and economic benefits. Planning the city such that people are enabled to live and work and access facilities by walking and cycling or through the provision of convenient public transport options (bus / rail) will reduce the need to travel by car and the associated carbon emissions. This aligns with the 15 minute city concept whereby people have the ability to access most of their daily needs within 15 minutes on foot or bicycle from where they live. It also aligns with the overall approach set out in the government's Housing For All Plan (2021) which emphasises that compact growth contributes to a low carbon climate resilient society.

Chapter 2: Core Strategy sets out a sustainable settlement strategy for the City in which compact growth, including brownfield redevelopment and urban infill, is a priority in line with the National Planning Framework and the Regional Spatial and Economic Strategy.

Chapter 4: Shape and Structure of the City sets out a strategy which places a focus on the development of lands located within the existing footprint of the city, centred around convenient public transport options and developed to increased densities to prioritise sustainable low carbon movement and the creation of walkable mixed use neighbourhoods. This strategy is also reflected in Chapter 8: Sustainable Movement and Transport.



It is the Policy of Dublin City Council:	
CA3	Climate Resilient Settlement Patterns, Urban Forms and Mobility To support the transition to a low carbon, climate resilient city by seeking sustainable settlement patterns, urban forms and mobility in accordance with the National Planning Framework 2018 and the Regional Spatial and Economic Strategy 2019.
CA4	Climate Mitigation and Adaptation in Strategic Growth Areas To ensure that new development in strategic growth areas (including Strategic Development and Regeneration Areas) integrates appropriate climate mitigation and adaptation measures.

3.5.2 The Built Environment

It is vital that the current and future form of the built environment will respond, and be resilient to the impacts of climate change. As a result, there is a need for both new and existing development not only to mitigate against climate change, but also to adapt to such changes.

Chapter 15: Development Management contains comprehensive guidance regarding the standards and criteria by which development proposals for the city will be assessed. A central guiding principle of this chapter is to ensure that climate action forms an integral consideration in the development management process.

Climate Mitigation Actions and the Built Environment

With regard to climate mitigation actions, given that existing commercial and residential development accounted for approximately 70% of total carbon dioxide emissions for the Dublin City area in 2016, these sectors require targeted intervention in order to reduce their impact on climate change. The government’s Housing for All Plan will support the retrofit of 500,000 homes in Ireland by 2030 to a B2 Building Energy Rating (BER).

In line with this overall approach, proposals for major retrofitting of existing buildings should seek to reduce carbon dioxide emissions, improve the efficiency of resource use (such as water) and minimise the generation of pollution and waste from existing building stock. Such retrofitting projects should also seek to use innovative energy efficiency measures, such as decentralised and renewable energy in order to further reduce their carbon footprint.

Another key mitigation measure in relation to the built environment is to ensure that proposals for substantial demolition and reconstruction works can be justified having regard to the ‘embodied carbon’ of existing structures as well as the additional use of resources and energy arising from new construction relative to the reuse of existing structures.

Climate mitigation actions will also be required to be integrated into the building design, construction and operation of new development in the city. In this regard, sustainable building design will include consideration of the building fabric, energy efficient services, energy generation and material resource conservation.

A key climate mitigation action which should be implemented into all new development relates to the need to reduce energy demand, to increase energy efficiency and to provide renewable energy on-site if possible.

In this respect, it will be important to have regard to the potential of waste heat and district heating in addressing the heating needs of new development in the city, particularly having regard to the ongoing development of the Dublin District Heating System (DDHS).

Climate Adaptation Actions and the Built Environment

With regard to climate adaptation actions and the built environment, both existing and future development should be resilient to climate change. This will entail encouraging ‘soft measures’ such as promoting initiatives to encourage behaviour change and advising citizens of how to prepare for extreme weather events; ‘green measures’ which include green infrastructure and Sustainable Drainage Systems (SuDS), and finally, ‘grey measures’, namely infrastructure such as walls, embankments and attenuation tanks.

Climate Action Energy Statements

In order to ensure that all future development integrates the principles of energy efficiency in the built environment and the use of efficient and renewable sources of energy, all applications for significant new developments, or for significant refurbishment projects, shall be required to submit a Climate Action Energy Statement as part of any overall design statement for a proposed development (see Chapter 15, Section 15.7 for further detail).

This statement shall also provide outline information relating to the anticipated energy performance and CO2 emissions associated with

the development as well as information outlining how the potential of district heating and other low carbon energy solutions have been considered in relation to the development.

Details as to the required contents of any such Climate Action Energy Statement is included in Chapter 15: Development Standards.

It is the Policy of Dublin City Council:	
CA5	Retrofitting and Reuse of Existing Buildings To promote and support the retrofitting and reuse of existing buildings rather than their demolition and reconstruction where possible.
CA6	Energy Efficiency in Existing Buildings To support high levels of energy conservation, energy efficiency and the use of renewable energy sources in existing buildings, including retro-fitting of appropriate energy efficiency measures in the existing building stock, and to actively retrofit Dublin Council housing stock to a B2 Building Energy Rating (BER) in line with the Government’s Housing for All Plan retrofit targets for 2030.



It is the Policy of Dublin City Council:	
	Climate Mitigation Actions in the Built Environment To promote low carbon development in the city which will seek to reduce carbon dioxide emissions and which will meet the highest feasible environmental standards during construction and occupation. New development should generally demonstrate/provide for: a. building layout and design which maximises daylight, natural ventilation, active transport and public transport use; b. sustainable building/services/site design to maximise energy efficiency; c. sensitive energy efficiency improvements to existing buildings; d. energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments; e. on-site renewable energy infrastructure and renewable energy; f. minimising the generation of site and construction waste and maximising reuse or recycling; g. the use of construction materials that have low to zero embodied energy and CO2 emissions; and h. connection to (existing and planned) decentralised energy networks including the Dublin District Heating System where feasible.
CA7	
	Climate Adaptation Actions in the Built Environment Development proposals should demonstrate sustainable design principles for new buildings/services/site. The Council will promote and support development which is resilient to climate change. This would include: a. measures such as green roofs and green walls to reduce internal overheating and the urban heat island effect; b. ensuring the efficient use of natural resources (including water) and making the most of natural systems both within and around buildings; c. minimising pollution by reducing surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems (SuDS); d. reducing flood risk, damage to property from extreme events– residential, public and commercial; e. reducing risks from temperature extremes and extreme weather events to critical infrastructure such as roads, communication networks, the water/drainage network, and energy supply; f. promoting and protecting biodiversity and green infrastructure.
CA8	

It is the Policy of Dublin City Council:	
CA9	Climate Action Energy Statements All new developments involving 30 residential units and/or more than 1,000 sq. m. of commercial floor space, or as otherwise required by the Planning Authority, will be required to submit a Climate Action Energy Statement as part of the overall Design Statement to demonstrate how low carbon energy and heating solutions, have been considered as part of the overall design and planning of the proposed development.

3.5.3 Energy

The decarbonisation of the energy sector by shifting from fossil fuels to low- or zero-carbon energy sources is a key element of climate action policy. As stated in Chapter 9: Sustainable Environmental Infrastructure, this will require the energy sector to embrace a more diverse range of low, zero-carbon and renewable energy sources and to provide for secure, resilient, decarbonised and decentralised utilities.

In addition, area based initiatives, such as Decarbonising Zones, and initiatives aimed at changing how energy is produced and consumed, such as the SEAI’s Sustainable Energy Communities play an important role in transitioning towards low carbon energy solutions.

Renewable Energy

Renewable energy comes from natural sources that are continuously replenished by nature and is, therefore, a more sustainable alternative fossil fuels. Renewable energy sources include: wind energy, solar energy, water energy (hydro, wave and tidal energy), geothermal energy (from heat below the surface of the earth), ambient energy (from air) and biogas (anaerobic digestion).

The National Climate Action Plan includes a commitment that 70% of our electricity needs will come from renewable sources by 2030. The plan states that achieving this target will involve phasing out coal- and peat-fired electricity generation plants, increasing our renewable electricity, reinforcing our grid (including greater interconnection to allow electricity to flow between Ireland and other countries), and putting systems in place to manage intermittent sources of power, especially from wind.

In the spatial context of Dublin City, the principle renewable energy sources include solar power, micro-renewable energy and offshore wind energy. In addition, a potentially significant future source of low carbon energy for the city is geothermal energy.

Solar Energy

With regard to solar energy, there are a range of technologies available to exploit the benefits of the sun, including photovoltaic panels (PV), solar thermal panels, solar farms and solar energy storage facilities. Small to medium scale solar rooftop PV installations are suitable for urban areas, particularly large industrial roof spaces, where land availability is limited. Solar PV can be installed in new developments, or retrofitted on to existing buildings.

Wind Energy

It is envisaged that wind power will make the most significant contribution to the achievement of national targets for renewable electricity. Micro-renewable wind energy generation has a part to play in reaching these targets, and potential may exist for on-site and micro wind energy production in industrial areas and business parks subject to the requirement to protect residential amenity in surrounding areas. In residential areas of the city, micro-renewable wind energy generation is currently permissible under the provisions of the Planning and Development Regulations, 2001 (as amended).

Potential also exists for the production of electricity from large scale offshore wind energy facilities off the coast of Dublin City in the Irish Sea. In this regard, Dublin City supports the implementation of the ‘Offshore Renewable Energy Development Plan’ (OREDPP) published in 2014 by the Department of Communications Energy and Natural Resources (and subsequently reviewed in 2018) and will co-operate with state and semi-state agencies in relation to the implementation of projects in the Irish Sea.

Where appropriate, Dublin City Council will also seek to facilitate infrastructure such as grid facilities on the land side of any renewable energy proposals of the offshore wind resource, in accordance with the principles of the National Marine Planning Framework.

Geothermal Energy

Geothermal energy is heat energy stored below the surface of the Earth which can be used for heating and/or to generate electricity.

To support its commitments under the National Climate Action Plan and the 2019 Programme for Government, the government carried

out an “Assessment of Geothermal Resources for District Heating” and also prepared a “Roadmap for a Policy and Regulatory Framework for Geothermal Energy in Ireland”.

According to these documents, Ireland has a recognised potential for low-to-medium temperature geothermal energy resources (> 400 m deep) suitable for large-scale or district heating and cooling in municipal, residential and industrial areas.

To support the greater deployment of geothermal energy in Ireland, the government is developing a policy regulatory framework to facilitate the exploration for, and development of, geothermal energy resources.

Other Sources of Renewable Energy

In addition to the primary sources of renewable energy addressed above, other sources of renewable energy exist, which have the potential to contribute to the overall goal of decarbonising the energy sector. One such example relates to the extraction of energy and other resources from sewage sludge as referenced by the RSES (RPO10.13).

It is the Policy of Dublin City Council:	
CA10	Energy from Renewable Sources To support the production of energy from renewable sources, such as from solar energy, hydro energy, wave/tidal energy, geothermal, wind energy, combined heat and power (CHP), heat energy distribution such as district heating/cooling systems, and any other renewable energy sources, subject to normal planning and environmental considerations.
CA11	Micro-Renewable Energy Production To support and encourage the development of small scale wind renewable facilities / micro-renewable energy production.
CA12	Offshore Wind-Energy Production To support the implementation of the 2014 ‘Offshore Renewable Energy Development Plan’ (OREDPA) and to facilitate infrastructure such as grid facilities on the land side of any renewable energy proposals of the offshore wind resource, where appropriate and having regard to the principles set out in the National Marine Planning Framework.
CA13	Geothermal Energy To support the exploration for, and development of, geothermal energy resources having regard to emerging government policy on geothermal energy.

District Heating and Waste Heat

District heating and waste heat recovery is a highly significant source of low carbon energy, and as set out in the RSES, in the form of projects such as the Dublin District Heat System will act as key enabling infrastructure for the city in the medium to long term.

District Heating networks typically use locally sourced heat energy, and distribute it to local homes and businesses, therefore, reducing Dublin’s reliance on imported energy and fuel. District heating utilises low carbon heat sources such as renewable energy and waste heat recovery, reducing Dublin’s CO2 emissions, while achieving energy efficiency and climate change mitigation.

District heating is specifically referred to in the 2019 Climate Action Plan which states in order to realise the potential of district heating the government will take action to: “ensure the potential of district heating is considered in all new developments and in particular in Strategic Development Zones (SDZs)”.

Furthermore, Action 70 of the Climate Action Plan states that the government will “support the delivery of two district heating projects under the Climate Action Fund”, one of which is the Dublin District Heating System (DDHS) centred at Poolbeg and the Docklands.

The main initial source of heat for this network is the Poolbeg waste to energy facility, which has the capacity to deliver 90 megawatts of heat, equivalent to the heating needs of 50,000 to 80,000 homes in the city.

The first phase of the DDHS was designed to serve the North Lotts and Grand Canal Strategic Development Zone (SDZ) and the Poolbeg West SDZ, as provided for in government policy.

Once the first phase of the DDHS is established, the next phase of its development would entail the imminent expansion of the network, firstly to areas directly adjacent to the SDZs which currently make up the Docklands Strategic Development and Regeneration Area (SDRA), and then on to the wider city through connections with existing, new, local and communally heated developments.

According to Codema, Dublin City has enough waste heat to provide for 1.75 times the total heating demand of the city’s buildings. Furthermore, Codema’s Spatial Energy Demand Analysis (SEDA), identified that over 75% of Dublin City areas have heat densities high enough to be considered feasible for connection to district heating systems.

In order to ensure the future development of District Heating in Dublin City, it will be necessary to ensure that significant new residential and commercial developments, particularly in SDRAs are ‘district heating enabled’, where feasible, in order to ensure that they are capable of being connected with local or citywide District Heating systems. Where this is not feasible, the proposed energy and heating solution should offer a similarly efficient and low carbon solution.

Details as to the requirements for specific SDRAs as well as details on the requirements a development must meet in order to be considered ‘district heating enabled’ is provided in Chapter 13: Strategic Development and Regeneration Areas and in Chapter 15: Development Management.

It is the Policy of Dublin City Council:	
CA14	Waste Heat, District Heating and Decentralised Energy To actively encourage the development of low carbon and highly efficient district heating and decentralised energy systems across the city utilising low carbon heat sources such as renewable energy and waste heat recovery and to promote the connection of new developments to district heating networks where such systems exist/can be developed in a given area.
CA15	The Dublin District Heating System (DDHS) To support the development and expansion of any necessary energy infrastructure which will deliver the low carbon Docklands and Poolbeg catchment of the Dublin District Heating System (DDHS) project including, its pipeline infrastructure and its energy centre with energy storage and back-up heat production.

It is the Policy of Dublin City Council:	
	Supporting the Potential of District Heating in Dublin City To support the potential of district heating in Dublin City, all Climate Action Energy Statements submitted to the Council (see Policy CA9) shall include an assessment of the technical, environmental and economic feasibility of district or block heating or cooling, particularly where it is based entirely, or partially on energy from renewable and waste heat sources. In addition:
CA16	<ul style="list-style-type: none">• Climate Action Energy Statements for significant new residential and commercial developments in Strategic Development and Regeneration Areas (SDRAs), will assess the feasibility of making the development ‘district heating enabled’ in order to facilitate a connection to an available or developing district heating network in the area.• Climate Action Energy Statements for significant new residential and commercial developments in the Docklands SDRA will assess the feasibility of making the development ‘district heating enabled’ in order to facilitate a connection to the Dublin District Heating System.
CA17	Capture and Utilisation of Waste Heat To encourage proposed and existing developments and facilities (such as data centres) to capture and utilise otherwise wasted heat, and use waste heat either on-site, or in an adjoining, and nearby sites, in compliance with all relevant Energy Efficiency Regulations.

Energy Initiatives, Strategic Energy Zones and Decarbonising Zones

A number of significant strategies and initiatives have been introduced (or are being prepared) in order to further drive the transition towards low carbon energy use across the city as a whole as well as in local communities.

Strategic Energy Zones

This ongoing work will also assist in the identification of potential ‘Strategic Energy Zones’ in accordance with Regional Policy Objective (RPO) 7.35 of the RSES which states that “EMRA shall, in conjunction with local authorities in the Region, identify Strategic Energy Zones as areas suitable for larger energy generating projects, the role of community and micro energy production in urban and rural settings and the potential for renewable energy within industrial areas”.

Local Initiatives

Public and stakeholder engagement is extremely important in addressing climate change and it is recognised that there is a need to foster and build momentum on wider citizen engagement in climate change, across all age groups.

A successful established example of community engagement in this regard is the SEAI's Sustainable Energy Communities initiative, which assists groups of people come together to improve how energy is used for the benefit of their community with the common goals of using less energy, using clean, renewable energy and using smart energy.

Decarbonising Zones

Action 165 of the 2019 Climate Action Plan also identified the need to engage at a local level and included a specific action which requires Local Authorities to identify and develop plans for at least one Decarbonising Zone (DZ) in their administrative area.

A Decarbonising Zone is a spatial area identified by the local authority, in which a range of climate mitigation measures can co-exist to address local low carbon energy, greenhouse gas emissions and climate needs.

Dublin City Council has identified Ringsend/Irishtown as a Decarbonising Zone and work is progressing in conjunction with Codema and CARO on an implementation plan to provide for the development demonstrator projects which will harnessing a range of energies technologies and initiatives.

Dublin Regional Energy Masterplan

Codema is developing the Dublin Region Energy Master Plan, which will develop evidence-based, and costed pathways for the Dublin region to achieve its carbon emission reduction targets to 2030 and 2050, building on the energy areas identified in the Spatial Energy Demand Analyses (SEDAs) for the four Dublin local authority areas.



It is the Policy of Dublin City Council:	
CA18	Decarbonising Zones To support the specific polices and projects identified in the Decarbonisation Zone of Ringsend/Irishtown in order to address local low carbon energy, greenhouse gas emissions and climate needs and commit to establishing Decarbonising Zones in each LEA within the lifetime of this plan, with a view to designating all of Dublin City as a decarbonised zone by the end of this Development Plan.
CA19	Strategic Energy Zones To support the designation of potential Strategic Energy Zones in the Dublin City Area in conjunction with the Eastern and Midland Regional Authority.
CA20	Sustainable Energy Communities To support the ongoing efforts and future development of Sustainable Energy Communities in Dublin City through the SEAI 'Sustainable Energy Communities' Initiative.
CA21	Dublin Regional Energy Masterplan To support the preparation of the Dublin Regional Energy Masterplan by Codema and to support its implementation in conjunction with neighbouring Dublin Local Authorities, Dublin Metropolitan CARO and other relevant stakeholders.

3.5.4 Waste

Promoting the Circular Economy

Chapter 9: Sustainable Environmental Infrastructure as well as Chapter 15: Development Standards seek to integrate a more sustainable approach to waste based on circular economy principles.

National climate action policy emphasises the need to take action to address climate action across all sectors of society and the economy. In the waste sector, policy on climate action is focused on a shift towards a 'circular economy' encompassing three core principles: designing out waste and pollution; keeping products and material in use; and regenerating natural systems.

The government's commitment to these principles is underlined by the publication of the Circular Economy Bill 2021, which will provide a national policy framework for Ireland's transition to a circular economy. It will also seek to implement many of the actions contained in the recently published Waste Action Plan for a Circular Economy which sets out Ireland's National Waste Policy for 2020-2025.

Construction and Demolition Waste

In addition to setting out policy measures relating to issues including municipal waste, food waste and single use plastic, the Waste Action Plan addresses the issue of construction and demolition waste as it relates to the planning system.

The Waste Action Plan highlights the ongoing revision of the 2006 Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Waste Projects as well as the intention to bring construction and demolition waste within the framework of statutory planning guidelines. It also notes that construction and waste management plan guidelines will be updated to ensure that there is a consistent application of planning requirements.

It is the Policy of Dublin City Council:	
CA22	The Circular Economy To support the shift towards the circular economy approach as set out in 'a Waste Action Plan for a Circular Economy 2020 to 2025, Ireland's National Waste Policy, or as updated.
CA23	Waste Management Plans for Construction and Demolition Projects To have regard to existing Best Practice Guidance on Waste Management Plans for Construction and Demolition Projects as well as any future updates to these guidelines in order to ensure the consistent application of planning requirements.

3.5.5 Sustainable Transport

According to data collected by the SEAI, the transport sector was the single largest consumer of energy in Ireland, accounting for 42.3% of energy use in 2018. In terms of greenhouse gas emissions, data collected by the EPA indicates that the transport sector was responsible for 20.4% of total greenhouse gas emissions in 2019, second only to the agriculture sector. This data demonstrates the need not only to reduce transport by private vehicles, but also to reduce the direct emissions from vehicles themselves.

Chapter 8: Sustainable Movement and Transport sets out a strategy which responds to these challenges by seeking to minimise the need to travel and by promoting a shift from private car use towards more sustainable forms of transport (see Chapter 8, Section 8.5.6: Sustainable Modes). It also addresses the recent policy and technological developments relating to electric vehicles and alternative fuels which present an opportunity to significantly decarbonise transport across the city.

Decarbonising Transport and Electric Vehicles (EVs)

The 2019 National Climate Action Plan calls for the combination of measures to influence the spatial pattern of development, urban structure and overall mobility, with low carbon technology measures, such as a significant increase in the EV fleet.

The Plan sets out a government target to accelerate the take up of EV cars and vans so that Ireland reaches 100% of all new cars and vans being EVs by 2030. This that means approximately one third of all vehicles sold during the decade will be Battery Electric Vehicles (BEV) or Plug-in Hybrid Electric Vehicles (PHEV).

In order to cater for this growth in electric vehicles, it will be necessary to ensure that sufficient charging points and rapid charging infrastructure are provided to appropriate design and siting considerations and having regard to the Planning and Development Regulations (2001) as amended, which have been

updated to include EV vehicle charging point installation. Regard will be had to advances being made in EV charging technology as well as the development of new, efficient, innovative and accessible ways of providing charging points.

It is the Policy of Dublin City Council:

Electric Vehicles

CA24

To ensure that sufficient charging points and rapid charging infrastructure are provided on existing streets and in new developments subject to appropriate design, siting and built heritage considerations and having regard to the Planning and Development Regulations (2001) as amended, which have been updated to include EV vehicle charging point installation.



It is an Objective of Dublin City Council:

CAO4	Regional Strategy for Electric Vehicle (EV) Charging
	To support and implement the forthcoming Regional Strategy for Electric Vehicle (EV) charging over the lifetime of the plan in order to facilitate the transition to low carbon vehicles required to achieve 2030 national targets.

3.5.6 Flood Resilience and Water

With more extreme rainfall events anticipated with climate change Dublin is likely to experience increased flooding (pluvial, fluvial and coastal, groundwater and network) in vulnerable areas of the City. Climate change projections also show a shift in the seasonality of rainfall, with an increase in winter and a decrease in summer. Coupled with changes in temperature, these changes pose a threat to people, critical infrastructure including water supply and security, ecology and property.

The Floods Directive calls for member states to undertake strategic flood risk assessments and to identify flood risk management measures. The Office of Public Works (OPW) has prepared flood maps for future climate scenarios and Flood Risk Management Plans outlining measures such as flood alleviation schemes / flood defence works (grey infrastructure) to manage flood risk within the relevant river catchments.

Green Infrastructure (GI) as part of Sustainable Drainage System (SuDS), also has a role to play in reducing flood risk and in integrated water resource management. GI reduces the rate and volume of water entering the drains by intercepting it, providing temporary and permanent storage areas, and allowing water to infiltrate into the ground rather than being directed to drains. In addition, green infrastructure can filter out pollutants and sediments from over-land surface run-off and it can be designed to capture and store rainwater for reuse / conservation.

Establishing space for rivers corridors also plays a role in adaptation responses to achieve flood resilience. Protecting existing river corridors and landscaping and providing natural flood management measures such as the creation of wetlands within river corridors can help to manage river flooding by reducing the volume of runoff, by promoting water infiltration into the soil and slowing runoff to streams, and by delaying the downstream passage of flood flows.

The development plan has been subject to, and is accompanied by a Strategic Flood Risk Assessment (SFRA), prepared in accordance with the Guidelines for Planning Authorities (DEHLG and OPW, 2009). Consequently, this plan zones appropriate sites for development and identifies how flood risk can be reduced.

Chapter 9: Sustainable Environmental Infrastructure and Flood Risk sets out a River Corridor policy approach for the city's rivers. It also contains policies and objectives on SuDS (see also Appendix 12); Green Roofs (see also Appendix 11); Surface Water Management Plans (see also Appendix 13) and policies and objectives on the separation of foul and surface water drainage systems, water conservation and coastal zone management.

It is the Policy of Dublin City Council:

CA25	Flood and Water Resource Resilience To support the delivery of soft, green and grey adaptation measures to enhance flood and water resource resilience in the city and support the delivery of grey adaptation measures to enhance flood and water resource resilience where necessary.
	Flood Risk Assessment and Adaptation To address flood risk at strategic level through the process of Strategic Flood Risk Assessment, and through improvements to the city's flood defences.
	Natural Flood Risk Mitigation To encourage the use natural flood risk mitigation or nature based solutions including integrated wetlands, green infrastructure, and Sustainable Drainage Systems (SuDS) as part of wider adaptation and mitigation responses to achieve flood resilience.

3.5.7 Green Infrastructure and Nature Based Solutions

Green Infrastructure (GI) can assist the city to adapt and become resilient to the effects of climate change while also playing a role in climate mitigation. The city's GI features include natural and semi-natural features (the marine environment, parks, woodland, waterbodies, etc.) and nature based infrastructure (such as green roofs, tree pits, rain gardens and green walls).

These natural assets and urban greening elements provide a range of functions and benefits (ecosystem services) that contribute towards climate change adaptation and mitigation. The city's trees, vegetation and soil capture and store carbon and provide evaporative cooling and shading in the city, mitigating the urban heat island effect.

Increasing, restoring and connecting habitats rich in biodiversity that provide valuable ecosystem services, is essential to increasing the city's resilience to climate change and improving quality of life.

The provision of allotments and community gardens provide for food production which can contribute to reducing food miles and the provision of networks for sustainable travel modes such as cycle routes enables active travel thereby helping to reduce carbon emissions from transport.

Chapter 10: Green Infrastructure and Recreation sets out adaptive green infrastructure and urban greening policies and objectives to help implement climate action in the city. The forthcoming Dublin City GI Strategy will support new climate change actions as will the Draft Dublin City Biodiversity Action Plan (2021-2025).

It is the Policy of Dublin City Council:	
CA28	Climate Action and Green Infrastructure To protect, connect and expand the city's Green Infrastructure while optimising the climate change adaptation and mitigation services it provides.
CA29	Coastal Zone Management To support coastal zone management measures for adapting to climate change which include restoration of degraded ecosystems, increased flood resilience, water quality improvement, habitat conservation and provision of amenities for the residents and visitors of Dublin city.

3.5.8 Integration of Climate Action Policies

‘Mainstreaming’ Climate Action

The approach to climate action adopted in this development plan means that every chapter of the plan contributes to the overall effort to adapt to and mitigate the impacts of climate change.

The summary table overleaf, provides a brief overview of the principal ways that each relevant chapter in the development plan makes a concrete contribution to climate action efforts and how in broad terms, each chapter addresses the various climate action policy areas addressed in this chapter.

Table 3-1: Summary of Climate Action Measures by Chapter

Chapter 1: Strategic Context
<ul style="list-style-type: none">• Supports compact growth and the continued consolidation of the city.• Supports the effective use of land well-served by public transport and the development of sustainable infrastructure.• Supports the transition to a low-carbon, resilient and sustainable city.
Chapter 2: Vision and Core Strategy
<ul style="list-style-type: none">• Supports compact growth via appropriate infill and brownfield development and targeted growth along key transport corridors.• Supports key healthy place-making and the 15 minute city.
Chapter 3: Climate Action
<ul style="list-style-type: none">• Supports the implementation of the DCC Climate Change Action Plan.• Supports integrating climate action measures into development proposals.• Supports the decarbonisation of the energy sector and the continuing development of renewable and low carbon sources of energy.• Supports local and citywide energy strategies and initiatives.• Supports the circular economy approach to waste.• Supports the transition towards more sustainable modes of movement and transport and the decarbonisation of transport.• Supports improving flood risk mitigation and adaptation measures including the use of nature based solutions and SuDS.• Supports the principles of nature based solutions and urban greening.
Chapter 4: Shape and Structure of the City
<ul style="list-style-type: none">• Supports directing and prioritising growth in locations which enable targeted infrastructure investment and the optimal use of public transport.• Supports the creation of a more compact city where development is closely aligned and integrated with public transport infrastructure.• Supports the creation of sustainable neighbourhoods in line with the 15 minute city principle designed to facilitate walking and cycling, close to public transport, and with a range of community infrastructure.• Promotes development that enhances natural heritage assets, improves biodiversity and develops a green infrastructure network.
Chapter 5: Quality Housing and Sustainable Neighbourhoods
<ul style="list-style-type: none">• Supports the delivery of compact growth through the development of high quality sustainable neighbourhoods in accordance with the 15 minute city approach.• Supports healthy place-making and the integration of climate action measures in the development of sustainable neighbourhoods.

Chapter 6: City Economy and Enterprise

- Supports the transition to a low carbon, climate resilient city economy.
- Supports the growth of the 'green economy' including renewable energy, retrofitting, EVs and EV charging infrastructure.
- Emphasises the importance of 'quality of place' and of 'clean, green, safe' principles for the economic success of the city.

Chapter 7: The City Centre and Urban Villages

- Supports the consolidation and enhancement of the inner city and the creation of sustainable, mixed-use, and vibrant neighbourhoods.
- Emphasises public transport accessibility, the primacy of the city centre and the vitality and viability of existing and emerging centres.

Chapter 8: Sustainable Movement and Transport

- Supports integrating land use and transportation and encouraging higher-density development along public transport routes.
- Supports minimising the need to travel (based on the 15 minute city model), shifting to sustainable modes (such as active mobility and public transport) and encouraging behavioural change.
- Supports transitioning to low carbon mobility solutions including the decarbonisation of vehicles and a regional strategy for EV charging.
- Supports reduced or zero emissions solutions for how goods are delivered.

Chapter 9: Sustainable Infrastructure, Energy and Flood Risk Management

- Supports nature-based and adaptive flood risk management and the used of Sustainable Drainage Systems (SuDS).
- Supports the integration of watercourse/waterbodies management and protection with land use planning and development management.
- Supports the promotion and delivery of more sustainable forms of waste management in the city in line with circular economy principles.
- Supports minimising/preventing waste and maximising material recycling, reuse and re-purposing.
- Supports renewable energy use and generation at appropriate locations within the built and natural environment as well as the development of the Poolbeg peninsula as a Sustainable Energy and Infrastructure Hub.

Chapter 10: Green Infrastructure

- Supports the implementation of the Draft Dublin City Biodiversity Action Plan 2021–2025.
- Supports a co-ordinated and managed network of multifunctional green spaces linked to the wider regional Green Infrastructure network.
- Supports the integration Green Infrastructure and an ecosystem services approach into new developments / new growth areas.
- Supports the protection, maintenance, and enhancement of the watercourses and their riparian corridors in the city.
- Supports the protection and enhancement of the coast shoreline and marine environment as open space and valuable natural habitats.
- Requires tree planting in the planning and development of new development and to protect existing trees as part of new development.

Chapter 11: Built Heritage and Archaeology

- Supports retaining existing buildings and enhance their energy performance in keeping with best building conservation principles.
- Supports operation with other agencies in the investigation of climate change on the fabric of historic buildings.
- Supports the implementation of the Community Monuments Fund in order to ensure the monitoring and adaptation of archaeological monuments and mitigate against damage caused by climate change.

Chapter 12: Culture

- Supports the protection and enhancement of Dublin City's cultural resources to provide new opportunities for engagement with issues facing the city.
- Supports the provision of local arts and cultural facilities as part of the implementation of vibrant mixed use urban villages

Chapter 13: Strategic Development and Regeneration Areas

- Supports the creation of long term, viable and sustainable communities aligned with the principles of the 15 minute city.
- Supports the integration of greening and biodiversity measures including high quality public open space and micro greening measures.
- Provides for sustainable surface water management and the installation of Sustainable Urban Drainage Systems (SUDS).
- Promotes opportunities for enhanced river corridors.
- Supports innovative approaches to energy efficiency, energy conservation and the use of renewable energy.
- Supports the district heat enabled development and connection to existing and proposed district heating systems where feasible.

Chapter 14: Land Use Zoning

- Supports the development of a compact, integrated, and climate resilient city by promoting particular classes of use in appropriate locations.
- Supports the consolidation of existing centres and the redevelopment of brownfield land to support the efficient use of land.
- Provides for the safeguarding of green infrastructure as well as community and social infrastructure.

Chapter 15: Development Standards

- Supports development which minimises resource consumption, reduces waste, conserves water, promotes efficient energy use and uses appropriate renewable technologies.
- Supports the use of sustainably sourced materials which are to be re-used and recycled wherever possible.
- Encourages the use of green building materials and low embodied energy products such as low carbon cement and recycled materials.
- Encourages developments which enhance biodiversity and provide for accessible open space and landscaping.
- Requires development to integrate surface water management principles including Sustainable Urban Drainage Systems (SuDS).

Chapter 16: Monitoring and Implementation

- Supports the monitoring of and successful implementation of the climate action related policies set out in the plan.



Hi my name is Sam. I am a ten year old boy from Raheny. In my design I show a hospital. To help the environment I think you should convert an old building to a Hospital. Solar panels and shelter for the homeless are also important. Eco transport (like the train here) should be considered. Trees should be planted and plenty of fields should exist. Equality in Dublin should be advertised. An Animal shelter should be in every small estate. My slogan is: Even a small city like Dublin can make a big change.

Thankyou for reading. Signed Sam

Picture by Sam McLoughlin (Overall Winner),
North Bay Educate Together National School

